

THE FEMALE ATHLETE TRIAD



I'm on the cross country team and in order to run faster I thought I should lose a few pounds. I decreased the calories I was eating and with an initial loss of weight my performance improved, but now I have gone four months without a period and I am always exhausted during workouts. Yesterday I was diagnosed with a stress fracture. Now, I'm worried about my health and performance.

As a female student-athlete, do I need to be aware of a larger issue?

THE FEMALE ATHLETE TRIAD DEFINED

Athletes who have low energy availability are more likely to have decreased estrogen levels and subsequent menstrual dysfunction and bone loss. Bone loss with the Triad during the college years is serious, as poor bone health increases injury risk, and the window for building bone density closes in early adulthood. While absence of menses may be common among female athletes, it is not healthy, and needs to be treated as any other medical concern. Intervening early is crucial for optimal recovery and to prevent potential long-term consequences.

(For consequences of sub-optimal fueling and tips for overall health, turn the page.)

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CONSEQUENCES OF SUB-OPTIMAL FUELING

Short-Term:

- Dehydration
- Glycogen depletion
- Insufficient nutrient intake for normal metabolism
- Low blood sugar
- Increased fatigue with training and everyday activities
- Constipation
- Abdominal pain

Long-Term:

- Immune suppression
- Four times greater incidence of stress fractures
- Infertility
- Decreased sexual desire
- Loss of hair
- Brittle nails
- Premature osteoporosis (bone loss)

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Rosenbloom, Christine A. and Coleman, Ellen J. Sports Nutrition: A Practice Manual for Professionals, 5th ed. Academy of Nutrition and Dietetics, 2012.

Written by SCAN Registered Dietitians (RDs). For advice on customizing a nutrition plan, consult an RD who specializes in sports, particularly a Board Certified Specialist in Sports Dietetics (CSSD). Find a SCAN RD at www.scandpg.org.

WHAT IS THE FEMALE ATHLETE TRIAD?

The presence of three distinct and interrelated components: low energy availability, menstrual dysfunction and impaired bone health. These are highly dependent on the individual athlete. While the Triad consists of all three components, athletes may present only one or two. The presence of any one component should prompt further assessment.

Amenorrhea: The absence of the menstrual cycle for three or more consecutive months. This is the strongest indicator of the Triad.

Energy availability: The amount of energy available to the body to carry out normal physiological processes after energy is used for training and activity. For men- ses to occur, the body requires about 30 calories of available energy per kilogram(kg) of lean body mass.



Fueling for Bone Health:

Nutrient	Recommended Daily Amounts	Food Sources
Calcium	1,000-1,300 milligrams (mg) (~3 to 4 8-ounce (oz) servings)	Milk, cheese, yogurt, broccoli, cabbage, kale, collards, mustard and turnip greens, almonds; calcium-fortified: soy, rice, and almond milks, juice
Vitamin D	600 international units (IU) – consider testing blood levels as a greater dosage may be necessary	Fatty fish (salmon, sardines, mackerel), eggs; vitamin D-fortified: milk, juice, yogurt, mushrooms
Iron	Females: 33 mg Males: 14 mg	Beef, poultry, fish, pork, beans, peas, lentils, nuts, seeds, whole and enriched grains, dark green leafy vegetables, dried fruit (combine plant sources with vitamin C-rich oranges, kiwi, tomatoes)
Phosphorus	Females: 700-1,250 mg Males: 700-1,250 mg	Milk, yogurt, cheese, egg, beef, chicken, turkey, salmon, whole wheat bread, almonds, peanuts, lentils
Magnesium	Females: 310-360 mg Males: 400-410 mg	Bran cereal, brown rice, almonds, hazelnuts, peanuts, spinach, chard, okra, milk
Protein	Endurance Athletes: 1.2-1.4 grams per kilogram of body weight Strength: 1.6-1.7 grams per kilogram of body weight	Beef, poultry, fish, pork, beans, peas, lentils, tofu, texturized vegetable/soy protein, nuts, seitan, seeds, eggs, dairy

FEMALE ATHLETE TRIAD OR EATING DISORDER?

- Is it difficult to eat dessert on occasion?
- Is it difficult to find food options that do not create anxiety when traveling for competition?
- Do you have “rules” around certain foods (e.g., not able to eat foods high in saturated fat)?

Answering “yes” to any of the questions above may indicate an eating disorder, in addition to the Triad. The Triad may or may not be associated with disordered eating. The key to normal eating is flexibility.

TIPS TO TAKE WITH YOU

The Female Athlete Triad has both immediate and long-term serious health consequences. Athletes participating in sports that emphasize leanness and aesthetics (gymnastics, diving, figure skating, distance running, cheerleading) are at increased risk for the Female Athlete Triad.

- If you miss a period or your periods become irregular, let your sports medicine physician, sports dietitian and/or athletic trainer know.
- Work with a sports dietitian to make sure you are meeting your nutrition needs for training and competition.
- If you have concerns about yourself or a teammate having an eating disorder, speak with your sports medicine physician, sports dietitian, and/or athletic trainer immediately.