

HEALTH BENEFITS OF MILK AND MILK PRODUCTS, VEGETABLES AND FRUIT

MILK AND MILK PRODUCTS

Helps reduce risk of colorectal (colon) cancer

A diet too rich in fats is known to be one of the causes of colon cancer. One theory is that fatty acids and bile acids are detrimental to the colon's wall cells. This "attack" against the colon could be the first step in the development of colon cancer. Calcium could have a protective effect in this early stage, by bringing fatty acids and bile away from the colon wall, reducing their effect. Furthermore, in animal models, optimal intakes of calcium and vitamin D reduce or even eliminate tumours induced by an unhealthy diet.¹

Numerous scientific studies suggest that consuming milk and milk products could lower the risk of colon cancer. Results from over 10 studies show that groups that consume the most milk and the most calcium develop significantly less colorectal cancer than groups that consume the least.²

A recent review of nutrition and cancer by the World Cancer Research Fund and the American Institute of Cancer Research concluded that: "milk probably protects against colorectal cancer." The components in milk products that may account for this beneficial effect include calcium, vitamin D, butyric acid, sphingolipids, probiotics, and conjugated linoleic acid (CLA). Research to date suggests a synergistic effect between calcium and vitamin D in preventing colon cancer.

Helps maintain healthy bones

Human bones contain 99% of total body calcium. They act as a storage point for calcium. When blood calcium levels drop slightly, our parathyroid glands release a hormone which triggers the release of calcium in the bones. Thus, adequate intake of metabolically usable calcium is important to protect the skeleton.³

Milk products are recognized for their important role in bone health and prevention of osteoporosis.

There is very good evidence that calcium and vitamin D, two important constituents of milk and milk products, play key roles with respect to attaining peak bone mass and preventing osteoporosis and fractures. Emerging evidence also indicates that milk products are better than calcium and/or vitamin D supplements in this respect, indicating an important role for other nutrients. Indeed, emerging evidence also demonstrates that other nutrients found in milk products may also be involved in bone health. They include: protein, potassium, magnesium, phosphorus, vitamin B12, vitamin K, and zinc.

¹ Holt PR. New insights into calcium, dairy and colon cancer, *World J Gastroenterol* 2008; 14(18) 4429-33

² Cho E. et al. Dairy Foods, Calcium, and Colorectal Cancer: A Pooled Analysis of 10 Cohort Studies, *J Natl Cancer Inst* 2004;96:1015-22]

³ Heaney RP. Calcium, Dairy Products and Osteoporosis, *J Am Coll Nutr* 2000; 19 (2) 83S-99S



HEALTH BENEFITS OF MILK AND MILK PRODUCTS, VEGETABLES AND FRUIT

MILK AND MILK PRODUCTS

Helps reduce the risk of high blood pressure (hypertension)

High concentrations of intracellular calcium (calcium within the cell) increases smooth muscle tone, vascular resistance and responsiveness to signals from the nervous system, which all elevate blood pressure. When calcium blood levels drop, the mechanism described previously tends to release more calcium than necessary, which then increases intracellular calcium, causing high blood pressure. Therefore, daily adequate intake of calcium ensures a normal flow of calcium without using the bones as an emergency source of calcium.⁴

Data from several studies, including the landmark DASH (Dietary Approaches to Stop Hypertension) diet study, have consistently demonstrated a significant benefit from an adequate intake of milk products in the prevention and management of hypertension.

The [Canadian Hypertension Society](#), in its most recent clinical practice guidelines, recommends the DASH diet for the prevention and management of blood pressure in at-risk individuals. The potential mechanisms by which milk products may modulate blood pressure still need further research but there is evidence that several components of milk products may be involved, including: calcium, vitamin D, magnesium, potassium, phosphorus, bioactive peptides.

Although the mechanisms by which milk products may regulate blood pressure remain to be fully understood, calcium is thought to be one of the main nutrients responsible for the impact of milk products on blood pressure control.⁶

Other minerals in milk products, such as magnesium and potassium, may also regulate blood pressure, but their individual contribution is difficult to isolate as they are often found in foods rich in calcium.⁶

As well, both casein and whey protein (the main proteins in milk products) contain specific bioactive peptides that have been shown to have an angiotensin-1-converting enzyme (ACE) inhibitory effect, a key process in blood pressure control.⁶

Other studies have shown that certain milk-derived peptide combinations also have hypotensive effects via the modulation of endothelin-1 release by endothelial cells.⁶ A meta-analysis of milk tripeptides on blood pressure indicated that milk-derived tripeptides have hypotensive effects in prehypertensive and hypertensive individuals.

