



# Nutritional Guidelines for Swimmers

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## CARBOHYDRATES, FATS & PROTEINS

These nutrients provide energy for muscular contraction, and chemical components for the development of body tissues. Carbohydrates are the preferred fuel for exercise because they are metabolized rapidly.

Fats are good sources of energy for extended endurance training, but provide very little energy during high-intensity training because they are metabolized slowly. The primary purpose of proteins is to repair and build muscle tissue, but they can also supply small amounts of energy for muscular contraction.

Swimmers can easily expend between 2000 to 5000 calories daily during workouts, depending upon their age, gender, size and hours spent in training. Between 1500 and 2400 calories in the daily diet should be made up of carbohydrates (400 to 600 grams). Carbohydrates should account for 55% to 65% of the total calories that swimmers consume every day.

Since carbohydrates generally provide only 46% of the calories in the typical American diet, most swimmers should increase their consumption of high-carbohydrate foods such as breads, cereals, pasta, potatoes, corn, rice, beans, peas, apples, bananas, dates, grapes, oranges and milk.

Fats make up about 38% of the daily calories in the typical American diet, which is close to twice the amount needed for health and performance. Consequently, most swimmers would do well to reduce their fat calories by consuming fewer amounts of eggs, cheese, butter, fried foods, nuts, saturated salad oils, gravy, and fatty meats. Skim or low fat milk should also be substituted for whole milk.

Most swimmers consume approximately two grams of protein per kilogram of body weight per day, which is more than enough to meet the protein requirements of the most active athlete. On the other hand, vegetarian athletes are sometimes at risk of inadequate protein intake. Vegetarians are advised to increase their intake of dairy products and/or nuts and soy products to make certain they ingest enough high-quality protein each day. Increasing the fat

intake through the use of dairy products and nuts should not be a concern because these athletes are not eating red meats, a common source of dietary fat.

## VITAMINS AND MINERALS

Swimmers in training, may need more than the recommended daily allowances of certain vitamins and minerals. However, their large caloric intakes will usually supply the extra vitamins and minerals they need. Nevertheless, as a safeguard it may be wise to take a multi-vitamin/mineral supplement daily.

Female swimmers are especially susceptible to deficiencies of iron and calcium. They can increase their calcium intake with skim or low fat milk, yogurt, cheese, sardines. Good sources of iron are lean meats, raisins, poultry, beans, whole grains, breads & cereals.

## FLUIDS

Swimmers can lose more than three liters (about 3 quarts) of fluid each day through breathing, urination, and sweating; yes swimmers do sweat during training. Therefore, it is important for swimmers to consume adequate amounts of fluid daily. An athlete's body weight can be an excellent guide to his/her fluid replacement needs. If the fluid intake is sufficient, the normal body weight lost in one training session will be replaced by the next training session. A good rule of thumb is to drink 2-8 oz. glasses of fluid for every pound of weight that is lost.

## SNACKS

Swimmers who tend to lose weight easily should eat a mid-morning and mid-afternoon snack in addition to normal meals at breakfast, lunch and dinner. These snacks should consist of 500-600 calories of nutritious carbohydrate-rich foods. Carbohydrates help to maintain blood sugar (glucose) levels during training and provide a rapid source of muscle glycogen replacement after training.

Ingesting sports drinks during training sessions can also help maintain blood sugar at a high level. By doing so, more carbohydrate is made available to the muscles during training. Consequently, athletes can train more intensely, particularly during the latter stages of a workout. They may also use less muscle

glycogen in any one session so that they can swim more intensely more often during each week. The carbohydrate content of these sports drinks should be between 6% to 7% (14-15g/8 oz.) of the total volume. Sports drinks should be administered in amounts of 4 to 8 ounces every 20 minutes.

## PRE-MEET MEAL

Contrary to popular belief, the pre-meet meal does not generally provide very much energy for competition. That energy should already be stored in the muscles from carbohydrate-rich meals eaten during the previous 2 to 3 days. If the muscles contain insufficient amounts of energy, the endurance swimmer will probably not perform very well even if the pre-meet meal is high in carbohydrates.

The pre-meet meal should consist of 500 to 1000 calories. Most of those calories should come from easily digested carbohydrates. The meal should be eaten two to four hours before competition to allow time for it to be digested and leave the stomach. Swimmers should avoid any heavily spiced foods that might cause nausea, or large amounts of fats and proteins.

Carbohydrate loading before important competitions is really not necessary. Swimmers can elevate their muscle glycogen levels to greater than normal levels by reducing their training volume for two or more days prior to competition, and making sure they eat high-carbohydrate meals.

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