**Bone Appétit: New Information on Calcium & Vitamin D**

**QUESTION & ANSWER**

Wednesday, November 17, 2010
1:30 p.m. to 3:00 p.m. ET

1. I like to drink warm milk, but I have heard that heating some vitamins can change them. Is vitamin D changed by heating?

   **Answer:** No. Vitamin D is not changed by heating. Hot milk (as in hot chocolate) will give you the same amount of vitamin D as the same amount of cold milk.

2. Does taking a calcium supplement together or close to the time of drinking coffee have any effect?

   **Answer:** For general health, it is recommended to limit your intake to 3 to 4 cups of caffeinated beverages per day. For some individuals, even this amount of caffeine may cause symptoms such as palpitations or insomnia. Taking a calcium supplement together with a coffee does not affect the absorption of the calcium. Consuming too much caffeine can increase the amount of calcium lost from the body through the urine, but studies do not convincingly show any effect of caffeine on the risk of fracture.

3. Does harder cheese have more calcium?

   **Answer:** Yes, harder cheeses, like cheddar, contain less water. Less water means more concentrated nutrients (like protein and calcium), and therefore more calcium per bite.

4. I am 65 years old. I am lactose intolerant and I have low bone density. I take 1500 mg of calcium through supplements and 3000 IU of vitamin D every day. Is this OK?

   **Answer:** The recommended total amount of calcium for adults age 50 and up is 1200 mg a day, preferably from diet. The amount of calcium a person needs is not affected by their bone density test results. People with normal bone density and people with
osteoporosis need the exact same amount of calcium if they are within the same age group. If you do not get enough calcium in your diet, you may need to take a calcium supplement. Remember that the total amount of recommended calcium of 1200 mg (for those over 50) is intended to include the calcium you get from your diet as well as from your supplements. Everyone gets at least 300 mg of calcium from their diet (even vegans) even if you don’t consume dairy products, because there is a small amount of calcium in most of our foods. That means that people over 50 need an additional 900 mg of elemental calcium through foods containing a high content of calcium (such as dairy products or fortified orange juice, soy beverage, almond or rice beverage). If you consume 3 or more servings of dairy or other high calcium content foods per day, that covers it and you probably don’t need to take any additional calcium supplements. Even though you are lactose intolerant, you can still get enough calcium in your diet from lactose free milk, calcium fortified orange juice, soy beverage, almond or rice beverage, canned salmon or canned sardines with the bones etc. I would recommend going to the Osteoporosis Canada (OC) website (www.osteoporosis.ca) and using the “Calculate My Calcium” tool (blue button on the right hand side) to find out how much calcium you are consuming through your diet. If you cannot get enough calcium through foods alone, a combination of food sources and supplements is recommended. Take only enough calcium supplements to consume a total amount of calcium that is close to your daily recommendation of 1200 mg.

Taking more than the recommended calcium from dietary sources is not harmful, but going overboard with calcium supplements can be harmful. It can increase the risk of kidney stones, heart problems, prostate cancer in men, constipation and gastric upset.

With respect to Vitamin D, Osteoporosis Canada recommends:

- every healthy adult under age 50 should take a vitamin D supplement of 400-1000 IU per day
- every adult over age 50 should take a vitamin D supplement of 800-2000 IU per day
- adults under age 50 who have significant medical conditions that put their bones at risk or that interfere with vitamin D should take a vitamin D supplement of 800-2000 IU a day

Vitamin D doses greater than 2000 IU per day should only be taken under the supervision of a physician. Please be sure you discuss your vitamin D dose with your physician if it exceeds the upper safe limit recommended by Osteoporosis Canada, as yours does.
5. Can you speak about almond beverage? I am unable to tolerate protein from cow’s milk and soy beverage.

Answer: If you are not able to tolerate protein in milk or soy you need to look at other food groups for sources of calcium. Health Canada does not consider almond beverage to be nutritionally equivalent to cow’s milk as it does not contain protein or calcium unless it has been fortified. Some almond beverage products are fortified with some calcium, as are some rice beverages. Always read the nutrition labels carefully to be sure. Another alternative for you may be goat’s milk. In this particular situation, a registered dietitian can help.

6. Is there a decline of acid in the stomach as people age? If so, would this make calcium citrate a form of calcium that is better absorbed in the older population?

Answer: Yes. As we go through the aging process, there is a change in the level of acidity in the stomach. In older individuals calcium citrate may be better tolerated.

7. I have to take medications 4 times a day. I was told to avoid taking calcium supplements for at least 2 hours before or after medications. How can I get around this?

