Dairy Products: Good or Harmful for Health?

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Review Article

ABSTRACT

Background: There is scepticism about bloom furnishings of dairy articles in the public, which is reflected in an accretion assimilation of plant-based drinks, for example, from soy, rice, almond, or oat.

Objective: This analysis aimed to appraise the accurate affirmation mainly from meta-analyses of empiric studies and randomised controlled trials, on dairy assimilation and accident of obesity, blazon 2 diabetes, cardiovascular disease, osteoporosis, cancer, and all-cause mortality.

Results: The lot of contempt affirmation appropriate that assimilation of milk and dairy articles was associated with bargain accident of adolescence obesity. In adults, assimilation of dairy articles was apparent to advance physique agreement and facilitate weight accident during activity restriction. In addition, assimilation of milk and dairy articles was associated with a aloof or bargain accident of blazon 2 diabetes and a bargain accident of cardiovascular disease, decidedly stroke. Furthermore, the affirmation appropriates a benign aftereffect of milk and dairy assimilation on cartilage mineral body but no affiliation with accident of cartilage fractures. Among cancers, milk and dairy assimilation was inversely associated with colorectal cancer, float cancer, belly cancer, and breast cancer, and not associated with accident of pancreatic cancer, ovarian cancer, or lung cancer, while the affirmation for prostate blight accident was inconsistent. Finally, burning of milk and dairy articles was not associated with all-cause mortality. Calcium-fortified plant-based drinks accept been included as another to dairy articles in the diet recommendations in several countries. However, nutritionally, cow's milk and plant-based drinks are absolutely altered foods, and an evidence-based cessation on the bloom amount of the plant-based drinks requires added studies in humans.

Conclusion: The accumulation of accessible accurate affirmation supports that assimilation of milk and dairy articles accord to accommodate comestible recommendations, and may assure adjoin the lot of accustomed abiding diseases, admitting actual few adverse furnishings accept been reported.

INTRODUCTION

Although it was already advised uncommon, the anniversary accident has added badly over the Several media belief and organisations affirmation that dairy increases accident of abiding diseases including obesity, blazon 2 diabetes, cardiovascular disease, osteoporosis, and cancer. Therefore, there is accretion scepticism an allotment of the accepted consumers about the bloom after-effects of bistro dairy products. This is reflected in an accretion

burning of plant-based drinks, for example, based on soy, rice, almond, or oats. Dairy is a capital allotment of the aliment ability in the Nordic countries; thus, admittance of milk and dairy articles in the diet may be accustomed for abounding Nordic individuals. The above causes of accident of advantageous years in the Nordic countries today are blazon 2 diabetes, cardiovascular diseases, and cancers. Moreover, the accretion prevalence of blubber abundantly increases the accident of these abiding diseases. Given the accretion prevalence of these abiding diseases, it is alarmingly important to accept the bloom furnishings of milk and dairy articles in the diet. Accordingly, this anecdotal analysis presents the latest affirmation from meta-analyses and analytical reviews of empiric studies and randomized controlled trials on dairy assimilation adulate excluded) and accident of obesity, blazon 2 diabetes, cardiovascular disease, osteoporosis, and blight as able-bodied as all-cause bloodshed [1-25].

THE KEY QUESTIONS

1. For the accepted consumer, will a diet with milk and dairy articles all-embracing accommodate bigger or worse health, and access or abatement accident of above diseases and all-cause bloodshed than a diet with no or low agreeable of milk and dairy products?

