

# HER LIFE DEPENDS ON IT III:

**Sport, Physical Activity, and the Health and Well-Being of  
American Girls and Women**

**Executive Summary**

**May 2015**

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**A Women's Sports Foundation Report**

## Women's Sports Foundation Acknowledgments

This report is an update of the original report released in 2004 and again in 2009. The overall framework of the original report remains intact here, and all credit must be extended to the co-authors of the original report. Those individuals were Don Sabo, Ph.D., Director, Center for Research on Physical Activity, Sport and Health, D'Youville College, Buffalo, NY.; Kathleen E. Miller, Ph.D., Research Scientist, Research Institute on Addictions, State University of New York at Buffalo; Merrill J. Melnick, State University of New York at Brockport, Department of Physical Education and Sport; and Leslie Heywood, Ph.D., Professor of English and Cultural Studies, State University of New York at Binghamton. The 2009 update was co-authored by Ellen J. Staurowsky, Ed.D., Professor and Graduate Chair, Department of Sport Management and Media, Ithaca College, Ithaca, NY; Kathleen E. Miller Ph.D., Research Scientist, Research Institute on Addictions, University of State University of New York at Buffalo; Sohaila Shakib, Ph.D., Associate Professor and Faculty Athletics Representative, Department of Sociology, California State University-Dominiquez Hills; Mary Jane De Souza, Ph.D., Professor and Co-Director, Women's Health and Exercise Laboratories, The Pennsylvania State University; Gaele Ducher, Ph.D., Research Fellow, Center for Physical Activity and Nutrition Research, Deakin University; Noah Gentner, Ph.D., Assistant Professor, Georgia Southern University; Nancy Theberge, Ph.D., Professor, Departments of Kinesiology and Sociology, University of Waterloo; and Nancy I. Williams, Ph.D., Associate Professor and Co-Director, Women's Health and Exercise Laboratories, The Pennsylvania State University.

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## About the Women's Sports Foundation

The Women's Sports Foundation—the leading authority on the participation of women and girls in sports— is dedicated to creating leaders by ensuring girls access to sports. Founded by Billie Jean King in 1974, our work shapes public attitude about women's sports and athletes, builds capacities for organizations that get girls active, ensures equal opportunities for girls and women, and supports physically and emotionally healthy lifestyles. The Women's Sports Foundation has relationships with more than 1,000 of the world's elite female athletes and is recognized globally for its research, leadership, vision, expertise and influence. For more information, please call the Women's Sports Foundation at 800.227.3988 or visit [www.WomensSportsFoundation.org](http://www.WomensSportsFoundation.org).

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# EXECUTIVE SUMMARY

*Her Life Depends On It III* (HLD0I) is the Women's Sports Foundation's comprehensive report that reviews existing and emerging research on the links between participation in sport and physical activity and the health and well-being of American girls and women. As with the previous editions in 2004 and 2009, this study also confirms that physical activity and sport provides the critical foundation, in no small part, that allows girls and women to lead healthy, strong, and fulfilled lives. Ten years since its first publication, the updated *Her Life Depends On It* provides an even more comprehensive review of the ever-expanding body of research that demonstrates how important it is for girls and women to participate in sport and physical activity. The report's contents reflect the review of 1,500 studies, nearly 400 covered since the previous edition. While the report's focus continues to be on U.S. girls and women, selected research findings that offer perspective regarding girls and women worldwide is also referenced in order to provide some perspective and context. In keeping with previous editions of the report (Sabo et al, 2004; Staurowsky et al., 2009), this updated review of existing research and health information is co-authored by a team of experts from several related disciplines, including epidemiology, exercise physiology, kinesiology, psychology, sociology, and sport management.

