

# Q&A

## Vitamin D

### What is the optimal vitamin D3 dosage?



All of the research on vitamin D clearly points to the need for a complete overhaul of the current recommendations for vitamin D supplementation. The Canadian government recommends a minimum of 0.2 mcg (8 IU) of vitamin D up to 13 years of age and 0.8 mcg (32 IU) per day thereafter. The current maximum allowed by Health Canada remains at 25 mcg (1000 IU) per day for all age groups.<sup>1</sup>

The situation is very similar in the United States, with the National Institute of Health establishing Adequate Intakes of 200 IU from birth until 50 years of age, 400 IU per day from 51-70 years and 600 IU afterwards.<sup>2</sup> The Tolerable Upper Intake levels for vitamin D have been set at 1000 IU for the first year of life and 2000 IU for all other age groups.<sup>3</sup>

These recommendations were established in 1997 and therein lies the problem. There have been almost 20,000 medical publications on vitamin D since that time. To put this number in perspective, Lipitor®, the prescription medication with the highest dollar volume of sales in the US, has a total of less than 3700 publications under its name. Needless to say that our knowledge and understanding of the amounts of vitamin D required for health has significantly improved since the establishment of the Adequate Intake guidelines.

The last ten years of research into the health benefits associated with vitamin D have shown that vitamin D possesses greater than expected health benefits. The vitamin has been shown to reduce the risk of developing cancer, help lower blood pressure, help maintain physical strength and reduces bone fractures.

An abundance of clinical information is now showing that the current intake recommendations are far too restrictive and are detrimental to the health of the populations they are meant to protect. There is good evidence showing that dosages up to 10,000 IU of vitamin D are safe for long term use and that single dosages of up to 5 times this amount are not harmful.<sup>4,5</sup>

Studies also point to natural physiological levels of vitamin D that are far greater than what can be obtained from the current recommended intake levels. The maximum amount of vitamin D produced in the skin is similar to that obtained from an oral dose of 10,000 IU, ten times the maximum allowed by Health Canada.<sup>6</sup>

### To prevent immune dysfunction, when should vitamin D3 therapy be initiated?



Breast feeding does not provide infants with the amount of vitamin D they require. Breast milk, although the preferred food for newborn infants, is quite low in vitamin D (roughly 25 IU of vitamin D per liter). Infants can produce additional vitamin D when exposed to sunlight but some reports of rickets have been documented in exclusively breastfed infants. The American Academy of Pediatrics recommends a minimum of 400 IU of vitamin D per day for all breastfed infants.<sup>7</sup> The same recommendations of 400 IU per day have been made by Health Canada<sup>8</sup> and the Canadian Pediatric Society advocates up to 800 IU per day for children in Northern Native communities which are more prone to vitamin D deficiency.<sup>9</sup>

Research has shown that supplementation with vitamin D during infancy and pregnancy is associated with a decreased risk of type 1 diabetes, allergies and multiple sclerosis.<sup>10-13</sup> Vitamin D supplementation should start at birth and dosages should vary from 400 IU to 2000 IU per day depending on whether or not there is a vitamin D deficiency to begin with.<sup>14</sup>

References: see page 20

# Q&A

## AllerControl™

### At what age can children start using AllerControl™?

AllerControl™ is a multi-ingredient formula that contains Perilla seed extract, Butterbur Extract, Quercetin, Luteolin, Rosmarinic acid and Mangiferin.

Although most of the ingredients have a long history of use as spices or food, some of the ingredients found in the formula have not been clinically tested in young children. There is no reason to expect any side effects or adverse reaction for AllerControl™ but it is best to avoid using the product without medical supervision in children younger than 12 years of age.

### Is AllerControl™ effective for asthmatics?

Absolutely, several of the ingredients have been shown to improve the symptoms associated with asthma. In one study, supplementation with Butterbur, one of the ingredients found in AllerControl™ was shown to improve several of the symptoms related to asthma and also decreased the frequency and duration of attacks. Furthermore, 40 percent of the patients who were using medication to help control their symptoms were able to reduce their intake of those medications after using butterbur for two months.<sup>15</sup>