Answer: There are only a few medications that can be affected by your calcium supplement. I would recommend that you discuss all of your medications, including supplements and over-the-counter medications, in detail with your pharmacist or your health care provider. They can show you how to put it all together.

8. Does a high fibre diet reduce calcium absorption?

Answer: The current calcium recommendations account for some of the absorption and food/nutrient interactions that normally occur with digestion. There is no need to go above and beyond the recommendations of 1000 mg or 1200 mg of elemental calcium per day even if you have a relatively high amount of fibre in your diet.
9. Calcium carbonate or calcium citrate, which is best?

**Answer:** In terms of how they benefit bones, they are equal. Which you choose will depend on personal tolerance and personal preference. What is “better” for one person might not be “better” for someone else.

10. I am avoiding dairy products (except cheese) as I was recently diagnosed with estrogen fed breast cancer and it has been recommended that the estrogen in cow’s milk is not good for me to consume. Do you have other recommendations for me to ensure I get enough calcium?

**Answer:** In Canada, hormones are not approved for use in dairy cattle and therefore milk does not contain a significant amount of hormones. (source: A Nutrition Guide for Women with Breast Cancer; BC Cancer Agency & Health link BC) As a result, you probably do not need to avoid cow’s milk. However, there are other non-dairy sources of calcium on Osteoporosis Canada’s website that can help you if you are still uncomfortable with consuming cow’s milk. Go to [www.osteoporosis.ca](http://www.osteoporosis.ca), click on Osteoporosis and you, then Nutrition to find a food sources of calcium chart.

11. I have been told that on the day I take my Actonel®, I should not take my calcium supplements. Should I also limit my calcium intake from my diet on that day?

**Answer:** You do not have to limit the calcium in your diet on the day that you take your Actonel®. However, you do need to avoid anything but water for the first half hour. You need to take Actonel® separately from food and separately from your calcium supplement and any other medications. After you take your Actonel® first thing in the morning with plenty of water, you cannot eat or drink anything or take any other medications (except for water) for the first half hour. You also cannot lie down or bend over for the first half hour. After that, you can eat and drink freely and you may take other medications or supplements or exercise freely. Some physicians recommend that you wait a full hour after your Actonel® dose before you take a calcium supplement.

12. Does too much cheese cause kidney stones? If so, what would be the appropriate amount to take on a daily basis?

**Answer:** The main cause of kidney stones is not drinking enough water throughout the day. There have been no studies showing that dairy products or cheese increase the
risk of kidney stones in normal individuals. But there have been some studies that show that women who take large amounts of calcium supplements are at slightly increased risk for kidney stones.

Canada’s Food Guide recommends 2 Milk and Alternatives servings a day for adults under 50 and 3 servings a day for those over 50. The recommendations are the same for men and women.

Most cheeses tend to have high fat content, so you may wish to check the nutrition food labels to find less fatty cheeses. Also, discuss how much would be best for you with your physician.

**13. 800 to 2000 IU of vitamin D is a large range. I have osteopenia and I am 60 years old. Should I be taking closer to the upper limit of vitamin D?**

**Answer:** “Osteopenia” is an old medical term that has been replaced by the term ‘low bone density’. Some people with low bone density do not need any osteoporosis medication whereas others with low bone density are at high risk for fractures and should be started on medication. Osteoporosis Canada recommends that bone density results be used as part of a comprehensive fracture risk assessment that includes a look at other risk factors such as your sex, your age, other medications, whether you have had a previous osteoporotic fracture, etc. You should discuss your bone density results with your physician to find out what your own personal fracture risk is.

The new Osteoporosis Canada Guidelines are very clear. Everyone over the age of 50 should be taking a vitamin D supplement of 800 to 2000 IU a day, irrespective of their bone density results. Why that range?

- 800 IU a day is the lowest dose that can help decrease your chance of breaking a bone
- 2000 IU is the upper limit for safety.

Having a range allows you the flexibility to pick from a variety of vitamin D supplements. If you are at high risk of fracture and require a prescription medication for osteoporosis, your physician should check the level of vitamin D in your blood to see if the amount you are taking is adequate.
14. Why does canned salmon, excluding the bones, have no calcium while fresh and frozen salmon does? Or have I misunderstood?

**Answer:** You have misunderstood. The only source of calcium in canned salmon is the calcium that is contained in the bones themselves. Canning softens the bones making them easy to consume. Similarly, eating the bones in canned sardines is also a good source of calcium. There is no significant amount of calcium from fresh or frozen salmon as those bones are too hard to eat.

15. I have read that calcium from milk cannot be absorbed by our bodies. How do we know for sure that milk is a good source of calcium?

