



THE 2018 TUCKER CENTER RESEARCH REPORT

# Developing Physically Active Girls

An Evidence-based Multidisciplinary Approach



COLLEGE OF EDUCATION  
+ HUMAN DEVELOPMENT  
UNIVERSITY OF MINNESOTA



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Tucker Center for Research  
on Girls & Women in Sport

612-625-7327 | [www.tuckercenter.org](http://www.tuckercenter.org)

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The 2018 Tucker Center Research Report

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# Forward: A Message from the Tucker Center Directors

2018 marks the 25<sup>th</sup> anniversary of the Tucker Center for Research on Girls & Women in Sport. A central part of our mission was—and remains—to engage in groundbreaking research on the impact of sport and physical activity in the lives of girls and women. From our inception we have been committed to making sure that those research efforts should have a direct application not only to girls and women, but to our various stakeholders. This is because the information we produce will inform these stakeholders, from policy makers to educators to parents, about the best ways to ensure that females' sport experiences are beneficial for their health and well-being.

Another part of our mission is to engage in community outreach and public service. Toward that end, in 1997, we developed a unique partnership with the President's Council on Physical Fitness and Sports that produced the first *Tucker Center Research Report: Physical Activity & Sport in the Lives of Girls: Physical & Mental Health Dimensions from an Interdisciplinary Approach*. This report examined adolescent girls, a much-neglected population when it came to our knowledge about sports' overall impact. Using an interdisciplinary approach to investigate the “complete girl” from a sociological, psychological and physiological lens, we discovered that participation in sport and physical activity has become an essential—and beneficial—part of girls' everyday lives. We also learned about the “barriers that prevent [girls] from reaching their full potential and the kinds of environments in which girls can develop and foster the best parts of themselves both on and off the playing fields.”

The scope and impact of our first report were far reaching. It was used by organizations, educational institutions, and recreation centers across the United States and around the globe. We distributed printed copies of over 5,000 full reports and 3,000 Executive Summaries worldwide; countless more copies have been downloaded from our website. Organizations from the Carnegie Corporation of New York, to Sports4Kids in Oakland, California requested copies of the report. Faculty, students and staff members at institutions of higher education not only used the 1997 Report as part of their own personal library, but several professors required it as a text in their classes. On a more personal level, we heard from individuals like Suzanne and Wes Ramirez, parents of a 14-year-old girl involved in competitive swimming in Menlo Park, California: “Keep this issue in the public eye! Girls benefit so much from having athletics as an ‘anchor’ in their lives. When a girl sees herself as strong, involved, committed, and respected, she receives advantages that she will carry with her for her entire life. On behalf of parents of girls everywhere, *thank you!*” To download our 1997 report, go to <https://z.umn.edu/tcrr-r1>.

As we approached the ten-year anniversary of our first report, we began to hear from a number of stakeholders that an update was needed. In 2007, we released our second *Tucker Center Research Report: Developing Physically Active Girls: An Evidence-based Multidisciplinary Approach*. This document once again examined the “complete girl,” a focus which recognized that physical activity does not operate in a vacuum and can impact all aspects of a girl’s life. The 2007 report featured updated chapters which summarized the best scientific evidence available on the psychological, sociological, and physiological dimensions of girls’ participation. It also included an important extension from the original—a “Best Practices” chapter which highlighted a number of best practices, approaches, and programs that were significantly increasing physical activity among adolescent girls. Finally, as was the case 10 years prior, the 2007 report revealed that girls continued to achieve numerous health benefits from regular physical activity, ranging from reduced risks for cardiovascular disease, to increased levels of self-esteem and cognitive development. But we also learned that, as was the case in 1997, adolescent females remained an at-risk population for being fully engaged in sport and physical activity. To download our 2007 report, go to <https://z.umn.edu/tcrr-r2>.

Given the global reach and impact of our first two reports, along with another generation of adolescent girls having access to the sports world, we recognized the need to produce and disseminate a third installment which built upon the previous two. Our current project—*The 2018 Tucker Center Research Report, Developing Physically Active Girls: An Evidence-based Multidisciplinary Approach*—connects research-based knowledge to strategies and practices which ensure that every girl has ample opportunity to fully engage in sport and physical activity. In addition, this third report continues to examine and expand upon the notion of the “complete girl,” a profile which highlights her intersectional identities as well as her physical, social, cultural, and emotional environment. And finally, the 2018 Report remains grounded in a unique multidisciplinary and ecological approach.

### **THE 2018 TUCKER CENTER RESEARCH REPORT “TCRR 3.0”**

*The 2018 Tucker Center Research Report* highlights and distills the most current research across multiple academic disciplines pertaining to girls and physical activity. This “user-friendly” report uses empirically based information, while employing a language that is easily applicable to wide-ranging audiences.

The overarching focus of the current report examined two essential questions:

- 1) What does the research tell us about *critical factors* (e.g., societal, environmental, interpersonal, intrapersonal) that influence adolescent girls’ physical activity in the United States; and, 2) What are the *outcomes* (e.g., psychological, physical, social, emotional, spiritual, moral) that participation in sports and physical activity have on adolescent girls?

An important and much-needed extension from the two previous reports is that we have widened the scope of content areas to reflect the reality that “girls” are not a singular, monolithic group. More specifically, girls’ intersectional identities, as well as the influence of people, systems and resources around her, may lead to very different—not to mention complex—physical activity experiences. In our 1997 and 2007 reports we wrote about the “complete girl” from a more general perspective. And while it was important to distinguish her experience from that of boys’, we tended to lump ALL girls—and their sport experiences—together. In the current report we approached adolescent females as a more nuanced and varied group and wherever relevant, we highlight that point. For example, there are specific chapters that focus exclusively on invisible, erased, and underserved girls—immigrant girls, girls of color, girls that identify as lesbian, transgender individuals, and girls with cognitive and physical impairments.

The 2018 report features chapters written by leading experts in their respective academic fields. This has resulted in a collection of diversified knowledge that is cohesive, relevant, and cutting edge. It should be noted that the current report extends the 1997 and 2007 documents by adding additional chapters on sports medicine and the mass media, as well as chapters which, as previously mentioned, focus on the intersectional identities of adolescent girls.

The current report also includes a groundbreaking model, the *Ecological-Intersectional Systems Model of Physical Activity for Girls* (LaVoi, 2018) which helps to organize the vast literature about girls’ participation. This model is particularly useful because it provides a unique lens from which to further our understanding about the complex, multilevel and dynamic factors which shape girls’ sport and physical activity experiences. Finally, this ecological model enables stakeholders to locate gaps in the knowledge base, and to develop strategies, policies, and interventions which address and overcome barriers that prevent girls from fully engaging in physical activity.

From the first two reports we learned that some individuals read the entire report, while others read the chapter(s) relevant to their specific interests and needs. With this in mind, there is purposeful overlap across chapters, yet each chapter stands alone as a piece of public scholarship. We want the 2018 Report to be widely accessible and toward that end, it is available—free of charge!—on our website at [z.umn.edu/tcrr-r3](http://z.umn.edu/tcrr-r3)



It is our hope that the *2018 Tucker Center Research Report*, like the previous two reports, will serve as an inspiration and catalyst for change. We believe that by working together, parents, coaches, educators, administrators, policy makers, and community leaders can provide opportunities for diverse populations of girls to initiate and sustain physical activity throughout their lives. In short, our current project embodies the intent and commitment of the original *President's Council Report* expressed over two decades ago:

“Our hope is that those most able to effect change will use this information as a vehicle for pursuing future areas of research and developing and implementing programs that will make a difference in one of this country’s most important assets—girls.”

That hope—and commitment—are the cornerstones of the *2018 Tucker Center Research Report*.



**Mary Jo Kane,**  
*Director, the Tucker Center*



**Nicole M. LaVoi,**  
*Co-director, the Tucker Center*

# About the Tucker Center

## **MISSION STATEMENT OF THE TUCKER CENTER**

The first and only one of its kind in the world, the Tucker Center is an interdisciplinary research center leading a pioneering effort to examine how sport and physical activity affect the lives of girls and women, their families, and communities. Researchers have discovered important connections between participation in sport and physical activity and healthy development, yet most sports-related research was focused on males. Over the last 25 years, the Tucker Center is changing this by exploring how sport and exercise influence women's physical, psychological, and social development, as well as how social, cultural, and economic factors influence girls' and women's participation in sports, recreation, and physical activity.

The Tucker Center has three equal and interrelated goals:

### **COLLABORATIVE RESEARCH:**

Our affiliated scholars and undergraduate and graduate students work as interdisciplinary research teams focused on cutting-edge issues, challenges, and opportunities within sports contexts.

### **RESEARCH THAT COUNTS:**

We focus on research that directly impacts the experience of girls and women, their families, and communities within sports, recreation, and physical activity settings. As public scholars we disseminate our work for the greater good.

### **EDUCATION:**

Community outreach, civic engagement, and teaching and mentoring students are important components of the Tucker Center. We sponsor a Distinguished Lecture Series in which nationally recognized scholars and educators share their findings and insights with policymakers, students, and families. We also develop educational materials and serve as a resource center for private and public organizations, educational institutions, media outlets, and the general public including three documentaries with tptMN and numerous research reports. Starting in 2012 we began to host an annual Women Coaches Symposium to help recruit, support and retain women in the coaching profession.

### **SPECIAL ACKNOWLEDGMENT**

Finally we would like to extend a special thank you. This report in particular and the work of the Tucker Center in general would not be possible without the vision, commitment, and generosity of our benefactor Dr. Dorothy McNeill Tucker (1923-2017).

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THE 2018 TUCKER CENTER RESEARCH REPORT

# Section I:

A Foundation for Understanding Girls In  
and Through Physical Activity





# Introduction to the 2018 Tucker Center Research Report

NICOLE M. LAVOI, SCHOOL OF KINESIOLOGY, UNIVERSITY OF MINNESOTA

Girls are one of our nation's greatest assets. According to the United Nations, empowering girls matters to everyone, as empowered girls strengthen communities, families, and economies and help build sustainable development, not only in the U.S., but around the globe (Osotimehin, 2015). The United Nations Educational, Scientific and Cultural Organization (UNESCO) prioritizes gender equality and states, "Women and men must enjoy equal opportunities, choices, capabilities, power and knowledge as equal citizens" (2018). Equal opportunity includes equal access to physical activity. Over forty years ago, UNESCO proclaimed that access to, and regular participation in, physical activity is a *fundamental human right* because it is an essential component of a healthy lifestyle (1978). That proclamation remains true today.

As we will outline in this report, many girls fail to achieve their full potential due to a multitude of barriers that impede or prevent their fundamental right to participation in physical activity. Physical activity (PA) can lead to a host of desirable outcomes for girls, including reduced risk for cardiovascular disease, diabetes, osteoporosis, and obesity, and can provide a place to develop meaningful relationships and self-esteem, in addition to decreasing the likelihood of risky behaviors such as substance use and truancy. Conversely, a lack of physical activity, in a variety of contexts from unstructured leisure time to highly structured organized youth sports, is related to disparate health outcomes (Wiese-Bjornstal & LaVoi, 2007).

The prospective health implications for girls' lack of physical activity are only half of the problem—when girls are inactive they also fail to accrue developmental assets (Wiese-Bjornstal & LaVoi, 2007). Given that girls—particularly girls of low socioeconomic status and girls of color—have the lowest rates of participation in physical activity. This population is at greatest risk for health implications and for failing to reap the positive developmental benefits that sports can provide. Physical activity is one of 12 health indicators of *Healthy People 2020* according The U.S. Department of Health & Human Services. This categorization indicates that physical activity remains at the top of the U.S. public health agenda and underscores the need to allocate valuable resources to eliminate disparities and understand the social determinants of health between those who are active and those who are not—an important goal that is carrying forward to the planning of Healthy People 2030 planning (U.S. Department of Health & Human Services, 2010). Globally, momentum for increasing girls'



physical activity is also growing. This is evidenced by The United Nations 2030 Sustainable Development Goals that includes gender equality and empowerment for girls in addition to good health and well-being—participation in PA can help girls achieve both!

In the 2007 *Tucker Center Research Report, Developing Physically Active Girls: An Evidence-based Multidisciplinary Approach* released by the Tucker Center for Research on Girls & Women in Sport at the University of Minnesota, three trends in girls’ physical activity were outlined. First, girls’ participation in youth and interscholastic sports was at an all-time high, but two-thirds of girls failed to get the minimal amount physical activity required to accrue health benefits. Second, girls’ physical activity levels declined as they matured from childhood through adolescence, and declines were greater for girls of color and low-income girls. Third, a gendered gap in physical activity existed. Regardless of the physical activity context, male participants outnumbered their female peers, girls were less physically active than boys, and girls participated with less intensity than boys.

As a foundation of understanding for this report and the remaining chapters it is important to start by defining *girls* and *physical activity*; thus we start there.

## DEFINING GIRLS

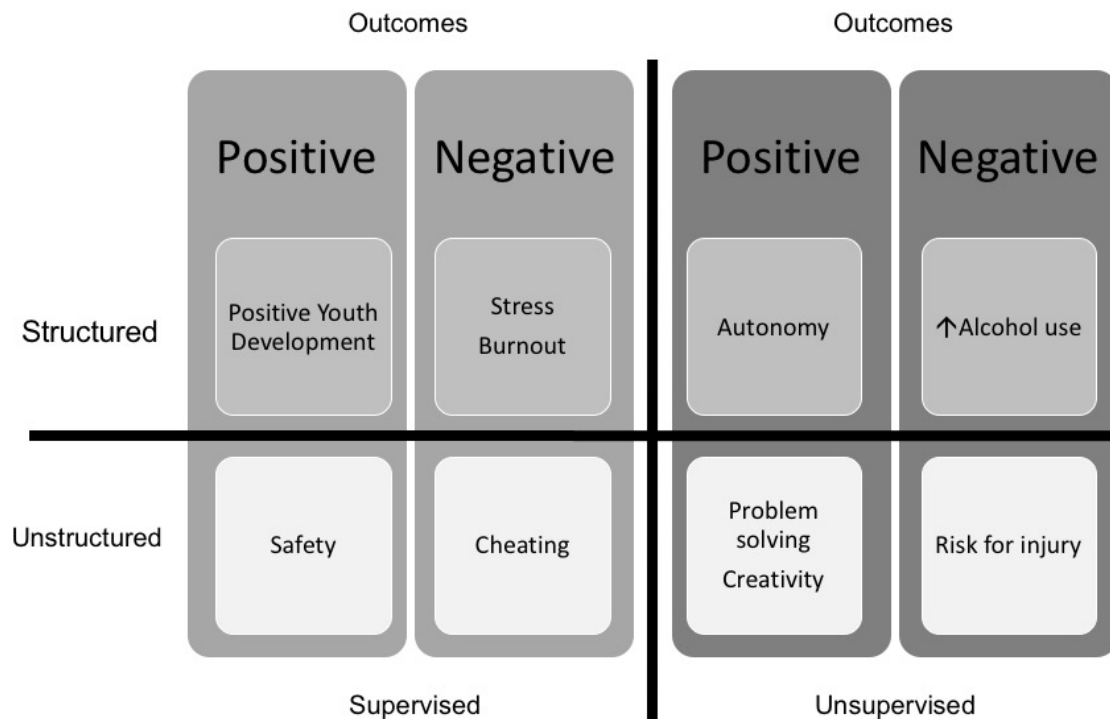
The definition of girls used in the 2007 *Tucker Center Research Report* is reapplied herein—the term girls refers to female children and youth 18 years old and younger. While there is a multitude of research on girls in physical activity around the globe, the research reviewed throughout this report primarily pertains to girls living in the United States. It is important to note that ***girls are not a monolithic group***. Girls can be defined and delineated by age, but this is where the similarities stop. Girls can have very different experiences in and through physical activity that are shaped and influenced by their multiple and intersecting identities and the social, environmental, and socio-cultural factors around them. The importance of why it matters not generalize or report about “girls” as one group will be further explained in Chapter 1.

## DEFINING PHYSICAL ACTIVITY

According to the World Health Organization (WHO, 2018), physical activity is defined as any bodily movement produced by skeletal muscles that requires energy expenditure. Physical activity (PA) can include exercise and fitness programs, sport participation, active transport, physical education, recess, and recreation and leisure activities. Physical activity varies from highly structured to unstructured. The degree to which PA is ‘structured’ refers to the extent to which adults lead participants in highly specified skill-building activities within a designated time (Osgood, Anderson, & Shaffer, 2005). In the literature, structured

and unstructured activities are often presented as dichotomous, where structured physical activity is associated with positive outcomes and unstructured with negative outcomes. In Figure 1 structured-unstructured physical activities are presented as more multidimensional than existing dichotomies. For example, some evidence indicates that structured sport participation can also lead to negative outcomes such as increased alcohol use, unsportsmanlike behaviors, anxiety, injury, and stress due to high parental expectations and an overemphasis on winning. Conversely, unstructured PA can encourage creativity, autonomy, and athlete-centered problem solving (Coakley, 2009). However, other researchers indicate that youth who spend a majority of out-of-school time in unstructured *and* unsupervised activities (not necessarily PA) are at risk for developing antisocial and criminal behaviors, particularly for youth in socioeconomically challenged areas (Mahoney & Eccles, 2008). Outcomes within each box in Figure 1 are representative of *possible* outcomes supported by the literature, but could be listed in any number of the boxes. For example, an injury such as a concussion can occur in any sport setting and not just when youth participate in unstructured, unsupervised activities. For the purpose of this report, we use physical activity in the broadest, most inclusive way. In the public health and physiology literature the level of physical activity needed to accrue health benefits is commonly referred to as moderate-to-vigorous physical activity (MVPA), a term used in many of the chapters in this report.

**Figure 1. Continuum of Physical Activity Characteristics and Resulting Outcomes**



## Trends in the Physical Activity of Girls: What Has and Hasn't Changed in the 10+ Years Since our Last Report?

Based on current data, the trends we documented in 2007 for girls physical activity have unfortunately not changed. In fact, we have seen declines in some areas.

### TREND #1: PARTICIPATION UP NUMERICALLY, PHYSICAL ACTIVITY DOWN OVERALL

In the 2007 report, we reported that girls were participating in sport in increasingly record numbers. While girls continue to take part in the millions, the outlook for youth sport in 2018 is more of a mixed bag. Numerically, participation continues to climb; 3.4 million girls participated in high school sports in 2016-17, up from 2.95 million in 2005-2006 (National Federation of State High School Associations [NFHS], 2017). Track and field, volleyball, basketball, softball and cross-country are the top five most popular high school sports for girls, with competitive spirit registering the largest increase among girls' sports.

"Non-traditional" sports like climbing, skateboarding and martial arts continued to attract girls; in fact, participation in "other sports" ranked first among girls in a 2015 report by The Aspen Institute.

In its 2016 *State of Play* report, however, The Aspen Institute noted that the percentage of youth participating in sports on a regular basis has declined since 2008, falling from 44.5% in 2008 to 40% in 2015. Only 52.2% of youth took part in organized sports one time during the year, down from 58.6% in 2014 (The Aspen Institute, 2016b). Moreover, the percentage of kids who are active to a healthy level fell from 30.2% in 2008 to 26.6% in 2015 for 6-12 year olds, and 42.7% to 39.3% for 13-17 year olds. The National Physical Activity Plan's (NPAP) 2016 assessment of youth physical activity levels in the US was even more dire, reporting that just 21.6% of all youth ages 6-19 meet physical activity guidelines [outlined and specified in Chapter 5]. Close to one quarter (26.1%) of high school students get at least 60 minutes of physical activity every day (Kann et al., 2017), a number down from 30% in 2014. By 12<sup>th</sup> grade, one-third (32%) of all youth do not participation in *any* sports (Zarrett, Veliz, & Sabo, 2018), and only 27.1% of adolescents met federal physical activity guidelines for health in 2015 (Youth Risk Behavior Surveillance System, 2015). Looking at physical activity in general, 17.9% of youth ages 6-12 and 18.4% of youth ages 13-17 were completely inactive in 2016, meaning they participated in no physical activity (Physical Activity Council, 2017). This pattern of decreasing physical activity as youth age may be related to the fact that in fifth grade, less than half (45%) of schools require physical education; by eighth grade that number decreases to just over one-fourth (26.4%), and by 12<sup>th</sup> grade it drops even lower (8.7%)(NPAP, 2016). The trend for physical activity of girls is going in the wrong direction.

Based on current  
data, the trends  
we documented  
in 2007 for girls  
physical activity  
have unfortunately  
not changed.  
In fact, declines  
in some areas are  
evident.

## **TREND #2: GENDER PHYSICAL ACTIVITY PARTICIPATION DISPARITIES PERSIST**

A gender gap continues to plague girls, both in terms of sport participation and levels of healthy physical activity. Physical inactivity is a risk factor for cancer, diabetes, heart disease, stroke, joint and bone disease, and depression. Moreover, inactivity contributes to the persistent obesity epidemic among US youth, nearly 1 in 6 of whom are obese (The Aspen Institute, 2015; Ogden, Carroll, Fryar, & Flegal, 2015).

Data pertaining to sport participation, while slightly different across data sets, shows a clear gendered disparity. According to NPAP (2016), 62.2% of boys participate in at least one organized sport, compared to their female peers (53.3%). Girls represent 42% of all high school athletes, despite comprising around 48% of all high school students (NFHS, 2017; Davis & Bauman, 2013). While the average number of overall sport opportunities offered by high schools increased by 26% between 1999-2000 and 2009-2010, opportunities grew faster for boys than for girls (Sabo & Veliz, 2012). As of 2009-2010, 53 athletic opportunities were offered for every 100 boys at the high school level, compared to 41 for every 100 girls; by another measure, schools offered an average of 14.3 teams for girls and 15.9 for boys (Sabo & Veliz, 2012). Sport dropout rates increase across all sports between 8th and 12th grade, with about 32 out of every 100 athletes dropping out of sport during that time; however, girls are 2-3 times more likely to drop out of sports than boys (The Aspen Institute, 2015). In basketball, for instance, the attrition rate between 8th and 12th grade is nearly double for girls (64%) than for boys (36%) (The Aspen Institute, 2015). By 12<sup>th</sup> grade, a gendered sport participation gap emerges as 38.9% of teen girls report not playing any sports, compared to 25.1% of teen boys (Zarrett et al., 2018).

Perhaps more concerning is the gap between boys' and girls' achievement of healthy levels of physical activity. The prevalence of not having been physically active for a total of at least 60 minutes on at least 1 day was higher among female (19.5%) than male (11.0%) students and the prevalence of having been physically active for a total of at least 60 minutes per day on 5 or more days was higher among male (56.9%) than female (36.8%) students (Kann et al., 2017). Compared to 26% of boys, just 16.9% of girls are physically active to the recommended level (NPAP, 2016)—meaning around 22 million U.S. girls are not meeting physical activity guidelines. Just over one-third of girls ages 6-11 (36.1%) meet healthy physical activity guidelines, a number that dramatically declines as girls age from 12-15 (3%) to 16-19 years of age (2.8%), compared to their male peers at the same ages (48.6%, 11.7% and 7.3% respectively)(NPAP, 2016). According to a study based on self-reported data, 48.6% of youth met physical activity guidelines in 2015, with 57.8% of boys achieving the recommended amount of moderate-to-vigorous physical activity compared to just 39.1% of girls (NPAP, 2016). The gendered physical activity and sport participation gaps unfortunately

affect some groups of girls more than others. In practical terms, fewer girls than boys get the opportunity to accrue assets associated with physical activity participation.

### **TREND #3: OPPORTUNITY GAPS DISPROPORTIONATELY AFFECT UNDERSERVED GIRLS**

Looking beyond the overall gender gap in sport participation and physical activity levels, it is also clear that geography (i.e. urbanicity: urban, suburban, rural), gender, class, and race intersect in complex ways that make it challenging for underserved girls to be physically active. The 2017 CDC Youth Risk Behavior Survey highlights health disparities that exist among students based on sex, race/ethnicity, and sexual identity. As Sagas & Cunningham (2014) report, “The available data suggests that now more than ever, it takes significant resources such as time, access, and money to develop as an athlete and be fully engaged in organized sport activities” (p. 1). The Aspen Institute (2016b) found that 16% of youth who come from households with annual incomes below \$25,000 a year are much less likely to participate in organized sports compared to 30% of youth from households making above \$100,000. A 2016 poll by C.S. Mott Children’s Hospital similarly found that 24% of children in households making less than \$60,000 a year played no sports compared to 11% of children in higher-income households.

Many factors contribute to these income-based physical activity participation differences, including available facilities, community resource gaps to compensate coaches and officials, and equipment deficits (Sagas & Cunningham, 2014). Opportunities for youth to participate in sport can vary as a function of a school’s setting, for instance; Sabo & Veliz (2012) reported that, on average, rural schools have the highest percentage of opportunities for girls (50%, compared to 63% for boys) and that urban schools have the lowest (28% for girls, compared to 39% for boys). The percentage of schools that offered no high school sports nearly doubled between 1999-2000 and 2009-2010, increasing from 8.2% to 15.1%. Urban high schools and schools with fewer economic resources were more likely to drop sports; moreover, a higher percentage of schools with a majority of female students (20.5%) dropped sports than schools with a majority of male students (10.5%) (Sabo & Veliz, 2012).

Even when schools offer opportunities, increasing participation costs disproportionately affect low-income families. Since 2007, the cost of school supplies and extracurricular activities has increased by 68%, vastly outstripping inflation (Huntington Bank, 2016; Coinnews Media Group, 2017). The average high school athlete pays \$302 to participate in school sports, which can be challenging for families with limited discretionary income (C. S. Mott Children’s Hospital, 2016). Club sports are markedly more expensive. Parents of traveling team athletes spend an average of \$2,266 annually (The Aspen Institute, 2016a). A 2016 survey by TD Ameritrade found that even well-off families often cut other spending areas



and adjust long-term financial goals to account for spending on youth sports. For families with less discretionary spending power, costs can become limiting or even prohibitive; in fact, 27% of families with household incomes below \$60,000 said the cost of sports caused a drop in participation for their child during the 2015-2016 school year (C. S. Mott Children's Hospital, 2016). While scholarships or waivers can help defray financial burden, relatively few low-income families (12%) receive such assistance (C. S. Mott Children's Hospital, 2016).

Income-based differences in sport participation paint only a partial picture. Overtly and covertly discriminatory practices and systems, as well as the complex entanglement of race, socio-economic status, gender and culture, continue to negatively affect minority girls in particular when it comes to sport and physical activity (Sagas & Cunningham, 2014). Girls of color are much less likely to have access to sport or to be physically active to recommended levels than their White counterparts (NPAP, 2016). Girls' self-reported physical activity levels varied by race, with 43.5% of White girls, 33.4% of Black girls, 33.1% of Latina girls, and 25.1% of Asian girls indicating they were physically active to recommended levels (NPAP, 2016). Declines in African American girls' physical activity from childhood to adolescence were also much greater than their White counterparts (Kimm et al., 2002).

Access to sport (or lack thereof) plays an important role in these physical activity deficits. One survey found White girls were more likely to identify as highly-involved or moderately-involved athletes than African-American, Latina or Asian girls (Sagas & Cunningham, 2014). Nationwide the prevalence of having been physically active for a total of at least 60 minutes per day on 5 or more days (the standard to accrue health benefits) was higher for White (38.8%), than Hispanic (36.9%) and Black (29.9%) female students (Kann et al., 2017). Among female students, the prevalence of having been physically active for a total of at least 60 minutes per day on 5 or more days was higher among heterosexual (39.4%) than lesbian and bisexual (31.5%) students (Kann et al., 2017). The barriers to girls' sport participation and physical activity are multiple and complex, but structural inequities in schools and communities disproportionately affect girls of color. For instance, a 2015 report by the National Women's Law Center (NWLC) and Poverty & Race Research Action Council (PRRAC) found that 40 percent of heavily minority high schools have large female opportunity gaps compared to just 16 percent of heavily White schools. The data gathered by the NWLC and PRRAC led them to conclude—and we agree—that “even though girls still receive fewer opportunities to play sports than boys, girls in heavily minority schools are especially shortchanged”(p. 1). Therefore, it is important to seek to understand how the structures, systems and people around girls with various intersectional identities influence girls' physical activity.

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## CONCLUSION

This chapter began by defining what we mean in *The 2018 Tucker Center Research Report* by girls and physical activity, and outlined current trends pertaining to girls' physical activity. The data clearly shows that girls' physical activity levels decline sharply as they enter their teenage years and declines are more dramatic for girls—and specifically girls of color—than boys. Based on the current data and despite the efforts of many, little progress over the last 10 years to sustain or increase the physical activity of girls is evident.

The remaining chapters within this report detail what is known, and not known, about the physical activity of many groups of underserved girls including immigrant girls, African American girls, girls that identify as lesbian, transgender individuals, and girls with physical and cognitive impairments. Readers should keep in mind that girls are nested within a social, environmental and sociocultural system that influences their PA; Chapter 1 will present and explain this system using the *Ecological-Intersectional Systems Model of Physical Activity for Girls* and the following chapters will illuminate various aspects of the system, levels of the model and girls' intersectional identities in detail. Each chapter in this report is comprised of the following elements: a) summary of what is known historically about the topic and new information from the last 10 years; b) evidence-based best practice recommendations that will support readers in helping girls start and stay physically active and live healthy lives; c) policy recommendations that will help to ensure girls are physically active and healthy will be provided; d) future research and what we need to know moving forward in the *next* 10 years are included; and e) key resources that sport stakeholders would benefit from utilizing.

Our goal is to help ensure that *all girls*, regardless of identity or circumstance, have access to their fundamental human right of physical activity so that health and developmental assets can accrue across the lifespan. To conclude we draw inspiration and guidance from the Wellesley Centers for Women tagline, “**What is good for women, is good for everyone™.**” We assert the sentiment remains true for girls.

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## CHAPTER 1

# Understanding Girls in and Through Physical Activity: Assets, Identities and Disparities

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## Introduction

Girls have the potential to reap a host of positive outcomes from participation in organized, structured, well-run physical activity (PA) programs including psychological, social, and physical assets. Two decades ago, feminist sport scholar Patricia Vertinsky (1998) wrote that a healthy level of physical activity for females is “closely entwined” with the social and economic status of girls and women. This remains true today. According to researchers, children in poverty and from low socioeconomic status (SES) families are less likely to participate in organized physical activity (Coakley, 2009). In addition, higher income and SES are associated with high physical activity for girls (Biddle, Whitehead, O’Donovan, & Nevill, 2005). Socioeconomic status alone does not appear to have a *direct* effect on health, but when SES intersects with conditions that are proven to have more immediate effects on health (e.g., SES and environmental and social exposures, SES and health care, SES and behavior/lifestyle) differential exposure directly impacts health and well-being (Adler & Newman, 2002). Eliminating health disparities for low SES girls will require a broad focus on the intersection of SES with other components and discovering the pathways by which they influence health (Adler & Newman, 2002). The broad range of recent research on girls and PA uncovers the historic and wide gap pertaining to underserved girls. *The 2007 Tucker Center Research Report: Developing Physically Active Girls* summarized the research on these outcomes as they pertained to girls *as a group in general*. This chapter—as well as other chapters in this report—is focused on the research as it specifically pertains to various groups of underserved girls with intersectional identities residing in the United States. A working definition of underserved girls follows.

## UNDERSERVED GIRLS

Underserved is usually assumed to mean urban—where a majority of research is typically focused—often to the detriment of other girls who also frequently fall into underserved categories (Sabo & Veliz, 2008). It is clear that barriers, disparities and outcomes of physical activity are not uniformly experienced across diverse groups of girls and cannot be understood through generic or universal pathways. For example in 2017, the U.S. Census Bureau indicated that 18% of children in the U.S. live in poverty (Semega, Fontenot, & Kollar, 2017). Unfortunately some girls experience multiple axes of oppression (e.g., classism, racism, sexism, heterosexism, ableism) which shape their physical activity experiences. To capture the nuance and complexity of girls’ lives, the term “underserved” is defined and used herein to represent the intersections of geography, class, race, gender identity, religion, sexual identity, physical ability, and ethnicity of girls who typically have disparate access and opportunity to participate in PA. In reality, girls are underserved compared to boys, but we aim to flesh out and illuminate that; as stated in the Introduction, **girls are not a monolithic group**. Girls—depending on their multiple and intersecting identities and the social, environmental, and socio-cultural factors around them—can, and do, have different experiences in and through physical activity.

The chapters within this report detail what is known, and not known, about the physical activity of many groups of underserved girls, including immigrant girls, African American girls, girls that identify as lesbian or transgender, and girls with physical and cognitive impairments. Based on the data it is clear that regular physical activity increases the likelihood of asset accrual, and this is particularly true for underserved girls—a population wherein PA can act as a developmental and health buffer across the lifespan.

## Physical Activity Participation and the Development of Assets for Underserved Girls

Table 1 includes a full list of assets that can accrue in and through physical activity when it is explicitly and comprehensively structured to develop a holistic girl and the program is run by caring, qualified adults. Such programs are often called *sports-based youth development* (SBYD) or *positive youth development* (PYD) *programs* and are characterized by inclusion of life and sport skills that are intentionally and concurrently taught, prioritization of positive and caring social relationships, and a development of a climate focused on learning and mastery (Weiss & Wiese Bjornstal, 2009). Chapter 2 details aspects of social relationships and the motivational climate indicative of SBYD and Chapter 11 will include a

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summary of specific SBYD programs that are girl-focused, outline why those programs are important, and provide a critique of SBYD. Asset accrual through physical activity is possible for all girls, and it is our hope this report will help realize that goal!

## PSYCHOLOGICAL ASSETS

Involvement in structured PA appears to have positive psychological effects pertaining to self-perceptions among various groups of underserved girls. For middle school girls in variant SES groups (Barr-Anderson et al., 2007), diverse urban adolescent girls (Pedersen & Seidman, 2004), Latina girls (Borden et al., 2006), and adolescent girls in general (Biddle et al., 2005; Donaldson & Ronan, 2006; Shaffer & Wittes, 2006; Tracy & Erkut, 2002), participation in structured PA results in higher levels of self-efficacy, confidence, self-esteem, physical competence, self-worth, and body esteem. Evidence of a “more is better” model indicates that higher levels of involvement in PA and sports appear to translate into greater positive self-perceptions, health outcomes, and developmental experiences for girls (Barr-Anderson et al., 2007; Hansen & Larson, 2007; Sabo & Veliz, 2012; Sirard, Pfeiffer, Dowda, & Pate, 2008; Zarrett, Veliz, & Sabo, 2018). In fact, girls who reported playing three or more sports a year—“highly involved” girls—were more likely to score higher on body esteem (e.g., *I feel confident about my body; I like the way my body looks; My body is getting healthier*). However, the downside is that even highly involved girls reported their body esteem decreased from 3<sup>rd</sup> to 12<sup>th</sup> grade (Sabo & Veliz, 2008).

Team sport participation may hold particular utility for producing positive outcomes. Underserved girls who resist pressure to conform to traditional gender roles at the onset of puberty and who achieve in team athletics show more positive self-esteem development in middle adolescence than girls who are not afforded the opportunity or choose not to play team sports (Pedersen & Seidman, 2004). Girls across all grade levels from 3<sup>rd</sup> to 12<sup>th</sup> grades who participate in a team sport are more content and report a higher quality of life than girls not on a team (Sabo & Veliz, 2008). In addition, greater participation is significantly related to higher quality of life—again, supporting a “more is better” hypothesis. In a recent study, 12<sup>th</sup> graders who participated in two or more sports reported better psychological outcomes and physical health than youth who played one sport, yet 39% of girls played no sports (Zarrett et al., 2018). Favorable self-perceptions and feelings of well-being and enjoyment increase the likelihood of initiating and sustaining PA participation, and girls with high self-perceptions are also less likely to drop out.

Another category of individual assets includes the ability to critically think about oneself within a system and to be able to interrogate power and systems of inequity. Teaching girls to confront questions of social inequality, sexism, racism, homophobia, abuse, and

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poverty using sport or physical activity as the vehicle, can be a powerful mechanism to help girls participate, have agency, and collectively change or transform the systems within which they live (Coakley, 2011).

## **SOCIAL ASSETS**

Sports are a social activity and provide an opportunity for girls to develop social assets that may transfer into other domains. Participation in structured PA leads to the development of social assets such as teamwork, conflict management, decision making, social capital, leadership, and the ability to make meaningful, close friendships. For adolescent girls (11-13 years old), greater involvement in sports is related to reduced social and externalizing problems (e.g., aggression, antisocial behavior, impulsivity) (Donaldson & Ronan, 2006). Sports participation increasingly appears to be a source of popularity and social capital for girls but gender stereotypes pertaining to femininity that limit girls' participation are alive and well (Sabo & Veliz, 2008)—but the data in this report were not broken down by additional demographic variables. Ethnically diverse girls in youth activities consistently report better experiences related to group process and leadership than non-participants, in addition they articulate more clearly about their personal development and social skills (Dworkin, Larson, & Hansen, Larson, & Dworkin, 2003). Weiss and colleagues' longitudinal research on *The First Tee* program supports the notion that life skills do in fact transfer to contexts outside of golf; however, their sample contained few underserved girls (2007, 2008). Girls are more likely to optimally develop social assets who play for adult leaders when those leaders provide opportunities to practice and develop social skills.

## **PHYSICAL ASSETS**

Positive youth development models have rarely or minimally considered physical assets until recently. Wiese-Bjornstal and LaVoi (2007) suggested physical assets include motor skills, knowledge about movement, movement literacy, PA competencies, physically active lifestyles, and physical health. Little empirical evidence exists in the US that supports the development of physical assets for underserved girls through Sport Based Youth Development (SBYD) programs—a context where physical assets are *assumed* to develop through participation, but are rarely evaluated. Some evidence exists that can be used to provide a roadmap for evaluation of SBYD physical assets for girls; this data will be summarized in the concluding chapter.

**Table 1.** *Developmental Assets Attained Through Physical Activity Participation Among Girls*

**PSYCHOLOGICAL ASSETS**

Commitment to physical activity  
Positive values toward physical activity  
Self-determination  
Moral identity, empathy, and social perspective-taking  
Interpersonal competencies, communication, teamwork, cooperation  
Positive self-perceptions, body image, and physical identity  
Positive and authentic gender identity  
Mental health, positive affect, stress relief, and anxiety management  
Cognitive functioning and intellectual health  
Critical thinking about power structures, personal agency and social inequality  
Hope and optimism about the future  
Academic achievement

**SOCIAL ASSETS**

Support and care from significant others  
Social capital, social skills and social ties/network  
Career capital and economic earning power  
Feelings of social acceptance  
Close friendship and friendship quality  
Empowerment  
Boundaries and setting expectations, resistance to peer pressure and risky behaviors  
Sense of civic engagement

**PHYSICAL ASSETS**

Physical health  
Physical fitness  
Health-and performance-related physical fitness  
Physiological capacities  
Motor skill competencies  
Movement literacy  
Physical activity competencies  
Physically active lifestyle  
Knowledge about physical activities, sport, games and play

Modified from Wiese-Bjornstal, D., & LaVoi, N.M. (2007). Girls' Physical Activity Participation: Recommendations for best practices, programs, policies and future research. In M.J. Kane & N.M. LaVoi (Eds.), *The Tucker Center Research Report, Developing physically active girls: An evidence-based multidisciplinary approach* (pp. 63-90). Minneapolis, MN: The Tucker Center for Research on Girls & Women in Sport, University of Minnesota.



## PHYSICAL HEALTH

The physical health (i.e., healthy body mass index, cardiovascular fitness, muscular strength, bone health) impact of participation in organized PA for youth is well documented. Organized sports are associated with positive general health indicators, including healthy weight, and female athletes often gain greater benefits from athletic participation than their male counterparts (Sabo & Veliz, 2008). According to the *President's Council on Physical Fitness and Sports*, PA plays a role in decreasing the risk of coronary heart disease, obesity, hypertension, depression, and Type 2 diabetes (Crespo, 2005). Girls' regular participation in PA during childhood and adolescence also reduces the risk of the development of osteoporosis (Bonaiuti et al., 2002; Kannus, 1999) and breast cancer (Crespo, 2005; McTiernan et al., 2003; Patel, Calle, Bernstein, Wu, & Thun, 2003). Youth and adolescents who are physically active are more likely to remain physically active as adults (Corbin et al., 2004), thereby reducing risk for chronic and acute health conditions later in life. Longitudinal research similarly indicates that consistent and continued participation in youth sport significantly predicts adult PA among boys and girls (Telama, Yang, Hirvensalo, & Raitakari, 2006). Adolescent athletes also report healthier dietary behaviors, including eating breakfast and consuming more fruits and vegetables, than non-athletes (Nelson et al., 2011).

The “more is better” hypothesis appears to hold true for the development of physical health assets. Higher levels of PA or participation on a greater number of sport teams results in higher fitness, lower body mass index (BMI), and lower prevalence of overweight in 8<sup>th</sup> grade White and African American girls (Sirard et al., 2008). Data from a recent national study indicates 80% of high school girls who played on three or more athletic teams had a healthy BMI, compared with 75% of girls who played on one or two teams, and 60% of non-athletes (Sabo & Veliz, 2008). For 12<sup>th</sup> graders, participation in several sports promoted healthier physical outcomes than participation in a single sport, although some sports like wrestling are associated with unhealthy behaviors like binge drinking (Zarrett et al., 2018). Participation in PA is likely to lead to more positive physical health outcomes for underserved girls (for a complete review see Nichols, Pettee, & Ainsworth, 2007) and helps reverse the trend of health disparities, in addition to reducing risky behaviors.

## PREVENTION OF RISKY BEHAVIORS

Girls living in high-poverty urban neighborhoods are at high risk for feeling hopeless, which predicts a variety of high-risk behaviors (Komro et al., 2007). Research on whether or not sport programs prevent girls from engaging in risky behaviors is equivocal. Some research states sports participation acts as a protective factor against alcohol use (Zarrett et al., 2018), drug use and cigarette smoking (Le Menestrel & Perkins, 2007). Other research suggests sports

participation is associated with increased alcohol use (Lopiano, Snyder, & Zurn, 2007) and drug use risk behavior (Moore & Werch, 2005)—especially for high school girls who play team sports (Zarrett et al., 2018). One point is clear: Female athletes, compared to their non-athlete peers, report fewer sexual partners and later onset of sexual activity (Erkut & Tracy, 2000) and sports team participation is inversely related to all substance use behaviors, having multiple sex partners, and having unprotected sex (Johnson et al., 2014). Additional and updated research assessing the effect of underserved girls’ participation in organized PA on risky behavior patterns is needed.

## **ACADEMIC ACHIEVEMENT**

In general, participation in organized, structured sports is positively related to educational aspirations and academic achievement such as school attendance, and greater likelihood of higher grades, high school completion, college attendance, and success in the labor market. Specifically for girls, sports participation is associated with higher grades and desire to attend college (Perry-Burney & Takyi, 2002; Zarrett et al., 2018). Females who engage in interscholastic high school sports have higher odds of completing college (Troutman & Dufur, 2007) and score higher on standardized math and reading tests than their non-athlete female peers (Broh, 2002). However, the mechanisms of how sports involvement leads to academic outcomes for underserved girls remain unclear.

## **FUTURE WORKPLACE SUCCESS**

Recent data has also documented a relationship between sport participation for girls and success in the workplace. Economist Betsy Stevenson (2010) found that a 10% rise in state-level female sports participation generated a 1 percentage point increase in female college attendance and a 1 to 2 percentage point increase in female labor force participation. Furthermore, greater opportunities to play sports led to greater female participation in previously male-dominated occupations, particularly for high-skill occupations. In 2016, Ernst & Young surveyed 400 women executives in four countries and found a strong correlation between high level corporate success and sport participation. In fact, 94% of women executives surveyed reported playing sports! Ernst & Young also stated that wages of athletes were 7% higher than wages for non-athletes (2016). Data is beginning to show that sport participation can impact future workplace success, achievement and earnings.

It is clear that when girls are given the opportunity to play sports and be physically active, positive health and developmental outcomes, as well as academic and career advantages, can accrue. However, participation does not *automatically* guarantee positive outcomes. In fact, more often than we'd like, PA participation results in increased likelihood of a variety of negative outcomes for girls.

## Potential Negative Outcomes of Physical Activity Participation

The evidence which suggests that positive outcomes can result when underserved girls participate in structured PA or sports is compelling. However, scholars have also noted positive outcomes are not an automatic byproduct of sports participation and some argue participation can have detrimental effects on girls' health and well-being (Fraser-Thomas, Cote, & Deakin, 2005; Perkins & Le Menestrel, 2007; Wiese-Bjornstal & LaVoi, 2007). The "more is better" model should be considered with some caution—more PA is *not always* better. Recent interest in the phenomenon of overscheduled White upper-class children reflects concern over the negative outcomes of "too much" sport participation. Overtraining or excessive participation can, for example, lead to negative psychological and physical outcomes such as burnout, injury, depression, stress, anxiety, the female athlete triad, eating disorders, and/or dropout. Negative outcomes such as poor sportsmanship, low levels of intrinsic motivation, and lack of enjoyment can also result when adult PA leaders focus too much on winning or outperforming others, rarely allow athletes voice or choice, punish mistakes, or give special attention to the more talented.

Attention to negative outcomes and too much participation assumes that girls are participating at a level sufficient to accrue outcomes—whether positive or negative in nature. It is clear that underserved girls are more often "inactive" or "underactive" rather than "overactive," so concerns about negative implications of participation may not be as salient for this specific population. Research on the implications of "too much" participation for underserved girls does not exist. A "something is better than nothing" rather than a "more is better" model for underserved girls' participation might be a good starting point for stakeholders to consider. In short, when participation—regardless of dosage (i.e., too much or too little)—happens within a participation model that considers and is sensitive to the intersections of gender, race, and culture, positive outcomes and asset development are more likely to occur. Sport is a social activity that occurs in the presence of others—including peers, parents, and coaches—who are key social agents and mechanisms to the development (or lack thereof) of positive assets through the quality of the program they contribute to and help structure.

Sexual, emotional and physical abuse occurs when coaches misuse their power and inappropriately and illegally cross interpersonal boundaries to exploit and abuse female athletes. Unfortunately, as evidenced by the widely publicized USA Gymnastics and Michigan State University scandal involving Larry Nassar's sexual abuse of hundreds of girls and women over decades, sexual abuse of female athletes is more commonplace than previously thought, and gymnastics is not the exception. Widespread sexual abuse by coaches, scholars argue, is made possible by the uncritical acceptance of traditional characterizations of

coaches as power-over, authoritarian, tough figures who emphasize obedience, commitment, discipline and hierarchical authority, which facilitates optimum conditions for sexual exploitation in sport (Brackenridge, 2001), and this may be especially true for underserved girls who are often more vulnerable populations.