*Her Life Depends On It III* documents the important role physical activity can play in helping to prevent the daunting array of health risks for girls and women, such as cancer, coronary heart disease, osteoporosis, Alzheimer's Disease and related dementias, eating disorders, illicit drug use, obesity, risky sexual behavior and teen pregnancy, and tobacco-related diseases. In addition to documenting the contributions of sport and physical activity to girls' and women's health and well-being, this version of *Her Life Depends On It* provides an overview of:

- emerging research on several health risks that are associated with overtraining and athletic participation;
- targeted research focusing on sport and physical activity in the lives of girls and women of color;
- new studies that point to effective strategies designed to prevent injuries from happening;
- new knowledge regarding the effects of concussions and recovery from concussions for female athletes;
- new findings that reveal positive connections between physical activity and academic achievement in girls and women;
- issues faced by females with disabilities seeking to participate in sport and physical activity; and

- what is known about the expanse of sexual violence in the sport environment that affects girls and women.

With the clarity of a ringing bell, research affirms, even more definitively than five years ago, that engagement in moderate and consistent levels of physical activity and sport for girls and women is essential to good health and well-being. Some key contributions of this new report include the following:

- **Girls and Women Shortchanged:** As a general trend, females across the board, regardless of age, race, or social class, are shortchanged in realizing the benefits of participation in physically challenging activities. However, females from lower economic backgrounds, females of color and females with disabilities suffer even greater negative health consequences as a result of less engagement in physical activity and less access to sport and physical fitness programs.
- **Girls and Women Not Always Safe and Secure in Sport and Physical Activity Settings:** Safety and security are primary areas of concern for girls and women in sport and physical activity environments. Research speaks to this in three ways:
  - **Vulnerability to Concussion:** Female athletes report higher rates of concussions than male athletes in some sports, experience concussions differently than males, and tend to take longer to recover.
  - **Unsafe Venues Pose Barriers to Participation:** Venues such as parks, walking trails, and community gyms that are unsafe and lack security pose barriers to participation for females.
  - **Sexual Violence:** Too many girls and women involved in sport and physical activity are subjected to sexual violence perpetrated by athletes, teammates, coaches, officials and administrators, and others.

Within the United States, the Institute of Medicine defined public health as the collective actions undertaken by a society “to assure the conditions for people to be healthy” (Committee for Assuring the Health of the Public in the 21st Century, 2002). The research compiled in this updated report strongly suggests that sport and physical activity provide conditions that help to ensure girls’ health and well-being (physical, social, psychological, and academic). The full report offers expansive documentation on the impact sport and physical activity has in the lives of girls and women. Some important selected findings identified in this report relate to:

- **Breast Cancer Risk:** A review of large physical activity clinical trials demonstrated physical activity improves breast cancer survival rates (Fontein et al. 2014). Based on the findings from 23 studies examining the effect of moderate and vigorous physical activity during adolescence on cancer risk, those who had the highest physical activity during adolescence and young

adulthood were 20% less likely to get breast cancer later in life (Lagerros, Hsieh, & Hsieh, 2004).

