



## Central Valley Bariatrics

1205 Garces Hwy Suite 303  
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# Central Valley Bariatrics Newsletter

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### Calendar of Group Meetings:

Please see the website for further information on the group meetings [www.gr-ds.com](http://www.gr-ds.com)

#### Delano:

October 8 & November 9 6:00 PM

#### Paso Robles:

October 21 & November 18 6:30 PM

#### Ukiah:

October 1 & November 5 6:00 PM

#### Bishop:

October 19 & November 16 6:30 PM

#### Red Bluff:

October 7 & November 4 6:00 PM

#### Eureka:

October 5 & November 2 6:00 PM

#### Las Vegas:

October 19 & November 16 6:00 PM

#### Sacramento:

October 1 & November 5 6:00 PM

#### San Jose:

October 2 & November 6 10:00 AM

#### Mariposa:

October 28 6:00 PM

As you can see from the schedule, it is extremely busy. In addition, the practice is down to only 2 surgeons taking call and it is becoming exhausting. Please bear with us as we are looking to grow and add several new surgeons.

### Topic of the Issue Supplements and Follow-Up

It has become apparent that some post-op patients are becoming complacent in monitoring and maintaining their supplementation and follow-up. This can have devastating effects and can potentially lead to death.

I would like to remind all post-op patients that their anatomy has changed and the ability of your body to absorb enough nutrients to support a healthy body without taking supplements is reduced. You also may not have the “reserve” to maintain healthy levels of nutrients if you do not take your supplements and eat a healthy diet daily.

Our bodies are using the nutrients daily and they need to be replenished daily. Supplements include one general multivitamin, a minimum of 1500mg of calcium, protein and, if prescribed, additionally ADEK (**water soluble form of Vitamin A, D, E, K, Calcitriol (Vitamin D)**), and Iron.

**Your annual blood work is the only way that we can make certain that you’re getting enough nutrients. Along with that, WE need to see your blood work results AND you in our office. There are things that your PCP might not be familiar with that we can diagnosis immediately.**

In the next few issues I will give you a refresher course in the supplements and why they are so important. You can also read on the website [www.gr-ds.com](http://www.gr-ds.com) under the icon Patient Workbook Doc. 21 Nutrient Information. There is also Calcium and PTH information under the “additional information” icon on the website.

### **Why are Calcium , Vitamin D & PTH important?**

Calcium is the most abundant mineral in the body. It makes up approximately two percent of body weight, with 99 percent of it incorporated in the hard tissue, bones and teeth. The other one percent is present in the blood and extra cellular fluids and within cells of soft tissue, and regulates many important metabolic functions.

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### Calling all Post-op Patients

Please send me your stories! We would love to hear how your lives have changed and how things are going!

We would like to feature one post-op patient in each of edition of the newsletter. If you are interested in being a featured post-op patient and would like to share your story with us, please e-mail a one page story to me at [keshishiand@gr-ds.com](mailto:keshishiand@gr-ds.com) in Word format. Any pictures (in Jpeg format) you may also want to share of yourself pre and post-op. If you do not have a computer you can send via regular mail a typed one-page story and your pictures of yourself pre and post-op. You can send the story and pictures to me at 1205 Garces Hwy Suite #303, Delano, CA 93215. Hope to be able to share all your successes!

### **Osteoporosis**

One in four women, and one in eight men over 50, has osteoporosis. Nearly one-third of all women and one-sixth of all men will fracture their hips. Women's mortality rates from osteoporotic fractures are greater than the combined mortality rates from cancer of the breasts and ovaries. Up to 20 percent of women and 34 percent of men who fracture a hip die in less than a year from complications secondary to these fractures (i.e., pneumonia).

The key factors appear to be meeting the NIH calcium intake recommendations from food and/or supplementation; ingesting supplements with meals; performing weight bearing or weight-resistance exercises 4-6 times per week; and ensuring adequate serum vitamin D levels. All of these factors enhance calcium absorption and/or retention in bone.

**Warning: Fosamax or other osteoporosis treatments, for our patients, should not be the first line treatment for osteoporotic changes. Increased calcium intake/ supplementation and calcitriol should be taken to normalize serum calcium , alkine phosphatase and PTH levels. Only after these are normalized and with diligent daily supplementation should**



Food	Serving	Calcium (mg)	Servings needed to equal the absorbable calcium in 8 oz of milk
Milk	8 ounces	300	1.0
Yogurt	8 ounces	300	1.0
Cheddar cheese	1.5 ounces	303	1.0
Cheese food	1.5 ounces	241	1.2
Pinto beans	1/2 cup, cooked	45	8.1
Red beans	1/2 cup, cooked	41	9.7
White beans	1/2 cup, cooked	113	3.9
Tofu, calcium set	1/2 cup	258	1.2
Bok choy	1/2 cup, cooked	79	2.3
Kale	1/2 cup, cooked	61	3.2
Chinese cabbage	1/2 cup, cooked	239	1.0
Broccoli	1/2 cup, cooked	35	4.5
Spinach	1/2 cup, cooked	115	16.3
Rhubarb	1/2 cup, cooked	174	9.5
Fruit punch with calcium citrate malate	8 ounces	300	0.62

**Fosamax be started. Aggressive monitoring of laboratory studies of the above levels are necessary while on these osteoporosis treatments in the GRDS patient.**

## Patient Profile

By  
Jerry Lamb

I decided to head to the local airport today just to see what it would take to get current on my pilot's license. I have the license and now the required medical, clearance. I just haven't flown since 1980!! (That's when my weight got so high my size interfered with the aircraft controls.) I swore off flying until I could get behind the controls safely again.