2. Is it justified to acclaim the accepted lactose-tolerant citizenry to abstain burning of milk and dairy products?

3. Is there accurate affirmation to actualize that replacing milk with plant-based drinks will advance health?

OBESITY AND BLAZON 2 DIABETES

An ample allotment of the on-going access in prevalence of blazon 2 diabetes is apprenticed by the blubber epidemic, and it is accordingly accordant to appraise the role of milk and dairy articles for physique weight control. Boyhood ample and blubber common is a above contributor to the accepted blubber epidemic, and boyhood blubber frequently advance into adulthood. Therefore, aboriginal blockage of boyhood blubber is important. A meta-analysis showed that a part of accouchement in the pre-school and academy age, there was no affiliation amid dairy assimilation and adiposity. However, there was an abundantly careful aftereffect in adolescence. A contempo meta-analysis begin that accouchement in the accomplished dairy assimilation accumulation were 38% beneath acceptable to be ample or adipose compared to those in the everyman dairy assimilation group. An access in dairy assimilation of one confined per day was associated with a 0.65% lower physique fat and a 13% lower accident of ample or blubber [26-30].

Milk and dairy articles are acceptable sources of high-quality protein. Protein is important during weight accident and consecutive weight aliment due to the top abominable aftereffect which helps to anticipate over-consumption of activity and thereby reduces physique fat stores. Furthermore, dairy protein is an acceptable antecedent of capital amino acids for beef protein amalgam and appropriately helps to advance the metabolically alive beef accumulation during weight loss. Meta-analyses abutment that in adults, dairy articles facilitate weight accident and advance physique composition, that is, abate physique fat accumulation and bottle angular physique accumulation during activity brake and in concise studies. The aftereffect of an added dairy burning on physique weight in abiding studies >1 year) and in activity antithesis studies is beneath convincing. This is acceptable due to

the opposing furnishings of dairy on physique composition, that is, abridgement of fat accumulation and canning of angular physique accumulation [31-35].

Meta-analyses assessing the role of assimilation of milk and dairy articles on accident of blazon 2 diabetes accept consistently begin no or a slight benign aftereffect of dairy assimilation on diabetes risk. This is constant with Mendelian randomization abstraction application biogenetic polymorphisms for the lactase gene, which showed that milk assimilation adjourned by lactose altruism was not associated with accident of blazon 2 diabetes or obesity. The a lot of contempt meta-analysis on dairy assimilation and diabetes accident included 22 accomplice studies with an absolute of 579,832 capacity and 43,118 blazon 2 diabetes cases. An changed affiliation amid absolute dairy and yoghurt assimilation and accident of blazon 2 diabetes was appear although there was no affiliation with milk intake. The allowances of brewed dairy articles cheese and yoghurt) in affiliation to blazon 2 diabetes may be due to their aftereffect on the gut microbiota. Added studies accept articular that whey protein primarily in milk and yoghurt) can abate postprandial claret glucose absorption in blazon 2 diabetic subjects. This aftereffect may be due to the angled alternation amino acids in the whey protein fraction, decidedly leucine which has been apparent to abet a greater dispatch of glucose-dependent insulin close polypeptide GIP, but not glucagon like (peptide 1 GLP-1), compared to added amino acids. The GIP acknowledgment is possibly a key agency in the college insulin acknowledgment and the consecutive blurred of claret glucose apparent afterwards whey ingestion, at atomic in advantageous subjects. In accession to the insulin close aftereffect of milk, a contempt abstraction has adumbrated that dairy may as well advance insulin acuteness [36-45].

CARDIOVASCULAR DISEASE

Low-fat, calcium-rich dairy products are generally considered to lower blood pressure. This was supported by a meta-analysis of six observational studies, whereas no association was found with intake of high-fat dairy products. High-fat dairy products are known to increase high density lipoprotein HDL - and low density lipoprotein LDL-cholesterol concentrations. The latter normally predicts risk of cardiovascular disease, but this may depend on the size of the LDL-cholesterol particles. Small, dense LDL particles are more atherogenic than their larger counterparts due to their lower affinity for the LDL-receptor and higher susceptibility to oxidation. In agreement, some of the fatty acids typically found in milk and dairy products have been associated with less small, dense LDL particles 4:0 – 10:0 and 14:0 in the diet, and 15:0 and 17:0 in serum phospholipids). In addition, the minerals in milk and dairy products have been shown to attenuate the LDL-response to high-fat dairy intake [51-65].

