

## Exercise: An Essential Key to Healthy, Strong Bones

Weight-bearing physical activity and strength training are ideal for bone health. Healthy bones are porous and soft, and as you age, they can easily become less dense and more brittle. Especially if you don't get the right kinds of exercise.

Because bone is living tissue, it requires regular physical activity to renew and rebuild itself. Whenever you jump, run, or lift a weight, the stress of your muscles on your bones signals to your body to add new cells to strengthen your bones.

According to the US Department of Health and Human Services report, "Physical Activity and Health: A Surgeon General's Report," healthy individuals should do:

- A minimum of 30 minutes of **weight bearing physical activity** of moderate intensity on most days of the week (if not daily)
- **Strength training** at least two times a week.

Weight bearing exercises – activities that force you to work against gravity – strengthen bone by stimulating the bone-building cells, osteoblasts.

## The Intricate Dance Between Bone-Building Nutrients

In addition to the right kinds of physical activity, healthy bones and bone building require balancing four major nutrients: **Calcium, Vitamin D, Vitamin K2, and Magnesium.\***

The functions of these four nutrients are entwined and depend on each other for strength—much like a twisting grapevine.

Just as you can't untangle a grapevine without wrecking its strength, you can't separate out one nutrient without affecting the actions of the others.

For example:

- **Vitamin D** maintains skeletal **calcium** balance by promoting **calcium** absorption in your intestines.\*
- **Calcium** and phosphate depend upon **Vitamin D** for bone formation.\*
- **Vitamin K2** helps to cement the calcium you absorb into the bone matrix rather than depositing it on the inside of your blood vessels leading to atherosclerosis.
- **Magnesium** is an important mineral that your body needs to build a strong bone matrix.

Imagine the effects on your bones if one of these nutrients is missing – or not present in the right amount!

**And that's the thing... this *can* be happening in your bones for years without you even knowing it's going on.**

## Calcium: Your Bone's Best Friend (Most of the Time)

Load up on dark leafy greens at your local farmer's market

As we just discussed, healthy bones require plenty of bone-building nutrients. And ideally your bones get many of these nutrients from the foods you eat.

**Our diets have changed over the years to ones that are heavy in meat and grains, which are naturally low in calcium. And they can have an acidic effect on your body if eaten in excess.**

Your body will always do what it must to maintain a balanced pH. When your body becomes too acidic, it releases minerals – including calcium from your bones and teeth. However, eating *too little* protein can be just as bad. Protein deficiency interferes with calcium absorption in your intestines.

On the other hand, dark, green leafy vegetables are rich in calcium. And they have an alkalizing effect on your body – two important reasons to eat plenty of fresh leafy green vegetables!

Remember, **the balance of bone-building nutrients is key.**

I recommend you get your calcium from healthy sources such as these. Some high calcium foods also contain naturally high amounts of vitamin K2, such as fermented cheeses and butter from pastured cows. When choosing dairy, look for products made from raw, hormone-free, unpasteurized milk:

Sesame seeds (1/4 cup)	351 mg
Sardines, canned in oil with bones (3 ounces)	324 mg
Yogurt (unsweetened) (1 cup)	300 mg
Goat's milk (1 cup)	326 mg
Swiss cheese (1 ounce)	270 mg
Spinach (1 cup cooked)	260 mg
Collard greens (1 cup cooked)	226 mg
Canned salmon with bones (3 ounces)	181 mg
Almonds (2 ounces)	150 mg
Navy beans, cooked (1 cup)	130 mg
Broccoli, raw (1 cup)	90 mg