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Eating for Healthy Aging

Practical tips for nurses working with the families and caregivers of older adults.

This article is part of a series, *Supporting Family Caregivers: No Longer Home Alone*, published in collaboration with the AARP Public Policy Institute. Results of focus groups, conducted as part of the AARP Public Policy Institute's No Longer Home Alone video project, supported evidence that family caregivers aren't given the information they need to manage the complex care regimens of family members. This series of articles and accompanying videos aims to help nurses provide caregivers with the tools they need to manage their family member's health care at home.

The articles in this new installment of the series provide simple and useful instructions regarding nutritional principles that nurses should reinforce with family caregivers. Most articles include an informational tear sheet—*Information for Family Caregivers*—that contains links to the instructional videos. To use this series, nurses should read the article first, so they understand how best to help family caregivers, and then encourage caregivers to watch the videos and ask questions. For additional information, see *Resources for Nurses* and *Resources for Family Caregivers*.

The U.S. population is rapidly aging. Currently, 15% of Americans are ages 65 and older.[1] By 2030, it's estimated that one in five people will be in this age group. Data collected from 2015 to 2017 through the Centers for Disease Control and Prevention's Behavioral Risk Factor Surveillance System reveal that more than 22% of U.S. adults were providing care or assistance to a family member or friend during that period.[2] Family caregivers are frequently overwhelmed and stressed by their responsibilities, which often include the need to ensure good nutrition. According to the recently published *Home Alone Revisited* report, preparing a special diet can be a difficult caregiving task, "because it often involves precise measurements, specific guidelines, constant monitoring, and special equipment for preparation or feeding."[3] Caregivers have reported that they are fearful of making a mistake and have noted the inconvenience and time demands of preparing a special diet for a family member or friend.[3]

This article summarizes the evidence supporting general nutrition recommendations that promote the health and wellness of older adults. Key topics, such as fiber, healthy fats, and low-sodium diets, are covered. The tear sheet, *Information for Family Caregivers*, provides practical information, tips, and resources for nurses to use when working with the families and caregivers of older adults.

THE IMPORTANCE OF GOOD NUTRITION

Healthy aging and healthful dietary patterns are the result of behaviors and choices that can promote a person's ability to stay involved in the community, manage personal health, and live a fulfilling life. Daily health and eating habits are highly personal and connected to beliefs about health, cultural norms, and the environment in which the person lives. The World Health Organization defines healthy aging as "the process of developing and maintaining the functional ability that enables well-being in older age," while noting that "functional ability is made up of the intrinsic capacity of the individual, relevant environmental characteristics, and the interaction between them."[4] Good nutrition is a key component and indicator of healthy aging, along with other positive lifestyle choices, such as exercising and not smoking. When an older adult is no longer able to manage her or his nutrition and dietary intake, family caregivers may step in to assist with meals, which can help the person to continue living at home.

Nutrition is a determinant of health and well-being at any age. Good nutrition supports successful aging. It's important in the healing of

A family caregiver (left) reviews a Nutrition Facts label with the help of a registered dietitian nutritionist. Photo courtesy of the AARP Public Policy Institute.

wounds and recovery from surgery and illness, decreases the risk of infections, and promotes the maintenance of muscle mass and the strength needed to prevent falls and carry out activities of daily living. Food can also fulfill social and emotional needs, reduce chronic disease risk, and slow the progression of chronic conditions. One in four Americans lives with multiple chronic conditions—such as hypertension, cardiovascular disease, diabetes, and cancer—for which nutritional management is fundamental.[1,5]

Nutritional needs may change with age, reflecting physiological changes, such as a reduction in the basal metabolic rate and alterations in nutrient absorption and metabolism. Older adults may experience rapid satiation, alterations in taste or smell, and decreased thirst awareness (particularly frail older adults), which reflect altered regulatory mechanisms for food intake.[6,7] In general, appetite and energy needs decline as a person ages. According to a study by Giezenaar and colleagues, the energy intake of healthy older adults about 70 years of age was 16% to 20% less than that of people in their mid-20s.[8]