**Answer:** Research shows that milk is a good source of calcium that is well absorbed by the body. Based on that research Health Canada has identified milk products as one of the best and richest sources of calcium for human consumption.

16. **Fosavance®** has 2800 IU of Vitamin D. Is this enough vitamin D for a week?

**Answer:** Fosavance® 2800 contains 2800 IU of vitamin D, taken once a week, and therefore is equivalent to 400 IU of vitamin D per day. If you are over age 50, that would be insufficient vitamin D as Osteoporosis Canada recommends 800 to 2000 IU per day for that age group. There is also Fosavance® 5600 which contains 5600 IU of vitamin D, taken once a week, which is equivalent to 800 IU per day. Be sure to discuss with your health care provider which product may be best for you.

17. Are vitamin D drops as beneficial as tablets?

**Answer:** Yes, they are. Depending on the dosage, they are equally as good. Take whichever form of vitamin D works best for you.

18. I am 61 years old – how can I avoid further loss in my bone density?

**Answer:** Bone density loss occurs in everyone after age 50 (indeed, in most of us, it starts even prior to that age). Attention to lifestyle may help slow down that loss a bit but it cannot prevent it altogether. Pay attention to your osteoporosis lifestyle risk factors. Make sure you’re getting enough calcium, review Canada’s Food Guide, use the Calculate My Calcium tool from the Osteoporosis Canada website.
(www.osteoporosis.ca), participate in weight bearing activity that is safe for you to do as well as exercises that improve balance such as Tai Chi. Some other tips include no smoking, and limiting the sodium, caffeine and alcohol in your diet. Depending on your bone density and your other risk factors, you may be required to take medication to reduce your risk of fracture. See your health care provider to discuss this further.

19. Is it harmful to avoid calcium?

Answer: Yes!!! Bones require a supply of calcium throughout a person’s lifespan. Adults under 50 need 1000 mg of elemental calcium per day while adults 50 or over need 1200 mg of elemental calcium per day. For general health, an age appropriate intake of calcium is recommended, preferably from your diet, unless your medical condition or your health provider says otherwise.

20. How can we obtain a copy of the 2010 Osteoporosis Guidelines?

Answer: The information on the Guidelines can be found on the Osteoporosis Canada website (www.osteoporosis.ca). The Guidelines are intended for health care professionals. The Canadian Osteoporosis Patient Network published some articles summarizing the Guidelines for the general public. To access these, go to the Osteoporosis Canada website, click on COPN Patient Network on the left hand column, then click on COPING archives on the left. Several issues of COPING were devoted to the Guidelines including all of the COPING issues published between October 15 and Dec 23, 2010, inclusive. You may also phone Osteoporosis Canada’s toll free line at 1-800-463-6842 to speak with a trained volunteer.

21. I recently had my blood tested for vitamin D which indicated that I had 93 units. The maximum the test would show is 94. Does this result indicate that I should be careful about how much vitamin D I should be taking?

Answer: I’m not sure we can comment on the vitamin D results that you are mentioning in your question. The current range that indicates an adequate consumption of vitamin D is 75-250 nmol/L. A vitamin D level below 75 is considered insufficient. A vitamin D level over 250 is considered excessive.

Healthy adults do not need vitamin D testing. Osteoporosis Canada recommends vitamin D testing for those who are at high fracture risk and who need prescription
osteoporosis medication and also for those with medical conditions that put them at risk for vitamin D deficiency.

22. I make my own bread but I substitute 2 Tbsp ground sesame seeds for the 2 Tbsp powered milk because I do not tolerate dairy products. I also substitute one Tbsp molasses for one Tbsp of honey. Do I still get the same amount of calcium as in store bought bread?

Answer: It is hard to say definitively without assessing the complete recipe. Using the substitutions provided, there will be slightly less calcium in this bread than in the original recipe. Generally, the equivalent of 2 slices of bread that weigh 35 g each provides 50 mg of calcium. The bread may be regular white, whole grain, etc. and includes wraps, flatbreads, etc.

23. In order to increase calcium absorption should you be taking hydrochloric acid if you find that when you eat you become bloated and burp a fair bit?

Answer: Supplemental hydrochloric acid is not necessary for calcium absorption. If you are not tolerating your calcium supplement speak with your pharmacist to find a form that is right for you or switch to dietary forms of calcium if possible, as that route would be preferable. If eating makes you bloated and gassy, you should discuss these symptoms with your physician as they may be an indication of another type of health problem.

24. If I calculate that my calcium intake on a certain day is adequate can I avoid my calcium supplement that day? In other words, can you effectively take a supplement one day and not the next?

