

WEIGHT LOSS E-NEWSLETTER

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Osteoporosis

By: David Caya, DC

Osteoporosis is epidemic in the U.S. Bariatric patients can be even more prone than the average American. Both RNY/GB and DS patients have issues with calcium absorption. DS patients also have issues with absorption of vitamin D. Both populations must be compliant in supplementation on both. Calcium Citrate is the preferred form as it is far more absorbable than the carbonate form. This is not new news to most of us. Calcium absorption is also greatly enhanced by adequate vitamin D. This is also not new to the average bariatric patient. What is relatively new news is that current information is that some laboratory testing methodology has yielded false high readings in the past leading many to falsely believe their level of supplementation was adequate. In addition to false high level's in

previous lab testing procedures the "normal" ranges have been increased recently. Many now believe 50ng/mL should be looked at as a minimum. My most recent labs came back with the form showing a "normal range" of 5-58ng/mL. Recent publications show that our D levels are vitally important to immune function in fighting any number of conditions from flue (swine flue?) to cancers. I personally am making a concerted effort to raise my D value to at least 50ng/mL before next flue season.

A new and emerging factor in combating the osteoporosis epidemic is the awareness of the importance of vitamin K-2. This is not exactly the same thing as the K we all know.

There are two primary forms of vitamin K, K-1 and K-2. Most bariatric supplements, even the very best,

supplement only our K-1 levels. K-1 has long been known for its involvement in blood clotting. K-2 however is very important for Calcium metabolism. This is relatively new research coming out of Japan.

This vitamin has three very powerful effects on our Calcium metabolism. It minimizes the loss of Calcium in the urine thereby keeping what Calcium that is absorbed "on board" for recycling back into constructive purposes. It stimulates the deposition of Calcium in the bone matrix by increasing the levels of a specific hormone which "turns on" the cells that do this job. K-2 also helps regulate the deposition of Calcium in inappropriate tissues such as the walls of arteries and in ligaments.

Research out of Japan has shown increased bone mineral mass in post menopausal women. A group of women were divided into 4 sub groups. The "control" group (who added nothing to their diet) lost 1% bone mineral mass per year. At the other end of the spectrum a group using Calcium Citrate, D3 and K2 (MK-7) gained 1.5%.

The most recent information regarding this very important vitamin has shown that a very specific form of the vitamin is by far the most beneficial. As I noted before this research is coming out of Japan. This form of K-2 was first observed in a traditional Japanese food. Natto is a fermented soy product that is very high in Menaquinone-7 (MK-7). This form is very important. The less advantageous and more common form MK-4 is less well absorbed and has a "half life" (the time it takes for the blood

levels to fall by 1/2) of approximately 90 minutes. The MK-7 is more easily absorbed and has a half life of well over 24 hours.

Caution must be used for patients using "blood thinners". This vitamin will have a direct effect on their clotting time. Research shows that this can be off set by adjusting the levels of medication. Once these levels are adjusted they tend to be much more stable due to the long half life of the MK-7. One of the side effects of these blood thinners is the loss bone mineral mass. Consult your physician before starting.

Editors Note:

It is worthwhile to address a few issues raised in this article by Dr. Caya. The first issue is related to the efficacy of the types of calcium. This issue is addressed extensively in our website and summarized in a table at the FAQ section <http://www.dssurgery.com/ourprogram/faq.php>

The summary of the above table is that, Calcium Citrate is absorbed easier, but more of it needs to be taken to get the same amount of elemental calcium. Less of Calcium Carbonate is needed to get the same amount of elemental calcium, however the absorption is less efficient. A search of the medical literature will provide supporting data for recommending one or another type. I believe that most people at least in the beginning could take either type. The decision of which one to take should be based of which is tolerated better. Later on recommendations for changes will be made.

The other point to remind every one is that this information is not static and continuous to change. It is important the patients stay well informed. Ara Keshishian, MD