

## TENNIS & WOMEN

Men and women differ in body size, and shape, in body organs, and in susceptibility to certain injuries and disorders. In addition, women who play tennis have to be aware of specific female issues such as the female athlete's triad, menstruation and pregnancy.

### Body Size

On average, adult females are 22 pounds (10 kg) lighter and about 4 inches (10-12 cm) shorter than males. Because females have a higher fat percentage than males (20-25% vs 10-15%), the difference in weight is mainly due to a smaller muscle mass.

The main differences are found in the upper body, where overall strength of females is about half that of men, in contrast to approximately two-thirds of male strength in the lower body.

It is this difference in height and strength which allows males to run faster, hit the ball harder and serve faster than females.

### Injury Patterns

Injury rates in male and female tennis players appear to be similar, but there are some minor gender differences in the injury pattern.

Female tennis players have a higher rate of hip and lower-leg injuries, while male athletes report a higher rate of thigh and trunk injuries.

Young girls have a higher prevalence of back, shoulder, and bilateral wrist pain, compared to young boys.



Women players also run a higher risk of anterior knee injuries, which may be related to their different build - wider hips, inward turning of knees and hips.

### **The Female Athlete Triad**

The term “female athlete triad” describes the complex relationship of eating disorders, menstrual dysfunction, and premature osteoporosis seen in the female athlete.

Alone, or in combination, female athlete triad disorders can decrease physical performance and cause disease among female tennis players.

### **Menstruation and Menstrual Dysfunction**

#### **How does the menstrual cycle affect athletic performance?**

The menstrual cycle, which lasts for approximately 28 days, comprises of three major phases: the menstrual (flow) phase (four-five days), the proliferative phase (10 days) and the secretory phase (10-14 days).

Research indicates that alteration in performance during these phases is subject to considerable individual variability with some players reporting impaired performance in the pre-flow or early-flow phases while others are not affected at all (Wilmore and Costill, 1994).

Conversely, the performance of any player that experiences premenstrual syndrome (PMS) or pain/abdominal cramping during menstruation (dysmenorrhea) is likely to suffer while she experiences these symptoms.

For these players, low-dose oral contraceptives or NSAIDs do provide for some degree of control over their menstrual cycles.

### **Does training delay menarche?**

Menarche refers to the first menses – typically at 12-13 years of age – of a young female. It has been suggested that intensive sports training among young female athletes can delay menarche; however, such a theory has not been qualified.

### **What are the causes of menstrual dysfunction?**

Disruptions to the normal menstrual cycle can be experienced by female players and is referred to as menstrual dysfunction.

The two most common forms of menstrual dysfunction among female sportswomen are that of oligomenorrhea (abnormally infrequent or scant menstruation) and amenorrhea (the absence of menstruation for months or years).

There is evidence to suggest that females who partake in high intensity and/or high volume training are more likely to develop one of these conditions. Factors associated with a player's response to training, both present and past, or her sports involvement that have been proposed to contribute or trigger menstrual dysfunction include:

- Prior history of menstrual dysfunction
- Psychological stress associated with training
- Inadequate nutrition and disordered eating
- Hormonal alterations

The long-term consequences of amenorrhea and oligomenorrhea are not yet known. However, by improving a player's diet and through the prescription of periodised programmes that provide for sufficient rest and recovery, the prospect of female players developing such conditions is minimised.

## Pregnancy and Tennis

Almost half of all women exercise during pregnancy, and 20% keep exercising beyond the sixth month, including many female tennis players.

### What are the pros and cons of continuing to play tennis during pregnancy?

In general, continuing to play tennis has a positive influence on both the mother and the child. A moderate amount of exercise during pregnancy has been shown to lead to improved placental growth.

Maternal benefits include improved cardiovascular fitness and well-being, limited fat gain, quicker recovery with an easier and less complicated labour. The advantage of tennis is that it is a moderate intensity exercise, and that the intensity can be lowered if necessary by extending the rest periods between points or games.

Since a woman may gain 10-12 kg during the course of her pregnancy, fast changes in direction may become increasingly more difficult late in pregnancy and players may then prefer doubles over singles.

There are some risks, such as that of blunt trauma to the abdomen by a tennis ball in the later stages of pregnancy. Agreeing with the opponent(s) that overheads will not be aimed at the pregnant women's body can eliminate this risk.

Also, the player should stop exercising when fatigued, stressed, or very uncomfortable. Since tennis is frequently played in the heat, there may be some concern that this may be dangerous to the foetus.

A pregnant athlete is advised to maintain a core body temperature below 38°C. Although exercise in the heat may lead to high core temperatures in non-pregnant women, the physiological adaptations of pregnancy ensure that thermal stress to the embryo and foetus are reduced. Of

course, pregnant women should take all the normal preventative measures when playing tennis in the heat.

Lastly, despite the fact that ligamentous laxity increases in pregnancy, there are no specific reports of exercise-associated injuries during pregnancy. Back pain, however, occurs in approximately 50% of pregnant women, with a peak between the 5th and 7th month, because of the exaggerated lumbal lordosis and increased ligamentous laxity of the symphysis and sacro-iliac joints.

Pelvic tilt exercises, modified sit-ups, a lumbar support and posture modification may be advised. Women with medical conditions, such as diabetes, thyroid disease, or hypertension, should consult their physician regarding suitability and level of exercise.

After pregnancy, tennis should be resumed gradually. Many of the physiologic and morphologic changes of pregnancy persist 4 to 6 weeks post-partum.

In conclusion, healthy, well-trained women with an uncomplicated pregnancy can safely continue to play tennis without compromising foetal growth and development or complicating the course of the pregnancy or labour.