

Calcium Displacement

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Too much of anything can be a problem, and calcium is no exception. Calcium settling, or being deposited in areas where it is not supposed to be, has many different names. For example, excess calcium buildup on the teeth is tarter, in the joints, we call it arthritis, in the bursa, its bursitis, in the lens of one's eye, cataracts. If it settles in the kidney, we have kidney stones. And since the RDA for calcium has just been increased from 1000 mg to 1300 mg, you will be seeing more calcium related conditions in the future.

There are three factors which may cause calcium to be in the wrong place at the wrong time (calcium displacement):

- The epidemic of gastric problems and an underlying deficiency of HCL.
- Not enough of calcium's opposing minerals and vitamins.
- Systemic blood pH is too acidic, and since calcium is a major buffer, it leaves bone to buffer excess acid.

Over the years, we have talked about these three factors at length, and you can

Symptoms of Calcium

...Gone WRONG!



- ➔ **Tarter**
- ➔ **Arthritis**
- ➔ **Bursitis**
- ➔ **Cataracts**
- ➔ **Kidney Stones**

see links to the right that cover them and the research links that led to my observations. For this Tuesday Minute, I want to share some basic principles to restore and activate physiologic balance.

The first step is to assess digestion. We've discussed that the majority of gastric maladies come from a deficiency of HCL as opposed to excess stomach acid. If the chyme leaving the stomach does not have the correct pH, minerals are not cleaved from their substrate and ionized so they can be properly chelated, absorbed, and transported to tissue.

As an example, one of the links to the right, "Calcium Abnormalities," talks about kidney stones. A clinician shared about her son-in-law "Bob" and his family history of kidney stones. After he experienced three bouts with kidney stones within a year, he decided to take the first step to change his abnormal calcium utilization problem; he took 2 Hydro-Zyme with each meal. The kidney stone formation stopped, and he has been pain free for over three years. You can see a Tuesday Minute "Fixing Digestion" about optimal HCL dosing and rationale.

What about "deficiency of opposing minerals that keeps

calcium in balance?" Let's start with phosphorus, which is the second most abundant mineral right behind calcium. Calcium and phosphorus should be in an approximate 1-1 ratio in the diet. Increasing one without the other will cause the bones and teeth to breakdown. When calcium is increased, it will displace opposing minerals, in this case phosphorous. Eventually, the opposing minerals become depleted, and often the calcium will leave its suspension or liquid form and precipitate out.

Magnesium is the second most important mineral to oppose calcium. Dr. Jonathon Wright has shared that over 92% of kidney stones can be prevented by taking sufficient magnesium and B6, see a link to the right. By the way, always increase B6 until the patient remembers their dreams.

Some of calcium's other opposing minerals are potassium, sodium, zinc, and molybdenum. In a lesser understood relationship, a copper excess will increase calcium as well.

Opposing vitamins are vitamin A, B3, E, and K2. Deficiencies of any of these can contribute to calcium excess. In the last few years, the relationship between vitamins D and K2 have been brought into the "excess calcium conversation" as well. Vitamin D3 stimulates the bone building osteoblast cells to release an inactive form of osteocalcin called un-carboxylated osteocalcin. K2 activates osteocalcin through a process called carboxylation. Through the carboxylation process, the positively charged osteocalcin is changed to a negatively charged ion. Now the negative ion looks for positively charged calcium, which then attaches the osteocalcin calcium complex to the bone.

With sufficient or excessive levels of vitamin D and depleted amounts of K2, calcium levels rise and are deposited in soft tissue and eventually line the insides of blood vessels. Bone matrix is weakened because the calcium which should go in the bones is deposited in other areas of the body instead.

Assess vitamin D. If deficient, use both vitamin D and K as in Bio -DK Caps 1 bid, or if patient has sufficient or excess vitamin D, use Bio-K Forte Caps 1 tid.

Systemic pH is a larger subject, and I've added a link to one of our TMs titled, "Why patient pH is so Huge," to complete that discussion. That discussion goes into more specifics regarding pH and how to maintain it. Balancing pH is the best preventative strategy I know of to keep calcium in balance. For now, assess digestion and use Hydro-Zyme, 2-4 tablets in the middle of the meal. Add opposing minerals: phosphorus as in Super Phosphozyme 2 tid, magnesium as Acti-Mag Plus, 1 scoop 1-2 times a day. Add K2 as in Bio-K Forte Caps 1 tid or Bio-DK Caps as discussed if a vitamin D deficiency exists. Also, Bio-Trophic Plus 2 tid as a food based multivitamin/mineral without copper.

This is lot of ground to cover in a short period of time, but I have given you some resources that will give you further insight. As I mentioned, the additional amount of recommended calcium is going to cause a lot of calcium problems in the future. Hopefully, you will have more options to offer your patients.

Thanks for taking the time to read this week's Tuesday Minute. I look forward to being with again next Tuesday.