

A photograph of a woman with short, grey hair, smiling and looking to her left. She is holding a slice of toast with butter in her right hand and a glass of milk in her left hand. She is wearing a grey knitted cardigan over a white tank top. The background is a soft, out-of-focus indoor setting.

THE HEALTHY EATING TABLE

A FOOD FORWARD
APPROACH

TO GUT, BONE, MUSCLE AND
BRAIN HEALTH

CRITICAL
NUTRIENTS

FOR HEALTHY,
ACTIVE AGING

SIMPLE HEALTH &
NUTRITION TIPS

FOR OLDER ADULTS

NURTURING HEALTHY AGING:
THE ROLE OF DAIRY IN DIETARY PATTERNS

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Translating, Amplifying & Bridging the Latest Evidence in nutrition and dairy science, Dairy Council of California's nutrition science team collects, analyzes and communicates the latest research and data on nutrition education and healthy eating patterns. This publication is intended to be a tool to increase knowledge, effectiveness and capacity for collective action in making healthy eating easier.

Dairy Council of California is a nutrition organization working together with champions to elevate the health of children and communities through lifelong healthy eating patterns. Focusing on education and advocacy, dairy ag literacy and collaboration, we advance the health benefits of milk and dairy foods as part of the solution to achieving nutrition security and sustainable food systems.

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To view this publication's complete list of references, scan this QR code or visit:

DairyCouncilofCA.org/TABLE

The older adult population is increasing, living longer, working longer and living more health consciously than ever before.¹ When choosing food and beverages, many adults report healthy aging as one of their top goals, along with energy, weight management and digestive health.²

Healthy aging starts long before older adulthood. Social determinants of health—the conditions where people live, learn, work and age—all contribute to health behaviors within families and communities and are impacted by policies, systems and economic factors that lay the foundation for health across the life span. Good nutrition at every stage of life supports healthy aging—from physical growth and brain development in childhood and adolescence to building and maintaining bone, muscle and overall health in adulthood, helping to reduce the risk of chronic conditions.

In older adulthood, nutrition strategies continue to support functional health and quality of life.³ Older adults are at higher risk for social isolation and loneliness due to changes in health status and social connections, which can increase risk of chronic diseases, depression, and anxiety.⁴ Community meal programs for older adults can help build social connections and contribute to better nutrition and well-being.⁵ Emphasizing the concept that food is medicine, these programs not only nourish the body but also play a therapeutic role in preventing and managing chronic conditions.

AGING IN THE UNITED STATES

BY 2050, THE 65-AND-OVER POPULATION IS PROJECTED TO INCREASE BY 47%, REPRESENTING 20% OF THE POPULATION.¹



HEALTH AND NUTRITION NEEDS OF OLDER ADULTS

As people age, they may face a range of health challenges, including declines in bone, muscle, gut and cognitive health,⁶ as well as nutrition-related chronic diseases such as obesity, type 2 diabetes and heart disease. To address these issues, nutrition solutions offer preventive approaches tailored to the needs of aging and older adults. Dairy, with its complex food matrix, offers a variety of nutrients such as minerals, vitamins, fats, carbohydrates, proteins and bioactive compounds, and some dairy foods also include probiotics. These nutrients are contained in delivery structures that improve digestion, absorption and nutrient bioavailability. Studies have shown that this unique matrix is key to explaining why dairy supports health, with intake of different types of dairy foods having a neutral or beneficial impact on cardiometabolic health outcomes, including heart disease and type 2 diabetes.⁷

As part of balanced eating patterns that incorporate nutrient-dense foods from the five food groups, dairy supports a food-forward approach to healthy aging while ensuring adequate intake of underconsumed nutrients.⁸



NUTRIENT-DENSE FOODS

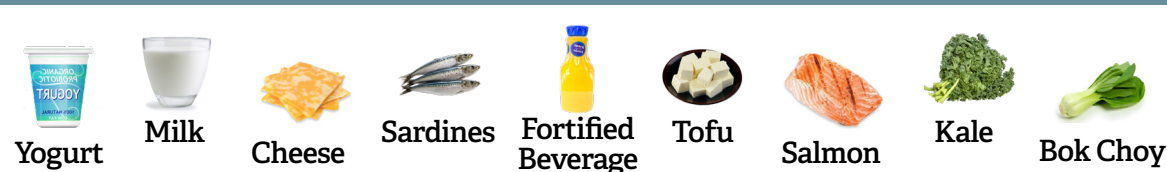
Examples of nutrient dense foods include fruits, vegetables, lentils, beans, lean meat, fish, eggs, nuts, seeds, whole grains and dairy.