Most micronutrient requirements are similar across the life span, although they can vary depending on health conditions or medication use. Recommendations regarding vitamin B_6 (pyridoxine) and calcium and vitamin D intake, however, differ by age. The recommended amount of vitamin B_6 is slightly higher for those ages 51 and older, according to the nutrient reference values of the National Academies of Sciences, Engineering, and Medicine.[9] The recommended amount of calcium is also higher for women ages 51 and older than it is for younger adults (1,200 versus 1,000 mg/day); this higher amount of calcium is also recommended for men older than age 70. A higher amount of vitamin D is recommended for all adults older than age 70.[9]

A healthful diet for people of all ages features the inclusion of nutrient-rich food (that is, foods low in calories and of high nutritional quality). Because of decreasing energy needs and appetite among older adults, it's especially important that their diet comprises nutrient-dense food.

High dietary quality is a key driver of good health. The association between diet quality, health promotion, and morbidity and mortality outcomes is strong. The National Institutes of Health (NIH)-AARP Diet and Health Study followed more than 400,000 people ages 50 and older for 15 years, evaluating multiple outcomes.[10] Dietary quality was measured using four indices: the Healthy Eating Index–2010, the Alternative Healthy Eating Index–2010, the alternate Mediterranean diet score, and the Dietary Approaches to Stop Hypertension (DASH) score.[10] The researchers determined that a significant reduction (12% to 28%) in all-cause, cardiovascular, and cancer mortality was associated with the highest diet score, indicating the protective effects of high dietary quality.[10] Greater intake of vegetable variety and amount is inversely associated with the prevalence of coronary heart disease, according to data from the 1999–2014 National Health and Nutrition Examination Survey.[11] Both studies establish the benefits of healthful, high-quality diet patterns rich in fruits, vegetables, whole grains, dairy, lean meats, and plant-based proteins. These core components and food groups should be emphasized while adapting a diet to meet individual needs and cultural, ethnic, religious, and personal preferences.

INADEQUATE FOOD INTAKE IN OLDER ADULTS

Food intake among older adults is often less than optimal. There are various barriers to eating well, including a lack of knowledge about nutrition, difficulty shopping for and preparing foods, lifetime habits, and possible physical or biological limitations.[12] Socioeconomic factors, such as a limited or fixed income, and geographic factors, such as food deserts, can further confound an older adult's access to a high-quality diet and therefore contribute to poor health outcomes.[13]

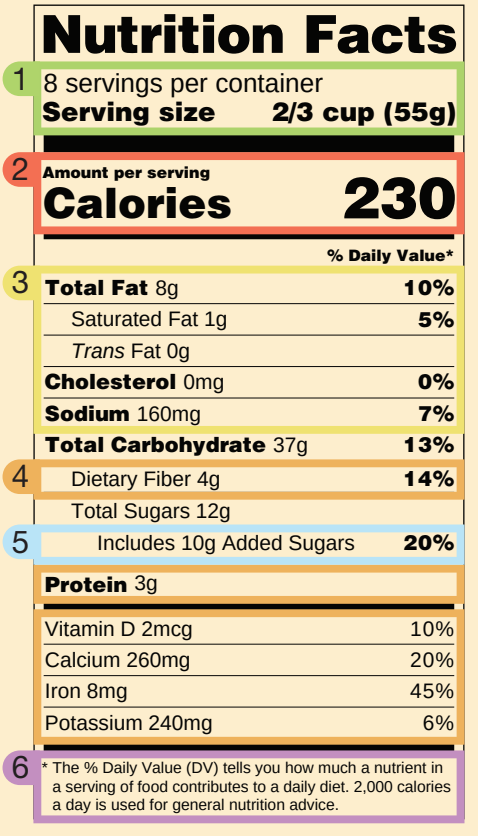
The latest *Dietary Guidelines for Americans*, published every five years by the U.S. Department of Health and Human Services and the Department of

Information for Family Caregivers

Reading Food Labels

Understanding the Nutrition Facts label can help older adults and their caregivers make good food choices. Each product's packaging also includes a list of ingredients that lists each ingredient by weight.

