



Milk in nutrition





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Fat free milk or fermented milk as a drink with meals

- Fat free or low fat ($\leq 1\%$) liquid dairy products, 0.5 litres per day
- Plus low fat ($\leq 1\%$) yoghurt or viili fermented milk
- 2–3 slices of low fat ($\leq 20\%$) low salt ($\leq 0.7\%$) cheese

“Dairy products are an important source of protein, calcium, iodine and some other minerals, as well as vitamin B. Dairy products with added vitamin D are essential to secure a sufficient intake of vitamin D.”

“Low fat dairy products should be favoured in everyday cooking; save the products with a higher fat content for foods that are cooked less often.”

Source: Finnish Nutrition Recommendation 2005, National Nutrition Council.





Milk in nutrition

- **Dairy products provide a number of beneficial nutrients:**
 - High quality protein
 - Calcium
 - Vitamin D
 - B vitamins
 - Phosphorus, zinc, iodine, selenium
- Moreover, milk and especially cheese protect the teeth from acid attack after a meal or a snack.





What is calcium needed for?

- Calcium helps to build and maintain strong bones.
- Calcium strengthens the teeth.
- Calcium keeps the hair and nails in good condition.
- Calcium helps in weight management.
- Major part of the calcium in bone tissue is gained during the rapid growth in puberty (in girls age 11-14 and boys age 13-17 years of age).
- Bone tissue changes constantly, so calcium is also needed in adulthood.





Recommended calcium intake

(Finnish nutrition recommendations, 2005)

Age group	Recommended calcium intake, mg/day
0.5–1 years	540
1–5 years	600
6–9 years	700
10–20 years	900
21–60 years	800
Over 61 years	800*
Pregnant women	900
Breast-feeding women	900
* 500–1000 mg daily calcium supplement may decrease bone loss to some extent.	



Milk and other dairy products are the most abundant natural sources of calcium



6 dl milk and 2 slices of cheese



600 g fish



200 g nuts



10 kg tomatoes

You can get the same amount of calcium from eating e.g. 600 g of fish or 200 g of nuts or 10 kg of tomatoes.



How to get enough calcium

The recommended daily calcium intake (800-900 mg) can be obtained from four portions of dairy products.



2 dl of yoghurt



2 dl of viili
fermented milk



A glass of milk (2 dl)

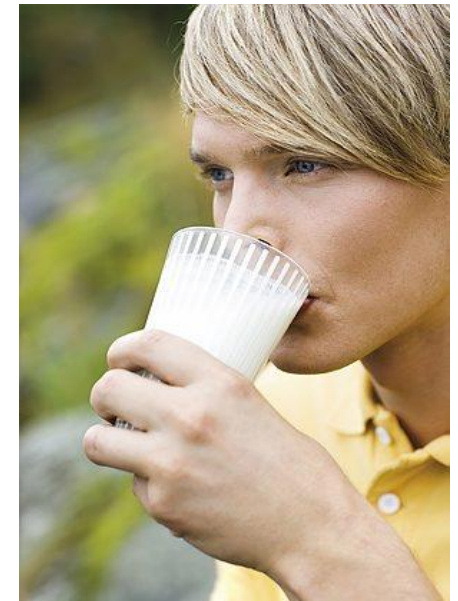


2–3 slices of cheese
(20–30 g)



The importance of vitamin D

- Vitamin D is needed for the absorption of calcium and its binding to bone mineral.
- Finns do not get enough vitamin D.
- **Recommendations for vitamin D intake**
 - **Children under 2 years, pregnant and breast-feeding women, 10 µg/day**
 - **Children over 2 years, young people and adults, 7.5 µg/day**
 - **Over 60 year-olds, 20 µg/day**
- The best sources of vitamin D
 - Fish
 - Dairy products with vitamin D fortification
 - Fat spreads with vitamin D fortification
 - Sunlight exposure





