

# HEALTHY EATING

## For Mobility As We Age



### What is mobility?

Our ability to move ourselves within the immediate environment and broader community.



### So, why is this important?

Healthy skeletal muscles, bones and joints allow us to perform all types of movements - from everyday tasks to enjoying our favourite hobbies.



### What does this mean for me?

As we age, muscles, bones and joints undergo physiological changes that affect mobility and which can ultimately impact our independence.

### Maintaining mobility is key to healthy aging

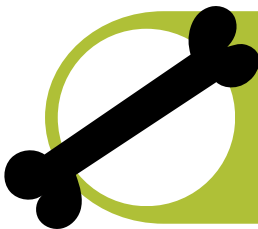
The key to maintaining mobility includes a combination of proper nutrition, regular exercise, and weight management.

**Protein, vitamin D, and calcium** are essential for **skeletal muscle, bone, and joint health.**

## Muscle, Bone, & Joint Health

### MUSCLE

- Muscles are essential for movement, posture, and breathing.
- Muscle mass decreases 1% per year after the age of 30.
- Lower muscle mass leads to less muscle strength which increases the risk for falls.



- Bones support us and allow us to move.
- Store and release calcium which keeps our bones strong.
- Weaker bones can increase the risk of bone injury (e.g., fractures or breaks).

### BONE

### JOINT

- Joints connect bones together, hold our weight, and allow us to move freely.
- Protect our bones by preventing them from rubbing against each other.
- Joints are at higher risk for damage starting at ~age 35 due to the degeneration of joints and body's decreased ability to repair tissue.



Other micronutrients that are important for bone health include phosphorus, potassium, magnesium, vitamin K, vitamin C, and zinc.

# Key Nutrients for Muscle, Bone, & Joint Health: Protein, Vitamin D, and Calcium

## Protein

- Eat a variety of protein foods as part of a healthy eating pattern.
  - Adults +18 - **0.8 g/kg** body weight per day.
  - Adults +65 - **1.0 - 1.2g/kg** body weight per day.<sup>1,2</sup>
  - Aim for 25-30g per meal.<sup>3,7</sup>
  - **Examples:** Dairy products, eggs, fish and seafood, legumes, meat, poultry, nuts and seeds.<sup>4</sup>
- A key nutrient for muscle and bone health.
  - Provides the amino acids to build and repair muscle.
  - Prevents muscle loss.

## Vitamin D

- A “sunshine vitamin.”
  - Helps absorb calcium to support strong bones and muscles.
  - Important for muscle, nerve and immune functions.
- Sources of vitamin D include sunlight, diet, or vitamin D supplements.
  - Adults +50: Take **400 IU (10 µg)** vitamin D supplement daily.
  - **Examples:** Fatty fish, fish liver oil, beef/pork liver, egg yolks, fortified food and beverages.

## Calcium

- Consume calcium-rich food everyday.
  - Consume vitamin D to help absorb calcium.
  - Adults +50 require **1200 mg** calcium daily.<sup>6</sup>
  - **Examples:** Dairy products, leafy green vegetables, sardines, salmon, fortified tofu, breads, pasta, grains, fortified cereals and beverages.
- Essential building block for healthy bones.
  - Supports heart, nerve, muscle, and other body system functions.
  - Calcium deficiency leads to decline in bone density and higher risk for osteoporosis.



Binkley C, Ling E & Moore C. Healthy Eating For Mobility As We Age. Infographic (2023).  
<https://emboldenstudy.mcmaster.ca/projects-results>

## REFERENCES

1. Bauer J, Biolo G, Cederholm T, et al. Evidence-based recommendations for optimal dietary protein intake in older people: a position paper from the PROT-AGE Study Group. *Journal Of The American Medical Directors Association*. 2013 Aug 1;14(8):542-59. <https://pubmed.ncbi.nlm.nih.gov/23867520/>
2. Deutz NE, Bauer JM, Barazzoni R, Biolo G, Boirie Y, Bosy-Westphal A, Cederholm T, Cruz-Jentoft A, Krznarič Z, Nair KS, Singer P. Protein intake and exercise for optimal muscle function with aging: recommendations from the ESPEN Expert Group. *Clinical nutrition*. 2014 Dec 1;33(6):929-36. <https://pubmed.ncbi.nlm.nih.gov/24814383/>
3. Farsijani, Samaneh, et al. "Relation between mealtime distribution of protein intake and lean mass loss in free-living older adults of the NuAge study." *The American journal of clinical nutrition* 3 (2016): 694-703. <https://pubmed.ncbi.nlm.nih.gov/27465379/>
4. Government of Canada. *Canada's Food Guide (2019)*. <https://food-guide.canada.ca/en/>
5. Multiple Sclerosis Society of Canada. *Vitamin D Fact Sheet*. <https://mssociety.ca/library/document/38cuveX9sSrF0QEZ1DFOMUaBilKTyRJK/original.pdf>
6. Osteoporosis of Canada. *Calcium sources*. <https://osteoporosis.ca/calcium/>
7. Paddon-Jones, D.; Rasmussen, B.B. Dietary protein recommendations and the prevention of sarcopenia. *Curr. Opin. Clin. Nutr. Metab. Care* 2009, 12, 86–90. <https://pubmed.ncbi.nlm.nih.gov/19057193/>