

Female Athletic Energy Deficit

There are many reports that cite the health benefits associated with physical activity and a regular exercise program. Some of the potential health benefits for being physically fit include the following:

- Emotional: reduced anxiety and depression; improved self-esteem
- Musculoskeletal: increased muscle strength, flexibility and endurance; increased agility and balance
- Cardiovascular: increased endurance; weight reduction, increased level of good cholesterol; reduced risk for developing cardiovascular disease
- General health: reduced likelihood for abuse of tobacco, alcohol and illicit drugs; increased likelihood for proper nutrition

Many adolescents participate in sports. These may be unorganized such as a spontaneous game of touch football, organized including physical education classes or athletic teams and individual sports such as jogging, cycling and many others. Sports activities may be limited in some school systems due to budgetary issues, and in college, sports or physical education may not be required for students.

There is a continuing debate on whether adolescents are less physically fit than teens were twenty to thirty years ago. On the other hand, more teens are involved in organized sports. Females are participating in male dominated sports more now than ever. There is a wave of health consciousness that motivates youth to be physically fit. On the other hand, use of computers, Internet and web based communications favors a sedentary lifestyle for our youth.

The increasing activities of adolescent females in sports has highlighted three medical conditions. Disordered eating may occur in female athletes when they develop an energy deficit. When the use of energy in the form of calories exceeds the intake of energy in the form of nutrition, then an energy deficit in calories occurs. This energy deficit may be intentional on the part of the female athlete, or unintentional. Some athletes attempt to lose body fat or weight in the hope of improving performance or appearance.

Disordered eating has been studied in young elite swimmers. More than half of the average weight girls were trying to lose weight either by restricting calories or purging by vomiting, using laxatives or diuretics. Disordered eating may be seen in sports where leanness is perceived to optimize performance such as cross-country skiing or long-distance running, disordered eating may occur among the athletes.

Athletic performance may be diminished and athletic injuries may be increased in those teens who have disordered eating. A teen may be tempted to have disordered eating not only to optimize athletic performance, but also to meet an inappropriate body weight or body fat percentage. Girls with poor self-esteem or coping skills or those who are perfectionists may be at risk for disordered eating.

Menstrual dysfunction is the second medical condition that is seen in increasing frequency in female adolescent athletes. Menstrual problems are more common in athletes than in a general population. Normal menstrual function is dependent on the available energy. If there is disordered eating and weight loss, then the teen may have alterations in her hormones including those that regulate the menstrual cycle. Depending on the sport, from 3.4 percent to 66 percent of adult female athletes have lost their menstrual period; this is termed secondary amenorrhea. This compares to up to five percent of women in the general population. For the teen athlete, the prevalence of secondary amenorrhea in the athlete is not known. Loss of the menstrual period may lead to a loss of bone mineral density.

Decreased bone mineral density is the third medical condition seen in increasing frequency in adolescent female athletes. Secondary amenorrhea with decreased levels of estrogen may predispose to premature bone loss or inadequate bone formation. Termed osteoporosis, this may result in low bone mass and a deterioration of the micro architecture of bone. Low bone mass may result in a higher incidence of stress fracture in athletes.

Despite these issues, sports should be promoted for all female adolescents since there are numerous health benefits. A clinician should monitor an athlete's diet, nutrition, eating habits, and weight. The loss of menstruation is not considered a normal occurrence for the adolescent athlete. A teen who has a loss of her period should be seen by a clinician for an evaluation.

Stress is part of all competitive sports. Sports allow teens to demonstrate their athletic abilities and compare these abilities with their peers. Also, coaches, parents, peers, and college officials evaluate the teen athlete for his or her prowess in sports. As a result, there can be significant amounts of stress associated with sports.

The teen athlete's performance may be affected by stress. Although some degree of stress may have motivating powers for youth, at a certain level of stress, performance may decrease. Recall how some athletes fall apart during high levels of stress. High stress levels can cause poor performance, which then causes increasing levels of stress.

Chronic high levels of stress can cause health problems. Sleep and eating patterns may be disrupted and there may be an increased likelihood for injury. Sports medicine specialists observe that stressed athletes often take longer to recover from injuries.