Taking Charge: Building Better Bones and a Better Body

Susan E. Brown, PhD
Center for Better Bones.
Better Bones Hypotheses

- The metabolic status of bone renewing cells provides insight into the whole organism’s restorative efficiency and effectiveness.

- Comprehensive bone health is key to, and also a predictive marker of, overall systemic health.

- What we do for bone should be good for the entire body. This is called a whole body approach.
The Center for Better Bones

www.betterbones.com

Center for Better Bones
Susan E. Brown, PhD, Director
888-206-7119
The Better Bones, Better Body® Program

8 steps to better bone health

**Better Bones, Better Body Program**

1. Assess your individual case
2. Maximize nutrient intake
3. Detoxify and minimize anti-nutrient exposure
4. Enhance digestive strength and nutrient absorption
5. Develop an alkaline for life® eating pattern
6. Exercise into bone health
7. Promote hormone balance and strengthen immune system
8. Test for success and program readjustment

Developed by Susan E. Brown, Ph.D., CNS
The “Better Bones” Nutritionist
(315) 432-1676
Maximize Nutrient Intake

- Steps 2 and 5
  - Alkaline for Life® eating pattern
  - 20 key nutrients
  - Bone fortifying nutritional supplements
**Food Guidelines for**  
**Better Bone Strength at Any Age**

- Always try to buy local, fresh, organic food in season.
- **Low-Carb Type:** 3 to 4 cups a day. Try to include 1 cup of high-calcium leafy greens such as collards, kale, dandelion, turnip greens, or broccoli. Other low-carb vegetables include broccoli, carrots, spinach, fennel, onions, artichokes, summer squash, celery, zucchini, asparagus, chicory, peppers, parsley, salsify, turnips, green beans, etc.

- **High-Carb Type:** 1 to 2 servings a day. Fruits, berries, sweet potatoes, purple, winter squash, tempeh, etc.

- **Dried Beans (Pulses):** 1 or more servings a day. Split peas, lentils, kidney beans, navy beans, black beans, white beans, black beans, soy beans, etc.

- **Flesh Foods:** Limit to no more than 1 serving a day. Fish is preferably, fresh lean meats acceptable in moderation.

- **Fruits:** 2-4 per day (use fresh fruits in season whenever possible).

- **Nuts and Seeds:** A small amount of fresh, unshelled nuts and seeds if desired. Home roasted sunflower, sesame, or pumpkin seeds make an excellent snack or garnish.

- **Essential Fats:** 3-4 teaspoons cold-pressed or expeller-pressed vegetable oils, especially flax seed, olive and coconut. Refrigerate all oils. High-temperature cooking destroys their value.

- **Whole Grains:** 3 servings a day. Brown rice, oats, quinoa, amaranth, wheat, rye, millet, buckwheat, spelt.

- **Dairy:** 2-3 servings as tolerated. Yogurt is the most easily digestible and is a preferred form of dairy.

- **Water:** 8 glasses a day. Hot water is best for digestion and demineralization purposes. Ginger tea and lemon water are also excellent. Purified or mineral or spring water is preferred.

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The Center for Better Bones
600 Franklin Park Drive, East Syracuse, NY 13057
Consume and assimilate all 20 key bone nutrients in adequate doses from diet and supplements combined.

Visit www.betterbones.com/bonenutrition/20keybonenutrients.aspx to learn more about the 20 key nutrients.
<table>
<thead>
<tr>
<th>Nutrient</th>
<th>Role in Bone Building</th>
</tr>
</thead>
<tbody>
<tr>
<td>Calcium</td>
<td>Essential for bone mineralization</td>
</tr>
<tr>
<td>Vitamin D</td>
<td>Necessary for calcium absorption</td>
</tr>
<tr>
<td>Magnesium</td>
<td>Important for bone health</td>
</tr>
<tr>
<td>Protein</td>
<td>Supports bone growth and repair</td>
</tr>
<tr>
<td>Phosphorus</td>
<td>Essential for bone structure</td>
</tr>
<tr>
<td>Vitamin K</td>
<td>Required for bone mineralization</td>
</tr>
<tr>
<td>Manganese</td>
<td>Essential for bone metabolism</td>
</tr>
<tr>
<td>Iodine</td>
<td>Needed for thyroid function, which affects bone health</td>
</tr>
<tr>
<td>Copper</td>
<td>Important for bone collagen synthesis</td>
</tr>
<tr>
<td>Zinc</td>
<td>Essential for bone growth and repair</td>
</tr>
</tbody>
</table>

The 20 Key Bone Building Nutrients

- Calcium
- Vitamin D
- Magnesium
- Protein
- Phosphorus
- Vitamin K
- Manganese
- Iodine
- Copper
- Zinc

[Table continues with more nutrients and their roles in bone building]
Ten Steps to Stronger Digestion
A Kelley Kanyer

1. Squeeze 1-3 apples (depending on size) into a blender.
2. Add 1/2 cup of water and blend, then strain.
3. Add 1 tsp of flax seeds and let sit for 10 minutes.
4. Add 1/2 tsp of cinnamon and 1/4 tsp of ginger.
5. Mix well and enjoy as a healthy snack or breakfast.

Note: This recipe can be modified to suit individual tastes and dietary needs.
Bone Nutrients We Highlight
Vitamin D
Vitamin D Status Measurements

The test of vitamin D adequacy is the serum 25(OH)D test.

