

Dear Reader,

I've mentioned in past Health Dispatch e-letters and *Alternatives* issues that high-protein diets may cause a loss of calcium due to the acid-forming effect protein has on the body. In turn, this loss of calcium can lead to decreased bone health.



However, a certain amount of protein is actually required in the bone-building process, and recent research has underscored this point—which is why I thought it would be a good idea to revisit the topic of building and maintaining healthy bones, and discuss what to incorporate into a bone healthy regimen.

Calcium, Magnesium, Synergistic Nutrients, and Exercise

Mineral content determines the strength of a bone, and most people know to take calcium and magnesium to build and maintain healthy bones. Without a doubt, the optimal amounts of minerals and other nutrients are necessary for the growth of our bones, but don't overlook the main factor that causes bones to grow and strengthen in the first place—weight-bearing exercise.

If you want to strengthen a bone, you must exert a force along its axis so that the compacting of the molecules creates a current that stimulates the building of new bone material. In this way, bones adapt, grow, and change their internal structure according to the force placed on them.

The more mechanically stressful the exercise, the more it will increase bone strength. Weightlifting is best—followed by jumping, running, and walking. As you might expect, the least beneficial exercise for improving bone health is swimming (but that's not to say it isn't an excellent exercise in its own right).

Bone Health Problems in the Diet

Most people are aware of the negative effect salt has on cardiovascular health, but many still haven't heard that it's also linked to decalcification and diminished bone health. High salt levels cause the kidneys to remove calcium from the blood and deposit it in the urine—which prevents that calcium from ever reaching the living bone matrix.

It should probably go without saying that you need to minimize the amount of salt you add to your foods. However, the biggest bone health problem may come from prepared and processed foods in the diet. As a society, we consume more processed foods every year, and salt is a major ingredient in most of these foods.

Of course, bone health is only one of the areas negatively affected by this major change in the human diet. The steady decline in overall health during the past three decades runs parallel to the increase in processed foods—a fact that I believe to be more than just a coincidence.

Another "staple" of the fast-paced modern lifestyle is caffeine, which has two negative effects on bone health. First, like salt, caffeine causes the removal of calcium from the blood. Second, it also decreases calcium absorption by the digestive system.

In a study involving 460 girls in their mid-teens, researchers found those who drink cola were three to five times more likely to experience bone fractures than girls who don't drink cola. Of course, colas present two problems—caffeine (obviously) and high levels of phosphoric acid (which alters calcium metabolism and, in effect, causes bone loss).

Instead of salt, processed foods, sodas, and caffeine, you should eat more potassium-rich food—bananas, oranges, green leafy vegetables, whole grains, and sunflower seeds (my personal favorite). Conversely, potassium levels are depleted by sugar, alcohol, salt, and caffeine—as well as vomiting, stress, profuse sweating, and diarrhea.

Getting Your pH Diet

Only a handful of researchers realize the true role an acidic pH can have on living bone. Past studies have shown that alkalizing minerals are removed from bones to neutralize the acid produced by the over-consumption of protein. However, the studies that showed this effect used purified protein rather than natural forms.

Researchers at Tufts University have recently determined that there seems to be a synergistic relationship between protein and calcium. They found that natural dietary protein can result in higher levels of bone growth and lower levels of a marker of osteoclastic activity (the breaking down of bone).

“Whey” is a good source of protein, calcium, and other bone healthy minerals. What's more, **whey protein** also contains lactoferrin, which recent research from New Zealand suggests is helpful in supporting the normal process of bone formation.

The Tufts study may well be connected to research at Purdue University that found that certain conjugated linoleic acid (CLA) isomers positively affect bone health. They found an increased rate of new bone formation after giving animals CLA supplements.

What's more, the amount of bone formation was directly related to the levels of essential fatty acids and oils such as conjugated linoleic acid – CLA. Of course, it will be necessary to confirm these results in human studies. However, I continue to recommend the use of this little known fatty acid for other reasons as well.

As I've mentioned many times in the past, natural dietary CLA is only found in milk and meat from grass-fed ruminant animals (goats, sheep, and cattle). Animals raised on commercial livestock feed produce too little of this fatty acid—which means supplementation is one of the few ways for us to get adequate levels.

However, the Tufts and Purdue findings don't mean that a high-protein, low-carb diet is good for your bones. A balanced diet of meat from grass-fed animals and organic alkali-producing foods (many of which contain complex carbohydrates) will provide support for bone health while also balancing the body's pH levels.

The bottom line is that the necessary minerals, vitamins, and other nutrients won't work if your daily routine doesn't also include a weight-bearing exercise program to help rebuild demineralized bone, an appropriate bone-healthy diet, and a proper balance of acid-forming and alkali-forming foods

Until next time,

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