Prevea Performance News
April 2019 Edition 5

PREVEA Sports Medicine

Nutrition Basics for Athletic Performance & Fitness Goals

By: Sarah Bedford, MS, UW-Green Bay Dietetic Intern

Individuals completing moderate to high intensity training need greater amounts of carbohydrates and protein compared to an individual involved in a general fitness program. It is extremely crucial athletes ensure they consume enough calories and nutrients each day to provide sufficient energy and recovery, as well as prevent low energy availability.

What is low energy availability (LEA)? LEA is when an athlete's calorie intake is insufficient to meet the energy requirements for daily living *plus* training demands. In other words, an athlete is not consuming enough to meet their basic needs for general physiological functioning of growth, muscle recovery, and normal body functions, and are expending more energy than they are putting in. Consequences of LEA include; decreased endurance performance, decrease muscle strength and glycogen stores, increased risk of injury, impaired judgement, decreased training response and coordination.

To ensure an active individual is meeting both of their basic metabolic and training needs, it is important to understand the distribution of macronutrients – carbohydrates, protein, and dietary fat – in the daily diet. Muscle development and performance goals are achieved when athletes are adequately and properly nourished.

Macronutrients Importance

- **Carbohydrates:** The body utilizes carbohydrates as energy. Carbs are the *preferred* energy source for physical activity and brain function, which is why following popular low-carb diets is contraindicated for athletes. Carbohydrates are extremely important not only for athletic performance, but are crucial in the short-term recovery process. Consuming carbs pre and post-training helps replenish lost muscle and liver glycogen, which is your body's backup fuel source. Inadequate carbohydrate intake can decrease performance and endurance, increase feelings of fatigue, brain fog, and cause poor recovery between training sessions.

- **Protein:** The fitness world is in constant buzz surrounding adequate protein recommendations, as it is important for muscle function, development, and recovery. Not consuming enough protein can create a negative nitrogen balance. A negative nitrogen balance influences the breakdown of muscle and slows recovery, and overtime can lead to muscle wasting, injuries, illness, and training intolerance in athletes.

- **Dietary Fat:** Dietary fat is an essential nutrient for maintaining optimal health. On a basic level, dietary fat is a source of energy for the body, helps absorb nutrients, contributes to hormone production, and insulates the body. In the fitness world, consuming adequate dietary fat helps maintain energy balance and weight management. Inadequate consumption of dietary fat decreases hormone production and can lead to health problems.

Recommendations & High Quality Sources of Macronutrients

- **Recommended carbohydrate intake for an athlete is 1.8 to 3.6 grams per pound body weight.** The more active an individual is the more energy needed, which in turn increases the demand for carbohydrates. A general rule of thumb to follow is; for lower intensity training make grain-like carbohydrates at meal times to be only a quarter of the plate and as the intensity increases the portioning increases. A higher intensity athlete should have at least half of their plate as whole-grains.

High quality sources of carbs include whole-grain products (include whole-wheat bread products, pastas, brown rice, quinoa, oatmeal etc.), legumes, and fruit. These foods contain nutrients like fiber, which is important for digestive health and keeps the body feeling fuller longer. Low-fat dairy products and sports drinks are also great sources of carbs for athletes.

- **Recommended protein intake varies depending on physical activity demands and intensity.**
  The International Society of Sports and Nutrition (ISSN) recommends the following amounts:
  - General Fitness Program = 0.73 grams per pound body weight
  - Endurance Training Athletes = 0.54 to 0.90 grams per pound body weight
  - Strength Training Athletes = 0.77 to 1.0 grams per pound body weight

  High quality sources of protein include lean meats (chicken, fish, lean cuts of beef, etc.), low-fat dairy products, eggs, soy, whey, nuts, beans, and whole-grains. For individuals with higher protein needs, such as high intensity athletes, protein supplementation may be beneficial to ensure adequate protein consumption to prevent protein breakdown.

- **Recommendations of fat intake for active individuals is similar to or slightly greater than general dietary recommendations for sedentary individuals.**
  ISSN recommends athletes consume a daily intake of 30% of calories of their calories from fat, which is approximately 0.3 grams per pound body weight.

  High Quality Sources of Fat - To promote good heart health it is recommended to consume more unsaturated fats than saturated fats. Unsaturated fats are liquid at room temperature such as olive oil, sunflower oil, and peanut oil. Salmon, tuna, avocados, and nuts are also excellent sources of heart healthy fats.

Distribution of Macronutrients & Nutrient Timing

Another important component of macronutrients for athletic performance is understanding general distribution and nutrient timing of carbohydrates and protein. The following are some key components:

- **Meal Distribution** – Having a meal or snack every 2-3 hours is a general recommendation of meal distribution. Each meal and snack should incorporate a carbohydrate and protein. Frequent consumption of macronutrients throughout the day provides the body with consistent energy and helps the recovery process.
- **Importance of Breakfast** – Breakfast truly is the most important meal of the day. Eating a meal within 30 minutes of waking up helps kick start the metabolism. This helps stop the starvation or fasting process, including muscle breakdown. A quality breakfast for athletes will replenish the liver and muscle glycogen stores. These stores are utilized as energy sources for training sessions later in the day.
- **Before Training** – It is recommended to consume a light carbohydrate and protein snack 30 to 60 minutes prior to activity. Eating a small snack before training increases the carbohydrate and protein availability to muscles, which helps increase overall energy and prevent exercise-induced protein breakdown.
- **During Training** – For training sessions lasting longer than 90 minutes, it is important to include glucose and electrolytes during activity, such as sports drinks. The goal of this is to sustain energy and prevent dehydration.
- **After Training** – A large amount of carbohydrates and a moderate amount of protein consumed within 1 hour of activity is important to accelerate the recovery and rebuilding process of muscles.

Athletic performance goals are met with both consistent training and dietary intake. It is important active individuals consume adequate amounts of high-quality macronutrients and practice meal distribution strategies. Following these recommendations provides athletes with the needed energy and nutrients to recover and consistently reach their highest athletic potential.

If you would like more nutrition information for athletic performance, please seek out a Registered Dietitian at Prevea Health.

Questions about content? Email the Green Bay Phoenix Strength and Conditioning Staff:

Brandon Schlotthauer at schlottb@uwgb.edu
Ryan Immel at immelr@uwgb.edu