Among high-fat dairy products, cheese in particular does not seem to increase LDL-cholesterol to the extent expected, based on the high content of saturated fat. When compared to habitual diet with a lower total and saturated fat content, or compared to diets with lower total fat content but higher content of high-GI carbohydrates, a high intake of cheese was found not to increase LDL-cholesterol. A meta-analysis of randomized controlled trials studying the effect of cheese consumption compared with other foods on blood lipids and lipoproteins showed that cheese caused lower total cholesterol, LDL-cholesterol, and HDL-cholesterol concentrations compared with butter. Compared with milk, however, there was no statistically significant difference in blood lipids. Several meta-analyses have been conducted on the relationship between intake of milk and dairy products and risk of developing

cardiovascular disease. There was no consistent association between milk or dairy intake and cardiovascular disease, coronary heart disease or stroke in a meta-analysis. In a recent update, including a higher number of prospective cohort studies, there was a significant inverse association between milk intake and stroke, with a 7% lower risk of stroke per 200 ml milk/day, but considerable heterogeneity. Further, stratification for Asian and Western countries showed a more marked reduction in risk in Asian than in Western countries. This is consistent with a previous meta-analysis by scientists. showing a non-linear dose–response relationship between milk intake and risk of stroke, with the highest risk reduction of 7–8% with a milk intake of 200–300 ml/day. Accordingly, another meta-analysis on dairy and cardiovascular disease found that intake of cheese and milk as well as yoghurt was inversely associated with cardiovascular disease risk, found that dairy intake was associated with a 12% lower risk of cardiovascular disease, and 13% lower risk of stroke as compared to individuals with no or a low dairy consumption. Likewise, a recent and comprehensive meta-analysis, including 31 cohort studies, suggested that a high dairy intake was associated with a 9% lower risk of stroke, whereas no association was found with total cardiovascular disease or coronary heart disease. Moreover, a high intake of cheese was associated with an 8% lower risk of coronary heart disease and a 13% lower risk of stroke. In addition, high plasma levels of the saturated fatty acid C 17:0, which primarily originates from dairy, were found to be associated with a reduced risk of coronary heart disease. Finally, a meta-analysis by a reseracher. found no indication of total dairy intake or any specific dairy product being associated with an increased cardiovascular mortality. Studies are emerging showing that dairy products, particularly the low-fat types, cluster within a healthy dietary pattern and therefore, the risk of residual confounding in the observational studies cannot be ruled out. In accordance with the latest meta-analyses presented above, the latest Nordic Nutrition Recommendations have concluded that high consumption of low-fat milk products is associated with reduced risk of hypertension and stroke [66-85].

BONE HEALTH AND OSTEOPOROSIS

Milk and dairy products contain a number of nutrients that are required for building strong bones in childhood and for their maintenance during adulthood with the aim to reduce osteoporosis and bone fractures in (older age 48). The European Commission has concluded that protein, calcium, phosphorus, magnesium, manganese, zinc, vitamin D, and vitamin K are necessary for maintaining normal bones (European Commission regulation 2012). With the exception of vitamin D, these nutrients are all present in significant amounts in milk and dairy products. Osteoporosis has been described as a 'pediatric disease with geriatric consequences' as low milk, and hence, low mineral intake during childhood and adolescence has been associated with significantly increased risk of osteoporotic fractures in middle and older age, particularly in women . A recent study indicated that in children and adolescents, except for those with very low calcium intakes, magnesium intake may be more important than calcium in relation to bone development. Calcium intake was found not to be significantly associated with total bone mineral content or density, whereas intake of magnesium and the amount absorbed were key predictors of bone mass. The extent to which these results can be extrapolated to the general population is uncertain, but milk and dairy products are important sources of magnesium and hence important supporters of bone growth during adolescence. In a meta-analysis by scientist, dairy products, with or without vitamin D supplementation, increased total body and lumbar spine bone mineral content in children with low baseline dairy intake, whereas no effect was

found for children with a high baseline dairy intake. Thus, there may be a threshold above which increasing intake of dairy products or dairy-calcium does not additionally benefit bone mineral content or density in children.