- **Osteoporosis:** A study of first- and fifth-grade boys and girls who participated in a school-based daily physical education program with at least 10 minutes of jumping or strength-training exercises of vigorous intensities found improvements in bone health for both genders, which were particularly notable for youth before puberty (Meyer et al., 2011).
- **Smokeless Tobacco:** Among NCAA athletes surveyed in 2009, 27% of men and 2% of women had used smokeless tobacco in the past year. Female softball players reported higher rates (6%) than women in most other sports (e.g., 3% in field hockey and lacrosse, 2% in soccer, and less than 1% in track). However, male athletes reported considerably higher rates in nearly every sport (e.g., 52% in baseball, 54% in ice hockey, 16% in soccer, 9% in track) (NCAA, 2012).
- **Illicit Drug Use:** High school girls who participate in exercise or sports are significantly less likely to use marijuana, cocaine, or most other illicit drugs. The protective effect of sports appears to be strongest for white girls (Miller et al., 2001; Pate et al., 2000; Terry-McElrath & O'Malley, 2011).
- **Risk of Sexual Victimization:** The link between sports participation and sexual victimization is unclear. In one study testing a "sport protection" hypothesis, female athletes were significantly less likely than non-athletes to be victimized during their late high school and early college years (Fasting et al., 2008). A second study, finding that female college athletes actually reported higher incidences of rape and attempted rape, offered two possible explanations. Female athletes tend to drink more heavily and to socialize with male athletes, who have higher-than-average rates of sexual aggression, placing them at greater situational risk for sexual coercion (Brown et al., 2013).
- **Depression:** Moderate levels of exercise and/or sports activity helped protect girls and women against depression (McKercher et al., 2009; Sanders et al., 2000).
- **Suicide:** Women with major depression who participated in some physical activity were less likely to experience excessive guilt and to make a suicide plan (McKercher et al., 2013). Female high school/college athletes were less likely to consider, plan, or attempt suicide (Brown & Blanton, 2002; Brown, Burton, & Rowan, 2007; Sabo et al, 2005; Taliaferro et al., 2008a.).
- **Educational Gains:** According to Veliz & Shakib (2014), in schools with increased female representation in sports (e.g., a 1-to-1 gender ratio of girls participating in varsity sports to boys participating in varsity sports), there was a higher female representation of girls in Advanced Placement science courses.

- **Girls and Women of Color:** The health benefits realized from the participation of girls and women in sport and physical activity vary by socioeconomic level and racial/ethnic group. Throughout the report, available findings document health risks and vulnerabilities for females of color as well as for girls and women living in urban and rural settings. A special addendum to the report is also available that integrates all of the findings related to these populations.
- **Participation:** Despite an ever-expanding body of research evidence that supports the necessity for children, both boys and girls, to participate in physical activity regimens at moderate to vigorous levels for at least an hour a day to ensure their current health and create a foundation for long-term health, children in the U.S. are not engaging en masse in physical activity as they should. According to the 2014 U. S Report Card on Physical Activity for Children and Youth (Katzmarzyk, 2014), just under 25% of youth ages 12-15 were found to participate in physical activity at moderate to vigorous levels. As has been the case for decades, while there are shortfalls for both boys and girls, there remains a significant gender gap in participation that places girls at a disadvantage. Data from the Health Behavior in School-Aged Children study reported by the World Health Organization in 2012 (Currie et al., 2012) shows that 30% to 33% of U.S. boys between the ages of 11 and 15 are engaging in appropriate levels of physical activity, while girls participation declined steadily from a high of 24% at age 11, dropping seven points to 17% by age 15.
- **Cultural Barriers:** In general girls are still not afforded the degree of encouragement or opportunity extended to boys to participate in sports and fitness activities. Impediments to access remain an ongoing concern, complicated by recent trends that run counter to promoting physical activity, fitness, and sport programs in schools and communities. With schools cutting back on recess, a de-emphasis on physical education nationally, and persistent inequalities in school-sport programs and community-recreation programs, girls and women continue to encounter structural barriers to participation (Cheslock, 2007, 2008; Cooky, 2009; Jarrett, 2013; NASPE/AMA, 2006; National Federation of State High School Associations, 2014; Sabo & Veliz, 2008; Sabo & Veliz, 2012; Slater et al., 2012; Taber et al., 2013).
- **Athletic Performance:** While the research base illustrates the importance of physical activity in the lives of girls and women, it is also critical to examine a collection of issues related to performance—overtraining, lack of proper conditioning, poor equipment, and unsafe facilities—that impact female athlete experience. In this report, we also highlight the emerging areas of research that focus on protecting the health of female athletes and offer insights into the steps that need to be taken to ensure their health

and safety. For example, a small proportion of female athletes may develop three interrelated conditions—eating disorders, amenorrhea, and osteoporosis—otherwise known as The Female Athlete Triad. Other emerging areas of research focus on female athletes' injuries to the head and body, among them tears to the anterior cruciate ligament (ACL) and concussions, lack of opportunities for females with disabilities, sexual violence as it occurs in sport settings and affects girls and women, and problems associated with media representations of girls and women in sport.