Food Sources of Critical Nutrients for Older Adults

PROTEIN is essential for maintaining bone and muscle mass during aging. Protein quality, in addition to protein quantity, is an important dietary consideration, as older adults may have higher protein needs than younger adults, despite having lower energy needs.⁹



CALCIUM makes up much of the structure of bones and teeth; if intake is inadequate, the body will use calcium stored in bone for other body functions. In addition, a natural decline in bone mass density occurs around age 30, making calcium critical for health during aging.¹⁰



VITAMIN D plays a role in immune function and increases calcium absorption, supporting bone health.⁹ Few foods contain vitamin D, most people obtain vitamin D from sun exposure or fortified foods.



POTASSIUM is an electrolyte that maintains fluid balance, supports nerve function, regulates muscle functions and maintains healthy blood pressure.¹⁰

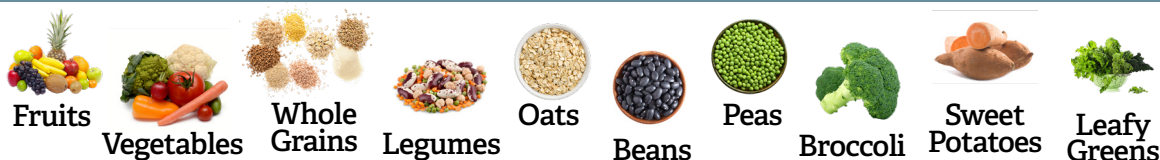


VITAMIN B12 can be linked to cognition and memory. Adequate intake may require extra attention in older adults due to absorption issues. A diet low in animal products can increase the risk of deficiency.¹⁰



Food Sources of Critical Nutrients for Older Adults

FIBER promotes a healthy gut microbiome by feeding and supporting digestive health.¹¹



PROBIOTICS are microbes that can support health. However, not all live microbes in foods are considered probiotics. To be called a probiotic, microbes must be known to provide health benefits when consumed in adequate amounts. Fermented dairy foods such as yogurt and kefir provide probiotics. Other foods with live cultures such as sauerkraut, kimchi, tempeh, kombucha and miso support healthy dietary patterns, but most store-bought varieties do not contain strains of microbes that have been studied enough to establish their impact on health outcomes.¹²



PREBIOTICS are often foods that contain soluble fiber that the body can't digest but serve as food for the good bacteria (probiotics) in the gut.¹³ These prebiotics help healthy microbes grow and stay active. Even lactose, a natural sugar found in dairy products, can act as a prebiotic for certain beneficial gut bacteria.¹⁴ Prebiotics and probiotics work together to improve gut health and consequently enhance immunity, reduce inflammation and help with memory preservation.^{15,16}



GUT MICROBIOME + LACTOSE INTOLERANCE

Adding small amounts of dairy to eating patterns over time can support the development of gut bacteria such as *Bifidobacterium* that can help break down lactose and prevent symptoms of lactose intolerance.¹⁷


Gut Health



Gut microbiome undergo significant changes with age due to shifts in eating habits, medication and lifestyle, which can have a profound impact on health.¹⁸ However, interventions to improve gut microbiome composition in older and frail adults appear to have positive, long-lasting effects.¹⁹ Including a variety of foods in eating patterns leads to a more diverse gut microbiome, which makes it better equipped to handle age-related microbiome disruptions. However, over the past 50 years, dietary variety has declined. Eliminating either animal or plant-based foods can further reduce the gut diversity.²⁰

