Nutrition

Carbohydrates

Carbohydrates are by far the main source of energy for ATP production in 800- to 5,000-meter events. Muscle glycogen stores can be depleted over several days of intense training if they are not replaced through carbohydrate-rich goods, such as bread, cereal, pasta, legumes, fruits, and vegetables. Carbohydrates should make up about 55% to 70% of your diet.

Fats

The contribution of fat to total energy needs during running increases as the pace slows. Fat thus plays a major role in fueling low- to moderate-intensity training runs and long races such as the marathon, but it provides only a small part of the runner's energy in events from the 800 to 5,000 meters. Fatty foods include processed meals, fast food, dairy products, meat, butter, oil, and granola. Fats should make up about 20% to 25% of your diet.

Protein

When you supply your body with enough carbohydrates and fats, it uses very little protein for fuel during running. Nevertheless, the runner must replace proteins on a daily basis because they undergo a process of continuous deformation, or turnover, in the body. Protein is necessary for normal physiological functions, including energy metabolism and growth and repair of muscle tissue. The best protein sources are animal products such as lean meat, fish, poultry, eggs, and milk. Plant foods including beans, nuts, and whole-grain products such as corn, rice, wheat bread, and pasta also contain protein.

This is a chart of total daily calories and recommended carbohydrate, fat, and protein intake based on age and weight.

Age	Reference weight in kg (lbs)	Total daily calories	Carbohydrates (grams per day)	Fat (grams per day)	Protein (grams per day)
13	45.6 (100.4)	2,500	310-410	56-69	55-73
14	51.0 (112.3)	2,700	357-459	60-75	61-82
15	56.3 (124.0)	3,100	394-507	69-86	68-90
16	60.9 (134.1)	3,200	426-548	71-89	73-97
17	64.6 (142.3)	3,300	452-581	73-92	78-103
18	67.2 (148.0)	3,300	470-605	73-92	81-108

Even though these values are based on extensive research, they are only estimates. Your individual metabolic rate and energy expenditure in daily activities will determine your total caloric intake. To know whether you're meeting your recommended daily intake of carbohydrates, you'll need to use nutrition information labels, which provide the number of grams or carbohydrates, fat, and protein per serving. If you are loosing weight and/or are hungry, you are consuming too few calories.

This nutrition information has been compiled from the book, *Training for Young Distance Runners* by Larry Greene and Russ Pate. It is published by Human Kinetics.