Some scholars argue that a public focus on inactivity, the obesity “epidemic,” and assertion that the nation’s future is tied to its citizens’ body shape, athleticism, cardiovascular fitness, and vitality (Gard, 2004), contribute to the development of eating disorders, unhealthy body scrutiny, and anxieties in young women. Messages about health and PA, constructed by experts and reinforced by the media, tell girls what a “normal” and “desirable” body should look like, which is unobtainable for a vast majority of girls. Achievement of this kind of body within “a cult of slenderness” (Rich, Holroyd, & Evans, 2004) signals worth, discipline, virtue, status, and emotional stability but leaves little room for acceptance of bodies outside the norm or for different perspectives about the role of PA in girls’ health and well-being.

While a great deal of literature exists on social influences in PA contexts, a small amount pertains specifically to underserved girls, and specific groups of underserved girls. This report in general, and this chapter specifically, aims to fill that gap by focusing on various intersectional identities of girls and how those identities intersect with psychosocial, environmental and cultural influences to impact the physical activity of girls. To further understanding of the complexities and nuances in how girls’ experiences vary in and through physical activity based on intersectional identities and levels of the system within which they live, we propose and highlight the Ecological Systems Theory (EST). Using EST, along with intersectional theory, moves away from a sole focus on individual-level asset accrual an approach, while valuable, often erases or ignores larger social issues and structural conditions that affect girls’ lives (Coakley, 2011; Rauscher & Cooky, 2016)

## **The Ecological Systems Theory Model: Illuminating the Physical Activity Experiences of Girls**

Girls face multiple and complex factors and barriers that prevent or impede physical activity participation (Thul & LaVoi, 2011, Rauscher & Cooky, 2016). Bronfenbrenner’s (1977) Ecological Systems Theory (EST) specifies that human development and experience is influenced by a variety of proximally located individual, interpersonal, organizational and socio-cultural environmental systems and is commonly used to examine and understand health related behaviors (Richard, Gauvin, & Raine, 2011) and physical inactivity (Stanley, Boshoff, & Dollman, 2012). Figure 1.1 illustrates the *Ecological-Intersectional Systems Model of Physical Activity for Girls*. An ecological framework was first used to illuminate the

experiences of girls' physical activity, specifically East African girls, by Thul and LaVoi (2011). Presenting this model helps readers, researchers, stakeholders, policy makers, and practitioners alike to conceptually organize the vast literature on girls' physical activity and aid in understanding of how to address and/or reduce barriers to physical activity at each and every level.

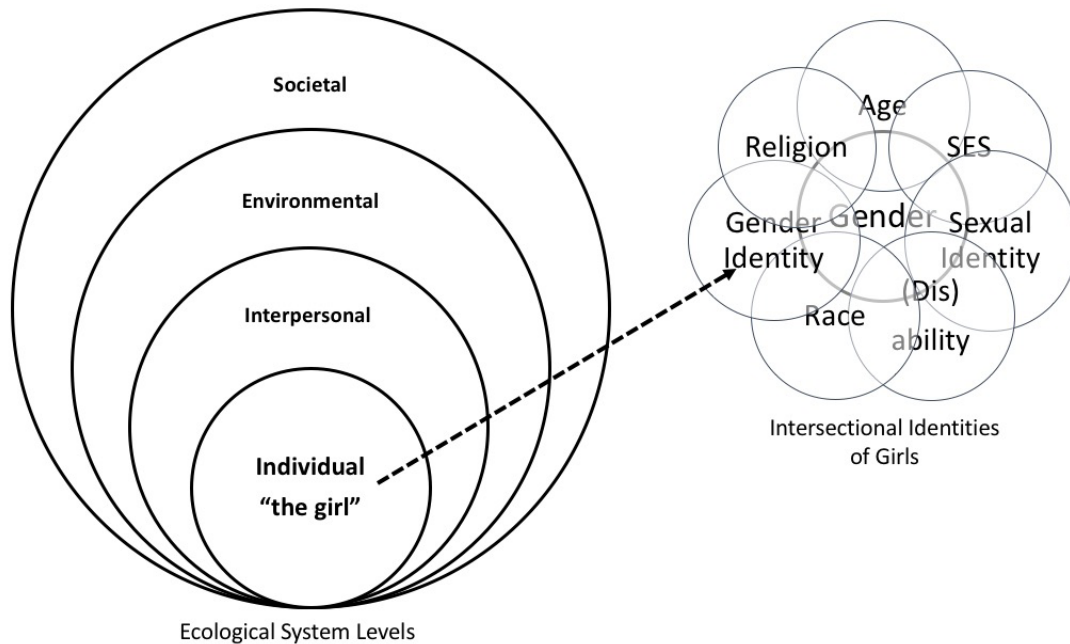


Figure 1.1 Ecological-Intersectional Systems Model of Physical Activity for Girls © 2018 Nicole M. LaVoi

Bronfenbrenner (1977) identified four levels in the EST model that influence human experience and behavior. The **individual level** (i.e. “the girl”), includes personal, physiological, biological and psychological factors such as cognition, emotions, beliefs, values, expertise and personality of the individual. For example, an individual barrier may be a lack of self-efficacy, meaning a girl does not believe she is competent enough to participate in a particular physical activity. This level also includes the **intersecting identities** of girls, which influence their experiences within the system such as race, gender, gender identity, religion, (dis)ability, migration status, social class, and economic status. Given that the CDC highlights disparities exist among students based on sex, race/ethnicity, and sexual identity (Kann et al., 2018), including intersectionality in any analysis and policy and/or program development becomes imperative. Intersectionality theory (Crenshaw, 1989) nested within in individual level of EST also helps us understand how socially constructed categories lead to constraints and opportunities, privilege and disadvantage, or matrices of oppression, and

how identities are connected and intertwined (Misra, 2018), *over time*. Intersectionality offers that gender cannot be used as a single analytic frame if the full experience of girls is to be illuminated. The Ecological Systems Theory model is a developmental, meaning it helps facilitate understanding of multiple and complex factors temporally through childhood and adolescence, within a specific socio-cultural-historical time. For example, a White heterosexual girl, from a high income family living in a suburban setting is likely to have a different experience in and through sport than a rural Latina girl who identifies as lesbian. “Girls” are not a monolithic group and it is important to note *all girls* have intersectional identities.

The next less proximal level, the **interpersonal level**, is comprised of social influences such as coaches, teachers, peers, siblings, and parents. Social settings immediate to the individual including family, the team, friend groups, school or the workplace are also included in this level. An example of an interpersonal barrier could be family expectations that girls, and not boys, are in charge of domestic and sibling care in the home, which limits time available for girls to be physically active. The **environmental level**, sometimes labeled as the organizational/structural level, is characterized by policies and rules, use of space, safety and quality of space, and participation opportunities in the community (or lack thereof). For example, a community gym may only offer physical activity programming for girls two hours a week, or no sport teams for girls, which limits opportunity for girls to be physically active. This level also includes the aspects of the built environment and environmental designs (e.g., pedestrian or bicycle transportation systems, sidewalk or trail infrastructure, public or private recreational facilities, parks) that increase physical activity. The fourth, and most distal, level is the **societal level** or socio-cultural level, which encompasses the dominant norms, stereotypes, values, and cultural and structural systems that indirectly affect girls such as social inequality, sexism, racism and homophobia. For example, gender stereotypes associated with traditional femininity and physical activity in addition to homophobia may influence a girl’s choice to participate or not in certain physical activities. The EST levels are not mutually exclusive and intersect in multiple and dynamic ways that will become apparent as the reader encounters each chapter in this report. While this chapter highlights barriers at each level of the model, supports also exist that help girls be and stay physically active. The remaining chapters will expand on those factors that support, motivate, and help girls sustain their physical activity. Below is a summary of known barriers to girls’ physical activity, organized within each level of the Ecological Systems Theory model.



## Barriers to Underserved Girls' Participation in Physical Activity

Underserved youth face a number of barriers to participation in PA. This is particularly true for girls. While a gendered gap in PA exists (LaVoi & Wiese-Bjornstal, 2007), it is also clear that geography, gender, class, and race intersect in complex ways that prohibit or make it challenging for underserved girls to be physically active. Girls of color and girls from low-income communities have limited sport opportunities (Sabo, Miller, Melnick, & Heywood, 2004)—therefore it is not surprising that underserved girls are one of the least active populations in the United States and become increasingly inactive as they move from childhood through adolescence. Girls themselves, their parents, and community professionals perceive and report that ethnic minority populations, often with lower income and education, face the greatest number of—and most serious barriers for—participating in PA (Allison & Hibbler, 2004; Centers for Disease Control and Prevention [CDC], 2003). These barriers are summarized below within the individual, interpersonal, and environmental and societal levels of the EST.

### INDIVIDUAL BARRIERS: GIRLS' PERCEPTIONS

Some research specifies that girls value sport participation less, have less physical competence than boys (Fredricks & Eccles, 2005) and dislike physical education significantly more than boys (Sallis, Zakarian, Hovell, & Hofstetter, 1996). For example, in a sample of 8-12 year old African American girls enrolled in a fitness class, low self-perceptions and a negative body image contributed to girls' anxiety about participation and lower levels of attendance (Lemmon, Ludwig, Howe, Ferguson-Smith, & Barbeau 2007). Collectively, research consistently illustrates girls who report lower levels of self-confidence, self-efficacy, and physical self-competence are less likely to participate in or persist at PA. The key point is that underserved girls more often have low self-perceptions in PA contexts than boys and their more privileged female peers, but may have the most to gain from participation.

Girls' perceptions not only of themselves but of PA also influence participation. Some underserved girls perceive that PA leads to injury or illness, or that PA is too strenuous or difficult, and results in sweating and heavy breathing which can be embarrassing (Biddle et al., 2005; Grieser et al., 2006; Lemmon et al., 2007). Many underserved girls report the PA programs offered are uninteresting, not culturally relevant (Lemmon et al., 2007; Thul & LaVoi, 2011), or report negative opinions of youth center programming (Perkins et al., 2007)—resulting in girls' waning interest in participation. Proponents of Title IX argue that parents and many adult PA leaders often perceive that girls are not as interested in sport as boys due to lagging attendance, disinterest, or lack of effort (Cooky, 2009).

A sole focus on underserved girls’ “choices,” “lack of interest,” or comparatively “low” self-perceptions fails to acknowledge that values, choices, expectations, effort, interest, and enjoyment are also shaped by the cultural and societal values and beliefs, and social and physical environments in which girls live (Cooky, 2009; Wiese-Bjornstal & LaVoi, 2007). True, girls should value and take responsibility for their own PA, health, and well-being. But attributing disinterest or placing blame for physical inactivity solely on girls is misguided and dangerous. When girls’ inactivity is framed as an individual issue of making “the right” choices, discipline, self-improvement, and self-responsibility—rather than addressing structural factors which affect girls’ inactivity such as racism, sexism, and poverty—the focus on collective responsibility that can result in publicly funded and supported programs for girls is averted (Coakley, 2011; McDermott, 2007). Similarly, a focus on girls’ health and inactivity “can offer a thinly veiled language through which to extend judgments of responsibility, blame and morality” (Saguy & Riley, 2005, p. 871) which can reinforce inequalities and further oppress girls. A more complex picture of the array of barriers underserved girls face is summarized in the following sections. How girls feel about themselves, their bodies, and PA are in part shaped by significant others in the lives of girls such as peers, parents, and coaches and PA leaders.

## INTERPERSONAL BARRIERS

**Peers and Peer Group.** In adolescence, the peer group becomes the most influential social influence and peer relationships can positively or negatively influence girls’ participation in PA (Smith, 2007). Girls consistently perceive that athletic participation does not afford them as much social capital or popularity as boys report—therefore girls may not perceive participation as important personally or to their social groups. In one study, 8-12 year old African American girls’ lack of attendance in PA was due in part to peer teasing pertaining to their ability to perform, and negative evaluations by peers (Lemmon et al., 2007). Peer criticism and humiliation due to peer appraisal of low ability emerged as barriers for underserved girls enrolled in a National Youth Sport Program, the majority of whom were Latina and African American (Babkes Stellino & Partridge, 2007). Some girls want to participate but are discouraged by boys in their communities. One East African girl stated (Thul & LaVoi, 2011),

*“The boys they like to take all of the place you know. Like they say, “We are the boys, we like doing this,” you know and just take it. I don’t know they just like taking all of the place, especially in our community...the whole place. And we have like a big field you know and they play on the whole thing. They have the big boys, and the small boys, they have groups to take over the whole place.”*

Underserved youth face a number of barriers to participation in PA, and this is particularly true for girls.

Alternatively, perceived support for girls' PA from peers is associated with girls' enjoyment of PA, regardless of race (Barr-Anderson et al., 2007). Girls who perceive that their peers provide social support for them to be physically active report higher activity. For some girls, cultural norms surrounding peer involvement with the opposite sex influences PA participation. Concern and fear that PA would lead to girls' involvement with male peers is particularly common among parents of Latina, Arab, and East African girls (Borden et al., 2006; Perkins et al., 2007; Thul & LaVoi, 2011).

**Parental Influence.** Parents are highly influential in the PA of their daughters as they provide opportunity and resources, interpret experiences, appraise abilities, assign value, and encourage and support participation. As girls mature, parental influence largely becomes secondary to peers and significant adults outside the family (i.e., coaches, program leaders). For underserved girls, however, it appears as if parents remain highly influential in PA participation. For example, Kimm et al. (2002) reported that White girls compared to other racial groups may become more self-motivated to participate in PA and less dependent on parents. Sustained parental influence in the lives of underserved girls through adolescence is important—lack of family support and approval is a primary barrier for ethnic minority children (Crespo, 2005). Research teams conducting two major longitudinal obesity prevention programs for underserved girls (*Girls health Enrichment Multi-site Studies* [GEMS]; *Lifestyle Education for Activity Program* [LEAP]) state that parental support is critical for the PA participation of girls. In short, underserved girls may want to participate but their parents may not value the activity and/or may lack the resources to help their daughter participate.

Underserved girls in studies around the U.S. report low levels of PA participation because they lack time due to family obligations, or are expected to work outside the home, do homework, or return home after school rather than participate in PA (Babkes Stellino & Partridge, 2007; Biddle et al., 2005; Borden et al., 2006; Dwyer et al., 2006; Perkins et al., 2007; Romero, 2005; Thul & LaVoi, 2011). Urban African American girls report that they spend more time on chores than do boys (Larson, Richards, Sims, & Dworkin, 2001); this is also true for low-income girls who are expected to focus on household management and caretaking rather than extracurricular activities (Dodson & Dickert, 2004). Latina girls in high school report they are needed at home to care for younger siblings or relatives (Borden et al., 2006; Sylwester, 2005), and this pattern is fairly consistent across different subpopulations of low SES, and racial and ethnic minority girls. When girls are expected to bear the majority of household responsibilities it is often at a cost to their personal, social, and physical development (Dodson & Dickert, 2004).

Parents of underserved girls may encourage daughters to work outside the home or focus on school instead of participating in PA, because PA is not seen as a vehicle for upward mobility for girls and their families in the same way it is for underserved males (Coakley, 2009). Conversely, results in one study indicated that parents of low income youth believe their children should spend *more* time in organized sports, but analysis was not broken down by sex of child (Mahoney & Eccles, 2008). Some underserved girls report a lack of parental permission to participate (Perkins et al., 2007; Thul & LaVoi, 2011). This may be because some parents believe “sports are for boys”, value PA to a lesser extent for their daughters, provide fewer opportunities for girls to be active, or feel girls are less interested in sports than boys (Fredricks & Eccles, 2005)—and these beliefs are more common in immigrant families who tend to hold more traditional gender values (Sabo & Veliz, 2008).

Girls whose parents have resources, are active, value PA, and share an interest in their daughter’s participation report the highest levels of PA. Girls report that they enjoy when parents watch them play sports (Shields, Bredemeier, LaVoi, & Powers, 2005), but some parents of underserved girls are unable to watch their daughters due to work obligations (Thul & LaVoi, 2011). This point is significant because parental support—logistically, emotionally, and financially—is critical for the initiation and maintenance of PA for underserved middle and high school girls (Dowda, Dishman, Pfeiffer, & Pate, 2007; Kuo, Voorhees, Haythornwaite, & Young, 2007). Youth soccer stakeholders, soccer parents and girls themselves report a lack of family financial resources as a major barrier, resulting in the inability to purchase equipment, pay fees, and provide transportation (Thul & LaVoi, 2011; Thul, 2008). Consistently, concerns over transportation and program expense are significantly greater for African American and Latino parents than for White parents (CDC, 2003). In sum, girls in households with the highest family income are more likely to be in the highest category of moderate to vigorous PA (MVPA) (Gordon-Larsen et al., 2000).

Research on parents indicates mothers and fathers differentially influence their daughters’ PA behaviors, but little is specifically known about parental trends with underserved girls. Girls with mothers who possess a high level of education are more likely to engage in MVPA (Gordon-Larsen et al., 2000). Girls cite mothers at the top of the list—followed by fathers—in terms of who supports and encourages them to be physically active (Sabo & Veliz, 2008), indicating that parental encouragement is key in fostering and maintaining girls’ PA. Unfortunately, single parents are mostly women, and this group of women and their children comprise a large percentage of individuals living in poverty (Sabo & Veliz, 2008). These facts make the time and resources needed for girls’ participation and mother’s involvement in her daughter’s PA more challenging, if not insurmountable. Even the education level of the head of household matters. In 2007–2010, higher levels of education among the head of household was

related to lower rates of obesity among boys and girls 2-19 years of age. In households where the head of household had less than a high school education, nearly an equal percent of boys (24%) and girls (22%) were obese. In households where the head had a bachelor's degree or higher, obesity prevalence was significantly lower for males (11%) and females (7%) aged 2-19 (CDC, 2012). More research is needed to better understand the complex ways parents of underserved girls continue to influence their daughters into adolescence and to develop culturally relevant strategies to help underserved families increase girls' PA.

**Coaches and Adult Leaders.** Effective, caring, and well-trained adult leaders who create a safe, cooperative, mastery-focused climate are critical for ensuring positive development occurs in and through sports and PA (Wiese-Bjornstal & LaVoi, 2007). Girls cite physical education teachers and coaches near the top of the list of main sources of encouragement for involvement with sports (Sabo & Veliz, 2008), but unfortunately, adult leaders can be also detrimental rather than facilitative to girls' participation. Compared to White girls, Latina and African American girls perceived less teacher support for PA within the school climate (Grieser et al., 2008). Recreation managers reported that prejudicial attitudes, stereotypes, lack of cultural sensitivity and understanding of diversity by staff were major barriers for underserved minority youth (Allison & Hibbler, 2004). East African girls report coach-derived barriers such as coaches lacking cultural understanding (Thul & LaVoi, 2011; also see Chapter 6). Researchers in the *Girls health Enrichment Multi-site Studies* (GEMS), an obesity prevention program targeting young African American girls ages 8 to 10 years, found program success was contingent primarily on establishing open and trusting relationships cross-culturally and across socioeconomic lines (Kumanyika et al., 2003). This finding strongly suggests that in order for programming to succeed, practitioners must possess cultural and contextual sensitivity and empathy.

Duncan (2007) summarized a host of research which indicated that adult PA leaders often reproduce gender stereotypes and attribute girls' lack of interest, motivation, or effort to a "problem with girls." In addition, girls are often compared to boys, perceived as less physically competent, ignored or given less quality and quantity of instruction, and forced to participate in a PA structure that privileges boys' power, speed, and strength. Cooky (2009) describes how some coaches and community organizers in Los Angeles constrain underserved girls' basketball participation by acting in ways described by Duncan that reproduced their beliefs that "girls aren't interested in sports"—which the girls themselves refuted as not accurate. Undoubtedly, blatant and subtle barriers created by adult leaders contribute to the construction of a girls' sport deficit model—one in which girls are blamed or compared to boys. Some girls may avoid participating when adult leaders create (although often unintentionally) such a wide range of barriers.

Given the fact that an overwhelming majority of youth sport coaches and people in positions of power (i.e., community recreation leaders, club directors, athletic association presidents) are White men, and women typically engage in more logistical support (i.e., transportation, enrollment), underserved girls lack active female role models (LaVoi, 2009; Messner, 2009). Seeing females in positions of power outside the home in a context that girls value, may provide inspiration for girls and help challenge commonly held ideas about gender and power (LaVoi, 2016). When females occupy positions of power it provides evidence for girls that females can be active, succeed, and be influential in and through sports. The lack of visibility and existence of women of color as leaders in PA at the community level (not to mention at the national level and in the media) is an issue that warrants attention, as their absence (for whatever the host of legitimate reasons may be) might be contributing to a self-fulfilling prophecy of inactivity for underserved girls. From a host of research, it is clear that PA and inactivity have different determinants—social-demographic factors as described above are most associated with inactivity, while environmental factors are most associated with PA (Gordon-Larsen et al., 2000).

## ENVIRONMENTAL BARRIERS

Environmental factors include the built environment such as structural aspects of program offerings in parks, schools, and community recreational centers; quality and availability of indoor and outdoor facilities; neighborhood safety; transportation; facility maintenance; and proximity of facilities. Currently little is known about structural-environmental barriers, particularly among underserved girls who have disproportionately low levels of facility use and therefore PA.

***Facilities and Programming.*** Girls living in neighborhoods with high rates of poverty and crowding, and lower levels of education have access to less quality and fewer facilities to participate in PA. Even when girls live within proximity to a park or a community center, girls less frequently use those spaces for PA. When interviewed about factors that influence use of community facilities, urban African American girls never described going to an outdoor space to join other girls in unstructured sport (Ries et al., 2008). Lower-SES and underserved groups have reduced access to facilities, which in turn is associated with decreased PA and an increased likelihood of being overweight (Gordon-Larsen et al., 2006). There are many reasons why girls are less frequent users of community spaces.

***Safety.*** Underserved girls have less access to parks and even when they do, they and their parents often perceive the space to be unsafe. Lack of safe space is a commonly cited barrier of many underserved girls and their families, which can be troublesome because



when spaces are perceived as unsafe, the PA of girls decreases. Urban African American girls feel outdoor spaces are more threatening than indoor facilities due to the potential of sexual assault, drug transactions, or someone “snatching” them (Ries et al., 2008). In California, only one in four adolescents have access to a safe park or open outdoor space—less access to parks predicts lower levels of PA (Babey, Brown, & Hastert, 2005).

**Proximity.** Conversely, proximity to facilities is related to higher levels of PA. Girls in grades 3-12 who lived near a park or gym are more likely to exercise, play a team sport, or be heavily involved in team sports, than girls who lived less close to facilities (Sabo & Veliz, 2008). One Midwestern youth soccer coach summed it up best: “The [soccer] fields in the inner-city suck, and there is not enough of them” (Thul, 2008). When girls live close to facilities, transportation barriers (i.e., cost, availability) may be alleviated, which is commonly cited as a major barrier by youth soccer stakeholders (Thul, 2008).

**Cost.** Organized physical activities are often cost-prohibitive. Fees for youth sport clubs and high school sports are on the rise (Hedstrom & Gould, 2004) and, not coincidentally, many families report that money is the biggest barrier to girls’ participation in organized club soccer (Thul, 2008). Even when facilities exist and programs are free, girls and their families may still perceive them as inappropriate to the needs of girls, too costly, low quality, or may be unaware they exist (Romero, 2005; Thompson, Rehman, & Humbert, 2005).

**Male Dominated.** Sport spaces may also be perceived by girls as “male space” and therefore underutilized or avoided. In Los Angeles, one observational study indicated males were twice as likely to use neighborhood parks to engage in MVPA as were females (Cohen et al., 2006). Girls of color overwhelmingly cite sports as a favorite out-of-school time activity in youth clubs (e.g., the Boys and Girls Clubs of America), but offerings are predominately structured to meet the interests of boys (Loder & Hirsch, 2003), and urban minority girls frequently report that neighborhood facilities are dominated by boys and men (Ries et al., 2008). Observations by Ries and colleagues confirmed that on the rare occasion a female wanted to get in the game, she was ignored by males, and that females were primarily engaged in passive activities such as talking with friends or watching the males play basketball. One East African girl in the Midwest stated, *“I would like to go outside and play tennis and volleyball and everything, but then in our community they have soccer and basketball and basically it’s all for boys you know. There’s not something for girls”* (Thul & LaVoi, 2008). Underserved girls and their families may not feel empowered or know how to advocate for programs that are culturally relevant and of interest to them, especially when language and cultural norms differ from those in positions of power (Allison & Hibbler, 2004).

***Lack of Sensitivity.*** Existing programming may be structured poorly, and lack cultural, religious or gender sensitivity for specific populations of underserved girls and their families. Many youth sport organizations are highly bureaucratic and structured in ways that favor middle- to upper-class families, making navigation of the system (e.g., registration processes, awareness of deadlines, paperwork) nearly impossible for some families for whom English is a second language, or who do not own a computer (Thul, 2008). For example, immigrant East African girls who are practicing Muslims express a desire to play youth soccer and swim but also express a strong desire to adhere to religious and cultural norms of privacy (Thul & LaVoi, 2011), but few programs are willing to make accommodations that make participation possible. When underserved girls do play soccer, they may experience sexist or racist remarks emanating from the sidelines or from opponents that create a racially hostile climate (Thul, 2008). Racism and sexism are under-examined barriers which affect girls' participation in PA.

## **SOCIETAL BARRIERS**

Currently in the U.S., a girl's value is still largely associated with what she looks like, rather than what her body can do athletically. Girls' bodies are continually sexualized within the media (American Psychological Association [APA], Task Force on the Sexualization of Girls, 2007), including the bodies and performances of sporting females. Additionally, a majority of mainstream media images portray White middle- and upper-class girls, which may make underserved girls feel invisible and further marginalized. Duncan (2007) argues that outdated gender stereotyping—which places ideas about what it means to be a “real girl” and a “real athlete” in opposition—is one of the greatest barriers girls must overcome to be active, and one of the most difficult to change. Many researchers have similarly argued gender stereotypes experienced and described by girls are problematic, and acknowledge that such stereotypes can drastically decrease girls' PA participation (Garrett, 2004; Gorely et al., 2003). Sexualized images and gender stereotypes of Western White female athletes or active females may be even more problematic for underserved girls who value and want to maintain cultural norms of privacy and modesty but desire to be physically active, such as practicing Muslims. Gender stereotypes associated with traditional femininity and athleticism may affect girls of different ethnic and racial groups in divergent ways. Little is known about the physicality of underserved girls—how girls experience their bodies and construct identities in and through physical activity. Research examining physicality and the complex intersections of race, class, and gender, among other intersectional identities of girls, is warranted.

## Disparities and Implications of Physical Inactivity

As a result of the many barriers underserved girls face in pursuing PA, it is not surprising that disparities in participation and health outcomes exist for underserved girls who are inactive. We present participation and health disparities in distinct sections, which reflect how research is most commonly conducted and reported, but this way of reporting does not reflect the complexity of the lived experiences or the many ways in which geographic, gender, race, and income-level disparities for underserved girls are intertwined. However, the EST presented earlier in this chapter illustrates that a girl's PA experience is nested within, and influenced by, a complex and dynamic system.

### PHYSICAL ACTIVITY AND SPORT PARTICIPATION DISPARITIES

The U.S. Center for Disease Control (CDC, 2008a) recommends that youth and adolescents undertake, at minimum, 60 minutes of at least moderate-intensity aerobic physical activity daily, as well as at least 60 or more minutes of vigorous-intensity aerobic, muscle-strengthening, and bone-strengthening physical activity three days a week to meet national physical activity requirements. Less than half of all youth meet the minimal PA requirements necessary to accrue health and developmental benefits (CDC, 2008b; 2008c). For girls of color who live in urban areas and are of lower socioeconomic status—the group we have termed underserved girls for the purpose of this chapter—even fewer meet minimal PA standards. One way girls can be assured of acquiring a minimal dosage of PA and increasing the likelihood of remaining active into adulthood is through structured, organized PA, physical education, or youth sport participation.

#### *Gender Participation Disparities*

Girls in all demographic categories and at all ages are less physically active and have less opportunity for sport participation than boys (LaVoi & Wiese-Bjornstal, 2007). Young girls participate in less PA—particularly moderate to vigorous PA (Crespo, 2005)—than their male counterparts, and this gender gap increases with age. Adolescent girls (31.8%) are significantly more likely than adolescent boys (18%) to report no recent PA (CDC, 2008c), and only 25.6% of American high school girls compared to 43.7% of high school boys met PA standards (CDC, 2008c). One context in which girls have the opportunity to achieve MVPA participation is through school-based physical education. However, with decreasing federal funding for education and the cutting of physical education from school curricula nationwide, in 2008 only 57.7% of male high school students and 49.4% of female high school students participate in physical education class for one or more days during the average school week, and less than one-third of all high school students participate in daily physical

education (CDC, 2008c). Data indicate it is only getting worse. In 2015, nationwide 51.6% of high school students attended physical education classes in an average week, and only 29.8% of high school students attended physical education classes daily (McManus et al., 2016). Trend analyses did not identify a significant linear trend in the overall prevalence of going to PE classes on one or more days during 1991–2017 (48.9%–51.7%). When girls do participate in physical education classes they participate less vigorously than boys—57% of girls report vigorous PA in physical education classes compared to 72% of boys (McKenzie, Prochaska, Sallis, & LaMaster, 2004).

Another context in which girls have the opportunity to achieve MVPA is through sport participation. Despite 45 years of increasing girls' sport participation opportunities following Title IX, boys still outnumber their female peers at all levels of sports—including high school sports where male participants (4.56 million) outnumber their female counterparts (3.40 million) (National Federation of State High School Associations, 2016). In addition, girls enter sports at a later age than boys, drop out earlier (usually during adolescence), and drop out in greater numbers than boys (LaVoi & Wiese-Bjornstal, 2007; Sabo & Veliz, 2008).

The sport participation gender gap varies depending on the type of community. Boys and girls in suburban communities have similar participation rates, but in urban and rural areas rates favor boys (Sabo & Veliz, 2008). Sport participation is significantly lower for girls than for boys in the inner city (Elkins, Cohen, Koralewicz, & Taylor 2004). Among 3<sup>rd</sup> to 8<sup>th</sup> graders nationwide, urban girls (33%) more frequently report never playing sports compared to boys (10%), but the gender gap slightly narrows by high school between girls (25%) and boys (17%) (Sabo & Veliz, 2008). The gender gap affects underserved girls in complex ways when viewed simultaneously with the racial gap that also exists between underserved girls and their privileged female peers pertaining to structured, organized PA participation.

### ***Racial Participation Disparities among Girls***

Primarily due to numerous barriers already outlined in this chapter, girls of color are less active than their White female counterparts (Coakley, 2009; Crespo, 2005; Stellino & Partridge, 2007). African American and Mexican American youth, particularly adolescent girls, are less physically active than their non-Latina White counterparts (Crespo, 2005; Richmond, Hayward, Gahagon, Field, & Heisler, 2006; Sabo & Veliz, 2008). Fewer African American (21.3%) and Latina (21.9%) female high school students report meeting recommended levels of PA compared to their White peers (27.9%) (CDC, 2008c). Declines in African American girls' PA from childhood to adolescence are also much greater than their White counterparts (Kimm et al., 2002). One explanation for the race gap may be attributed to the fact that White youth are twice as likely as youth of color to attend an after-school PA class (Sallis et al., 1996).

**As a result of the many barriers underserved girls face in pursuing PA, it is not surprising that disparities in participation and health outcomes exist**

Data in physical education contexts also illuminate racial gaps among girls. The estimated percentage of 8<sup>th</sup> to 12<sup>th</sup> grade U.S. high school students who enroll in physical education is lower in schools primarily attended by Latina students than in schools primarily attended by White students (Johnston, Delva, & O'Mally, 2007). Other research also suggests that lower PA levels in African American and Latina adolescent girls may be largely attributable to physical education access in the schools they attend (Richmond et al., 2006). A study found that African American, Latina, and White girls attending the same school with the same opportunities to participate in physical education did not have significantly different levels of PA, but African American and Latina girls who attended poorer schools with less access to quality physical education compared to their White counterparts tended to have much lower activity levels (Richmond et al.). The prevalence of going to PE classes on one or more days was higher among male (55.9%) than female (47.6%) students; higher among white male (52.7%), black male (62.4%), and Hispanic male (58.8%) than white female (45.1%), black female (47.8%), and Hispanic female (53.1%) students respectively (Kann et al., 2018). The racial gap among White girls and girls of color in physical education illustrates that *all girls are not provided an equal opportunity to achieve adequate PA*. Similar racial gaps among girls exist in sports contexts.

Nationwide, Latina (17%), African American (15%), and Asian (8%) girls still comprise the minority of youth sport participants, but data also indicate that youth sports are becoming increasingly racially and ethnically diverse (Sabo & Veliz, 2008). African American and Latina youth, particularly adolescent girls, participate proportionally less in organized sport than their White counterparts (Crespo, 2005; Richmond et al., 2006; Sabo & Veliz, 2008). Nationwide, more Black females (51.1%) report participating on a least one sports team in 12 months, that White (49.8%) and Hispanic female (47.5%) students (Kann et al., 2018). More Asian (47%), African-American (36%), and Latina (36%) girls report a “non-athlete” status compared to White girls (24%) (Sabo & Veliz, 2008). This racial gap in sport participation is especially prominent for immigrant youth of color, as girls in immigrant families report lower rates of athletic participation than males within the same families (Sabo & Veliz, 2008). The findings may be due in part to the fact that children of color (both boys and girls) enter sport at a later average age than their White counterparts (Sabo & Veliz, 2008). This data is consistent with other research which indicates that African-American (Bungum & Vincent, 1995; Sirard et al., 2008) and Latina (Gordon-Larsen et al., 2002; Stovitz, Steffen, & Boostrom, 2008) girls participate in fewer sports teams and have lower PA and fitness levels compared with White girls. Few researchers have specifically examined sport and PA participation among distinct populations of immigrant girls, daughters of immigrant parents, or ethnic minority girls, such as Hmong, Native American, or East African girls—

resulting in a major gap in the literature. Immigrant youth ages 12-17 years old (46%) are less likely to participate in extracurricular activities than native-born youth (65%), and the gap remains even after controlling for SES (Reardon-Anderson, Capps, & Fix, 2002).

### ***Income-Level Participation Disparities among Girls***

Economic conditions of communities (including schools) and families influence girls' PA participation. Children with lower family incomes tend to have less healthy physical fitness status and have higher risk of obesity than children with higher family incomes (Jin & Jones-Smith, 2015). California adolescents who live in disadvantaged communities with lower proportions of college-educated adults tend to report less PA—including structured, organized PA—than teenagers living in more advantaged neighborhoods (Babey, Hastert, & Brown, 2007). National statistics mirror this California-specific statistic and indicate that females living in disadvantaged neighborhoods face higher crime levels and are at the greatest risk for inactivity (Gordon-Larsen et al., 2000). Lower levels of PA for girls who live in underserved communities may be due in part because they attend schools in lower SES districts and receive a lower quantity and quality of physical education than boys (Sallis et al., 1996). Lower PA levels may also be related to less opportunity for girls in low SES communities to participate in sport.

Research indicates that girls in communities with lower income levels participate less in sport than their more advantaged female counterparts and their male counterparts. A study that assessed sport participation via community income level (as measured by determining the median family incomes within the community within the U.S. census tract) indicated that the percentages of 3<sup>rd</sup> to 8<sup>th</sup> grade girl non-athletes was two times greater in the lower versus higher community income levels (Sabo & Veliz, 2008). The sport participation gender gap remained largest in communities with the lowest income levels, as gender differences in communities with higher median incomes were not significantly different. Highly involved sport participation of females in 3<sup>rd</sup> to 8<sup>th</sup> grade also increased as economic resources within the communities increased. Even more prominent than their communities' income level, family socioeconomic status shapes girls' organized and structured PA and sport opportunities as summarized in the Barriers section of this chapter.

Research strongly indicates that social class (i.e., family SES) influences youth PA and sport participation (Coakley, 2009). Youth and adolescents from families of higher SES have been found to participate in more organized activities and on more sports teams than low-SES adolescents (Hasbrook, 2005; Sallis et al., 1996). Various researchers (Coakley, 2009; Sallis et al., 1996; Wilson, 2002) state that children who live in poverty and in low SES families are less likely to participate in organized PA as their more advantaged



counterparts. Girls and boys from less educated families (lower SES, as defined in the study) are more likely to have both activity and school limitations than youth from more educated families, and thus participate in activities (such as sport) less (Chen, Martin, & Matthews., 2006). These limitations help explain why youth from low-income families (38%) more frequently report a “non-athlete” status compared to youth from high-income families (27%). Conversely, the greatest percentage of highly involved athletes (youth who played multiple sports) are reported by parents in the upper income levels (Sabo & Veliz, 2008).

### ***Health Disparities: The Result of Inactivity?***

Recently researchers have forecasted that the current generation of youth will be the first generation in modern history expected to have shorter life spans than their parents (Daniels, 2006). Data indicates the prevalence of high BMI in childhood has remained steady for 10 years and has not declined (Ogden, Carroll, Curtin, Lamb, & Flegal, 2010). This troubling forecast is due in large part to the trend of youth physical inactivity in the U.S. and the resulting negative health outcomes, such as obesity, Type 2 diabetes, heart disease, and depression. Among children, and particularly girls, the accumulation of social disadvantage (i.e. poverty, minority race/ethnicity, etc.) is also strongly associated with poorer child health (Bauman, Silver, & Stein, 2006). Gender, racial, and class PA participation disparities link to gender, racial, and socioeconomic disparities in health, which are so profoundly evident in the United States that the U.S. Department of Health and Human Services (USDHHS) has made one of its two overarching goals of *Healthy People 2020* the elimination of health disparities (USDHHS, 2010). The disparities underserved girls may face due to physical inactivity are described below.

*Gender Health Disparities.* In general male youth have higher rates of overweight and obesity than female youth (Ogden, Carroll, & Curtin, 2006). However, recent research indicates that the prevalence of overweight and obesity is increasing at a significantly higher rate in female than male youth (Ogden et al., 2006). It is likely the percent of females who are overweight or obese will soon match, if not surpass, the rate of their male counterparts. Compared with Latino males, Latina females are at higher risk for overweight (22% vs. 17%) and African American females are at higher risk for overweight (17% vs. 13%) and obesity (29% vs. 20%) compared with their male counterparts (Ogden et al., 2010). The increasing trend of overweight and obesity among all girls requires critical attention, as girls who are obese or overweight are 60% more likely to die from breast cancer as an adult than their average weight female counterparts (Calle, Rodriguez, Walker-Thurmond, & Thun, 2003). Data from the NHANES National Youth Fitness Survey indicate significant gender disparities in health-related fitness— only 33.8% of girls and 50% of boys met cardiorespiratory fitness

standards in the 2012 study. Similarly, 47.4% of girls ages 6 - 15 met measures muscular fitness compared to 55.8% of boys (National Physical Activity Plan [NPAP], 2016). Inactive girls are also at increased risk for other chronic health conditions including Type 2 diabetes, hypertension, high cholesterol, stroke, heart disease, arthritis (Flegal, Ogden, & Carroll, 2004), and osteoporosis. In addition to physical health, gendered mental health disparities also exist. Girls are twice as likely as boys to develop depression (Birmaher et al., 1996), and adolescent females are significantly more likely than adolescent males to suffer from a depressed mood (Sen, 2004), especially girls within low SES communities (APA, Task Force on Socioeconomic Status, 2007). Physical activity is an effective means for maintaining physical health as well as for managing and reducing depression, adding to the imperative that underserved girls participate in PA.

*Racial Health Disparities.* Racial and ethnic minority girls in the United States experience poorer health outcomes than their White counterparts (House & Williams, 2000). African American and Latina girls are 50% more likely to be overweight and/or obese than White girls (Nichols et al., 2007). African American females had nearly six-fold greater odds of obesity onset compared with European American females, while there was a trend towards two-fold greater odds of obesity onset among Latina females, which implies that African American and Latina females were at higher risk for developing overweight and obesity during adolescence (Huh, Stice, Shaw, & Boutelle, 2012). African American (21.4%) and Latina (17.9%) female high school students are also more likely to be overweight than White (12.8%) female students (CDC, 2008c), rates that have increased since the last CDC report in 2005. The state of California shows a similar trend: Latino (20.2%) and African American (19.6%) adolescents are more likely to be overweight or obese than White (9.2%) or Asian (7.3%) adolescents (Holtby et al., 2008). Because of the negative health risks associated with overweight and obesity, ethnic minority girls are also at greater risk for other health problems, including hypertension, diabetes, and heart disease. Data suggests that adolescents within racial/ethnic minority groups report greater levels of depressive symptoms than their non-Latina White counterparts (Sen, 2004), such as Mexican American adolescents and Latina adolescents who generally report significant higher levels of depression and distress than non-Latina Whites (Choi, Meininger, & Roberts, 2006; Roberts, Roberts, & Chen, 1997). Race disparities in the development of positive self-esteem also exist, because ethnic minority adolescents may experience being physically and culturally different from other adolescents and may struggle with establishing positive self-esteem (Choi et al.).

*Income-Level Health Disparities.* Girls from lower socioeconomic status households are at a particular risk for chronic health conditions (i.e., obesity) (Bauman et al., 2006), as poverty is associated with poorer health regardless of the way social class is measured (Lynch

& Kaplan, 2000). A health gradient based on socioeconomic status exists for children (Case, Lubotsky, & Paxson, 2002; Starfield, Robertson, & Riley, 2002) that indicates children's health is positively related to household income (Case et al.), parental education (Chen et al., 2006), and socioeconomic status (Chen, Matthews, & Boyce, 2002). Poor children are almost twice as likely to be in fair or poor health and are more likely to be diagnosed with severe chronic health conditions than their more advantaged counterparts (Brooks-Gunn & Duncan, 1997). Children living in low SES families and urban locations are more likely than children living in higher SES families and rural or suburban locations to be overweight and obese (Wang, 2001). Children living below the poverty line are also 1.3 times more likely than their more advantaged counterparts to experience learning disabilities and developmental delays (Brooks-Gunn & Duncan). Research also suggests that poverty leads to an increase in mental health problems (APA Task Force on Socioeconomic Status, 2007). Underserved girls—who face gender, class, and often race/ethnic disparities—possess the greatest threat for acquiring dismal health outcomes due to inactivity.

## Conclusion

This chapter began by defining underserved girls and iterated why it matters; girls are not a monolithic group. Next, it outlined possible assets that can accrue for girls if they are provided the opportunity to be physically active. However, asset accrual is not automatic and is highly dependent on a variety of factors. To forward current understandings about the varied and complex set of factors that influence girls' physical activity the *Ecological Intersectional Model of Physical Activity for Girls* was proposed, including existing literature of barriers to PA participation. Given that girls encounter numerous barriers to physical activity, some girls more than others—depending on her intersectional identities; racial, gender, social class, and health disparities—are well documented. Much work remains to illuminate the solutions and supports that will help all girls, regardless of identity or the system around them, to be physically active. The remaining chapters of the *2018 Tucker Center Research Report* are a step in the right direction.

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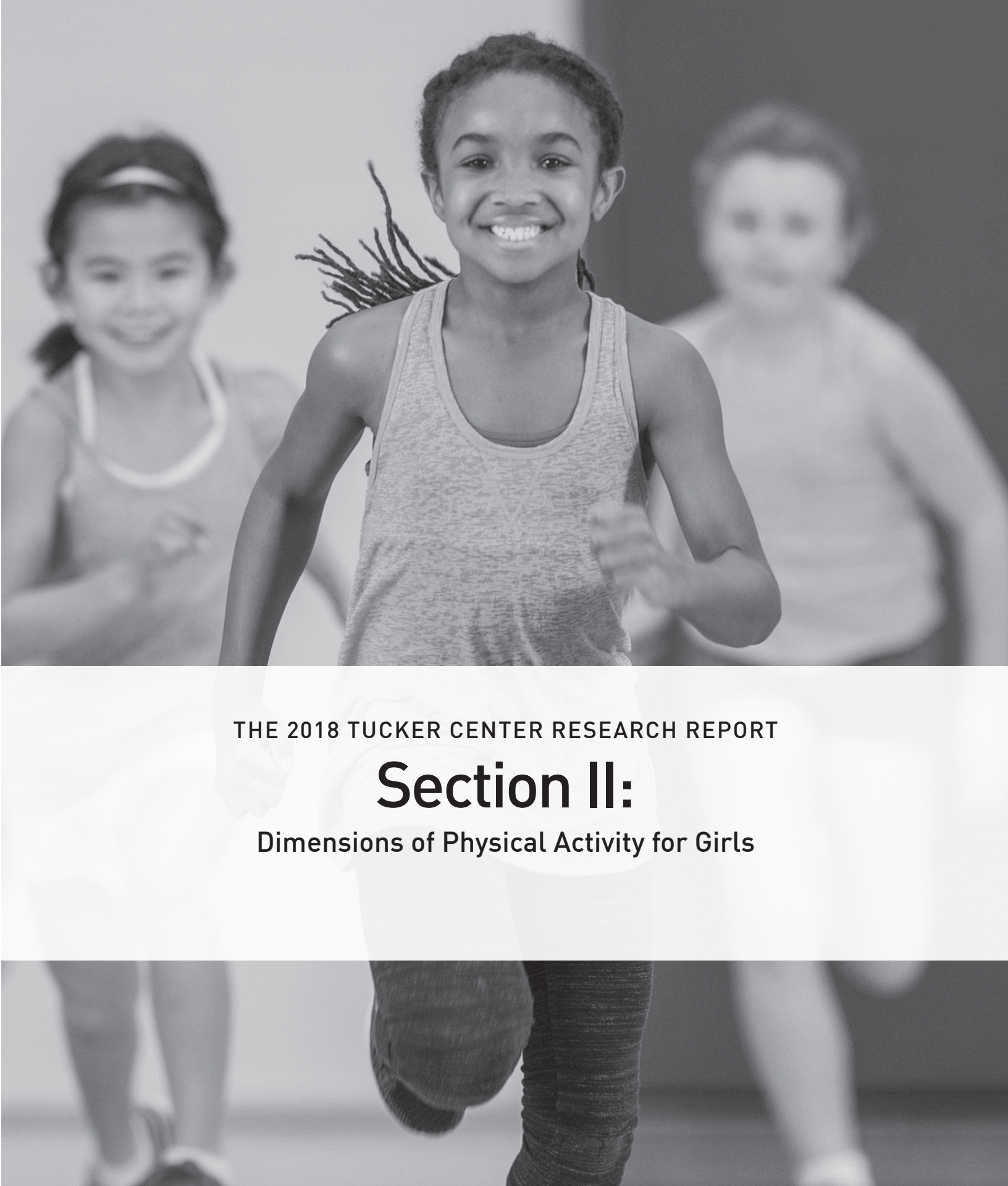
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THE 2018 TUCKER CENTER RESEARCH REPORT

## Section II:

Dimensions of Physical Activity for Girls



# Social Relationships Rock! How Parents, Coaches, and Peers Can Optimize Girls' Psychological Development Through Sport and Physical Activity

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In an interview prior to the 2016 Olympics, soccer player Alex Morgan, gold-medalist in the 2012 London Olympics and member of the 2015 World Cup champions, remarked, “I think organized sports are a huge building block for young girls ... It helps with confidence, it helps with friendships, and I feel like you learn a lot faster how to play a certain role on a team ... and that carries over to life skills that are necessary when you have a job” (McCarvel, 2016). Alex Morgan’s remarks reflect the long-held belief that sport participation holds the potential to develop and enhance positive psychological and behavioral outcomes, such as self-esteem, peer relationships, teamwork, and skills that generalize from the field to many life domains (Wiggins, 2013). The operating term is *potential*, because positive outcomes are not an automatic consequence of participating in sport. Indeed, the media portrays examples of negative coaching, overbearing parents, and win-at-all-costs attitudes, which indicates that the opposite effect is also possible.

