

The two-way relationship between nutrition and aging

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Credit: AI-generated image ([disclaimer](#))

With so much hype in the media about miracle diets and nutritional supplements, one is invariably tempted to look for a single, food-based magic bullet that will increase the likelihood of living a longer, healthier life.

"Unfortunately, the rate and way we age depends on both our genetic makeup and a combination of lifelong lifestyle behaviors," says Alice H. Lichtenstein, the Stanley N. Gershoff Professor of Nutrition Science and Policy at the Friedman School of Nutrition Science and Policy at Tufts University.

"Our diet, physical activity levels, how much sleep we get, and whether or not we use tobacco products all have an influence," says Lichtenstein, who is also senior scientist and director of the Cardiovascular Nutrition Team at the Jean Mayer USDA Human Nutrition Research Center on Aging (HNRCA) at Tufts. "While we can't control our genes, the data clearly shows that those adhering to a healthy lifestyle do best within each genetic risk category."

That healthy lifestyle includes a handful of nutritional keys, say Lichtenstein and Diane McKay, assistant professor at the Friedman School, director of Friedman School's Online Graduate Certificate Programs, and formerly a scientist at the HNRCA.

[MyPlate for Older Adults](#)—developed at the HNRCA to correspond with the USDA's [MyPlate](#), the federal government's food group recommendations—calls attention to the unique nutritional and physical activity needs associated with advancing years, says Lichtenstein.

For example, she says, older adults tend to need few calories to maintain a constant body weight due to shifts in body composition from muscle to fat—yet they need the same, or for some, a bit more of the essential nutrients. That means making smart, nutrient-rich choices within each food category. It is also important, particularly in hot weather, to ensure adequate fluid intake and not only rely on the sensation of thirst, which may be blunted as we age.

Lastly, Lichtenstein says, the solution is unlikely to lie with taking

nutrient supplements. Benefits from a healthy dietary pattern can't be duplicated by popping a pill.

"It's important to adhere to a dietary pattern that emphasizes vegetables and fruits —specifically those that have dark flesh, whole grain products, legumes, low-and fat-free dairy products, fish, nuts and seeds, and if you want to eat meat, focusing on poultry and lean cuts of meat," says Lichtenstein. "It is also important to replace major sources of saturated fat, usually from meat and dairy, with unsaturated fat such as soybean and canola oils, and limit salt, added sugar and products made with refined grains."

"One approach achieving this goal is to prepare as much food as possible at home and avoid highly processed foods which tend to be high in salt, sugar and/or refined grains," she adds. "At any stage of life, it is important to achieve and maintain a healthy body weight for the best health outcomes."

"Excess body fat is associated with higher risk of developing chronic diseases such as type 2 diabetes, heart disease, and some cancers," says Lichtenstein. "Important lifestyle behaviors that can minimize [chronic diseases](#) risk include engaging in regular physical activity, avoiding exposure to [tobacco products](#), getting adequate sleep and managing daily stress."

Does what you eat now influence aging later?

Research suggests that what a person eats in their 20s and 30s can influence diseases and conditions they may develop as they age, which in turn determines how many healthy years of living they will enjoy.

Being aware of changes in our bodies as we age and responding to differing nutritional requirements as we get older is also important.

"Some people might feel there is little point in adjusting their diets or losing weight as they get older if they haven't eaten particularly well or they have been overweight or obese most of their lives," says McKay. "But research shows making adjustments at any age can improve both how you feel overall and your ability to lower your risk of developing diseases such as type 2 diabetes and cardiovascular disease. Also, it's important to know how your [nutritional needs](#) change as you age, and to try and meet those needs to remain as healthy as possible as you get older."

"This is also why it's important to conduct nutrition research across the lifecycle, and why we educate patients and health professionals to consider how what we eat affects our health throughout our lives," she adds.

Vitamin D and calcium at all ages

For example, getting enough calcium and vitamin D in one's teens and 20s is key to avoiding osteoporosis later in life, says McKay. It's also important for those who are vegan or vegetarians of any age.

While Vitamin D and calcium supplements are valuable as we age, "our teens and 20s are peak bone-mass development years," McKay says. "After you reach your 30s, bone mass begins to decline. Yet so many teens and [young people](#) drink more soda and less milk. Those who are vegan or vegetarian are also at risk of not consuming enough calcium and vitamin D as well as other vitamins. It's important to ensure that all these individuals are getting enough vitamin D and calcium while they are young to build up that bone mass so they can avoid bone fractures and osteoporosis as they get older."

McKay says research also shows that teens who consume high amounts of fruits and vegetables have less age-related eye diseases such as

macular degeneration and cataracts.

