



**Position statement on  
GIRLS AND WOMEN IN SPORT  
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With the collaboration of Mark Jenkins

Opportunities for girls and women to participate in sport have increased dramatically over the last quarter century. A generation ago, women competed in “ladylike” or “graceful” athletic endeavors such as tennis, diving, figure-skating, and gymnastics. Today they also engage in a wide variety of sports once considered the preserve of boys and men. Rugby and weightlifting are just two of the traditionally male sports in which women now compete ardently for world titles.

It is the position of the IOC Medical Commission that sport is for everyone. Girls and women should not be excluded from participation in athletic activity because of their

gender. As with sports participation for all populations, the benefits for girls and women far outweigh any possible risks. The IOC Medical Commission encourages efforts to understand any possible special concerns of female athletes in order to develop and implement measures to reduce these athletes' injuries and enhance the quality of their participation.

## **Benefits of Sports Participation**

The benefits of vigorous physical activity are well-understood, and have important implications for female participants. These benefits include physical and psychosocial components.

### **Physical benefits**

- Reduced risk of illnesses such as heart disease, hypertension, diabetes, and endometrial and breast cancer
- Improved muscle-to-fat ratio/body composition
- Stronger immune system with moderate physical activity
- Less menstrual discomfort
- Stronger bones and reduced risk of developing osteoporosis later in life

### **Psychosocial benefits**

- Improved self-esteem, self-confidence, and perception of competence; better performance in academic settings
- Decreased risk of unwanted pregnancy
- Decreased risk of drug and alcohol abuse

## **Risks of Sports Participation**

As with any competitive activity requiring strength, endurance, and daring, sport carries with it the risk of physical harm. It bears repeating, however, that the benefits of sport outweigh the risks. Put another way - given the perils of a sedentary lifestyle, which include a variety of chronic illnesses, the consequences of physical *inactivity* outweigh possible hazards involved in sports participation.

The two most common questions asked about the participation of girls and women in sports are:

- Are girls/women at greater risk of certain types of injuries?
- Do girls/women get injured more often?

### “Female” injuries?

Gender-specific injuries are rare, and concerns about female participation in sports are outdated and erroneous.

The female reproductive organs are better protected from serious athletic injury than the male organs. Serious sports injuries to the uterus or ovaries are extremely rare. Breast injuries, a commonly heard argument against girls' participation in vigorous sports, are among the rarest of all sports injuries, even when women play a full-contact sport such as rugby.

### More injuries?

**Acute** injuries are caused by sudden trauma such as impact or a twist. Common acute sports injuries include bone fractures, ligament sprains, and muscle strains and contusions. Girls and women are not generally at greater risk of sustaining “acute” injuries compared to their male athlete counterparts. One exception may be anterior cruciate ligament (ACL) injuries.

Studies show that adolescent and college-aged female athletes – especially soccer and basketball players - are three to four times more likely to sustain an ACL injury than their male counterparts. The reasons for this are not fully understood, but are thought to encompass a complex combination of intrinsic and extrinsic risk factors, possibly including anatomical, hormonal, and conditioning differences. Some measures to reduce the number of ACL injuries in female athletes include: 1) strengthening the leg muscles that stabilize the knee, especially the hamstrings; 2) improving aerobic conditioning to prevent fatigue-related missteps; 3) modifying the usual “cutting,” or “side-stepping,” maneuver from a two-step to a three-step motion so the knee is never fully extended; 4) performing sports that involve running and pivoting with the weight forward on the balls of the feet, emphasizing soft jump landings; and 5) educating coaches about the increased risk of ACL injuries in female athletes and enhancing the ability of coaches to evaluate female athletes' skills, conditioning, and readiness to participate.

**Overuse** injuries are caused by repetitive microtrauma to tissue. Common overuse injuries include stress fractures, tendonitis, and bursitis. Female athletes may be more susceptible to overuse sports injuries. Two apparent reasons for this are a lack of long-term preparation for vigorous sports training and not beginning sports training until the height of the growth spurt (typically between eleven and thirteen), a time when musculoskeletal injury incidence is generally greater for all children. The wider female pelvis and greater angulation of the female knee are related to increased incidence of kneecap problems, compared with boys/men. A rapid increase in training volume is the most frequent cause of overuse injuries, so it is important for girls and women beginning

a sports or exercise program to only gradually increase the frequency, intensity, and/or duration of their activity regimen, especially if they have not been particularly active since early childhood.

Female athletes may be at a higher risk of stress fractures. The term “Female Athlete Triad” was coined to describe the most common chain of events leading to this type of injury:

1) Intense training plus disordered eating contribute to **menstrual abnormalities**, particularly when nutritional intake is insufficient to meet the energy needed for the training

2) menstrual abnormalities are associated with decrease of the estrogen needed to build bones, which, coupled with a poor diet may lead to **osteoporosis** or decreased bone mineral content; and,

3) weaker bones are vulnerable to **stress fractures** related to the athlete’s training schedule.

The Female Athlete Triad is most frequently seen in endurance runners and those who participate in activities such as gymnastics, figure-skating, and dance – sports where leanness is considered a virtue and therefore where, regrettably, disordered eating is endemic. Treatment of the Female Athlete Triad should be multidisciplinary, as the athlete with this condition will benefit from the input of a sports psychologist and sports nutritionist familiar with the disorders as well as a sports medicine orthopedist and physiotherapist/athletic trainer.

The disproportionate incidence of overload injuries seen in female athletes may partly be a product of sociological factors that make girls' conditioning levels lower than boys'. As social attitudes change and girls begin to participate in sports and fitness activities regularly from a younger age, improved fitness levels should reduce this incidence. Additional gender-related risk factors include: "extrinsic" factors such as lack of knowledge on the part of coaches on appropriate training for girls and women, and "intrinsic" risk factors such as hormonal and tissue differences from boys/men, including but not limited to smaller bone architecture and different upper to lower body proportions in length and strength that appear throughout all populations and are not changed by training. Research into improved training methods for girls and women will continue to ameliorate discrepancies in injuries rates between the genders, though until then these discrepancies should not prevent or discourage female sports participation.

## **Recommendations to Minimize Injury Risk and Enhance Participation**

Sport is becoming increasingly important in the lives of girls and women. The increasing number of competitive and recreational female athletes should be viewed positively. To perpetuate and accentuate the progress that has been made in this area in so many countries - and to inspire progress in countries where none has been made - the IOC Medical Commission makes the following recommendations:

#### Sports governing bodies

- should, in keeping with Rule 2, Paragraph 5 of the Olympic Charter, promote women in sport at all levels and in all structures, particularly in their executive bodies (including medical committees)
- should encourage the participation of girls and women in their particular sport
- should maintain injury and illness statistics pertaining to girls and women in their particular sport

#### Physical educators, coaches, and other exercise and health professionals

- should take measures to improve their understanding of the special considerations of the female athlete
- should focus on helping young female athletes (5-18) develop a broad range of skills through exposure to a variety of sports; sports specialization before age 10 is not desirable
- should ensure that increases in training volume are not so great that they cause overuse injury

#### Parents

- should encourage daughters to participate in sports and physical activity from a young age
- should increase their understanding of the benefits and risks of sports for girls and women
- should regularly remind themselves that the most important reason children play sports is for *fun*

#### Research

- should focus on gathering epidemiological data on injury rates in order to develop effective injury prevention strategies

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