What makes the difference between positive and negative psychosocial outcomes for girls in organized sport and physical activity? Quality of interactions and relationships with parents, coaches, and teammates—whom young girls look up to as models, rely upon for support, and seek out for performance feedback, social reinforcement, and skill instruction—hold the key to whether sport’s potential to optimize positive outcomes is realized (Weiss, Kipp, & Bolter, 2012). The importance of social relationships for positive psychological development is highlighted in every developmental theory, and studies abound providing robust findings of the mechanisms by which parents, coaches, and peers influence young female athletes’ self-perceptions (e.g., self-esteem), emotions (e.g., enjoyment), and motivational orientations and behaviors (e.g., intrinsic motivation, continued participation) in sport and physical activity. Thus, to achieve the potential for positive outcomes to occur as a result of sport participation, we must pay careful attention to what parents, coaches, and peers *say* and *do* in physical activity contexts and how girls are likely to interpret and respond to these verbal and nonverbal behaviors.

**Quality  
relationships hold  
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is realized**



We systematically explore the research evidence on how significant adults and peers influence young female participants, with an emphasis on *how* positive outcomes are shaped. We follow this review of literature by translating research to evidence-based best practices for parents, coaches, and program leaders for enhancing girls' positive experiences and developmental outcomes in sport and physical activity. We focus on studies conducted in structured (school and out-of-school-time sport) and unstructured physical activity (e.g., friends doing activities together that do not have coaches or scheduled practices). These contexts are ones in which studies predominate on social influence and psychological development, and which lend themselves to practical implications for those who work with female participants.

## Parental Influence on Girls' Psychological Outcomes

Parents are first and foremost to socialize girls into sport and physical activity, and they continue to be influential throughout adolescence (Horn & Horn, 2007). They are instrumental in registering daughters for teams, transporting to practices and competitions, and offering feedback for skill learning and performance. Parents influence girls' perceptions of competence, enjoyment, and motivation by expressing beliefs about and expectations of their child's involvement in sport as well as by modeling attitudes and behaviors that convey the value they place on being physically active. We organize our review of research on parental influence of girls' psychological outcomes using Fredricks and Eccles' (2005) categories of parents as *providers of experience* (e.g., enabling opportunities), as *interpreters of experience* (e.g., expressing confidence in child's ability), and as *role models* (e.g., being physically active). Most studies included multiple forms of parental attitudes and behaviors as contributors to daughters' self-beliefs and participation in sport and physical activity.

### PARENTS AS PROVIDERS OF EXPERIENCE

Surveys with and interviews of youth (e.g., Bhalla & Weiss, 2010; Fredricks & Eccles, 2005) and collegiate players and coaches (Dixon, Warner, & Bruening, 2008; Weiss & Barber, 1995) implicate parents as *providing opportunities* for daughters to enroll in and reap the benefits of sport participation. Examples of providing experiences include paying for lessons, transporting to practices, attending games, giving performance feedback, and offering encouragement and emotional support. Consistent findings reveal that girls who report greater parental involvement, encouragement, and social support score higher on perceived physical competence, enjoyment, and intrinsic motivation, and are more likely to continue participating, than girls who rate their parents lower in these behaviors (Weiss, Kipp, & Bolter, 2012).

The significance of parental social support is also seen in studies examining physical activity behavior (Davison, Cutting, & Birch, 2003; Davison, Downs, & Birch, 2006; Silva, Lott, Mota, & Welk, 2014). Mothers reported providing higher levels of logistical support for their 9-year-old daughters than did fathers, which included enrolling them in sports and going to sporting events together (Davison et al., 2003). Higher levels of mothers' logistical support were associated with higher levels of girls' physical activity involvement. Silva et al. found that adolescent females who perceived greater social support by parents reported higher enjoyment, self-efficacy, and moderate-to-vigorous physical activity (MVPA) than girls who reported lower levels of parental social support. This finding, coupled with girls being significantly lower in MVPA than their male peers, accentuates the salience of parental involvement in and encouragement of their daughters' physical activity pursuits.

The other end of parental social support is pressure placed on children to participate and perform in sport. Female athletes who perceive greater pressure by or obligation to parents to succeed in sport report lower enjoyment, higher anxiety, and lower intrinsic motivation and commitment (e.g., Bois, Lalanne, & Delforge, 2009; O'Rourke, Smith, Smoll, & Cumming, 2011; Weiss & Weiss, 2007). Bois et al. found that adolescent female tennis players reported greater pressure from parents than did male peers, and greater perceived pressure was related to higher levels of performance anxiety. W.M. Weiss and Weiss found that greater perceived parental pressure was associated with lower desire and resolve to continue participation among 8- to 14-year-old gymnasts. Thus, maximizing parental social support and minimizing parental pressure is critical for young female participants.

## **PARENTS AS INTERPRETERS OF EXPERIENCE**

In a classic study, Eccles and Harold (1991) found marked gender differences, favoring males, among youth on perceptions of sport ability, importance placed on doing well in sports, enjoyment of playing sports, and free time spent in sport activities. By contrast, girls reported reading and writing as more important and enjoyable and spent more time doing these activities than boys. These differential findings were attributed to gender stereotyping, meaning parents' beliefs and behaviors about appropriateness of gender roles are internalized by children and manifested in ratings of athletic ability, enjoyment, and time spent in male- (sport) and female-typed (language arts) activities. These findings accentuate how children's perceptions of parents' gender beliefs can contribute to their own beliefs and behaviors in achievement domains.

Now, over two decades later, with the impact of Title IX resulting in more opportunities for girls' participation in sports, what does the literature reveal about parents' gendered beliefs and children's experiences in sport? Some studies show that parents hold gender-

typed beliefs by providing greater encouragement, opportunities, and support for their sons than for their daughters in sport (e.g., Fredricks & Eccles, 2005). Other studies show no gender differences in perceptions of parental beliefs about, involvement in, and support for girls' sport participation (e.g., Bois, Sarrazin, Brustad, Trouilloud, & Cury, 2002, 2005; Davison, 2004). Horn and Horn (2007) indicate that parents who are gender-schematic use gender as an attribute for interpreting experiences, such as appropriateness of certain sports for girls and boys, whereas individuals who are gender-aschematic do not use gender as a factor in determining sport appropriateness. Thus, gender beliefs about the potential for girls and boys to do well in sport connotes one way in which parents interpret experiences for their daughters.

A strong finding for parents as interpreters of experience points to beliefs about their child's competence in and the value they place on being successful in sport (e.g., Babkes & Weiss, 1999; Bois, Sarrazin, Brustad, Chanal, & Trouilloud, 2005; Fredricks & Eccles, 2005). Bois et al. (2002) found that mothers' ability beliefs for 8- to 12-year-old daughters predicted the child's perceived physical competence one year later, independent of initial perceived competence and physical performance. Bhalla and Weiss (2010) interviewed Anglo- and East Indian adolescent female athletes about parental influences on sport involvement. Both groups gave examples of how parents' positive beliefs about their participation translated to encouraging daughters to be active, providing feedback about performance, and expressing pride in accomplishments. These beliefs and behaviors influenced girls' success expectations, value toward sport, and participation behaviors.

Parents' goal orientations and the motivational climate they create for their children delineate how they define success in sport, which affects girls' beliefs and behaviors (Horn & Horn, 2007). Parents who are high in task goal orientation define success in self-referenced terms—as demonstrating effort and mastering and improving skills. This orientation is associated with creating a climate that emphasizes learning, effort, and improvement. By contrast, parents who are high in ego goal orientation define success in norm-referenced terms—as comparing favorably to peers and performance outcome. This orientation is associated with creating a climate that recognizes the best performers and winning. Female participants' perceptions of parents' goal orientations and motivational climate are strongly related to their own goal orientations and psychosocial outcomes (Kimiecik & Horn, 1998; Kimiecik, Horn, & Shurin, 1996; O'Rourke, Smith, Smoll, & Cumming, 2014). O'Rourke et al. found that 9- to 14-year-old swimmers who perceived the parent climate as highly task-involving reported higher self-esteem and intrinsic motivation and lower performance anxiety at season's end, whereas those reporting the parent climate as more ego-involving showed the opposite outcomes.

## PARENTS AS ROLE MODELS

*Modeling* refers to change in attitudes and behaviors as a result of observing others, and *models* are individuals whose verbal and nonverbal behaviors serve as cues for observers' responses (McCullagh & Weiss, 2002). This definition of observational learning means that girls' physical activity beliefs and behaviors are influenced not only by what they *see* their parents doing but also by what they *hear* and interpret from verbal and nonverbal expression. Girls might not have the opportunity to directly observe parents exercise at the gym, but they may hear parents express positive exercise feelings at the dinner table. In addition, parents may spend time playing with their child, may have participated as high school athletes, or may coach their child's team. These are also consistent with parents as role models. Early research simply examined whether parent and child physical activity levels were correlated with each other and found mixed support for modeling—but this was a narrow approach for determining whether parents are role models for their daughters.

Using an inclusive definition of modeling, findings show that girls' perceptions that mothers and fathers model positive attitudes and behaviors are strongly related to their perceived athletic competence, enjoyment of sport, intrinsic motivation, and continued involvement (Babkes & Weiss, 1999; Bhalla & Weiss, 2010; Dixon et al., 2008; Fredricks & Eccles, 2005). Babkes and Weiss found that 9- to 11-year-old female soccer players who rated mothers and fathers as positive role models reported higher ability perceptions, enjoyment, and preference for optimally challenging activities than players reporting lower parent modeling. Dixon et al. conducted a retrospective study in which collegiate women coaches recalled parental socialization into sport. They indicated that mothers *and* fathers were positive role models based on expressed support for their daughter's sport participation and their experiences as high school and collegiate athletes. Respondents reported that fathers coached their teams while mothers were logistical and emotional supporters. Research is needed to study the impact of mother-coaches as models for their daughter-athletes.

Parents as role models have also been studied for girls' unstructured physical activity (Bois, Sarrazin, Brustad, Trouilloud, & Cury, 2005; Davison & Jago, 2009; Sabiston & Crocker, 2008; Schoeppe, Liersch, Robl, Krauth, & Walter, 2016). Youths' perceptions that mothers and fathers express positive emotions about and engage in frequent physical activity are strongly associated with their perceived competence in, value toward, and level of physical activity. Interestingly, Bois et al. found that mothers', but not fathers', modeling of physical activity behavior was significantly related to 9- to 11-year-old girls' and boys' physical activity levels. Sabiston and Crocker found that female adolescents who rated parents as role models (combined with value toward physical activity and emotional support)

reported higher perceived competence, value toward physical activity and physical activity levels. Thus, parent modeling is an important way to support girls' positive experiences in physical activity and sport.

## Coaches' Influence on Girls' Psychological Outcomes

Coaches and physical activity instructors play an important role in fostering positive psychological, social, and physical outcomes for girls (Horn, 2008; Weiss et al., 2012). We describe five important types of coach or instructor influence that have been consistently related to girls' self-perceptions, enjoyment, motivation, and persistence in sport and physical activity: feedback patterns, motivational climate, interpersonal style, transformational leadership, and social support.

### FEEDBACK PATTERNS

Coaches' quality of feedback and reinforcement is consistently tied to athletes' experiences in sport and physical activity. Positive and performance-contingent reinforcement, encouragement, and technical instruction can maximize girls' psychosocial and behavioral benefits from sport participation, such as perceived competence, self-esteem, intrinsic motivation, enjoyment, and persistence (Black & Weiss, 1992; Coatsworth & Conroy, 2006; Horn, 1985; Weiss, Amorose, & Wilko, 2009). Coatsworth and Conroy trained youth swimming coaches to engage in frequent reinforcement and instructional behaviors and to eliminate punishment for mistakes. Girls in the intervention group who started the season with lower self-esteem made the largest gains in self-esteem over the swim season. Therefore, coaches' use of feedback and reinforcement can set the stage for girls to gain psychological benefits in sport, especially for those who need it the most.

The quantity and quality of coaches' feedback and reinforcement are influenced by their expectations of girls' ability levels (Horn, Lox, & Labrador, 2015). Although there are few physiological differences between boys and girls before puberty, some coaches and instructors hold stereotyped beliefs that girls are less physically able than boys; subsequently, less instructional feedback is given and positive reinforcement may be given inappropriately, such as praise for easy tasks or mediocre performances due to lower performance expectations for girls. Praise that is not genuine or aligned with performance may signal to girls that they are lower in ability, and confidence and motivation can be negatively affected. In a classic study showing this effect with adolescent softball players, Horn (1985) found that greater coach reinforcement after desirable performances was associated with decreased perceived competence, whereas greater constructive criticism following errors was associated

with gains in perceived competence. These results imply that reinforcement needs to be contingent to performance in order to optimize psychological responses. Contingent praise for mastery attempts coupled with instruction is important for girls of all ages because, over time, inadequate instruction and reinforcement may exacerbate post-pubertal gender differences in physical capabilities.

## **MOTIVATIONAL CLIMATE**

The motivational climate that a coach creates is informed by how they define success, how they structure practices, and how they evaluate performances (Ames, 1992; Harwood, Keegan, Smith, & Raine, 2015). In a mastery climate, the coach emphasizes effort, improvement, and learning as keys to success. In a performance climate, favorable social comparison and performance outcome (i.e., winning, placement) are emphasized. Greater perceptions of a mastery climate and lower perceptions of a performance climate are associated with higher perceived competence, positive emotions, autonomy, relatedness (feelings of connection with coaches and teammates), self-determined motivation, persistence, and skill learning (Kipp & Amorose, 2008; Kipp & Weiss, 2013, 2015; Theeboom, De Knop, & Weiss, 1995; Weiss et al., 2009). Kipp and Amorose found that when coaches were perceived to place greater emphasis on effort and improvement, recognize each athlete's unique role on the team, and engage in less punishment for mistakes, female adolescent athletes reported higher competence, autonomy, relatedness, and self-determined motivation. Weiss et al. found that female adolescent athletes reported greater enjoyment, perceived competence, and intrinsic motivation when they reported coaches placed greater emphasis on a mastery climate and less emphasis on a performance climate. Thus, coaches who use self-referenced, rather than norm-referenced, criteria to define success create an environment optimizing girls' thoughts, feelings, and behaviors.

## **INTERPERSONAL LEADERSHIP STYLES**

Interpersonal leadership styles refer to autonomy-supportive and controlling coach behaviors. Autonomy-support is demonstrated when coaches allow for athletes' choice and input, provide a rationale for activities, and acknowledge athletes' thoughts and ideas. Controlling coach behaviors include using rewards or punishment to control athletes' actions, giving overly critical feedback as a motivational strategy, and using their power to dictate athletes' behaviors both in and out of the sport setting (Mageau & Vallerand, 2003).

Autonomy-supportive coaching behaviors are associated with many psychological, social, and behavioral benefits for female participants, including greater perceived competence, autonomy, relatedness, self-determined motivation, self-esteem, positive emotions, and



persistence, and lower negative emotions and burnout. By contrast, controlling coach behaviors are linked with lower perceived autonomy and relatedness and higher extrinsic motivation and dropout from sport (Amorose & Anderson-Butcher, 2015; Kipp & Weiss, 2013, 2015; Pelletier, Fortier, Vallerand, & Brière, 2001; Quested & Duda, 2010, 2011; Reynolds & McDonough, 2015). Reynolds and McDonough found that greater perceptions of autonomy-support by the coach were associated with higher perceived competence, autonomy, relatedness, and self-determined motivation among female adolescent soccer players. Kipp and Weiss (2013) found that female gymnasts' perceptions that coaches implemented a mastery climate and engaged in autonomy-supportive behaviors were associated with a higher sense of autonomy, relatedness, and positive emotions, whereas higher levels of coach controlling behaviors were associated with lower perceived autonomy. Post-pubertal girls reported lower gymnastics ability, self-esteem, and positive emotions than pre-pubertal girls. At a follow-up assessment seven months later, Kipp and Weiss (2015) found that higher levels of coach autonomy-supportive behaviors and use of a mastery climate predicted higher perceived competence and self-esteem and fewer symptoms of disordered eating. In sum, providing opportunities for choice and input, minimizing the use of external control, and emphasizing skill mastery and improvement are important ways coaches can promote psychosocial outcomes among female athletes and help counter the risk of lower well-being for post-pubertal girls.

Evaluation research of two physical activity-based positive youth development programs—*The First Tee* and *Girls on the Run*—highlight the positive impact of coach autonomy-supportive behaviors *and* mastery motivational climate on life skills learning and developmental outcomes among children and adolescents (Weiss, 2017, 2018; Weiss, Bolter, & Kipp, 2016; Weiss, Stuntz, Bhalla, Bolter, & Price, 2013). In these longitudinal studies, participants in *The First Tee* and *Girls on the Run* favorably compared to a control group on self-perceptions, interpersonal skills, and life skills learning and transfer, including emotion management, resolving conflict, helping others, and making informed decisions. Lasting impact on life skills learning was seen months after season's end for *Girls on the Run* and over a 3-year period of assessment for *The First Tee*. These positive outcomes were directly aligned with the intentional life skills curriculum delivered by coaches trained to use a mastery-oriented and autonomy-supportive interpersonal style to bring about physical and life skill learning and positive psychological and social development.

## TRANSFORMATIONAL LEADERSHIP BEHAVIORS

Transformational leadership in sport refers to coaches who are role models and who inspire their athletes to exert maximum effort and reach their performance potential. Transformational leadership (Bass, 1998) is defined by four leader behaviors: (a) inspirational motivation (setting high achievement standards and exhibiting confidence in attaining them), (b) idealized influence (modeling desirable attitudes and behaviors), (c) intellectual stimulation (facilitating problem-solving and creativity among teammates), and (d) individualized consideration (recognizing the needs and interests of each team member). Athlete perceptions of more frequent transformational coach behaviors are associated with higher perceived competence, autonomy, relatedness, sport enjoyment, and positive emotions among adolescent athletes (Price & Weiss, 2013; Stenling & Tafvelin, 2014). Price and Weiss found that perceptions of greater coach transformational behaviors were associated with greater perceived competence, enjoyment, task cohesion, and team confidence among adolescent female soccer players. Thus, girls gain psychological and social benefits when coaches set high standards, model desirable qualities, facilitate problem-solving, and consider athletes' interests.

## SOCIAL SUPPORT

Socially supportive coaches and instructors provide encouragement and display care and respect toward youth. Perceptions of social support are positively associated with girls' physical and global self-worth, physical fitness, and physical activity levels (e.g., Bruening, Dover, & Clark, 2009; Dishman, Dunn, Sallis, Vandenberg, & Pratt, 2010; Dishman, Saunders, Motl, Dowda, & Pate, 2009). Bruening and colleagues conducted a 12-week physical activity program for pre-adolescent girls of color with college student-athletes as mentors and instructors. Mentors and participants engaged in one-on-one interactions to discuss life skills (e.g., conflict resolution, dealing with peer pressure) and participate in physical activity together; topics and activities were cooperatively chosen. Interviews revealed that girls improved in physical activity and self-worth over the course of the intervention. In a physical activity intervention with female adolescents, Dishman et al. (2009) found that higher levels of perceived social support by instructors helped to mitigate girls' decline in physical activity. Thus, instructors can optimize physical activity and positive self-perceptions by providing opportunities for social support.

## Peer Influence on Girls' Psychological Outcomes

While parents are the first to socialize daughters into sport, and coaches are important for creating a mastery-oriented and autonomy-supportive climate, one's peers such as classmates, teammates, and close friends occupy a central role in girls' sport and physical activity experiences throughout childhood and adolescence. A consistent finding is that girls are motivated to initiate, continue, and maintain participation in sport and physical activity for social reasons—to be with friends, make new friends, feel part of a group or team, and attain acceptance and approval from peers (Weiss, 2013). Thus, understanding the processes by which peers influence each other's self-perceptions, emotional responses, and motivational outcomes in sport and physical activity is important for optimizing positive and minimizing negative experiences. We organize the review of research around the three major topics in which peers have been studied: peer group acceptance, friendship, and peer leadership.

### PEER GROUP ACCEPTANCE

Peer group acceptance refers to the degree to which a child is liked by his or her broader peer group (e.g., teammates), whereas friendship refers to a close, dyadic relationship (e.g., best friends). Youth sport participants who feel they are accepted and liked by teammates, or who define being successful as favorable regard by peers, report higher ability beliefs, enjoyment, self-determined motivation, and commitment (Garn, 2016; Smith, Ullrich-French, Walker, & Hurley, 2006; Stuntz & Weiss, 2009; Ullrich-French & Smith, 2006, 2009). Garn found that higher perceptions of teammate acceptance among female adolescent volleyball players were associated with greater enjoyment, effort, and desire and resolve to keep playing. Similar outcomes of feeling accepted by and connected to peer groups emerge in studies for unstructured activity, with the added beneficial outcome of greater physical activity levels (Jago et al., 2009, 2011; Smith, 1999; Spink, Wilson, & Ulvick, 2012).

Peer conflict in sport is an understudied but important area for understanding psychological and behavioral consequences. In an interview study with female adolescent athletes, Partridge and Knapp (2016) found that causes of teammate conflict included jealousy, personality characteristics, parental interference, and cliques. Manifestations of this conflict emerged in the forms of relational aggression (e.g., gossiping, negative remarks on social media), sport-specific victimization (e.g., not passing the ball to a teammate, denying opportunities), and direct victimization in team sports (e.g., confronting a teammate verbally or physically). Outcomes of peer conflict included lower team cohesion and performance as a result of higher competitive anxiety and other negative emotions (e.g., frustration, anger). Opportunity for teammate conflict is likely in sport contexts—coaches are an important source of mitigating conflicts through their interpersonal style and provision of team-building opportunities.

## FRIENDSHIP

Close friends, such as teammates or non-sport “besties”, can be sources of support for girls in sport and physical activity (Weiss & Stuntz, 2004). Support can include behaviors such as encouragement, modeling, loyalty, and intimate disclosure. Weiss and colleagues conducted a series of studies to determine how youth define qualities of a best friend in sport (Weiss, Smith, & Theebom, 1996), to develop a survey of friendship quality (Weiss & Smith, 1999), and to assess the relationship between friendship dimensions and psychosocial outcomes (Weiss & Smith, 2002). Interview responses revealed 12 positive friendship qualities (e.g., self-esteem enhancement, emotional support) and 4 negative qualities (e.g., conflict, betrayal). The Sport Friendship Quality Scale produced six categories (companionship/pleasant play, self-esteem enhancement and supportiveness, loyalty and intimacy, things in common, conflict resolution, and conflict). Subsequent studies revealed strong associations between positive friendship qualities and favorable self-perceptions, affective responses, self-determined motivation, and sport commitment, with the reverse association for friendship conflict (Kipp & Weiss, 2013; Smith, 1999; Smith et al., 2006; Weiss & Smith, 2002).

Similar findings show that friend support, encouragement, and modeling contribute to physical activity levels (Davison & Jago, 2009; Jago et al., 2009, 2011; Sabiston & Crocker, 2008; Schofield, Mummery, Schofield, & Hopkins, 2007). Schofield et al. assessed adolescent girls’ physical activity with that of three closest friends, including reciprocated and non-reciprocated friends. Girls with a larger number of active friends were more likely to reach the criterion of 10,000 steps, and a significant relationship emerged for a girl’s physical activity level with that of a reciprocated friend.

Several studies simultaneously examined the influence of friendship and peer group acceptance on adolescents’ psychosocial and behavioral outcomes (Smith et al., 2006; Stuntz & Weiss, 2003, 2009; Ullrich-French & Smith, 2006, 2009). Stuntz and Weiss (2009) found that adolescent sport participants who were higher in friendship and peer acceptance goal orientations (i.e., feeling successful when developing a close, mutual friendship and being liked by teammates) reported greater perceived competence, enjoyment, and intrinsic motivation than those scoring lower in peer orientations. Ullrich-French and Smith found that 10- to 14-year-old soccer players who reported higher friendship quality and peer acceptance scored higher in perceived physical competence and intrinsic motivation and were more likely to return to soccer one year later.

## PEER LEADERSHIP

Sport offers the potential for girls to learn and demonstrate leadership behaviors. Studies reveal that teammates who are considered leaders by their peers (not only team captains but those perceived as leaders by example) are characterized by instrumental (goal-oriented) and expressive (social-oriented) behaviors. In addition, they are higher in peer group acceptance and positive friendship quality (Glenn & Horn, 1993; Moran & Weiss, 2006; Price & Weiss, 2011, 2013). Based on links among leadership and peer constructs, Moran and Weiss suggested that social competence is the thread of similarity that binds these characteristics and behaviors. Female adolescent athletes who are outgoing, get along with others, and are well-liked by teammates are more likely to be chosen as friends, engage in high quality friendships, and be seen as team leaders.

Some studies have examined the effect of peer leaders on individual and team outcomes (Holt, Black, Tamminen, Fox, & Mandigo, 2008; Loughhead & Hardy, 2005; Price & Weiss, 2011, 2013). Price and Weiss (2013) studied the combined influence of peer and coach leadership on female adolescent soccer teams. Effective peer leader behaviors were associated with teammates' perceptions of greater task and social cohesion on their teams, whereas coach behaviors were related to both individual (e.g., perceived competence) and team outcomes (task cohesion, collective efficacy). Peer leaders and coaches engage in different behaviors and thus might fulfill different roles in motivating and inspiring team members to perform, work together, and derive participation benefits. More research is needed to determine the type of peer leadership behaviors that will enhance team members' motivation and performance.

## Evidence-Based Best Practices for Parents, Coaches, and Program Leaders

We synthesize research on parent, coach, and peer influence to offer recommendations for enhancing girls' positive psychosocial and behavioral outcomes as a result of participating in sport and physical activity. Further information is available from other reviews (Brustad, 2010; Stuntz & Weiss, 2010; Weiss & Wiese-Bjornstal, 2009).

### PARENTS

- Enable opportunities for your daughters to experience a variety of individual and interdependent sports and physical activities.
- Encourage and support your daughter's interest and participation in sport and physical activity.
- Show confidence in and positively reinforce your daughter's mastery attempts and performance in sport and physical activity.

- Be a positive role model by expressing positive attitudes toward and engaging in regular physical activity.
- Plan family-based physical activities such as walking, bicycling, and rollerblading that demonstrate the value you place on a physically active lifestyle.
- Be involved in your daughter's participation by volunteering to coach her in youth sport or in other roles such as officiating and administration.

### **COACHES**

- Provide frequent instructional feedback to increase girls' physical self-perceptions, enjoyment, motivation, and persistence.
- Positively reinforce girls on behaviors specific to improving and mastering skills.
- Create a mastery motivational climate by emphasizing task-oriented goals and letting girls know that mistakes are part of the learning process.
- Allow opportunities for choice, decision-making, and expression of thoughts and ideas.
- Inspire through transformational leadership—provide optimal challenges, get to know athletes as individuals, and model sportspersonlike and other desirable behaviors.
- Enhance positive teammate interactions and relationships through activities that require group problem-solving and interdependent goals.

### **COMMUNITY PROGRAM LEADERS**

- Train coaches on how to provide developmentally-appropriate feedback and instruction, create a mastery motivational climate, and engage in autonomy-supportive behaviors.
- Encourage coaches, parents, and volunteers to be sources of social support by being active with participants and exuding care and respect for them as individuals.
- Maintain a high-quality program by regularly evaluating whether coaching behaviors are consistent with the mission; use evaluations to make improvements to the program.
- Evaluate impact on girls' psychological development by engaging participants, parents, and coaches in end-of-season surveys on strengths and areas in need of improvement.



## Concluding Remarks

Sport and physical activity participation opportunities and benefits are now ubiquitous for girls just as they have always been for boys. There is much potential for sport and physical activity to contribute positively to girls' psychological development and behavioral outcomes, but these are not automatic consequences of mere participation. Quality of interactions and relationships with parents, coaches, and peers are key to whether positive youth development occurs—through effective feedback, communication styles, social support, and modeling by parents and coaches and through acceptance by teammates, friendship quality, and effective leadership behaviors. Let's ensure that Olympian Alex Morgan's personal experiences of improved confidence, friendships, and life skills through sport participation translate to the millions of girls in the United States and worldwide seeking such opportunities in community and school sports. Parents, coaches, and program leaders must be mindful of conveying positive beliefs and behaving in ways that inspire girls to embrace the value of a physically active lifestyle, emulate desirable participation behaviors, and achieve their potential as a skillful and healthy child, adolescent, and future adult.

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# Sociological Dimensions of Girls Sport and Physical Activity

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## Introduction

### UNDERSTANDING THE COMPLEXITY OF GIRLS' SPORT AND PHYSICAL ACTIVITY THROUGH A SOCIOLOGICAL LENS

The good news: as documented in the 2007 Tucker Center Research Report, millions of girls continue to participate in sport each year. Forty-five years after the passage of Title IX, girls report playing organized and team sports at rates similar to boys (Sabo & Veliz, 2008), and only 18% of girls have never participated in sport compared to 13% of boys (Sabo & Veliz 2016). Some of the most popular sports among girls are basketball, volleyball, track, soccer, and sports outside the traditional realm such as Double Dutch, cheer, climbing, martial arts, and Ultimate frisbee (Sabo & Veliz, 2014). Moreover, hundreds of thousands of girls participate in sports-based positive youth development programs each year, such as the Women's Sports Foundation's GoGirlGo!, Girls on the Run, and Girls in the Game (Rauscher & Cooky, 2016).

The not so good news: inequities between girls and boys and among girls persist. Despite girls' historic sport participation rates, physical activity levels are lower among American girls compared to boys (Lenhart et al., 2012), and girls experience a greater decline in physical activity than boys as they grow up (Craggs, Corder, van Sluijs, & Griffin, 2011; Dumith, Gigante, Domingues, & Kohl, 2011.) Moreover, the attrition rate in sport is two to three times greater for girls than for boys (Sabo & Veliz, 2014). As detailed throughout this report, girls' sport participation and rates of physical activity also differ by family socioeconomic status, race, ethnicity, and immigrant status, meaning that there are substantial inequities among girls regarding access to opportunities for physical activity and their subsequent health and social benefits.

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Understanding the effects of sport and physical activity on girls' lives is complex. Research on how physical activity improves girls' body esteem, confidence, mastery, physical health, and academic success (Shifrer, Pearson, Muller, & Wilkinson, 2015; Staurowsky et al. 2009; Tucker Center for Research on Girls & Women in Sport, 2007) exists alongside studies showing how sport and privatized, extracurricular physical activity programs reproduce social inequalities (Messner & Musto, 2016; Coakley 2011) and are often dangerous or not health promoting (also see Chapter 4). Consider recent research specifying the incidence of concussion rates in high school sports is higher for girls than boys (Schallmo, Weiner, & Hsu, 2017) and that athletes are more likely to engage in substance use than non-athletes (Kwan, et al. 2014).

A sociological framework is particularly useful for helping make sense of this complexity and looking beyond a positive/negative, either/or framing of girls' sport experiences

**A sociological framework allows insight into the social and cultural processes that help to explain the unevenness in the landscape of girls' sport participation.**

(Sabo & Veliz, 2016). A sociological framework highlights how individual choice to participate in sport and physical activity, as well as girls' personal experiences in sport, are shaped by sociocultural factors—factors that are beyond the individual and reside in the social and cultural environment. In other words, sociology focuses on the extent to which structural, historical, and cultural factors both facilitate and constrain girls' access to and engagement with sport and physical activity (Messner, 2002; Cooky, 2009; Cooky & Messner, 2018). Using a sociological framework allows insight into the social and cultural processes that help to explain the unevenness in the landscape of girls' sport participation, such as the dramatic increase in girls' participation alongside their attrition rate and within-group inequities (Cooky & Messner, 2018). Moreover, a sociological lens uncovers explanatory factors for these trends that are often invisible or taken for granted (Mills, 1959). Such factors include how sport athletic teams are segregated by sex and gender, how school and neighborhood resources shape kids' access to play and be physically active in safe environments, and how beliefs about gender (i.e., femininity and masculinity) and athleticism encourage or discourage girls' sport participation.

Despite the advantages to using this analytical framework, there is a lack of youth sport research using a sociological perspective (Messner & Musto, 2014), and even less sociological research focused on girls' participation in physical activity and sport, particularly in non-elite sport settings. Messner and Musto's (2016) book, *Child's Play: Sport in Kids' Worlds*, is a notable exception. This recent volume offers insightful sociological analyses of the physical, social and psychological impact of youth sport and physical activity grounded in kids' perspective that is relevant for parents, coaches, youth advocates, schools, nonprofit organizations, and policymakers alike.

In this chapter, we provide an overview of the distinctively sociological dimensions of girls' participation in sport and physical activity drawing from the most recent research and trends, highlighting what's new and what remains the same from the 2007 Tucker Center Research Report. The first section describes patterns of girls' access and opportunities to engage in sports and physical activity, a primary area of interest to sociologists. Subsequent sections offer insight into the sociocultural factors that help explain these trends. As addressed specifically in Chapter 1 in LaVoi's (2018) Ecological Intersectional Model of Physical Activity of Girls and more generally across all chapters, individual and contextual factors simultaneously play a role in understanding the complete picture of girls and sport and physical activity in terms of what factors encourage and enable girls' participation and the many potential positive outcomes that can be derived from it. This chapter focuses on key sociocultural factors that influence what happens at the individual level. In conclusion, we offer suggestions as to how school and community-based organizations may develop programmatic efforts to make sport and physical activity more just, accessible, equitable, and beneficial to all girls. We hope that parents, coaches, advocates, and practitioners will find the chapter useful in thinking about how social and cultural factors shape the landscape of girls' opportunities and experiences.

## STRUCTURES OF OPPORTUNITY

### *Title IX and Schools*

In order to play sports and engage in both organized and leisure physical activity, girls must have access to athletic opportunities in their schools, neighborhoods, and communities. The 2007 Tucker Center report focused heavily on girls' experiences in physical education (PE) classes and how the hidden curriculum disadvantages girls. In this edition, we turn attention to the opportunities for girls and organized athletic teams in the school context.

Title IX is credited with improving the contemporary landscape of girls' sport participation in the United States through access to opportunity within schools. Title IX of the Educational Amendments of 1972 states that: "No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any educational program or activity receiving Federal financial assistance" (Title IX, 20 U.S.C. §1681 *et seq.*). Although historically girls and women in the United States experienced opportunities to participate in sports, these opportunities were primarily limited to upper-class girls who were able to attend high school, or young women participating in industrial leagues (Cahn, 2015). In many universities at the turn of the 20<sup>th</sup> century, sports and physical activity were limited by the feminine proscriptions of the time

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where competitive sports and vigorous physical activity were viewed as “masculinizing” women, and medical beliefs of female frailty were prevalent. It was not until the 1970s and 1980s when girls and women were afforded wide-scale participation opportunities in high school and college.

Title IX’s unequivocal, significant and direct impact on girls’ opportunity to participate in sport is unprecedented. Since its passage, high school girls’ interscholastic sports participation has increased from 294,015 in 1971-72 to over 3.4 million in 2016-2017 (National Federation of High School Associations, 2017-18) which has led to the perception that Title IX successfully leveled the playing field for girls. Unfortunately, the reality of a level playing field between boys and girls is not supported by research. Based on the data, a persistent gender gap in the opportunity to play sport exists and that gap has not closed over the last 45+ years after the passage of this key legislation. More specifically, a national study conducted by the Women’s Sports Foundation found that while the percentage of high school sport opportunities increased for both girls and boys from 2000 to 2010, they increased more for boys across all community types and level of school financial resources (Sabo & Veliz, 2012). Other longitudinal data confirm boys’ opportunity to play sports compared to girls has been steady and persistent for the last sixteen years. In 1994, there was a 14% gender gap in high school athletic opportunities where girls had fewer athletic opportunities than boys. This gap decreased to 11% in 2000 and 2006 but increased slightly in 2010 to 12% (Sabo & Veliz, 2012).

The opportunity to engage in interscholastic sport is lowest for girls in urban areas (Sabo & Veliz, 2012). When looking at a variety of other measures of organized sports activity or physical education in school, researchers found that girls from urban and rural communities were less involved than boys (Sabo & Veliz, 2008). The findings led the authors to describe urban girls as the “have-nots” in sports and physical education.

Notably, some schools are cutting their athletic programs altogether likely due to financial constraints (Sabo & Veliz, 2012). The Decade of Decline report (Sabo & Veliz, 2012) found that 15% of public schools either did not offer or cut their athletic programs between 2000 and 2010. In 2000, 8.2% of schools did not offer sports, a figure that almost doubled (15%) by 2010. Schools most likely to drop athletics were those with a majority female student population. Twenty percent of schools with majority female enrollment cut their interscholastic sport programs compared to 6.5% of gender balanced schools and 10.3% of schools with majority male enrollment. If this pattern continues at its current rate, 1.6 million girls and 1.8 million boys will not have the opportunity to play interscholastic sport at their schools in 2020 (Sabo & Veliz, 2012). Other studies show that the more girls there are in a sport, the higher the attrition rate is even after controlling for a host of family,

socio-economic status, and academic predictors (Sabo & Veliz, 2014). In other words, gender (namely the concentration of girls in a school or sport) is an explanatory factor for girls' attrition in sport between middle school and high school. Thus, it is clear that the gender participation gap in sport and physical activity remains and that girls are losing out.

### *Neighborhoods*

Girls' physical activity and sport participation are also shaped by the availability of opportunities in their communities, and we summarize recent research on the link between neighborhood context and physical activity below.

Athletic programs, community teams, and the built environment such as the presence of sidewalks, crosswalks, green space, gyms, and pools, are necessary for girls to be physically active in a safe context (versus playing in the street or vacant lots). Equally important are the social aspects of neighborhoods, including girls' safety and their relationships with other kids and adults. As expected, physical activity among youth increases with both real and perceived access to parks, playgrounds, and gyms, as well as more neighborhood social ties (Babey, Hastert, & Brown, 2007; Carroll-Scott et al., 2013; Tappe, Glanz, Sallis, Zhou, & Saelens, 2013). Using accelerometers and GPS to track the amount and location of girls' physical movement, Sallis and colleagues (2012) found that girls were more likely to engage in moderate to vigorous physical activity in areas with higher population density, in areas with close proximity to schools, in areas near parks, and during the week. Lower amounts of physical activity occurred in areas with longer road length and fewer food outlets (Sallis et al., 2012).

Interviews conducted with African American youth in urban areas show that the quality, proximity, affordability and hours of operation of the recreation centers to which they have access are linked to increased physical activity among these youth (Reis, Hino, Florindo, Añez, & Domingues, 2009). Gender differences reveal that adolescent African American girls rate well-maintained indoor facilities with a variety of age-appropriate activities, weight machines, and pools more highly than outdoor courts and parks that can be unsafe due to (perceived) gang or drug activity. Girls also prefer indoor recreational centers given the adult supervision, security at the front entrance, and relationships with the staff. Each of these characteristics also reduces family concerns for their daughters' safety and the risk of sexual assault (Reis et al., 2009).

Surprisingly, Suminski et al. (2011) found more opportunities and amenities for youth physical activity in lower income neighborhoods than in higher income neighborhoods. Playground equipment, basketball courts, and baseball fields were the most common amenities in both neighborhood types, but there were more courts, trails/paths,



and pools in lower income neighborhoods than in higher ones (Suminski et al., 2011). The majority of opportunities in lower income neighborhoods were offered through faith-based organizations compared to the for-profit businesses that provided opportunities in higher income neighborhoods (Suminski et al., 2011). These findings could be attributed to the extensive data collection procedures the researchers used, including interviews with key informants, neighborhood tours, and site audits, but they could also reflect outcomes from national and local public health initiatives designed to get kids moving.

Neighborhood and community context matter. They offer physical, social, and relational spaces that enable girls to be physically active through childhood and adolescence in safe and fun ways. City representatives, school leaders, recreation center staff, and program organizers can increase accessibility to sport and athletic opportunities for girls through intentional planning, organization, and outreach. The research described above offers insight into the specific characteristics that make spaces and places most attractive to girls.

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**THE SEX/GENDER SYSTEM**

*Gender as Structure*

A consistent finding from the 2007 Tucker Center Report that remains true today is how beliefs about gender hinder girls' full access to and participation in organized and leisure physical activities. Indeed, gender remains a robust sociological explanation for girls' continued unequal access to sport and opportunities to be physically active.

People often think about gender at the individual level, primarily as an identity, expression, or role learned in childhood through families, schools, and peers. Sociologists also view gender as a social system versus something that is natural and individual. This social system is the primary way people are categorized (into groups of men/boys or girls/women) that then shapes opportunities, access to resources, and life experiences, both directly and indirectly. Importantly, the sex/gender system maintains gender-based inequality by ranking males and masculinity above females and femininity (Lorber, 1994). From this perspective, gender is a system of social practices that categorizes people along a gender binary (where there are only two categories that don't overlap, men/women and boys/girls) and then arranges social life along that difference. "In other words, gender is a system for constituting difference and organizing inequality on the basis of that difference" (Ridgeway & Correll, 2004, p. 511).

Cultural beliefs regarding gender prescribe a complex set of characteristics, aptitudes, and preferences for children and adults, and shape the expected behaviors of individuals and groups. While multiple understandings of masculinity and femininity exist (Connell, 1987), specific expressions of femininity and masculinity are dominant, more common, and understood to be the norm in our society. For instance, girls learn to

value their external physical appearance (e.g. the importance of being “pretty”), that being aggressive isn’t “ladylike,” to prefer relational activities, and that being emotionally expressive is acceptable. Boys are expected to naturally have more physical energy to expend, engage in rough and tumble activities, be competitive, and avoid activities and emotions that are too feminine (e.g., being a “sissy” and crying).

Messner’s research (2011) illustrates that such gender ideologies permeate youth sport. Parents and coaches often espouse that sport is a natural, “predestined” extension for boys to release their energy, aggression and competitiveness, and that boys have a “natural affinity with sports” (p. 162). In contrast, adults perceive girls as naturally more sensitive, vulnerable, and group-oriented, but that girls could learn more masculine behaviors, such as competition through sport; therefore, parents are more likely to tout the social and health benefits of sport for girls (Messner, 2011).

It is important to emphasize that the sociological perspective views gender and beliefs about gender as socially constructed—meaning that acting appropriately masculine and feminine is arbitrary, and that gender norms vary by culture, region, and historical period. Gender is also constructed in ways where masculinity and femininity are situated in opposition to the other, and hierarchically arranged (Ridgeway & Correll, 2004; Schippers, 2007). That is, gender beliefs are ranked such that behaviors and bodies associated with masculinity are valued over behaviors and bodies associated femininity in society. Cultural beliefs of hierarchical gender difference are thus used to legitimate and justify unequal treatment of males and females (Lorber, 1994; Ridgeway & Correll, 2004).

Sport and the domain of physical activity are social relational contexts where gender beliefs are enacted, upheld, and in some cases challenged (Krane, in press; Musto, 2015). Sociologists have long demonstrated how masculinity is displayed and celebrated through sport (e.g., through physical size, power, and aggression). Moreover, sport, as a bodily performance, is one of the few remaining social institutions in our society where the visible and superficial natural differences between men and women are reproduced. Thus, girls’ and women’s participation in sport and physical activity can potentially be empowering because it challenges the very foundations upon which gender inequality is based (Cooky, 2009; Messner 2002). At the same time, many barriers for girls exist because sport continues to be a male-dominated, male-identified, and male-controlled institution (Coakley, 2016).

As outlined in the previous section, the gender gap in sport participation opportunity can be explained, in part, by school type/area (urban versus suburban), school resources, and family socio-economic status. However, the fact that girls have fewer opportunities for organized school sports than their male peers is also the result of social and cultural ideologies that associate athleticism primarily with masculinity, and view sport as a

**Gender is socially constructed—meaning that acting appropriately masculine and feminine is arbitrary, and that gender norms vary by culture, region, and historical period.**

natural and necessary activity for boys and a choice for girls (Messner, 2011). For example, Sabo et al. (2004) note that a significant barrier to girls' full participation in sport is the assumption that girls "naturally" lack interest in sport (emphasis added) and thus, choose not to participate. However, research demonstrates that the ways sport programs are organized play a significant role in shaping girls' interest in sport rather than the other way around (Cooky, 2009). Coaches and program organizers who actively invest in practices that encourage and enable girls' sport participation reap successful outcomes despite constraints that individual girls may experience, such as fewer financial resources (Cooky, 2009). For example, organizers who use targeted recruitment strategies, hold consistent practices and games, and promote girls' sports by featuring female athletes and hosting celebratory events, field trips to women's sports events, and team picture days are more likely to see sustained interest, higher retention rates, and highly-rated program satisfaction from girls (Cooky, 2009). Thus, the attitudes and actions of parents, coaches, teachers and recreation center staff can help attenuate gender stereotypes that limit girls' physical activity and create more expansive and inclusive ideas about femininity, girlhood, athleticism, and girls' engagement with sport.

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athleticism.**

*Sport as sex-segregated institution*

Globally, sport is one of the remaining institutions in our society where sex segregation is both legally enforced and culturally accepted, meaning that girls and boys and women and men are physically separated on different teams to play and compete. There are a few exceptions to this trend in youth sport, such as girls who play on majority boy football and baseball teams or in co-ed sports leagues, such as soccer, basketball and swimming, which are often offered outside of educational institutions. However, the majority of kids are separated by gender on school and community sport teams even prior to puberty where physical differences between boys and girls are not significant, and girls are actually usually more developed than boys.

Historically, girls and women have encountered outright exclusion from and cultural resistance to their sport participation (Cahn, 2015). This was in part given that sport was believed to teach boys and men conventional masculinity during a time when men's lives were becoming increasingly "feminized"—an outcome of the dramatic changes in work, family, and leisure during the turn of the twentieth century (Messner, 2002). This legacy of sport as a site of male dominance continues today. As such, sport is a "contested terrain" wherein real and symbolic boundaries exist that limit access for girls and women, gays and lesbians, people of color and other disadvantaged members of society (see Chapters 6, 7, 8 and 9) (Krane, in press; Messner, 2002).

