Nutrition Needs of Senior Athletes

How diet can enhance physical performance in older athletes—from those who compete at a masters level to those who just want to improve their game.

It's not just the ranks of older Americans that are swelling: the number of seniors who are physically active is also going through the roof. Now, more than ever, your older clients are participating in races and vigorous fitness classes—and a percentage may even make it to the Senior Olympics.

As fitness professionals and nutrition professionals, we have senior athletes coming to us, not only to improve their health and retain a high level of fitness, but also to seek our advice on how to stay competitive and at the top of their game. While this article is chiefly about seniors who compete at the masters level, much of the information is applicable to your older active clients who are just looking to stay abreast of the competition.

Defining the Masters Athlete

The exact age at which one can be considered a "masters" athlete varies from sport to sport. For example, any golfer or bowler over the age of 50 years old is classified as a masters athlete, whereas participants in sports like track and field are considered masters-level athletes once they pass their 30th birthday.

Most organizations that host games, races and other individual competitions have established categories for masters athletes and typically age-grade the competition; categories are usually set in 5-year intervals so that a 94-year-old male is not in the same award category as his 35-year-old counterparts. For the purposes of this article, the focus is on athletes who compete at a masters level and are between the ages of 55 and 75.

How Aging Affects Fitness

Aging may improve the quality of fine wines and cheeses, but it tends to negatively affect physical performance. As the human body ages, there is a decline in cardiovascular functioning, respiratory ability and musculoskeletal strength. Research has shown that between the ages of 25 and 85, resting stroke volume, maximum heart rate and VO2 max all decline at a rate of approximately 10% per decade (Downes 2002).

The good news is that consistent physical activity can offset some of the detrimental effects of aging. Even more encouraging, exercise has the added benefit of increasing one's psychological well-being, decreasing the risk of chronic disease and reducing overall mortality rates relative to age (Rosenbloom 2006).

Older adults who exercise and eat a healthy diet may actually be in better shape than some of your clients who are younger in chronological age. Age is a poor predictor of health, says Christine Rosenbloom, PhD, RD, LD, a professor in the division of nutrition at Georgia State University and a certified specialist in sports dietetics (CSSD). According to Rosenbloom, a habitually active 75-year-old may have a higher level of fitness than a sedentary 50-year-old, especially when it comes to measures of VO2 max, muscle strength and flexibility.

Nutrition Needs of Senior Athletes

All athletes, regardless of age, need to consume adequate energy to participate in their sport and to perform the activities of daily living. However, compared with their younger counterparts, older athletes typically require less energy for weight maintenance. Evidence suggests that an athlete's overall energy needs decline with age, probably because of a decrease in lean body mass (resulting in an overall drop in resting metabolic rate) and a reduction in training volume. That said, this evidence does not take into account individuals who remain active as they enter their golden years.

It would be safe to say that while the energy needs of masters athletes are likely lower than those of younger competitors,
Fat Needs of Senior Athletes

Because fat is very calorically dense (9 calories per gram), it can be an excellent source of fuel. However, an older athlete’s fat intake should not be excessive; it should stay within the acceptable macronutrient distribution range of 20%–35% of total energy. Furthermore, older athletes should be sure to include essential fatty acids in their daily allotment of energy from fat. The IOM recommends 14 grams per day (g/day) of omega-6 fatty acids for older men and 11 g/day for older women. The intake guidelines for omega-3 fatty acids are 1.6 g/day for older men and 1.1 g/day for older women (Rosenbloom 2006).

Senior athletes should follow the American Heart Association’s guidelines to limit daily fat intake to less than 7% of total energy from saturated fat, less than 1% of total energy from trans fat and less than 300 milligrams (mg) of cholesterol each day (Lichtenstein et al. 2006).

For nutrient-dense foods that are high in healthy fats, see the sidebar “The Best Food Choices for Older Athletes.”

Protein Needs of Senior Athletes

Although there continues to be controversy as to how much protein athletes need to compete, most experts agree that those in training require a higher protein intake than their sedentary counterparts. The extra protein is vital for building lean body tissue, providing adequate amino acids to repair exercise-induced muscle damage and replacing the protein used as an energy source during exercise (Campbell & Geik 2004).

Given senior athletes’ overall age-related decline in lean body tissue and the likely decline in volume and intensity of training, the exact protein needs of this population is difficult to establish—and some suggest they may be lower than once thought. The Recommended Dietary Allowance (RDA) for protein has been set at 0.8 g/kg/day for all adults, regardless of age, although research is mixed as to whether older adults need more or less as they age (Campbell & Geik 2004). Certain studies on older active individuals have shown slight increases in protein needs during early phases of (strength) training, but not during continued strength training.

For practical purposes, senior athletes should aim for a protein intake similar to that of their younger competitors. Endurance athletes should get 1.2–1.4 g/kg/day of protein, whereas those involved in resistance training should aim for as much as 1.7 g/kg/day (Campbell & Geik 2004; Rosenbloom 2006; ADA 2009).