## Probiotics

### Can probiotics also decrease the risk of allergies in children?

The list of health benefits associated with the use of probiotics never ceases to grow. Over the past decades, research on probiotics has focused on their beneficial effects on the immune system. Trials have demonstrated that probiotics improve the function of the gut barrier, help to regulate the immune system and reduce the inflammatory response.<sup>16</sup> The initial trials looking into the link between probiotic supplementation and the risk of atopic eczema were

very encouraging and showed that infants who had received probiotics were less likely to develop eczema than children who had received the placebo.<sup>17</sup> However, such results have not been confirmed in follow up trials and no benefits were seen for other conditions related to the immune system such as allergic rhinitis and asthma.<sup>18,19</sup>

## Quercetin

### I am allergic to citrus, can I use quercetin?

Although most quercetin supplements available to Canadians are extracted from citrus, AOR is proud to offer a quercetin product that is derived from the seeds of *Dimorphandra mollis* and therefore, citrus free.

## Q & A References

1. Health Canada, *Vitamin D Monograph*, August 2007
2. NIH, Office of Dietary Supplements, *Dietary Supplement Fact Sheet: Vitamin D*
3. Institute of Medicine, Food and Nutrition Board. *Dietary Reference Intakes: Calcium, Phosphorus, Magnesium, Vitamin D, and Fluoride*. Washington, DC: National Academy Press, 1997.
4. Barger-Lux MJ, Heaney RP, Dowell S, Chen TC, Holick MF. *Vitamin D and its major metabolites: serum levels after graded oral dosing in healthy men*. *Osteoporos Int* 1998;8:222-30.
5. Heaney RP, Davies KM, Chen TC, Holick MF, Barger-Lux MJ. *Human serum 25-hydroxycholecalciferol response to extended oral dosing with cholecalciferol*. *Am J Clin Nutr* 2003;77:204-10.
6. Holick MF. *Vitamin D. The underappreciated D-lightful hormone that is important for skeletal and cellular health*. *Curr Opin Endocrinol Diabetes* 2002;9:87-98.
7. Centers for Disease Control and Prevention. *Breastfeeding. Vitamin D Supplementation*, American Academy of Pediatrics, Nov 2008
8. Health Canada. *Vitamin D supplementation for breastfed infants – 2004 Health Canada recommendation*.
9. Canadian Paediatric Society, First Nations and Inuit Health Committee [Principal author: J Godel]. *Vitamin D supplementation in northern Native communities*. *Paediatr Child Health* 2002;7:459-63.
10. Hypponen E, Laara E, Reunanen A et al. *Intake of vitamin D and risk of type 1 diabetes: a birth cohort study*. *Lancet* 2001; 358:1500-3.
11. Brekke HK, Ludvigsson J. *Vitamin D supplementation and diabetes-related autoimmunity in the ABIS study*. *Pediatr Diabetes*. 2007 Feb;8(1):11-4.
12. Annesi-Maesano I. *Perinatal events, vitamin D, and the development of allergy*. *Pediatr Res* 2002; 52:3-5
13. Hypponen E, Laara E, Reunanen A et al. *Intake of vitamin D and risk of type 1 diabetes: a birth cohort study*. *Lancet* 2001; 358:1500-3.
14. Gordon CM, Williams AL, Feldman HA, May J, Sinclair L, Vasquez A, Cox JE. *Treatment of hypovitaminosis D in infants and toddlers*. *J Clin Endocrinol Metab*. 2008 Jul;93(7):2716-21.
15. Danesch UC. *Petasites hybridus (Butterbur root) extract in the treatment of asthma--an open trial*. *Altern Med Rev*. 2004 Mar;9(1):54-62.
16. Kalliomäki MA, Isolauri E. *Probiotics and down-regulation of the allergic response*. *Immunol Allergy Clin North Am*. 2004 Nov;24(4):739-52, viii.
17. Kalliomäki M, Salminen S, Poussa T, Arvilommi H, Isolauri E. *Probiotics and prevention of atopic disease: 4-year follow-up of a randomised placebo-controlled trial*. *Lancet*. 2003 May 31;361(9372):1869-71.
18. Kopp MV, Salfeld P. *Probiotics and prevention of allergic disease*. *Curr Opin Clin Nutr Metab Care*. 2009 May;12(3):298-303.
19. Niers LE, Rijkers G, Knol EF, Meijer Y, Hoekstra MO. *Probiotics for prevention of atopic disease? Lancet*. 2003 Aug 9;362(9382):496; author reply 496.