Many scholars have argued that sex segregation, as it is often upheld legislatively, relies upon the false notion that separate is equal in sports, and as such, sex segregation upholds and reinforces gender inequality (McDonough & Papano, 2007). Therefore, some advocates have considered eliminating sex segregation as one possible way to address gender inequality in sport (McDonough & Papano, 2007; Travers, 2008). However, taking into consideration how gender intersects with other social and cultural systems complicates this solution for some girls. For example, research on Muslim girls finds that sex segregated space is a necessary precondition for them to participate in physical activity (Hamzeh & Oliver, 2012; Thul, LaVoi, Hazelwood, & Hussein, 2016). Given cultural and religious values, some Muslim parents will prohibit their daughters from participating in sport unless accommodations can be made that align with their religious and cultural values, such as eliminating close contact from male coaches, securing space that doesn't allow for boys to be onlookers, and enabling girls to be fully clothed while swimming or wear a hijab while playing (Hamzeh & Oliver, 2012; Thul et al., 2016) See chapter 6 for a more detailed discussion.

## RECOMMENDATIONS

### *Addressing the Full Social Contexts of Girls' Lives*

Evidenced by the rising numbers of girls participating in sport, it is clear that schools, communities, and nonprofit organizations throughout the U.S. are committed to increasing and improving many girls' opportunities to engage in organized and leisure forms of physical activity. Yet we know from sociological research that while the opportunity to participate is necessary, it is not enough for girls to reap the maximum benefit from sport—physiologically, psychologically, and socially (Camacho-Miñano, LaVoi, & Barr-Anderson, 2011; Cooky, 2009; Rauscher & Cooky, 2016). The increase in sport-based positive youth development programs means that girls are learning about Lerner's 5C's through physical activity—competence, character, confidence, connection, and caring. But unfortunately, very few sports programs are gender sensitive (Camacho-Miñano et al., 2011) or take into account how systemic sexism, poverty, racism (see Chapter 1), homonegativism (see Chapter 8), and experiences of abuse shape girls' lives (see Rauscher & Cooky, 2016). These experiences of oppression are described as “social toxins” because they threaten well-being and damage the process of healthy development (Garbarino, 1995). Without awareness of these contextual factors, sport and physical activity programs limit the good they can provide to all girls (Clonan-Roy, Jacobs, & Nakkula, 2016; Rauscher & Cooky, 2016).

We contend that youth sport programs would benefit from including a critical understanding of these toxins (e.g. systemic oppressions) into the fabric of their efforts. One could offer an excellent program for girls; however, if it lacks consideration of the

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multifaceted sociocultural factors that impact girls' life experiences, it may not achieve its goals, may inadvertently reproduce the forms of gender inequality it had intended to combat, and/or may fail to fully provide an empowering context for girls (Rauscher & Cooky, 2016). Considering how accessibility, beliefs about gender, and the built environment all work together to shape girls' enthusiasm and engagement in physical activity and sport is a good start. We also recommend that teachers, coaches, and program staff would benefit from diversity, equity, and inclusion training to maximize the positive social, psychological, and relational benefits girls experience through sport and physical activity.

### ***Critical Consciousness, Social Justice and Girls' Physical Activity and Sport***

A transformative, social justice approach to sport programs engages girls in a sociological analysis of their lives, encourages girls to get involved with social change projects, and promotes girls' authority in the public sphere (Taft, 2010; Ginwright, 2006). More specifically, using a social justice model teaches girls to analyze power within social relationships, emphasizes identity, promotes systemic change, and encourages and empowers collective action (Ginwright & James, 2002). Encouraging youth to identify oppressive systems that shape their lives is necessary for them (and adult organizers) to understand the experiences, opportunities, barriers, and choices youth make, thus creating a more "complete model" of positive youth development (Clonan-Roy et al., 2016; Ginwright & Cammarota, 2002, p. 87).

Hardy Girls, Healthy Women (HGHW), a nonprofit organization devoted to girls' health and well-being in Maine, provides an exemplary illustration of this approach:

We believe that it is not the girls, but rather the culture in which they live that is in need of repair. ... We see girls not as the sum of any particular pathology (self-cutting, disordered eating, drug use) or struggle (body image, self-esteem, early sexual activity), but as whole beings living within and affected by a variety of social systems. With increased control in their lives, greater challenge from adults, and closer commitment to their communities, girls will and do thrive (Hardy Girls, Healthy Women, n.d., para 2-4).

Similarly, Clonan-Roy et al. (2016) detail what this approach looks like pragmatically and theoretically in an expanded model of positive youth development, which we argue has implications for athletic teams and physical activity programs. Based on their research with girls of color, they advocate that a critical consciousness should be at the center Lerner's (2005) model, which then intentionally builds resilience and resistance in addition to the 5C's.

Certainly, sport and physical activity programs alone are not able to eliminate the various systems of gender-based inequality discussed in this chapter and throughout this report. However, given the shared goals of empowering girls, coaches and organizers of youth sport can recognize and work towards addressing institutionalized sexism and other forms of oppression in their work. That said, nonprofit organizations and community-based programs operate within very real fiscal limitations that shape the extent to which they are able or willing to modify their visions, missions, and programming. Given these constraints, programs can still make small changes to engage the larger context of girls' lives for optimal development, such as partnering with feminist and girl-centered organizations that directly address oppressive systems in girls' lives.

## Future Directions

In this chapter, we have highlighted the trends in girls' sport and physical activity, who has access to—and benefits from—sport, and key sociocultural factors that help us understand and explain contemporary patterns. We have also provided suggestions at the programmatic level to increase girls' accessibility to sport; move beyond the dated proscriptions about gender and femininity; and to situate sport programs within a broader and more critical context of girls' lived experiences. We believe that these recommendations can maximize not only benefits for girls, but also for the adults in their lives, their schools, neighborhoods, and communities.

Future research will also inform how girl advocates, coaches, school leaders, and community program staff best serve girls through structured and unstructured physical activity. So what do we need to know moving forward? Based on a meta analysis conducted by Messner and Musto (2014), we need more sociological research on youth in sport and physical activity, period. In their review of sport sociology research, only 7% of peer-reviewed articles over the last decade focused on youth sports and only 1.1% focused specifically on kids in sport. Books on sport had equally dismal coverage of youth in sport and physical activity (Messner & Musto, 2014). Therefore, any and all research on girls in sport and physical activity from a sociological lens is helpful. As exemplified in *Child's Play*, we also need to hear from girls themselves about their sport experiences and/or their lack of interest in physical activity using a sociology of childhood approach (Corsaro & Molinari, 2008).

There is also a gap regarding links between space, place, and youth physical activity from a sociological and gendered perspective. Public health research offers more coverage of youth and physical activity than sociologists do, particularly the connections between neighborhood and community context and kids' participation, but it can fall short of fully theorizing the gendered experience. Moreover, public health studies often frame girls'



physical activity within the context of the obesity “epidemic” (Campos, Saguy, Ernsberger, Oliver, & Gaesser, 2005), yet without a critical analysis of fat and the culture of thinness (Rauscher, Kauer, & Wilson, 2013; Rauscher & Cooky, 2016). This framing is particularly harmful to girls as they take up messages about being fit and physically active in ways that are inextricably linked to their body shape and size versus their physiological and mental health (Rauscher, et al., 2013; Wright, O’Flynn, & Macdonald, 2006).

Given the attrition that girls experience in sport, understanding the relationship between organizational factors (e.g. access to opportunities) and girls’ preferences and choices to participate in physical activity remains an important item on the agenda. From girls’ perspectives, what do they enjoy most during middle- and high-school? How can program organizers maintain and increase girls’ interest in physical activity so that they reap the physical, psychological, and social benefits of engaging in athletic activity? What role does technology play? How do trackers and wearable devices (e.g., pedometers, apple watches, etc) impact the degree to which girls are active? How do they exacerbate how social class affects health inequities among girls? In terms of accessibility, to what extent are privatized recreational programs and activities intentionally expanding access? What sport-based programs create space for girls with varying forms of physical, emotional, and intellectual disabilities?

Lastly, longitudinal data on the impact of sport-based positive youth development programs will help organizers know what competencies girls develop and how they persist over time. To what extent does participation in programs like Girls on the Run, GoGirlGo!, and The First Tee impact girls’ sustained interest and enjoyment in physical activity through their adolescence? How willing are these popular programs to embed the development of a critical consciousness into their curriculum so that they take into account the full context of all girls’ lives so that all girls fully benefit?

## Resources

- Center for Research on Physical Activity, Sport, and Health: <http://www.dyc.edu/academics/research/crpash/#>
- Fair Play for Girls in Sport: <https://legalaidatwork.org/our-programs/fair-play-for-girls-in-sports/>
- Feminist Majority Foundation: <http://www.feminist.org/sports/>
- Girls in the Game: <https://www.girlsinthegame.org/>
- Girls on the Run: [www.girlsontherun.org](http://www.girlsontherun.org)
- Hardy Girls Healthy Women: <http://hghw.org/>
- The First Tee: <https://thefirsttee.org/>
- Women’s Sports Foundation: <https://www.womenssportsfoundation.org/>

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# Sport Injuries Among Female Children and Youth

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## Introduction

Sport injuries encompass injuries occurring during all forms of physical activity, including organized and competitive sport, exercise and fitness, physical education, dance, and outdoor recreation. Understanding sport injuries is important because preventing sport injuries and their negative consequences is central to health, well-being, and lifetime physical activity participation among female children and youth (Knowles, 2010; Wiese-Bjornstal, 2009; Wiese-Bjornstal, Franklin, Dooley, Foster, & Wings, 2015). The purpose of this chapter is to summarize information regarding the prevention, incidence, and care of sport injuries among female children and youth and connect this information to evidence-based practice among sport professionals. Research based findings are used as the basis for providing implications and recommending strategies that are relevant to sport professionals, such as sport coaches, athletic trainers, and sport psychologists working with pediatric female sport participants of all ability levels and in all types of physical activities.

In order to accomplish this purpose, the chapter is organized in three sections. In the first section, we review data on sport injury surveillance, which involves examining the types and patterns of sport injuries among female children, youth, and adolescents. Section two looks at factors contributing to sport injuries among female children and youth, including physical, biological, psychological, and social factors that influence sport injury risks and recoveries. The third section highlights the implications of this review for the prevention and care of sport injuries, identifies gaps in the knowledge base, and provides recommendations and resources for sport and physical activity professionals interested in reducing sport injury risks and consequences.

## Nature and Types of Sport Injuries Among Girls

Sport injury in a general sense refers to bodily tissue damage that occurs as a consequence of participating in sport activities. Published studies looking at high school athletics have often adopted definitions of sport injury that require the presence of three



characteristics in order for an event to be recorded as a sport injury (Kerr et al., 2015): (a) sustained during sport activities, and (b) involved medical evaluation or care, and (c) resulted in limitations or alterations in sport behavior, such as loss of time from training or competition in sport, or some other form of activity constraints such as modifications in the training plan (Kerr et al., 2015). One limitation of this definition, however, is that sport injuries, particularly in youth, community, and recreational contexts, may not involve medical evaluation because of the lack of medical staffing at practices and contests. Further, many injuries at all levels do not necessarily involve time loss or activity constraints, even though there may be tissue damage. Thus, recent studies looking at sport injuries have begun to categorize them using groupings such as time loss/no time loss injuries in order to more fully capture the nature and implications of different aspects of the sport injury problem (Kerr, Roos, Djoko, Dompier, & Marshall, 2016; Kerr et al., 2017). For the purposes of this chapter, we focused on reviewing studies that reflected the following aspects of the sport injury definition: (a) tissue damage, (b) occurred during sport participation, and (c) captured data on female participants 18 years of age or younger.

Based on this definition, in this first section of the chapter we summarize research findings on sport injury surveillance among female children and youth. Sport injury surveillance is a global term used to refer to the gathering of data regarding incidence, mechanisms, types, and other factors and characteristics associated with sport injuries. It is a way of capturing information about the scope and nature of the problems associated with sport injuries. In the next subsections, we overview research on a wide variety of sport injury surveillance factors, such as sport injury type, onset, severity, body location, and mechanisms, with respect specifically to physically active populations of female children and youth.

In order to provide a common framework for understanding these data, the following clarifications explain some of the terms that are common in this literature. *Injury incidence* refers simply to whether or not an injury has occurred that meets the definition of injury for that study. Surveillance data on incidence, i.e., the occurrence of a sport injury, are then used to calculate a variety of sport injury metrics, such as injury risk, injury rate, and injury proportion. *Injury risk* refers to the risk of an injury happening expressed per population of participants (e.g., how many girls out of the whole league have an ankle sprain per year, such as 1:10). *Injury rates* refer to injuries expressed per unit of time. The unit of time often used as the standard across studies for sport injury rate determinations is athlete-exposure (A-E), which usually means that one girl participating in one practice or contest is equal to one AE. Injury rates typically use as the basis 1000 or 10,000 AEs; thus, an example of a rate would be a reporting of 0.77 ankle sprain injuries per 1000 AEs. *Injury proportion* refers to the proportion or percent of injuries of a certain type (e.g., ankle sprains) relative to the overall total of injuries,

such as 24% of all injuries to middle school female athletes being ankle sprains. Understanding these distinctions is important because each of these provide somewhat different information for those working to prevent and care for sport injuries. With this basic understanding, we next look at patterns in sport injury surveillance among female children and adolescents based on various demographic factors such as age, level of play, and sport type.

## SPORT INJURY TYPES IN GIRLS

Although the wide-ranging physical, psychological, and social benefits of increasing physical activity are evident, increased sport and physical activity participation also comes with a higher risk for sport-related injuries (Frisch et al., 2009; Guddal et al., 2017; Patnode et al., 2010). For example, Costa e Silva, Fragoso, and Teles (2017) found that child and adolescent girls who participated in organized sport had a higher risk of injury than girls who participated in unorganized sport. The types of injuries that girls experience are extensive due to the diverse types of sport-related activities in which they participate, and may increase the risk for further or more serious injuries or health conditions in adulthood (DiFiori et al., 2014; Russell, Tracey, Wiese-Bjornstal, & Canzi, 2017; Wiese-Bjornstal, 2009).

Although most sport injuries among children and youth are relatively minor, severe injuries are of increasing concern. *Severe injuries* are defined as any injuries that result in missing more than 21 days of sports participation (Darrow, Collins, Yard, & Comstock, 2009). They accounted for nearly 15% of all high school sports-related injuries in girls and more frequently occur in competition than in practice for all sports (Darrow et al., 2009). Based on two studies involving girls, complete ligament sprains (54.1%) in the knee were the most common severe injury diagnosis, followed by fractures (17.5%) and torn cartilage (10.4%) (Darrow et al., 2009; Rechel, Collins, & Comstock, 2011). These are all examples of *acute injuries*, sport injuries that result from a single event that causes the tissue damage. Darrow et al. reported that surgical intervention was most common for severe injuries in girls' basketball (38.2% of severe injuries required surgery) and girls' soccer (36.6% of severe injuries required surgery).

With respect to surgical intervention, adolescent females (age 12-17 years) have a sport-related knee-injury rate three times that of adolescent males (Arendt, Agel, & Dick, 1999). The most common knee-related injury requiring surgical intervention is anterior cruciate ligament (ACL) tears, in which adolescent girls have higher rates of ACL reconstructive surgery (ACLR) than do boys (Johnsen et al., 2016; Knowles, 2010; Louw, Manilall, & Grimmer, 2008). The causes of ACL tears in female athletes are multifactorial, with various intrinsic factors influencing risk (Arendt et al., 1999; Wild, Steele, & Monroe, 2012). During puberty girls experience rapid increases in estrogen, physiological growth

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spurts, changes in growth plate (area of growing tissue near the ends of the long bones), physiology, and the development of primary and secondary sex characteristics (Arendt et al., 1999; Johnsen et al., 2016; Knowles, 2010; Louw et al., 2008; McKay, Broderick, & Steinbeck, 2016; Wild et al., 2012). This maturation process results in weakened bone, tendon, and muscle structure as girls' bodies transition and adapt to new structural demands. These changes and demands contribute to the risks of ACL tears. The recovery from ACLR is lengthy. Return to play from ACLR will be gradually introduced in rehabilitation from 6- to 9-months post-surgery (Fabricant & Kocher, 2016), with girls often returning to play at a level that is perceived as or actually lesser than pre-injury levels (Gornitzky et al., 2016).

Girls are also at risk for meniscal injuries of the knee, with soccer and basketball being the most common sports in which these injuries occur among high school girls (Mitchell et al., 2016). Girls (0.55/10,000 AE) have a higher overall rate of meniscal injuries compared to boys (0.25/10,000) in gender-comparable high school sports (Mitchell et al., 2016). In contrast to boys, meniscal injury in girls is more commonly due to non-contact mechanisms such as jumping/landing and rotation on a planted foot (Mitchell et al., 2016). Another knee-related injury common in high school-aged girls' sports is patellofemoral (joint between the kneecap and the femur) instability, which cause subluxations (partial disruption) and dislocations (complete disruption) of the patella (Mitchell et al., 2015). Girls' gymnastics demonstrates the highest incidence of patellofemoral injury in girls' sports, with all sport-related patellofemoral injuries occurring more frequently in competition than practice (Mitchell et al., 2015). Return to play following patellofemoral injuries is typically within three weeks; however, chronic forms can result in longer recovery times and be season-ending.

Less severe injuries are also prevalent in girls' sports, such as injuries to the ankle, shoulder, hand/fingers, thigh, and calf. Ankle sprains are more common in girls compared to boys in sport, primarily occurring in soccer, basketball, and volleyball (Doherty et al., 2014). Age also seems to be a contributing factor to ankle injury as one study showed that children had a higher incidence of ankle injury than did adolescents (Doherty et al., 2014). Girls sustain injuries to the shoulder less frequently than boys; however, shoulder injuries occur most commonly in volleyball, softball, soccer, and basketball (Robinson, Corlette, Collins, & Comstock, 2014), with sprains/strains, dislocations, and contusions being the most common diagnoses. Similar to rates of other injuries, the incidence rate of shoulder injuries in high school athletics is higher in competition than practice, except for volleyball, which had a higher rate of shoulder injury in practice compared to competition (Robinson et al., 2014).

*Overuse injuries* are those that result from a gradual accumulation of tissue damage over time (such as tendonitis). Overuse injuries, such as Little League shoulder and elbow (overload injuries to growth plates), osteochondritis dissecans (a joint condition),

spondylolisthesis (a spinal vertebra displacement), stress fractures of the femur (thigh bone) and tibia (shin bone), and Osgood-Schlatter disease (inflammation below the knee), are becoming increasingly common in children and adolescents. This increase is due to a combination of biological (e.g., hormone levels), physical (e.g., timing of the adolescent growth spurt), and overuse behavioral factors (Wu, Fallon, & Heyworth, 2016). Wu et al. found that adolescents (13-17 years of age) had a greater proportion of overuse injuries than children (5-12 years of age), and girls' proportion of overuse injury was greater than boys' (62.5% vs. 41.9%, respectively). Overuse injuries in children and adolescents may also increase the risk for negative health outcomes and long-term chronic conditions (e.g., arthritis) later in adulthood (Caine & Golightly, 2011; Maffulli, Longo, Gougoulas, Loppini, & Denaro, 2010; McKay et al., 2016; Whittaker, Woodhouse, Nettel-Aguirre, & Emery, 2015). A history of prior injury and menstrual dysfunction are significant risk factors for overuse injuries in adolescent girls (DiFiori et al., 2014), making pre-participation physical exams and parent/coach education of risk factors essential strategies for injury prevention.

*Recurrent injuries*, i.e., injuries of any type that occur more than once can pose serious concerns and consequences for girls' long term health and sport participation. While girls are less likely to sustain recurrent injuries than boys overall, recurrent injuries are more likely to result in termination of sport participation for girls compared to new injuries experienced by girls (Swenson, Yard, Fields, & Comstock, 2009), again making injury prevention and proper rehabilitation from initial injuries high priorities for coaches, parents, and sport professionals. Recurrent injuries include sport-related concussions, ligament sprains (most commonly in the ankle, knee, and shoulder), and muscle strains. Recurring shoulder injuries may require surgery more frequently than do new injuries, such as found by Swenson et al. (2009) with respect to shoulder injuries among high school athletes.

In addition to concerns about musculoskeletal injuries among female athletes, sport-related concussions have been a topic of great importance in recent years. Sport-related concussions are particularly concerning due to high rates of participation annually in contact and collision sports as these are the sports in which sport-related concussion incidences and rates are the highest (Nelson et al., 2016). O'Connor et al. (2017) reported that sport-related concussions account for 15% of all high school sport injuries, which may be a substantial underestimate due to adolescent athletes failing to report sport-related concussion symptoms, perhaps due to inadequate education or fears about losing playing time (Pfister, Pfister, Hagel, Ghali, & Ronksley, 2016). In sex-comparable sports, some studies show that girls have a higher sport-related concussion rate than boys, with the highest sport-related concussion rate in girls' soccer compared to other sex-comparable sports (Gessel, Fields, Collins, Dick, & Comstock, 2007; O'Connor et al., 2017). However, as concussion

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reports are still largely based on self-reported symptoms, it is as yet unclear whether these gender differences are a function of differences in symptom reports, or in injury occurrences (Wiese-Bjornstal, White, Russell, & Smith, 2015). According to Marar, McIlvain, Fields, and Comstock (2012), sport-related concussion rates among high school athletes are higher in competition than in practice, except for in cheerleading. Most female youth athletes returned to sport from sport-related concussions within 7 to 28 days (O'Connor et al., 2017). Sport-related concussions among high school-aged athletes are particularly concerning due to their potentially negative effects on critical age-related neurological, social, and cognitive development (O'Connor et al., 2017), as well as the negative influences on psychological factors and returning to learn (Wiese-Bjornstal et al., 2015).

### **SPORT INJURY PATTERNS IN GIRLS BY AGE AND SPORT TYPE**

Having just discussed the nature and types of different sport injuries in female children and youth, we next turn to examining sport injury patterns among girls by age and sport type. General patterns show that female children and youth have fewer overall incidences of sport injuries than boys do across all ages and show injury rates that usually increase with age and level of play (Wiese-Bjornstal, Franklin, et al., 2015). Each sport has unique patterns related to types and nature of injuries, and some sports have consistently higher risks and rates of injury than do others. It is difficult to directly compare data across studies as most have used different injury definitions and data collection protocols. What follows are some examples of the types of sport injury data that is available regarding female athletes of different ages and participating in different sports.

With respect to age, injury surveillance in children's sports generally shows lower injury rates compared to adolescents (Wiese-Bjornstal, Franklin, et al., 2015). However, there are a limited number of studies from the United States on sport injury surveillance among pre-adolescent children, in part because their practices and games usually do not have medical staff present to evaluate and record injuries. Thus there is a need for more research on childhood sports injuries. The following examples illustrate what we do know about pre-adolescent girls. Froholdt, Olsen, and Bahr (2009) found injury rates to be lower for younger soccer players (6-12 years of age) than for older players (13-16 years of age), and slightly lower for girls than for boys. Moving from pre- toward early adolescence, Costa e Silva et al. (2017) demonstrated that higher injury rates were associated with periods of rapid growth among children and youth. Among child athletes aged 8-15 years from a variety of sports, Junge, Runge, Juul-Kristensen, and Wedderkopp (2016) found that participation in tumbling gymnastics was a significant risk factor for traumatic knee injuries among girls, and overuse knee injuries were associated with weekly frequency of sport training in gymnastics. Randazzo,

Nelson, and McKenzie (2010) reported that younger basketball players (5-10 years of age) had greater risk of upper extremity, concussion, and fracture or dislocation injuries than did older basketball players (15-19 years of age), and that girls had greater risk of concussion and knee injuries than did boys, who suffered greater risk of lacerations, fractures, and dislocations. Schiff et al. (2010) found, in a study of youth soccer players aged 12-14 years of age, a rate of 4.7 acute injuries and 2.9 overuse injuries per 1000 athlete exposure hours (AEH).

In terms of other types of physical activity injuries during childhood, Schwebel and Brezaussek (2014) looked descriptively at injury incidence across 39 different sport and physical activities, and found that playground and bicycling injuries were among the most common in the early childhood into preteen years. Another study found that among children 5-12 years of age, overall girls were injured less than boys, with the highest injury rates for girls being in soccer and other ball sports, and bicycling and other wheeled sports (Spinks, Macpherson, Bain, & McClure, 2006). In this investigation, athletes ages 5-12 years were more likely to seek medical attention for upper extremity injuries and fractures compared to older athletes (ages 13-17 years). Children also do sustain severe injuries, with Stracciolini, Casciano, Levey Friedman, Meehan, and Micheli (2013), for example, finding that a significant concern for young females was spine injuries.

According to McKay et al. (2016), injury risk gradually increases during adolescence compared with childhood. Moving toward early adolescence, Beachy and Rauh (2014) observed that overall injury rates were higher in practices than games among middle school female athletes in 15 school sports. In terms of how much sport injuries contribute to overall injuries among adolescents, based on state surveillance data derived from emergency department visits among 10-18 year olds, Howard et al. (2014) reported that 20% of visits for unintentional injuries to youth were related to sport and recreation participation. McNoe and Chalmers (2010) found that injury rates for junior (13-17 years of age) female community soccer players were higher than for junior male players, although for females overall this difference only occurred in competitive matches.

Significantly more data is available regarding high school sports participation than for childhood or early adolescence. Looking at injury rates reported in large scale, nationally representative samples of school-based sports in most sports high school females have higher injury rates in competitions versus practices (Rechel, Yard, & Comstock, 2008). Kerr, Roos, Djoko, Dompier, and Marshall (2016) found that girls' high school time loss injury rates were the highest in soccer (1.97/1000 AE) and basketball (1.76/1000 AE), while the highest overall injury rates (time loss combined with no time loss injuries) were highest in field hockey and lacrosse (both 11.32/1000 AE). Kerr et al. showed that the highest time loss injury rate for girls' high school practices was found in gymnastics (1.37/1000 AE).



Although it is beyond the scope of this chapter to review them all, recent years have shown a gradual increase in publications regarding injuries among girls in many specific sports and physical activities, and within different competitive and non-competitive contexts. For example, individual papers on team sports include those on youth ice hockey (Decloe, Meeuwisse, Hagel, & Emery, 2014; Forward et al, 2014; Polites et al., 2014) and ringette (Keays, Gagnon, & Friedman, 2014). Other recent studies have looked at youth soccer (Clausen et al., 2014), lacrosse (Hall et al., 2013; Xiang, Collins, Liu, McKenzie, & Comstock, 2014), basketball (Pappas, Zazulak, Yard, & Hewett, 2011; Randazzo et al., 2010), and volleyball (Reeser, Gregory, Berg, & Comstock, 2015). Among individual and dual sports and activities, researchers have studied injuries among young female athletes in gymnastics (Purnell, Shirley, Nicholson, & Adams, 2010), rowing (Baugh & Kerr, 2016), and track and field (Pierpoint, Williams, Fields, & Comstock, 2017). Injuries among young ballet dancers were the subject of investigations by Bowerman, Whatman, Harris, and Bradshaw (2015), Leanderson et al., (2011), and Steinberg et al. (2011). Arriaza, Inman, Arriaza, and Saavedra (2016) and Pieter (2010) looked at injuries among youth in karate, while Keays and Dumas (2014) reported on longboard and skateboard injuries. Other physical activity contexts or settings have recently been examined relative to sport injuries (Nauta, Martin-Diener, Martin, van Mechelen, & Verhagen, 2015) including summer sports camp (Oller, Vairo, Sebastianelli, & Buckley, 2013), youth Olympics festivals and games (Ruedl et al., 2012; Ruedl et al., 2016; Steffen et al., 2016), physical education (Rexen, Wedderkopp, Andersen, & Ersbøll, 2016; Sundblad, Saartok, Engström, & Renström, 2005), and exercise/fitness (Lowry et al., 2007; Verhagen, Collard, Chin, Paw, & van Mechelen, 2009).

In sum, it is apparent that not only are musculoskeletal injuries of concern for female athletes, but so are sport-related concussion injuries as well as other types such as dental and eye injuries that have not been explicitly discussed in this chapter. It has also been shown that girls of all different ages, levels of play, and sport and physical activity types are at risk of sport injuries. In order to better understand how to reduce these risks of injury, and advantage girls in rehabilitations when injuries do happen, the next section of this chapter discusses factors that influence sport injury risk and recovery among girls.

## **Factors Influencing Sport Injury Risk and Recovery Among Girls**

In section two of this chapter, we provide examples of some of the contemporary research on topics related to why sport injuries happen among female athletes, and which factors contribute to recovery. These include behavioral, biological, psychological, and social factors that contribute to the risks of injury occurring, as well as the consequences that may follow sport injuries. Diverse factors interact to increase or decrease the risks and the protections associated with sport injuries among girls.

## PHYSICAL AND BIOLOGICAL FACTORS INFLUENCING SPORT INJURY RISK AND RECOVERY

Injury risk for girls is multifactorial (DiFiori et al., 2014) with physical and biological factors playing major roles. One current topic of interest relative to sport injury risks for girls is sport specialization, an important consideration for athletes, parents, and sport professionals in terms of documented advantages and disadvantages to health and performance. Sport specialization is increasingly common among young athletes, and occurs when the girl transitions from competing in multiple sports to focusing on one sport year-round, typically the sport that is most enjoyable or in which she achieves the most success (Myer et al., 2015). Sport specialization is thought to be necessary to achieve elite status and make girls competitive in receiving college scholarships, professional contracts, and media recognition (Hall, Barber Foss, Hewett, & Myer, 2015). Recently, however, researchers have focused on early sport specialization and concerns about its relationship with injury risk, rate, and type (Post et al., 2017). The American Academy of Pediatrics, American Orthopedic Society for Sports Medicine, and the American Medical Society for Sports Medicine have all discouraged sport specialization before adolescence (Jayanthi & Dugas, 2017) for a variety of reasons, one of which is injury consequences. Specializing in sport for children may increase motor skill proficiency, but only in that one sport (Hall et al., 2015), and can increase the risk for different types of injuries, with overuse injuries being the most common aspect of increased risk (Hall et al., 2015; Jayanthi & Dugas, 2017; Wu et al., 2016). Conversely, sport diversification (playing multiple sports) can improve overall motor skill and musculoskeletal development, reducing the risk for potential overuse injuries (Côté, Lidor, & Hackfort, 2009). Researchers have shown that adolescent girls who specialized in one sport as children had higher risks for ACL tears, patellar tendinopathy (anterior knee pain, jumper's knee), and Osgood-Schlatter disease (Hall et al., 2015; Wu et al., 2016) compared with adolescent girls who were multisport athletes. Post et al. (2017) found among 12-18 year old athletes that highly specialized athletes were more likely to report injuries of any kind over the course of one year, and more likely to report overuse injuries, than were their low specialized counterparts, irrespective of age, sex, or training volume.

Due to differences in the onset of puberty, girls' chronological age may not be a strong predictor of injury risk (Johnsen et al., 2016), but age does interact with sport structure to influence sport injury risks. Research on the *relative age effect* illustrates these interactions. Relative age effect is a phenomenon where children and adolescents who were born close to the school or sport age cutoff month (just before or just after) may have a potential advantage in both academics and sports due to their advanced physical and emotional maturity relative to their peers (Stracciolini et al., 2016). In competitive and recreational sport, youth athletes are grouped into teams based on specific age cutoffs,

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typically with a 1-2-year age range. For girls in younger age groups, a year of physical growth, development, and maturation can be a substantial factor influencing athletic performance and injury risk (Straccolini et al., 2016) compared to adolescent athletes. Research examining the relative age effect on youth sport performance determined that athletes who were born just after the cutoff date (i.e., oldest athletes on their teams) had higher success and performance rates and lower risks of injury (Straccolini et al., 2016). Body size and physiological development also play a role in injury risk, but may be moderated by relative age effect due to individual developmental factors (Nilstad, Andersen, Bahr, Holme, & Steffen, 2014; Straccolini et al., 2016).

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Another physiological risk factor for youth sport injury relates to concerns about overuse injuries due to overscheduling and underrecovery. International Olympic Committee (IOC) consensus statements regarding the state of research evidence concluded that excessive or ineffective training and competition loads are risk factors for health consequences such as sport injuries and athlete illnesses (Schwellnus et al., 2016; Soligard et al., 2016). Overuse injuries in adolescents may also increase the risk for other negative health outcomes such as long-term chronic conditions (e.g., arthritis) in adulthood (McKay et al., 2016). *Overscheduling* is classified as high volume and frequency of events without adequate hydration, nutrition, and rest between bouts of exercise/events, which commonly occurs in competitive adult-organized youth sport events—such as weekend tournaments (Luke et al., 2011). While the concept of overscheduling is an extrinsic factor and not within the child, adolescent, or even individual parental control, one of the major consequences of overscheduling—underrecovery—increases risk for sport injury. *Underrecovery* refers to inadequate physical and mental recuperation from sport-related stressors associated with training and competition that is detrimental to athlete health and/or performance. Vulnerable immature musculoskeletal systems, lack of proper nutrition (especially between events), and inadequate sleep exacerbate the risk for overuse injuries when athletes are required to perform long competitive training sessions or tournament games less than 2 hours apart (Guddal et al., 2017; Luke et al., 2011).

One of the reasons that underrecovery is particularly risky for girls is that childhood and adolescence are unique periods involving rapid physical and psychological development and thus inadequate rest, stretching, or other recuperative techniques compounds the risks when combined with developmental vulnerabilities. From a physical development perspective, many musculoskeletal injuries in children may be a result of lack of strength and flexibility during periods of growth (Straccolini et al., 2013), as well as immature and growing skeletal structures. Traumatic injuries in children, such as growth plate fractures, can potentially impede growth in the affected long bone, causing long-term imbalances and

threats to physical development (Schwabel & Brezaussek, 2014). Acute apophyseal injuries (or injuries associated with inflammation at the site of tendon insertions to growing bony prominences) are more common in younger children and youth due to structural weakness in the associated growth plates undergoing development at these bony prominences, such as in the heel, shinbone, and patella (Longo, Ciuffreda, Locher, Maffulli, & Denaro, 2016). Injuries to the apophysis (bone protuberance) and growth plate can also occur due to chronic reasons such as long-term physical stress and long, intense sport programs in children, and both acute and chronic cases have the potential to be damaging to growth (Longo et al., 2016).

A final example of a biological factor influencing sport injury risk among young females is the female athlete triad (also see Chapter 5). The female athlete triad in the context of this chapter refers to substantial evidence linking three conditions in adolescent girls with increased risks for musculoskeletal injuries, especially stress fractures (Barrack et al., 2014; Rauh, Barrack, & Nichols, 2014; Rauh, Nichols, & Barrack, 2010). The resulting *female athlete triad* is comprised of (1) low energy availability, with or without disordered eating (inadequate nutrition); (2) menstrual dysfunction (amenorrhea, the abnormal absence of menstruation); and (3) low bone mineral density (osteoporosis). Endurance sports have higher incidences of female athlete triad concerns, especially in young runners (Barrack et al., 2014). Pre-participation physicals to identify irregular menstrual cycles, and close, regular monitoring of adolescent girls' training is important to identifying early signs and symptoms of low energy availability due to inadequate nutrition and low bone mineral density (Rauh et al., 2010), as these factors present risks for stress fractures and other sport injuries.

## PSYCHOLOGICAL AND SOCIAL FACTORS INFLUENCING SPORT INJURY RISK AND RECOVERY

From a psychological perspective, the stress-injury relationship is an influential factor in injury susceptibility (Williams & Andersen, 1998). According to models and research on stress and sport injuries, higher stress responses can create increases in muscle tension and decreases in perceptual fields such as fields of vision (Steffen, Pensgaard, & Bahr, 2009; Wiese-Bjornstal, Smith, Shaffer, & Morrey, 1998; Williams & Andersen, 1998), further increasing risk for sport injury through mechanisms such as distracted attention and physiological stress. Factors such as high perceived *life event stress*, defined as stress associated with a variety of major life events such as a change in schools, divorce of parents, or death of a loved one, are associated with higher risk of sport injuries. For example, in a study of female youth soccer players, self-reported high life stress was significantly associated with increased injury risk (Steffen et al., 2009). Further, adolescent players reported higher levels of life stress than child players (Steffen et al., 2009) resulting in higher risk of injury for the adolescents than for the children.

During adolescence, girls are vulnerable to experiences of musculoskeletal pain, psychological distress, and anxiety (Auvinen et al., 2017). This is because they experience rapid psychological and physical growth and development during this period. A reciprocal relationship exists between psychological distress and anxiety and musculoskeletal pain, where some girls may have pain-induced anxiety while for others psychological distress and anxiety may increase their perceptions of pain (Auvinen et al., 2017; Guddal et al., 2017). Musculoskeletal pain is also a common occurrence for children and adolescents as a consequence of participation in sports-related activities (Guddal et al., 2017). Regardless of where musculoskeletal pain, psychological stress, and anxiety originate, children and adolescents may have distracted attention and/or increased muscle tension as a result of these stressors, further increasing their risks for sport-related injuries (Steffen et al., 2009).

**For girls recovering from sport injuries, adherence to prescribed rehabilitation protocols and restrictions on activity are crucial for recovery and return to play from sports-related injuries.**

For girls recovering from sport injuries, adherence to prescribed rehabilitation protocols and restrictions on activity are crucial for recovery and return to play from sports-related injuries (Moor et al., 2015). Among concussed athletes, self-reported adherence rates to rest activities following concussion in adolescents is high; however, patterns of adherence throughout the duration of treatment were not consistent, showing periods of 30% noncompliance to treatment recommendations in some research (Moor et al., 2015). A significant factor associated with adherence to injury rehabilitation in musculoskeletal sports related injuries is athletic identity. *Athletic identity* is the degree to which athletes identify with their athlete roles to the exclusion of other important roles such as academic or social, and it is an influential factor on behavior (Podlog et al., 2013). For example, Podlog et al. found that high school girls and boys who had high athletic identity scores were more likely to do more than the medically recommended exercise prescription in rehabilitation than were high school athletes with low athletic identity (Podlog et al., 2013), thus potentially risking reinjury via overstressing recovering body tissue or risking other injury due to fatigue.

From a social perspective, parental influence can also play a significant role in injury risks for girls. Relationships have been found between pressure from parents and negative perceptions of stress in elite young athletes (Dunn et al., 2006). These negative relationships can affect children's motivation to engage in sports and their perceptions of parental pressure to perform when injured (Dunn et al., 2006; Sabato, Walch, & Caine, 2016). Children's perceptions of parental pressure can increase feelings of worry and anxiety, and decrease children's self-perceptions, further increasing their risks for injury via some of the stress mechanisms just described (Sabato et al., 2016). Conversely, children's perceptions of having their parents' support and willingness to share their own experiences and coping mechanisms with their children are associated with lower perceptions of pressure and

better self-perceptions (Sabato et al., 2016), thus perhaps serving a protective role with respect to injuries. The influence of parents on youth sport and self-perceptions is more important to children than adolescents. Adolescents' self-perceptions and motivation are influenced more by elite sport coaches and peers (also see chapter 2 for social influences information on psychological outcomes; e.g., Stuntz & Weiss, 2010). Coaches' influence on elite or competitive adolescent athletes can similarly affect injury risks, especially by creating stressful environments that emphasize winning and utilizing coaching practices that involve yelling, belittling, or intimidation (Brinkman-Majewski & Weiss, 2015; Sabato et al., 2016), all of which elevate stress responses. There are also concerns about untrained coaches increasing injury risks in children's sports due to lack of safe practice structures, knowledge of child development, and proper training and conditioning procedures.

In addition to the social influences of parents and coaches on sport injury risks, sport peers also have a substantial influence on injury risks in terms of illegal or unsportsmanlike play and aggression. For example, a study of multiple high school sports, Collins, Fields, and Comstock (2008) found that illegal or unsportsmanlike play resulted in a significant proportion of all sport injuries, and girls' basketball and girls' soccer showed the greatest proportion of illegal play injuries among all sports. It is not surprising that the sports with the highest levels of perceived aggression and injury due to unsportsmanlike play are contact sports. However, injuries from illegal play also occurred in non- or minimal-contact sports such as volleyball and softball (Collins et al., 2008).

Thus it is clear that there are many biological, social, environmental, and behavioral factors that affect risks associated with sport injury before, during, and after the actual injuries. Understanding these risk factors provides evidence-based grounding for recommending strategies that sport professionals can use to prevent and care for sport injuries among girls. These strategies are the focus of the next section of this chapter.

## **Strategies for Preventing and Caring for Sport Injuries Among Girls**

We have seen that girls are vulnerable to many different types of sport injuries over the course of childhood through adolescence, and that a wide variety of factors contribute to these injuries and recoveries. In this final section we list and discuss solutions by addressing practitioner recommendations, research gaps in knowledge, and high quality resources relevant to those engaged in policy and professional practice related to sport injuries among girls.



## RECOMMENDATIONS FOR ADDRESSING SPORT INJURIES AMONG GIRLS

The following provide some policy and practice recommendations relative to addressing the problem of sport injuries among female children and youth.

- **Pre-participation physical exams.** Pre-participation physicals, including functional movement screens, are an important first step to identifying potential injury-related risk factors and providing education to girls and their parents regarding common injury-related signs and symptoms (Barrack et al., 2014; DiFiori et al., 2014; Huggins et al., 2017). In order to safely and effectively perform sport-related movements and maneuvers, athletes need a strong baseline level of balance, strength, and neuromuscular control (Anderson, Neumann, & Huxel Bliven, 2015). Research, however, has shown that adolescent girls scored lower in functional movement screening assessment compared to males (Anderson et al., 2015) placing them at greater risk for sport-related injuries due to neuromuscular imbalances. Obtaining functional movement screen assessments during pre-participation physicals could identify remedial training and conditioning needs that could reduce injury risks.
- **Neuromuscular training programs.** Neuromuscular training programs aimed at improving trunk stability, hip strength, speed, and agility have shown promise in preventing serious knee injuries such as ACL tears, when used as a regular component of training (Gagnier, Morgenstern, & Chess, 2013; Häggglund, Atroshi, Wagner, & Waldén, 2013; Sugimoto et al., 2017). Coaches have a strong influence on athlete compliance to neuromuscular training programs (Sugimoto et al., 2017) and play a pivotal role in creating environments that value injury prevention programs. Recommendations for decreasing ACL injury risks, for example, include (1) identifying at-risk girls with structural and neuromuscular deficiencies, (2) educating young athletes on proper landing techniques, (3) strengthening supporting muscles such as the hamstrings and gluteals, (4) focusing on core stabilization, and (5) incorporating balance and agility exercises into warm-ups (Toscano & Carroll, 2015). Neuromuscular training programs also exist for the prevention of other types of sport injuries, such as ankle sprains.
- **Safe play education.** An important strategy for both coaches and athletes, education on sport-specific safe-play principles can decrease aggressive behavior and subsequently decrease risks for injuries, especially sport-related concussions (Schmidt et al., 2016). Sports officials also contribute to creating safe playing environments by learning and enforcing rules, and thus their education and training is of equal importance to that of coaches. Additionally, injury prevention programs geared at educating coaches, girls, and parents of the risks of sport-related injury and benefits of proper training and nutrition, and

demonstrating proper sport-related mechanics are also powerful techniques to promote injury-free activity (Collard, Chin, Paw, van Mechelen, & Verhagen, 2009; Junge et al., 2016). Educating coaches on injury prevention strategies relevant to their sport can increase the implementation of such strategies into youth and adolescent sport, such as promoting the use of protective equipment (Pearson & Whitaker, 2012), proper warm-ups and stretching, and focusing on technique and physical fitness (Gianotti, Hume, & Tunstall, 2010). On the post-injury side, coaches should also be trained in first aid and emergency procedures.

- **Diversified training.** Cross training and diverse physical training practices focused towards maximizing neuromuscular strength and balance and incorporating various sport- and non-sport-related techniques in childhood and early adolescence can decrease the risk for overuse and chronic injuries in adolescence and later in adulthood (Martinez et al., 2017; Myer et al., 2011; Sugimoto et al., 2017). Providing young girls with opportunities for breaks away from the physical demands of sport in the off-season, or time experiencing different sports, are substantially beneficial to decreasing physical overload (Hall et al., 2015; Rauh et al., 2014).
- **Sport-related concussion reporting.** Athletes who understand the potential harm of playing through a sport-related concussion and can identify sport-related concussion symptoms are more likely to encourage their teammates to report these symptoms to coaches, parents, or other sports medicine professionals (Kroshus, Garnett, Baugh, & Calzo, 2016). Additionally, a belief that teammates and peers are supportive of sport-related concussion safety can promote a culture of encouragement to report sport-related concussion symptoms (Kroshus et al., 2016). Coaches, athletic directors, and parents all have important roles to play in educating themselves and athletes, and cultivating a culture of safety and care. All states now have sport-related concussion laws guiding the prevention, care, and return to play of athletes, and many schools and youth programs mandate sport-related concussion training for athletes, parents, and coaches.
- **Health care staffing.** National governing bodies have recommended guidelines for sport organizations aimed at promoting fair play and creating a safe, proactive environment (Huggins et al., 2017). These guidelines include creating emergency action plans, educating all sport personnel (e.g., coaches, administrators, league organizers, parents, athletic trainers) on emergency protocol at various sport locations, and providing appropriate medical coverage, such as certified athletic trainers for practices, competitions, and tournaments (Huggins et al., 2017; Kerr et al., 2015; Pike et al., 2017; Wallace, Covassin, Nogle, Gould, & Kovan, 2017).

## GAPS IN KNOWLEDGE ABOUT SPORT INJURIES AMONG GIRLS

The following section identifies some of the gaps in knowledge and evidence regarding female athletes in sport injuries. Scholars, sport professionals, and health care providers could work together to fill these gaps.

- **Sport injury surveillance.** Several areas of sport injury surveillance among girls are in need of further research attention. There is quite limited research data on sport injuries surveillance among girls in the early to middle childhood and youth ages. Further, more information is needed about mechanisms, and types of injuries to girls in diverse competitive and non-competitive physical activity contexts such as exercise, outdoor recreation, physical education class, and dance (Wiese-Bjornstal, White, Wood, & Russell, 2018). Certain types of injuries have received less attention, such as overuse injuries which onset gradually over time, and reinjuries or recurrent injuries that may reflect deficiencies in rehabilitation processes or premature returns to play. Along with these areas, we need to learn more about the multidimensional contributors to injury, such as how psychological factors such as pressure from coaches and parents influence injury risks, the role of sportsmanship and quality of officiating as contributors to injury risks, and the reporting practices of athletes relative to their developmental capacities and intentional decision-making about alerting coaches, parents, or medical professionals to their injury experiences and questions.
- **Gender similarity and difference.** Literature-based observations about female athletes and gender comparisons relative to sports injury surveillance lead to the conclusion that although there are some gender differences in sport injury mechanisms and patterns, there are also many similarities (Wiese-Bjornstal, Franklin, et al., 2015). Yet researchers and practitioners tend to emphasize differences over similarities, which may lead to the perception that girls are weaker or more vulnerable and thus should not play high performance sports. This gap could be addressed through well-designed and controlled studies. The general patterns show us that females overall are injured less frequently than males, injury rates are higher in competitions than practices for both genders, and types of injuries do vary somewhat by gender such as higher rates of ACL injuries to females in comparable sports and lower rates of fractures among females (Joseph et al., 2013; Wiese-Bjornstal, Franklin, et al. 2015). Many differences in injury surveillance appear to have much more to do with influences such as sport type, level of play, and training load than with gender. Therefore, gender matters, but perhaps not as much as is advertised relative to other contributors to injury risk; thus it is important to generate knowledge specifically designed to make gender comparisons when other influential variables are controlled for.