Vitamin D in Valio products

- **Dairy products 1 µg/100 ml**
 - All basic and special milks and fermented milks
 - All Valiojogurtti®, A+™, Laktoositon®, Valio OLO™, Kidius®, ProFeel® and Evolus® yoghurts
 - No vitamin D fortification in daily dose drinks (tehojuoma), Arkijogurtti and premium yoghurts such as Vanilla®
 - All Viilis® viili fermented milks
 - All package sizes
 - No vitamin D fortification in organic products due to legislation
- **Valio Plus™ fat free milk 2 µg/100 ml**
- **Spreads 10 µg/100 g**
 - All Oivariini® spreads (not liquid Oivariini®)
- **All Polar® cheeses 5 µg/100 g**





Valio Plus™ milk

- Valio Plus™ fat free milk is an even better milk for the bones and muscles.
- Fat free milk with a fuller taste than ordinary fat free milk
- Valio Plus™ milk contains more of the important nutrients found in milk compared to the ordinary fat free milk:

100% more vitamin D

50% more protein

50% more calcium





Valio Plus™ milk contains plenty of vitamin D

- Regular daily consumption of Valio Plus™ fat free milk is a natural and easy way for the whole family to meet the vitamin D recommendations.
- Half a litre of Valio Plus™ milk equals to a 10 µg (400 IU) dose of vitamin D supplement.
- Those who drink several glasses of Valio Plus™ fat free milk daily do not need calcium and vitamin D supplements.



Glass 2,5 decilitre



Glass 2,5 decilitre



Lactose intolerance

The body's ability to digest lactose depends on the quantity and activity of a digestive enzyme known as lactase.

- **Lactose** = milk sugar (carbohydrate) that comprises glucose and galactose sugar parts.
- **Lactase** = enzyme that digests lactose in the small intestine into an absorbable form i.e. glucose and galactose.
- **Hypolactasia** = decline in the activity of the lactase enzyme. The functioning of the lactase enzyme has weakened or ceased completely. Around 17% of Finns suffer from hypolactasia.
- **Lactose intolerance** = intestinal symptoms caused by unabsorbed lactose (loose bowels, flatulence, bloating).





Lactose intolerance is not milk allergy

LACTOSE INTOLERANCE

- The symptoms are caused by lactose, i.e. milk sugar.
- Disposition to lactose intolerance is hereditary.
- More common in adults than children.
- Symptoms: flatulence, bloating, stomach ache, diarrhoea.
- Treatment: low lactose or lactose free dairy products.

MILK ALLERGY

- The symptoms are caused by milk protein.
- Disposition to milk allergy is hereditary.
- Occurs in small children, usually disappears by the time they start school; occurs in only 1–2% of adults.
- Symptoms: intestinal, skin and respiratory tract symptoms.
- Treatment: avoid all products that contain milk.



Average lactose content of dairy products – a few examples

Quantity of lactose per 100 grams



4.8 g



5.0 g



3.1 g



< 1 g



0 g



0 g

Only HYLA® low lactose and Valio Laktoositon® lactose free product packages state the quantity of lactose



