13.5: Old Age and Nutrition

Skills to Develop

• Summarize nutritional requirements and dietary recommendations for elderly adults.
• Discuss the most important nutrition-related concerns during the senior years.
• Discuss the influence of diet on health and wellness in old age.

Beginning at age fifty-one, requirements change once again and relate to the nutritional issues and health challenges that older people face. After age sixty, blood pressure rises and the immune system may have more difficulty battling invaders and infections. The skin becomes more wrinkled and hair has turned gray or white or fallen out, resulting in hair thinning. Older adults may gradually lose an inch or two in height. Also, short-term memory might not be as keen as it once was. Beverly McMillan, *Illustrated Atlas of the Human Body* (Sydney, Australia: Weldon Owen, 2008), 260.

In addition, many people suffer from serious health conditions, such as cardiovascular disease and cancer. Being either underweight or overweight is also a major concern for the elderly. However, many older adults remain in relatively good health and continue to be active in their golden years. Good nutrition is often the key to maintaining health later in life. In addition, the fitness and nutritional choices made earlier in life set the stage for continued health and happiness.

Older Adulthood (Ages Fifty-One and Older): The Golden Years

An adult’s body changes during old age in many ways, including a decline in hormone production, muscle mass, and strength. Also in the later years, the heart has to work harder because each pump is not as efficient as it used to be. Kidneys are not as effective in excreting metabolic products such as sodium, acid, and potassium, which can alter water balance and increase the risk for over- or underhydration. In addition, immune function decreases and there is lower efficiency in the absorption of vitamins and minerals.
Older adults should continue to consume nutrient-dense foods and remain physically active. However, deficiencies are more common after age sixty, primarily due to reduced intake or malabsorption. The loss of mobility among frail, homebound elderly adults also impacts their access to healthy, diverse foods.

**Energy**

Due to reductions in lean body mass and metabolic rate, older adults require less energy than younger adults. An energy deficit and weight loss are common problems. The energy requirements for people ages fifty-one and over are 1,600 to 2,200 calories for women and 2,000 to 2,800 calories for men, depending on activity level. The decrease in physical activity that is typical of older adults also influences nutritional requirements. Including physical activity in their daily routine allows for a higher energy intake and a greater likelihood they will meet their other nutrient requirements. It also helps maintain body composition and weight.

**Macronutrients**

The AMDRs for carbohydrates, protein, and fat remain the same from middle age into old age. Older adults should substitute more unrefined carbohydrates for refined ones, such as whole grains and brown rice. Fiber is especially important in preventing constipation and diverticulitis, and may also reduce the risk of colon cancer. Protein should be lean, and healthy fats, such as omega-3 fatty acids, are part of any good diet. Fat intake should be lower to increase nutrient density.

*Figure 13.5.1: Regular exercise, along with a nutritious diet, can help older adults maintain their health. Image used with permission (Public Domain; National Institutes of Health).*
Micronutrients

An increase in certain micronutrients can help maintain health during this life stage. Iron needs increase because of lower absorption due to lower stomach acid. The recommendations for calcium increase to 1,200 milligrams per day for both men and women to slow bone loss. Also to help protect bones, vitamin D recommendations increase to 10–15 micrograms per day for men and women. Vitamin B₆ recommendations rise to 1.7 milligrams per day for older men and 1.5 milligrams per day for older women to help lower levels of homocysteine and protect against cardiovascular disease. As adults age, the production of stomach acid can decrease and lead to an overgrowth of bacteria in the small intestine. This can affect the absorption of vitamin B₁₂ and cause a deficiency. As a result, older adults need more B₁₂ than younger adults and require an intake of 2.4 micrograms per day, which helps promote healthy brain functioning. For elderly women, higher iron levels are no longer needed post menopause and recommendations decrease to 8 milligrams per day. People over age fifty should eat foods rich with all of these micronutrients and antioxidants.

Nutritional Concerns for Older Adults

Dietary choices can help improve health during this life stage, postpone some chronic diseases, and address some of the nutritional concerns that many older adults face. In addition, there are specific concerns related to nutrition that affect adults in their later years. They include medical problems, such as disability and disease, which can impact diet and activity level. For example, dental problems can lead to difficulties with chewing and swallowing, which in turn can make it hard to maintain a healthy diet. The use of dentures (not as effective as real teeth) or the preparation of pureed or chopped foods can help solve this problem. There also is a decreased thirst response in the elderly, and the kidneys have a decreased ability to concentrate urine, both of which can lead to dehydration. Adequate fluid intake is necessary to facilitate excretion of metabolic waste. At least six cups of fluid are recommended a day and some medications may increase the need for more fluids.

Other factors can affect an older person's decision to eat and thus their nutritional status. These factors can include medications, emotional state such as depression, confusion or memory loss, availability of money, physical hindrances and loss of friends and spouse. Many older people take multiple drugs that are important to maintain their health. These drugs can interact with each other or by themselves causing nutritional deficiencies. For example, diuretics cause water loss and some nutrient losses, while other drugs can decrease appetite. Depression occurs in about ten to fourteen percent of older people and lowers food intake.