- **Optimal risk-taking behavior in physical activity.** Learning to navigate risk is an important part of the developmental process and ultimately an injury prevention tactic among children and youth (Wiese-Bjornstal et al., 2018). Brussoni et al. (2015) said that voluntary risky play, such as physical activity on playgrounds, “helps children learn risk perception and management skills, which are important in developing understanding of how to navigate risks and avoid injuries” (p. 344). They distinguished between risks and hazards, identifying the former as situations that children recognize as challenging and potentially dangerous and should learn to negotiate, and hazards as those situations that present a source of harm that is not easily or obviously recognized and should be avoided or mitigated. Future research should address how exactly to nurture girls’ skills in optimal sport injury risk assessment and negotiation, while protecting them from the hazards associated with sport injury risk (Wiese-Bjornstal et al., 2018).

## RESOURCES FOR ADDRESSING SPORT INJURIES AMONG GIRLS

This section lists some of the key organizations that provide information, materials, and recommendations regarding sport injuries in female children and youth. The majority of the resources provided by these organizations are freely available, and targeted to athletes and parents, as well as sport and medical professionals.

- **American Academy of Pediatrics (AAP)** - <https://www.aap.org>
  - Prepares and provides on their website access to a wide variety of free, evidence-based position statements, reports, and policy recommendations related to youth athletes and sports medicine
  - Examples of recent reports related to sport injuries among female children and youth include the following: Guidelines on Concussion Management and Return to Play; Returning to Learning Following a Concussion; The Female Athlete Triad; Anterior Cruciate Ligament Injuries: Diagnosis, Treatment, and Prevention; Youth Participation and Injury Risk in Martial Arts
- **American College of Sports Medicine (ACSM)** - <http://www.acsm.org/>
  - Produces and provides on their website access to a wide variety of free, evidence-based position stands and consensus statements related to youth athletes and sports medicine

- Examples of recent consensus statements related to sport injuries among female children and youth include the following: Selected Issues in Injury and Illness Prevention and the Team Physician: A Consensus Statement; The Team Physician and the Return-to-Play Decision: A Consensus Statement—2012 Update; Selected Issues in Injury and Illness Prevention and the Team Physician: A Consensus Statement
- **American Orthopaedic Society for Sports Medicine (AOSSM)** - <http://www.sportsmed.org/aossmimis>
  - Hosts STOP (Sports Trauma and Overuse Prevention) Sports Injuries <http://www.stopsportsinjuries.org/>, which provides a wide variety of multimedia, social media, and print resources on youth sport injury prevention and care
  - Examples of free resources related to the prevention and care of sport injuries in female children and youth include the following: newsletters, public service announcements, sport and injury specific handouts, athlete toolkits, coach toolkits
- **Centers for Disease Control and Prevention (CDC)** - <https://www.cdc.gov/headsup/youthsports/>
  - Hosts the HEADS UP Concussion in Youth Sports initiative to offer information about sport-related concussions to coaches, parents, and athletes involved in youth sports
  - Provides free online training modules for coaches, athletes, parents, and clinicians on concussion in youth and high school sports, as well as social media, mobile apps, and podcasts related to concussion in sports
- **National Athletic Trainers' Association (NATA)** - <https://www.nata.org/>
  - Provides a variety of position and consensus statements related to sport injuries among female children and youth
  - Provides a variety of free position and consensus statements, such as the following: Pre-participation Physical Examinations and Disqualifying Conditions; Prevention of Pediatric Overuse Injuries; Providing Quality Health Care and Safeguards to Athletes of All Ages and Levels of Participation

- **National Federation of State High School Associations (NFHS)** - <https://www.nfhs.org/resources/sports-medicine/>
  - Provides online training modules through the NFHS Learning Center for Coaches
  - Examples of free training modules related to sport injuries among youth include the following: Concussion in Sports; Concussion for Students; and example of for fee courses include the following: First Aid, Health and Safety for Coaches; AACCA Spirit Safety Certification
- **National Institute of Arthritis and Musculoskeletal and Skin Diseases (NIAMS)** - [https://www.niams.nih.gov/health\\_info/sports\\_injuries/](https://www.niams.nih.gov/health_info/sports_injuries/)
  - Provides access to online information as well as free publications on sport injuries
  - Recent examples of free online publications include the following: Preventing Musculoskeletal Sports Injuries in Youth: A Guide for Parents; Sports Injuries, Easy-to-Read Fast Facts; Sports Injuries, Handout on Health



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# Physiological Dimensions of Health in Girls

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## Introduction

It is clear that physical activity is a critical aspect of growth, development, and physiological health in youth. Physical activity can manifest in a number of ways throughout the day for youth, including sports participation, physical education, recess and unstructured play. In 2008, the U.S. Department of Health and Human Services updated the federal physical activity guidelines for Americans, which recommend that children and adolescents should engage in at least 60 minutes or more of physical activity daily. Specifically, most of the 60 minutes a day or more should be either moderate-or vigorous-intensity aerobic physical activity with vigorous intensity activity being accounted for at least three days a week. Additionally, youth should engage in muscle strengthening and bone strengthening physical activity on at least three days of the week (U.S. Office of Disease Prevention and Health Promotion, 2008). These national recommendations hold true currently.

Unfortunately, as previously stated and summarized in Chapter 1, a majority of youth in the U.S. fail to meet these guidelines. The *Healthy People 2020 Report* identifies several objectives centered on the promotion of physical activity for U.S. adolescents—objectives focused on increasing the proportion of adolescents who meet current federal physical activity guidelines for aerobic physical activity and muscle-strengthening activity (U.S. Office of Disease Prevention and Health Promotion, 2010). These objectives are set forth in response to an ever-growing body of literature that outlines the beneficial influences of physical activity for physiological health in girls. Historically, researchers have sought to understand the effects of sports participation on bone, muscle, and reproductive health. However, recent efforts have shifted towards a more holistic understanding of the benefits of not only sports, but physical activity, as well as avenues to increase physical activity, as activity levels drop dramatically as girls' transition from childhood to adulthood. This chapter will overview the research of the physiological benefits of physical activity for girls as well as the potential negative effects of physical activity and the positive role of physical activity in chronic disease prevention.

## Summary of Physical Activity on Physiological Health

### CARDIOVASCULAR FITNESS

Cardiorespiratory fitness is defined as the capacity of the cardiovascular, respiratory, and metabolic systems to utilize oxygen for the provision of energy for activity. In 2012, the National Youth Fitness Survey (NYFS) evaluated the health and fitness of U.S. children. Estimates from the NYFS found only 33.8% of girls met the cardiorespiratory fitness standards as indicated by the FITNESSGRAM (Katzmarzyk et al., 2016). Based on the data, youth in the lowest 20th percentile for endurance time were more likely to be obese, to report less favorable health, and to report greater than two hours of screen time per day (Gahche, Kit, Fulton, Carroll, & Rowland, 2017).

Although meeting the guidelines is challenging for many girls, schools and coordinated school-health engagement can be a source of physical activity opportunities and the promotion of cardiovascular health in girls (Owen, Curry, Kerner, Newson, & Fairclough, 2017). School-based interventions on fitness, activity, and bone among adolescent females have resulted in increased physical activity and cardiovascular fitness, measured as  $VO_{2peak}$ . Improvements in cardiovascular fitness also predicted increased bone formation and bone resorption, indicating the reciprocal effect of improving cardiovascular and bone health (Schneider et al., 2007).

### MUSCULAR STRENGTH AND POWER

Muscular strength is defined as the ability of a muscle to generate force, whereas muscular power is the ability to exert strength over a period of time. Physical activity and sports participation require a combination of muscular strength and power depending on the activity. While historically there has been some disagreement among physicians and physiologists exist regarding the safety and benefits of strength training in youth, today it is widely accepted that youth should participate in strength training activities, so much so that the federal youth physical activity guidelines recommend muscle-strengthening physical activity on at least 3 days of the week as part of their 60 or more minutes of daily physical activity. However, data from the Youth Risk Behavior Surveillance System estimate that 53.4% of youth in 2015 met this guideline (Kahn et al., 2016).

Research indicates that resistance training has a positive effect on bone health, body weight, and cardiovascular disease and metabolic risk factors as well as the prevention of injuries. Of note, resistance training is critical for the health of all youth, including those who are overweight and obese (Schranz, Tomkinson, & Olds, 2013). In 2008, the American

Academy of Pediatrics published a revision to the 2001 recommendations for strength training programs for youth. The Academy recommended that a medical professional evaluate youth prior to their engagement in a strength-training program. The specific strength-training exercises should initially be learned with no resistance; once youth are competent with the exercise technique, 2 to 3 sets of higher repetitions (8 to 15 reps) for 2 to 3 times per week are recommended. Additionally, recommendations suggest that until youth reach physical and skeletal maturity, power lifting, bodybuilding, and maximal lifts should be avoided (American Academy of Pediatrics Council on Sports Medicine and Fitness, 2008).

## REPRODUCTIVE HEALTH

In 2003, the median age for the first menstrual cycle (i.e., menarche) was 12.4 years, an age which has remained relatively stable (American Academy of Pediatrics, & American College of Obstetricians and Gynecologists, 2006; Chumlea et al., 2003). Yet, increasing evidence suggests that obese girls are more likely to undergo menarche sooner than their healthy-weight counterparts (Euling et al., 2008). Early menarche raises additional concerns related to health disparity, since trends in age at menarche appear to vary with socioeconomic status and race/ethnicity. Krieger reports girls with an onset of menarche younger than 11 years doubled in White and Black women with lower socioeconomic status (Krieger et al., 2015).

In contrast to early menarche, menarche is often delayed in highly athletic girls, yet the reasoning for the delay remains unclear. Scholars speculate menarche is delayed due to high levels of sports participation or perhaps more late-maturing girls participate in sports that favor leanness and a pre-pubescent physique. Menstrual dysfunction is of particular concern in young female athletes as exercise-induced menstrual dysfunction may negatively influence growth and peak bone mass acquisition (Maïmoun, Georgopoulous, & Sultan, 2014). Taken together, these data suggest that in addition to the influence of excessively high levels of physical activity participation in girls, low physical activity alongside other associated health issues such as obesity may also play a role in the reproductive health of young girls. Regardless, it appears that either too much or too little physical activity may have physiological health consequences for girls.

## BONE HEALTH

Regular physical activity during childhood and adolescence is crucial for favorable bone development and subsequent adult bone health. The associations between bone health and physical activity are well documented and accumulating evidence from longitudinal studies indicates the compounding effect of low physical activity on bone health as children age. Recent data from the Iowa Bone Development Study reported girls who accumulated

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the most moderate-to-vigorous physical activity had greater bone mass at 17 years when compared to less active peers. However, the proportion of girls achieving high levels of MVPA throughout childhood was very low (<6%), and by late adolescence, almost all girls were inactive (Janz et al., 2014).

Calcium intake remains essential to the development and health of bones during childhood and adolescence. The Institute of Medicine calcium intake recommendation for youth ages 9-18 is 1,300 mg calcium/day and 600 IU/day of Vitamin D to ensure proper bone mineralization. Most current data for the National Health and Nutrition Examination Study show that 68.1% of girls age 9-13 years and 77.3% of girls of age 14-18 years report calcium levels below the estimated average requirement (Berner, Keast, Bailey, & Dwyer, 2014).

## **CARDIOVASCULAR HEALTH**

Cardiovascular health incorporates the function of the heart and blood vessels of the body. Diseases of the cardiovascular system including heart disease, stroke and related vascular diseases continue to be the leading causes of morbidity and mortality in the United States and research supports that many cardiovascular disease risk factors originate in childhood. The American Heart Association conceptualizes ideal cardiovascular health as the simultaneous presence of optimal levels of seven health behaviors/characteristics for youth including physical activity, smoking, dietary intake, and body mass index as well as total cholesterol, blood pressure and fasting blood glucose (Steinberger et al., 2016).

The traditional cardiovascular risk factors include family history, age, sedentary lifestyle, tobacco use, obesity, dyslipidemia, hypertension, and pre-diabetes. National Health and Nutrition Examination Survey data show only 65% of adolescent girls displayed ideal total cholesterol values, compared to 72% of boys. Further, only 44% of girls displayed ideal physical activity levels (Shay et al., 2013). Given the moderate prevalence of cardiovascular disease risk factors in this age group, it is critical to explore how physical activity can be utilized to improve the cardiovascular health of adolescent girls.

## **BODY WEIGHT**

Excess body weight continues to be a concern for youth in the United States. Obesity in children is defined as a body mass index (BMI) at or above the sex-specific 95th percentile on the U.S. Centers for Disease Control and Prevention (CDC) BMI-for-age growth charts. Data from the National Health and Nutrition Examination Study show obesity levels have risen to 15.1% of non-Hispanic white girls ages 2-19 years, 20.7% for non-Hispanic black girls, and 21.4% for Hispanic girls (Ogden et al., 2016). Recently, an additional category of obesity, *extreme obesity*, was also introduced, defined as a BMI at or above 120% of the sex-

specific 95th percentile on the CDC BMI-for-age growth charts. It is estimated that 5.0% of non-Hispanic White girls ages 2-19 years, 8.9% for non-Hispanic Black girls, and 7.4% of Hispanic girls fall into the category of extreme obesity (Ogden et al., 2016).

In recent years, longitudinal studies investigating the link between physical activity and sedentary behavior with obesity and weight status have examined girls' transition from childhood to adolescence. In the Transitions and Activity Changes in Kids (TRACK) study, moderate-to-vigorous physical activity was negatively associated with percent body fat and BMI. Further, higher moderate-to-vigorous physical activity participation was associated with lower percent body fat and BMI in the fifth, sixth, and seventh grades (Dowda, Taverno Ross, McIver, Dishman, & Pate, 2017). Participation in moderate-to-vigorous physical activity continues to be a protective factor against overweight and obese status and should be emphasized as a critical component of a daily routine, both in school and at home.

## **FEMALE ATHLETE TRIAD**

The Female Athlete Triad represents one of the few potential deleterious effects of physical activity for girls. As noted in chapter 3, the triad is defined as a syndrome of three interrelated health disorders including disordered eating, amenorrhea, and osteoporosis. A recent International Olympic Committee Consensus Statement expanded on the 2005 definition of the female athlete triad as the relationship between three components: energy availability, menstrual function and bone health. Although aspects of the triad are difficult to quantify, estimates show a prevalence of around 18.2%, 23.5%, and 21.8% for disordered eating, menstrual irregularity, and low bone mass in adolescent girls respectively. While only 1.2% of the athletes had the full triad simultaneously, 48.2% of the girls studied met criteria for at least one triad component (Nichols, Rauh, Lawson, Ji, & Barkai, 2006).

Energy availability is in part impacted by the presence of eating disorders, which include bulimia nervosa, anorexia nervosa, and binge eating disorders. These clinical conditions often result from persistent preoccupations with thinness, dieting, and/or concerns with body weight or shape. Among U.S. adolescents, most recent data suggests that eating disorders are the third most chronic health condition alongside obesity and asthma. Longitudinal studies indicate that personal factors identified during adolescence were predictive of both persistent dieting and disordered eating from adolescence into young adulthood. In particular, concerns about weight and weight importance were both identified as predictive. Based on the findings, authors suggest that it may be appropriate to include these factors in health screenings for adolescent girls (Loth, MacLehose, Bucchianeri, Crow, & Neumark-Sztainer, 2014).



Menstrual dysfunction incorporates amenorrhea, secondary amenorrhea (absence of three or more consecutive cycles or fewer than 10 cycles in the past year), or oligomenorrhea (menstrual cycles occurring at intervals less than 21 or more than 35 days, after onset of menses by age 15) (American Academy of Pediatrics & American College of Obstetricians and Gynecologists, 2006). According to a recent review, self-reported menstrual dysfunction ranges from 18.8% to 54% in high school female athletes. Further, compared to their general high school athlete counterparts, menstrual dysfunction shows the highest prevalence among athletes in esthetic sports (i.e. cheerleading/dance team, diving and gymnastics) as well as in lean build athletes (28.2% and 26.7%, respectively) (Thein-Nissenbaum, Rauh, Carr, Loud, & McGuine, 2011).

Lastly, the female athlete triad may contribute to low bone mass in young girls. One recent e-study found that the hours per week of low- and moderate-impact activity and the hours per week of running as well as participation in high impact sports including basketball and cheerleading/gymnastics were significant predictors of developing a stress fracture over a seven-year span (Field, Gordon, Pierce, Ramappa, & Kocher, 2011). Another study found that among the female adolescents who participated in competitive or recreational exercise activities, the risk of bone stress injuries increased from approximately 15% to 20% for females with a single female athlete triad risk factor. Moreover, those with combined triad-related risk factors had an increase in the risk of bone stress injuries of over 30% (Barrack et al., 2014).

## CHRONIC DISEASE PREVENTION

As stated previously, health behaviors adopted during childhood often track into adulthood, and this tracking is critical for the prevention of chronic diseases as young girls transition towards adulthood. Current research continues to show that chronic diseases are rooted in the adoption of behaviors early in life. According to recent NHANES data that examined cardiovascular disease risk factors, 14% of U.S. adolescents have prehypertension/hypertension, 22% are borderline-high/high low-density lipoprotein cholesterol, and 15% are at risk for prediabetes/diabetes (May, Kuklina, & Yoon, 2012).

### *Type 2 Diabetes*

Once thought of as “adult-onset diabetes”, Type 2 diabetes continues to be a concern among children. The prevalence of children in the U.S. with Type 2 diabetes continues to rise, and currently youth account for 20% to 50% of newly-diagnosed Type 2 diabetes patients in the United States (Dabelea et al., 2014). Unfortunately, it appears that this rising diagnosis of Type 2 diabetes mirrors the increases in obesity prevalence in U.S. youth, especially with girls. It is evident from previous research that obesity results from a variety

of genetic and lifestyle factors including poor diet and low physical activity participation. Therefore, it is not surprising that youth diagnosed with Type 2 diabetes also display low levels of physical activity and high weight status.

Few studies have specifically examined the role of physical activity and Type 2 diabetes risk factors and onset specifically in girls. However, data show that girls recently diagnosed with Type 2 diabetes spent significantly more time being sedentary and less time being active compared to girls without Type 2 diabetes (Kriska et al., 2013). Further, blood chemistry values such as blood glucose and insulin sensitivity appear to be improved with regular physical activity participation. Findings from one intervention study found that aerobic exercise was associated with improved insulin sensitivity and furthermore, improvements were associated with the reductions in total fat tissue mass in girls (Lee et al. 2013). Given that physical activity is a modifiable lifestyle factor related to the development of Type 2 diabetes, it is possible that the adoption of regular participation in moderate-to-vigorous physical activity, as well as the maintenance of activity, could contribute to a reduced risk of the development of Type 2 diabetes in girls.

### ***Osteoporosis***

Osteoporosis is defined as a state in which the bones become brittle and fragile, often from the loss of bone tissue as the result of hormonal changes or deficiency of calcium or vitamin D. Hormones (such as estrogen) and mechanical stress from physical activity influence bone mineral density. Adequate energy intake, calcium and vitamin D are also critical components of bone health. Further, studies have highlighted the important role of physical activity during childhood for bone health later in adolescence (Janz et al., 2014). However, longitudinal studies are necessary to fully understand how childhood physical activity contributes to the development of osteoporosis later in life. Regardless, given that healthy bones begin during childhood, it is essential that girls engage in bone strengthening activities and obtain adequate nutrients as they transition from childhood to adolescence to decrease their risk for osteoporosis in adulthood.

### **“Hot Topics”**

Although cardiovascular health, bone health, and reproductive health continue to be at the foundation of the positive effects of physical activity on girls’ health, new areas of research are emerging.

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adolescence.**

## **SLEEP**

Sleep is an essential component of healthy development and is required for physical and mental health. A shorter sleep duration is associated with adverse mental health outcomes as well as factors related to physical activity including injury and obesity (Chaput et al., 2016; Keyes, Maslowsky, Hamilton, & Schulenberg, 2015; Milewski et al., 2014). As reported by the Monitoring the Future study declines in self-reported adolescent sleep in the last 20 years is evident (Keyes et al., 2015). Yet there appears to be a lack of empirical data for the establishment of sleep guidelines in youth (Matricciani et al., 2012). However, the National Sleep Foundation recommends 9-11 hours a night for school-aged children (9-13 years) and 8-10 hours a night for teenagers (14-17 years) (Hirshkowitz et al., 2015). Despite the recommendations, the 2015 National Youth Risk Behavior Surveys found only 27% of high school students reported accumulating at least eight hours of sleep a night (Kahn et al., 2016).

Physical activity participation is related to sleep duration and quality. Data from two important studies on the health of girls, the Mothers and Daughters Dancing Together Trial and the Girls Dancing and Sleeping for Health Study reported that lower physical activity was associated with lower sleep quality in low socioeconomic status urban girls (Greever, Ahmadi, Sirard, & Alhassan, 2017). It is critical that future research explore the relationships between physical activity and sleep, especially as the majority of youth have access to electronic devices that compete with sleep.

## **BRAIN STRUCTURE AND COGNITION**

In recent years, increased attention has been paid to the impact of physical activity on brain health and cognitive functions among youth. Cognition is the set of mental processes that contribute to perception, memory, intellect, and action. Research supports the notion that children who are physically fit have improved performance on cognitive tests compared to their lower fitness counterparts. Additionally, fitness-related differences in brain structure and function have been identified (Donnelly et al., 2016). The FITKids afterschool PA program reported increased electrical activity in the brain and behavioral measures (accuracy, reaction time) of executive control including accuracy and reaction time. As a result of the intervention, children had enhanced cognitive performance and improved brain function during tasks that required greater executive control. Based on these data and other supporting literature, it is evident that an emphasis should be placed on increasing girls' physical activity to support cognition and brain health (Hillman et al., 2014).

Research regarding brain structure and physical activity relationships is still in the early phases. Recent research shows that heart rate and exercise-dose were both correlated with white matter integrity (a measure of brain structure) in youth who participated in an after-school exercise program (Krafft et al., 2014). Although research on the relationships between physical activity, physical fitness, and brain structure is in its infancy, advances in technology will continue to add to our understanding of how physical activity influences the brain.

## Physiological and Metabolic Best Practices for Girls

As outlined in this report engaging girls in physical activity can positively impact many different health outcomes. To promote optimal physiological health, girls must be offered daily opportunities to be physically active and meet the federal physical activity guidelines. Activities should be offered at school, during after-school programs, as well as at home. Outlined below are national standards and “best practices” for the promotion of girls’ health and physical activity participation.

### Cardiorespiratory Fitness

- At least 60 minutes of aerobic exercise on every day of the week
- Intensity of exercise should be moderate-to-vigorous
- Vigorous intensity activity should be incorporated on at least 3 days of the week

### Muscular Strength and Endurance

- At least 3 days per week of resistance training

### Bone Health

- At least 3 days per week of strengthening exercises

### Balanced Nutrition

- Overall balanced diet
- Healthy eating behaviors
- 1,300mg of calcium daily
- 8 mg of iron daily for girls, 9-13 years; 15 mg/daily for girls 14-18 years

### Cardiovascular Health

- Regular moderate-to-vigorous physical activity
- Regular vigorous physical activity

**To promote optimal physiological health, girls must be offered daily opportunities to be physically active and meet the federal physical activity guidelines.**

### **Body Composition and Health**

- Regular physical activity participation
- Maintain healthy body weight and BMI as recommended for age

### **Menstrual Function**

- Maintain balance between energy intake and energy expenditure for optimal menstrual function

## **Policy Recommendations**

It is essential that increasing physical activity levels of youth remain a public health priority. As such, public health recommendations are outlined below.

- Health care providers should measure physical activity participation as a vital sign and discuss the role of physical activity for physiological health during regular appointments. Additionally, training for healthcare providers should include education and counseling curriculums for physical activity to promote physiological health.
- School districts should mandate daily physical education and after-school physical activity opportunities.
- Communities should encourage physical activity opportunities including walkable streets and neighborhoods as well as safe parks and green spaces.

## **Gaps in Knowledge**

Despite what is known about the powerful influence of physical activity on girls' physiological health, there is still much that needs to be examined. It is clear from recent data that physical activity levels dramatically drop as girls transition from childhood to adolescence. Therefore, a critical next step is to continue to identify new ways to engage schools, families, and communities to increase adoption of and improve the physiological health of U.S. girls.

Research continues to give new outlooks on how physical activity plays a beneficial role in cardiovascular, bone, and metabolic health. Each day more research emerges regarding new relationships between physical activity participation and various aspects of health, including sleep outcomes and cognitive functions. Yet, cultural and societal aspects of childhood including access to technology as well as changes in school day demands necessitate an even better understanding of these aspects of physiological health. At present,

most of the research on cognitive function remains inconsistent. More information on specific aspects of physical activity participation (i.e. acute versus chronic activity, timing of activity) should be further examined.

In addition, a number of studies have emphasized that health outcomes track from childhood into adolescence. Youth bone and cardiovascular health outcomes, as well as physical activity participation, appear to be predictors of health outcomes in adulthood. Therefore, it is important that longitudinal study designs be utilized to fully understand the influence of physical activity on youth physiological health, as well as how physical activity behaviors during youth affect physiological health and development of chronic diseases later in life.

Lastly, most recent data suggest disparities in physiological health among social, economic, and environmental divides. A number of studies have sought to identify the factors that contribute to health disparities and, although some have been successful in pointing to the causes of such disparities, we have yet to identify proper intervention techniques for improving health in disadvantaged groups. Future research must continue to fill the gaps on what is known about the factors contributing to health disparities among girls.

## Resources

- Exercise is Medicine - <http://exerciseismedicine.org/>
- National Youth Fitness Survey - <https://www.cdc.gov/nchs/nyfys/index.htm>
- National Physical Activity Plan - <http://www.physicalactivityplan.org/index.html>
- Girls Health.Gov - <https://www.girlshealth.gov/fitness/whygetfit/>



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THE 2018 TUCKER CENTER RESEARCH REPORT

## Section III:

Intersectional Identities and Influences on  
Girls Physical Activity



# Physical Activity and Immigrant Girls

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Over the past few decades, the number of immigrants settling in the U.S. has risen substantially. Currently, immigrants account for 13.4% of the total U.S. population (Lopez & Radford, 2017). The number of children of immigrants<sup>1</sup> has also increased, and is the fastest-growing segment of the U.S. child population (Child Trends, 2014; Taverno Ross, Francis, BeLue, & Viruell-Fuentes, 2012). In 1990, there were approximately 8.2 million children of immigrants in the U.S. (13.4% of total U.S. children). By 2015, that number more than doubled to 17.9 million—or one in four (25.5%)—U.S. children living in immigrant families (Migration Policy Institute, 2015a). Forty-percent of children in immigrant families have at least one parent who was born in Mexico (Child Trends, 2014), making Mexico the country of origin with the largest amount of immigrant children living in the U.S.

The “health and health behaviors of this large and growing population remain understudied” (Allen et al., 2007, p. 337). However, given the many potential physical and psycho-social health benefits of active living, understanding the physical activity participation experiences and needs of children in immigrant families is imperative. This chapter provides an overview of existing research related to immigrant girls’ physical activity, translation of the research into best practice strategies and policy recommendations, and gaps in knowledge.

## Definition of Generational Status

Many studies on the physical activity of immigrant children include measures of generational status—the length of time an immigrant and their descendants have been in a host country (Allen et al., 2007). For youth, “defining immigrant status based on both the child’s and parental nativity is the preferred approach” (Singh, Yu, Siahpush, & Kogan, 2008, p. 757).

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<sup>1</sup> Children of immigrants (or children in immigrant families) refers to children under 18 with at least one-foreign born parent. This group includes both foreign-born (first-generation) and U.S.-born (second-generation) immigrant children.

The following are definitions of generational status on the next page will be used throughout this chapter (Child Trends, 2014; Papademetriou, Somerville, & Sumption, 2009; Singh et al., 2008):

- **First-generation immigrants**—persons who are foreign-born, have immigrated to the U.S., and were not U.S. citizens at birth; foreign-born children with both foreign-born parents
- **Second-generation immigrants**—persons born in the U.S. to at least one foreign-born parent
- **Third-generation immigrants**—persons born in the U.S. to two parents who were also born in the U.S.
- **Immigrant**—persons who are first- and second- generation immigrants
- **Non-immigrant or native persons**—persons who are third and higher generations; children and parents are both native-born

## Immigrant Youth

The majority of children in immigrant families (88.3%) were born in the United States and are considered second-generation immigrants (Migration Policy Institute, 2015a). The proportion of first-generation immigrant children has remained steady at between 3-5% of all U.S. children over the past several decades (Child Trends, 2014). Immigrant children are racially and ethnically diverse. More than half (55%) of immigrant children in the U.S. are Hispanic (compared to 14% of non-immigrant children), 17% are Asian (compared to 1% of non-immigrant children), 16% are non-Hispanic White (compared to 65% of non-immigrant children), and 9% are non-Hispanic Black (compared to 15% of non-immigrant children) (Child Trends, 2014).

Immigrant children are more likely than non-immigrant children to live in families below the federal poverty level—\$24,600 for a family of four (U.S. Department of Health & Human Services, 2017a). They are also more likely to have parents with low levels of education and three or more siblings, as well as to live in two-parent versus single-parent families (Child Trends, 2014). Immigrant children are less likely to have health insurance; first-generation children are three times less likely and second-generation children are two times less likely to be covered by health insurance compared to non-immigrant youth (Child Trends, 2014). Additionally, about half of all immigrants ages five and older are Limited English Proficient (LEP) (Migration Policy Institute, 2015b).



## Immigrant Paradox and Healthy Immigrant Effect

The immigrant paradox and the healthy immigrant effect (Flores & Brotanek, 2005) are well-documented phenomena (particularly among adults) whereby first-generation immigrants often have better health than the U.S.-born population. The greater the time immigrants spend in U.S., the worse their health outcomes become—with the rates of many risk behaviors and negative health outcomes increasing from first to later generations (Allen et al., 2007; Flores & Brotanek, 2005). Generally speaking, this paradox holds true for children, too; immigrant youth tend to have as good or better developmental, behavioral, and health outcomes than native-born children, yet their outcomes worsen with successive generations (Hernandez, Denton, Macartney, & Blanchard, 2012; Marks, Ejesi, & García Coll, 2014). Immigrant children have a lower prevalence of asthma, developmental delays, learning disabilities, and school absence than native-born children, though these have been shown to increase among immigrant generations (Hamilton, Cardoso, Hummer, & Padilla, 2011; Singh, Yu, & Kogan, 2013). Some studies also show an association between increased generational status and higher rates of overweight and obesity (Singh, Siahpush, Hiatt, & Timsina, 2011; Taverno Ross et al., 2012), particularly in non-Hispanic White, non-Hispanic Black, and Asian immigrant groups (Singh, Kogan, & Yu, 2009). Hispanic children's obesity and overweight prevalence do not vary as significantly by generational status.

## Immigrant Youth's Physical Activity Participation Level

There is limited research, particularly recent research within the last five years, regarding physical activity and sport among immigrant children (Sabo & Veliz, 2008; Singh et al., 2008; Thul, LaVoi, Hazelwood, & Hussein, 2016). Where there is data, it is often not broken down by gender. Existing studies show physical activity participation varies by generational status among children and adolescents in the United States. Contrary to the immigration paradox and “healthy immigrant effect”, immigrant children are often less active compared to those who are U.S.-born—but physical activity tends to increase with successive generations (Allen et al., 2007; Singh et al., 2008; Singh et al., 2013; Taverno, Rollins, & Francis, 2010; Taverno Ross et al., 2012). Despite this trend, many U.S.-born youth are still not meeting the Center for Disease Control's physical activity guidelines. The increase of physical activity across immigrant generations aligns with “similar immigrant patterns observed for preventive health services and health care use in the United States” (Singh et al., 2008, p. 762). In a large, nationally representative survey among over 91,000 youth aged 6-17 years (Singh et al., 2013) immigrant children were nearly two times more likely than non-immigrant children to be physically inactive (16.4% versus 8.9%). Specifically, 19.4% of

**There is limited research, particularly recent research within the last five years, regarding physical activity and sport among immigrant children.**

first-generation immigrant children were inactive compared to 15.1% of second-generation immigrant children and 8.9% of third or higher-generation children. These generational differences were statistically significant.

In the same study (Singh et al., 2013), Hispanic and Asian immigrant children were about twice as likely to be inactive as their native racial-ethnic counterparts. A similar prevalence of non-Hispanic White immigrant and native children were physically inactive. Non-Hispanic Black immigrant youth were about half as likely to be physically active compared to their native racial-ethnic peers. Compared to non-Hispanic White native children, Hispanic immigrant children had 154% higher odds, Asian immigrant children had 71% higher odds, non-Hispanic White immigrant children had 12% higher odds of physical inactivity. On the other hand, non-Hispanic Black immigrant children had 10% lower odds of physical inactivity compared to non-Hispanic White native children. A study by Liu, Probst, Harun, Bennett, and Torres (2009) also revealed Hispanic adolescents from immigrant families had the highest odds of not acquiring recommended physical activity.

In another large, nationally representative study of 68,000 youth ages 6-17 (Singh et al., 2008) where prevalence of regular physical activity and physical inactivity were measured among immigrant children, there was little difference among non-Hispanic White immigrant and non-immigrant youths' physical activity levels. Hispanic immigrant children participated in about 20% less regular physical activity, non-Hispanic Black immigrant children in about 10% less regular physical activity, and Asian immigrant children in about 9% less regular physical activity than their non-Hispanic White native-born peers. Though the data was not specifically broken down by gender in this study, the authors indicate that racial-ethnic immigrant physical activity participation was similar for boys and girls. Another study (Allen et al., 2007) found first-generation Asian and Latino adolescents (ages 12-17) had lower regular physical activity than their White peers (58% for Asian, 70% for Latino, and 76% for White youth); but again, physical activity participation improved across generations. Given this data, providing and promoting physical activity opportunities for first- and second- generation youth is especially imperative.

It is worth mentioning that in the aforementioned studies, regular physical activity participation was defined much more narrowly (i.e., only 30 minutes of moderate activity or 20 minutes of vigorous activity in 3 or more days of the past week) than the current CDC recommendation for children and adolescents of at least 60 minutes of daily moderate-to-vigorous (MVPA) physical activity, outlined in chapter five. Thus, the rates of physical activity reported in these studies are likely much higher than they would be in studies adhering to the current guidelines. The studies also only focus on broad racial-ethnic immigrant groups, rather than include ethnic immigrant subpopulations (i.e., East African, Hmong, Middle Eastern, etc.).

Additionally, the studies did not include gendered information about physical activity levels. Recent research by Taverno Ross, Larson, Graham, and Neumark-Sztainer (2014) does separate findings by gender. Adolescent foreign-born females self-reported significantly lower levels of MVPA (4.6 hours/week) than their U.S.-born female counterparts (5.9 hours/week). Adolescent foreign-born females also reported substantially less MVPA than their foreign-born male (6.7 hours/week) and U.S.-born male (7.6 hours/week) peers. Research with accelerometer-measured MVPA among Mexican American adolescents, however, (Lee, Cardinal, & Loprinzi, 2012), yielded different findings; MVPA was not significantly different for immigrant and native-born girls.

Thul, Eisenberg, Larson and Neumark-Sztainer (2015) also found that Somali girls had lower MVPA hours per week (3.8) than their non-Hispanic Black (5.2) and White (6.2) female peers. Participants were not stratified by nativity or generational status in the study. Further research regarding physical activity involvement of immigrant compared to non-immigrant girls is needed.

## Immigrant Youth's Physical Activity Participation Types

Research by Thul and LaVoi (2011) and Thul (2012) indicates that Somali and Ethiopian immigrant girls want to be active in a wide range of physical activities—including daily living activities (e.g., housework, cooking), active transport (e.g., walking, biking), informal play (e.g., jump rope, hopscotch, pick-up basketball), exercise (e.g., swimming, walking, running, aerobic classes, strength training, Hip-hop and other dance), competitive sport (e.g., basketball, soccer, football), and cultural activities (e.g., prayer, East African dance such as Dantu). Wieland et al. (2015) also found Cambodian, Mexican, Somali and Sudanese immigrant adults and adolescents (ages 11-18) conceptualized physical activity broadly, including intentional exercise, sports, physical labor at work, and chores around the house. Females were more likely to associate physical activity with housework and recreational activities versus males with physical labor at work and sports. Adults were more likely to associate physical activity with housework and recreational activities versus adolescents with exercise and sports. Adolescent girls specifically talked about incorporating social activities with exercise (e.g., going on walks with friends). In a study by Franzen and Smith (2009b), immigrant children also described exercise as a variety of activities, including “running, jogging, playing sports, dancing, and riding bikes” (p. 446).

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## Immigrant Youth's Sport Participation Levels

Immigrant children, particularly first-generation youth, also have lower sport participation rates than non-immigrant peers (Singh et al., 2008; Taverno et al., 2010; Taverno Ross et al., 2012). Similar to physical activity, sports participation is shown to increase with generational status (Singh et al., 2013; Taverno Ross et al., 2012). For example, in a study by Singh et al. (2013), 47.2% of first-generation immigrant youth (ages 6-17) participated in sport compared to 52.8% of second-generation and 60% of third or higher generation youth. Overall, 51.1% of immigrant youth compared to 60% of native youth participated in sport.

In this study, sport participation also varied by racial-ethnic group. Hispanic and Asian immigrant youth participated less in sport than their non-immigrant racial-ethnic counterparts. By contrast, both non-Hispanic White and Black immigrant youth engaged in more sport participation than their non-immigrant racial-ethnic peers. Compared to non-Hispanic White native youth, Hispanic immigrant children had 55% higher odds, Asian immigrant children had 47% higher odds, and non-Hispanic White immigrant children had 5% higher odds of no sport participation. Compared to non-Hispanic White native youth, non-Hispanic Black immigrant children had 19% lower odds of no sport participation.

Sport participation is especially protective against overweight among immigrant youth. In a study by Taverno Ross and colleagues (2012) comparing youth who participated in sports after school or on the weekends to youth who did not participate, first-generation youth had 62% lower odds, second-generation youth had 10% lower odds, and third-generation youth had 17% lower odds of being overweight. This highlights the need to provide and promote sport opportunities, especially among foreign-born children who are recent immigrants to the U.S.

As with the overall U.S. population, a gender gap in sport participation exists within immigrant families. Immigrant girls (in 3<sup>rd</sup>-12<sup>th</sup> grades) reported significantly lower rates of athletic participation compared to immigrant boys (43% versus 75%) (Sabo & Veliz, 2008). Additionally, immigrant girls were less involved in sport compared to non-immigrant girls (43% versus 65%) (Sabo & Veliz, 2008). This data mirrors research regarding extracurricular activities where immigrant youth (ages 12-17) were less likely to participate in extracurricular activities than native-born youth (46% versus 65%). This gap remained even after controlling for SES (Reardon-Anderson, Capps, & Fix, 2002). This research was not stratified by specific racial-ethnic groups.

## Immigrant Youth's Sport Participation Types

As with physical activity, there is little research among immigrant racial-ethnic subpopulations. Research by Thul et al. (2015) indicates Somali girls engage in a similar prevalence of most sports as their non-Hispanic Black and White female peers. The only sports they participated in less were ice hockey, field hockey, street hockey/lacrosse, downhill skiing/snowboarding, and crew/kayaking/canoeing/rowing. Among girls who participated in the same sports, immigrant and non-immigrant girls spent a similar number of weekly hours on their sport. In sports such as soccer and basketball, Somali girls engaged in significantly more hours per week of each activity than their peers. The findings suggest that when Somali girls have access and opportunity to engage in sport they spend similar or more hours participating. These results were not stratified by nativity or generational status. More research is needed regarding sport participation levels and types among diverse immigrant racial-ethnic subpopulations.

## Immigrant Youth's Sedentary Behavior

Despite lower levels of regular physical activity and sport participation, several studies indicate immigrant youth engage in similar or less sedentary behavior than non-immigrant youth (Singh et al., 2008; Singh et al., 2013; Taverno Ross et al., 2014). This especially appears to be the case for girls. For example, foreign-born adolescent girls reported significantly less (16.4 hours/week) TV/DVD/video viewing than their U.S.-born female peers (19.8 hours), and the lowest sedentary behavior of all (foreign-born and U.S. born boys reported 23.5 hours/week and 21.7 hours/week, respectively) (Taverno Ross et al., 2014). This finding suggests the lower physical activity levels and sport involvement among immigrant girls is likely linked to reasons other than sedentary behavior.

## Ecological Factors Impacting Physical Activity and Sport Participation among Immigrant Girls

Physical activity and sport participation patterns among immigrant girls are multi-faceted and complex. Brofenbrenner's (1977, 1979, 1993) Ecological Systems Theory (EST) model presented in Chapter 1 of this report provides an important framework for understanding these behaviors (Sallis & Owen, 2002). The model indicates that individual, social, environmental, societal, and cultural factors interact to influence behavior. This section details several of the ecological factors that impact immigrant girls' participation in physical activity and sport contexts.

**Individual factors.** A primary facilitator of physical activity among immigrants, including girls, is understanding the importance of being active immigrants (Adekeye, Kimbrough, Obafemi, & Strack, 2014; Thul & LaVoi, 2011; Thul, LaVoi, Hazelwood, & Hussein, 2016; Wieland et al., 2015). Many immigrant adolescent girls and their parents view physical activity as a key part of a healthy lifestyle. They are aware of the numerous physical and psychosocial health benefits of active living (Wieland et al., 2015). The more physical activity is linked to tangible, observed benefits (e.g., weight loss) the greater the likelihood immigrant youth and adults believe they will begin and sustain physical activity participation.

Immigrant girls cite an array of personal factors that limit their ability to engage in physical activities. One barrier is allocating time for physical activity or sport due to busy schedules (Franzen & Smith, 2009a; Greaney, Lees, Lynch, Sebelia, & Greene, 2012). Girls discuss limited leisure-time because of working (sometimes multiple jobs) to help support their families (Adekeye et al., 2014), prioritizing academics (Thul & LaVoi, 2011; Thul et al., 2016), carrying out traditionally gendered familial and household responsibilities (e.g., household chores, babysitting younger siblings, cooking, language brokering) (Suarez-Orozco & Qin, 2006; Thul & LaVoi, 2011; Thul et al., 2016; Wieland et al., 2015), and competing time with electronics (Wieland et al.). Obesity and health status among immigrants also impact physical activity (Singh et al., 2008). Additionally, some immigrant girls cite a lack of motivation or interest in structured exercise (Franzen & Smith, 2009b; Wieland et al., 2015).

**Social/interpersonal factors.** Parental, friend and peer, and coach support are all important social factors impacting immigrant girls' physical activity participation.

**Parental support.** Immigrant girls discuss social support (Caperchione, Kolt, & Mummery, 2009; Thul & LaVoi, 2011; Thul et al., 2016) and "togetherness" (Wieland et al., 2015, p. 268) from family and friends as key facilitators for physical activity. Many immigrant adolescents enjoy the opportunity to be together with their busy families while also being active (Wieland et al., 2015). Immigrant parents indicate they want their children to have healthy lifestyles (Turner, Navuluri, Winkler, Vale, & Finley, 2014), and that it is empowering to serve as physically active role models (Wieland).

The physical activity behavior of immigrant parents impacts their children (Singh et al., 2008). Parental role models, especially moms, are important sources of encouragement for their immigrant daughters' physical activity participation. For example, in several studies East African immigrant adolescent girls highlight the critical impact that their mothers' physical activity role modeling and support have on their activity engagement (Thul & LaVoi, 2011; Thul, 2012; Thul et al., 2016). Taverno Ross et al. (2012) also found that "immigrant mothers who modeled physical activity for their daughters may influence daughter's physical activity in ways that produce an especially protective effect on girls' risk of overweight" (p. 846).



Fathers among Hmong youth have also been cited as important sources of motivation and encouragement to physical activity (Franzen & Smith, 2009b).

While immigrant parents recognize the importance of serving as active role models, many discuss that meeting this goal is challenging (Turner et al., 2014; Wieland et al., 2015). Immigrant parents of first- and second-generation immigrant youth are significantly less physically active than native-born parents and immigrant mothers are often less active than immigrant fathers (Taverno Ross et al., 2012). Immigrant mothers also have lower organized sport participation levels than immigrant fathers and non-immigrant mothers and fathers. Immigrant mothers' sport participation is at 44% compared to non-immigrant mothers at 51%, immigrant fathers at 71%, and non-immigrant fathers at 81% (Sabo & Veliz, 2008).

Research regarding immigrant parents' physical activity and sport participation among specific racial-ethnic immigrant groups is limited. Existing research indicates that while immigrant, low-income Latina mothers report participating in some physical activities with their children (i.e., walking, dancing, playing outside), the majority report their families engage in sedentary behaviors together (i.e., watching TV, listening to music, reading) (Lindsey, Sussner, Greaney, & Peterson, 2009). Turner et al. (2014) found Mexican-American and Mexican immigrant mothers were less engaged in family physical activity than fathers, but more engaged in meal preparation.

Upholding traditional gender roles and responsibilities is one reason immigrant mothers and their daughters may be less active and why immigrant girls participate in less sedentary behavior than their immigrant boy and non-immigrant counterparts. Familial and household demands are higher among females than males in many ethnic immigrant subpopulations (D'Alanzo, 2012; Franzen & Smith, 2009b; Parra-Medina & Messias, 2011; Thul & LaVoi, 2011; Thul et al., 2016; Wieland et al., 2015). This can leave little time and less flexibility in schedules for adolescent girls' and their mothers' engagement in leisure-time physical or sedentary activities (Taverno Ross et al., 2014).

A lack of familiarity with physical activity and sports in the U.S. is another reason participation can be challenging for immigrant parents. Specifically, immigrant adults cite a "lack of familiarity with how to effectively and efficiently be physically active in [the U.S.]... as a fundamental barrier" (Wieland et al., 2015, p. 268). They also discussed how a lack of familiarity with gyms and other exercise facilities as well as with U.S. sports is limiting. This was reportedly frustrating for some parents, as it affected their ability to impact physical activity in their families. They believed if these barriers were overcome they would be more physically active. These barriers may also impact parental support for their daughters' physical activity and sport participation, as it can be challenging to support something unknown or unfamiliar.