I had a Gastric Reduction Duodenal Switch surgery last May 1 and have lost over 130 pounds since then. After talking with an instructor for a bit and expressing my concerns and explaining why I stopped and why I felt I was about ready to start again, we decided a walk to the ramp and a look at the type aircraft I'm familiar which would answer some of my questions.

Well, I remembered all the required preflight checks for a P28A-140, and I actually was able to fit behind the controls without any interference. At that point, the instructor hands me the keys and says, "Let's see how much you remember." So, we go through the rest of the pre-start checklist, fire the engine up, make the required radio calls and taxi to the run-up area.

After doing all that, I'm feeling a little like the first time I took a lesson, but decided to just go for it. We were cleared into takeoff. When the call came it was for an immediate takeoff since there was another aircraft on a mile final for the same runway.



OK. Ease the power in, keep the plane centered on the runway centerline, let the speed build to 65 mph, and ease back on the controls. Lifted off as easily as I can ever remember doing. The next hour was a total blast! Climb out, set up a normal cruise, did some turns, slow flight, all required maneuvers for someone recertifying after a long layoff.

It was finally time to head back to the airport. However, we're now number three for landing. (Just a little more stress for the day. It's after 5PM and I'm supposed to pick up Susan from work at 5:30, a nearly 30 minutes drive from the airport.) On the final approach the instructor commented on how well I was doing. He said he didn't believe it had been nearly 24 years since I had flown last, I flew a nearly flawless stabilized approach in a 10 knot crosswind. That made me feel really good!!

We landed, taxied to the tie-down area, and got out. I was so excited I was weak-kneed, could hardly stand up after I got out.

So, I've taken the first step back to being able to fly. A year ago, that was only a dream. 11 months ago, a wonderful surgeon, Dr. Ara Keshishian, helped me start down the road to making that dream, and a bunch of others, come true. A couple more times with the instructor to make sure this wasn't a fluke, and I'll be back flying on my own.

Well, not totally.. It seems I owe someone a flight before she heads back to Germany in June, so I better get a move on. Jenny has been a constant source of encouragement and inspiration this past year. I told her if I ever got my flight physical back, I'd take her for a flight.. (Note: Jerry and Susan are host parents for



a high school exchange student, Jennifer Lamm, from Germany. She has been with them since August 8, 2003 and will be returning home on June 27.)

I'm Flying High thanks to Dr. K. and the Duodenal-Switch weight loss surgery!!

June 23.. Jenny was involved in a traffic accident on May 16, not seriously hurt, but enough to force us to postpone the flight. However, Dr. Keshishian worked his miracles again and I was released to return to flying three weeks after my hernia repair and panni operation.

This gave us time to give Jenny her flight on a very special day for Susan and I! Jenny accompanied us on a dinner flight to Napa on June 22 where the three of us celebrated Susan and my 36th wedding anniversary. We followed that with a sunset flying tour of the San Francisco bay area before returning to Sacramento after spending nearly 3 hours in the air. Jenny got her flight with just a few days to spare and we enjoyed every minute of it.

"Jenny.. Wir liebe du, unser A.F.S. Tochter. Wir sehen uns bald. Auf Wiedersehen. Mom und Dad."

### Topic of the Issue

*Continued from page 1*

In addition to building and maintaining bones and teeth, calcium is necessary for muscle contraction; blood clotting; cell membrane transport functions; the release of neurotransmitters; synthesis and secretion of protein, hormones and intracellular enzymes; nerve transmission; and the regulation of heartbeat. The proper balance of calcium, sodium, potassium and magnesium ions maintains muscle tone and controls irritability and a muscle membrane's electrical potential.

Blood levels of calcium are maintained within a fixed range by various feedback mechanisms. A significant increase in serum calcium can cause cardiac or respiratory failure. A Low calcemic (**Hypocalcemia**) state leads to tetany (an involuntary muscle spasm that can cause asphyxia, even death from a spasm of the airway musculature), bone deterioration. **Hypocalcemia** must be interpreted in relation to serum albumin (important

serum protein discussed in the last issue) concentration (Some laboratories report a "corrected calcium" or "adjusted calcium" which relate the calcium assay to a normal albumin. The normal albumin, and hence the calculation, varies from laboratory to laboratory).

The normalization of blood Calcium is a complex process involving 4 key components—serum calcium, serum phosphate, 1,25-dihydroxyvitamin D-3, and parathyroid hormone (PTH). All 4 key components are important in delineating the calcium requirements for a GRDS patient and are, therefore, monitored on your yearly laboratory studies. More than 99% of the total body calcium is stored in bone in the form of phosphate and hydroxide salts.