Here are guidelines for improving nutrient intake in the elderly. Meals should be regular, small and frequent. Quick, easily prepared foods like convenience foods may be appropriate to assure the elderly are eating. Different flavorings and seasonings should be encouraged to make food more interesting. Eating is a social event so eating with others should be encouraged as well as sharing meal preparation and responsibilities with others. Community resources are available to help with shopping and cooking and their use encouraged. Physical activity improves appetite and independence.

Sensory Issues

At about age sixty, taste buds begin to decrease in size and number. As a result, the taste threshold is higher in older
adults, meaning that more of the same flavor must be present to detect the taste. Many elderly people lose the ability to distinguish between salty, sour, sweet, and bitter flavors. This can make food seem less appealing and decrease the appetite. An intake of foods high in sugar and sodium can increase due to an inability to discern those tastes. The sense of smell also decreases, which impacts attitudes toward food. Sensory issues may also affect the digestion because the taste and smell of food stimulate the secretion of digestive enzymes in the mouth, stomach, and pancreas.

Gastrointestinal Problems

A number of gastrointestinal issues can affect food intake and digestion among the elderly. Saliva production decreases with age, which affects chewing, swallowing, and taste. Digestive secretions decline later in life as well, which can lead to atrophic gastritis (inflammation of the lining of the stomach). This interferes with the absorption of some vitamins and minerals. Reduction of the digestive enzyme lactase results in a decreased tolerance for dairy products. Slower gastrointestinal motility can result in more constipation, gas, and bloating, and can also be tied to low fluid intake, decreased physical activity, and a diet low in fiber, fruits, and vegetables.

Other gastrointestinal problems include atrophic gastritis which is a chronic inflammation of the stomach mucosa. Most often this is caused by a bacterial overgrowth and leads to a loss of HCl and intrinsic factor impairing absorption of several important nutrients. About thirty percent of those over 60 suffer from this condition. Some older people experience ulcers and this can increase their need for iron.

Dysphagia

Some older adults have difficulty getting adequate nutrition because of the disorder dysphagia, which impairs the ability to swallow. Any damage to the parts of the brain that control swallowing can result in dysphagia, therefore stroke is a common cause. Dysphagia is also associated with advanced dementia because of overall brain function impairment. To assist older adults suffering from dysphagia, it can be helpful to alter food consistency. For example, solid foods can be pureed, ground, or chopped to allow more successful and safe swallow. This decreases the risk of aspiration, which occurs when food flows into the respiratory tract and can result in pneumonia. Typically, speech therapists, physicians, and dietitians work together to determine the appropriate diet for dysphagia patients.

Video 13.5.1: Dysphagia

This video provides information about the symptoms and complications of dysphagia. (click to see video)

Obesity in Old Age

Similar to other life stages, obesity is a concern for the elderly. Being moderately overweight if over sixty-five may be okay; being obese is not. Adults over age sixty are more likely to be obese than young or middle-aged adults. As explained throughout this chapter, excess body weight has severe consequences. Being overweight or obese increases the risk for potentially fatal conditions that can afflict the elderly. They include cardiovascular disease, which is the leading cause of death in the United States, and Type 2 diabetes, which causes about seventy thousand deaths in the United States annually. Centers for Disease Control, National Center for Health Statistics. “Deaths and Mortality.” Last
updated January 27, 2012. http://www.cdc.gov/nchs/fastats/deaths.htm. Obesity is also a contributing factor for a number of other conditions, including arthritis.

For older adults who are overweight or obese, dietary changes to promote weight loss should be combined with an exercise program to protect muscle mass. This is because dieting reduces muscle as well as fat, which can exacerbate the loss of muscle mass due to aging. Although weight loss among the elderly can be beneficial, it is best to be cautious and consult with a healthcare professional before beginning a weight-loss program.

Anorexia of Aging

In addition to concerns about obesity among senior citizens, being underweight can be a major problem. A condition known as the anorexia of aging is characterized by poor food intake, which results in dangerous weight loss. This major health problem among the elderly leads to a higher risk for immune deficiency, frequent falls, muscle loss, and cognitive deficits. Reduced muscle mass and physical activity mean that older adults need fewer calories per day to maintain a normal weight. It is important for health care providers to examine the causes of anorexia of aging among their patients, which can vary from one individual to another. Understanding why some elderly people eat less as they age can help health-care professionals assess the risk factors associated with this condition. Decreased intake may be due to disability or the lack of a motivation to eat. Also, many older adults skip at least one meal each day. As a result, some elderly people are unable to meet even reduced energy needs.

Nutritional interventions should focus primarily on a healthy diet. Remedies can include increasing the frequency of meals and adding healthy, high-calorie foods (such as nuts, potatoes, whole-grain pasta, and avocados) to the diet. Liquid supplements between meals may help to improve caloric intake. Morley, J. E. “Anorexia of Aging: Physiologic and Pathologic.” Am J Clin Nutr 66 (1997): 760–73. http://www.ajcn.org/content/66/4/760.full.pdf. Healthcare professionals should consider a patient’s habits and preferences when developing a nutritional treatment plan. After a plan is in place, patients should be weighed on a weekly basis until they show improvement.