**Familial and household demands are higher among females than males in many ethnic immigrant subpopulations.**

Parental views can also impact their support of immigrant girls' physical activity. Immigrant parents hold more traditional attitudes toward girls' and boys' sport participation. For example, more immigrant mothers (60%) believed "boys are more interested in sport than girls" compared to non-immigrant mothers (35%). More immigrant fathers (68%) also held traditional attitudes compared to non-immigrant fathers (50%) (Sabo & Veliz, 2008). Such views may impact parental support (e.g., make it less likely parents ask their daughters about sport participation or sign them up) and may negatively affect their daughters' sport involvement. Additional parental factors impacting immigrant girls' physical activity and sport participation include:

- Parents' limited language proficiency (Suarez-Orozco, & Qin, 2006; Taverno Ross et al., 2012)
- Lack of awareness of physical and psychosocial benefits of physical activity and sports participation (Singh et al., 2008)
- Higher value placed on academics (e.g., reading and learning activities, language lessons, academic performance), family, and/or cultural activities (e.g., religious activities) than physical activity and sport (Singh et al. 2008; Yu, Huang, Schwalberg, & Kogan, 2005)
- Fear of bullying, linguistic barriers, and household employment situation (Liu et al., 2009; Yu, Huang, Schwalberg, Overpeck, & Kogan, 2003)
- Demanding work schedules (long hours, multiple shifts) and a lack of time to support physical activity and sport participation (Franzen & Smith, 2009b; Greaney et al., 2012; Lindsey et al., 2009; Taverno Ross et al., 2012)
- Lack of time to transport children to structured physical activities and sports (Liu et al., 2009)
- Socioeconomic barriers (Caperchione et al., 2009; Greaney et al., 2012; Singh et al., 2008) such as parental low literacy, low education and poverty (Wieland et al., 2015), and a lack of money to pay fees and buy physical activity and sports equipment (Liu et al., 2009)—socioeconomic status has been cited as one of the strongest predictors of physical activity among U.S. immigrants (Afable-Munsuz, Ponce, Rodriguez, & Perez-Stable, 2010)

**Friend and peer support.** Adolescent immigrant girls talk about the importance of socializing with their friends by doing recreational activities or playing sports together (Thul & LaVoi, 2011; Thul et al., 2016; Wieland et al., 2015). East African immigrant girls also stress the importance of perceived peer support (both male and female) for their physical activity and sport participation—feeling there is a general sense that peers are supportive of them and other girls within their immigrant communities being active (Thul & LaVoi; Thul et al.). Immigrant youth can also face discrimination from their non-immigrant peers (e.g., others demeaning them for speaking with an accent or speaking a non-English language, wearing African clothes, etc.) (Adekeye et al., 2014) that may negatively impact physical activity participation.

**Coach support.** In addition to parents and friends, girls cite physical education teachers and coaches near the top of main sources of encouragement for involvement with sports (Sabo & Veliz, 2008), but unfortunately, adult leaders can be also detrimental rather than facilitative to girls' participation. Compared to White girls, Latina and African American girls perceived less teacher support for PA within the school climate (Grieser et al., 2008). Recreation managers reported that prejudicial attitudes, stereotypes, lack of cultural sensitivity, and lack of understanding of diversity by staff were major barriers for underserved minority youth (Allison & Hibbler, 2004). East African immigrant girls report similar coach-derived barriers (Thul & LaVoi, 2011):

*“We need good coaches that are here every single day that actually want to coach us and that also understand our culture. We need a coach that understands players. Coaches are either scared of us or they don't care. Like there's some coaches that come in and they're like here for two weeks and then they're gone and it's like we have other coaches from the boys' teams come over here and coach us and they don't even want to coach us....Sometimes the coaches you know they get tired of us because of our culture, because of the way we play, because we can't take our hijab off, so they're like this is so stupid you're not even trying and then they start yelling and the next thing you know they're like we don't want to coach these stupid girls.” (p. 223)*

Undoubtedly, there is a need for culturally competent, supportive physical activity leaders and coaches for immigrant girls.

**Environmental factors.** Immigrants discuss more barriers to physical activity in the U.S than in their countries of origin (Adekeye et al., 2014; Franzen & Smith, 2009a; Lindsey et al., 2009; Wieland et al., 2015). They discuss having had more opportunities to be physically active in their country of origin for a variety of reasons including: warmer weather, spending more time outdoors for work and leisure resulting in more physical activity, physical activity being built into daily life (e.g., limited access to cars and walking or biking for transportation), more physically demanding rather than sedentary work, and more time

to be active (not working all day and thus lacking energy exercise as in the U.S.). Elders in immigrant populations in the U.S. also express concern with the lack of after-school physical activity availability and interest of youth in their communities, noting in their countries of origin children were engaged in daily sports such as soccer and basketball, and that they often walked or biked to school. They are also concerned about increased video game playing they have seen among their grandchildren in the U.S. (Adekeye et al., 2014)

In several studies, the U.S. climate—particularly cold winter and hot/humid summer weather—has been discussed as limiting physical activity (Chan & Ryan, 2009; Lindsey et al., 2009; Rothe et al., 2010; Wieland et al., 2015). A lack of resources among low SES, immigrant populations can make obtaining winter clothing a barrier to being active in cold weather (Lindsey et al., 2009). Additionally, acclimating to outdoor physical activities in cold weather may be challenging among immigrant families from warm weather countries. Thus, providing a variety of indoor and outdoor physical activities and “incorporat[ing] strategies to help families understand alternatives for being physically active during cool or rainy weather” (Lindsey et al., 2009, p. 93) should be prioritized.

Additional environmental factors impacting immigrant girls’ physical activity and sport participation include:

- Low perceived neighborhood safety that may make outdoor exercise difficult (Adekeye et al., 2014; Lindsay et al., 2009; Singh et al., 2008; Taverno Ross et al., 2012; Thul & LaVoi, 2011; Thul et al., 2016; Wieland et al., 2015)
- Differences in the built environment (Carroll-Scott et al., 2013; Lindsay et al., 2009; Singh et al., 2008; Taverno Ross et al., 2012), such as access to “outdoor parks, playgrounds, bike trails, walking paths or sidewalks, modes of transportation and vehicular traffic congestion, and media advertising promoting PA” (Singh et al., 2008, p. 762)
- Lack of availability and access to affordable, and linguistically and culturally welcoming recreational facilities and physical activity and sports programming (Singh et al., 2008; Lindsay et al., 2009; Liu et al., 2009; Rothe et al., 2010; Taverno Ross et al., 2012; Thul & LaVoi, 2011; Thul, 2012; Thul et al., 2016; Wieland et al., 2015)
- Prohibitively high cost of health clubs, fitness centers, physical activity and sports programming, as well as sports equipment (Lindsey et al., 2009)
- A narrow focus of exercise (e.g., aerobic and strength training fitness activities) and competitive sport (e.g., based often on mainstream U.S. sport) offerings within physical activity and sport programming

**Societal and cultural factors.** Societal and cultural factors also impact immigrant girls' physical activity. These factors include cultural norms that don't promote leisure-time physical activity and gender norms making physical activity difficult for females (Caperchione et al., 2009; Singh et al., 2008). An example of such norms includes *Marianismo* beliefs among Latinos that stress prioritization of familial responsibilities over self-care, including engaging in physical activity (D'Alonzo, 2012; Greaney et al., 2012). Additionally, some Hispanic and African-American women respond negatively to the term "leisure time" (Keller & Fluery, 2006) because it "evokes an elitist mindset which is not consistent with the lifestyles of most immigrant women" (D'Alonzo, 2012, p. 125). Many types of physical activity and sport are also seen as unfeminine among Latinos, particularly of low acculturation levels (D'Alonzo & Fischetti, 2008).

Among East African immigrant adolescent girls, many of whom are also practicing Muslims, cultural and religious beliefs about physical activity can impact their participation. For example, girls perceive some community members and elders do not believe girls should be active. Girls indicate that most people within their community, however, including many of their parents, believe girls should be active because the Quran promotes a healthy body and healthy mind for both males and females. Many females are also expected to uphold norms of privacy and modesty, including covering (Rothe et al., 2010; Wieland et al., 2015) and not showing their body in the gaze of boys or men. Thus, girls cite the need for gender-separated physical activity opportunities and modest athletic wear to both uphold their cultural and religious norms and be more active (Thul & LaVoi, 2011; Thul, 2012; Thul et al., 2016).

## Application

Based on the research summarized above, evidence-based best practice recommendations for helping immigrant girls to start and stay active include the following:

- Provide and promote physical activity and sport opportunities for first- and second-generation immigrant girls. Interventions for increasing physical activity within 10 years of arrival to the U.S. may be particularly effective (Goel, McCarthy, Phillips, & Wee, 2004).
- Employ a broader, more diverse concept of sports and physical activity, including global sports in addition to more mainstream U.S. sports, as well as a variety of daily living, informal play, structured and unstructured exercise, dance, and cultural activities (Sabo & Veliz, 2008; Thul & LaVoi, 2011; Thul, 2012; Thul et al., 2016).
- Ask immigrant girls themselves about their physical activity and sport interests, barriers, facilitators, and needs, as well as their ideas regarding strategies for increasing participation.

- Listen to, and work with, immigrant girls, their families, and communities to provide opportunities.
- Recognize the cultural variation in beliefs and practices between and within ethnic immigrant subgroups and frame messages using cultural sensitivity (e.g., frame how physical activity can help academic performance among immigrants who value academics as most important, frame how engaging in physical activity can help increase energy and health to carry out familial responsibilities among Latinas with *Marianismo* beliefs, recognize East African immigrant girls who are practicing Muslims may need and want female-only physical activity and sport options).
- Consider the complex ecological—individual, social, environmental, societal, and cultural—factors detailed in this chapter that impact immigrant girls’ physical activity and sport participation. In particular, programs should:
  - Focus not only on education and awareness of the importance/benefits of physical activity, but also providing intentional and fun physical activity experiences that meet immigrant girls’ interests.
  - Teach the basics of aerobic fitness, muscle strength training, and flexibility, and ways to incorporate physical activity into daily life (Bronars et al., 2017)—including when engaging in traditional gendered familial and household responsibilities, such as babysitting siblings, completing housework, and cooking.
  - Build in opportunities for social engagement and support with family and friends in the physical activity or sport context (e.g., mother-daughter programming or mother-daughter physical activity events, parent nights where daughters can teach parents the sport and its rules, providing time for teammates to talk and connect during warm-up/cool-down/and other activities in sport).
  - Train coaches, sport leaders, and physical activity programmers in cultural competency, particularly regarding the facilitators of and barriers to participation as well as the unique needs of immigrant girls; specifically, train coaches how to create supportive and inclusive team climates, including recognizing discrimination and how to stop it.
  - Provide low cost, linguistically appropriate, and culturally tailored opportunities (Taverno Ross et al., 2014) (e.g., offer scholarships to cover fees, provide translated materials—website, promotional handouts, program/sport schedules,



program/team rules, health forms, etc.—in a variety of languages to ensure linguistic congruence for immigrant girls and especially their parents and families, provide interpreters when needed, provide female-only spaces and culturally sensitive clothing if needed).

- Presenting information with interactive talks and presentations as well as with written material support is especially useful (Lee, Sulaiman-Hill, & Thompson, 2013).
- Utilize creative strategies to address accessibility and transportation barriers (e.g., consider placing programming and practices close to or within immigrant communities at safe spaces or rotating programming and practice locations, or creating community volunteer carpools to events that require transportation).
- Consider offering programming at different times (e.g., early morning/before school, on weekends, later in the evening) than after-school, given this may be a time immigrant girls have greater familial and household responsibilities; ask girls and their families what times work well for them.

## Policy Recommendations

Reducing social inequalities in health is a high-priority issue of Healthy People 2020 (U.S. Department of Health and Human Services, 2017b). However, “this national initiative in health promotion and diseases prevention does not include a single policy objective that explicitly targets the health of immigrants in the U.S.” (Singh et al., 2013, p. 464). Additionally, no data on the U.S. immigrant population is contained in the most significant, comprehensive annual report on health statistics in the U.S., called “Health United States” (Singh et al., 2013). Thus, policy recommendations for helping to ensure immigrant girls are physically activity and health include:

- Adding a physical activity policy objective for immigrants, particularly immigrant girls, to the social inequalities in health issue of Healthy People 2020. The objective should address strategies for increasing immigrant girls’ physical activity participation, such as highlighting funding needs in immigrant communities to support active communities.
- Adding data on the U.S. immigrant population to the “Health of the United States” report. Ideally, this data should include information regarding acculturation, generational status, physical activity participation levels and types, sport participation

levels and types, sedentary behavior levels and types, and facilitators of and barriers to physical activity and sport participation among diverse racial-ethnic immigrant subgroups. It would also be helpful for the data to be broken down by gender and age (e.g., children, adolescents, young to middle adults, and elderly adults).

- Creating school and sport organization inclusivity policies that discuss the organization's valuing of all youth, including immigrant girls, and commitment to creating supportive, inclusive sport environments where all girls are welcome.

## Gaps in Knowledge

More research is needed in the following areas:

- More recent research that includes the current CDC guidelines of at least 60 min. of daily physical activity among immigrant girls and updated findings regarding immigrant girl's physical activity levels and types.
- More research regarding specific racial-ethnic immigrant sub-populations of girls' participation levels, types of activities, and correlates of activity (i.e., facilitators and barriers). Most quantitative studies to-date only explore physical inactivity, physical activity participation levels, and sport participation levels. Few also explore types of activities, and even fewer include correlates of activity. Additionally, limited qualitative studies examine physical activity and sport from the voices of immigrant girls themselves.
- Research regarding refugee girls' physical activity and health experiences, behaviors, and outcomes.
- Development, implementation, and evaluation of evidence-based, culturally sensitive physical activity and sport programs for immigrant and refugee girls.

## Resources

- Migration Policy Institute: <https://www.migrationpolicy.org/>
- Robert Wood Johnson Foundation: <https://www.rwjf.org/>

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# Family-based, Physical Activity Interventions for African-American Girls

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## Introduction

Rates of obesity in the United States continue to climb with the largest increases among African-American females (Flegal, Kruszon-Moran, Carroll, Fryar, & Ogden, 2016; Ogden et al., 2016). In 2014, nearly a quarter of African-American girls age 6-11 years (21.6%) and age 12-19 years (24.4%) were obese with a BMI (body mass index) at or above the sex-specific 95<sup>th</sup> percentile on the CDC BMI-for-age growth charts (Ogden et al., 2016). These rates are much greater than the rates of obesity among White girls and are concerning as childhood obesity is predictive of obesity later in life (Whitaker, Wright, Pepe, Seidel, & Dietz, 1997), which can have numerous health and well-being implications. Currently, 57.2% of African-American women are obese with a BMI greater than 30 kg/m<sup>2</sup> (Flegal et al., 2016). African-American women's obesity statistics are more prevalent than rates in other demographic groups of adults. All evidence points to a pressing need to address excessive weight in African-American females, starting in childhood and adolescence.

Regular participation in physical activity is an effective and essential strategy for lifetime health and wellness as it lowers the risk of multiple chronic health conditions, including obesity (Wang, Gortmaker, & Taveras, 2011). In youth, physical activity promotes cardiorespiratory health and fitness (2008 *Physical Activity Guidelines for Americans*, 2008), enhances cognitive development (Gomes da Silva & Arida, 2015), and decreases anxiety and depression (U.S. Department of Health and Human Services, 2008). Although the health benefits of physical activity are well established, the majority of U.S. youth, particularly African-American girls, do not meet the public health recommendations of at least 60 minutes of daily moderate- or vigorous-intensity physical activity. In fact, fewer than half of African-American girls are meeting national physical activity recommendations and African-American girls engage in more sedentary behavior than girls from other racial/ethnic subgroups (Eaton et al., 2012; Whitt-Glover et al., 2009). Physical activity levels during childhood decrease as age increases (Nader, Bradley, Houts, McRitchie, & O'Brien, 2008),

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and the concerning trend of decreasing physical activity patterns in adolescence may extend into adulthood (Hallal, Victora, Azevedo, & Wells, 2006). Data pertaining to the decline of physical activity by age are supported by both subjective (Katzmarzyk, Lee, Martin, & Blair, 2017) and objective data (Troiano et al., 2008), further indicating less than optimal levels of physical activity in African-American women. Collectively, scientific literature in this area emphasizes the importance of increasing physical activity in female African-American children and youth.

A large body of empirical behavioral health research exists that is aimed at increasing physical activity in youth. One key point emerges from the data: ***a one-size fit all strategy does not work***. Data seem to suggest that programs that account for culture may be more effective than broader, more general programs when working with racial/ethnic populations (Kumanyika et al., 2007; Whitt-Glover et al., 2014). For example, culturally-appropriate strategies were more strongly related to behavioral outcomes (such as physical activity) and had a greater effect on health behaviors than traditional, non-culturally adapted strategies (Smith, Rodriguez, & Bernal, 2011). Culturally-appropriate strategies can effectively address surface-level and/or deeper, structural factors that are unique to the targeted group (Baskin, Odoms-Young, Kumanyika, & Ard, 2009; Resnicow & Braithwaite, 2001). Surface-level strategies can be utilized in a simplified manner, such as paralleling program materials and messages with characteristics of the targeted group (e.g., African-American instructors and research staff or print materials with African-American role models for programs targeting African-Americans) to enhance feasibility (Resnicow & Braithwaite, 2001). On a deeper level, cultural adaptations can be structural in nature and incorporate core cultural values; social norms; and/or psychological, environmental, and historical factors into program components to enhance program impact (Baskin et al., 2009). Both surface and structural level adaptations are critical for developing culturally-appropriate programs, and for the purpose of this chapter this is particularly true for African-American female children and youth.

When working with African-American girls to address physical inactivity and obesity, an example of a *structural level cultural adaptation* is the use of family-based programs to increase physical activity. This structural level adaptation reflects key contextual issues such as communalism and commitment to family, both of which are very relevant to African-American communities and are ways to explore a family's influence on girl's activity and food choices. In particular, an important element of these culturally tailored programs is the participatory role of family members (Wilson, 2009). When targeting youth using behavioral change strategies, it makes practical sense to engage the family and not just the child—the child is not in sole control of decision making related to healthy lifestyle choices. Rather, family dynamics (i.e., family rules, emotional support, encouragement,

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positive reinforcement, and family involvement) are synergistic, with children influencing their parents just as much as parents influence their children (Gruber & Haldeman, 2009). Therefore, using a family-based approach may be particularly important for weight or related behavioral programs, such as physical activity interventions, involving African-American girls.

Given the current state of low physical activity in African-American girls, in combination with the potentially high impact of family-based programs to positively influence this behavior, the following chapter focuses on current evidence of family-based programs to increase physical activity in African-American girls. Please note that although physical activity is the focus of the overall report, this chapter must also include obesity and other weight-related behaviors (i.e., healthy eating and sedentary behaviors) when focusing on African-American girls. The prevalence of obesity within this vulnerable population is concerning and therefore, the most rigorous research and programs targeting African-American girls must not only include physical activity, but must also address dietary adaptations and/or reducing sedentary behavior as a means to better impact weight status (Barr-Anderson, Adams-Wynn, DiSantis, & Kumanyika, 2013). This comprehensive behavioral approach may in turn increase the likelihood of positive health outcomes and well-being over the lifecycle.

## Current Literature on Culturally Appropriate and Family-Based Health Behavior Change Interventions for African-American Girls

A recent systematic review article examined the breadth of family-based, weight-related programs targeting African-American girls (Barr-Anderson et al., 2013). This review identified 27 unique studies, including seven intervention studies with the primary goal of decreasing weight. Four of 27 studies targeted only physical activity, one targeted only diet, and the remaining 22 included strategies to improve *both* physical activity and diet, thus supporting the previous statement that studies including African-American girls may be more effective when comprehensive obesity-related factors are included. Unfortunately, due to the lack of methodological rigor, examination of program effectiveness is not prudent. Experts advise omitting discussion of the impact of outcome data when studies lack the rigor of randomized controlled trials (National Center for Complementary and Integrative Health, 2017). However, despite lack of research design rigor, much can be learned from examining the program strategies that have potential to translate effectively to behavioral change in African-American females. The key findings resulting from a review of these studies follow.

Interventions which are focused on family systems present both a dynamic and multi-dimensional approach to understanding the influences on/and engagement in health behavior change programs for both children and adults (Gruber & Haldeman, 2009).

However, *how* family members engage and are involved in the behavioral programs appears to vary significantly. The majority of the programs examined in the review incorporated parent-child involvement (n=17). In these programs, the parent's role ranged from a primary perspective in which the parent attempted to change his/her own behavior with the ultimate goal of influencing their child's health behavior (n=6 studies), to a secondary perspective in which the parent played a supportive role in their child's own behavioral change endeavors (n=8 studies). One study emphasized parental behavior change and the provision of support to the child, while two studies did not specify a goal for parental involvement. The remaining 10 studies included involvement from multiple family members (n=7) or the whole family, including all family members residing in the home (n=3). In the studies that extended beyond the involvement of parent-child dyads, the role of the family member was to provide support to the child and fewer studies focused on encouraging family members to change their own behavior.

Due to the extensive variance between which family members were involved (i.e., parent-child only, multiple family members, or whole family) and the level of family involvement (i.e., support of child's behavior, change in own behavior, both, or neither), Barr-Anderson et. al found it challenging to identify clear patterns in the data that point to effectiveness in family-based health interventions. However, a major take-away of the review article indicated that programs encouraging other family members to change behaviors may be more effective in helping African-American girls to change their own behaviors than programs encouraging family members to *only* support their child's behavior. The key point is: all family members must be involved in health promotion and change their behaviors!

A wide range of strategies were utilized in prior studies to improve physical activity and eating behaviors. Most notably, the physical activity strategies included educational sessions, group exercise, and goal setting, while the healthy eating strategies introduced cooking and taste testing demonstrations and educational sessions. Because these programs were family-based, several of the programs created opportunities for families to engage in physical activity- or eating-related activities outside of the usual program contact hours (i.e., group outings, family fun nights, homework, newsletters).

Lastly, because the targeted group was from a specific racial/ethnic cultural background, the level of cultural adaptation must be summarized so key learnings can be gleaned to guide future studies. Three studies did not report any cultural adaptation, and four studies limited their cultural modifications to very shallow, surface-level recruitment of only African-American participants. The remaining 20 studies made specific attempts to tailor their program strategies and components to include African-American culture (i.e., culturally tailoring the content of the program materials and messages).

Overall, Barr-Anderson et. al found that varying levels of family involvement, behavioral change strategies and cultural adaptations were being utilized to impact physical activity and/or diet behavior in African-American girls. Since the publication of this systematic review in 2013, only *two published studies* that targeted African-American girls and included some degree of family involvement (Barr-Anderson, Adams-Wynn, Alhassan, & Whitt-Glover, 2014; Choudhry et al., 2011) were identified in an extensive literature search. In one, Choudhry and colleagues (2011) implemented an after-school program for 9-12 year old African-American girls to change physical activity and healthy eating behaviors. Parents were invited to participate in a weekly group discussion that focused on an array of healthy lifestyle topics hosted by different health care providers (i.e., endocrinologist, dietician). Culturally adapted strategies incorporated Afrocentrism and ranged from interactive knowledge-based sessions to recipe making to role playing.

Similarly, Barr-Anderson et al. (2014) developed a culturally appropriate 9-month behavior change intervention for African-American girls and their mothers, which was delivered in two stages (Intensive Stage One=eight weekly face-to-face, mother-daughter dyad sessions inclusive of group exercise sessions and family-based healthy eating strategies; Maintenance Stage Two=monthly healthy behavior change reinforcement newsletters, support sessions, and familial gatherings). The program aimed to increase physical activity and healthy dietary practices, decrease time spent in sedentary behavior, and positively impact psychosocial factors (i.e., social support and self-efficacy for health behavior). Culturally-tailored strategies ranged from surface-level (i.e., African-American fitness instructors and intervention materials highlighting same-race models) to structural-level adaptations (i.e., family-oriented components, inclusion of Gospel aerobics and dance as a mode of physical activity, and adherence to cultural food preferences). Mother-daughter dyads who successfully completed both program stages reported enhanced health behavior (i.e., physical activity and healthy eating), improvements in their communication and overall relationship strength, and a high interest in engaging in a similar family-based program in the future. Overall, the previously described programs provide clear evidence that culturally tailored and family-based interventions hold promise for positively impacting obesity-related behaviors in African-American girls. Both studies stand as exemplars in this line of health-promoting and culturally appropriate work.

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## Evidence-based Best Practice Recommendations

Understanding family involvement and cultural adaptation to behavioral change strategies, in addition to how they are readily used to engage African-American girls and their families in increasing their physical activity and improving their health profile, are key to making

a long-lasting impact on this vulnerable population. Although the effectiveness of these strategies on *long-term* healthy behavior change is unclear, what is clear is that getting family members involved to either: 1) change their own short-term behaviors or 2) support the short-term behavior changes of their African-American daughter/sister/family member is highly feasible. The following list of recommendations combines what we have learned from this systematic review to be good practice with pragmatic, common sense considerations for practical application of these strategies—all of which may be essential to consider when working with African-American girls and their families.

**Recommendation #1:** Culture plays an important role in many families and it is important to consider the cultural values of the targeted population. This includes engaging African-American girls and their families in programs that incorporate both surface-level and structural-level adaptations.

**Recommendation #2:** Family composition varies and can easily include extended family members, more than two “parent” figures, and blended families (i.e., step parents and siblings). Regardless of the make-up of the family, family involvement is key. Factors such as competing school activities, work schedules, and other responsibilities may make it challenging to engage the entire family, but the effort must be made to not only include family members, but to have family members focus on changing their own behavior along with the adolescent girl.

**Recommendation #3:** Preliminary data show that family-based programs have a positive impact on African-American girls’ physical activity and weight-related behavior (Barr-Anderson et al., 2013). However, data indicate an unintended positive consequence of family-based programs is that family functioning and parent engagement with their children may improve (Community Preventive Services Task Force, 2017). Given that the developmental stage of adolescent girls can often include growing pains and discord between adolescent girls and their parents, the prospect of improved family dynamics is a welcomed consequence. As such, care should be taken to incorporate intervention components which enhance overall family communication and programs should aim to provide strategies to maintain positive family dynamics (especially regarding health behavior) following the intervention.



## Policy Recommendations

Sustained changes in behavior tend to take place when institutional shifts in policy are implemented. When working with African-American girls and their families it is important that policies are developed and in place to ensure equality in access and availability of resources. African-Americans tend to live in racially segregated communities that are less supportive of physical activity and healthy eating than White communities (Kumanyika et al., 2007). Without the appropriate policies that mandate outdoor physical activity opportunities (i.e., walking and biking trails, continuous sidewalks, green space and parks) and healthy food outlets (i.e., supermarkets and not corner stores), this inequality gap can affect both African-American girls and their family members' behaviors and choices.

## Gaps in the Knowledge

The programs for African-American girls and their families outlined in this chapter identified differing approaches to family involvement, program behavioral strategies, and cultural adaptations. Unfortunately, the small sample size and pilot nature of many of the studies make it difficult to draw conclusions about the efficacy of the approaches. Additionally, the rationale for choosing the type and level of family involvement seems unclear or unsystematic, making it difficult to make definitive conclusions. It is imperative for future studies to include randomized controlled trials with large sample sizes to get a better sense of what aspects of family involvement and which of the myriad of tested behavioral change strategies are most effective. This higher-order level of understanding is important so best practices can be developed and implemented for this population. Another area of growth is inclusion of high-level technology. Future programs should include the use of social networking and mobile devices. Additionally, given the fact that the obesity rates in African-American boys have increased to levels similar to their female peers (Ogden et al., 2016), future programs should examine both sexes.

## Implications for Practice

This chapter updates the first review of empirical evidence of weight-related interventions with a family component targeting African-American girls. The findings highlight the need for rigorously tested programs that directly examine how to involve family members and identify the most effective strategies to improving health-promoting behaviors. Obesity is an issue for many communities, particularly African-American girls and women. Based upon a review of the literature, it is apparent that evidence-based programs striving to increase healthy behaviors such as physical activity and healthy eating in African-American girls have

the potential to offer long-term health benefits to individuals, families and communities. However, much work is left within this field of study. We strongly recommend incorporating both surface-level and structural-level cultural adaptations in intervention programming, fastidiously taking note of the varying family structure and involvement levels in behavior change programs in order to enhance positive health outcomes, and focusing upon fostering communication and supportive family dynamics regarding health behavior when developing family-based physical activity and obesity-related health behavior change programs for African-American populations.

## Resources

- *Black Women's Health Study*: <https://www.bu.edu/bwhs/>
- *Childhood Obesity Prevention (CDC)*: <https://stateofobesity.org/policy/community-policies-and-programs/community-based-programs>
- *ChooseMyPlate.gov (USDA)*: <https://www.choosemyplate.gov/kids>
- *Dietary Guidelines for Americans (health.gov)*: [https://health.gov/dietaryguidelines/2015/resources/2015-2020\\_Dietary\\_Guidelines.pdf](https://health.gov/dietaryguidelines/2015/resources/2015-2020_Dietary_Guidelines.pdf)
- *Let's Move!*: <https://letsmove.obamawhitehouse.archives.gov/make-physical-activity-part-your-familys-routine>
- [http://www.nhbwinc.com/Let%27s\\_Move\\_Fact\\_Sheet\\_for\\_African%20Americans.pdf](http://www.nhbwinc.com/Let%27s_Move_Fact_Sheet_for_African%20Americans.pdf)
- *Nutrition.gov (USDA)*: <https://www.nutrition.gov/subject/weight-management/weight-management-youth>
- *Physical Activity Guidelines for Americans (health.gov)*: <https://health.gov/dietaryguidelines/2015/guidelines/appendix-1/>
- *Physical Activity: Family-Based Interventions (thecommunityguide.org)*: <https://www.thecommunityguide.org/sites/default/files/assets/OnePager-Physical-Activity-family-based.pdf>
- *The Obesity Action Coalition*: <https://stateofobesity.org/policy/community-policies-and-programs/community-based-programs>
- *The State of the Black Family Survey*: <http://www.ebony.com/life/the-state-of-black-family-survey-987>
- *State of Black America*: <https://tvone.tv/tag/state-of-black-america/>
- *The State of Obesity*: <https://stateofobesity.org/policy/community-policies-and-programs/community-based-programs>
- *Youth Physical Activity Guidelines Kit (CDC)*: <https://www.cdc.gov/healthyschools/physicalactivity/guidelines.htm>

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# Lesbian, Bisexual, Transgender, and Questioning Youth in Physical Activity Contexts

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## Introduction

It is not unusual to hear about athletes like Abby Wambach and Megan Rapinoe in soccer and Brittney Griner and Elena Delle Donne in basketball who are open and visible lesbian athletes. We also are beginning to hear more from transgender athletes like triathlete Chris Mosier and mixed-martial arts fighter Fallon Fox. All these athletes serve as important role models for young lesbian, bisexual, and transgender (LBT) athletes. While commonly held (albeit outdated) assumptions and gender stereotypes lead many people to believe that female athletes are likely to be lesbian, the reality is that while there are sexual and gender minorities in sport, sport is not always welcoming and supportive of diverse sexuality and gender. This is particularly true in youth sport settings. In youth sport it is the adults who set the tone and create inclusive environments that increase the likelihood that all girls have the opportunity to learn sport skills and life lessons imparted through sport. In this chapter, we introduce language associated with sexuality and gender diversity; review what we know about lesbian, bisexual, and transgender participants in girls' sport; and offer strategies leading to inclusion for all girls.

## Definitions of Terminology

**Sexual orientation** refers to one's emotional and sexual attractions to others (APA, 2008). **Lesbian** girls are attracted to other girls and **bisexual** girls may be attracted to both males and females. **Sexual identity** refers to a girl's sense of self that is grounded in her sexual orientation, whereas **gender identity** is one's sense of self as being female, male, transgender, or some combination or rejection of these categories (Krane, 2016). Most often, girls' physical sex is consistent with their gender identity. However, for some girls their gender identity is inconsistent with the sex assigned to them at birth and they may identify as **transgender** when, for example, they internally feel female even though they were born with a body that appears male.

**Cisgender** girls' sex assigned at birth is consistent with their gender identity. How girls convey their gender, through outward appearances (e.g., hair style, clothing), is their **gender expression**. Often this is described as appearing feminine or masculine. While there are strong expectations that girls be feminine, or at least not be too masculine, some girls have non-conforming gender expressions, in which they do not adhere to typical expectations for girls. **Gender non-conforming** girls may be lesbian, bisexual, transgender, or heterosexual. Further, gender and sexual identities are not always consistent with conventional categories such as female/male or gay/straight. For example, some youth may prefer to be considered genderqueer, gender fluid, or non-binary rather than transgender (also referred to as trans); some sexual minority girls will identify as queer or pansexual (inclusive of attraction to trans people) and some young people with diverse gender or sexual identities prefer not to be labeled at all (Bosse & Chiodo, 2016). When girls feel that their sport settings are safe and inclusive, they will be more likely to share their preferred language and identities.

While some people may think that there is no reason to discuss or address issues related to sexual and gender identities in girls' youth sport, it is important to recognize that by middle school some girls already are navigating their sexual and gender identities. Many lesbian and bisexual girls realize their same-sex attractions around age 13 and identify as lesbian or bisexual around 14 years old (D'Augelli, Grossman, & Starks, 2008). Some of these girls recognize that they are *different* when they are as young as 8 years old. Transgender children may recognize they do not identify with the sex they were assigned at birth as early as 2 years old (Stieglitz, 2010). Whether obvious or not, there are lesbian, bisexual, and transgender participants in youth sport. These children and youth may already be open about their sexual or gender identity, may be working towards coming to terms with their identity, or may perceive they may not be accepted and conceal their diverse sexual or gender identity. By recognizing that any sport setting may include diverse children, coaches, parents, and administrators can ensure that all girls are embraced, accepted, and supported in sport. It also is important to keep in mind that some children may be grappling to understand their identity (Birkett, Espelage, & Koenig, 2009). They may be struggling to determine if they are LBT or struggling with concerns about being accepted by parents, friends, teammates, and coaches. Concealing LBT identities is stressful and may lead some girls to withdraw or be distant from others. If **questioning** youth do not communicate their feelings or fears, they will not gain important social support to help them feel more comfortable. As some studies have found, questioning youth may have more negative social and mental health struggles than their LBT peers when faced with hostile climates (Birkett et al., 2009; Espelage, Aragon, Birkett, & Koenig, 2008). Once LBT athletes come out to others, they can find allies and social support, whereas questioning athletes may not have acquired

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these supportive resources (Krane, 2016). Thus, throughout this chapter, we will include and refer to lesbian, bisexual, transgender, and questioning athletes (LBTQ<sup>1</sup>).

## LBTQ Youth and Healthy Social Adjustment

Overall, most LBTQ youth generally are well-adjusted; however, those who experience bullying or victimization due to their sexual or gender identity may be at risk for unhealthy mental health outcomes (Hall, 2017; Institute of Medicine, 2011). Studies of school age children reveal that as many as half of LBTQ students feel unsafe at school (Kann et al., 2016; Kosciw, Greytak, Giga, Villenas, & Danischewski, 2016). LBTQ students reported high rates of bullying on school grounds and electronically (e.g., through texting, e-mail, instant messages, or chat rooms) (Kann et al., 2016). In particular, sport spaces, such as locker rooms and athletic facilities, have been singled out as unsafe by LBTQ students (Kosciw et al., 2016). Research shows bullying related to sexual and gender identities is strongly related to contemplation of suicide in sexual and gender minority youth (Ybarra, Mitchell, Kosciw, & Korchmaros, 2015). LBTQ student-athletes who face hostile climates are also at risk for feeling sad, hopeless, depressed, stressed and anxious; decreased self-confidence and self-esteem; and increased use of alcohol and/or drugs (Kann et al., 2016; Institute of Medicine, 2011; Russell, Ryan, Toomey, Diaz, & Sanchez, 2011). Gender non-conformity seems to be a strong trigger for bullying with transgender and gender non-conforming students often being targets (Roberts, Rosario, Slopen, Calzo, & Austin, 2013). When students feel targeted due to sexual and gender identities, they will be less likely to join school athletic teams and may not be physically active (Calzo et al., 2014).

Yet, when schools have positive and inclusive climates and anti-LBTQ harassment is low, all students report lower levels of depression and suicidality and LBT students are very similar to heterosexual students on measures of well-being (Birkett et al., 2009). By extension, when athletic programs and sport teams are bias-free and inclusive, all athletes have a greater likelihood of having positive sporting experiences and gaining the benefits of team sports (e.g., leadership skills, self-confidence, teamwork). When youth expect or experience harassment in sport, this can deter future sport and physical activity involvement (Calzo et al., 2014). When harassment or bullying specifically targets sexual orientation, it is called **homonegativism**, which can include verbal harassment, physical aggression, social exclusion, or property damage. When these behaviors are aimed at trans or gender non-conforming youth, it is labelled **transnegativism**.

<sup>1</sup> In different places in the chapter we may refer to only some of the lesbian, bisexual, transgender, or questioning athletes (e.g., only lesbian and bisexual athletes; LB). As such, the acronym will vary depending on who is being discussed.

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## Transgender Youth Athletes

While sexual and gender minority youth athletes face some similar challenges, there also are unique encounters for trans youth. Perhaps the most obvious is that trans and gender non-conforming youth must navigate the strict adherence to **binary sex** divisions in sport; one must fit into the female or male participation categories. Because many sport leagues are unprepared to address how transgender children challenge the typical organization of sport, numerous debates recently have occurred on how to fairly include transgender athletes. These debates often revolve around misconceptions about fairness and transgender youth. Most sport organizations separate girl and boy athletes into different divisions to maintain level playing fields, especially for the girls. This separation is based on the common belief that boys are more aggressive, more physical, and hence better athletes than girls—despite the lack of physical differences among pre-pubescent children. Because we are so used to seeing boys and girls separated in sport, one rarely questions this arbitrary practice.

Prior to puberty, girls and boys are physically more similar than different (Eliot, 2009). As such, trans children can easily be accommodated within either boys' or girls' sport divisions. Among youth, there already is wide size variability among the group of girls or group of boys on the field or court. The inclusion of a child whose gender identity, but not physical body, is consistent with the rest of the team is likely to go unnoticed (as long as social stereotypes are quashed). However, many youth within the transgender umbrella do not identify nor conform with a binary sex (Baum et al., 2013) and may face additional resistance to fitting into current sport systems which are gender segregated into binary divisions. Regardless of how youth express themselves, gender non-conforming youth have no physical or sport-related advantages or disadvantages over their cisgender peers (Transgender Law & Policy Institute, 2009). The only reasons they are denied opportunity to compete is due to social bias (Krane, 2016).

Some transgender youth may have their puberty suppressed through medical intervention. This process will stop the body from developing the secondary sex characteristics associated with one's birth sex and may begin around 12 years of age (de Vries et al., 2014). For youth whose body is not consistent with their gender identity, this process can lead to a reduction in distress concerning one's body (e.g., stopping breast development in trans boys) and enhanced mental well-being. Blocking puberty in trans youth allows them to mature before making decisions regarding potentially irreversible medical procedures while avoiding the anguish puberty can cause. Regarding sport, adolescent trans girls with puberty suppression will not have gone through male puberty, so any perceived advantages of being born male are nonexistent. Trans boys may actually be at a disadvantage since they will not have experienced the physical changes associated with male puberty.

Some youth may begin hormone intervention at 16 years of age (Cohen-Kettenis, Delemarre-van de Waal, & Gooren, 2008). Most likely, these children would have been identifying as their preferred sex and gender for quite some time. If they already have been competing on a team consistent with their gender identity, then no additional considerations are necessary. Cross-gender hormones (e.g., testosterone for children assigned girl at birth, estrogen for children assigned boy at birth) will result in development of secondary sex characteristics similar to their cisgender peers. Hormone intervention for trans girls will suppress androgens (including testosterone) and increase estrogen to levels consistent with average cisgender females. Sometimes concern will be voiced if a trans female athlete is taller or has broader shoulders than her peers—but it is important to recognize that similar concerns are not voiced against *cisgender* females who are naturally bigger and/or stronger than their peers. This is just one of many possible physical variations among competitive athletes, not something specific to being a trans athlete.

Most of the problems surrounding trans youth sport athletes stem from unwelcoming or possibly even hostile sport climates that are prejudiced against them. The primary reason trans athletes are treated with mistrust is either based on unsubstantiated fears regarding fairness or, in the case of gender non-conforming youth, because the child may appear different

from their peers. Trans and gender-non-conforming youth already face many obstacles and have great resiliency if they are willing to fight for inclusion in sport—and this mental fortitude should be valued by teammates and coaches! Additionally, participation in sport and physical activity can help trans youth maintain positive mental states, alleviate stress, reap health benefits associated with physical activity, and gain comfort in their bodies. In other words, trans inclusion will benefit the team as well as the trans athlete.

**There is very little research conducted with youth lesbian, bisexual, and questioning athletes.**

## Lesbian and Bisexual Girl Athletes

There is very little research conducted with youth lesbian, bisexual, and questioning athletes (Greenspan, Griffith, & Murtagh, 2017). However, there are some findings with lesbian and bisexual college athletes that offer some guidance in how we may think about younger LBQ sport participants. Many LB athletes contemplate whether to come out to their teammates and coaches. Before doing so, there are several issues that they will take into account. Assessment of the team climate and presumed reaction of coaches and teammates is paramount (Fink, Burton, Farrell, & Parker, 2012). If they anticipate negative reactions, most likely LB girls will conceal their sexual identities. When experiencing or anticipating homonegativism, athletes may feel pressured to maintain a feminine image and/or experience stress and social isolation which can divert psychological and emotional energy away from athletic performance (Krane, Surface, & Alexander, 2005; Melton, 2013). However, LB athletes

often want to be honest with teammates and be true to themselves (Fink et al., 2012; Stoelting, 2011). As such, girls may struggle with wanting to reduce the stress of being closeted, wanting to be honest, and anticipating team reactions. If there already are openly LB athletes on the team, that makes it easier to come out to teammates. Also, if coaches or administrators are perceived as inclusive and supportive, that too will encourage girls to be open about their sexual identity. An accepting climate may be especially important to questioning youth.

It is important to point out that coming out is not always in the best interest of an athlete. As such, coming out, in and of itself, is not an indicator of self-acceptance or well-being. There are situations in which coming out truly is dangerous or will lead to negative outcomes (e.g., some coaches still cut athletes perceived as lesbian). Even if a team setting is compassionate, some girls may fear parental reactions or negative treatment from other social groups. However, coming out can have some benefits. Talking with teammates and coaches about one's sexual identity can lead to social support. LB college athletes who have come out to their teams express receiving overwhelmingly supportive reactions from teammates (Fink et al., 2012; Kauer & Krane, 2006; Stoelting, 2011). Research also shows that when teams embrace athletes of all sexual orientations, the team as a whole also may benefit (Kauer & Krane, 2006). Girls will learn that LB people can be very similar to themselves or about the challenges that some LB people may face. Stereotypes are challenged and heterosexual athletes begin to speak out when faced with homonegativism. Inclusion in girls' sport will provide opportunity for growth and learning for all participants.

**A significant predictor of an inclusive school or youth sport program is the existence and maintenance of a charter with respect at its core.**

## Creating Inclusive Climates for LGBTQ Athletes: Best Practices, Policy Recommendations and Resources

Understanding the issues facing lesbian, bisexual, transgender and questioning girls in youth sport settings is essential as we develop strategies for creating welcoming and inclusive climates in youth sport. While the climate for LGBTQ youth is improving due to the visibility of models and greater understanding of sexual and gender identity, more targeted efforts at education and advocacy need to be initiated to improve the climate for elementary, middle, and high school youth.

While many youth sport programs have not articulated a value structure that promotes inclusion of LBT youth, a model does exist in supportive schools which have several characteristics that allow them to foster an inclusive climate. These principles can be adapted by youth sport programs in and outside of schools to provide welcoming environments. *A significant predictor of an inclusive school or youth sport program is the existence and maintenance of a charter with respect at its core.* This includes *teaching values*



and behaviors associated with respect, *reinforcing* respect, and ultimately *enforcing* respect. While a climate of respect is the goal, the implementation of instructional, behavioral, and disciplinary strategies needs to be based in clear policy guidelines. Policies must clearly articulate protections for participants with diverse sexual orientations and gender identities beginning with sport programming at the youngest levels. All too often, discussion about policy protections for sexual orientation and gender identity does not occur until high school or college sport settings; these protections need to be in place far earlier. As discussed earlier in this chapter, some children begin to understand their sexual orientation and gender identity prior even to entering school. It is not enough to utilize broad language that alludes to respect for all; anti-discrimination and anti-bullying policies must specifically identify protections for LGBTQ individuals (Griffin & Klein, 2015). It is important that school and youth sport policies consider the often gendered nature of physical education and sport contexts and facilities. Policies must provide access and protections for transgender children. Specifically in physical activity settings, this will involve access to activities or sport teams which correspond with children's gender identities. It is essential that these policies be developed proactively rather than reactively to insure that an individual athlete is not placed in the middle of a major policy discussion and targeted due to their gender identity.

*Policy development will provide support for educational initiatives for coaches, staff, administrators and parents, as well as anti-bullying and bystander training for children and youth.* Adults need to be made aware of policy; however, training must also be present to provide strategies for creating a positive climate. Almost all youth sport programs require coaches to go through coaching education to ensure athlete safety. We contend that coaching education programs at all levels should include training to create inclusive and welcoming environments.

Sport administrators should review their policies with particular consideration of how they may impact transgender or gender-nonconforming athletes. Sometimes seemingly innocuous rules create challenges for these athletes. For example, requiring birth certificates upon registration, a process often used to verify a player's age, may reveal a sex different from how the athletes are expressing themselves. The U.S. Soccer Federation (USSF) allows amateur players to register for the team consistent with their gender identity (transathlete.com, 2017). The LGBT Sports Foundation (2016) has developed a model policy that administrators can use and adapt for their sport program (see transathlete.com). Also consider uniforms that athletes are required to wear. Gender specific, form-fitting, or revealing clothing may be distressing or uncomfortable for LGBTQ athletes, and likely many other athletes as well. Comfortable, loose-fitting, gender neutral clothing can be accommodated in most sport settings. Coaches can consider using the uniform that boys wear for all athletes. For example, all volleyball players can wear loose, long shorts.