- **Women in the Sport Workplace:** Despite more female athletes than ever before participating in the sport system, obstacles persist for women who wish to be leaders and decision-makers in the sport industry. The career aspirations of young women often collide with the gender barriers that exist in most male-dominated sport organizations. Since the passage of Title IX in 1972, women remain in the substantial minority in the sport workplace, with women comprising approximately 10% of all high school athletic directors, two in 10 head coaches at the college level, and less than 20% of college athletic directors.

## Her Life Depends On It III Principles for Decision Making That Affect Girls and Women in Sport

When viewed in its totality, the findings in this report argue for a set of principles that should guide recommendations and decision making in the creation, development, promotion, and sustainment of opportunities for girls and women to participate in sport and physical activity. These include:

1. **Continued Efforts to Provide for the Needs of Girls in Sport and Physical Activity:** Equity in sport and physical activity settings does not organically happen but is moved forward with conscious efforts to consider the needs of girls and women. With only 25% of the nation's girls getting the appropriate levels of physical activity to slow or discourage the development of chronic disease and enhance quality of life, more work needs to be done in ensuring that programs meet the needs of girls and are developed in environments that foster participation in safe, secure, accessible, and affordable environments. The ability of girls and women to access sport, whether recreational or high-performance, community-based or offered through a national sport governing body, is a fundamental right that has implications for an individual's dignity, happiness, health, personal freedom, and success. This right should be accorded unequivocally and without reservation to every American girl and woman

regardless of ability/disability status, age, ethnicity, marital status, political persuasion, race, religious affiliation, sexual identity and orientation, and socio-economic status. As a general trend over the span of decades, fewer financial resources have been made available for girls and women. Funding needs to match the need for more programs for girls and women.

## **2. Development of Management and Executive**

**Infrastructures That Include Women Leaders:** Since the 1800s there have been calls for attention to be paid to the inclusion of women in key leadership and decision-making positions within sport and physical activity organizations and programs for two reasons: 1) to allow the best and most talented leaders to contribute their skills, and 2) to ensure that female perspectives were being included in decision making about physical activity and sport programs. All these years later, women continue more often than not to be on the periphery of decision making and leadership when it comes to sport and physical activity programs. This reflects a systemic pattern of discrimination. As Staurowsky and Weight (2011, 2012) have documented, women are at times undervalued for their work in sport organizations through pay inequities, a hostile environment that hampers women from speaking up and holding institutions accountable, and a climate of retribution. The nation will not achieve its myriad health objectives with this dysfunctional infrastructure. The absence of female

leaders also results in fewer role models for young girls, and thus their not envisioning themselves in such leadership positions.

## **3. Facilitating Pursuit of Athletic Excellence Among Our Most Gifted Female Athletes:**

While Title IX has served as an important tool in promoting varsity athletics in school-based programs for female athletes, the nation's schools, at every level, have not yet come into full compliance with Title IX. Greater effort to ensure Title IX compliance is critical to achieving the end goal of increasing both participation levels and the quality of that participation for girls and women. Further, additional research attention should be directed toward the access challenges girls encounter when seeking participation in non-school club programs and the impact those have on early age skill development and the recruitment process.

## **4. Representation of Women in Sport Media:**

The digital age offers unprecedented opportunities for girls and women to be celebrated for their participation and accomplishments. Yet, long-standing social stigmas born from attachments to gender boundaries and anachronistic conceptions of masculinity and femininity continue to create media-promulgated tensions that females must contend with in pursuing exercise, fitness, and sport activities for their health, well-being, and enjoyment, as well as the entertainment of others. Further, the propensity of media to focus on beauty and sex appeal rather than athleticism has undermined the

ability of female athletes to be taken seriously (Daniels, 2009; Daniels & LaVoi, 2013). A revision of how athleticism is conceived and represented in mediated forms needs to be undertaken with consideration given to capturing the beauty, power, and accomplishments of female athletes fairly and accurately.

