Sports Nutrition for Older Athletes

So you ran your best marathon time 10 or maybe even 20 years ago. Does that mean you give up on your sport? Or maybe you've not really been physically active since you were in your early twenties, and it's now 40 years later. Have you missed your chance? The answer to both questions is, absolutely not! Athletes who for years have competed at the elite level are continuing to compete today as masters athletes. And research clearly shows that no matter what your age, or how long you've been physically inactive, you can achieve and maintain a high level of fitness and muscle strength by engaging in a program of regular training.

There are millions of people in countries all over the world who are 65 years of age or older. Maybe you're one of them, or getting close. If so, you're in good company as the numbers are only going to increase in the years to come. We as a population are getting older, but that doesn't mean we have to act our age, and many of us aren't. In fact, the percentage of adults 65 and older who participate in vigorous physical activity on a regular basis is actually higher than it is for younger adults! You know what they say, 60 is the new 40!

Getting older is no reason to stop being an athlete, and being older is a great time to start being athletic if you're not already. As you'll find out in this article, regular physical activity can literally help keep you younger. But there are physiological changes that take place in your body in your 40s, 50s, and beyond. It's important to understand the nature of these changes and how they affect you as an athlete. It's just as important to know what you can do nutritionally to counter these physiological effects, so you can start or continue to perform at your athletic best.

**Anti-aging benefits of exercise**

Imagine a magical elixir that could increase your cardiovascular fitness and muscle strength, reduce your risk of high blood pressure and heart disease, protect against certain forms of cancer, help maintain strong bones, keep your weight in check and help prevent the development of diabetes, and protect you from depression and anxiety. Believe it or not, that elixir is regular exercise, and it's never too late to start.

We often think of age chronologically. But chronological age doesn't do a very good job of predicting your functional age or fitness level. Think about your 45-year old neighbor who has never been very physically active. Now compare him to a 65-year old masters athlete. There is a 20-year chronological age difference, but I'd put my money on the older athlete outperforming the younger person on a host of fitness measures like muscle strength, flexibility, and maximum oxygen consumption.
Effect of age on muscle tissue

A lifetime of physical activity is important to feeling and performing younger no matter what your age. But there are changes that occur physiologically as you get older, and the tendency to lose muscle mass and strength is one example. Your muscle tissue is the engine that enables you to train and compete, and it undergoes a significant change as you get older. This is illustrated by a population study that examined fitness among women in different age groups. As part of their testing, researchers asked the women to lift a 10-lb (4.5-kg) weight. Among those 55–64 years of age, 40% were unable to lift the 10 lbs. Among women 65–74 years old, 45% couldn’t lift the weight, and between the ages of 75–84, a whopping 65% of women failed the 10-lb test. And yet these very same women, in their 20s, 30s, and 40s, were easily able to lift their children who undoubtedly weighed much more than 10 lbs. This loss of muscle strength mirrors a loss in muscle mass as we get older. And the loss doesn't just occur in women. Similar reductions in muscle strength and muscle mass often occur in men as they get older.

So what's happening to our muscles as we age?
You might think that the Adonis physique you enjoyed in your early 20s has simply been done in over the years by the daily grind of job and family responsibilities which haven't allowed you to train like when you were younger. Use it or lose it is absolutely an important factor. If you don't load your muscles on a regular basis by using them, they will reduce in size. But aging itself can also put a serious dent in your muscle tissue and muscle strength.

Your muscles are made up of individual muscle fibers. Whole groups of these fibers together are under the control of motor neurons. You have pretty much the same number of muscle fibers and controlling neurons in your muscle tissue through the first 40–50 years of your life. But thereafter, you start to lose muscle fibers and their neurons. By age 80 you've lost roughly half the muscle fibers that you were born with. The muscle fibers you lose are the fast-twitch, type 2 fibers responsible for muscle strength. This loss of muscle mass with age is called sarcopenia, and it's a natural effect of aging. But that's by no means the final word on the subject. The good news is that if you take the proper steps with both your training and sports nutrition, you can minimize or even prevent the age-related loss of muscle strength. You can also effectively counter a number of other key physiological changes that are attributed to getting older.