1. Serving size is at the top of the label. This section also details how many servings are in the package.
2. The calories of one serving.
3. Nutrients to limit: fat (saturated and trans fats can raise lipid levels), cholesterol, and sodium.
4. Be sure to eat sufficient amounts of foods rich in these nutrients: dietary fiber, protein, vitamin D, calcium, potassium, and iron.
5. You may also want to limit added sugars, which are included during processing, contributing extra calories and affecting blood sugar levels—a concern for people with diabetes.
6. The % Daily Value (DV) shows how this serving of food contributes to the total recommended amount in a daily diet. DVs are based on a 2,000-calorie diet. Your calorie needs may vary depending on your activity level, among other factors.



Tips for Lowering Sodium Intake

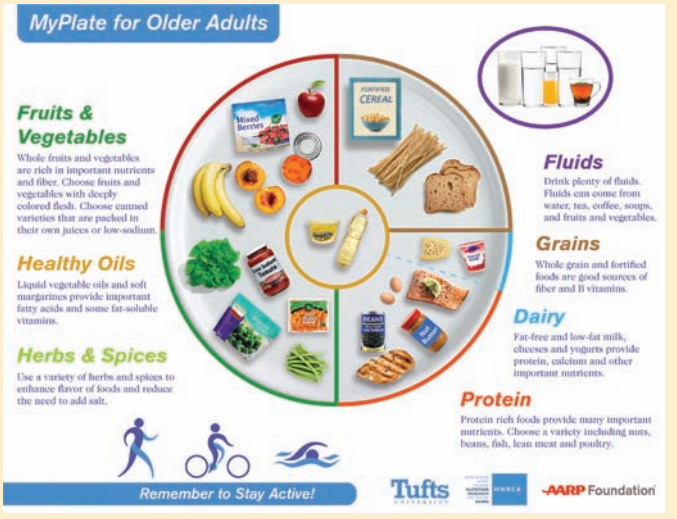
Limiting dietary sodium (salt) can help to manage high blood pressure, kidney disease, and congestive heart failure.

- The Nutrition Facts label can help you determine the sodium content of food. A 5% DV or less of sodium is considered low, and 20% or more is considered high.
- Cook food from scratch when possible. Limit packaged and prepared foods, such as meals, instant products, flavored mixes, and sauces.
- Add flavor to your meals by using spices and lemon instead of salt. Avoid salting food at the table.
- Limit intake of high-sodium foods, such as bacon, ham, lunch meats, pickles, and canned soups, unless lower-sodium versions are used.
- Eat fresh or frozen vegetables (with no added sauces or seasoning) when possible, and drain and rinse canned vegetables.

MyPlate for Older Adults

MyPlate shows the proportions of food groups that make up a healthy plate, with emphasis on food choices for good nutrition in older adults.

- Fruits and vegetables should make up half the plate.
- Whole grains such as whole wheat bread, brown rice, and whole grain pasta should make up a quarter of the plate.
- Proteins make up the other quarter and can include lean meats, fish, eggs, tofu, nuts, and beans.
- Include dairy foods each day, as well as healthy vegetable oils.
- Drink plenty of fluids.



MyPlate for Older Adults © 2016 Tufts University, all rights reserved. The MyPlate for Older Adults graphic and accompanying website were developed with support from the AARP Foundation. https://hnrca.tufts.edu/myplate

The DASH Diet

The Dietary Approaches to Stop Hypertension (DASH) diet (www.nhlbi.nih.gov/health-topics/dash-eating-plan) is rich in plant-based foods and includes adequate amounts of protein from a variety of food sources.