**5. Promote Sport and Physical Activity Participation**

**Among U.S. Girls and Women:** The research record offers abundant evidence that there are numerous economic, educational, health, psychological, social, and vocational benefits that girls and women experience as a result of participating in sport and physical activity. While the benefits are clear, more research needs to be undertaken to better understand how to foster those opportunities, as well as to identify barriers to participation with the goal of developing strategies and public policy to overcome them.

**6. Ensure the Health of Girls and Women**

**Participating in Sport & Physical Activity:** Research on the incidence of concussions generally shows higher rates among female athletes at both the collegiate and high school levels. Particular attention has been given to analyses in soccer and basketball, in which men and women play by similar rules, and ice hockey, a sport that is largely similar in the men's and women's game with the important difference that intentional body checking is prohibited in the women's game. Data for all three sports show higher rates of concussions among females at both the high school

and collegiate levels (Dick, 2009; Hootman, Dick & Agel, 2007; Rosenthal, Foraker, Collins & Comstock, 2014). This research must continue with a focus on the differences in presenting symptoms and recovery as well as prevention.

**7. Ensure the Safety and Security of Girls and Women Participating in Sport and Physical Activity:**

Research on sexual victimization of athletes and sexual victimization that occurs within athletic communities has lacked clarity due to the use of different definitions to describe various behaviors. As a consequence, there is no clear picture of the frequency with which coaches become sexually involved with athletes (Brake, 2012). Further, unlike the ongoing work that has been done to chronicle sexual victimization in U.S. schools, the most comprehensive work on issues associated with sexual victimization in sport has been done outside of the United States. Brake (2012) speculates that this reflects "...an ideology that idealizes coaches and overlooks or minimizes the harmful aspects of sports" (p. 399). Sport authorities need to be mindful of the vulnerability that exists for female athletes within sport settings. A commitment to safe and secure play environments for girls and women requires an investment of resources, personnel, and programming that will educate athletes, parents, coaches, and administrators on the prevention of abuse of female athletes and the extension of athlete protection policies to all members of national sport governing bodies.

## Research Recommendations

As an outgrowth of the current state of what is known about girls' and women's participation in sport and physical activity, these future research directions are recommended. These recommendations are designed to create the knowledge base to implement the principles outlined above.

### 1. Continued Efforts to Provide for the Needs of

**Girls in Sport and Physical Activity:** More research is needed to identify and quantify the immediate and long-term social, psychological, educational, and health benefits of participation in sports with a special emphasis on intersections between and among gender, age, ability/disability, race/ethnicity, religious affiliation, immigration, socio-economic status, and sexual identity and orientation. The complexity of these intersections poses areas of research warranting further investigation. In addition, selected research agendas to be pursued include:

- measurement and assessment of what is lost if girls and women do not get an opportunity to participate (in other words, what are the economic and educational consequences? health and social consequences?);
- measurement and longitudinal tracking of participation opportunities available to women and girls of color (broken down by subgroups);

- identification of the forces motivating (or preventing) girls of color from participating in physical activity; and
- longitudinal research and cross-sectional studies examining whether female athlete academic success in high school and college is linked to success in education, the work place, and in the community.

### 2. Development of Management and Executive Infrastructures in Sport Organizations That

**Include Women Leaders:** Because women remain underrepresented throughout the sport industry in leadership positions (coaching, administration, executive positions), continued monitoring of the sport workplace and the barriers to recruitment, retention, and promotion is called for. The array of workplace issues (pay equity and equal treatment) that affect the lives of women working in sport speak to the culture in which girls and women play and participate. Women in key leadership roles within sport and physical activity settings is important because these upstream issues prevent women and girls from fully participating in sports and physical activity.