Bone Health

Bone mass and density decrease with age because calcium and other minerals are lost. The spine compresses shrinking our stature while the long bones remain the same length but become more brittle as minerals are lost. Because of the changes in bones, posture and walking are affected, for example, the walking gait becomes slower. Diet can contribute to the loss of bone mass and density because good sources of calcium and vitamin D are lacking in the diet.

Vision Problems

Many older people suffer from vision problems and a loss of vision. Age-related macular degeneration is the leading cause of blindness in Americans over age sixty. American Medical Association, Complete Guide to Prevention and Wellness (Hoboken, N.J: John Wiley & Sons, Inc., 2008), 413. This disorder can make food planning and preparation extremely difficult and people who suffer from it often must depend on caregivers for their meals. Self-feeding also may be difficult if an elderly person cannot see his or her food clearly. Friends and family members can help older adults with
shopping and cooking. Food-assistance programs for older adults (such as Meals on Wheels) can also be helpful.

Diet may help reduce the risk of macular degeneration. Consuming colorful fruits and vegetables, rich in antioxidants, increases the intake of lutein and zeaxanthin. Several studies have shown that these antioxidants provide protection for the eyes. Lutein and zeaxanthin are found in green, leafy vegetables such as spinach, kale, and collard greens, and also corn, peaches, squash, broccoli, Brussels sprouts, orange juice, and honeydew melon. American Medical Association, Complete Guide to Prevention and Wellness (Hoboken, NJ: John Wiley & Sons, Inc., 2008), 415.

Cataracts is the thickening of the lenses of the eye and develops when aging or injury causes changes in the lenses of your eye. There are many causes, for example, UV light exposure and oxidative stress can contribute to its development. Even obesity can increase the risk of developing cataracts. Eating foods rich in vitamin C, E and carotenoids may reduce the risk.

Neurological Conditions

Elderly adults who suffer from dementia may experience memory loss, agitation, and delusions. One in eight people over the age sixty-four and almost half of all people over eighty-five suffer from Alzheimer's, which is the most common form of dementia. These conditions can have serious effects on diet and nutrition as a person increasingly becomes incapable of caring for himself or herself, which includes the ability to buy and prepare food, and to self-feed.

Nutrient insufficiencies can also contribute to diminished brain function. For example, inadequate intake of vitamin B₁₂, vitamin C, and vitamin E have been linked to short-term memory. Changes in problem-solving performance have been observed with inadequate intake of vitamin B₂, folate, vitamin B₁₂ and vitamin C while changes in cognition have been observed with insufficient intake of folate, vitamin B₆, vitamin B₁₂, iron and vitamin E. Several neurotransmitters are synthesized from nutrients, for example, tyrosine is the precursor for dopamine and tryptophan is the precursor for serotonin. Choline is also important for the production of the neurotransmitter acetylcholine. Chronically low consumption of vitamin B₁, vitamin B₃, zinc and folate can alter brain health.

Arthritis

Arthritis is the painful inflammation and stiffness of the joints. It is many diseases, not just one. There are several different types of arthritis: degenerative, inflammatory, infectious, and metabolic. Osteoarthritis is the most common degenerative arthritis and is associated with being overweight. Rheumatoid arthritis is an example of inflammatory arthritis. If this form of arthritis is caught early, drug therapy can help put it in remission. Eating foods rich in omega-3 fatty acids, and/or the antioxidants vitamin C, vitamin E, and carotenoids may help relieve the pain associated with this type of arthritis. Gout is a type of metabolic arthritis where uric acid crystals are deposited in the joints. The old wives tale is that rich food causes gout is not true. Foods rich in purines, for example, meat and seafood, increase the risk.

Longevity and Nutrition

The foods you consume in your younger years influence your health as you age. Good nutrition and regular physical activity can help you live longer and healthier. Conversely, poor nutrition and a lack of exercise can shorten your life and
lead to medical problems. The right foods provide numerous benefits at every stage of life. They help an infant grow, an adolescent develop mentally and physically, a young adult achieve his or her physical peak, and an older adult cope with aging. Nutritious foods form the foundation of a healthy life at every age.

Key Takeaways

As adults age, physical changes impact nutrient needs and can result in deficiencies. The daily energy requirements for adults ages fifty-one and over are 1,600 to 2,200 calories for women and 2,000 to 2,800 calories for men, depending on activity level. Older adults are more susceptible to medical problems, such as disability and disease, which can impact appetite, the ability to plan and prepare food, chewing and swallowing, self-feeding, and general nutrient intake. A nutrient-dense, plant-based diet can help prevent or support the healing of a number of disorders that impact the elderly, including macular degeneration and arthritis.

Discussion Starter

1. Revisit the predictions you made at the beginning of this chapter about how nutrient needs might change as a healthy young adult matures into old age. Which predictions were correct? Which were incorrect? What have you learned?