- Aim for four servings each of vegetables and fruit and six servings of whole grains every day.
- Include two to three servings of low-fat dairy products daily.
- Eat 4 to 6 oz of protein from lean meat, chicken, fish, tofu, or eggs each day; every week, include three to four servings of nuts, seeds, and legumes.
- Include two to three daily servings of healthy oils, such as canola, olive, or another vegetable oil.
- Avoid added sugars and desserts.

Family caregiver instructional videos about nutrition can be found on AARP's website:

Nutrition Basics
http://links.lww.com/AJN/A142

Reducing Sodium
http://links.lww.com/AJN/A143

For additional information, visit AARP's Home Alone Alliance web page:
www.aarp.org/nolongeralone.

Agriculture (USDA), identified several nutrients that are commonly inadequate in the diet of U.S. adults ages 70 and older.[14] Underconsumed nutrients include calcium, vitamin D, potassium, and dietary fiber.[14, 15] In addition, research suggests that a low protein intake may be associated with sarcopenia or decreased age-related muscle mass and function.[16] Atrophic gastritis and the prolonged use of proton pump inhibitors or metformin can lead to lower levels of vitamin B_{12}.[17-19] Consuming fortified cereals and vitamin B_{12} supplements can help older adults to meet recommendations for this vitamin.[17]

Excessive intake of calories, sugar, fat, and highly processed foods lacking in nutrients and fiber can contribute to overnutrition and weight gain. National surveys of dietary intake among adults ages 55 and older from 1977 to 2010 indicate that grain-based desserts and white bread constitute a substantial portion of total carbohydrates.[20] Promoting a high-quality and varied diet to older adults is an important health promotion strategy. It can help to prevent declining nutritional status due to under- or overnutrition prior to the development of negative effects on health.

DIETARY RECOMMENDATIONS

Current dietary recommendations accessible to the public online, such as the *Dietary Guidelines for Americans 2015-2020* (www.dietaryguidelines.gov) and MyPlate (www.choosemyplate.gov/dietary-guidelines), emphasize whole foods, food groups, and diet patterns. The use of MyPlate by adults older than age 50 has been associated with more healthful diet patterns and the inclusion of more fruits and whole grains, fewer added sugars, and fewer calories in the diet compared with not using MyPlate.[21] Healthy People 2020 (www.healthypeople.gov/2020/Leading-Health-Indicators) addresses the needs of the aging U.S. population and also discusses the impact of diet on leading health indicators. Tufts University's MyPlate for Healthy Adults (https://hnrca.tufts.edu/myplate) was developed in conjunction with AARP and is a valuable tool tailored to meet the needs of adults older than age 70. It applies the USDA's MyPlate guidance to an older population and underscores nutrient-rich choices, with an emphasis on the adequate intake of protein, fruits, vegetables, whole grains, healthy oils, low-fat dairy products, and fluids. Materials are available in English, Spanish, and Chinese.

The DASH diet (www.nhlbi.nih.gov/health-topics/dash-eating-plan) is widely recommended by health professionals as a healthful, balanced dietary approach. It emphasizes fruits, vegetables, whole grains, nuts, low-fat dairy products, lean meats, poultry, and fish. Studies of this diet have consistently demonstrated that, compared with the average American diet, a nutrient-rich dietary pattern can significantly lower blood pressure (by an average of 5.5 mmHg and 3 mmHg in systolic blood pressure and diastolic blood pressure, respectively), and that a moderate sodium restriction can further reduce blood pressure.[22, 23] The DASH diet has also been shown to help lower total and low-density lipoprotein (LDL) cholesterol levels.[24]

Resources for Nurses

Nutrition Basics[a]
http://links.lww.com/AJN/A144

Reducing Sodium[a]
http://links.lww.com/AJN/A145

[a] Family caregivers can access these videos, as well as additional information and resources, on AARP's Home Alone Alliance web page: www.aarp.org/nolongeralone.

Nutrients commonly inadequate in the diet of older adults include calcium, vitamin D, potassium, and dietary fiber.

