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Heart To Heart Talk

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Calcium is Essential to Life

What is Calcium?

Calcium is a hard, silvery metallic element which has an atomic number of 20 and an atomic weight of 40.078. It is a mineral found in bones, teeth and other body tissues. Calcium is essential in human diet and people normally ingest between 600 to 1400 mg. per day. It is indispensable and critical for normal cell function, blood clotting, dental and skeletal health, muscle contraction, nerve signal transmission and proper heart function.

Where is calcium stored in the body?

About 99% of calcium is in the bones and one percent in extracellular fluid (50% in the free active ionized form, 40% is bound to protein, primarily albumin, and 10% is complexed with anions, as calcium citrate). Calcium regulation is controlled by parathyroid hormone, vitamin D and calcitonin, and affected by magnesium and phosphorus level.

What are the symptoms of low calcium?

Signs and symptoms of hypocalcemia vary depending on the severity. They are: muscle cramps, leg and feet tingling and numbness, dry skin, coarse hair, brittle nail, poor dentition, osteoporosis and fractures, bleeding problem, seizures, angina, heart rhythm disorders, congestive heart failure, swallowing problem, abdominal pains, pancreatitis, kidney or liver failure, cardiovascular collapse, and death.

What is the Calcium Continuum?

This is the natural need of our body for calcium, from the time the person is born and extends throughout his/her lifetime. In the United States, where more than 30 million people (about 25 million women and 5 million men) have osteoporosis, the most recent survey revealed that most people are not getting enough calcium. The general rule of thumb is “if you are not taking calcium supplement and do not drink 3 glasses of milk daily, you are not getting enough calcium.”

What is the Dietary Reference Intake?

The DRI for calcium in the various age groups per day are as follows: 0-6 months, 210 mg; 6-12 months, 270 mg; 1-3 years, 500 mg; 4-8 years, 800 mg; 9-18 years, 1,300 mg; 19-50 years, 1,000 mg or 1 Gram; and 51-older, 1,200 mg. The US National Institute of Health reported that a great majority of people are not consuming the Recommended Daily Allowance of calcium.

Where does the calcium in the circulation come from?

The circulating calcium comes from either the diet or from the bones. If one's diet is poor in calcium, the calcium from the bones is utilized by the body instead. This reduces the calcium in the bones, making the bones weak and osteoporotic and prone to easy fractures. It is the adequate calcium in the diet, or from the calcium supplement, that spares the calcium in the bones, thus protecting the skeletal system. And if this goes on, clinical hypocalcemia develops, with the signs and symptoms described earlier.

What are the sources of calcium?

The dietary sources of calcium are from milk and milk products, like cheese, yogurt, dark green leafy vegetables, broccoli, kale, breakfast wheat and bran cereals, beans, nuts, grains, canned salmon and sardines (in the bones). Those who do not eat dairy products daily would need calcium supplement.

When is calcium most essential for bone health?

Calcium is most essential from birth to age 18, where bones are forming and growing. Breast milk and milk formula are rich in calcium, and it is important that the diet of a growing child is also rich in calcium. Preschoolers and teenagers usually choose juice or soda with their meals and this leads to inadequate calcium intake. By age 35, our bones have reached their maximum strength, so how much calcium we provide our bones in early life will determine how strong they will be later in life. Bones continue to accumulate calcium after they have stopped growing, hence sufficient calcium in the diet, or supplementation, is essential, even up to the ripe old age.

How about calcium during pregnancy?

Pregnant women need more calcium for obvious reason. She is sharing her body calcium with the baby inside her. This puts the demand on the mother's own supply, hence she needs calcium supplementation. Increasing calcium ingestion can even help maintain normal blood pressure among pregnant women and prevent the

so-called pregnancy-induced hypertension, a grave complication that could increase the risk for both the mother and the baby.

Does calcium play role in the treatment for menopause?

Yes, very much so. When menopause sets in, the woman produces much less estrogen, and this makes her more prone to osteoporosis and frequent bone fractures. Calcium has been proven to minimize bone loss after menopause and at the same time making estrogen replacement therapy work 3 times more effectively, compared to estrogen alone.

How about men?

While osteoporosis affects more women, men are also prone to develop osteoporosis when they do not get enough calcium. The same bone weakness and fragility can lead to frequent bone fractures, as in women.

Do multivitamins contain calcium?

Yes, most, if not all, multivitamins contain about 200 mg of calcium with 400 IU of Vitamin D, which, for adult is only about 20% of the daily minimum calcium requirement. This is why some people take additional calcium supplement (600 mg with 200 IU vitamin D) daily. Up to 2000 mg of calcium daily may be taken for supplementation.

Why the vitamin D?

Vitamin D, which is often included in the calcium tablet, makes the body absorb and metabolize calcium more effectively. Vitamin D could also come from exposure to direct sunlight (for about 15 minutes a day), cod liver oil and fatty fish, and from fortified dairy products.

What kind of calcium is best?

For supplement, calcium carbonate is great. There is no need to buy the expensive kind. Calcium carbonate (as in OS-cal or Tums) provides more elemental calcium than other forms such as calcium citrate and calcium lactate. The National Osteoporosis Foundation reports that Tums is an excellent source of calcium. This you can buy in grocery stores. Talk to your physician before taking supplements.

Can I overdose in calcium?

It is rather hard to get too much calcium. The body excretes (through urine and stools) whatever excess calcium there is. It has been shown that daily intake of 2,500 mg is safe. If gas or constipation develops, the dose may be cut down and

gradually increase to the prescribed level, even divided and taken with meals. Calcium carbonate is more effective when taken with meals. Daily calcium intake above 850 mg has been shown in various studies to lower the incidence of symptomatic kidney stones, contrary to popular myths that suggest otherwise.