

## Talking Points about Vitamin D and Calcium

### Talking points about vitamin D

#### *General information*

Vitamin D is a hormone with many actions throughout the body, the primary one being to promote strong bones. Humans have evolved to make vitamin D in the skin upon exposure to sunlight. Vitamin D is also found naturally in foods (e.g. salmon, eggs) but in small amounts. Most of the vitamin D in the diet comes from foods fortified with vitamin D, such as milk.

#### *What is the recommended amount of vitamin D from diet and supplements?*

According to the Institute of Medicine, the Recommended Daily Allowance (RDA) for vitamin D is 600 IU per day for adults up through the age of 70 years, and 800 IU per day for older adults. However, there is wide variability in what other professional organizations recommend for vitamin D intake. Most professional organizations recommend 1,000 units per day, mostly because that is a commonly available dose and easy to remember.

#### *I hear a lot about how good vitamin D is to treat or prevent a number of conditions. What is all the hype about?*

While there is a lot of hype about the potential benefits of vitamin D to treat or prevent many conditions, including diabetes, there is simply not enough evidence from research to back it up.

Because of today's lifestyle, which is associated with limited exposure to natural sunlight, people make less vitamin D than in the past. The potential benefits of vitamin D are based on observational studies where people with higher levels of vitamin D in their blood have lower risk of developing diabetes. However these studies do not prove cause and effect and certainly do not prove that vitamin D supplementation will have the desired effect. It is possible that people with high vitamin D levels have a lower weight and a better lifestyle and they are healthier overall and that's what's associated with lower diabetes risk in these people.

We simply do not know whether taking high doses of vitamin D on a long-term basis is of any benefit or even safe. We need to be cautious before adopting any intervention, especially of a nutrient, that looks very promising in early studies before rigorous testing is done. There are many occasions previously, where irrational exuberance led to premature adoption of such approaches, only for the subsequent studies to prove that such interventions were of little or no benefit or were even harmful. Vitamin D does look very promising for preventing diabetes, but rigorous testing needs to be done before a recommendation can be made for or against its use for prevention of diabetes. Your participation in this trial will help us complete these rigorous testing.

#### *Will my care be compromised if I participate in D2d and limit my vitamin D intake?*

Absolutely not!

D2d study asks participants to follow current recommendations for vitamin D intake for healthy people (600 or 800 IU per day depending on age); however, the study allows intake of vitamin D from personal supplements up to 1000 units per day, if participants and their physicians wish to do so. Our recommendations are consistent with several professional organizations, including the Institute of Medicine and the Endocrine Society.

D2d participants who take large amounts of supplemental vitamin D outside of the D2d study compromise the ability of the study to detect any benefits and may also put themselves at risk for side effects. Consequently if an interested volunteer is unwilling to reduce the amount of their supplement to no greater than 1000 units per

day, the volunteer will not be eligible to participate in D2d.

## Talking points about calcium

### *General information*

Calcium is essential for healthy bones and for many normal cell functions.

### *What is the recommended amount of calcium from diet and supplements?*

The Recommended Daily Allowance (RDA) for calcium is 1000-1200 mg per day for adults. Over the last few years, calcium intake from food sources has increased in American diets and now averages about 750 to 850 mg per day for men and 900 to 1200 mg per day for women. The majority of dietary calcium comes from dairy sources.

### *I am taking 1200 mg a day from 2 calcium pills. That's a good amount, correct?*

Although it is important to consume the RDA, increasing intake above this level – especially from supplements – is unwise because doing so adds no known benefit and may increase risk of kidney stones and possibly other chronic diseases, such as heart disease. Importantly, there has been no concern with calcium from food sources, and thus the preferred approach of meeting the RDA is with consumption of with foods and beverages rich in calcium, such as low fat and skim milk and yogurts.

### *Will my care be compromised if I participate in D2d and limit my calcium intake?*

Absolutely not!

Based on available facts, the D2d study recommends that participants meet their calcium requirement from dietary sources and the study limits use of calcium supplements to no more than 600 mg per day because: (1) when combined with the calcium in foods, most adults will be at or near the recommended amount, (2) excess supplemental calcium, particularly if combined with vitamin D supplements, may increase risk of a high blood calcium level or kidney stones.