Nutrition Solutions

Development and maintenance of a healthy microbiome can positively impact healthy aging. Pairing probiotics (live bacteria), found in foods such as yogurt and kefir, with prebiotics (food for probiotics), found in fiber-rich foods such as fruits, vegetables and whole grains, is a practical approach to improving gut health. Probiotics can support gut health, enhance immunity, reduce inflammation and aid in memory preservation.^{15,16} Gut microbiome composition is closely linked to mental health in older adults, pointing to an interplay between gut health and cognitive function.²¹ New research indicates that daily yogurt consumers had a reduced risk of dementia.²² There is also growing evidence that individuals with a “younger” or more robust gut microbiome are at a lower risk of cardiovascular disease, regardless of their biological age.²³



**QUALIFIED
HEALTH
CLAIM FOR
YOGURT**

Aging and older adults that value yogurt’s versatility and cultural relevance can also feel confident that it supports health. Yogurt has been approved by the U.S. Food and Drug Administration to use a qualified health claim on package labels, stating, “Eating yogurt regularly, at least 2 cups (3 servings) per week, may reduce the risk of type 2 diabetes according to limited scientific evidence.”²⁴

Bone Health



Osteoporosis is a condition characterized by a decrease in bone mass density, making bones porous, fragile and prone to fracture. Women experience osteoporosis four times as often as men, with approximately 27% of women ages 65 and over affected.²⁵ Fractures due to osteoporosis can lead to significant health complications and decreased quality of life.²⁶

Nutrition Solutions

Nutrient-dense dietary patterns and physical activity are critical to long-term bone health. Dairy foods provide a unique package of bone-supporting nutrients such as calcium, vitamin D, phosphorus, magnesium, potassium and zinc—all within dairy foods' unique food matrix. Daily intake of dairy products as part of a healthy dietary pattern is linked to improved bone mineral density, while also being associated with a lower risk of fractures in older adults.²⁷





Muscle Health

Muscle mass and strength naturally begin to slowly decline starting between ages 30 and 40 but the process can be accelerated or exacerbated by obesity, malnutrition, low physical activity levels and insufficient protein and micronutrient intake, all of which contribute to sarcopenia. Sarcopenia's loss of muscle mass, strength and function may reduce the ability to perform simple daily tasks like walking upstairs or getting out of a chair, potentially leading to a loss of independence and an increased need for long-term care.²⁸

Nutrition Solutions

The protein requirements needed to maintain muscle are often higher in older adults, particularly for those living with chronic health conditions.²⁹ Despite guidelines recommending elevated protein intake for this age group, many older adults fail to consume enough dietary protein.⁸ In the United States, around 40% of older adults are reported to consume less protein than the recommended dietary allowance.³⁰ Dairy products, which are excellent sources of high-quality protein, offer a practical solution. They are affordable, widely available and require little preparation compared to other high-quality proteins such as lean meats, poultry, fish and eggs.



PROTEIN NEEDS

Older adults have increased protein needs and can benefit from getting 1.0 to 1.5 g/kg of body weight per day.³² For a 150-pound person this would be 68 to 102 grams of protein per day. One cup of milk provides 8 grams of protein and yogurt provides 10 grams of protein, covering approximately 10% of daily needs,³³ while Greek yogurt varieties can provide up to 25% of daily needs in one serving due to higher protein content.

Brain Health



Cognitive decline in older adults refers to concerns related to memory, concentration and other brain functions beyond what is typically expected with aging. Decline can range in severity from mild cognitive impairment (MCI) to severe forms of dementia that impact the ability to perform normal daily tasks.³⁴ Rising rates of obesity and type 2 diabetes, which are both risk factors for certain types of dementia,³⁵ as well as rapid population aging, will contribute to an increase in the number of people living with MCI or dementia in the coming decades.³⁶

Nutrition Solutions

Researchers are uncovering the role of nutrition in the prevention of cognitive decline. A recent study found vitamin E, choline, carotenoids and a variety of fatty acids may be linked to delayed brain aging.³⁷ The fatty acids identified can be found in foods such as fish, olive oil, certain nuts and seeds and dairy. Other research indicates that increased milk consumption, particularly three servings per day, may boost levels of glutathione, an antioxidant that helps reduce oxidative stress in the brain.³⁸ Lastly, even small amounts (one to two servings of dairy a month) in older adult eating patterns were associated with a lower risk of developing dementia compared to non-consumers.³⁹ Dietary patterns with a variety of nutrient-dense foods support brain health, and although more high-quality research is needed, these studies contribute to growing evidence that nutrition plays a powerful role in supporting long-term brain health.