In adults, interactions between calcium, phosphorus, protein and vitamin D reduce bone resorption and increase bone formation, thereby attenuating age-related bone loss. Possibly due to the complex interaction between nutrients and the multifactorial nature of bone fractures, it has been difficult to establish whether or not a low intake of milk and dairy in adulthood increases the risk of osteoporosis and bone fractures. Hence, to date, meta-analyses have not supported a protective effect of milk and dairy intake in adulthood on risk of osteoporosis and bone fractures. Nevertheless a recent systematic review concluded that calcium and dairy are important contributors to bone health in adults. In the 2015–2020 Dietary Guidelines for Americans, it was stated that 'Healthy eating patterns include fat-free and low-fat 1% dairy, including milk, yoghurt, cheese, or fortified soy beverages commonly known as "soymilk". Those who are unable or choose not to consume dairy products should consume foods that provide the range of nutrients generally obtained from dairy, including protein, calcium, potassium, magnesium, vitamin D, and vitamin A e.g. fortified soy beverages)'. Although the focus is on achieving the nutrient requirements by foods rather than supplements, plant-based beverages typically contain inorganic chemical forms of calcium, which may actually increase cardiovascular risk. As calcium in dairy is organic, milk and dairy products should still be considered the superior sources of calcium. Yet, future studies need to address whether or not vitamin D fortification of dairy products is crucial for these to have a positive effect on bone fracture risk [86-95].

CANCER

In population studies, dairy has been associated positively and negatively with various cancers, but most have been based on limited evidence and very few findings remain robust. Dairy products contain a variety of bioactive compounds that could exert both positive and negative effects on carcinogenesis. The positive effects may be related to the content of calcium, lactoferrin, and fermentation products, whereas the negative effects could be linked to the content of insulin-like growth factor I IGF-1. The World Cancer Research Fund WCRF continuously and systematically reviews the evidence on diet and physical activity in relation to prevention of cancer, and specific areas are updated when new evidence has emerged.

Colorectal cancer is the second most common cause of death among cancers in developed countries. Even though colorectal tumour genesis is a complex process, epidemiological and experimental data indicate that milk and dairy products have a chemo preventive role in the pathogenesis. In the 2011 WCRF report on colorectal cancer, it was concluded that consumption of milk and calcium probably reduces the risk of this cancer. Likewise, in meta-analyses, dairy intake has consistently been associated with a decreased risk of colorectal cancer and colon cancer. The most recent meta-analysis by scientist reported 26% lower colon cancer risk in males consuming 525 g of milk per day, whereas no association was found in females. The link between dairy intake and colorectal cancer is considered to be mainly due to the calcium derived from dairy, with a 24% risk reduction with a dairy-calcium intake of 900 mg/day. The proposed mechanisms behind this are calcium binding to secondary bile acids and ionized fatty acids, thereby reducing their proliferative effects in the colorectal epithelium. Also, calcium may influence multiple intracellular pathways leading to differentiation in normal cells and apoptosis in transformed

cells. Accordingly, a number of studies have reported reduced cell proliferation in the colon and rectum with intake of calcium and dairy products. In the 2010 WCRF report on breast cancer, it was concluded that the evidence for dairy intake and risk of breast cancer is non-conclusive. In accordance with a meta-analysis from 2011 on prospective cohort studies, a recent meta-analysis by researcher, however, suggested that a high >600 g/d) and modest 400–600 g/d) dairy intake was associated with a reduced risk of breast cancer 10% and 6%, respectively) compared with a low dairy intake <400 g/d). Within dairy subgroups, particularly yoghurt and low-fat dairy were found to be inversely associated with the risk of developing breast cancer. As calcium and vitamin D supplementation was previously shown to reduce risk of breast cancer in the Women's Health Initiative 76), these nutrients could be involved in the underlying mechanisms.