Normally, a very small portion of this calcium is available for exchange in the serum. A normal blood calcium level does not necessarily mean that your calcium needs are being met.

Parathyroid hormone (PTH) is a peptide containing 84 amino acids (84 small pieces of protein) that are secreted by the parathyroid glands. PTH has 3 major actions. The first action is to increase kidney calcium re-absorption and phosphate excretion. In the kidney, PTH blocks re-absorption of phosphate in the proximal tubule while promoting calcium re-absorption. Calcium also may exert a direct effect on renal re-absorption.

PTH **promotes** absorption of calcium from the bone in 2 ways. . Although it may seem unusual that the cells that promote construction of bone are also involved in re-absorption of bone, these cells form an interconnected network known as the osteocytic membrane overlying the bone matrix. When PTH binds to receptors on these cells, the osteocytic membrane pumps calcium ions from the bone fluid into the fluid outside of the cell to increase blood calcium levels.

The slow phase of bone re-absorption occurs over several days and has 2 components. First, osteoclasts (bone destroying cell) are activated to digest formed bone, and second, an increase these bone destroying cells. These cells lack PTH membrane receptors.

The third major action of PTH is conversion of 25-hydroxyvitamin D to its most active , 1,25-dihydroxyvitamin D-3 [1,25-(OH)<sub>2</sub> D<sub>3</sub>], in the kidney.

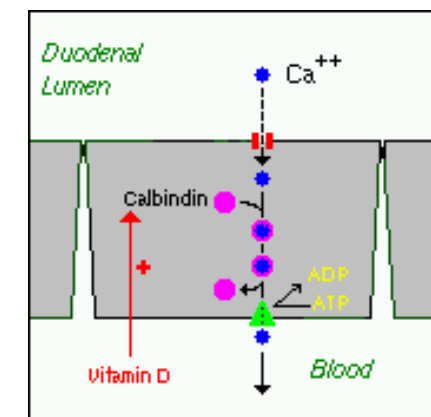
An elevated calcium level has a negative effect on PTH release. If your calcium needs are met the PTH level will be normalized. Although not as well documented Vitamin D (calcitriol) appears to have an inhibitory effect on the parathyroid gland as well.

Vitamin D-3 (cholecalciferol) is formed in the skin when a cholesterol precursor, 7-dehydrocholesterol, is exposed to ultraviolet light. This activation occurs in the kidney.

The primary action of 1,25-(OH)<sub>2</sub> D<sub>3</sub> (the vitamin D level that we monitor on your yearly labs) is to promote gut absorption of calcium by stimulating formation of calcium-binding **protein** within the intestine. In bone, vitamin D may play a synergistic role with PTH in stimulating osteoclast proliferation and bone re-absorption.

There are two mechanisms for Calcium absorption.

\* **Active Absorption:** Calcium is absorbed primarily in the in the duodenum. This requires the assistance of vitamin D. The body normally absorbs 30-40 percent of ingested calcium, but it can be as low as 10 percent from some organic sources, such as vegetables or grains with a high content of phytic or oxalic acid. After GRDS the food that you eat come in contact with approximately 5 cm of Duodenum. This is why it is extremely important to take your 1500 mg of Calcium daily in divided doses.



Our bodies can only absorb so much at any given time, therefore it is more

important to give your body more frequent doses rather than one large dose.

\* **Passive absorption** occurs in the jejunum and ileum, and, to a much lesser extent, in the colon when dietary calcium levels have been moderate or high. In this case, ionized calcium diffuses through tight junctions into the basolateral spaces around enterocytes, and hence into blood. Such transport depends on having higher concentrations of free calcium in the intestinal lumen than in blood.

In general, factors that increase calcium absorption include: serum levels of vitamin D; PTH; lactose; intestinal acidity; and possibly fat intake. Factors that hinder calcium absorption include oxalic acid (chocolate, spinach, beet tops, collard greens, etc.). The same is true for phytic acid found in whole grains (i.e., wheat bran and whole wheat). Low serum levels of vitamin D and/or PTH decrease calcium absorption.

Following absorption, calcium enters the bloodstream and is transported to body tissue. The major site of deposition is bone. Unabsorbed calcium (approximately 60-70 percent of intake levels) is excreted in fecal matter, but may provide a protective role in regards to colon cancer prevention by binding to bile acids and other sterols, and blocking their conversion to cancer-causing secondary sterols (lithocholic acid, deoxycholic acid).

There is much discussion regarding the bio-availability of Calcium, in the general population and in the weight loss surgery community. The basic information, however, is to take Calcium on a daily basis.

Calcium Type	Absorption Factor on empty stomach
milk	33%
calcium carbonate	31%
calcium citrate	40%
calcium gluconate	26.6%
calcium lactate	34.5 %
tricalcium phosphate	25.2%
calcium citrate-malate	34.9%
calcium chloride	36.4%
average diet	32%

#### Nutrient - Nutrient Interactions

1. **Iron** - High doses of calcium can reduce iron absorption. Do not take calcium with Iron
2. **Zinc** - High doses of calcium can reduce zinc absorption.

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