

Nutrition in Aging and aging-related diseases



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Body Composition

Body composition changes with aging. Fat mass and visceral fat increase, whereas lean muscle mass decreases, Which occurs faster after eight decade.

Sarcopenia, the loss of muscle mass, strength, and function, can be age related and can significantly affect an older adult's quality of life by decreasing mobility, increasing risk for falls, and altering metabolic rates.

Many older adults have special nutrient requirements because aging affects absorption, use, and excretion of nutrients.

Energy

Energy Basal metabolic rate decreases with age because of changes in body composition.

Energy needs decrease ;3% per decade in adults. Encourage nutrient-dense foods in amounts appropriate for caloric needs.

Protein

After age 65, the minimum protein requirement is 1 g protein/kg of body weight with newer evidence supporting up to 1.2 gm/kg.

In those individuals with impaired renal function or longstanding diabetes, 0.8 g/kg to 1.0 g/kg may be more appropriate.

food sources: dairy group / meat/ egg/ legumes/chicken

[Korean J Fam Med](#). Association of Coffee Consumption with Sarcopenia in Korean Elderly Men: Analysis Using the Korea National Health and Nutrition Examination Survey, 2008–2011

- Sarcopenia is an age-related loss of muscle mass and strength. Coffee has antioxidant and anti-inflammatory properties that have been shown to be inversely related to the mechanism of sarcopenia.
- The cross-sectional data were derived from the 2008–2011 Korea National Health and Nutrition Examination Survey. 1,781 men who were at least 60 years of age.
- Daily coffee consumption amounts were categorized as <1 cup, 1 cup, 2 cups, and ≥3 cups.
- The results of this study suggest that consuming at least 3 cups of coffee per day was associated with a lower prevalence of sarcopenia in elderly Korean elderly men.

Carbohydrates

45%-65% total calories

Men 30 g fiber / Women 21 g fiber

Constipation may be a serious concern for many.

Emphasize complex carbohydrates: legumes, vegetables, whole grains, fruits to provide fiber, essential vitamins,

Lipids

20%-35% total calories

Vitamin D

Vitamin D 600-800 IU

Risk of deficiency increases as synthesis is less efficient; skin responsiveness as well as exposure to sunlight decline; kidneys are less able to convert D3 to active hormone form.

Water

Hydration status can easily be problematic. Dehydration causes decreased fluid intake, decreased kidney function.

increased losses caused by increased urine output from medications (laxatives, diuretics).

Symptoms: electrolyte imbalance, altered drug effects, headache, constipation, blood pressure change, dizziness, confusion, dry mouth and nose .

Encourage fluid intake of at least 1500 ml/day or 1 ml per calorie

zinc

- Zinc is one of the essential micronutrients for the human body. It participates in the metabolic process of more than 300 enzymes in the body. It can improve immunity, maintain taste balance, ensure the nutritional flora of the gastrointestinal tract is in a normal state, and maintain the normal metabolic function of the liver .
- Due to the decrease in appetite and food intake and the corresponding decrease in nutrients intake through diet the elderly are more likely to suffer from malnutrition, including micronutrient deficiency.
- Zinc deficiency in the elderly affects immune function, cognitive ability ,taste and many other aspects of health problems.
- It is recommended that the male elderly, over 70 years, and the minority elderly should pay more attention to the zinc nutrition status of their own.

Calcium

Calcium 1200 mg Dietary requirement may increase because of decreased absorption;

Osteoarthritis

The anti-inflammatory diet combined with moderate exercise and diet-induced weight loss has been shown to be an effective intervention for OA

- ❑ **The following fruits and vegetables appear to be the most anti-inflammatory based on their mention in research:** berries, purple grapes, cherries, citrus fruits, tomatoes
- ❑ **Anti-inflammatory herbs and spices include:** green and black tea, garlic, ginger, rosemary, oregano, cocoa, mint, clove, coriander, cinnamon, nutmeg, red chili powder, lemongrass, saffron, black pepper, parsley.
- ❑ Unsaturated fats high in omega-3 fatty acids (alpha linolenic acid).

depression

- there is an association between nutrition and depressive symptoms . proper nutrition has a positive impact on the prevention or reduction of depressive symptoms among elderly people.
- The findings also reveal that there is a considerable correlation between the intakes of vitamin B and a decrease in the prevalence of depressive symptoms.
- sufficient nutrient intake of tryptophan appears to be an important factor in terms of nutrition and serotonin levels in the body.
- ω-3 fatty acid can prevent the worsening of subclinical depressive symptoms.
- the Mediterranean diet and regular physical activity together with non-smoking are associated with reduced depressive symptoms later in life, while some dietary supplements can positively complement a healthy lifestyle.

Hypertension

- Weight loss for patients who are overweight or obese
- Sodium restriction
- Potassium supplementation (preferably in dietary modification)
- Increased physical activity with structured exercise program
- Heart-healthy diet (such as DASH)

DASH diet

The DASH diet is a dietary intervention aimed at preventing and controlling blood pressure.

The DASH intervention includes foods high in protein, fiber, potassium, magnesium, and calcium; and low in sodium, total fat, and cholesterol.

While grains, fruits, and vegetables are suggested to be the main foci of a meal

For example, based on 2000 calories a day, the DASH intervention is designed to include

- ☐ seven to eight servings of grains and grain products;
- ☐ four to five servings of vegetables;
- ☐ four to five servings of fruits;
- ☐ two to three servings of low fat or fat-free dairy foods;
- ☐ two servings or less of meats, poultry, and fish **daily**.
- ☐ four to five servings of nuts, seeds and dry beans **weekly**

Obesity

Obesity is a major cause of preventable disease and premature death. Obesity is linked to increased risk of coronary heart disease; type 2 diabetes; endometrial, colon, postmenopausal breast, and other cancers; asthma and other respiratory problems; osteoarthritis; and disability .Obesity causes a progressive decline in physical function, which may lead to increased frailty.

Weight loss therapy that maintains muscle and bone mass is recommended for obese older adults because it improves physical function and quality of life and reduces the multiple medical complications associated with obesity.

Lifestyle changes that include diet, physical activity, and behavior modification techniques are the most effective.

Weight loss of 10% of total body weight over 6 months should be the initial goal. After that, strategies for maintenance should be implemented.

Dietary changes include an energy deficit of 500 to 1000 kcal/day.

Calorie restriction should not be less than 1200 kcal/day.