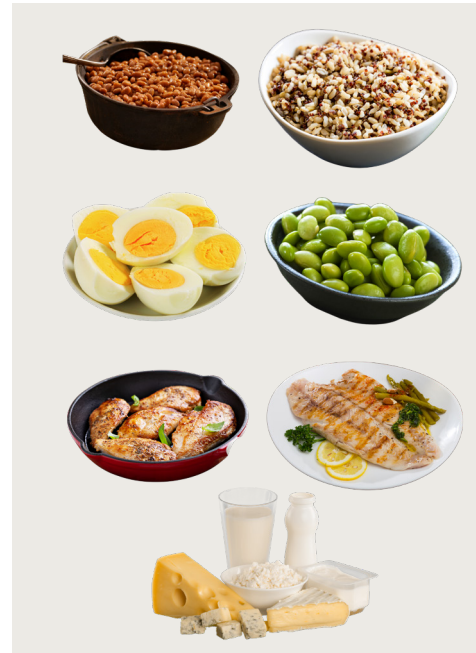


Physical Activity

Less than 14% of adults age 65 years and older meet the federal physical activity guidelines for both aerobic and muscle-strengthening activities.⁴⁰ However, physical activity can play a vital role in preventing bone and muscle mass loss. Strength training exercises such as chair squats or wall push-ups help preserve and even build muscle mass and strength, while aerobic activities like walking, swimming or cycling also contribute to improving cardiovascular health, overall endurance and physical function, making daily tasks easier.⁴¹

Nutrition Solutions

In conjunction with physical activity, high-quality protein promotes muscle and bone health. High-quality protein means the protein source has all nine essential amino acids the body can't make on its own and is easily digestible and bioavailable. Protein supports the absorption of calcium and bone remodeling, while preventing muscle breakdown and promoting collagen synthesis—important since collagen is a key component of bone structure. Milk, yogurt and cheese are good sources of high-quality protein for bone health, muscle mass and physical function in older adults as part of healthy eating patterns.⁴² Eggs, meat, poultry, fish, soy and quinoa are other examples of high-quality proteins.⁴³



HYDRATION

Older adults are often at higher risk for dehydration due to changes in kidney function and reduced thirst sensation.⁴⁴ Beverage choices such as water and protein- and electrolyte-rich milk (including lactose-free milk) support hydration and nutrient needs and can be incorporated throughout the day to help older adults stay prepared for physical activity.



Managing Lactose Intolerance

Underconsuming or avoiding dairy foods may lead to negative health effects and further impact health disparities, especially among Black Americans.⁵³

There are simple, affordable and culturally acceptable options for lactose intolerance management. Following are some tips:

- Drink lactose-free milk, which tastes, feels and has the same nutrients as regular milk.
- Try fermented dairy foods—which are generally lower in lactose and contains live and active cultures that may modulate lactose digestion.
- Choose aged cheeses, which have less lactose because it has been broken down by bacteria during the fermentation process. Some options include Parmesan, Asiago, pecorino Romano, cheddar, Swiss, Gouda and provolone.
- Eat small amounts of dairy foods throughout the day to slow the absorption of lactose and reduce symptoms.



RECOGNIZING OPPORTUNITIES FOR WOMEN'S HEALTH + AGING

Women's healthy aging is a growing focus for both consumers and health professionals. Gender differences in the aging process become more apparent around age 50. Nutrition and physical activity during each life stage lays the foundation for subsequent life stages, with implications for women as well as future generations.⁴⁵

- Adolescence marks a key phase for establishing lifelong bone health as girls approach peak bone mass accrual. However, healthy eating often declines during teen years, putting young girls at risk for nutrient shortfalls that impact bone health and other health outcomes later in life.⁴⁶
- During pregnancy and the postpartum period, nutrients like calcium, vitamin D, iron, iodine, choline and folate are crucial for both fetal and maternal health.^{8,47}
- Perimenopause is a critical time to identify nutritional opportunities to support a healthy weight and ensure adequate intake of calcium, vitamin D, vitamin C and B vitamins through foods such as fruits, vegetables, legumes and low-fat dairy.⁴⁸
- Menopause is associated with an increased prevalence of obesity, metabolic syndrome, cardiovascular diseases and osteoporosis.
- In older adulthood, dairy foods provide bone-building nutrients important for women during bone remodeling that takes place after menopause.⁴⁹





