

Female Athlete Triad

Regular exercise has been shown to build and maintain bone strength, build lean muscle, lower blood pressure, and decrease symptoms of anxiety and depression. However, when exercise is combined with poor caloric intake, serious health problems can occur. The Female Athlete Triad is an interrelationship between inadequate caloric intake, menstrual dysfunction, and decrease in bone density. One can have one, two, or all three aspects of the triad.

Inadequate Caloric Intake

It is easy to think of an athlete's caloric intake as "energy availability." The available energy of an athlete is the amount of energy from the diet, minus the energy burned with exercise. The energy left over is used to carry out other body functions, like making and maintaining hormones for good bone health and the menstrual cycle. If energy availability is low, this can lead to poor bone density and menstrual dysfunction.

Poor caloric intake in the athlete could be intentional, such as in an eating disorder, like anorexia or bulimia. Or it can be unintentional; meaning the athlete does not understand how many calories they should eat to compensate for the amount of exercise they do.

Menstrual Dysfunction

Female athletes can have menstrual cycle dysfunction that varies from longer than normal cycles (oligomenorrhea), to no periods at all (amenorrhea). Low estrogen levels that are associated with menstrual dysfunction, can lead to poor bone density.

Menstrual dysfunction can be due to poor caloric intake as described above or the athlete could have something wrong with the glands that make the



hormones of the cycle. Either way can lead to poor bone density.

Decrease in Bone Density

The decrease in bone density that is associated with the triad predisposes the affected athlete for developing stress fractures. Long term risks of osteoporosis later in life are also increased.

How can the Female Triad be Treated?

The mainstay of treatment is to improve caloric intake. Education on nutrition by a nutritionist sometimes helps. If an eating disorder is suspected, it is important to have psychology involved in the treatment. Significant improvement in bone density has been seen with weight gain and improved caloric intake. If menstrual dysfunction is present, it is important to involve a practitioner who has knowledge of the menstrual cycle. Sometimes blood tests are performed. In addition, some research suggests that oral contraceptive pills (OCPs) decrease the risk of stress fractures. OCPs will help restore normal periods, but will not restore the previously lost bone mass.