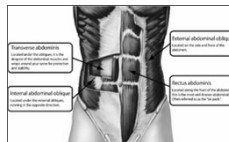


## Move More & Avoid Sitting for Long Periods

- **Maintain muscle mass**
  - Especially core muscles (which support spine)
  - Weight-bearing protects bone mass
- **Strengthen stabilizer muscles**
  - To support balance
  - Reduce fall risk
- **Work on postural alignment**

### Explore

Egoscue  
Feldenkreis  
Pilates  
Qi Gong  
Tai Chi



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## Dietary Balance Important

### Acid & Alkaline

Calcium,  
Phosphorus, &  
Magnesium

Sodium, Chloride,  
& Potassium

### Food & not food products



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## Shift Toward Acidity Stresses Kidneys & Increases Risk of Mineral Loss from Bones

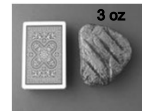
- Displacement of plant foods (rich in alkaline minerals [potassium, magnesium] that neutralize acids)
- By more animal foods (acid-producing)
- By cereal grains (weakly acid-producing)
- And energy-dense, nutrient-poor foods (low in alkaline minerals that help neutralize acids; high in phosphoric acid/phosphate food additives).
- Chloride in salt (NaCl) also contributes to acidity.

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## Protein in Foods

(active adult needs 0.4-0.6 grams/pound)

- **7g** in 1 oz cooked lean meat, fish, poultry (no skin)
- **7g** in 1 egg (including yolk)
- **7g** in 1/2 cup cooked dry beans, peas, lentils
- **7g** in 1/3 cup nuts or 1/4 cup seeds (without shells)
- **8g** in 1 cup (8 fl. oz.) milk, 1 oz cheese, 6 oz yogurt
- **2-3g** in 1 slice bread, 1/2 cup cooked grain
- **2g** in 1/2 cup cut-up vegetables



Calculate Your Daily Protein Requirement by  
Dividing Body Weight in Half = Approx. Protein (g/day)

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## Phosphorus -- Friend or Foe?

Berkeley Wellness Review 4/8/14

- Food contains:
  - Organic phosphorus (protein foods, grains)
  - Inorganic phosphorus (phosphate food additives; phosphoric acid [soft drinks]).
- Phosphorus is essential for:
  - Energy metabolism
  - Regulating calcium
  - Translating genetic information
  - Maintaining cell membranes
- Western diets are high in phosphorus & high phosphorus diets are linked to health problems:
  - Bone loss
  - Cardiovascular events
  - Kidney impairment

### Phosphate Food Additives

Leavening & anti-caking agents  
Stabilizers  
Flavor enhancers  
Emulsifiers  
Moisture binders

Inorganic phosphorus absorbed more effectively than organic phosphorus found naturally in food.

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## Alkaline Minerals

Mineral	Foods
<b>Calcium*</b> (goal = 1200 mg/d)	Milk, yogurt, leafy greens/cabbage family (kale, collards, mustard), fish with edible bones, calcium-fortified beverages, tofu (check label)
<b>Magnesium*</b> (goal = 320-420/d)	Dark green leafy vegetables, beans/legumes, whole grains, nuts, seeds, milk, yogurt
<b>Potassium</b>	Fruits, vegetables, legumes

\*Vitamin D (600-800 IU) needed for absorption & utilization of Ca & Mg.  
Serum levels of 40-50 ng/mL recommended.

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## Vitamin K

Body Stores Limited --Regular Dietary Intake Important

- Important for:
  - Bone health (BMD)
  - Cardiovascular health
  - Normal blood clotting
- Forms:
  - K1 (green leafy vegetables)
  - K2 (fermented foods, dairy products, eggs)
- Body can convert K1 (form in blood) to K2 (form found in tissues). Gut microbiome plays important role in conversion.

### Recommended Intake

RDA/AI  
Men – 120 mcg/day  
Women – 90 mcg/day  
DV = 80 mcg

- Bone mineral density significantly increased in majority of vitamin K studies (Maturitas 2014 Mar;77(3):294-9.
- 1500 mcg/day improved bone quality (J Bone Miner Metab 2014 Mar;32(2):142-50. (NOTE: 18 x DV)

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## Potassium is Protective

Recommended Adult Intake – 3500 – 4700 mg/day

### Best sources:

½ cup fruit or vegetable = 200-270 mg  
(average 250 mg/serving)



½ cup cooked beans/legumes = average 400 mg/serving



### Richest sources

bananas, dates, prunes,  
leafy greens,  
mushrooms, potato,  
sweet potato, spinach



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## Supplement Comparison (Content/Tablet)

Nutrient	Daily Value (DV)	Bone Strength (New Chapter)	Bone-Up (Jarrow)	AlgaeCal Basic	AlgaeCal Plus (also 12.5 mg vit C)
Calcium (mg)	1000	257	167	250	180
Magnesium (mg)	400	19	83	22	86
Vitamin D (IU)	400	333	167	333	400
Vitamin K (mcg)	80*	12	8	0	25
Boron (mg)	3	0	0.5	0	0.75
Strontium (mg)	--	1.7	0	0	0

\*Please note vitamin K Adequate Intake (AI) <https://ods.nih.gov> for adults:  
90 mcg (female); 120 mcg (male)

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## Medications May Cause Bone Loss (Discuss with Your Health Care Provider)

- Antacids (Al-containing & PPIs)
- Anticoagulants (Heparin)
- Antiseizure drugs
- Aromatase inhibitors (Arimidex, Aromasin, Femara)
- Cancer chemo drugs
- Contraceptives (Depo-Provera)
- Hormone modulators (Lupron, Tamoxifen, Zoladex)
- Immunosuppressive drugs (Cyclosporine, Methotrexate)
- Loop diuretics (furosemide, torsemide)
- Lithium
- SSRIs (Lexapro, Prozac, Zoloft)
- Steroids (cortisone & prednisone)
- Thiazolidinediones (Actos, Avandia to lower blood sugar)
- Thyroid hormones (in excess)

Panday K, et al. Ther Adv Musculoskel Dis 2014;6(5):185-202.  
National Osteoporosis Foundation (<https://www.nof.org/patients/what-is-osteoporosis/>)

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## Support Bone Health

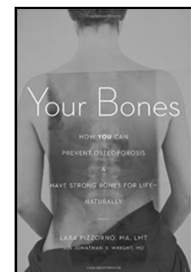
- Do weight-bearing & strength-training exercise.
- Reduce risk of falls by improving your balance.
- Eat a bone-healthy diet.
  - Enough (& not too much) protein & calcium
  - Adequate vitamin D & K, magnesium, boron
  - Consider strontium (citrate)
  - Minimize processed foods, especially with added salt & sugar
  - Eat plenty of vegetables, fruits, legumes (rich in potassium)
- To make up for nutrient shortfalls in your diet, take dietary supplements.
- Work with your doctor to minimize medications that could be taking a toll on your bones.

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## Helpful Resources



www.mindfulnutritionalsolutions.com



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