The Mediterranean diet (https://oldwayspt.org/traditional-diets/mediterranean-diet) is similar to the DASH diet. Both incorporate nutrient-rich fruits, vegetables, whole grains, nuts, low-fat dairy products, lean meats, poultry, and fish, along with legumes, but the defining feature of this diet is olive oil. The Mediterranean diet has been shown to have beneficial effects on overall health and to reduce inflammation markers and cardiovascular risk.[25, 26]

Plant-based and vegetarian diets are gaining recognition for a variety of health, religious, ethical, and environmental reasons. Plant-rich diets can confer benefits in chronic disease risk reduction, and those most consistent with healthy diet patterns have been associated with a lower risk of all-cause mortality in U.S. adults, according to Kim and colleagues.[27] This highlights the importance of choosing high-quality foods when following any

Resources for Family Caregivers

Academy of Nutrition and Dietetics: Eat Right
www.eatright.org/for-seniors

National Heart, Lung, and Blood Institute: DASH Eating Plan
www.nhlbi.nih.gov/health-topics/dash-eating-plan

National Institute on Aging: Healthy Eating
www.nia.nih.gov/health/healthy-eating

Oldways
https://oldwayspt.org/traditional-diets

Tufts University: MyPlate for Older Adults
https://hnrca.tufts.edu/myplate

diet. Older adults need to be aware that they may be particularly susceptible to vitamin B_{12} deficiency when following a plant-based diet because this nutrient is found only in animal foods. The use of vitamin B_{12} supplements may be recommended.

EDUCATION AND SCREENING

There is limited time for discussions about nutrition in clinical practice and during hospital discharge. For this reason, patients' nutritional needs and the concerns of patients and their family caregivers must be addressed concisely, and resources should be provided for later use at home. Such resources can include written information, website recommendations, and video resources, such as those available on AARP's Home Alone Alliance web page (www.aarp.org/nolongeralone). Websites that provide evidence-based information may include educational institutions (websites ending in .edu), government sites (those ending in .gov), professional organizations in the health care field, and groups that provide public information that has been reviewed by health professionals (these may end in .org).

Behavioral and psychosocial attributes, such as satisfaction with life, resilience, and fruit and vegetable self-efficacy, are associated with the nutritional risk status of older adults.[28] Food literacy and healthful diet choices are promoted by knowledge about foods and nutrition, information on how to apply this knowledge (to plan, select, and prepare foods), and a willingness to take action to benefit personal health.[29] It's important that nurses provide "how-to" suggestions in addition to general dietary information, offering older adults and their families actionable ideas. For instance, after explaining that adequate fluids throughout the day are necessary to maintain hydration, recommend that older adults or caregivers fill two 8-ounce bottles of water that the older adult can sip from throughout the day. Or, after stating that it's important to eat more nutrient-rich fruits and vegetables, recommend that older adults and caregivers wash or cut up fruit to keep in a bowl in the front of the refrigerator. They can also purchase food items (such as yams and eggs) that can be cooked and refrigerated, so they're ready to be eaten as a snack or added to a meal. The use of motivational interviewing techniques, in addition to assisting older adults and caregivers with setting-specific, measurable, achievable, relevant, and timely goals, can promote healthy choices and sustainable behavior change.[30]

Nutrition screening provides an opportunity to identify malnutrition risk, readiness to change, and any potential barriers to achieving good nutritional health. Timely identification and intervention are particularly important to improving the nutritional status of community-dwelling older adults.[31] A patient-centered approach works best when seeking to elicit information about a person's usual habits and food patterns, where and how food is purchased and prepared, and her or his willingness to change. Appropriate referrals can be made to meet knowledge gaps through education and to assist families managing challenges related to adequate nutrition (such as food insecurity), limited physical capacity, or social isolation. A registered dietitian nutritionist can provide nutrition assessment and more extensive nutrition counseling for people who have chronic diseases, as well as referrals to food assistance programs, such as the USDA's Supplemental Nutrition Assistance Program (SNAP), or community programs focused on services for senior adults, such as Meals on Wheels or congregate meal programs.

