COACHING FEMALE ATHLETES

Women are as capable as men in intensive high-performance sports at all extremes of strength, speed and endurance. Indeed, there are more similarities than differences between the sexes. Coaches, however, should be aware of several gender-specific science and medicine issues that pertain to female athletes.

Health and Safety

- **Delay in menarche.** It is not uncommon for young female athletes in highly competitive sports to experience a delay in menstruation (15-16 years old as opposed to the average 12-13 years of age). As long as the young woman eventually reaches puberty and begins normal menstruation, there appears to be no negative effects of this delay.

- **Menstrual cycle irregularity.** Emotional stress, intense physical exertion, and low body fat influence the regularity of the menstrual cycle. Amenorrhea (loss of menses) is reported in 10-20% of female athletes. This percentage increases (up to 50%) when the athletes are involved in sports such as distance running and ballet. As there are many causes and consequences of Amenorrhea, the condition must be medically investigated.

- **Susceptibility to stress fractures**. One of the major problems associated with menstrual cycle irregularities is reduction in bone mass. This increases the athlete's susceptibility to the development of stress fractures and may increase the athlete's risk of developing post-menopausal osteoporosis.

- **Musculoskeletal injury**. In addition to stress fractures, patellofemoral problems and disruptions of the anterior cruciate ligament may occur more frequently in female athletes. Anatomical differences (the female pelvis is wider and the thighs slant inward toward the knee) and hormonal changes associated with menstrual irregularities have been cited as contributing factors.

- **Pregnancy.** The possibility of unwanted pregnancy is a concern with any sexually active female. Athletes who have sporadic menses due to their involvement in sport may ignore the possibility of being pregnant when periods are missed.

- **Medical monitoring programs.** In addition to monitoring the physical, psychological and environmental stresses listed in the medical monitoring chapter, consider paying specific attention to the eating habits, calcium and iron intake, and menstrual status of the female athletes you coach.

Physical Training

- **Cardiovascular function.** In general, females have a lower maximum aerobic capacity than males, due mainly to a lower cardiac output (smaller heart) and a decreased oxygen carrying capacity (less hemoglobin). The respiratory and cardiovascular systems of men and women are equally susceptible to incremental improvements in maximal oxygen uptake (VO_2max) with endurance training.

- **Strength.** Per unit of muscle mass, the female is as strong as the male. In absolute terms, however, males are usually stronger due to a larger muscle mass, especially in the upper body. There is no increased risk in strength training for females compared with males.

- **Effects of the menstrual cycle on physical performance.** Although some athletes feel that their performance is negatively affected during the pre-menstrual or menstrual phases of their cycle, there is no conclusive evidence to support this.

- **Body composition.** Females generally have a greater percentage of body fat than males. A minimum amount of "essential" fat is required to trigger and maintain the normal endocrine-reproductive cycle (generally 12% of total body weight). While there is considerable individual variation, there is a clear association between reduced body fat and the incidence of menstrual cycle irregularities.

Nutrition

- **Iron deficiency.** Female athletes are especially vulnerable to iron deficiency from losses in sweat as well as during menstruation. Iron intake is frequently inadequate in these athletes, especially if the athlete follows a vegetarian or calorie-restricted diet. Recent studies have reported that up to 80% of female athletes are iron-deficient and require supplementation. Iron should be prescribed by the team or athlete's personal physician.

- **Eating disorders.** Young female athletes are particularly at risk for developing eating disorders. Athletes in aesthetically-oriented sports such as gymnastics and figure skating, and endurance sports such as running and rowing, are particularly susceptible to eating disorders, as are athletes in sports where extreme thinness is the typical physique. You, as the coach, play an important role in the prevention and treatment of eating disorders. You should make it clear to your athletes that body weight is not the only factor in success or failure and you should avoid references to percentages of body fat. Be extremely cautious when making comments about body weight, particularly around the time of adolescence, and use methods other than the measurements of skinfolds, girths, or weight, to predict or monitor performance.

Other

- **Opportunity and access.** Despite the tremendous advances made in women's sport in the past decade, strong social pressures still exist that deter females from aiming for high achievement and maximum success in sport. Coaches of both sexes have a significant role to play to ensure that women have equal opportunities and access to expert coaching, developmental programs, and specialized training techniques.