Adjusting nutrition to age-related body changes

Changes in our bodies and our lifestyles as we age also influence what we should be eating, says McKay.

Our muscle mass begins to decline as we age—not just in places that we can see like our arms and legs, but also in the muscles of our heart, gastrointestinal tract, and other areas that control the everyday workings of our body. Regular exercise, including resistance training, becomes even more important to keep all the body's muscles in as good shape as possible.

"The digestive tract becomes more sluggish, requiring a sufficient amount of fiber from real food sources daily to keep food moving through our system. Most Americans do not meet recommendations for fiber intake," McKay adds. "We produce less stomach acid, so vitamins like folate and iron aren't absorbed as well. Our ability to absorb vitamin B12 in particular—which is important for brain health—also declines."

Vitamin B12 is found in animal-based proteins. "Levels should be regularly monitored as we age. A B12 deficiency can lead to deterioration of the myelin sheath, which insulates nerves, and can lead to permanent brain impairment if not caught and treated," says McKay.

The ability to sense thirst declines with age, making the elderly more likely to suffer from dehydration. Consciously and regularly consuming water, fat-free milk, and foods with high liquid content—whether a person feels thirsty or not—becomes more vital for that reason.

The functions of our kidneys, liver, and pancreas also begin to decline as we age. The pancreas produces insulin and glucagon, which control

blood sugar levels. Excess weight can lead to insulin resistance—and with the pancreas already producing less insulin due to increasing age, the result can be type 2 diabetes.

"As we age, our liver's ability to process the fats that we consume in our diet and make in our bodies becomes less efficient, which, in turn, can affect the levels of high-density lipoproteins (HDLs) and low-density lipoproteins (LDLs)," says McKay. "At any age, excess saturated fat in one's diet increases production of cholesterol in the liver and subsequent levels of LDL circulating in the blood."

Alcohol at any age

Slowly decreasing liver function also means older adults don't process alcohol as efficiently as they did when younger. "Alcohol consumption is a risk at any age," McKay notes. For [younger people](#) the problem is traffic accidents or other risky behaviors. Older adults may not realize they can't drink as much as they once did, increasing the likelihood of falls or driving while impaired.

While research at different points over the past few decades has suggested possible health benefits of alcohol consumption, McKay says clear evidence that alcohol at any level has significant positive effects on health is lacking. In contrast, there is clear evidence that excess consumption can contribute to increased risks of high blood pressure, [heart disease](#), stroke, liver disease, and digestive problems as well as cancer of the breast, mouth, throat, esophagus, voice box, liver, colon, and rectum.

"One drink a day is the most that older adults should drink," McKay recommends. "And if you don't drink, whatever your age, don't start."

Changes in smell, taste, and life circumstances

The senses of taste and smell also decline as a person ages, often partly due to medications they may be taking, which can lead to an overall decrease in appetite and enjoyment of food. Increasing flavor becomes even more important to keep meals appealing. Using more spices to replace salt, and more liquid vegetable oils and soft spreads low in saturated and trans-fat to replace butter and mayonnaise can keep meals flavorful—and healthy.

Dental problems can make it more difficult for older people to eat certain foods such as corn on the cob or chewy cuts of meats, requiring additional adjustments to how food is prepared.

As people age, they see loved ones die and find themselves cooking for one rather than a family. Feelings of isolation and depression creep in, which can make people less likely to want to prepare or eat nutritious meals. Reduced incomes or becoming more homebound due to chronic illness can also make it difficult to shop for nutritious foods and eat well.

"Older people may opt for more prepackaged foods with limited nutritional value. They grab foods off the grocery shelves quickly and can't or don't read nutrition labels to find the best options," McKay says. "While it is possible for the elderly to eat highly fortified foods such as breakfast cereals to get needed vitamins and minerals, it's important that they focus on those with the least sugar and made with more whole grains to stay healthier longer."

Fruits and vegetables that are frozen, pre-peeled fresh, or dried, as well as canned options that are low-sodium and low-sugar are also good choices. They are easier to prepare, affordable, have a longer shelf life, and contain as many or more nutrients than their fresh counterparts, says Lichtenstein.

What it takes to live to 100 and beyond

Overall, there are many positive lessons scientists at Tufts and elsewhere have learned by studying those who lived to be 100 or more years old and are still healthy, McKay says.

"These people ate mostly whole food, plant-based diets that were moderate in calories. Physical activity has been a constant in their lives, and they continued to include walking and other forms of exercise in their daily activities as they aged. And they continued to have important social connections in their lives," says McKay. "It's not any one magic bullet. There are many that will have an impact on how well and how long you live."

Provided by Tufts University

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