PRACTICAL INFORMATION TO SHARE WITH CAREGIVERS

The information below may be of interest to caregivers as they manage a family member's nutritional needs and meal preparation.

Food labels. An example of functional food literacy is the ability to use and understand food labels. A majority of U.S. consumers, including older adults, have difficulty using and understanding these labels.[32,33] Miller and colleagues examined the accurate use of nutrition labels among adults of various ages, noting that older adults may have more difficulty than younger people owing to a lack of attention to detail rather than an inability to apply simple numerical concepts.[34]

The new Nutrition Facts label for packaged foods from the Food and Drug Administration (FDA) pro-

vides key information in an easier format. (The agency published its final rules regarding the label in 2016, and all manufacturers will have to comply by July 2021. For additional information, visit www.fda.gov/food/food-labeling-nutrition/changes-nutrition-facts-label.) Serving size and the number of servings per package are listed at the top of the label, followed by calories per serving in large bold print. Total carbohydrates are broken down into two categories, dietary fiber and total sugars, including added sugars. The nutrients listed at the bottom of the label are "shortfall nutrients" and include vitamin D, calcium, and potassium, which the most recent *Dietary Guidelines for Americans* identified as underconsumed.[15] The new label design reflects current scientific information and makes it easier for consumers to use this information in making dietary decisions. The FDA has a website oriented toward older adults that includes a guide to understanding the Nutrition Facts label (see www.fda.gov/Food/ResourcesForYou/Consumers/ucm267499.htm).

grains include whole grain or whole wheat bread, pasta, and cereal, as well as brown rice or other fiber-rich grains. Oatmeal is an economical and high-fiber breakfast choice. Lean meats, poultry, and fish that are sautéed, stewed, or baked are traditional protein choices; good alternatives include eggs, yogurt, and cheese. The inclusion of high-quality protein in most meals is associated with the preservation of skeletal muscle mass and the prevention of age-related frailty syndrome.[14] Good plant-based protein choices include tofu, beans and legumes, and nuts and nut butters. Adequate fluid intake throughout the day is important to maintain hydration. Necessary amounts of fluids vary depending on physical activity and physiological status.

Portion and serving size information can guide older adults and their caregivers as they determine how much of various foods they need to eat to meet daily nutrition requirements or to follow a healthy eating pattern. For instance, a typical fruit or vegetable, cooked pasta, or rice serving size is one-half cup, which is about the size of half a baseball or the amount held in a cupcake wrapper. A one-cup serving is similar in size to a baseball. Four to five servings each per day of fruits and vegetables are recommended in the DASH diet. Three ounces of meat or fish equals three protein servings; for visualization purposes, this is about the size of a deck of cards or the palm of the hand. Other common items can be used to estimate serving size: one tablespoon of a fat or oil is similar in size to a poker chip, 1.5 ounces of cheese is about the size of three dice, and a baked potato portion is the size of a computer mouse or baseball. Eating a variety of fruits and vegetables in recommended portion sizes provides an array of nutrients and a modest number of calories. It can also help give a sense of fullness and satiety, which is helpful if weight control is a concern.

The inclusion of high-quality protein in most meals is associated with the preservation of skeletal muscle mass and the prevention of age-related frailty syndrome.

Visualizing a healthy plate and determining portion size. Picturing what a healthy plate looks like can give older adults and caregivers an easy reference point for relative proportions of recommended food groups. This approach can be useful when navigating cultural dietary preferences and teaching about preparation methods (such as alternatives to frying) that optimize the nutritional content of food. Half the plate should be made up of fruits and vegetables, and the other half should be divided into two quarters, one each of grains and protein. Healthy choices in each area of the plate can make the foods consistent with specific diets, such as the DASH diet. A variety of colorful vegetables and fruits, which are rich in vitamins A and C, carotenoids, fiber, and bioactive compounds such as flavonoids, should be included. Less expensive options include in-season fresh, canned, or frozen fruits and vegetables (for canned products, avoid fruit in heavy syrup and use lower-sodium versions of vegetables, and avoid frozen vegetables in heavy sauces). Healthy whole

