

## Gut Health and Bone Health

To stop bone loss and reverse osteoporosis, we must optimize our gut health. Gut health is receiving more and more attention these days, so you may know that an estimated trillion bacteria live and thrive along the walls of your gastrointestinal tract. As a unit, these bacteria form the microbiome (small world). Our survival depends on the health of our microbiome because there is an *intricate, mutually beneficial relationship* between the body and the bacteria.

Each individual has a unique distribution of bacteria, and both the type of bacteria and the number of bacteria varies and affects overall health. **Our gut health is intimately connected with bone health.** For example, Vitamin K is extremely important for building bone: it directs calcium from circulation into bone and away from arteries (plaques). Although Vitamin K can be obtained from many foods including broccoli, cheese, and beef, our gut bacteria must convert it into a usable form. If we lack the right bacteria, we can't absorb Vitamin K to efficiently build bone.

**“Good” bacteria promote an increase in bone formation and a decrease in bone resorption.** Research shows that mice with abundant *Lactobacillus Acidophilus* build bone more quickly than they lose it. Their bones are bigger and stronger than those of the mice who lack these bacteria.

**However, a lack of good bacteria or the presence of “bad” bacteria causes a rapid decline in bone mass.** People who suffer from gastrointestinal problems have a much greater risk of osteoporosis. Patients with Crohn's disease, Irritable Bowel Syndrome, Ulcerative Colitis, and Chronic Bloating experience the inflammation of the lining of the gastrointestinal tract, which affects their ability to absorb Vitamin K, Vitamin D, Calcium, and more.

Even if you don't have chronic GI problems, the number and variety of your gut bacteria will decrease as you age. The imbalance of the microbiome is called **dysbiosis**. Dysbiosis occurs when the composition of the bacterial lining is disrupted, which leads to disease, and often to accelerated bone loss. An inflamed gut impairs the absorption and action of essential vitamins, proteins, and minerals, and thus disrupts bone formation and resorption. This decreases bone density and increases the risk of fracture.

Exercise, stress reduction, supplements, and prescription medication cannot overcome the negative impact of a “sick” gastrointestinal tract. When treating bone loss and osteoporosis, gut health must be addressed in conjunction with other bone preserving and rebuilding measures such as exercise, diet, supplements and medication.