16 | Age and Performance

In this chapter you will learn about:

- Age-associated changes in metabolism and body composition.
- Countering age-associated changes in physical performance.

Aging is a natural process that most, if not all, people would like to avoid. Most people associate aging with gaining weight, getting weaker, and not being able to perform many of the activities they did in their youth. Many of these conditions are actually the result of **inactivity**, not aging. Although there are several inevitable physiologic changes that will occur as you age, the degree of these changes can be manipulated through sound dietary and exercise practices.

Changes in Metabolism and Body Composition

Maintaining a healthy body weight and body fat percentage throughout your adult life is key to maintaining health and fitness as you age. This often seems easier said than done, considering basal metabolic rate (BMR, see Chapter 1) declines as you age.

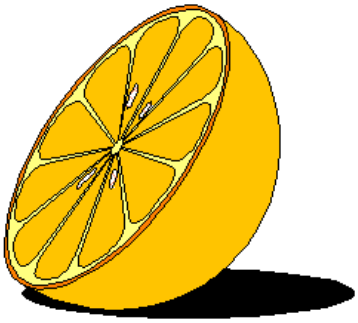
> With aging, expect to see a gradual decline in BMR, possibly resulting in needing 100 fewer kcal a day with each passing decade.
>
> Taken from Tufts University Health and Nutrition Letter. November 1998; 16(9): 6.

The loss of muscle mass as you age is directly responsible for the decline in BMR. Muscle is metabolically active, which means that it requires a set number of kcals each day to maintain its mass. On average, people lose some muscle mass each year after the age of 35 years. This results in fewer metabolic demands and less total daily kcal requirements. However, the amount of muscle mass that you lose is dependent upon how much physical activity you perform as you age, particularly activities that require muscle strength such as strength training. By engaging in strength training exercises you will preserve and possibly gain muscle mass, leading to a 10% to 15% boost in your BMR!

Along with a decrease in muscle mass, inactivity can also lead to an increase in body fat. This occurs if the number of kcals consumed is greater than the number of kcals expended through physical activity, as explained in the energy balance equations in Chapter 1. This simultaneous increase in body fat and decrease in muscle mass leads to a greater body mass index (BMI) and is associated with an increased risk for heart and blood vessel diseases, obesity, diabetes, and other diseases (see Chapter 1).

Any alterations in energy expenditure, either through changes in BMR or changes in physical activity level, need to be countered by changes in kcal intake to keep your net energy balance at zero and to maintain your current body weight. Therefore, a combination of sound nutritional practices and regular physical activity will enable you to maintain a healthy body weight and body composition and remain physically fit as you age.

Nutritional Needs



The Dietary Guidelines for Americans and the Food Guide Pyramid (outlined in Chapter 3) were designed to provide basic nutritional information and serve as educational tools for Americans over 2 years of age. Therefore, these guidelines should be followed to ensure good nutrition throughout your life. An important point to note is that although the age-related decline in BMR results in the need for fewer daily kcals, the requirements for nutrients such as vitamins, minerals, and proteins do not decrease with age (see Chapter 2). Therefore, proper food selection is essential to meet this challenge. Some ideas to help you meet your nutrient requirements without eating extra kcals include following the 5-A-Day campaign (eat at least five fruits and vegetables a day) and eating nutrient dense foods (see Chapter 3 and Appendix A).

Countering Age-Associated Changes in Fitness

Ever heard the saying “use it or lose it?” This is true for physical fitness. Whether it is muscle strength or aerobic endurance, if you do not remain physically active as you age you cannot maintain the muscle mass or heart adaptations you need for peak performance (review the effects of detraining listed in Chapter 4). Though aging can lead to decreases in fitness levels, the amount of decline is strictly dependent on your exercise routine. Therefore, age itself does not predispose you to have large decrements in physical performance.

Some gradual changes you can expect in your physical performance as you age are listed below.

- **Aerobic Capacity** - Declines in aerobic capacity, about 5% to 15% per decade, can start occurring after the age of 30. This is due to a combination of less physical activity, a lowering of the maximal heart rate, and decreases in the elasticity of the blood vessels. Declines in aerobic capacity can be minimized by maintaining a regular aerobic exercise routine. In particular, maintaining your exercise intensity, even if you exercise less frequently each week, will enable you to preserve much of your cardiorespiratory fitness as you age (see Chapters 4, 5, and 6).
- **Anaerobic Performance** - Declines more than aerobic capacity mainly because people tend to perform less near-maximal exercise as they age. This decline can be minimized by performing speed work in addition to your aerobic conditioning (see Chapter 5 for performance-related workouts). Training for speed is only necessary if you want to maintain your performance-related fitness or are still participating in competitive sports (see Chapters 4 and 5).
- **Muscle Mass and Strength** - Both muscle mass, particularly the fast twitch fibers, and muscle strength decline after the age of 40. Losses can be minimized and even reversed if strength training exercises are performed regularly. As with aerobic fitness, the intensity of the strength exercises will determine the degree of your training benefits and slow the loss of muscle as you age (see Chapters 4, 7, 8, 10, and Appendix C).

- **Flexibility** - Connective tissue around your joints can become less elastic with age. However, no measurable declines in flexibility will occur if you regularly perform stretching exercises. Maintaining your flexibility is important as this determines the range of motion of your joints and decreases the feeling of stiffness in your joints. Flexibility also serves an important role in injury prevention and may reduce symptoms of arthritis. (See Chapters 4 and 9.)

Other fitness issues to be aware of as you age include the following:

- **Warm-Up and Cool-Down** - Longer warm-up and cool-down times are needed to optimize performance as you age, particularly if you are participating in strenuous exercise. These longer warm-up and cool-down times will help prepare your body for the upcoming exercise and reduce your risk of injury (see Chapter 4).
- **Recovery from Workouts** - You will need to allow for longer recovery times from strenuous workouts and competition as you age. You may actually notice this before you notice a decline in your performance. Listen to your body and allow for adequate recovery time by following a hard workout with a couple rest days or light workout days. In addition, allow your body adequate time to adapt to increases in your workout. Again, maintaining your intensity is more important than exercising more frequently to maintain your fitness. Also, pay attention to the warning signs of overtraining (see Chapter 13).
- **Recovery from Injuries** - As with recovery from a strenuous workout, you will need more time to recover from training injuries. Be patient and allow yourself to fully recover. This will help you avoid future injuries (see Chapter 13).
- **Cross-Training** - No specific exercise is better than another to offset all the health and fitness changes mentioned. However, many of these concerns can be addressed by cross-training, or altering the types of exercises you perform, throughout the week (see Chapter 5). By cross-training you can improve and maintain your aerobic fitness while recovering from intense workouts or while taking a break from weight-bearing exercises. This will help prevent overtraining and overuse injuries (see Chapter 13) while you remain physically active. Consider making cross-training a regular practice in your exercise routine, if it is not already.

As you grow older your responsibilities, interests, leisure time activities, as well as your level of motivation may affect how physically active you are. However, it is important to remember that a sedentary or inactive lifestyle, combined with poor eating habits, can increase the risk for developing obesity, heart disease, strokes, diabetes, some types of cancers, high blood pressure and osteoporosis. Adopting sound eating and exercise habits (the earlier the better) can help reduce the risk for developing the above mentioned diseases. Chapter 17 provides information on how to develop and maintain healthy habits.