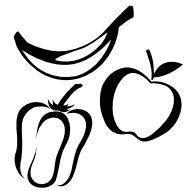


# THE UNIQUE NUTRITIONAL NEEDS OF FEMALE ATHLETES



In case you haven't noticed, males and females are different. Boys go through puberty on average two years later than girls but end up taller and leaner with more muscle mass. Physically active males therefore have greater energy needs, requiring approximately 500 or more calories each day beyond that required by active females, who need at least 2200-2800 daily calories.

Aside from physical differences between the sexes, a number of sport nutrition-related differences also exist, from vegetarianism, hydration, and micronutrients to the Female Athlete Triad.

## Vegetarianism

For a variety of reasons, female athletes choose to follow a vegetarian diet regime more often than male athletes. Depending on the extent of the vegetarian food restrictions, particular nutrients of concern could include any or all of the following:

- Total energy/calories
- Protein
- Essential fats
- Iron, zinc, calcium
- Riboflavin (Vitamin B<sub>2</sub>), Vitamin B<sub>12</sub>, Vitamin D

Any time an athlete, male or female, chooses to restrict one or more groups of foods, their diet, food knowledge, and meal preparation skills should be assessed to determine if they need assistance from a sport dietitian. It is important to note that it is not uncommon for female athletes to use vegetarianism as a cover for eating disorders. For more information, please read the [Vegetarian Ways of Eating](#) tip sheet.

## Thermoregulation

When it comes to keeping their cool, females tend to dissipate heat more effectively than males during exercise, but females are at greater risk of muscle cramping since they seem to lose more electrolytes (such as sodium) in sweat during exercise.

## Iron

Athletes who engage in regular intense physical activity have iron requirements 30% to 70% higher than inactive individuals. Greater amounts of body iron is lost in athletes through sweat and from the digestive system (especially for runners), and foot-strike hemolysis (breakdown of red blood cells under the heels of feet). Female athletes are at an even greater risk than males for iron deficiency and/or anemia because of:

- menstrual losses
- higher likelihood of restricting calories
- higher likelihood of vegetarianism or limited animal protein intake

For more information, please read the [Iron Indicator](#) tip sheet.

## Calcium

Even though females and males require the same amount of dietary calcium throughout the lifecycle, females rarely consume the amount they need at any time of life. By the age of 50, females are twice as likely to have osteoporosis (1 in 4), compared to males (1 in 8), at least partially due to insufficient calcium and Vitamin D consumption over the years, but in particular during adolescent years when building peak bone mass. For more information, please read the [Calcium Counter](#) tip sheet.

Females also have greater requirements for other micronutrients, such as Vitamin B<sub>6</sub> (if taking birth control pills), and Vitamin B<sub>9</sub> (folate/folic acid) during child-bearing years.

## Female Athlete Triad (F.A.T.)

A unique female nutrition-related health crisis, the "**Female Athlete Triad**" is the inter-relationship of insufficient energy consumption (possibly due to an eating disorder), irregular or absent menstrual cycles (amenorrhea), and consequential loss of bone density (osteopenia or osteoporosis).

It is not uncommon for a female athlete to be in a negative energy balance from under-eating and/or over-training. Long term low caloric intakes can lead to immediate and lasting health problems, simply because there is insufficient energy available for maintaining good health. A female athlete in a chronic negative energy balance is likely to experience irregular menstrual cycles (amenorrhea) because of hormonal changes (i.e., low estrogen). In turn, low hormone levels lead to low bone mineral density, risk of stress fractures, slow bone healing, and eventual osteoporosis.

Management of the F.A.T., with the goal of resuming regular menses, involves increased caloric intake and/or decreased physical activity. Supplemental calcium and Vitamin D are usually also advised by the sport dietitian, following assessment of the athlete's nutritional status.

For more information, please read [Eating Disorders – Signs, Screening and Confronting](#).

Although males and females have different needs for some nutrients, their dietary requirements are similar for others. The requirements for many nutrients are related to body size (i.e., calculated in grams per kg of body size per day). Therefore, while males and females require the same relative amounts of these nutrients, by virtue of their smaller body size, females need less than males. Bottom line, whether an athlete is male or female, their specific intake of nutrients should be assessed to determine if they are consuming optimal nutrition for their sport needs. For more information, please read the position paper on [Nutrition and Athletic Performance](#).

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