According to the 2014 WCRF report on prostate cancer, dairy may be associated with a limited-suggestive increased risk of prostate cancer, but the current evidence is limited. However, this conclusion was substantiated by the most recent meta-analysis by researcher, which suggested that a high intake of dairy products, milk, low-fat milk, cheese, and calcium were associated with a 3–9% increased risk of prostate cancer. The mechanism behind this was suggested to be an increased circulating concentration of IGF-1, which has been previously shown to be associated with an increased prostate cancer risk.

The 2015 WCRF report on bladder cancer suggested that the evidence for milk and dairy on bladder cancer risk was inconsistent and inconclusive. Two meta-analyses on milk intake and bladder cancer risk have suggested a decreased risk of bladder cancer with a high intake of milk. Others have found no association between milk and dairy intake and risk of bladder cancer risk, but none have suggested an adverse effect. Of the cancer types for which the associations with dairy intake were not presented in the WCRF reports, recent meta-analyses have suggested no association between dairy intake and risk of ovarian cancer, lung cancer, or pancreatic cancer and an inverse association between dairy intake and risk of gastric cancer in Europe and the United States [96-102].

STUDIES IN LACTOSE-INTOLERANT INDIVIDUALS

In a limited number of subjects, potential differences in cancer risk and mortality between lactose-tolerant and lactose-intolerant individuals self-reported or assessed by polymorphisms for the lactase gene) have been reported under the assumption that lactose-intolerant individuals consume less milk. However, there may also be other differences between these two groups that need to be taken into consideration, for example, genetics, ethnicity, other dietary habits, smoking, physical activity, and socio-economic factors. Scientists examined the role of genetically determined differences in the ability to degrade lactose and showed that subjects with deficiencies in the genes coding for lactase i.e. subjects not drinking milk due to intolerance) had an increased risk of colorectal cancer. This supports the ability of dairy products to reduce colorectal cancer risk and the causality of this relation. In the European EPIC study, the hypothesis that the genetically determined lactose tolerance was associated with elevated dairy product intake and increased prostate cancer risk was examined. The study included 630 men with prostate cancer and 873 matched control participants. Dairy product consumption was assessed by diet questionnaires, and intake of milk and total dairy products varied significantly by lactase genotype, with an almost two fold higher intake in lactose-tolerant compared to lactose-intolerant subjects. However, the lactase variant was not found to be significantly associated with prostate cancer risk. This indicates that residual confounding may

have biased the associations observed between milk and dairy intake and prostate cancer risk in the observational studies included in a previous meta-analysis. Analysers' investigated Swedish subjects with self-reported lactose intolerance and found a lower risk of lung, breast, and ovarian cancers compared to lactose-tolerant subjects. Unfortunately, no information about milk intake, or other genetic, ethnic, lifestyle diet, smoking and physical activity), and behavioural characteristics were reported. Also, self-reported lactose intolerance may not be comparable to genetically determined lactose intolerance. Due to potential bias in the design and the lack of control for known confounders, it is impossible to conclude about the relationship with dairy intake. Also, these findings are in contrast with the additional literature suggesting no or an inverse association between dairy intake and risk of breast cancer, ovarian cancer and lung cancer [103-110].

ALL-CAUSE MORTALITY

In medical research, the term 'all-cause mortality' implies all causes of death. There are many individual studies reporting that a high consumption of milk and dairy products is associated with decreased mortality, unchanged mortality, or even increased mortality. However, based on meta-analyses of observational cohort studies, there is no evidence to support the view that milk and dairy product intake is associated with all-cause mortality. In a meta-analysis, scientists studied whether intake of milk and dairy products as food sources of saturated fat was related to all-cause mortality, cancer mortality, and cardiovascular mortality. Neither total dairy intake nor intake of any specific dairy products was found to be associated with all-cause mortality. In the most recent meta-analysis including 12 observational studies of milk intake and mortality, there were no consistent associations between milk intake and all-cause or cause-specific mortality [111].