Answer: Yes you can. In fact this is often a good way to balance your intake. A supplement is meant to be used only when your diet is inadequate in calcium. Keep in mind that you still need a vitamin D supplement, no matter how good your diet is.

25. Is cottage cheese a good source of calcium?

Answer: One cup of cottage cheese has 150 mg calcium compared to an 8 oz. cup of milk which has 300 mg. Some brands of cottage cheese have added calcium. Please be sure to check the Nutrition Facts label on the packaging.
26. I am 45, diagnosed with osteopenia and have not gone through menopause. My concern is, will I potentially lose a significant amount of bone once I reach and pass the menopause? What is the average percentage of bone loss in postmenopausal women?

**Answer:** The North American Menopause Society states that bone mineral density loss begins to accelerate about 2 to 3 years before the last period and the acceleration ends 3 to 4 years after menopause. For the few years around menopause, the average woman loses 2 to 3% of bone mass per year. After menopause women lose about 1 to 1.5% of bone mass per year. However, you should know that according to our new 2010 Osteoporosis Guidelines, we no longer look at bone density results in isolation, but in combination with other clinical risk factors in order to calculate an individual’s fracture risk. You need to speak with your health care provider about a comprehensive fracture risk assessment which is much more important than your bone mineral density alone.

27. The food label on a container of milk in Manitoba says that a 250 mL glass of milk contains 30% calcium and 45% vitamin D. My doctor says those percentages are based on a child’s intake. Is that accurate?

**Answer:** No, it’s not accurate. The %DV currently reflects the needs of an “average” person, which includes children and adults, not one specific age group. Also, the %DV is not based on current nutrient recommendations and should not be applied to nutrients like calcium or vitamin D.

The purpose of having %DV is to show whether a food has a “lot” or a “little” of a nutrient in the serving of food described on the “Nutrition Facts” panel. If a food has 5% DV or less of a nutrient it contains only a “little”, which for some nutrients like sodium is good. A food with 5% DV or less of calcium does not contain much calcium. Percentages indicate the relative amounts of the nutrient that are present and not absolute amounts.

A food containing 15% DV or more of a nutrient contains a “lot”. For example a glass of milk is described as having 30% DV of calcium. That’s a lot! To see the calcium content of important food sources go to [www.osteoporosis.ca](http://www.osteoporosis.ca), click on Osteoporosis & You, then Nutrition. Some %DV’s may seem surprisingly low in some foods, e.g. 100g yogurt containers have only 10% DV calcium. These are small servings. Health Canada considers a yogurt serving to be 175 g, about twice the size of most single serve yogurt containers.

With the recent research about the importance of vitamin D and significant increases in recommended intakes, %DV on food labels is almost irrelevant. You can safely assume...
that foods that are fortified with vitamin D still contain very low amounts of vitamin D. It is practically impossible to obtain the vitamin D that you need from food sources alone, no matter how hard you try. That is why Osteoporosis Canada recommends all adults to take a vitamin D supplement regardless of how good their diet is.

28. Canned soup is high in sodium, usually containing about 800 mg per serving. Cheese has sodium as well. What is the effect of high sodium intake on bone remodeling?

Answer: Sodium chloride intake increases urine calcium excretion, and an excessive intake of salt may increase bone resorption in postmenopausal women. However, if calcium intake is adequate, it is not a concern for bone health. High sodium intake is, however, a concern for other health reasons such as kidney disease or hypertension, for example.

29. When fresh salmon is cooked, do the skin and the soft cartilage in it contain calcium and/or vitamin D?

Answer: The calcium source in salmon is the bones. Typically, when fresh salmon is cooked, the bones remain too hard to be eaten. Canning softens the bones making them easy to consume. The flesh and skin of salmon contain vitamin D. The amount of vitamin D varies, however. Salmon gets its vitamin D the natural way, through sun exposure. So, it all depends how much sun the salmon was exposed to. Most nutrients in food are not destroyed by heat. The canning or cooking process still preserves most of the salmon’s vitamin D.

30. What can I do if I forget to take my vitamin D?

Answer: If you should forget your vitamin D one day (or even more than one day), you can simply take the missed tablet(s) the next time you take your regular dose of vitamin D. You can safely do this for up to a week’s supply of vitamin D. In other words, if you normally take 1000 IU of vitamin D per day, but you missed a whole week’s worth of your vitamin D, you can safely take 7000 IU of vitamin D at the end of that week all together. Please note, however, that this rule ONLY applies to vitamin D. You cannot do this for calcium or for other medications or supplements.
This Virtual Education Forum is sponsored by Dairy Farmers of Canada