Strategically Countering the Effects of Aging

Exercise
Being physically active can pay enormous health benefits. According to research conducted to date, changes that are considered a normal consequence of aging, such as reduced muscle mass and strength, reduced aerobic conditioning, severe bone loss, and a deterioration in glucose tolerance, are often less apparent in masters athletes and those with a lifelong habit of physical activity. The lesson here is that a program of aerobic exercise nearly daily, combined with regular strength training, is critical to helping to counter the effects of aging. What you do nutritionally to support your training is also very important.

Calories
All athletes, whether on the younger or older end of the age spectrum, need to consume enough calories to meet the energy demands of exercise, to maintain body weight, and to maximize the benefits of training. Consuming too few calories can cause you to fatigue too early during exercise. It can also lead to weight loss, bone loss, and a higher risk of illness and injury.

It's common for older athletes to consume fewer calories than younger athletes. The metabolic activity of your muscle mass is a major determinant of your need for calories. Everything else being equal, athletes with more muscle mass require more calories than athletes with less muscle mass. So, if you are losing some muscle mass as you get older, you're going to require fewer calories. That said, you'll require more calories than
someone your age who isn't physically active. Other factors also contribute to the need for fewer calories as we get older. For example, the tendency toward a lower training volume and/or intensity, a slower metabolism when at rest, and a decline in non-training-related physical activity can all decrease your need for calories.

Recommendation: While it is common to consume fewer calories as we get older, it is important for athletes of all ages to consume enough calories to maintain body weight. This also helps to ensure adequate consumption of carbohydrates needed to fuel your exercise, protein required for the repair and building of muscle tissue in response to training, and micronutrients to support all-round health and optimal functioning.

**Carbohydrates**

Your dependency on carbohydrates to train and compete at your best doesn't change because you are an older athlete. Older athletes have the same capacity as younger athletes to store carbs in the form of glycogen before exercise, to use glucose circulating in the bloodstream and muscle and liver glycogen stores during exercise, and to replenish glycogen reserves afterwards. Where older athletes may come up short is in consuming enough carbohydrates daily to meet the demands of exercise. Athletes generally require between 2.7 and 4.5 grams of carbs per lb body weight (6–10 grams per kg) daily to meet the daily demands of training and competing. Researchers studying older female endurance athletes found that the women consumed about 2000 calories daily, with 56% of their calories coming from carbohydrates. This corresponds to a carbohydrate intake closer to 2.3 grams per lb body weight (5 grams per kg) daily. This level of intake is below the minimum of the recommended range and may be inadequate to fully replenish depleted carbohydrate fuel stores on a daily basis. Thus, athletes who consume a relatively low calorie intake (e.g., 2000 calories or less daily) need to consume more of their calories from carbohydrates to fully replenish carbohydrate fuel stores.

Recommendation: When exercising on a daily basis, strive to consume at least 2.7 grams of carbs per lb body weight (6 grams per kg) every day.

**Protein**

Endurance athletes typically require about 0.55–0.64 grams protein per lb body weight (1.2–1.4 grams per kg) daily, while strength-trained athletes require as much as 0.77 grams per lb body weight (1.7 g per kg) daily. This compares to 0.36 grams protein per lb body weight (0.8 g per kg) daily for inactive individuals. The higher protein needs of athletes are to provide amino acids for the repair of exercise-induced muscle damage and the building of new muscle tissue as an adaptation to training. Most younger athletes, especially males, easily meet their higher need for protein because of the comparatively high number of calories they consume. But as an older athlete, how much protein do you need, and are you consistently meeting your needs?

Research to date leans toward older athletes having an increased need for protein. Investigators addressed this question in a series of experiments with older individuals. In one study, inactive older men and women were fed the daily requirement for protein, 0.36 grams protein per lb body weight (0.8 g per kg) daily. After 14 weeks, the researchers found that the thigh muscles of these men and women were smaller, and that overall they experienced a net loss of protein consistent with a loss of muscle mass. The investigators then had the study participants consume the same amount of protein, but they paired that with strength training exercise. The addition of strength training prevented the loss of muscle from the thigh area, but there was still an overall net loss of muscle from the body. The investigators then took a group of older men and fed them a higher protein intake, 0.45–0.55 g protein per lb body weight (1.0–1.2 grams per kg) daily, while pairing that with strength training for a period of 12 weeks. The investigators found that the combination of extra protein and strength training not only increased the size of the muscle that was being exercised, this regimen increased their overall muscle mass. These findings underscore two very important points. First, the daily protein requirement for inactive individuals is probably not enough to support the growth of muscle during strength-training exercise in older individuals. Thus, experts are now suggesting that older athletes get extra protein. A prudent suggestion is to consume 0.55–0.64 grams
protein per lb body weight (1.2–1.4 grams per kg) daily, which happens to be the protein recommendation for younger endurance athletes. The second key point is that pairing extra protein with strength training exercise can slow or possibly even help prevent the loss of muscle mass that occurs with age. In fact, older individuals can build muscle size and strength just like younger athletes if they engage in a regular strength training program. So, if you’re an older athlete, make sure that your training regimen includes resistance training exercises that work the major muscle groups, and that you engage in this type of exercise 2 or 3 times per week.