Educational initiatives for athletes are also essential. Programs like *Spread Respect* recognize the importance of inclusion AND provide strategies for creating inclusive environments. These types of training programs have been found to be effective even in elementary schools by providing children the ability to recognize and respond to discriminatory behavior (Midgett & Doumas, 2016). The more resources and education youth receive about LBTQ issues, the less anti-LBTQ harassment and bullying occurs (e.g., Kosciw, Diaz, & Greytak, 2008).

Research consistently shows that the more resources and education youth receive about LBTQ issues, the less anti-LBTQ harassment and bullying occurs (e.g., Kosciw et al., 2008). *Team climates can reinforce respect for everyone and not tolerate bullying by creating explicit guidelines for athletes.* Ideally these are developed with athletes' input during a team discussion. Athletes can develop team rules, such as if someone makes a comment that shames someone based on sex, sexual orientation, gender identity, race, et cetera, they have to sit out for 5 minutes or write an apology note to the teammate. Rules do not have to be highly punitive; they can be creative means to make the point to be respectful. *Athletes also can create posters about inclusion and support for their locker rooms or develop a team mission statement that focuses on respect and inclusion.* Similarly, athletes can create a team shield that reflects the goals, values, and character of the team. This can be an excellent team bonding activity for young athletes.

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One of the most direct ways of creating a positive culture is through language. Language has a significant impact because it is an everyday tool. *Ensuring that teachers, coaches, staff, and administrators use inclusive language in their writing and spoken word is essential.* Examples include using athletes' preferred pronouns (e.g., she/her/hers, they/them/their, ze/zir/zirs) and eliminating gendered language that is discriminatory (e.g., he plays like a girl, boys don't cry) or gendered (e.g., referring to team moms rather than team parents). Holding individuals accountable for their language sends an important message. *In written materials, sport administrators can create forms that recognize different types of families (e.g., refer to parents rather than a mother and father) and gender identities.* This sends a strong message about acceptance.

Coaches can create opportunities for discussion and conversation about sexual orientation and gender identity (Krane & Barak, 2012). *When lesbian, gay, bisexual, or transgender issues in sport are in the media, an opportunity to discuss these issues opens.* To keep the conversation age-appropriate, begin by asking questions (e.g., did anyone hear about....; tell me what you learned about it). When youth are encouraged to ask questions and they learn it is safe to do so, meaningful conversations will occur. There are many great books specifically written for youth about LGBT sport, such as *LGBTQ+ Athletes Claim the*

*Field: Striving for Equality* by Kirstin Cronn-Mills and Jackson Nelson (2016) and *Tomboy: A Graphic Memoir* by Liz Prince (2014). Athletes can be asked to read them and the team can talk about a chapter from the book during practice. Purposefully creating opportunities to talk about LGBTQ people and issues will allow some children to learn about the topic whereas others may recognize the climate as a safe space in which to be themselves.

An important component of creating safe spaces for conversation is to truly listen to youth. When strategies such as the ones mentioned above are carried out, LGBTQ youth may feel comfortable opening up to coaches or other adults in inclusive sport settings. *While one may feel unprepared to have discussions about LGBTQ issues with young athletes, remember that it is not about having the right answers; it is about being supportive and creating a sense of safety.* Asking “what can I do to help” or “what would you like to happen” allows for a collaborative approach to creating change and LGBTQ youth will likely appreciate the opportunity to be heard.

Youth sport provides an extraordinary opportunity to create a learning and playing environment where everyone feels welcome. The notion that sport builds character is an appealing concept. The reality is that sport has the potential to build character *if* we structure it to do so. Through sport, children can learn values of hard work and skill development, but also of teamwork and mutual respect. For LGBTQ youth, having the opportunity to play on teams that are welcoming allows them to experience all of the benefits of sport.

## Gaps in Knowledge

There are many gaps in our understanding of sexual and gender identities in girls in sport. While in this chapter we have applied what is known about LGBTQ college age athletes to youth participants, it is essential that future research specifically includes young girls. Areas for future research include assessments of the climate for gender and sexually diverse youth in elementary, middle, and high school girls’ sport. As travel teams and sport leagues not associated with schools have become more prominent for young female athletes, research should also focus on these contexts. Additionally, interview studies with LGBTQ girls about their experiences in sport are much needed. Finally, we need to learn what coaches and administrators know about LGBTQ girls, which then can guide future ally and intervention programs to further ensure that all girls are supported in their athletic endeavors.

## Resources

- Gay, Lesbian Straight Education Network: [GLSEN.org](http://GLSEN.org)
- LGBT SportsSafe: [lgbtsportsafe.com](http://lgbtsportsafe.com)
- NCAA Office of Inclusion: [ncaa.org/about/resources/inclusion/lgbtq-resources](http://ncaa.org/about/resources/inclusion/lgbtq-resources)
- Parents and Families of Lesbians and Gays: [pflag.org](http://pflag.org)
- [transathlete.com](http://transathlete.com)
- [transteenproject.org/schools/athletics](http://transteenproject.org/schools/athletics)
- You Can Play Project: [youcanplayproject.org](http://youcanplayproject.org)

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# Physical Activity for Girls with Cognitive and Physical Disabilities

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## Introduction

The benefits of physical activity are numerous and well-documented and include enhanced physical, emotional and cognitive health. These positive effects are independent of gender, race/ethnicity, age, or disability; in other words, everyone can benefit from physical activity (Centers for Disease Control and Prevention [CDC], 2018). Yet despite the numerous benefits, many Americans across the lifespan do not engage in physical activity, including many children and youth. Lack of sufficient physical activity has contributed to a national health crisis: As of 2014 over 36.5% of adults and 17% of children were believed to be obese, putting them at risk for many serious health conditions including heart disease, stroke, and diabetes (CDC, 2017a, 2017b). Physical activity can help prevent obesity and its many associated health problems, while lack of physical activity is a major contributor to being overweight and obese.

As outlined in other chapters, girls are less likely to be physically active than boys. Girls with cognitive and physical disabilities are even less likely to be active than their peers without disabilities. According to the National Center on Health, Physical Activity and Disability (NCHPAD) only 30% of children with disabilities receive five days of physical education per week (National Center on Health, Physical Activity and Disability [NHPAD], 2017). Similarly, another study found that only one third of high school students with disabilities met recommended physical activity guidelines, compared to half of those without disabilities (Papas, Trabulsi, Axe, & Rimmer, 2016). Correspondingly, the obesity rate among children with physical and/or cognitive disabilities is 38% higher than that of children without a disability (CDC, 2017b). As this chapter will demonstrate, there are many factors that contribute to low rates of physical activity among children with disabilities, including individual, social, and institutional barriers.

Some recent attempts to increase the level of physical activity for girls with disabilities, especially in schools are evidenced. In the U.S., there is legislation requiring equal access to physical activity during the school day, whether it be in physical education or during recess. Federal and state laws (i.e. Americans with Disabilities Act (ADA) and Section 504 of the Rehabilitation Act) do not permit discrimination on the basis of disability. However, despite

these legal protections, girls with cognitive and physical disabilities remain less likely to have access to physical activity opportunities and less likely to engage in physical activity than girls without disabilities.

Unfortunately, while a significant amount of research on girls and their participation in physical activity and sport has accumulated in the past 45 years, very little research on girls with disabilities exists within the United States. In this chapter, the aim is to offer perspective on what we *do know* about disability, girls, physical activity and sport—but also to highlight *how much we don't know*. The chapter begins with definitions of terminology and a summary of the prevalence and types of disability. We continue with how disability is socially constructed and media influences on perceptions of ability; benefits of physical activity and sport for girls with disabilities; and barriers to physical activity and sport for girls with disabilities. We conclude with trends, initiatives, resources, and implications for future research.

## Definition of Terminology: Impairment, Disability, and Handicap

**A handicap is actually an obstacle that people with impairments or disabilities face when interacting with the environment.**

There has been much debate over the appropriate language to use when referring to individuals with physical and intellectual impairments. The World Health Organization (WHO) defines an impairment as an abnormality of physiological, psychological, or anatomical structure or function (World Health Organization [WHO], 1976). There are many classifications of impairments, but for the purposes of the chapter we will focus on physical and intellectual impairments.

Disability is associated with functional limitations resulting from an impairment—whether that impairment or the response to it be physical or psychological. In other words, ability is central to the word disability; whenever a person is *unable* to complete normal daily activities such as walking, eating, or caring for oneself, they are considered to have a disability. Language is socially constructed and constantly changing, and today many professionals are using language such as “diverse or unique abilities” instead of disability to describe people with functional limitations. However, for the purposes of this chapter the term disability will be utilized since it has a broader context incorporating both the physical and environmental barriers.

The term “handicap” or “handicapped” is widely misunderstood and is often used incorrectly as a label to describe a person with an impairment or disability. A handicap is actually an obstacle that people with impairments or disabilities face when interacting with the environment. This might include barriers to accessing a sidewalk or building (like a lack of wheelchair-accessible ramps), but can also include attitudinal barriers that trivialize, marginalize, and exclude people with disabilities from the visible culture. In recent decades, there has been a push towards using “people first” language that recognizes the individual first, and uses terms such as “disability” or “impairment” secondarily—and only if they are

relevant to the context of the story. “People First’ language emerged in the 1980s to counteract objectifying language (such as ‘the disabled’) and foregrounds the notion that “personhood is of foremost importance” (Kiuppis, 2016, p. 6).

## Type and Prevalence of Disability

### TYPE

Disabilities can stem from a wide variety of impairments, from hearing or vision loss to loss of mobility. According to the CDC, a *disability* is defined as “... any condition of the body or mind (impairment) that makes it more difficult for the person with the condition to do certain activities (activity limitation) and interact with the world around them (participation restrictions)” (2017c, para. 1). The U.S. Department of Education Individuals with Disabilities Act (IDEA) identifies and defines 13 disabilities: Autism, blindness, deafness, emotional disturbances, hearing impairment, mental retardation, multiple disabilities, orthopedic impairments, other health impairment, specific learning disability, speech or language impairment, traumatic brain injury, and visual impairment (Individuals with Disabilities Act [IDEA], 2007). Schools are legally required to provide special education and other services and resources for children whose education is adversely affected by one of these conditions. IDEA guarantees students with disabilities ages 3 through 21 the right to a free and appropriate public education in the least restrictive environment and requires that special education and related services be made available to every eligible child, although as noted above girls with disabilities remain underserved when it comes to physical activity.

### PREVALENCE

Children and youth (under age 18) with disabilities account for 8% of the population (Kraus, 2017). IDEA reported that as of 2013-2014, 8.4 percent of girls in elementary and secondary education have disabilities. This means that approximately 1.88 million girls aged six to 21 have disabilities, in addition to nearly 219,000 girls aged three to five (National Center for Education Statistics [NCES], 2015).

## Constructing Disability

While there are many variations of ability levels, people with disabilities have historically been viewed as *different* and *unable* compared to people without disabilities. In physical activity and sport contexts, dominant ideologies about ability are related to who is the fastest, strongest, most powerful competitor; primarily this is associated with able-bodied

males, which leaves many groups and individuals—like people with disabilities—to be viewed as “less than” or outside the norm. As Hargreaves (2000) put it, people with disabilities “are looked upon, identified, judged and represented primarily through their bodies, which are perceived in popular consciousness to be imperfect, incomplete and inadequate” compared to the ideal (p. 185).

More so than other groups, people with disabilities and females are often viewed as inherently less able than their able-bodied and/or male counterparts. Dominant attitudes about sport assume that people without disabilities are better than people with disabilities at physical activity and sport, *and* that males are better than females at physical activity and sport. These *constructions of difference* contribute to how physical activity and sport are organized in society—marginalizing persons with disabilities, and further marginalizing girls and women with disabilities. Sport sociologists often refer to the “social construction” of sport, which essentially describes how athletic ability is the primary focus of how we view the body in U.S. culture. According to DePauw (1997), ability implies a finely-tuned, able body—meaning the concept of athletic ability is automatically associated with people without disabilities. Disability, on the other hand, is also a social construction; people with disabilities are viewed first and foremost via their ability (or perceived lack thereof) and have historically been defined as inherently less able.

**The ideal able  
body is perceived  
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middle/upper  
class, Protestant,  
heterosexual, able-  
bodied male.”**

DePauw (1997) contends that the able body is centered around three socially constructed ideals: Physicality, masculinity and sexuality. More specifically, the ideal able body is perceived as a “White, middle/upper class, Protestant, heterosexual, able-bodied male” (DePauw & Gavron, 1995, p. 9). Those who fit into these socially constructed ideals are more likely to be included in sport. Those who don’t fit are left out, or must try to conform to these norms for greater inclusion. Female athletes with disabilities and gay and lesbian athletes are among those who are most marginalized in sport in our society. While people with disabilities have fought for inclusion and challenged the male hegemonic sport model through increased participation, the social reality is that individuals with disabilities, and in particular girls and women with disabilities, are marginalized in ways that others are not. Mainstream media are among those who contribute to this marginalization.

## The Role of Media Narratives in Constructing Disability

The media play a dominant role in providing information on who and what is valued in society. The dominant way athletes are represented in the media is not inclusive of people with disabilities, and even less inclusive of female athletes with disabilities. Research on media coverage of athletes with disabilities is sparse, but it mirrors research on media coverage of female athletes, which has consistently found that the media devotes very little coverage to

sportswomen—and that when the media does cover female athletes it is less likely to focus on their athleticism than when covering male athletes. Sport media research on athletes with disabilities has focused primarily on elite athletes with disabilities during the Paralympic Games, mostly because athletes with disabilities are rarely seen in the media outside of this event. Research results on coverage of the games point to very few photographs and little text (Buysse & Borcharding, 2010; Schantz & Gilbert, 2012; Smith & Thomas, 2005; Thomas & Smith, 2003;; Tynedal & Wolbring, 2013); more depictions of male athletes compared to female athletes (Buysse & Borcharding, 2010; Chang & Crossman, 2009; Packer et al., 2015); and a greater number of males in action shots compared to their female counterparts (Buysse & Borcharding, 2010; Smith & Thomas, 2005; Thomas & Smith, 2003 5;). Athletes with disabilities are also trivialized often being described as ‘supercrrips’ or ‘courageous victims’ (Schantz & Gilbert, 2012; Tynedal & Wolbring, 2013). These cultural narratives “perpetuate the ableist belief that disabilities are abnormalities and that people with disabilities have identities based on abnormalities” (Coakley, 2015, p. 321). To our knowledge there has been no research on media coverage of children and adolescent athletes with disabilities. Their absence in sport media not only marginalizes them by signifying that they have lesser value, but also diminishes the visibility of role models for youth with disabilities.

The absence of athletes with disabilities in sport media epitomizes a phenomenon called symbolic annihilation— a process by which “cultural production and media representations ignore, exclude, marginalize, or trivialize a particular group” (Merskin, 1998, p. 335). In doing so, the media sends a symbolic message to viewers and readers about the societal value of the group. We need only look at sport media (whether it be the NYT, ESPN, FoxSports.com, or Sports Illustrated) to see who and what is valued in our sport culture (heterosexual, able-bodied males) and who is not (female athletes, athletes with disabilities, and gay and lesbian athletes). Groups that are valued are shown frequently; those not shown are disenfranchised. And to quote many scholars, “An athletic body not seen is an athletic body not valued”.

**The absence of athletes with disabilities in sport media epitomizes a phenomenon called symbolic annihilation.**

## Benefits of Physical Activity for Girls with Disabilities

Recent health data highlighting the growing epidemic of obesity in the U.S. and our increasingly sedentary lifestyles signal the need for more physical activity (CDC, 2018). As noted above, the benefits of physical activity are numerous and they are also universal; for children, they can include improved mental health (e.g., positive self-esteem), cardiovascular and muscular fitness, greater ability to do tasks of daily life, improved sleep patterns, lower body fat, stronger bones, reduced symptoms of anxiety and depression, and increased chance of a healthy adulthood (U.S. Department of Health and Human Services [USDHHS], 2008).

The U.S. Department of Health and Human Services (USDHHS) guidelines for aerobic exercise, muscle and bone strengthening activity for all ages have been outlined in previous chapters. A new movement called Active Schools (an initiative from First Lady Michelle Obama's Let's Move Campaign) calls for K-12 schools to provide 60 minutes of physical activity per school day as the norm. They note that "physical activity not only helps kids stay healthy and strong, but it can also contribute to higher test scores, improved attendance, better behavior in class, enhanced leadership skills and a lifetime of healthy habits" (National Center on Health, Physical Activity and Disability [NCHPAD], 2018, p. 3).

People with disabilities who have the opportunity and resources to participate in physical activity and sport can experience improved self-esteem, self-efficacy, and feelings of belonging (Purdue & Howe, 2012; USDHHS, 2008; Wessel, Wentz, & Markle, 2011). A study by Stanish et al. (2016) focused on 38 adolescents with intellectual disabilities and typically developing adolescents. They investigated physical activity enjoyment, barriers to physical activity, beliefs, and self-efficacy. Though the sample was limited, they found that in general youth with intellectual disabilities enjoyed physical activity, had positive beliefs about physical activity, and would enjoy doing more physical activity. Another study by Guest, Balogh, Shilpa, and Lloyd (2017) examined the impact of a multi-sport camp for girls with Autism Spectrum Disorder between ages 8-11. They measured motor proficiency, physical activity with the use of a pedometer, and utilized questionnaires to measure physical self-perceptions and social and adaptive behavior. Following five days of camp experiences where locomotor and object control skills were taught, the participants had improved motor skills and physical self-perception and social skills also improved from the baseline assessment (Guest et al., 2017). Numerous other researchers in the US and beyond have similarly found that physical activity programs run through community programs, schools, and the private sector have positive effects on the physical, emotional, and psycho-social well-being of youth participants with a variety of impairments (Carter et al., 2014; Choi & Cheung, 2016; Collins & Staples, 2017; Fox, 2014; Haney et al., 2014; Hunter, 2009; Oriel, George, & Blatt, 2008;; Özer et al., 2012; Ulrich, Burghardt, Lloyd, Tiernan, & Hornyak, 2011).

Despite the many physical and psychological benefits of physical activity, many girls with disabilities are missing out on opportunities to participate due to variety of factors, as the next section will demonstrate.

## **Barriers to Physical Activity for Girls with Disabilities**

As noted above, girls with cognitive and physical impairments are less likely to be active than their peers without disabilities. In the US, only 30% of children with disabilities receive five days of physical education per week (National Center on Health, Physical



Activity and Disability, 2017), and only one third of high schoolers with disabilities meet recommended physical activity guidelines, compared to half of those without disabilities (Papas, Trabulsi, Axe, & Rimmer, 2016). Researchers have found similar discrepancies between youth with disabilities and their peers without disabilities in Iceland, Australia, Canada, and elsewhere. These discrepancies put girls with disabilities at higher risk for obesity and other health risks associated with sedentary lifestyles. According to Must et al. (2014), mounting evidence suggests that children with developmental disabilities are at greater risk for obesity than their typically developing peers because of the special challenges they face, both to being physically active and in their everyday lives.

Girls with disabilities face numerous physical and social barriers on a daily basis. They are marginalized not only by their gender and disability, but often by other social identity markers such as race/ethnicity and socio-economic class. People with disabilities are overrepresented in households with poverty level incomes, tend to have less education, and have much higher unemployment rates (U.S. Department of Labor [USDOL], 2018; American Psychological Association, 2018). Blacks and people of Hispanic origin have poverty rates twice the level of Whites and Asians, and both girls and people with disabilities are overrepresented among those living in poverty. The intersection of gender, disability, race/ethnicity, socioeconomic status, and even sexual orientation cannot be ignored when discussing physical activity; as other chapters in this report have demonstrated (see chapters 6, 7, and 8 in particular), all can profoundly impact girls' access to sport and physical activity opportunities.

Social and institutional barriers such as a lack of programming, lack of governing regulations, lack of educational resources, and a lack of consistent and persistent advocacy and outreach contribute to the low levels of physical activity in youth with disabilities. As reported in proceedings from a symposium on physical activity for people with disabilities, physical and attitudinal barriers, stigma and stereotypes, and a chronic lack of opportunity also contribute to systemic exclusion of people with disabilities (Lakowski & Long, 2011). For instance, physical education teachers often lack the proper training necessary to meet the needs of students with disabilities, and they are often not afforded opportunities for professional development. Results from a recent survey of 742 physical education teachers pointed to a "lack of support for professional development in working with students with disabilities, limited knowledge and/or resources available to provide inclusive PE programs and limited input into student's individual education plans" (NCHPAD, 2017, p. 4). In a report from the United States Government Accountability Office, school officials noted that budget constraints can be a particular hindrance to teachers' ability to accommodate students, provide individualized attention, and offer teachers adequate training (United States Government



Accountability Office [GAO], 2010). Similarly, community recreation programs are often not properly equipped to support participants with impairments; a study of community recreation programs in Maine found that most “effectively exclude” children with disabilities by requiring that participants meet a certain level of athletic skill, kicking out youth with behavioral deficits, under-emphasizing social experiences, and staffing individuals with negative biases or lack of understanding towards youth with impairments (Jones, 2003, p. 55).

Structural barriers in the built environment are also common impediments to girls with impairments. According to NCHPAD (2017), nearly 40 percent of schools do not have playground features that enable students with disabilities to participate. Only 25% of schools have walk or bike routes that are accessible to students with impairments (NCHPAD, 2017). While the Americans with Disabilities Act requires schools to meet federal standards for accessibility, many schools’ facilities remain uncompliant; for instance, a two-year inquiry of elementary schools in New York City found that 83% are not fully accessible to students with disabilities (Heasley, 2016). According to a May 2018 article in Disability Scoop, that report prompted members of Congress to ask for a federal investigation into school compliance with the ADA since data on nationwide compliance rates are not currently available (Diament, 2018).

While physical activity and sport opportunities for girls have increased dramatically since Title IX was passed in 1972, the same increases have not been achieved with girls who have physical or cognitive impairments. The 1973 Rehabilitation Act and the IDEA prohibit discrimination against people with disabilities in education, but they have not gone far enough in asserting equal opportunities in physical activity and sport. Sport and physical activity programming, resources, information, and accessible facilities continue to lag for persons with disabilities. For instance, of those schools who provide out-of-school (OST) programming before and after school and during the summer—an important opportunity for students of all abilities to be physically active—only 20% offer programs that are inclusive of students with disabilities.

Moreover, until recently, The National Federation of State High School Associations (NFHS) did not officially sanction any interscholastic program for students with disabilities, and left it up to schools, districts, or states to accommodate students within existing teams or build their own adapted sport programs (Lakowski, 2009). However, in 2013 the U.S. Department of Education Office for Civil Rights issued new guidance regulations for Section 504 (U.S. Department of Education, 2013a, 2013b), which clarified that schools receiving federal assistance are legally required to provide equal access to sport and physical education opportunities to students with disabilities. This change was based on a 2010 United States Government Accountability Office [GAO] report which found that while students with disabilities spend similar time in physical education as their peers, they participate in school

athletics at consistently lower rates—between 10 to 56 percentage points lower, in fact (GAO, 2010). Unsurprisingly, the report also found that sports participation was consistently lower for girls with disabilities compared to boys across age groups (GAO, 2010). Notably, the GAO also pointed out that there is no reliable national data that enables easy comparison of participation of students with and without disabilities in extracurricular activities.

The 2013 clarification prohibits schools from excluding students with disabilities from physical education, trying out for teams and participation on sports teams. Schools must also make reasonable accommodations in programming for students with disabilities (e.g., use of a laser instead of a starting pistol in track for a student who is hearing impaired) and they must also provide additional sport opportunities when the existing programs cannot accommodate them. In such cases where there are not enough students to form a team, the schools may have mixed gender teams, allied team (athletes with and without disabilities) are encouraged to consider consolidating with other schools or districts to form teams to allow participation. Soon after the clarification was released in early 2013, the NFHS released a news release in support of the guidelines, and in 2016 NFHS reported that 30 state associations currently offer at least one state championship or event in Adapted Sports (sports with rule modifications to accommodate students with disabilities) or Unified Sports (programs which pair students with intellectual disabilities with peer without disabilities) (Porter, 2016).

Despite this legal progress and anecdotal evidence that accessible sport programs are becoming more common around the country, there is little data on whether schools are complying with the Section 504 clarification and how this may be impacting physical activity and sport participation rates of students with disabilities. It seems unlikely that, in five short years, public schools have completely evened the playing field for athletes with disabilities compared to their peers—especially as many schools continue to face budget cuts (Leachman, Masterson, & Figueroa, 2017).

## **Trends and Initiatives to Increase Physical Activity for Girls with Disabilities**

While opportunities for girls with disabilities still may not be on par with other girls, there are several organizations and initiatives outside of education that advocate for more programming and provide resources and opportunities at many levels. Most are related to formal sport offerings.

One of the most widely known is the Special Olympics, which offers sport programming for people with intellectual disabilities (Special Olympics, n.d.-b). Special Olympics was founded in 1968 by Eunice Kennedy Shriver, and since the first International Special Olympics in Chicago in 1968 the organization has expanded worldwide, offering

over thirty individual and team sport opportunities to more than 4.9 million athletes across 172 countries. The 50th Anniversary Global Celebration returns Special Olympics to its Chicago roots in July of 2018. One Special Olympics initiative that has gained traction in the U.S. in recent years is Unified Sports, a model that joins people with and without intellectual disabilities on the same athletic team; more than 4,500 elementary, middle and high schools in the U.S. offer unified sports programs, in addition to 73 colleges and universities (Special Olympics, n.d.-a).

Another global sport movement is the Paralympics, which offers competitive sport opportunities for elite athletes with physical disabilities (International Paralympic Committee [IPC], n.d.). Though this is for elite athletes with physical disabilities, they provide both a Summer and Winter Paralympic Games in the same year and at the same site as the Olympic Games. Both organizations operate on a global scale and in the U.S., most states also provide opportunities at the community level.

The Courage Kenny Institute in Golden Valley, Minnesota is an example of an organization at the community level that provides not only a continuum of care and rehabilitation services for people with disabilities, but also opportunities to engage in physical activity and sport. Their vision statement reads: “We are guided by our vision that one day all people will live, work, learn and play in a community based on abilities, not disabilities” (Allina Health, 2018, para. 2). They offer a wide variety of sport participation opportunities (both recreational and competitive) to both youth and adults with disabilities. Athletes from outside of the Twin Cities area often drive several hours just to have the opportunity to participate in their sports programming. Some of their participants are elite athletes and compete for colleges and universities and participate in global sport events such as the Paralympic Games.

In addition to providing sport opportunities, these organizations give much needed visibility to athletes with disabilities. These are only a few of the most prominent organizations that provide opportunities; additional resources may be viewed in Appendix A. However, despite the good work being done by these organizations and others like them, opportunities to participate in sport (both recreational and competitive) are not available in every community, and many girls with disabilities (especially those with fewer resources) still have trouble accessing consistent, high-quality physical activity programming.

## Gaps in the Knowledge and Implications for Future Research

Although a significant base of research on physical activity participation and outcomes for individuals with impairments does exist, there are marked gaps in this body of research from the perspective of this chapter. First and foremost, there is very little

research that is specific to girls. Despite evidence that women and girls with impairments have historically been even more disenfranchised from sport than their male peers due to the “double whammy of being female and having a disability” (Anderson, Wozencroft, & Bedini, 2008, p. 184), girls are lumped in with boys in many studies on disability and physical activity. While a few studies do compare outcomes between boys and girl—for instance, Einarsson et al. (2015) found no sex differences in physical activity rates among youth with intellectual disabilities, and Baksjøberget, Nyquist, Moser, & Jahnsen (2017) noted gender differences in preferred physical activity type between boys and girls with physical impairments—almost no recent studies specifically examine girls with impairments from a critical gender perspective. A notable exception is Anderson, Wozencroft, and Bedini’s (2008) study on adolescent girls’ involvement in organized wheelchair sport programs. This dearth of research means that there are “many unanswered questions regarding how to better introduce and retain girls with physical disability to organized physical activity, particularly sport” (Anderson et al., p. 189). Future research must better address those questions for girls with impairments.

Further, as noted above, girls with disabilities are often marginalized not only by their gender and disability, but often additionally by other social identity markers such as race/ethnicity, and socio-economic class. Yet very little research has examined the effects of such intersectional identities on girls’ physical activity behaviors. Future research should take into account the intersections between gender, disability, race, class, and other identity markers to improve our understanding of how best to serve girls with impairments. Researchers should also consider directly capturing the voices of girls (and boys) with impairments and their caregivers, as Spencer-Cavaliere & Watkinson (2010) modeled in their study on inclusion from the viewpoint of children with disabilities. Many existing studies are more qualitative or descriptive, but we have much to learn from the perspectives of young people and their families.

In general, there is relatively little US-based research on children with disabilities (and, more specifically, girls with disabilities) with many seminal studies instead coming from Australia and Canada. Moreover, of research coming out of the US on children with disabilities, most focuses on children with intellectual disabilities while less research examines children with physical impairments. While international research is highly valuable and can offer many applicable insights, we also need more research that is specific to the cultures, norms, policies, and structures in the U.S. For instance, we need to know more about legislative compliance to recent educational requirements for serving youth with impairments—i.e. Who is in compliance? Who isn’t? Why and how is legislation being enforced? Additionally, more evaluative research of existing programs are needed to offer evidence-based insights on the common barriers to participation—as well as best practices for engaging girls with impairments in

physical activity and sport and teaching girls with impairments within the PA setting. How can education programs for program and school staff improve physical activity outcomes for girls with impairments? Can inclusive sport programs that serve children of all abilities help alleviate stereotypes about people with impairments, as some research suggests (Carter et al., 2014; Özer et al., 2011)? If we know more about what high-quality inclusive programming looks like and how to educate stakeholders, we can build physical activity environments that better include and support girls (and boys) with impairments.

## Conclusion

We began this chapter by acknowledging the many benefits of physical activity independent of gender, race/ethnicity, age or disability. Despite overwhelming research to support this, children with disabilities face many barriers to being physically active and are less likely to engage in physical activity. The most significant take-home message in this chapter is the virtual absence of research specific to *girls with disabilities* in the U.S. and their participation in sport and physical activity environments. This may be in large part to the marginalization of girls (and specifically girls with disabilities) in U.S. sport culture.

At every level, more research, more education, and more enforcement of legislative requirements are necessary to transform our ideas about physical ability and whose ability matters. More *research* on girls with disabilities can provide insight into their needs, interests and motivations to participate in sport and physical activity—and help practitioners design programs that serve them better. A stronger effort needs to be made to eliminate the many individual, interpersonal, structural, and cultural barriers to sport and physical activity for girls with disabilities and increase girls' access to high quality programs. In particular, better *educating* practitioners can help provide more inclusive physical activity in the schools, allowing students with disabilities to challenge stereotypes and equipping educators to address discriminatory attitudes and behaviors. Finally, *compliance* by school districts to the guidelines in Section 504 must be taken more seriously, with penalties being enforced for non-compliance. This would send a long-overdue, no-excuses message that access to physical activity and sport programs is not a privilege, but a right due to *every student*—including girls with disabilities.

## Resources

- Accessible Playgrounds: <https://www.accessibleplayground.net/>
- Active Schools: <https://www.activeschoolsus.org/>
- American Association of Adapted Sports' Programs <http://adaptedsports.org/>
- Blaze Sports: <http://www.blazesports.org>
- Boundless Playground: <https://www.nchpad.org/Directories/Organizations/2411>
- Disabled Sports USA: <http://www.disabledsportsusa.org/>
- Department of Natural Resources: [http://www.dnr.state.mn.us/accessible\\_outdoors/index.html](http://www.dnr.state.mn.us/accessible_outdoors/index.html)
- IDEA: <https://sites.ed.gov/idea/>
- Miracle League: <http://www.themiracleleague.net/>
- National Center for Health, Physical Activity and Disability: <https://www.nchpad.org/>
- PACER: <http://www.pacer.org/funtimes/recreation-and-sports.asp>
- SHAPE: <https://www.shapeamerica.org/>
- Wilderness Inquiry: <https://www.wildernessinquiry.org/>

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# Sport Media Portrayals of Female Athletes and the Effects of Sexualization on Girls

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## Introduction

Sexualized images of female athletes are commonplace in mainstream media (Sherry, Osborne, & Nicholson, 2016) as are sexualized images of women in general (Ward, 2016). Three major reports from the U.S., U.K., and Australia have documented the prevalence of sexualized imagery of women across a wide range of media including in sport media, television, music videos, music lyrics, movies, cartoons and animation, magazines, video/computer games, internet, advertising as well as consumer products (American Psychological Association [APA] 2007; Papadopoulos 2010; Rush & La Nauze 2006). This imagery is present in media directed at adolescent girls (e.g., *Seventeen* magazine) as well as adults (Collins, 2011; Graff, Murnen, & Krause, 2013; Speno & Aubrey, 2017). Therefore, when engaging with media, viewers of all ages regularly see depictions of women that focus on their physical and sexual attractiveness rather than on other aspects of their humanity, such as their sport or intellectual accomplishments. This type of portrayal (termed *objectified*) sends the message to viewers that women are sexual objects, and is related to a number of negative effects for female viewers, including an increased tendency to think of one's own body as an object for others to evaluate as well as reductions in cognitive resources (Daniels, 2009a; Pacilli, Tomasetto, & Cadinu, 2016; Ward & Harrison, 2005). Because of children's limited cognitive capacities, girls are more vulnerable to the negative effects of exposure to objectified media images than adult women. Specifically, girls do not yet have the abstract thinking skills necessary to critique such images (Fischer & Pruyne 2003; Keating 2004), whereas adult women are cognitively equipped to critically evaluate such images, which *may* buffer negative impacts on them.

This chapter contains an overview of: (a) how women are portrayed in mainstream and sport media; (b) how viewers are impacted by these portrayals; (c) how female athletes want to be depicted in media; and (d) recommendations for future research, applied work, and public policy.

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## Media Portrayals of Women

One of the most striking patterns in how women and girls are portrayed in mass media, including films, television shows, books, and video games, is their absence (Downs & Smith, 2010; McCabe Fairchild, Grauerholz, Pescosolido, & Tope, 2011; Smith, Choueiti, Prescott, & Pieper, 2012). When women *are* portrayed in media, they are often depicted in limited and stereotyped ways including being sexualized, presented in subordinated ways, and shown in stereotypically feminine roles (Collins, 2011). One manner in which women are rarely depicted in media is as athletes. In a content analysis of popular magazines aimed at teen girls (e.g., *Seventeen*, *Teen Vogue*, and *CosmoGirl*), just 2.5% of images showed girls or women engaged in sport and 4.5% showed girls or women in fitness activities (Daniels, 2009b). These findings illustrate that females are disproportionately under-represented in any role in mainstream media—and particularly as athletes. Girls and women lack access to depictions of female physicality in mainstream media.

**Media patterns position women's sports as less important and entertaining than men's sports**

The same pattern of absence is true of sport media. The most recent findings from a 25-year longitudinal study of sport media revealed that coverage of women's sports remains "dismally low" (Cooky, Messner, & Musto, 2015, p. 1). In 2014, 3.2% of all sport media coverage focused on female athletes—a statistic that is indeed substantially lower than the prior 10, 15, 20, and 25 years, which ranged from 1.6-8.7%, on three local affiliate news shows in southern California. Likewise, coverage of women's sports on SportsCenter, a highly popular daily sports news television show, is negligible, ranging from 1.3-2.2% over a 15-year span (1999-2014; Cooky et al., 2015). A similar pattern of invisibility exists in prominent sport magazines, such as *Sports Illustrated* and *ESPN*, which depict female athletes on just 5-10% of their covers (Frisby, 2017; Weber & Carini, 2013). Portrayals of female athletes with disability are rare as well (see Chapter 9). These findings demonstrate that women's sports are an afterthought to producers of sport media, warranting minimal air time and print space.

### HOW ARE FEMALE ATHLETES DEPICTED IN SPORT MEDIA?

When female athletes *are* featured in sport media, the coverage is notably different than how male athletes are portrayed (Daniels & LaVoi, 2013; Fink, 2015; Sherry et al., 2016). For example, less sophisticated and exciting production techniques are used in media coverage of women's sports. In addition, female athletes in particular sports and types of poses are more likely to be featured than female athletes in other sports and poses, as detailed below. Finally, media coverage of female athletes tends to include a focus on their non-sport social roles, such as mothers, as well as their sexual and physical attractiveness. Taken together, as demonstrated below, these patterns position women's sports as less

important and entertaining than men's sports. Furthermore, selective media coverage of women's sports suggests that only particular sports are socially appropriate for women, and ultimately women's sporting roles are less valuable than their social roles. The implicit message that viewers, including girls, may discern from coverage of women's sports is that sports are really not for girls and women. This message has the potential to limit girls' interest and participation in sport.

## Production Techniques and Media Frames

Production techniques (such as camera angles and special effects) as well as media frames (which are dominant messages presented in media stories) can add excitement and drama to televised sporting events. Longitudinal research that has analyzed sport media over 25 years has found that women and female athletes are less likely to be the objects of ridicule by news and sport commentators or to be treated as sexual objects today compared to the late 1980s when the study began. However, coverage of women's sports still tends to be bland and less exciting than coverage of men's sports (Cooky et al., 2015). For example, rather than featuring shots of women's physicality during impressive plays in a game, news coverage often shows female athletes celebrating after scoring or cheering each other on from the bench. This contrasts with footage of important plays in men's events which highlight male athletes' physical prowess by using slow motion and multiple camera angles to enhance the excitement of high-profile plays. Similarly, media coverage of men's sports includes more interviews with players, coaches, and other key sport figures, which provide in-depth perspectives on the sport.

Likewise, other production techniques are more common in coverage of men's compared to women's sports. For example, a study of media coverage of the 2004 Olympic track and field events found more variation in camera angles and types of shot (e.g., long shot, close-ups) as well as the use of special effects (e.g., slow motion) in media coverage of men's as compared to women's events (Greer, Hardin, & Homan, 2009). These techniques create the sense that men's events are more exciting and entertaining than women's events. For example, focusing on an athlete for a longer period of time from one camera angle (common in coverage of women's events) is less thrilling than seeing a series of shots displayed in rapid succession from different angles (common in coverage of men's events). The lack of high impact production techniques in women's sports can convey to viewers that women's sports are less important, less exciting and less valued than men's sports.

## Type of Sport

Female athletes who compete in sports that are considered ‘gender-appropriate,’ such as tennis, are more likely to be featured in sport media than female athletes in sports considered traditionally masculine, such as boxing (e.g., Lumpkin, 2007, 2009). This type of preferential coverage suggests that particular sports are regarded as more socially appropriate for female athletes. As a result, girls may limit or be selective about their sporting choices. For example, girls may not even consider a range of sports that are stereotyped as masculine despite the potential that they might enjoy those sports.

## Active vs. Passive Poses

Female athletes are often depicted in passive (e.g., seated on the sideline) rather than active (e.g., in motion on the field) poses in sport media (e.g., Buysse & Embser-Herbert, 2004; Cranmer, Brann, & Bowman, 2014). In their own user-created media content, some female athletes replicate this pattern by posting more photos of themselves in passive poses than active ones on social media (Emmons & Mocarski, 2014). Passive poses serve to de-emphasize rather than highlight the athletic competence of female athletes. In contrast, one innovative study examined ways NCAA Division I athletes chose to portray themselves for a photo shoot (Krane et al., 2010). Because of technical limitations of the shoot, action photos were not possible. However, the athletes overwhelmingly chose poses that illustrated their power and strength (e.g., on the starting blocks for a track event, in the weight room, in a catcher’s crouch). These images highlight women’s athleticism and portray women as athletes. Girls who view such powerful sport images may be inspired to engage in physical activities and sports they enjoy.

## Non-sport Roles

Media coverage of female athletes often include their non-sport social roles, such as mother and wife, alongside their athletic accomplishments unlike coverage of male athletes which typically focuses exclusively on their sport performance (Cooky et al., 2015). The framing of media stories on female athletes who are mothers tend to fall into one of two patterns--either that being a mother and an athlete are conflicting roles or that an athlete-mother is a superwoman (McGannon, Gonsalves, Schinke, & Busanich, 2015). Some propose that focusing on non-sport roles like motherhood detracts from valuing women’s athleticism and perpetuates gender stereotyping (Cooky et al., 2015), whereas others assert that this coverage dispels the notion that female athletes cannot have a family while also competing at the height of their sport (McGannon et al., 2015). Research with girls is necessary to

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determine whether these portrayals are, in fact, limiting or helpful. However, in either case, media indicate that girls who are athletes will need to juggle sport and non-sport roles—but does not assert the same about boys.

## Sexualization

Female athletes are more likely to be *sexualized* (i.e., reduced to their sexual appeal to the exclusion of their other characteristics and personhood; APA, 2007) in sport media compared to male athletes (e.g., Clavio & Eagleman, 2011; Cranmer et al., 2014). Indeed, in some sport media outlets, such as *Sports Illustrated*, female athletes are indistinguishable from female models, both of whom are presented as sexual objects (Kim & Sagas, 2014). Similar patterns in other sport media exist in a number of studies (see Sherry et al., 2016 for a review). Further, women of color may be subject to hypersexualized portrayals in sport media which is not as typical for White female athletes (Schultz, 2005). Similar to the pattern in mass media, with the advent of new media, some female athletes portray themselves in sexualized ways in content they post on their personal websites; for example, tennis player Ana Ivanovic, formerly ranked number one in the world, posted a photo of herself in a pink bikini lying on top of a bed of pink tennis balls from a *Sports Illustrated* photo shoot (Barnett, 2017). Finally, sport media exploit sexualization built in to some women's sports, such as beach volleyball in which players are required to wear skimpy uniforms by sport governing bodies, by zeroing in on female athletes' buttock in their photographs and adding sexualized captions, such as "buns of gold, silver, and bronze" (Bissell & Duke, 2007; Sailors, Teetzel, & Weaving, 2012, p. 469). Sexualized depictions of female athletes distract viewers from focusing on their athleticism (Daniels, 2012; Daniels & Wartena, 2011) and diminish viewers' beliefs about their competence (Gurung & Chrouser, 2007; Nezlek, Krohn, Wilson, & Maruskin, 2015). The negative effects of sexualized portrayals on viewers, including girls, are described next.

### HOW DO MEDIA PORTRAYALS OF FEMALE ATHLETES IMPACT GIRLS AND FEMALE VIEWERS?

Limited research exists on how media images of athletes impact viewers. The majority of the existing research has investigated how sexualized versus sport performance (i.e., athletes are shown performing their sport) depictions impact viewers' self-perceptions (e.g., body image), their attitudes about the athletes, and their interest in sport.



## Effects on Viewers

The sexualization of female athletes in media is part of a broader pattern of sexualizing women in many Western cultures (e.g., APA, 2007; Fredrickson & Roberts, 1997). Because of cultural pressure that prioritizes women's physical and sexual attractiveness, girls and women may come to think of their body as a sexual object to be evaluated by others, specifically boys and men (termed *self-objectification*). Self-objectification is associated with a number of negative effects on psychological well-being including, for example, body surveillance, body shame, heightened risk for disordered eating, and reduced self-esteem (see Moradi & Huang, 2008 for a review).

Research on how images of female athletes impact adolescent girls, adolescent girl athletes, college women, and NCAA Division I female athletes has shown that sexualized images elicit higher self-objectification in female viewers. For example, sexualized images elicit more negative comments about one's body (e.g., I am fat) as well as one's overall physical appearance (e.g., I am ugly); in contrast, sport performance images prompt a greater focus on the body's physical capabilities (e.g., I am good at soccer) and less self-objectification (Daniels, 2009a; Linder & Daniels, 2018; Smith, 2016; Thomsen, Bower, & Barnes, 2004). These patterns indicate that sport performance images generate a focus in female viewers on what one's body can do physically as compared to sexualized images which evoke objectified appraisals of how one's body appears.

## Attitudes toward Athletes

A handful of researchers have examined viewers' attitudes toward sexualized versus sport performance images of female athletes. In one study, middle school girl athletes responded positively to authentic images of athletes (e.g., in athletic settings, wearing sport attire) as opposed to images they perceived as not athletic (e.g., in street clothes rather than athletic gear) which were viewed negatively (Krane et al., 2011). In other research, after viewing sport performance athletes, adolescent girls and college women made *instrumental appraisals* (i.e., focusing on and appreciating the body's physical strength, skills, and capabilities; Daniels, 2016) of the athletes (e.g., "She looks strong, fierce, and energetic") and themselves ("this photograph makes me feel like getting [sic] up and playing some type of sport") (Daniels, 2012). The girls also considered these athletes to be role models ("Although I'm not a soccer player, this gives me a sense of determination to achieve my goal... This photo represents woman [sic] who are strong...") and remarked that the athletes broke from traditional gender stereotypes ("This picture also breaks away from the idea of girls being house wives [sic]"). In contrast after viewing sexualized athletes, girls and women

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made *objectified appraisals* of the athletes (e.g., “[she] makes all the guys drool over her”) and themselves (e.g., “this photograph makes me feel fat and not pretty”). They also issued critiques about women’s status in society in response to sexualized athletes (e.g., “This picture makes me feel that the woman needs to show off her body in order to be noticed. It’s as if her talents as a basketball player would be overlooked unless she was wearing a bikini. Sex appeal is an advertising strategy used in this picture, and it is somewhat offensive to me as a woman too”). These findings show that sexualized images of female athletes prompt harmful objectified reactions, whereas sport performance images evoke positive instrumental reactions in female viewers.

Similar patterns in adolescent boys’ reactions to sexualized versus sport performance images of female athletes have been documented (Daniels & Wartena, 2011). When boys were shown sport performance images of women, they remarked on the athletes’ physical competence (“Mia Hamm is a great soccer player who has been in the MLS, World Cup, and the Olympics”) and the sport context (“it looks like Mia Hamm is either going to head-butt or kick the ball that is falling out of the air”). In contrast, in response to the sexualized images, boys focused on the woman’s physical appearance and attractiveness (e.g., “she has nice eyes, nice smile, and nice body”) and sexiness (e.g., “it makes me feel really sexually attracted”).

Finally, some researchers have examined media consumers’ perceptions of athletes’ *personal attributes* (e.g., intelligence, attractiveness, sport competence) based on whether they are depicted in a sexualized versus non-sexualized manner. These studies consistently find that sexualized female athletes are perceived to be more attractive, desirable, and sexual, but less capable, less intelligent, less self-respecting, and less athletically skilled than non-sexualized athletes (Gurung & Chrouser, 2007; Harrison & Secarea, 2010; Nezlek et al., 2015). In sum, female athletes who are depicted in a sexualized manner in media are objectified by media consumers and considered less capable.

