



Weight Management: Maintaining Weight While Staying Competitive

An athlete's diet should be designed to support training and properly fuel performance, as well as support individual body composition goals, whether to maintain weight, increase muscle weight, or decrease body fat. Weight maintenance is a balance between the energy consumed (macronutrients) and the energy expended. For athletes to maintain their weight while staying competitive, they must balance the energy equation.

While our energy intake comes simply from the food and beverages that we consume, our total daily energy expenditure (TDEE) is generated from multiple components, including resting metabolic rate (RMR), the thermic effect of food (TEF), and physical activity energy expenditure (PAEE). PAEE is the energy expenditure above resting that results from skeletal muscle contraction, including the required movement, balance, and maintenance of posture.¹ This component of energy expenditure can be further divided into two categories: exercise energy expenditure (ExEE) and nonexercise activity thermogenesis (NEAT). Both ExEE and NEAT can impact the ability to maintain weight.¹

As an athlete's training cycle changes, it is likely that their PAEE will change. It is also likely that the foods and drinks they consume will vary. To keep the energy balance equation in tune with the athlete's goals, it is important to balance energy intake with output through all phases of the training cycle. Therefore, food needs increase with increases in training frequency or duration. Likewise, as the level of training decreases, so should energy intake.

Each energy-yielding nutrient provides a set number of kilocalories (kcal) per gram (g), which together determine the number of kcal or energy it provides. Carbohydrate and protein each provide 4 kcal/g, fats 9 kcal/g, and alcohol 7 kcal/g. During the process of metabolism, energy is released, which can then be used for growth and development of new cells and tissues, digestion, absorption of nutrients, fueling working muscles, and other functions. Student athletes require more energy than non-athletic students in order to maintain body weight due to added energy expenditure from training.

Energy that is not used to fuel the body will be stored for later use, either as glycogen in the liver and muscles or as fat in adipose tissue. Long-term consumption of more energy than is being expended will result in an accumulation of fat in adipose tissue, and therefore unhealthy weight gain.

The opposite is also true. Eating fewer kilocalories than the body needs will result in the breakdown of stored energy and weight loss. Unfortunately, a poorly designed diet may cause

the body to break down lean (i.e., muscle) instead of adipose tissue, resulting in weight loss, but less than optimal body composition.

The ideal body weight and body composition will be unique to each student athlete. Appropriate loss of body fat may be desirable for a variety of reasons related to improved performance. For example, a sprinter may want to improve power to weight ratio or a lightweight rower may want to make weigh-in requirements. On the contrary, some student athletes will benefit from weight gain, specifically by increasing muscle mass to increase strength and power.

Whatever the weight goal may be, it is important to be strategic with macronutrient intake. Following are some basic guidelines to consider:

Weight Loss

- Weight loss for athletes is a balancing act focusing on eating enough to support training and performance while creating an energy deficit to lose weight. Therefore, it is best to focus on weight loss during the off season or rest phase of the training cycle.
- A rule of thumb is to determine maintenance needs minus 300-500 kcal/day in males, or 200-300 kcal/day in females.¹ When energy intake is restricted too much, it can leave the athlete unable to perform physically or mentally.¹
- Plan carbohydrate intake around training to properly fuel training and support the recovery process while maintaining an energy deficit.
- Athletes who are trying to decrease body fat may consume protein at a level of 1.5 g per kg body weight per day (g/kg), in an effort to protect the loss of lean body mass when restricting calories.¹
- Some student athletes may find it helpful to keep a food journal to identify trends in eating patterns.
- Build a balanced diet focused on nutrient-dense foods such as lean proteins, beans and legumes, low-fat dairy, fruit, vegetables, and whole grains.
- Do not skip meals. Instead, reduce portion sizes.

Weight Gain

- Gains in muscle mass will best be achieved when in positive energy balance. Muscles take time to grow so it's important to set realistic goals. A good rule of thumb for those who wish to increase skeletal muscle mass is to consume a baseline caloric intake plus 400-500 kcal/day in males and 300-500 kcal/day in females.¹ Keep in mind that this can vary widely among individual athletes and sports and should be monitored and individualized.
- Focus first on consuming adequate carbohydrates. The intake should be enough to resynthesize muscle glycogen stores daily (~5-8 g/kg).¹

- Getting proper protein is also necessary to build growing muscles. Endurance athletes should consume at least 1.2 g/kg. The recommended protein intake to increase skeletal muscle in strength athletes is typically 1.7 g/kg. Consuming protein above this level does not appear to have an anabolic effect.¹ Including a source of carbohydrate and protein at every meal and snack is important.
- Fat restriction should be moderate. A good rule of thumb is to calculate 1 g/kg.
- Distribute calories evenly over the course of the day and focus on adequate fuel around exercise.
- Plan ahead and keep ready-to-eat snacks available and accessible at all times. Trail mix, cereal or energy bars, nut butter and jelly sandwiches, and raw fruit will pack well in backpacks.

Author

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

Reference

- 1.) Sports, Cardiovascular, and Wellness Nutrition Dietetic Practice Group, Rosenbloom C, Coleman E. Sports Nutrition: A Practice Manual for Professionals, 5th edition. Academy of Nutrition and Dietetics: 2012.

© 2014 Sports, Cardiovascular, and Wellness Nutrition (SCAN)
NCAA is a trademark of the National Collegiate Athletic Association