One last thing to keep in mind after exercise is to eat, especially after strength training. Researchers found that gains from strength training in older athletes were greater after 12 weeks when the athletes consumed some protein and carbs within 30 minutes of exercise, as compared to waiting for 2 hours to eat. A recovery beverage alone or paired with an energy bar is ideal after exercise to help maximize the strength gains from your resistance training workouts.

Recommendation: Consume 0.55–0.64 grams protein per lb body weight (1.2–1.4 grams per kg) daily, engage in regular resistance-training workouts that overload the major muscle groups, and eat carbs and protein within 30 minutes of finishing your workout.

Fat

Younger or older, all of us have plenty of fat stores to utilize during low-intensity exercise. Therefore, fat intake doesn't impact athletic performance per se, but attention to the types of fat you eat can help to protect your health and reduce your risk of disease. Strive to avoid trans fats that are often used in restaurants for deep frying and in commercial baked goods like cookies. Reduce your intake of saturated fats by choosing lean cuts of meat, using low-fat and nonfat dairy products, and substituting olive oil, canola oil, or other vegetable oils in place of butter when cooking. And consume more omega-3 fats to help protect your heart. Good sources of omega 3s include fatty fish, such as salmon.

Fluids and sodium

Dehydration has a negative effect on athletic performance for all athletes, and those negative effects occur with a fluid loss of just 2% of your body weight. For a 150-lb (68-kg) athlete, that equates to just 3 lbs (about 1.4 kg) of fluid, which is easy to lose when conditions are hot or humid. When you become dehydrated your ability to regulate your body temperature is impaired, your core body temperature rises, and your cardiovascular function suffers. In short, dehydration is a quick way to shut down athletically, and it can have serious health consequences.

It’s important to understand that older athletes are more susceptible to dehydration than younger athletes. In fact, there are a handful of physiological changes that occur as you get older that make attention to hydration doubly important:

- As we get older, our kidneys become less efficient at filtering, so we end up excreting more body water. Body water is what keeps us hydrated and cooled during exercise, and so with less of it, we are more susceptible to overheating
- Blood vessels in the skin aren't quite as adept at dilating as we get older. Thus, there is less blood flow throughout the skin, which undermines an important mechanism for transferring heat from your working muscles to the outside environment. Older athletes have about 25–40% less blood flow through the skin compared to younger athletes
- Older athletes tend to sweat less and to start sweating later during exercise. This may help reduce your laundry load, but it doesn't help you thermo-regulate or stay cool during exercise
• Finally, as we get older, our thirst mechanism becomes less sensitive. Thirst is already a poor indicator of fluid needs during exercise, and with older athletes, it's even less reliable.

None of these physiological changes are deal breakers that should cause you to hang up your sneakers, but they do add up to a strong case for having a disciplined hydration plan before, during, and after exercise.

Recommendation before exercise: Drink fluids generously in the 24 hours before you exercise. Make up for any prior fluid deficits by consuming 14–20 fl oz (400–600 ml) of water or a sport drink 2–3 hours before you start exercising. Keep hydrating as needed prior to and during warm-up activities by drinking another 8 fl oz (240 ml), especially if it is hot or humid outside.

Recommendation during exercise: To stay hydrated during exercise, start consuming fluids early in your training session. You want to prevent dehydration rather than have to reverse it. As a general guide during exercise, consume 6–12 oz of fluid every 15–20 minutes if possible. It is now the consensus recommendation of the American College of Sports Medicine that athletes consume fluids at a rate that closely matches sweat rate. Also, if you're exercising for over an hour at a time, or anytime you exercise in hot or humid conditions, a sports drink that contains carbs and sodium is a better option than plain water. The carbs in a sports drink can help maintain your energy level during exercise, and the sodium can help with hydration.

