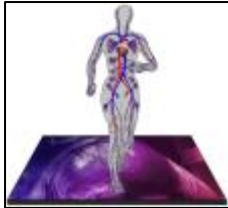


Sports Nutrition



People who engage in regular physical activity have reduced risk of hypertension, heart disease, diabetes, osteoporosis, depression, anxiety, sleep problems, and frailty. In addition, exercise reduces the risk of weight gain and obesity, and it reduces the risk for stroke. Exercise may also reduce certain kinds of cancer

Experts recommend that, to help yourself stay with an exercise program, you should:

- Start slowly
- Vary your workouts; make it fun
- Workout with friends and others
- Set specific attainable goals and monitor progress
- Set aside a specific time each day for exercise; build it into your routine, but make it convenient
- Reward yourself for being successful in keeping up with your goals
- Don't worry about occasional setbacks; focus on the long-term benefits to your health

Diet

An optimal diet for a person who is in an exercise program is a diet based on the dietary guidelines. Physical activity helps to curb appetite, and as activity progresses, research shows that active individuals will spontaneously eat more. Over time, exercising individuals will be able to maintain their energy balance and not gain weight as they age.

Energy Needs

There are increased energy demands due to increased physical activity. If weight loss is a goal, maintaining the same level of intake as before activity was begun will result in weight loss. Heavier activity will result in increased food intake. This, in turn, means that they are spontaneously getting more nutrients in their diet: proteins, vitamins, and minerals.

Fuels for muscle cells

Source/ System	When in Use	Examples of an Exercise
ATP	At all times	All types
Phosphocreatine (PCr)	All exercises initially; extreme exercise thereafter	Shotput, jumping
Carbohydrate (anaerobic)	High-intensity exercise, especially lasting 30 seconds to 2 minutes	200-yard (20 meter) sprint
Carbohydrate (aerobic)	Exercise lasting 2 minutes to 4-5 hours; the higher the intensity, the greater the use	Basketball, swimming, jogging
Fat (aerobic)	Exercise lasting more than a few minutes; greater amounts are used at lower exercise intensities.	Long-distance running, long-distance cycling; much of the fuel used in a brisk walk is fat
Protein (aerobic)	Low quantity during all exercise; moderate quantity in endurance exercise; especially when carbohydrate fuel is lacking	Long-distance running

Energy needs

The daily energy needs of an athlete depends on his/her activity factor. High level of sustained activity can double the daily energy required for BMR and activity. Weight maintenance indicates adequate caloric intake.



Calories are an important factor but are not to worry very much over because normal appetite regulation will enable individuals to adjust their intake, depending on what their energy expenditure dictates. If a person starts an exercise program, his/her appetite will generally increase to meet the body's extra needs and, in this way, the individual will be able to maintain weight.

Supplements

An exercise program combined with supplemental protein or micronutrients has no benefit over exercise alone in increasing aerobic capacity, muscle strength, and function. To date, nutritional manipulation has no added benefit on performance.



Protein

Athletes

Typical protein needs for athletes ranges from 1.2 to 1.6 g/kg body weight. For endurance athletes, about 10% of energy comes from protein and would benefit from increased intake. Untrained subjects undergoing endurance training need about 1 to 1.2 g/kg/d, which is above the RDA of 0.8 g/kg body weight.

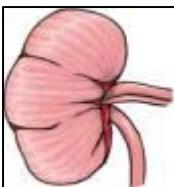


Body Building

In the initial stages of body building when a lot of new tissue is being built, intake around 1.8-2.0 g/kg body weight is recommended. Resistance exercise seems to exert an anabolic effect and allows for better protein utilization. Once the desired muscle mass is achieved, protein intake need not exceed twice that of the RDA.




Older Adults

A subset of about 20 to 25% of older men and women may not be getting the RDA for protein. For them (and the very frail, or with denture problems and poor food intake) increased protein intake is recommended when they are starting an exercise program. Protein should be from food sources, not from supplements. Milk shakes and other dairy-based foods can be used as protein supplements.



Toxicity

There could be a toxicity risk when people consume too much protein (over 2.0 g/kg/d). An excessive load of protein represents a stress on the kidneys. This is even more of a concern with the elderly, when kidney activity decreases. So, it is important to realize that very high protein diets will result in overworking the filtration system of the kidneys.

<p style="text-align: center;">"Appropriate" Activities for Carbohydrate Loading:</p>	<p style="text-align: center;">"Inappropriate" Activities for Carbohydrate Loading:</p>
<ul style="list-style-type: none"> • Marathons • Long-distance swimming • 30-k runs • Triathlons • Soccer • Long-distance canoe racing • Cycling events 	<ul style="list-style-type: none"> • Football games • 10-k runs • Walking and hiking • Most swimming events • Basketball games • Weight lifting • Most track and field 
 <p>Pennington Nutrition Series, Number 10, 2005</p> <p>Authors: Heli Roy PhD, RD Shanna Lundy, BS</p> <p>Division of Education Phillip Brantley PhD, Director Pennington Biomedical Research Center Claude Bouchard PhD, Executive Director</p> <p>4/05</p> <div style="border: 1px solid black; padding: 10px; margin-top: 10px;"> <p style="text-align: center;">Sites: Wardlaw G., Kessel M. Perspectives in nutrition. 5th ed. 2002.</p> </div>	<p>The Pennington Biomedical Research Center is a world-renowned nutrition research center.</p> <p>Mission: To promote healthier lives through research and education in nutrition and preventative medicine.</p> <p>The Pennington Center has six priorities in research:</p> <ol style="list-style-type: none"> 1. Clinical Obesity Research 2. Experimental Obesity 3. Functional Foods 4. Health and Performance Enhancement 5. Nutrition and Chronic Diseases 6. Nutrition and the Brain <p>The research fostered by these divisions can have a profound impact on healthy living and on the prevention of common chronic diseases, such as heart disease, cancer, diabetes, hypertension and osteoporosis.</p> <p>The Division of Education provides education and information to the scientific community and the public about research findings, training programs and research areas, and coordinates educational events for the public on various health issues.</p> <p>We invite people of all ages and backgrounds to participate in the exciting research studies being conducted at the Pennington Center in Baton Rouge, Louisiana. If you would like to take part, visit the clinical trials web page at www.pbrc.edu or call (225) 763-2597.</p> <p style="text-align: center;">Visit our Web Site: www.pbrc.edu</p>