### 3. Facilitating Pursuit of Athletic Excellence Among

**Our Most Gifted Female Athletes:** Compliance with Title IX requires that schools receiving federal funds regularly monitor how resources in sport and physical activity programs are allocated and how

those resources are employed to provide equitable opportunities for female and male students. An important aspect of public accountability in the enforcement of Title IX relies on an informed citizenry. Despite the importance of public awareness in Title IX enforcement, research has shown that the citizenry in general does not know what Title IX does and does not require. Lines of research regarding local school allocation patterns, Title IX compliance, and what Americans (e.g., parents, students, educators, administrators, and reporters) know about Title IX all hold the prospect of yielding information to support decisions to fund more sport and physical activity programs for girls and women.

**4. Representation of Women in Sport Media:** With the explosion in digital media, more coverage of female athletes now exists throughout the culture. Remarkably, the percent of coverage compared to men's sport remains at levels similar to what they were in the 1950s. Further, depictions of female athletes and the narratives told about them continue to reinforce traditional stereotypes. Support of research that offers new models for media coverage of female athletes and interventions to interrupt long-standing journalistic practices that undermine women in sport is encouraged.

**5. Expansion of Research Agendas Beyond Risky Behaviors, Disease, Mental Health and Injury:** While much work has been done around the general

concept of getting girls and women moving and in the game, there remains a great deal yet to know about the benefits of participating in sport. From a larger macro health perspective, research agendas should be expanded beyond the disease syndromes and mental health areas identified in this report. Further, there is a whole vista of research opportunities yet to be explored relative to the effects of participation in specific sports (i.e., crew, weight lifting, etc.) and little is known about health, education, and social benefits of participation in specific sports (i.e., basketball vs. snowboarding).

**6. Ensure the Safety and Security of Girls and Women Participating in Sport and Physical Activity:** At

present, research has not caught up with the increase in sport participation among girls and women. There is much to be learned about what it takes to diagnose injury in active girls and women, what are the causes of sport-related injuries among active girls and women, and what it takes to support them after injury has occurred to facilitate their reengagement. Further, comparisons between males and females and understanding potential differences between females and males in sport and physical activity is warranted. Research attention needs to be directed toward better screening protocols for The Female Athlete Triad and prevention strategies. And analyses of the quality of service provided by athletic trainers and sports medicine personnel available to girls and women in the sport system is a largely unexplored area.

**7. Sexual Assault/Violence/Hazing of Girls and Women Participating in Sport and Physical**

**Activity:** There needs to be more research on sexual assault and violence against girls and women as it manifests in sport and physical activity settings. This includes the assessment of the need for and educational impacts of sexual harassment prevention programs for coaches and athletic administrators, as well as broad educational programming around Title IX requirements and obligations relative to incidents to sexual violence and hazing in school-based and open amateur sport settings.

Because the need for more research is so great, we have included a review of existing data sets that lend themselves to quantitative studies of girls and women in sport and physical activity settings (see Appendix A).

## Conclusion

This report's user-friendly format provides a toolbox of information, analysis, and sources for parents interested in the health of their daughters; coaches interested in the well-being of female athletes; media interested in informing readers about strategies to achieve optimal health for females, both young and old, from every sector of society; health consumers; sport leaders and program heads; public health advocates; and public policy makers interested in reducing health-care costs while emphasizing prevention and health promotion for female citizens. With increasing specificity and urgency, calls are being sounded across the United States for greater and better opportunities for all Americans to become more physically active. As those calls roll across the land it is imperative that the needs of girls and women be taken into account and met.

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## **ABOUT THE WOMEN'S SPORTS FOUNDATION**

Founded in 1974 by tennis legend, Billie Jean King, the Women's Sports Foundation is dedicated to advancing the lives of girls and women through sports and physical activity.

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