- Ideal blood level is 50 to 60 ng/ml
Vitamin K

$K_1$ from green leafy veggies
$K_2$ from fermented foods
Vitamin K\textsubscript{2}

- Will food factor vitamin K as MK-7 from fermented soy natto be as effective as pharmacological doses of synthetic MK-4?
Vitamin C

- Ascorbate form of vitamin C — the great giver
Ideal Daily Intake of Vitamin C

- Depends on half life of ascorbate in the body. This means the need for vitamin C depends on free radical damage and anti-oxidant need.
- Better Bones always uses a fully reduced, buffered ascorbate with minerals.
- Dose of 3,000 to 4,000 mg a day for everyone.
- Those interested in health maximization should use buffered ascorbate to bowel tolerance.
Better Bones Calcium Guidelines

- A total of 1,200 mg from diet and supplements per day for the average adult.
- Pregnant and lactating women need 200 to 300 mg more.
Trace Minerals

- Magnesium, Zinc, Manganese, Copper, Boron, Silica, Iron are called trace minerals.
- Actual intake levels and therapeutic levels are outlined on the 20 Key Bone Building Nutrients Handout.
Magnesium
Magnesium

- RDA is 320 mg/day for women; 420 mg for men.
- Most women do not consume the RDA of magnesium and 40% of population consumes less than 2/3 the RDA.
- Magnesium is the first nutrient lost in food processing (whole wheat flour has 136 mg in 1 cup and white flour has only 34 mg).
- Food sources include nuts, seeds, greens, beans, soy/tofu, and whole grains.
- The Better Bones recommended intake: 600 to 1,000 mg.
  This is equal to or more than calcium intake.
New Measure of Magnesium Deficiency

Discovered by Dr. Ron Elin

- Any reading in the lower ½ of standard serum lab magnesium test indicates deficiency.
Potassium

The Unexpected Bone Builder Protects Bone

- The RDA for potassium at 4,700 mg is nearly four times that of calcium (at 1,200 mg). This is equivalent to 13 servings of vegetables, fruits, nuts, and seeds.
A randomized, double-blind controlled one-year trial of 161 post-menopausal women with osteopenia or osteoporosis.

Subjects were given either potassium chloride or potassium citrate in equivalent doses (30 mEq per day).

Those given 3.1g potassium citrate/day experienced a 1.9% increase in spinal BMD and a 1.4% increase in femoral neck, and 2% increase in total hip over those given potassium chloride.

— Jehle et al. 2006
An alkaline diet is a diet high in vegetables, fruits, nuts, seeds, pulses, and spices with a moderate amount of protein.
Protein

How much do we need?

✓ Too much or too little is problematic for bone.
✓ 60 grams a day is adequate for most women. Those in vigorous training may need 20 mg more a day.
✓ Value of BUN (urea nitrogen test).
Functions of Bone

**Structural**
- Rigidity
- Upright posture
- Levers for muscles
- Locomotion
- Organ protection

**Metabolic**
- Blood cell incubator
- Ensure blood calcium homeostasis
- Protect systemic acid-base balance

*Bone sacrifices structural functions for metabolic functions.*
An alkaline diet is important because the base precursors it provides allow the bones to fulfill their metabolic functions without depleting themselves with resultant damage to bone structure.
Bone as an Alkali Buffer

Bone is a gigantic alkali buffer exchange column loaded with alkali buffer compounds.

Bone and the hydration shell around it contain:

- 80% of body carbonate
- 80% of body citrate
- 35% of body sodium
- 53 to 80% of body magnesium
- 0.1 to 0.2% of body potassium

– Brown and Jaffe 2000; Green and Kleeman 1991a
Eliminate Chronic Low-Grade Metabolic Acidosis
Acid Load Neutralization Improves Bone Strength
Neutralizing Metabolic Acidosis Halts Bone Loss

Frassetto and colleagues at the University of California neutralized net acid load of diet with a base as potassium bicarbonate (KHCO₃) using 60 to 120 mmol/day and

- Decreased blood acidity
- Decreased kidney calcium excretion
- Regained positive balance of calcium and phosphorus
- Decreased urinary nitrogen wasting (enough to both prevent continued muscle loss and restore previously accrued deficits)
- Decreased bone resorption
- Increased bone formation
- Halted bone loss in a sustained fashion (over 5 years of study)

- Sebastian et al. 1994; Frassetto et al. 2001 and 2005; Jajoo et al. 2006; and New 2002
How Do You Know If You Have a Favorable pH Balance?
Test Urine pH

- Verify by pH Readings of First-Morning Urine Using pH Hydrion Paper
- This Reading is a Good Indirect Measure of Mineral Adequacy
- Target range is 6.5 to 7.5
The Acid Alkaline Food Guide

- Dr. Brown’s best-seller
- Translated into 6 languages
- 2nd edition newly revised and expanded in 2013
Whether We Realize It or Not, We Are Infinite Choice Makers

- Yes
- No
- Maybe

- With these quiet decisions we create not only our today, but also our future.
Your Personal Better Bones, Better Body® Commitment

A. Four steps I will take towards implementing the Better Bones eating guidelines:

1. 
2. 
3. 
4. 

B. I will monitor my mental status by testing my first morning urine, striving to obtain a pH reading of 6.5 to 7.
   Yes  [ ]  No, not just yet  [ ]

C. The top 4 key bone-building nutrients that I need more of are Body:

1. 
2. 
3. 
4. 

D. I can increase my intake of these and other bone-building nutrients by taking the following steps:

   
   
   

E. How might further explore my individual nutrient needs:

   
   
   

F. I will check to see if my current nutrition supplement program provides me with adequate doses of all 30 key bone nutrients.
And Don’t Forget This Saying from the Ancient Chinese Philosopher Lao Tzu

If you do not change direction, you may end up where you are heading.
Call us at 888-206-7119 with questions or to schedule a consultation. I’d love to hear from you.

– Susan Brown, PhD
www.betterbones.com