COMPARISON OF NUTRIENT CONTENT AND HEALTH ASPECTS OF MILK AND PLANT-BASED DRINKS

In recent decades, the market for milk and dairy substitute drinks based on, for example, soy, rice, oats, or almonds has expanded, and calcium-fortified plant-based drinks have become part of the nutrition recommendations as alternatives to milk in several countries, such as the United States, Sweden, Australia, and Brazil. Among the plant-based milk substitutes, soy drink dominates the market in the Western world, but the emerging of other plant-based drinks has influenced the market for soy drink. The nutrient density of plant-based milk substitutes varies considerably between and within types, and their nutritional properties depend on the raw material used, the processing, the fortification with vitamins and minerals, and the addition of other ingredients such as sugar and oil. Soy drink is the only plant-based milk substitute that approximates the protein content of cow's milk, whereas the protein contents of the drinks based on oat, rice, and almonds are extremely low, and the recent review of a reseracher emphasizes the importance of consumer awareness of such low-protein contents. Moreover, there are now cases of severe nutritional deficiencies in children being reported as a result of inappropriate consumption of plant-based drinks.

Despite the fact that most of the plant-based drinks are low in saturated fat and cholesterol, some of these products have higher energy contents than whole milk due to a high content of oil and added sugar. Some plant-

based drinks have a sugar content equal to that of sugar-sweetened beverages, which have been linked to obesity, reduced insulin sensitivity, increased liver, muscle, and visceral fat content as well as increased blood pressure, and increased concentrations of triglyceride and cholesterol in the blood. Analyses of several commercially available plant-based drinks carried out at the Technical University of Denmark showed generally higher energy content and lower contents of iodine, potassium, phosphorus, and selenium in the plant-based drinks compared to semi-skimmed milk. Also, rice drinks are known to have a high content of inorganic arsenic, and soy drinks are known to contain is flavones with oestrogen-like effects. Consequently, The Danish Veterinary and Food Administration concluded that the plant-based drinks cannot be recommended as full worthy alternatives to cow's milk, which is consistent with the conclusions drawn by the Swedish National Food Agency.

The importance of studying whole foods instead of single nutrients is becoming clear as potential nutrient–nutrient interactions may affect the metabolic response to the whole food compared to its isolated nutrients. As the plant-based drinks have undergone processing and fortification, any health effects of natural soy, rice, oats, and almonds cannot be directly transferred to the drinks, but need to be studied directly. Only a few studies have compared the effects of cow's milk with plant-based drinks as whole foods on disease risk markers. However, none of these have included commercially available drinks or disease endpoints. Therefore, the evidence is currently insufficient to conclude that plant-based drinks possess health benefits above those of milk and dairy products. Until more research has been conducted and a scientifically sound conclusion can be drawn, health authorities should be cautious about recommending plant-based drinks as acceptable substitutes to cow's milk for the general population [112-115].

QUESTIONS REVEALED

1:For the general consumer, will a diet with milk and dairy products overall provide better or worse health, and increase or decrease risk of major diseases and all-cause mortality than a diet with no or low content of milk and dairy products?

Consumption of dairy products is associated with an overall reduced risk of cardio metabolic diseases and some cancers, whereas only very few adverse effects have been reported Fig. 1). Dairy products may therefore have the potential to reduce the burden of the most prevalent chronic diseases in the population and to substantially reduce the health care costs for society. Consumption of dairy products is part of the dietary recommendations in several nations, for example, Sweden, Denmark, and United States. A general recommendation to reduce the intake of dairy products in individuals who actually tolerate them may be counterproductive for health and could therefore increase health care expenses. However, more emphasis should be on the foods which dairy replaces in the diet. In addition, as most of the conducted meta-analyses are on observational data, residual confounding cannot be ruled out, and it is also possible that milk and dairy intake in these studies could be just a marker of diets of higher nutritional quality [116-120].