Nutrients of concern. For most people, including older adults, the type of fat eaten is more important than the amount.[35] Healthy fats, such as poly- and monounsaturated fats, are desirable and tend to keep

LDL-cholesterol levels low, whereas trans- and saturated fats tend to raise LDL-cholesterol levels. Soft margarines and liquid oils contain unsaturated fats, which are more heart healthy than saturated fats, which typically come from animal sources. Good poly- and monounsaturated fat options include canola oil and olive oil (extra virgin olive oil supplies phytonutrients as well as oleic fatty acids). Healthy unsaturated fats can also be found in foods such as avocados and nuts (including walnuts, almonds, and pecans) and nut butters (such as peanut butter).

Salt is necessary in small amounts, but a high intake is associated with an increased risk of hypertension.

The diet of older adults often lacks adequate amounts of dietary fiber. The health implications of not eating an adequate amount of fiber include an increased risk of constipation, a problem that can be compounded by low levels of physical activity and certain medications, many of which can cause constipation.[36,37] First-line recommendations are to increase dietary fiber intake by eating whole grains, legumes, fruits, and vegetables and to drink adequate amounts of fluid daily. Psyllium and dextran-based fiber supplements can be used if constipation is unresolved and fluid intake is adequate.

Salt (sodium chloride) is necessary in small amounts, but a high intake is associated with an increased risk of hypertension.[38] Salt added during cooking or at the table is a significant source of excess sodium for some people, but the main source of sodium in the American diet is commercially processed, prepared, and packaged foods.[39] Strategies to lower sodium intake include the following:

- purchase lower- or no-sodium versions of products
- cook more foods at home from scratch instead of using prepared and packaged foods or instant products
- add less salt at the table and when cooking
- avoid cold cuts, ham, and other cured or pickled products and salted snack items
- use fresh or frozen plain vegetables
- drain and rinse canned vegetables or purchase lower-sodium versions
- use product labels to identify items that provide less than 20% of the daily value of sodium per serving (the lower the better; foods that contain 5% or less of the daily value are considered to be low in sodium)

Foods low in sodium can be flavorful when seasoned well with herbs and spices, garlic, lemon juice, or a splash of vinegar. Both the Tufts University MyPlate for Older Adults website and the American Heart Association site (www.heart.org/en/healthy-living/healthy-eating/eat-smart/sodium/sodium-and-salt) provide information about alternatives to salt.

Dietary supplements. The use of supplements can be beneficial if low food intake is suspected and may help to close the nutrient gap when an older adult's intake of micronutrients is inadequate. A multivitamin and mineral preparation that provides up to 100% of the recommended dietary allowance (RDA) for older adults is generally recommended. Although meeting nutritional needs through whole foods is preferred, a multivitamin and mineral supplement is a safe and relatively inexpensive way to ensure a person meets her or his nutrient needs. Risk of excessive intake is a possibility when supplements containing many times the RDA are taken or when many single nutrient supplements are overconsumed. Additionally, iron is an unnecessary supplement ingredient for most older adults and contributes to constipation if taken without a medical indication.

Consumption of vitamin and mineral supplements as well as herbal supplements is prevalent among older adults. Supplement users tend to be health conscious, have medical conditions for which they take medications, and, in general, have a more nutritious diet than those who don't use supplements.[40] It's important to remember that polypharmacy is common among older adults, and the use of over-the-counter herbal supplements can cause adverse interactions with prescribed medications. Patients should be reminded to tell their health care providers about any supplements they may be taking.

NURSES SUPPORTING CAREGIVERS

Working with older adults and caregivers to promote positive nutrition choices, providing resources that can be utilized at home, and offering reassurances about the value of caregivers' efforts can go a long way toward building knowledge and self-efficacy. It's important to acknowledge that preparing special diets can be stressful and to ask family caregivers if

they have questions or concerns that can be addressed with either additional information or a referral to a registered dietitian nutritionist. ▼

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