⁴ Costanzo, LS *BRS Physiology*, Lippincott, Williams, & Wilkins (2007) pp. 260

⁵ Lee JE et al. Intakes of fruits, vegetables, vitamins A, C and E, and carotenoids and risk of renal cell cancer, *Cancer Epidemiol Biomarkers Prev*, 2006 Dec; 15(12):2445-52.

⁶ Martin A. et al. Effects of fruits and vegetables on levels of vitamins E and C in the brain and their association with cognitive performance, *J Nutr Health Aging*, 2002; 6 (6): 392-404.



HEALTH BENEFITS OF MILK AND MILK PRODUCTS, VEGETABLES AND FRUIT

VEGETABLES AND FRUIT

Helps reduce the risk of some cancers

A new landmark report - the most comprehensive review of diet and cancer research from a global perspective - was recently completed. An expert panel of 15 of the world's leading researchers in diet and cancer reviewed more than 4,500 studies. The consistency and strength of the evidence was overwhelming. A diet high in vegetables and fruit is associated with a lower risk of cancers at almost all sites.

Vegetables and fruit appear to reduce the risk of cancer, providing protective substances such as vitamins, minerals, and fibre, as well as plant compounds called phytochemicals. For example, protective substances in vegetables and fruit may help reduce the risk of cancer by stopping normal cells from changing into cancerous cells.

Numerous studies show that people with a high intake of fruit and vegetables have higher blood concentrations of vitamin A and carotenoids⁵, vitamin E and C⁶, potassium, selenium and other oligoelements⁷

Helps maintain a healthy weight

A diet high in fruits and vegetables has been shown to increase fibre intake, which helps maintain/lose weight.⁸

⁵ Lee JE et al. Intakes of fruits, vegetables, vitamins A, C and E, and carotenoids and risk of renal cell cancer, *Cancer Epidemiol Biomarkers Prev*, 2006 Dec; 15(12):2445-52.

⁶ Martin A. et al. Effects of fruits and vegetables on levels of vitamins E and C in the brain and their association with cognitive performance, *J Nutr Health Aging*, 2002; 6 (6): 392-404.

⁷ Levander OA, Fruit and vegetables contribution to dietary mineral intake in human health and disease, International symposium on horticulture and human health No2, Alexandria VA, USA, 1990; 25(12): 1486-8.

⁸ Bes-Rastrollo M, Association of fiber intake and fruit/vegetable consumption with weight gain in a Mediterranean population *Nutrition* 2006; 22 (5): 504-11.



HEALTH BENEFITS OF MILK AND MILK PRODUCTS, VEGETABLES AND FRUIT

VEGETABLES AND FRUIT

Reduces the risk of heart disease and stroke

Current research such as a recent review by the Cambridge Institute of Public Health concludes that eating vegetables and fruit also provides significant protection against heart disease and stroke.

Vegetables and fruit appear to reduce the risk of cancer, heart disease and stroke by providing protective substances such as vitamins, minerals, and fibre, as well as plant compounds called phytochemicals. For example, they may reduce the risk of heart disease by preventing a critical step in the development of diseased arteries - oxygen damage (oxidation) to LDL cholesterol. In addition, people who fill up on vegetables and fruit may not be as hungry for less healthy foods.

A diet rich in vegetal-based foods, (fruits, vegetables, nuts and legumes), dairy products and low in sodium, which mimics what is often called the Mediterranean diet, is now known to reduce blood pressure in people with high blood pressure as well as in people with normal blood pressure.⁹ Each additional portion of fruit or vegetables is beneficiary to the blood pressure.¹⁰

⁹ Appel LJ, A clinical trial of the effect of dietary patterns on blood pressure, *NEJM*, 1997 336(16):1117-24.

¹⁰ Damian O Dietary intake of fruits and vegetables improves microvascular function in hypertensive subjects in a dose-dependent manner *Circulation* 119 :2153-60.

