

VITAMIN ADDITION TO MILK

Milk Is an Important Source of Vitamins A & D



Vitamins A and D are necessary for the normal development and maintenance of the human body. Vitamin A is needed for healthy vision, skin and membrane functions. Vitamin D plays a critical function in calcium absorption and metabolism, and proper bone development.



In Canada, milk has been fortified with vitamins since the 1970s, and this has contributed to the elimination of childhood diseases such as rickets (a bone disease). Health Canada requires that vitamins A and/or D be added to milk to ensure that all people receive adequate amounts to maintain their health.

Why are Vitamins Added?

Vitamins A and D are naturally present in the fat portion of the milk, but are removed when the milk fat is "skimmed off" to produce partially skimmed milk (i.e. skim, 1%, 2%, 3.25% milk). As per Health Canada's requirements, vitamins A and/or D are added back to the milk to restore it to recommended levels.

Can You Consume Too Much?

YES! Vitamins A and D can be toxic at very high levels. Over fortification of milk with Vitamin D was implicated in one death and several illnesses in 1990^{1,2}. The *Food and Drug Act, Canada*, specifies maximum levels for Vitamins A and D in milk.

How Can Over Fortification Be Prevented?

Over-fortification with vitamins can be prevented as follows:

- Ensure that the vitamins are evenly dispersed throughout the milk
- Verify the vitamin content of the milk to ensure that the calculated injection rate is correct
- Place seals on the injection pumps to ensure that the injection rate can not be accidentally increased
- Inter-wire the injection pumps such that they automatically stop when dairy product ceases to flow to the pasteurized milk storage tanks

References

¹Blank, S., et al. (1995). "An outbreak of hypervitaminosis D associated with the over fortification of milk from a home-delivery dairy." *Am J Public Health* 85(5): 656-659.

²Jacobus, C. H., et al. (1992). "Hypervitaminosis D associated with drinking milk." *N Engl J Med* 326(18): 1173-1177.

For further information please contact the Dairy Plant Specialist at 604.707.2440

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