There's a broad range of lactose free products available





Milk helps in weight management



Use of dairy products ↑

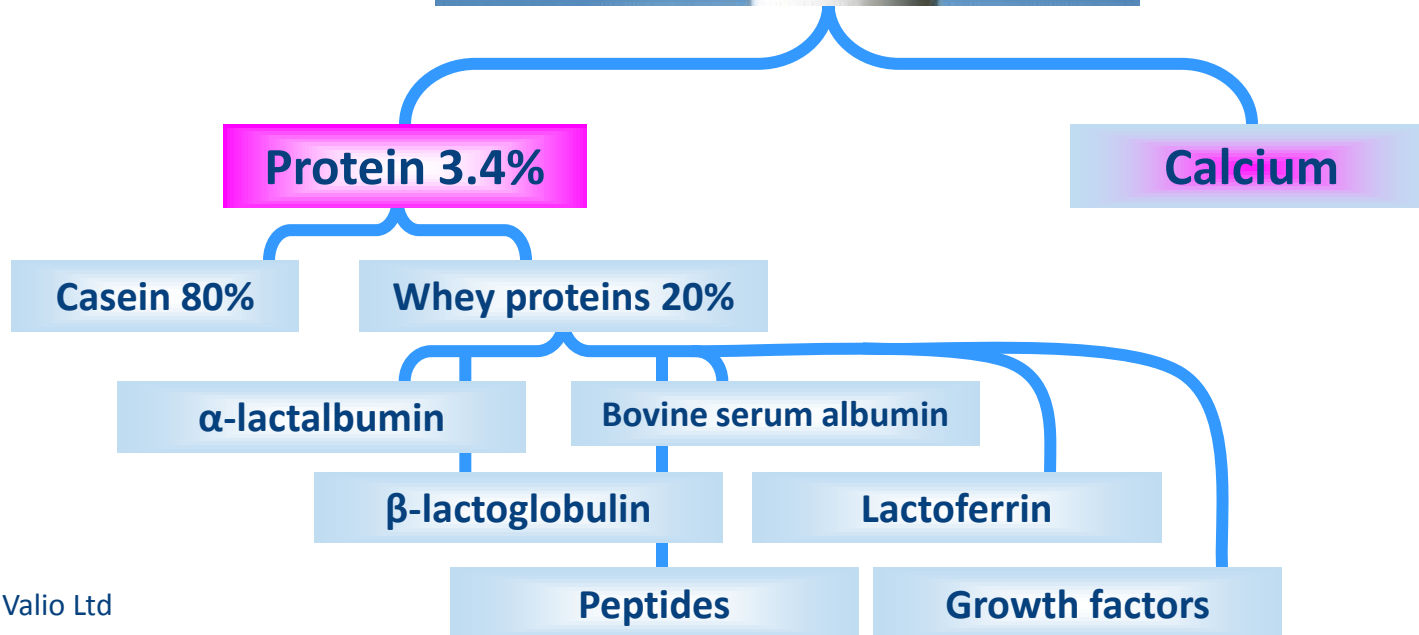
-> BMI ↓

-> Waistline ↓

- Varena et al. 17. 2007 *Am J Clin Nutr*
- Azadbakht and Esmailzadeh 2007 *Public Health Nutr*
- Marques-Vidal et al. 2006 *Int J Obes*
- Rosell et al. 2006 *Am J Clin Nutr*
- Moore et al. 2006 *Obesity*
- Mirmiran et al. 2005 *Int J Obes*
- Carruth and Skinner 2001 *Int J Obes*



The weight management component in milk





Dairy products and metabolic syndrome

- Use of dairy products ↑

Metabolic syndrome ↓

- Wenersberg et al. 2009 *Am J Clin Nutr*
- Beydoun et al. 2008 *Am J Clin Nutr*
- Elwood et al. 2007
J Epidemiol Community Health
- Liu et al. 2005 *Diabetes Care*
- Azadbakht et al. 2005 *Am J Clin Nutr*
- Pereira et al. 2002 *JAMA*

Type 2 diabetes ↓

- Liu et al. 2006 *Diabetes Care*
- Van Dam et al. 2006 *Diabetes Care*
- Mizoue et al. 2006 *J Nutr*
- Choi et al. 2005 *Arch Intern Med*





Dairy products and metabolic syndrome

Conclusions from the studies:

“Low fat dairy products as part of a healthy diet prevent insulin resistance.

3–5 doses of dairy products in accordance with nutrition recommendations is sufficient for the prevention of metabolic syndrome.”

Source: Tremblay et al. J Am Coll Nutr 2009
(Review)





Milk, nutrition and exercise

- After strength and endurance training, snack with a high protein and carbohydrate content can be used to enhance the effectiveness of training and recovery.
- After strength training, the high quality protein in dairy products promotes muscle recovery and enhances muscle growth.
- After endurance training, the nutrients in dairy products replenish the depleted carbohydrate stores in muscles and restore fluid and electrolyte balance.





Milk as a recovery drink

- Milk contains more nutrients in proportion to energy content than do traditional sports drinks.
- Milk contains carbohydrates, 5 g/100 g
- The protein content of milk is beneficial to muscle metabolism and protein synthesis
 - Whey protein is absorbed quickly -> a good recovery protein
 - Casein is absorbed more slowly -> provides energy for the muscles for a long time (e.g. during night fasting).
- Milk contains plenty of the electrolytes that are important in maintaining the fluid and electrolyte balance, e.g. sodium and potassium.





Bringing taste to life



Thank you!