

The Female Athlete Triad

Female athlete triad refers to the combination of 3 medical conditions—eating problems, menstrual problems, and weak bones—seen in competitive female athletes. Prevention of the female athlete triad is important because it can interfere with normal growth and development, cause injury, and result in loss of strength and endurance.

The following is information from the American Academy of Pediatrics about the 3 conditions and general guidance for prevention and treatment.

Eating problems

Eating problems occur when an athlete eats fewer calories than her body needs for growth, development, and exercise. Some athletes choose to limit their calories to improve performance or appearance. Other athletes are unaware that they aren't eating enough calories to meet the energy demands of their sport. The athlete may be eating enough for a nonathlete, but not enough for an athlete.

Inadequate food intake is called *disordered eating* and can result in low energy availability (not having enough energy to fuel the body). For example, if an athlete only eats 2,000 calories per day but uses 3,200 calories, then she is eating 1,200 calories less than her body needs. In this case, the athlete will not have enough energy. This can hurt performance, slow growth and development, and increase the risk of injury and illness. This can also lead to an eating disorder, like anorexia or bulimia.

Athletes of any sport may develop disordered eating, but some sports place athletes at higher risk. These include sports that emphasize leanness, such as gymnastics, dance, diving, figure skating, long-distance running, and cross-country skiing, or sports that use weight classifications, such as wrestling, martial arts, and rowing.

Menstrual problems

Not eating enough calories can cause menstrual periods to become irregular (*oligomenorrhea*) or stop (*amenorrhea*). In the young athlete who isn't eating enough calories, menstrual periods may not start when they should.

Primary amenorrhea occurs when menstrual periods don't start before 16 years of age. *Secondary amenorrhea* occurs when regular menstrual periods stop for 3 months or more. *Oligomenorrhea* occurs when the time between menstrual periods is longer than 35 days. All types of amenorrhea

Preparticipation screening for the female athlete

During a sports preparticipation examination female athletes are asked questions related to the female athlete triad (see below). If components of the female athlete triad are suspected, the doctor may perform an expanded physical examination.

- At what age did you begin menstrual periods?
- How often do you have a menstrual period?
- How long do your periods last?
- When was your last menstrual period?
- Have you ever taken birth control pills, and when?
- How many meals and snacks do you average each day?
- List the foods and drinks you had yesterday.
- List the foods and drinks you try to avoid.
- Do you eat or drink milk, calcium-fortified orange juice, yogurt, or cheese? How much each day?
- What has been your highest weight, and when?
- What has been your lowest weight in the past 2 years?
- Are you happy with your current weight?
- What do you feel your ideal weight would be?
- Have you ever tried to control your weight by dieting? Vomiting? Laxative use? Diuretics? Exercise?
- What sports do you participate in?
- How much time do you spend training for your sport each week?
- How much time do you spend exercising in addition to your sports workout (ie, extra running, calisthenics, stair climbing machine)?
- Have you ever had a stress fracture? When?

can be caused by not eating enough calories for energy expended; they are not caused by low body fat or the stress of exercise.

Weak bones

When a young athlete doesn't eat as many calories as her body needs, and has menstrual problems, her bones do not develop the normal strength. When this happens,

a 16-year-old girl can have bones as weak as those of a 60-year-old woman. She may more easily develop stress fractures or, if severe, even compression fractures of the spine. This decrease in bone strength will continue until she has normal periods again but, even though she can regain some bone strength, she may never catch up to where she should be normally.

Prevention

The female athlete triad can be prevented by eating enough calories, including fat, protein, and carbohydrates. Most female athletes need a minimum of 2,000 to 2,400 calories per day. Not only will this prevent menstrual problems and weak bones, it will help the athlete perform better! If an athlete develops menstrual problems, she needs to see a doctor. It is not normal to skip periods or stop having periods. If an athlete cuts out the fats in her diet, decreases the amount of food she eats, loses weight, or skips periods, she should tell her doctor. Finally, if an athlete feels she needs to lose weight, she should consult her doctor first.

Treatment

If an athlete is not having regular menstrual periods, she needs to see a doctor. The doctor needs to make sure there are no other reasons for menstrual problems (for example, thyroid disease).

If a lack of enough calories is the cause of the menstrual problem, it will be important that the athlete increase her food intake. She will need to eat all of the nutrients her body needs, which includes carbohydrates, fats, and protein. It may be helpful for her to see a registered dietitian for nutrition counseling. The athlete should gradually increase her food intake until her menstrual periods return.

If it is difficult for the athlete to increase her food intake, she may need to decrease her exercise/sports activity instead. Once menstrual periods return, the athlete can slowly increase her activity again while increasing her food intake to maintain menstrual periods.

If an athlete is not having regular menstrual periods, she needs to eat 5 servings of calcium per day. A serving would be 1 cup (8 ounces) of milk, yogurt, or calcium-fortified orange juice, or 1 ounce of cheese.

If an athlete struggles with increasing her food intake, it may be helpful to have her see a counselor to work on why eating enough is difficult for her.

NOTES

The information contained in this publication should not be used as a substitute for the medical care and advice of your health care professional. There may be variations in treatment that your health care professional may recommend based on individual facts and circumstances.

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