Recommendation after exercise: Training or competing can lead to heavy fluid and sodium losses due to sweating, especially if conditions are hot or humid. Weigh yourself before and after exercise to gauge your net loss of fluids. Replace this fluid by gradually drinking 23 fl oz (690 ml) of a sports drink, recovery beverage, or water for every lb (1500 ml per kg) of weight lost. Consume sodium sources along with your fluids. Re-hydration will be more effective when sodium is included with the fluid and food you consume as you recover from exercise. If your loss of fluids consistently exceeds 2% of your body weight, try to increase your fluid intake during subsequent exercise sessions to avoid dehydration.

Micronutrients
While regular intense exercise may increase the need for essential vitamins and minerals in younger athletes, their increased needs generally don't exceed the daily requirements set for the micronutrients. Also, younger athletes are often more likely to obtain the vitamins and minerals they need because their calorie intakes are relatively high. In older athletes, the picture is different. Older athletes commonly consume fewer calories and this can leave you short when it comes to getting the amounts of the essential vitamins and minerals you need. Also, a decrease in stomach acid production, a condition called atrophic gastritis, occurs commonly as we get older. This condition can make it harder to absorb essential nutrients like folate, vitamin B12, and calcium. In addition, as we get older our skin is less able to make vitamin D which is needed to absorb calcium. And medications can impact nutrient absorption. Thus, it's a good idea to consider taking a balanced one-a-day type vitamin/mineral supplement. Select a multi for seniors since you won't need extra iron. Also, you may need to pair that multi with an extra supplement of calcium and vitamin D.

Recommendation: If your calorie intake is on the low side, or if you have dietary restrictions, take a balanced one-a-day type multivitamin/mineral supplement for seniors and add a calcium and vitamin D supplement if needed.

Strategies for boosting energy during exercise
Just because you're older doesn't mean you can't take advantage of the sports nutrition strategies commonly employed by younger athletes to get an energy boost during exercise.

Carbohydrate loading
Carbohydrate loading is a proven strategy that maximizes your muscle glycogen stores. It's useful before an extended endurance event, such as a marathon, where you know you'll benefit from every ounce of muscle glycogen that you can store. Being an older
athlete, the catch is that you may not consume enough calories to get all the carbs you need. In fact, to effectively carbohydrate load you'll need to consume at least 3.6 grams carbs per lb body weight (8.0 grams per kg) daily for 3–4 days before your event, while you gradually taper your training. At a minimum this will require extra-careful choosing of carbohydrate sources to get the high intakes needed. You may even need to consume extra carbohydrate calories over those 3–4 days to get to the minimum required intake level.

Caffeine and endurance

Numerous studies have shown that caffeine can enhance endurance performance in athletes. Although its exact effects are not fully understood, caffeine before or during endurance exercise seems to decrease the perception of the difficulty of the effort. Do those same energy-boosting benefits apply to older athletes?

Evidence from a recent study suggests that the answer is yes. Among cyclists who were 70 years of age and older, caffeine ingestion improved cycling endurance by a hefty 25%.

Conclusions

A lifetime of regular physical activity is a powerful way to stay young and healthy. Also, you're never too old to get fit. That said, your body does change as you get older, and adapting your sports nutrition regimen to those changes can help you train and compete at your best.

- Along with your aerobic conditioning work, include resistance exercises that work the major muscle groups
- Be vigilant about consuming adequate calories to maintain your body weight
- Start exercise fully hydrated. Start hydrating early during exercise and rehydrate frequently. Replenish fluid and sodium losses after exercise
- Consume at least 2.7 grams of carbs per lb body weight (6 grams per kg) every day when you're exercising regularly
- Consume a total of 0.55–0.64 grams protein per lb body weight (1.2–1.4 grams per kg) daily to meet your protein needs and to promote muscle tissue repair and building after exercise
- Eat carbs and protein within 30 minutes of finishing your workouts to promote optimum recovery
- Consider a multivitamin/mineral supplement designed for seniors along with some extra calcium and vitamin D if necessary

References: