



Nutrition for athletics: The 2007 IAAF Consensus Statement

Athletics consists of a range of events requiring varying inputs of technique, strength, power, speed and endurance. Well chosen foods will help athletes train hard, reduce risk of illness and injury, and achieve performance goals, regardless of the diversity of events, environments, nationality and level of competitors. General recommendations can be made, but these should be implemented on an individual basis, according to the athlete's stage of maturation, sex, periodisation phase, training programme and competition goals. A qualified sports nutrition professional can help athletes find practical ways to achieve their nutrition goals despite a busy lifestyle, gastrointestinal issues and the challenges of travel. Appetite and thirst are not always good indicators of energy and fluid needs, and athletes will benefit from a personalised eating and drinking plan.

Athletes should consume a wide variety of foods that meet their energy needs and provide optimum amounts of carbohydrate, protein, fat, vitamins, minerals and other important food components. The energy requirements of training vary according to the type and duration of sessions which in turn change across training cycles. Some athletes naturally achieve their ideal physique as a result of heredity and training, but others must manipulate energy and nutrient intake to achieve desired changes in lean mass and body fat. Energy-restricted diets require careful selection of nutrient-dense foods to ensure that nutrient needs are met. Low energy availability should be avoided, as it can impair performance and adaptation to training as well as being harmful to reproductive, metabolic and immune function, and bone health.

An adequate carbohydrate intake is necessary to support intensive and consistent training with lowered risk of illness and injury. Guidelines for daily intakes are about 5-7 grams per kg body mass during periods of moderate training up to about 10 g/kg during heavy training or fuelling up for competition. Protein intake should be sufficient to optimise adaptation to both strength and endurance training, but intakes of more than 1.7 g/kg/d are not necessary for any athlete. Strategic timing of meals or snacks that provide these macronutrients around training sessions may help to optimise fuel availability, promote adaptation to training and enhance recovery.

Preparation for competition should include strategies to ensure muscle fuel stores that are appropriate to the event. Carbohydrate intake during exercise can be of value for events lasting longer than about 1 h, and refuelling between events on the same day is important. Each athlete should develop a competition plan that is practical and provides benefits for their performance. Carbohydrate loading is beneficial for prolonged events and can be achieved by 2-3 d of high carbohydrate intake and training taper. A depletion phase or fat adaptation is not necessary.

Athletes should also have an individualised hydration strategy for training and competition. They should start appropriately hydrated and consider the need and opportunity to consume fluid during and between activities. Generally, an athlete's fluid plan should limit total fluid deficits to less than about 2% of body mass, particularly when competing in a hot environment. Unless previously dehydrated, athletes should not over-drink before or during exercise such that they gain weight. Hyperhydration may detract from performance in weight-sensitive events and may lead to the serious problem of hyponatraemia. Rehydration after training or competition requires replacement of both water and salts lost in sweat.

Athletes must respond to changes in needs for energy, nutrients and fluid in new situations such as hot or cold environments, altitude and travel across time zones. Travel requires planning to cope with effects of the journey, different food cultures, changed access to foods and the risk of gastrointestinal disturbances. Youth athletes and their parents and coaches should be aware of the importance of nutrition for optimising health, growth and performance. Youth athletes may need special education, encouragement or supervision to achieve appropriate energy intake, fluid needs related to exercise, and adoption of nutrient-rich meal patterns.

When everyday foods are impractical, specialised foods can help athletes achieve nutrition goals. Supplements do not compensate for poor food choices. Some supplements may benefit performance, but athletes are cautioned against the use of these products without first conducting an individual risk-benefit analysis. Athletes are advised to seek assurances regarding quality control of supplement manufacture to ensure freedom from contamination with toxic or doping substances. Supplements should not be used by youth athletes except where clinically indicated and monitored.

Good food choices will contribute to success in athletics and to health and enjoyment of life.