

IOC Consensus Statement on Sports Nutrition 2010

Diet significantly influences athletic performance. All athletes should adopt specific nutritional strategies before, during and after training and competition to maximise their mental and physical performance. Evidence-based guidelines on the amount, composition, and timing of food intake have been defined to help athletes perform and train more effectively, with less risk of illness and injury. Athletes will benefit from the guidance of qualified sports nutrition professionals who can advise on their individual energy, nutrient and fluid needs and help develop sport-specific nutritional strategies for training, competition and recovery.

Energy demands depend on the periodised training load and competition program, and will vary from day to day and across the season. A diet that provides adequate energy from a wide range of commonly available foods can meet the carbohydrate, protein, fat and micronutrient requirements of training and competition. An appropriate diet will help athletes reach an optimum body size and body composition to achieve greater success in their sport. Careful selection of nutrient-rich foods to reduce the risk of developing nutrient deficiencies that impair both health and performance is especially important when energy intake is restricted to reduce body and/or fat mass.

During high-intensity training, particularly of long duration, athletes should aim to achieve carbohydrate intakes that meet the needs of their training programs and also adequately replace carbohydrate stores during recovery between training sessions and competitions. Dietary protein should be consumed in daily amounts greater than those recommended for the general population, but a varied diet that meets energy needs will generally provide protein in excess of requirements. Foods or snacks that contain high-quality proteins should be consumed regularly throughout the day as part of the day's total protein intake, and in particular soon after exercise, in quantities sufficient to maximise the synthesis of proteins, to aid in long-term maintenance or gain of muscle and bone and in the repair of damaged tissues. Ingestion of foods or drinks providing 15-25 g of such protein after each training session will maximise the synthesis of proteins that underpins these goals.

For events lasting an hour or more, the athlete should aim to begin competition with body carbohydrate stores sufficient to meet their needs by consuming carbohydrate-rich foods in the hours and days beforehand. Ingestion of even small amounts of carbohydrate during exercise can enhance cognitive and physical performance in competition lasting one hour. As the duration of the event increases, so does the amount of carbohydrate needed to optimise performance. To achieve the relatively high rates of intake (up to 90 g/h) needed to optimise performance in events lasting more than about 3 hours, athletes should practise consuming carbohydrate during training to develop an individual strategy, and should make use of sports foods and drinks containing carbohydrate combinations that will maximise absorption from the gut and minimise gastrointestinal disturbances. Dehydration, if sufficiently severe, can impair performance in most events, particularly in warm and high-altitude environments. Athletes should be well hydrated before exercise and drink sufficient fluid during exercise to limit dehydration to less than about 2% of body mass. Chilled fluids may benefit performance in hot conditions. Athletes should not drink so much that they gain weight during exercise. Sodium should be included when sweat losses are high, especially when exercise lasts more than about 2 hours. During recovery from exercise, rehydration should include replacement of both water and salts lost in sweat. When athletes must compete in several events in a short time-period, strategies to enhance recovery of fluid and fuel are important.

Low energy availability should be avoided, as it can impair performance and adaptation to training and may be harmful to brain, reproductive, metabolic and immune function, and to bone health. Dieting in young athletes should be discouraged. Robust immunity and reduced risk of infection can be achieved by consuming a varied diet adequate in energy and micronutrients, ensuring adequate sleep and limiting other life stress. Athletes should be particularly aware of their needs for calcium, iron and Vitamin D, but the use of large amounts of some micronutrients may be harmful. Athletes at risk of disordered eating patterns and reproductive disorders should be promptly referred to a qualified health professional for evaluation and treatment.

The use of supplements does not compensate for poor food choices and an inadequate diet, but supplements that provide essential nutrients may be a short-term option when food intake or food choices are restricted due to travel or other factors. Vitamin D may be needed in supplemental form when sun exposure is inadequate. Of the many different dietary ergogenic aids available to athletes, a very small number may enhance performance for some athletes when used in accordance with current evidence under the guidance of a well-informed professional. Athletes contemplating the use of supplements and sports foods should consider their efficacy, their cost, the risk to health and performance, and the potential for a positive doping test. Supplement use in young athletes should be discouraged, and the focus should be on consuming a nutrient-rich, well-chosen diet to allow for growth while maintaining a healthy body composition.

To enjoy all the benefits of sport, athletes, whether they compete at the elite level or exercise on a recreational basis, should adopt specific nutrition strategies that can optimise mental and physical performance and support good health.