## Interest in Women’s Sports

Sexualization has long been a tactic of commercial sport promoters to generate interest in women’s sports. For example, in the 1920s, a women’s softball team was named the Slapsie Maxie’s Curvacious Cuties (Twin, 1979). More recently, the International Boxing Association (IBA) debated making it mandatory for female boxers to wear a skirt while competing in the 2012 Olympic Games, the first Games which included women’s boxing. After protests from athletes, coaches, and the public, the IBA decided to make wearing a skirt optional rather than mandatory. However, national sport federations can still require female boxers to wear a skirt while competing and some have done so (e.g., Poland and Romania;

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Tjønndal, 2017). Other sports, such as beach volleyball, have mandated sexualized uniforms for female athletes. For example, for the 2004 Olympics, the Federation Internationale de Volleyball required women's uniforms to be close-fitting with deep cut-outs on the back, upper chest, and stomach (for a 2-piece) or an open back and upper chest (for a 1-piece) (Sailors et al., 2012). Even warm-up suits were required to be close-fitting and were only allowed to be worn during warm-ups, matches, and media interviews if the temperature fell to or below 60.8 degrees Fahrenheit. In contrast, male players were required to wear shorts and a tank top. Violations of the uniform specifications could have resulted in a \$10,000 fine to a national federation. These tactics are premised on the idea that sex sells women's sports (Brooks, 2001) which is consistent with the broader marketing strategy of using sexualized bodies, typically women's bodies, to sell products (Wirtz, Sparks, & Zimbres, 2017).

Researchers have investigated whether sexualizing female athletes does in fact generate increased interest in and respect for women's sports. In one study, participants were shown a range of media images of female athletes including sexualized and sport performance photos and asked to report the degree to which the images increased their interest in reading about, watching on TV, attending a game, and buying season tickets to women's sports (Kane & Maxwell, 2011). Responses to the images demonstrated that sport performance images generated the greatest interest in women's sports (e.g., "She looked fierce and strong... and the [whole event] seemed very exciting. This [image] would definitely make me want to go to a WNBA game," p. 212). In contrast, the sexualized images produced the least interest in women's sports (e.g., "I was shocked [at how she was] objectified... and I certainly wouldn't attend the sport if this is how it is," p. 213). These findings are consistent with other research that found people perceive a competent female athlete to be a better endorser of an athletic event than an attractive female athlete (Fink, Cunningham, & Kensicki, 2004). These patterns are also consistent with research that indicates advertisements with sexual messaging do not affect consumers' purchase intentions (Wirtz et al., 2017). In sum, sexualized images of female athletes do not appear to generate interest in women's sports. They may, in fact, do the opposite by angering and offending potential consumers (Brooks, 2001). However, the public and athletes themselves may believe the cultural myth that sex sells (Kane, LaVoi, & Fink, 2013) despite evidence to the contrary (e.g., Kane & Maxwell, 2011).

## How do female athletes want to be portrayed?

Some research has found that female athletes choose to portray themselves in ways that highlight their athletic competence in media they create. For example, a study of the Twitter profile photos of professional female athletes found that photos depicting athletic

competence (31%) were the most common type of profile photo, whereas sexualized photos were relatively uncommon (10%) (Shreffler, Hancock, & Schmidt, 2016).

In a study with college female athletes in which the athletes decided how they would appear, including the location, attire, and pose, for a photo shoot, most athletes produced photos that emphasized their strength and power (Krane et al., 2010). None created photos that highlighted their sexual appeal. Similar results were found in another study in which college female athletes were shown existing media images of female athletes that depicted them in various ways including sexualized and athletic competence portrayals (Kane et al., 2013). The athletes were asked to identify which type of image best represented themselves and their sport as well as which type of image best increased interest in and respect for their sport. The athletic competence image was selected for all four categories. Taken together, these findings demonstrate that portraying themselves in ways that highlight their athleticism is important to many female athletes.

## Future Research

As noted above, presently there is limited research on how media images of athletes impact viewers. Much of the existing research relies on experimental designs in which viewers are shown static images of athletes at one time-point and asked to evaluate the images and/or themselves after a brief exposure to the image. This approach has methodological advantages including ensuring that the type of image, rather than some other variable, is impacting viewers' reactions. However, this approach does not necessarily capture how people *actually consume* media in their lives. For example, sports can now be consumed across a variety of platforms including new media (e.g., social media), video games, and Esports, as well as traditional media such as TV, newspapers, and magazines. We know little about how different media portrayals of athletes impact viewers across different media types. However, research on sexualized media more broadly indicates cause for concern in terms of sexualized portrayals. For example, a recent experimental study found that playing a video game with a sexualized avatar increases self-objectification among both female and male adolescents, more so for girls than boys (Vandenbosch, Driesman, Trekels, & Eggermont, 2016). It is reasonable to expect, therefore, that sport-specific video games that sexualize athletes will have a similar effect on teen players. However, new research is necessary to verify that prediction and investigate effects across other types of media.

Another recommendation for future research on how media images of athletes impact viewers is to assess *viewer involvement*, (e.g., how much a viewer identifies with the athlete being depicted). Broader research on media effects shows that greater viewer involvement is associated with stronger effects on viewers (Ward & Rivadeneyra, 1999).

For example, a female tennis fan who identifies strongly with Caroline Wozniacki because of a shared history of playing tennis may be especially negatively impacted by a sexualized image of Wozniacki compared to a female peer who does not follow tennis or Wozniacki. Differences in viewer involvement may impact reactions to media portrayals, either intensifying or tempering responses.

A final recommendation for future research is to include a developmental focus in studies on how media images of athletes impact youth. Sport participation is a popular activity among youth in the U.S. (The Aspen Institute, 2016), and sport is an important cultural institution in the U.S. (Coakley, 2016). As a result, elite and professional athletes have elevated social status in U.S. society, and media portrayals of athletes may be especially influential. Children and early adolescents, however, lack the abstract thinking skills necessary to critique media images as these cognitive skills do not develop fully until later adolescence and young adulthood (Fischer & Pruyne 2003; Keating 2004). Thus, children and early teens may be especially negatively impacted by sexualized media images of athletes. Given that female athletes are more likely to be sexualized than male athletes (e.g., Clavio & Eagleman, 2011; Cranmer et al., 2014), it is younger girls who are most likely to be negatively impacted by sexualized media images of athletes. Future research should consider how level of cognitive development affects how youth viewers perceive media images of athletes.

## Application Recommendations

It is clear from the research that media coverage of women's sports is minimal and disproportionate to women's participation in sport (Cooky et al., 2015), yet media images of female athletes that focus on their athletic competence generate positive self-perceptions (Daniels, 2009a) and favorable attitudes toward female athletes (Daniels, 2012; Gurung & Chrouser, 2007; Harrison & Secarea, 2010; Nezlek et al., 2015) and women's sports (Kane & Maxwell, 2011). Therefore, increasing the visibility of girls' and women's athletics in media as well as improving the quality of media coverage are worthy goals.

A range of small grass roots efforts aimed at drawing attention to female athletes have gained national media attention (Daniels, 2016). One such effort was led by an adolescent girl. In 2014, McKenna Peterson, a 12-year-old girl, wrote a letter to the national chain, Dick's Sporting Goods, criticizing the company because there were no girls in their basketball catalog (Murray, 2014). Her father posted the letter on Twitter and the story went viral and was picked up by the mainstream press. In response, the company promised to include more girls and women in future catalogs. Today, social media affords individuals the opportunity to amplify their voice and speak up in a way that was not possible in the past. Similar protests can be undertaken to address the lack of attention paid to female athletes

by other major sporting goods companies as well as media outlets. Educators in a variety of disciplines (e.g., Civics, English, Health) could create school assignments in which students write social media posts that address why it is problematic to ignore female athletes in media and marketing. Such an assignment could involve students' researching the many positive outcomes related to girls' sport participation (e.g., better body image), so that they use research evidence to make their case.

Adult female athletes have also taken to social media to advocate for authentic coverage of female athletes that focuses on their physicality. In 2014, the Harvard women's rugby team conducted a photo shoot aimed at highlighting the beauty of their physical strength (Saelinger, 2014). The athletes posed in sports bras and shorts and labeled their arms, abs, legs, and backs with words like "ripped," "powerful," "passion and drive," "beautiful and fierce." Helen Clark, one of the project's leaders, summed up the intention of the project, "We hope seeing our photos will encourage women to go out and find a space like rugby where their bodies are celebrated for their inherent strength and power, rather than just for how they look in a bikini" (Saelinger, 2014, para. 12). The social media site *A Mighty Girl* featured the photos and the athletes' project went viral, gaining national media coverage. In a similar effort in 2013, Cory Schumacher, a pro surfer, launched a change.org petition, which gained over 22,000 signatures, protesting a Roxy video advertisement depicting a 5-time World Champion female surfer undressing suggestively on a bed with her back to the camera (Schumacher, 2013). The ad did not show the surfer's face or her actually surfing. In response to the petition and Schumacher's objections, Roxy produced an ad depicting fully-clothed female surfers surfing. This successful protest spawned further advocacy efforts to address the objectification of female athletes in board and action sports (Women in Board and Action Sports, 2015).

Collectively, these female athletes took action to protest the erasure and trivialization of female athletes in sport media and marketing. In the case of the college athletes, they also actively created the type of imagery they wanted to see – physically strong women. More of this type of activism could be generated by educators and coaches who work with young female children and youth in addition to adult female athletes. Collegiate and professional teams often engage in community outreach activities. Such activities could be tailored to focus on advocating for more and respectful coverage of women's sports. Educational materials to support such efforts are available. For example, the SPARK movement, an intergenerational activist organization, provides training and curricula aimed at helping young people speak out against the sexualization of women in media and other gender-related issues (<http://www.sparkmovement.org/about/>). Athletes could utilize existing educational resources to become activists on behalf of girls' and women's sports.



Other efforts to raise the visibility of female athletes and women's sports have come from within universities. For example, the Tucker Center for Research on Girls & Women in Sport at the University of Minnesota advocates for fair and equitable coverage of women's sports and respectful coverage of female athletes. They pursue this goal through educational efforts as well as activism. For example, in partnership with the Saint Paul/Minneapolis tptMN PBS station, the Tucker Center created a documentary about the state of media coverage of women's sports including minimal and problematic coverage of female athletes (Tucker Center for Research on Girls and Women in Sport & tptMN, 2013). The documentary can be streamed on the Tucker Center website and complimentary DVD copies for educational purposes can be obtained. Thus, the Tucker Center has provided an important evidence-based resource to advocate for a change in how sport media represent women's sports and female athletes. The Tucker Center has a number of similar projects and produces educational materials, such as discussion guides, to accompany these videos. In addition, they operate a social media campaign, called the #HERESPROOF Project, to dispel the myth that no one is interested in women's sports. The campaign asks fans to post photos of girls' and women's sporting events they attend to social media. The goal is to create an archive of images documenting that people are, in fact, interested in and do attend women's sporting events. A similar effort, called the #SheCanCoach project, is underway to encourage more women to get into coaching sports. In sum, the Tucker Center engages in a range of activities aimed at increasing the visibility of women's sports as well as improving the quality of media coverage such that female athletes are portrayed as strong, capable athletes. Other universities, especially those with kinesiology, exercise science, sport sociology, sport management, and sport media programs, could undertake similar educational and advocacy efforts on behalf of female athletes and women's sports. College students could be trained to educate younger athletes on these issues as they can be valuable role models in the community.

## Policy Recommendations

Presently, there are limited public policy efforts aimed at addressing the sexual objectification of girls and women, including female athletes, in media and consumer culture, as well as the impacts of this objectification on young people. However, in 2010, the Healthy Media for Youth Act was introduced in Congress. This bill would provide \$250 million over five years for research on how depictions of women and girls in media affect youth as well as youth empowerment and media literacy programs. It also called for the creation of a task force to help guide the media industry in creating more positive images of girls and women aimed at benefitting all young people. Unfortunately, the bill did not progress out of committee and was not enacted. However, this type of legislation could be an important step



by the federal government to address the problematic portrayals of women, including female athletes, in media.

In the non-profit world, grassroots activist Leslie Scott founded the organization Youth Protection Advocates in Dance ([ypad4change.org](http://ypad4change.org)). The organization's mission is to prevent the objectification and sexualization of youth dancers. Her organization has created a dance education certification program for dance instructors, judges, and parents as well as studio owners and competition/convention organizers. The program provides education about the emotional, physical, and sexual safety of youth with the aim of protecting youth dancers from sexual exploitation. A similar model could be extended to youth sport leagues as well as high school and college sports. Public policy at the local and state levels could mandate this type of certification for all adults connected to youth sports and youth athletes.

## Resources

- APA Task Force on the Sexualization of Girls(<http://www.apa.org/pi/women/programs/girls/index.aspx>)
- SPARK Movement (<http://www.sparkmovement.org>)
- The Aspen Institute (<https://www.aspeninstitute.org/>)
- The Sport, Health, and Activity Research and Policy Center (SHARP) (<http://sharp.research.umich.edu/>)
- Tucker Center (<http://www.cehd.umn.edu/tuckercenter/>)
- Women's Sports Foundation (<https://www.womenssportsfoundation.org/>)
- Youth Protection Advocates in Dance ([www.ypad4change.org](http://www.ypad4change.org))

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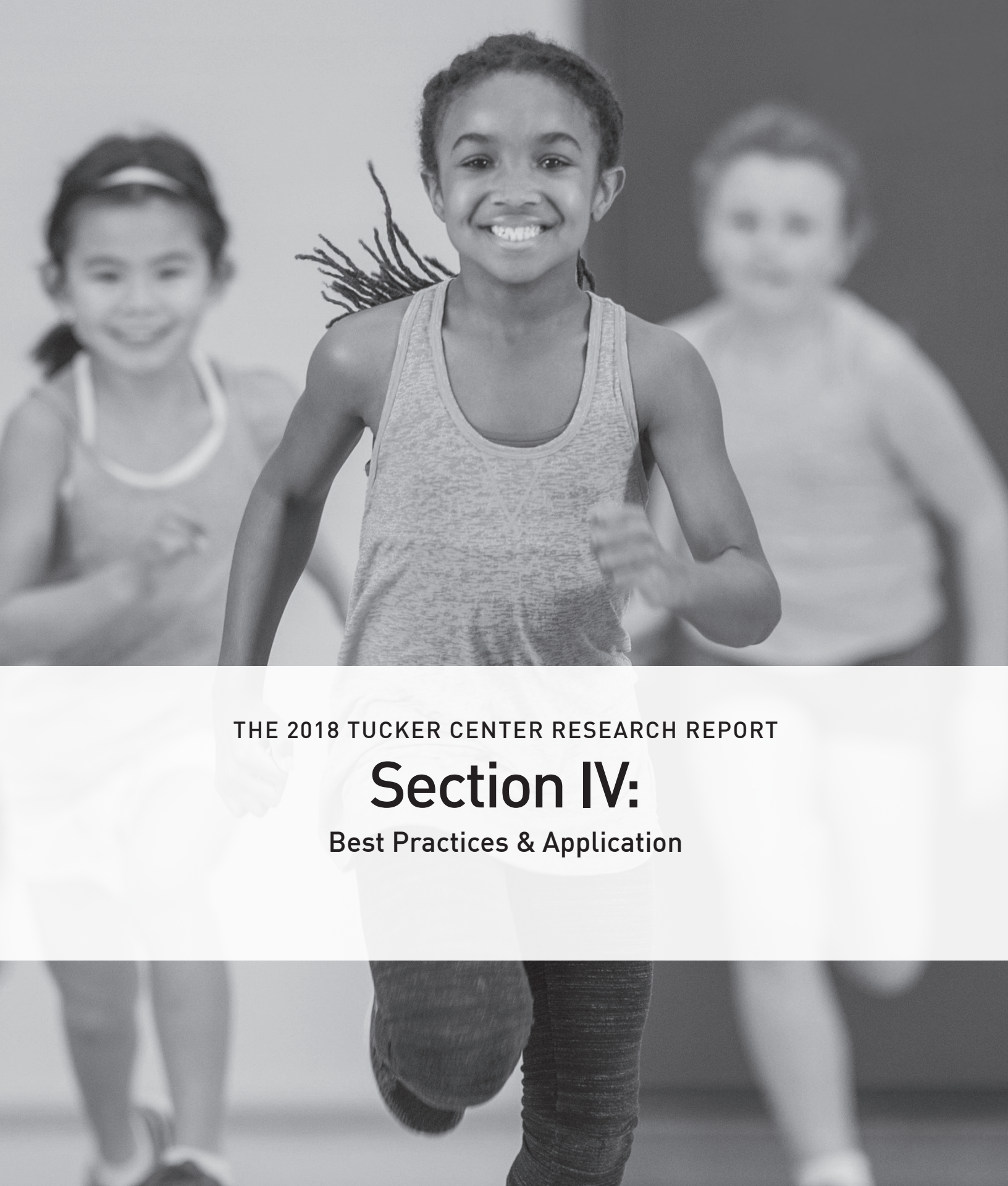
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THE 2018 TUCKER CENTER RESEARCH REPORT

# Section IV:

Best Practices & Application





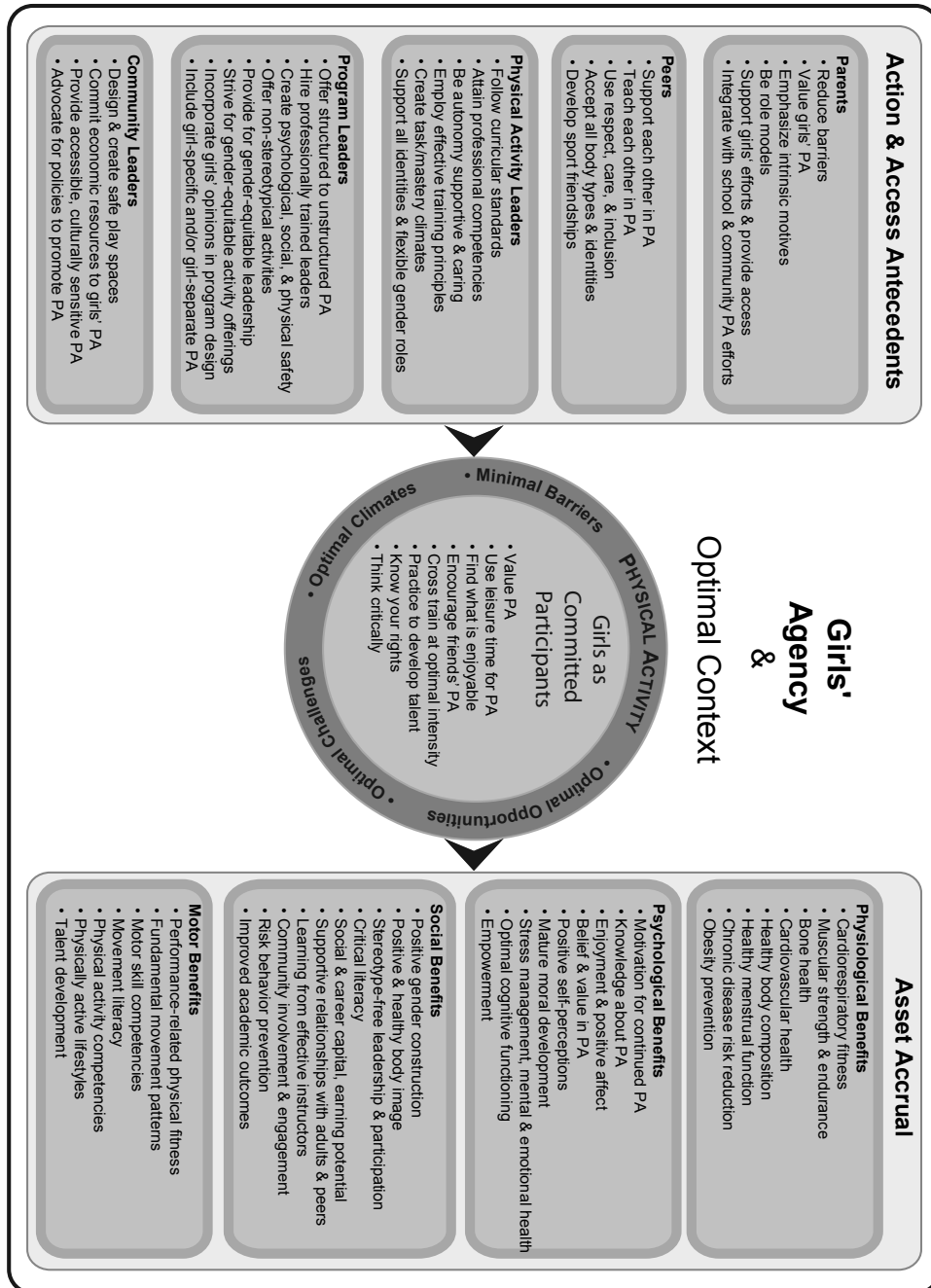
# Girls' Physical Activity Participation: A Best Practices Model and Summary

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In our 2007 *Tucker Center Research Report* we proposed and outlined an *Evidence-Based Multidisciplinary Model for Developing Physically Active Girls* (Wiese-Bjornstal & LaVoi, 2007). This model reflected integrated, research-based recommendations from recognized experts, institutes, national entities, and governing bodies. We hoped this model would help stakeholders, physical activity administrators and professionals structure effective programmatic design for physical activity opportunities for girls. Ten years later, we believe this model stands up to the test of time (See Figure 11.1) and the chapters in this report highlight its relevance and salience.

Our model begins on the left side by outlining the role of five antecedent social groups (detailed in Chapter 2) that positively influence girls' physical activity participation through providing access and their use of evidence-based action strategies. This comprehensive social/team approach increases the likelihood for optimal physical activity contexts into which the girls themselves, identified in the core of the model, enter and engage. These social groups align with the interpersonal level of the *Ecological-Intersectional Model of Physical Activity of Girls* (EIM) presented in Chapter 1. Social agents also have power within the system to advocate for, change and/or develop, and implement physical activity programming for girls in schools and communities, represented by the environmental level of the EIM. These PA contexts should provide optimal opportunities, challenges, and climates, and offer minimal barriers. Girls, located at the center individual level of the EIM model, have agency, play an autonomous role and must be committed participants in these contexts through their own psychological, social, and physical engagement. Experiences in optimal physical activity contexts result in interrelated clusters of developmental health outcomes and assets that can accrue: physiological, psychological, and social, which were summarized in Chapter 1. Throughout girls' growth and development, these processes continue to positively influence their long-term engagement in, and commitment to, physically active lifestyles, and girl-focused or girl-only physical activity programs help achieve this important goal.

**FIGURE 11.1 AN EVIDENCE-BASED MULTIDISCIPLINARY MODEL FOR DEVELOPING PHYSICALLY ACTIVE GIRLS, 2018**



Modified and reproduced from Wiese-Bjornstal, D. M., & LaVoi, N. M. (2007). Chapter 5: Girls' physical activity participation: Recommendations for best practices, programs, policies, and future research. In M. J. Kane & N. M. LaVoi (Eds.), *The 2007 Tucker Center Research Report, Developing physically active girls: An evidence-based multidisciplinary approach* (pp. 63-90). Minneapolis, MN: The Tucker Center for Research on Girls & Women in Sport, University of Minnesota.

## The Importance of Girl-Focused or Girl-Only Physical Activity

In youth sports children are arbitrarily segregated by sex early in their ‘sport careers’—typically by age 7-8—while in physical education, co-education classes are the norm through high school. Many scholars have argued that most PA contexts reinforce gender stereotypes in ways that disadvantage girls and celebrate characteristics typically associated with masculinity such as power, strength, speed, and aggressiveness (see Duncan, 2007). Girls in single-sex classes get equal amounts of PA and participate with similar intensity compared to girls in co-ed classes (McKenzie et al., 2006). However, research clearly indicates girls tend to prefer single-sex PA for *many* reasons including freedom from constant comparison to boys, freedom from boys’ scrutiny and critical comments, dominance of space by boys, increased opportunity to develop skills and relationships, increased enjoyment, increased attention from instructors, and less embarrassment and worry about body image (Derry, 2002; Hannon & Ratliffe, 2005; Olafson, 2002; Taylor et al., 1999). In interviews with adolescent urban African American girls, Ries and colleagues (2008) found girls had no interest in “playing with the boys.” Single-sex PA also provides less-skilled and overweight/obese girls a less intimidating environment in which to participate (Neumark-Stzainer, Goeden, Story, & Wall, 2004) and accommodates girls who desire to be physically active but wish to uphold cultural and religious practices of privacy and modesty (Thul & LaVoi, 2011). Programs designed specifically for girls can provide a psychologically and physically safe space where underserved girls find a ‘second home,’ develop their sense of self, express their voices, and develop and nurture positive relationships with peers and adult staff (Hirsch et al., 2000; Loder & Hirsch, 2003).

Feminist scholars have long argued that providing opportunities for girls to find, use and maintain their voices through adolescence—a time when self-esteem plummets—is imperative for healthy psychological development. A strong “voice”—literally and psychologically—that can be developed in sports-based youth development (SBYD) programs, may counteract the effects of outdated gender stereotypes and the bombardment of sexualized media images that communicate to girls their value is contingent on how they look, rather than what they can do. Chapter 10 of this report outlined the deleterious effects of sexualization experienced by girls. The high cultural value placed on physical attractiveness can result in girls experiencing reduced cognitive functioning, low self-esteem, eating disorders, depression, diminished sexual health, and internalization of damaging gender stereotypes (American Psychological Association [APA], Task Force on the Sexualization of Girls, 2007). That report also recognized that PA can be a powerful counterweight for negating the effects of sexualizing females and raises the stakes in ensuring that *all* girls have

the opportunity to participate. When they do so, they have an opportunity to experience a context that can lead to positive youth development and health.

## Programs for Girls that Show Promise

### PHYSICAL ACTIVITY PROGRAMS FOR GIRLS

The early version of the *GirlSports* Basics program of the Girl Scouts is one which effectively taught girls ages 5 to 8 beginning sports skills (e.g., underhand and overhand throws, catching, kicking with the top and inside of the foot, striking, and batting) (McNair & Hwalek, 2003). Through the current *GirlSports* model, girls are encouraged to try new sports and practice attributes like fair play and good sportsmanship to earn “Legacy Athlete” badges (Girl Scouts, 2013). The *Lifestyle Education for Activity Program* (LEAP), designed to enhance girls’ PA self-efficacy and enjoyment and to teach the physical and behavioral skills needed to adopt and maintain an active lifestyle, has also proven effective as girls in the school-based intervention were more physically active after one academic year of exposure to the program than girls in control schools (Pate et al., 2005), and remained more physically active three years later thanks to continued exposure to elements of the program (Pate et al., 2007). *New Moves*, a PA intervention for adolescent girls that teaches girls about healthy eating and PA, has shown promise in developing underserved girls’ physical assets (Neumark-Stzainer, Story, Hannah, & Rex, 2003) and improving sedentary activity, eating patterns, and body/self-image (Neumark-Stzainer et al., 2010). Program materials are available on the New Moves website and can be adapted to different school schedules and age groups (New Moves, 2009).

Many SBYD programs exist around the globe and in the U.S. but few in the U.S. have undergone rigorous empirical evaluation. To access some high quality global SBYD programs for girls, run in partnership with Women Win, which are evaluated through the B.A.C.K.S. theory of change (Behavior. Attitude. Cognition. Knowledge. Status) visit their website at [womenwin.org](http://womenwin.org). Women Win's mission is to connect global sport, development and women's movements (WomenWin.org, 2018). A summary of high quality SBYD programs in the U.S. follows, including one specifically designed for girls.

### Sports-based Youth Development

Positive youth development emphasizes the potentialities of young people, rather than their supposed incapacities—including young people from the most disadvantaged backgrounds and troubled histories (Damon, 2004). In the last decade, research in youth development has increased (Weiss & Wiese-Bjornstal, 2009). A parallel interest in the role

of sports as a context for fostering positive youth development is on the rise, which includes interest by scholars in a variety of disciplines such as youth development, psychology, public health, epidemiology, and child development. This growing multidisciplinary interest builds on 30+ years of research and application by scholars in sport psychology, sport science, youth sport, and sport pedagogy (Weiss, 2016). In an attempt to centralize efforts and provide a common understanding, Perkins, Madsen, & Wechsler (2008) recently offered the following definition of sports-based youth development (SBYD):

*“Sports-based youth development is a methodology that uses sports to provide the supports and opportunities youth need to be healthy contributing citizens now and as adults. A sports-based youth development program offers youth an experience in which they learn and master sports skills along with life and leadership skills in a safe, fun, supportive, and challenging environment. This experience involves caring relationships, facilitated learning, experiential learning, and vigorous physical activity”* (p. 1).

This definition combines recommendations from the National Research Council & Institute of Medicine (2004) with the work of various youth development scholars under an inclusive, yet specific, rubric which will help forward research and best practices. Existing positive youth development models have traditionally treated physical assets in a somewhat minimal and generic way (Wiese-Bjornstal & LaVoi, 2007), but this new SBYD definition makes explicit the role of developing physical assets simultaneously, alongside psychological and social assets. According to the American National Research Council, eight features are necessary in a youth context in order for it to be considered a positive developmental setting: physical and psychological safety, appropriate structure, supportive relationships, opportunities to belong, positive social norms, support for efficacy and mattering, opportunities for skill building, and integration of family, school, and community efforts (2002).

The scarcity of programming and research on SBYD programs for girls, and underserved girls in particular, necessitates a broader definition of “sports” to include PA. This broader conception of structured PA includes emerging activities valued and preferred by girls such as double Dutch, cheerleading, and dance (Sabo & Veliz, 2008) and different contexts like residential summer camp (Povilaitis & Tamminen, 2017). One of the most popular, meaningful, and culturally-relevant activities in the lives of many girls is dance—including East Indian (Bhalla & Weiss, 2010), East African (Thul & LaVoi, 2011) and White, African American, Hispanic, and Asian girls (Sabo & Veliz, 2008). In fact, girls from 3<sup>rd</sup> to 12<sup>th</sup> grades cited the physical activity they most frequently participated in within the last year—is dance (Sabo & Veliz, 2008).



## Sports-based Youth Development Programs

High quality SBYD programs are research based, structured, intentionally conducted sports-based activities that establish positive and supportive environments, develop sustained, positive peer-peer and youth-adult relationships, and deliberately focus on building youth's capacity and skills (Perkins & Wechsler, 2008; Weiss & Wiese-Bjornstal, 2009). Life skills are intentionally and concurrently taught alongside sport skills, and a direct connection exists between skills that can be acquired through sport or PA and other life domains (Petitpas, Cornelius, Van Raalte, & Jones, 2005). While a number of grassroots SBYD programs likely exist, a small number have, by design, combined the principles of positive development and youth sport—fewer yet have been systematically and rigorously evaluated (Holt, Tink, Mandigo, & Fox, 2008) with results published in peer reviewed journals. Examples of SBYD programs include, *The First Tee* (Weiss, Bolter, Bhalla, & Price, 2007; Weiss, Bolter, Bhalla, Price, & Markowitz, 2008), *Play it Smart* (Petitpas, Cornelius, Van Raalte, Presbrey, 2004), *Sports4Kids*, *Sports United to Promote Education and Recreation (SUPER)* (Brunelle, Danish, & Forneris, 2007), and the *Teaching Personal-Social Responsibility Model (TPSR)* (Hellison & Walsh, 2002). *The First Tee* is one program that has undergone rigorous quantitative and qualitative evaluation. Longitudinal evidence gathered by Maureen Weiss and colleagues at the University of Minnesota demonstrates that it is emerging as an exemplary SBYD program. Not only are *The First Tee* coaches trained using an SBYD research-based curriculum, but data collected over four years indicates interpersonal communication, self-management, and goal setting skills are learned in the context of golf and that life skills are successfully transferred to contexts outside golf such as school and the workplace (Weiss, et al. 2007; 2008).

## Critique of Sports-based Youth Development Programs

It is important to note that SBYD programs, as “positive” as they may seem (pun intended!), are not without critique. These critiques in part provided guidance and impetus for inclusion of a broader scope of factors and identities that influence girls’ physical activity in this report than was within our 2007 report. Sport sociologist Jay Coakley (2011) writes that the SBYD approach stresses the importance of self-confidence/efficacy/esteem in overcoming barriers, making choices, and improving one’s life. He argues a narrow focus on personal assets is based on,

“assumptions about the need for increased individual responsibility and making acceptable life choices. Regardless of social class, positive development in most sport programs was not defined in terms of the need for social justice, rebuilding

strong community-based social institutions, reestablishing the resource base of the communities where young people lived, or empowering young people to be effective agents of social change in their communities" (p. 313).

Coakley argues that infusing traditional individual attribute SBYD programs with sociological constructs can help program leaders and participants better learn about factors that negatively affect their lives and how to participate collectively in efforts to change those factors. The transformative approach Coakley outlined has an individual-based focus but also includes critical thinking about multiple levels of the system including power relations, empowerment, decision making, community organizing, civic engagement, and power-sharing between adults and youth.

Rasucher and Cooky (2016) [authors of Chapter 3] provide a more complete critique of girl-centered or girl-focused SBYD programs that focus on girls' problems of "personal responsibility, individual-level empowerment, freedom from government intervention and support, preparing for the formal labor market, and consumerism" (p. 291) but does little to confront questions of social inequality, sexism, racism, homophobia, abuse, and poverty. Rauscher and Cooky argue most girl-centered, sports-based positive youth development programs often are ill equipped, unable, or unwilling to address these complex cultural realities where girls live and unwittingly reproduce the gender status quo. They believe and we at the Tucker Center agree, that "by incorporating a feminist, sociological perspective, sports-based positive youth development programs for girls [can be] ideally situated to expand on their existing strengths to attend to the structural and cultural dimensions of girls' lives alongside their individual and interpersonal lives" (p.294).

To our knowledge, very few, if any, SBYD programs exist in the United States that are *girl-centered* or *specifically designed for girls* that include the broad social justice approach outlined by Rauscher and Cooky, and even fewer are rigorously evaluated. Only one SBYD girl-centered program has undergone rigorous empirical evaluation—**Girls on The Run**, a primarily individual-level empowerment-focused program. We note there are *many* other girl-focused or girl-serving physical activity and health programs in existence that are impacting girls, (e.g., *GoGirlGo!* a program designed to improve the life skills, health and physical activity of girls), however we chose here to highlight rigorously evaluated SBYD programs.

## Sports-based Youth Development Programs for Girls

***Girls on the Run International (GOTR).*** Girls on the Run is on the leading edge of girl-focused, SBYD programming and research. Girls on the Run is a nonprofit organization that uses running as a vehicle for teaching life skills to girls in third through fifth grades. The three-part curriculum teaches understanding of self, valuing relationships and teamwork,

and exploring one's connection to the world. The *GOTR* curriculum includes an intentional life skills curriculum and mandatory annual coach training set Girls on the Run apart from other SBYD programs. The three-part curriculum teaches specific and well-defined social and personal skills including understanding of self, valuing relationships and teamwork, and exploring one's connection to the world using experiential learning through running and (*Girls on The Run*, n.d.).

Most evaluation of GOTR encompasses participants one or two local chapters. Formative evaluation of GOTR 5<sup>th</sup> and 6<sup>th</sup> grade participants (20% girls of color) indicated significant positive changes in self-esteem, PA levels, body satisfaction, positive eating attitudes (DeBate & Thompson, 2005), and physical activity behaviors (DeBate, Pettee, Gabriel, Zwald, Huberty, & Zhang, 2009) but results were not broken down by racial or income-level designators (DeBate & Delmar, 2006). A peer-reviewed GOTR evaluation of sixth graders (25% girls of color) found increasing, but not significant, trends of girls' perceived physical competence, physical appearance, and self-esteem (the small sample size likely limited statistical power). Yet interviews indicated participants experienced positive development as a result of their participation in GOTR (Waldron, 2007).

Another research team evaluated one local chapter of GOTR and in their study, girls reported statistically significant improvements between the pre- and post-tests measures for objectified body consciousness and body esteem; in addition, girls' reported they worried less about how they looked, had greater body satisfaction, and compared themselves to others less frequently (Rauscher, Kauer & Wilson, 2013). However, despite these positive outcomes Rauscher et al. argued that organizational messages, and interactions with volunteer coaches and peer participants, sent mixed messages to girls about characteristics of a "healthy body." Many girls in their study described "strong and healthy bodies in ways that emphasized external, physical attributes reflective of both the culture of thinness and fat phobia (Rauscher et al., 2013, p. 225)", which illuminates the paradoxical and difficult task of developing a well-designed, comprehensive girl-focused SBYD program without reinforcing damaging gendered body ideals. Ullrich-French, Cole and Montgomery (2016) pointed out that evaluation evidence about GOTR is limited in scope.

More recently Weiss [co-author of Chapter 2] and her research team at the University of Minnesota conducted a first-of-its kind national, independent, longitudinal methodologically-rigorous evaluation study of GOTR. Results indicated GOTR had a profound and lasting positive impact on girls' confidence, competence, connection to others, character, caring, and life skills (2017). Weiss's study revealed that:

- Girls on the Run participants were significantly more likely than girls in organized sport and physical education to learn and use life skills including managing emotions, resolving conflict, helping others or making intentional decisions.

- 97% of girls said they learned critical life skills at Girls on the Run that they are using at home, at school and with their friends
- Girls who began the program with below-average scores dramatically improved from pre- to post-season on all outcomes—competence, confidence, connection, character, and caring. This shows that girls who might need a positive youth development program benefited most from their participation.
- Girls who were the least active before Girls on The Run increased their physical activity level by 40% from pre- to post-season and maintained this increased level beyond the program's end.

These positive outcomes, Weiss (2017) stated, were a direct result of the intentional life skills curriculum delivered by caring and compassionate coaches trained to use a mastery-oriented and autonomy-supportive interpersonal style to bring about physical and life skill learning and positive psychological and social development of girls. With any program, the fidelity and integrity of the curriculum and its outcomes on girls depends on how the program is delivered and by whom.

Many barriers that can arise during GOTR or any SBYD program implementation including “contextual/environmental factors (e.g., parental involvement, relationships with school personnel), organizational factors (e.g., implementation support and responsiveness of staff), program-specific factors (e.g., curriculum design), coach factors (e.g., existing relationships with participants, responsiveness to participant's needs), and youth factors (e.g., “behavioral and discipline issues,” (p. 1) (Iachini, Beets, Ball, & Lohman, 2014) and difficulties with transportation or social cliques (Bean, Forneris, & Halsall, 2014). While no program is without critique, GOTR is an exemplar girl-focused SBYD curriculum that has been empirically evaluated over time, across the country, and based on the data, GOTR can lead to positive outcomes and asset accrual.

## Best Practices

The following best practices complement and extend the recommendations made by Wiese-Bjornstal and LaVoi in the *2007 Tucker Center Research Report* and authors of chapters in this report, highlight aspects of Figure 11.1, have emerged from the process of writing this report, and are specific to underserved, but benefit all, girls.

- Listen to the voices of underserved girls to help develop culturally relevant programming for girls. Programs should include structured activities based on the girls' interests that foster psychosocial, emotional and physical well-being.
- Listen to the families of underserved girls to help develop culturally relevant programming for girls.

- Structure and offer girl-only programs whenever possible.
- Invite, recruit, and train diverse, culturally sensitive female instructors—who can serve as valuable and much needed role models for girls. Conducting female-only coaching clinics run by females, pairing up women with an experienced female coach-mentor, encouraging and facilitating a “buddy system” for novice coaches so they can “do it together,” and providing child care during clinics will help increase the recruitment and retention of female coaches.
- Ensure safe, quality, accessible facilities in close proximity to where underserved girls live whenever possible to reduce the transportation barrier many underserved families face. If safe, quality facilities are not available in underserved communities, free transportation to an existing program or facility should be provided for girls.
- Encourage open communication between program coordinators and parents to discuss parental concerns regarding their daughter’s safety, supervision, participation, and activity choices.
- Disseminate culturally relevant programs in culturally sensitive ways. Programs should be promoted in both English and ethnic-language translations as well as through a variety of modes of communication so that all girls and their families, regardless of the language they speak and methods of communicating they possess (i.e., phone, word of mouth, written materials, computer), will know about and understand what culturally relevant programmatic opportunities exist in their communities.
- Encourage a collectivistic and community-based rather than an individualistic perspective when it comes to increasing the physical activity of underserved girls. Emphasize collective responsibility (i.e., parents, communities, schools, policy makers, media) helps reduce the possibility of further marginalizing girls by placing the sole responsibility (and blame) of being physically active on the shoulders of the girls themselves. It is *everyone’s* responsibility to help *all* girls be physically active, as well as to help reduce participation barriers and health disparities among underserved girls.
- Include a critical media literacy component in SBYD and physical education and health curricula that help underserved girls create strong identities, critique cultural messages, and resist dominant ways of thinking about health and PA that are linked to White, Western, affluent, sexist, and racist ideals, in addition to helping girls create strategies for action and transformation (Oliver & Lalik, 2004, Rauscher & Cooky, 2016).
- Teach girls about their human rights.

## Future Directions for Research

Research using diverse methods—quantitative, qualitative, or mixed—is needed to better understand the intersections of barriers, cultural context, the lived experiences of girls with various intersectional identities, and outcomes of participation for underserved girls. Based on the gaps in the literature, a list of future research recommendations follows. Research is needed pertaining to the:

- Intersection of geography, gender, race and class, physical activity programming, participation, and outcomes for underserved girls. Little is known about underserved White girls in the urban core, rural girls, girls with cognitive or physical disabilities, or specific sub-populations of girls such as Hmong, East African, Native American, or Middle Eastern. The intersectionality of girls needs more consideration in research design.
- Social and environmental determinants of health for underserved girls
- Program evaluation of SBYD programs for underserved girls
- Program evaluation of girl-only versus co-educational SBYD programming, specific to underserved youth
- Physical activity beliefs, interests, and perceived barriers of populations of diverse girls is needed to inform culturally relevant PA programming
- Mechanisms of how PA involvement leads to career success, academic outcomes, life skill transference, and asset development for underserved girls
- Combined and intersecting social influence of coaches, parents, peers, and siblings on PA participation and resulting outcomes for underserved girls
- Parental influence within families that may be more controlling and restrictive of their daughter's PA due to cultural or religious norms that govern the behaviors and activities of girls. Research is needed to better understand how to appeal to and enlist the support of parents of these groups of underserved girls
- Distinctive and overlapping roles of mothers and fathers in the lives of underserved girls—particularly mothers who can be (and often are) unique role models for their daughters. Scarce research, if any, examines the role of grandparents in girls' PA.
- Understanding of how governmental, medical, and “expert” advice, messages, and programming around physical inactivity and the “obesity epidemic” are actually perceived and integrated by underserved children and youth and their families, in all of their diversity (McDermott, 2007)

- Effects of how the framing of health, well-being, and PA, primarily by White Western “experts” and researchers, can further stigmatize and marginalize underserved girls
- Diverse perspectives of how health and physical activity is understood and enacted by underserved girls, particularly girls who have immigrated from non-Westernized cultures
- Participation of underserved girls in organized PA on risky behavior patterns (i.e., substance use, truancy, early sexual activity)
- Physicality of underserved girls—how girls experience their bodies and construct identities in and through physical activity
- Supports that help girls’ with various identities become physically active and stay physically active across the developmental trajectory

## Policy Recommendations

Policies are a powerful source that reinforce inequity or provide resistance and change. Our hope is at the local, regional, state or national level, policy makers can use the information in this report to push for and create change that benefits girls in a variety of physical activity contexts. these recommendations complement specific topic based recommendations in each chapter.

- Promote legislative initiatives and state and national policy recommendations and guidelines to require daily, quality, structured, and culturally diverse (i.e., including dance and other cultural activities in the curriculum) physical education and recess for grades K-12 taught by certified/licensed physical education teachers in all schools—particularly those (i.e., low-income, urban schools) serving underserved girls. PE and recess programming are contexts where underserved girls—who may not have available cultural programming or the funds to participate in physical activity in out-of-school contexts—can be assured of acquiring the physical activity necessary to reduce the risk of chronic health conditions. It is imperative for the health and well-being of underserved girls to encourage such legislation.
- Encourage the allocation of government (at both the state and national level), corporate, and non-profit funding to support the provision of inexpensive and/or free culturally relevant physical activity programming for populations of underserved girls. Also, encourage the creation of scholarship programs for underserved girls who want to participate in more costly physical activity and sports programming.



- Encourage sports-based program development that provides optimally challenging and culturally sensitive activities and caring, qualified adult leaders, and helps girls challenge and/or resist societally imposed gender roles.
- Provide legislative initiatives at the state level to fund and develop natural and built environments in all neighborhoods, schools, and communities that is safe and helps all girls, including those with physical disabilities, be physically active close to home.

## Conclusion

Girls are one of our nation's greatest assets, but many girls fail to achieve their full potential due to a multitude of barriers that make it nearly impossible to participate in physical activity to their full extent or to the extent they desire and deserve. Based on the data over the last ten years, trend lines indicate the physical activity of girls is stagnant at best and likely decreasing slightly, gendered participation disparities exist, and participation disparities disproportionately impact underserved girls. Based on the chapters in this report we offer three 'big picture' conclusions:

1. Caring, positive **social relationships that foster inclusivity are important** for the holistic development for all girls. Often relationships in physical activity contexts are not inclusive, caring or positive, which can lead to inactivity and a host of negative psychosocial and physical outcomes for girls.
2. Gendered expectations and **sociocultural forces continue to shape** the opinions, values and behaviors of adult stakeholders in girls' sports, and well as the experiences of girls.
3. **Girls are not a monolithic group** and attention to the intersectional identities of girls matters, and the social, environmental and sociocultural system within which girls live, warrants more consideration so that *all* girls have the opportunity to reap health and developmental outcomes in and through physical activity participation.

It is clear from the data that White, suburban, middle-upper class, able-bodied girls are being served to the greatest extent, but even they are increasingly inactive as they mature. Underserved girls face the challenge of having to develop a sense of personal worth within the context of poverty, racism, and sexism. Sports-based youth development programs have great potential to help meet the needs of girls, particularly underserved girls, through caring relationships and by providing an opportunity for vigorous physical activity in a safe, fun, supportive environment where sports skills are learned and mastered along with life and

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to achieve their  
full potential.

leadership skills in a challenging environment. However, SBYD programs for girls *must* include aspects of critical thinking, community engagement and collective empowerment. This report provides evidence-based information from a variety of disciplines and a road map for practitioners, policy makers, and researchers to help them collectively strive for much-needed social and structural changes that will make a difference in the lives of girls through physical activity. Each chapter in the *2018 Tucker Center Research Report* provided up-to-date domain specific evidence-based information, best practice recommendations, and policy recommendations aimed to help to ensure girls are physically active and healthy, gaps in knowledge, and relevant and key resources relevant to that chapter topic.

In this third version of the *Tucker Center Research Report, Developing Physically Active Girls An: Evidence-based Multidisciplinary Approach* we aimed to be more inclusive, broad-based and comprehensive in our approach to thinking and writing about girls' physical activity. Our goal is this report is utilized so that every girl, regardless of identity or context, is provided the fundamental human right and opportunity to participate in physical activity. We hope you enjoy and apply the knowledge herein and we always welcome and appreciate your feedback.

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