FOSTERING NUTRITION SECURITY

for Older Adults

Lack of access to affordable, nutritious food leads to poor dietary quality and an increased risk of chronic conditions. Many aging and older adults experience barriers to accessing nutritious foods that meet their unique nutritional and cultural needs.⁵⁰ Black and Latino families, individuals with lower socioeconomic status, rural populations and individuals living with disabilities are disproportionately impacted by nutrition insecurity.^{51,52} Addressing these disparities through equitable nutrition strategies is essential for the prevention and management of chronic conditions and supporting community health.

Nutrition Solutions

Public health initiatives increasingly use Food is Medicine (FIM) programs to support healthy aging by connecting older adults with nutritious food and personalized nutrition education. According to the U.S. Department of Health and Human Services, FIM promotes health and reduces disease through food, human services, education and policy—uniting healthcare and community efforts.

These programs help reduce health disparities, delay age-related conditions, and support the unique needs of diverse aging populations. In California, the Department of Aging, Area Agencies on Aging, CalFresh and CalFresh Healthy Living offer resources like home-delivered and congregate meals, medically tailored meals, nutrition education, exercise classes and transportation. These services also foster social connections and reduce isolation.

Health professionals can guide older adults to programs that enhance well-being and quality of life. To learn more, visit aging.ca.gov and DairyCouncilofCA.org/OlderAdulthood.

Older adults may struggle with healthy eating due to age-related changes in taste, dentition, physical ability to cook and prepare nutritious meals, decreased ability to chew and swallow and reduction in appetite from medications, depression and other factors. These challenges can increase the risk of undernutrition and negative health outcomes.⁵⁴ Dairy foods provide a versatile contribution to older adult dietary patterns, as they are nutrient dense, easy to eat and palatable, plus they pair well with other nutritious foods.

**THE FOLLOWING HANDOUT ALIGNS WITH
EVIDENCE-BASED GUIDANCE AND CAN BE USED
FOR COMMUNITY NUTRITION EDUCATION.**



FOOD FOR HEALTHY AGING



Nutrition throughout adulthood sets the foundation for health in later years.

A variety of foods from all the food groups work together to maintain brain, bone, muscle and gut health. Try these!

Food Groups	
Dairy	
Vegetables	
Fruits	
Protein	
Grains	

Which foods can you eat to support your body and brain?

Nutrition Tip! Combine fermented dairy foods such as yogurt and kefir with fiber-rich fruits, vegetables and whole grains to support gut health.

Lifestyle Tip! Move daily to keep your body strong and maintain balance. Take a walk, try light weights or get outside in the garden. All movement counts!

Three daily servings of milk, yogurt or cheese is your secret to aging with **strength**. Dairy's unique combination of nutrients and **high-quality protein** supports overall health.

ALIMENTOS PARA ENVEJECER SALUDABLEMENTE



La nutrición a lo largo de la vida adulta define la salud en los años posteriores.

La combinación de diferentes alimentos de todos los grupos alimenticios contribuye a fortalecer la salud, el cuerpo y el cerebro. ¡Pruebe estos alimentos!

Grupo Alimenticios	
Productos lácteos	
Verduras	
Frutas	
Proteínas	
Granos	

¿Qué alimentos come para nutrir su cuerpo y cerebro?

¡Consejo de nutrición! Combine alimentos lácteos fermentados como yogur y kéfir con frutas, verduras y cereales integrales ricos en fibra para favorecer la salud intestinal.

¡Consejo de estilo de vida! Muévase a diario para mantener su cuerpo fuerte y conservar el equilibrio. Salga a caminar, al jardín o pruebe levantar pesas ligeras. ¡Todo movimiento

Tres raciones diarias de leche, yogur o queso es su secreto para envejecer con **fuerza**. La combinación única de nutrientes y **proteínas de alta calidad** de los productos lácteos favorece la salud general.