Keep in mind, protein utilization will not occur without adequate amounts of energy. Athletes who eat poorly, with insufficient energy and carbohydrate intake, and athletes in beginning stages of training need more protein to maintain their nitrogen balance. Furthermore, senior athletes who consume a low-calorie diet (typically 2,000 or fewer calories per day) must carefully monitor their overall nutrient intake to ensure that they are consuming adequate amounts of carbohydrate and protein. A low-calorie diet may not provide the macronutrients needed to achieve optimal carbohydrate stores, repair muscles and fuel the training load.

For nutrient-dense foods that are high in protein, see the sidebar “The Best Food Choices for Older Athletes.”

Fluid Needs of Senior Athletes

Because the effects of dehydration (even modest dehydration) can be detrimental to any physical performance, proper fluid intake is vital for all athletes. Older competitors are more susceptible to dehydration than their younger counterparts, because age causes physiological changes to thirst sensations, sweating rates, and fluid and electrolyte status, as well as blood flow changes that impair thermoregulation. Older athletes experience a natural decrease in renal function, which causes an increase in water output by the kidneys; they also have a delayed sweating response and a decreased per-
ception of thirst, which often leads to insufficient fluid intake over time.

Senior athletes should begin training sessions well hydrated, consuming copious amounts of fluid in the 24 hours prior to training, including 14-22 ounces in the 2–3 hours immediately before training (Campbell & Geik 2004). To reduce fluids lost during exercise, older athletes should ingest 6–12 ounces of fluid every 15–20 minutes during each training session, starting from the very beginning of the bout. After each session, senior athletes should drink an additional 16–24 ounces of fluid for each pound lost during exercise (Campbell & Geik 2004). Because athletes should recover glycogen stores immediately following training, an excellent choice for both hydration and energy recovery is a sports drink that contains carbohydrates and electrolytes.

Micronutrient Needs of Senior Athletes
An intense training schedule can increase an athlete’s need for micronutrients, and older athletes are no exception. Training depletes stores of vital vitamins and minerals, which are lost via sweat, urine and feces. In addition, senior athletes may be less able than younger competitors to synthesize and absorb vitamins D and B12.

For many micronutrients the ideal intake for older individuals has not yet been established, but the DRIs clearly show an increased need for fat-soluble vitamins, such as vitamins D and E; multiple B vitamins; and minerals such as calcium, zinc and magnesium. Most senior athletes can offset losses in these areas by consuming a nutrient-dense diet and/or taking a daily vitamin and mineral supplement. However, older athletes with chronic diseases and on corresponding drug therapies should consult their physician regarding specific micronutrient losses as a result of training.

Conclusions
Age aside, all athletes who strive to perform better will benefit by enhancing their nutrition status. By improving their diet, older athletes will be primed to maximize their training efforts, potentially leading to winning performances.

Pamela M. Nisevich, MS, RD, CSSD, LD, is an expert in sports dietetics and works with athletes of all ages and abilities. She is the co-founder of Swim, Bike, Run, Eat, LLC, an online nutrition counseling firm for athletes who want to reach the next level of performance (www.swimbikeruneat.com).

References

Common Drug-Nutrient Interactions
Many older athletes take at least one daily medication, often more. Certain foods can have a significant effect on medications such as diuretics, nonsteroidal anti-inflammatory drugs (NSAIDS) and lipid-lowering agents. Note the following:

<table>
<thead>
<tr>
<th>Drug Type</th>
<th>Interaction</th>
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</thead>
<tbody>
<tr>
<td>anxiety medications</td>
<td>Don’t mix with grapefruit.</td>
</tr>
<tr>
<td>hypertensive drugs</td>
<td>Avoid natural licorice. Don’t mix with grapefruit.</td>
</tr>
<tr>
<td>diuretic medications</td>
<td>Be aware that urine output and electrolyte excretion increase with these drugs; dietary supplements may be needed to make up for losses.</td>
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<tr>
<td>statin drugs</td>
<td>Avoid alcohol and grapefruit.</td>
</tr>
<tr>
<td>anti-inflammatory medications, or NSAIDS</td>
<td>Avoid gastrointestinal irritants, such as highly acidic foods and alcohol.</td>
</tr>
<tr>
<td>oral hypoglycemic agents</td>
<td>Note that absorption of vitamin B12 can decrease; avoid alcohol.</td>
</tr>
<tr>
<td>drugs for gastrointestinal disorders</td>
<td>Note that absorption of vitamin B12 and iron can decrease. Avoid alcohol.</td>
</tr>
<tr>
<td>anticoagulant medications</td>
<td>Do not increase consumption of dark, leafy greens without consulting your physician, as vitamin K (present in these greens) can cause additional blood thinning.</td>
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