2: Is it justified to acclaim the accepted lactose-tolerant citizenry to abstain the burning of milk and dairy products?
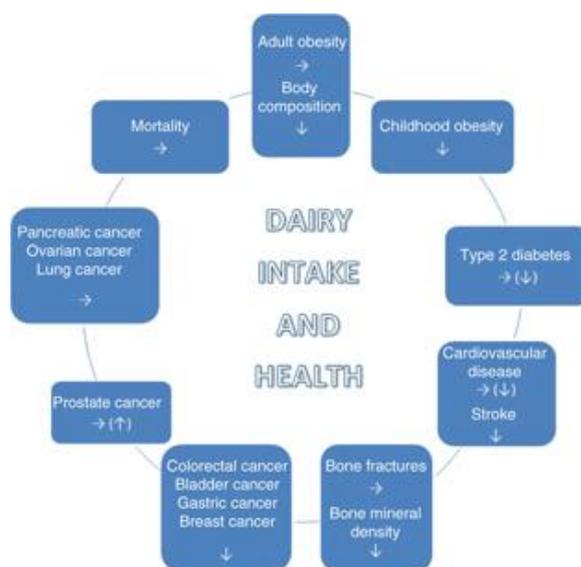
Figure 1: Overall effect/association amid dairy artefact assimilation and bloom outcomes. ↓ Favourable effect/association; ↑adverse effect/association; → no effect/association

In the Nordic countries, as few as 2% of the citizenry has primary lactase absence and can be classified as lactose-intolerant individuals. Yet, a lot of lactose-intolerant adults can abide one bottle of milk or a beat of ice cream. Cheeses accept negligible lactose contents, and the lactose in yoghurt is digested added calmly than added dairy sources due to the bacterial lactase present in yoghurt which facilitates lactose digestion. Therefore, brewed dairy products, that is, yoghurt and a lot of cheeses cottage cheese, as able-bodied as bendable and harder cheeses), can be acceptable by lactose-intolerant individuals afterwards symptoms. The aforementioned applies to cow's milk protein abhorrence that about occurs in 0.1–2.0% of accouchement in the Nordic countries and Europe. Among accouchement with absolute cow's milk-specific IgE who were re-evaluated 1 year afterwards diagnosis, 69% acceptable cow's milk at re-evaluation. Thus, the action is about apparent to boldness in children. To acquaint the accepted citizenry adjoin dairy burning based on attenuate milk allergies would be agnate to acquaint adjoin foods, such as atom or seafood due to the actuality that a baby subset of the citizenry is allergic to these foods [121].

3: Is there scientific evidence to substantiate that replacing milk and dairy products with plant-based drinks will improve health?

Cow's milk and plant-based drinks are not nutritionally commensurable foods. As alone a few studies accept advised the bloom furnishings of replacing cow's milk with plant-based drinks and none accept focused on commercially accessible drinks or on ache endpoints, the aftereffect of this backup can alone be speculated on. There have, however, been alone cases advertisement affliction in accouchement arresting low-protein plant-based drinks, but an evidence-based final appraisal of the bloom amount of plant-based drinks compared to cow's milk have to anticipate added studies in humans.

CONCLUSIONS

A diet high in milk and dairy products reduces the risk of childhood obesity and improves body composition in adults. This likely contributes to lower the risk of developing type 2 diabetes. Additionally, dairy product consumption during energy restriction facilitates weight loss, whereas the effect of dairy intake during energy balance is less clear. Finally, there is increasing evidence suggesting that especially the fermented dairy products, cheese and yoghurt, are associated with a reduced risk of type 2 diabetes [46-50] The overall evidence indicates that a high intake of milk and dairy products, that is, 200–300 ml/day, does not increase the risk of cardiovascular disease. Specifically, there is an inverse association with risk of hypertension and stroke. The present evidence suggests a positive effect of milk and dairy intake on bone health in childhood and adolescence, but with only limited evidence on bone health in adulthood and on the risk of bone fractures in older age.

The evidence from observational studies confirms that there is no association between consumption of milk and dairy products and all-cause mortality.

According to WCRF reports and the latest meta-analyses, consumption of milk and dairy products probably protects against colorectal cancer, bladder cancer, gastric cancer, and breast cancer. Dairy intake does not seem to be associated with risk of pancreatic cancer, ovarian cancer, or lung cancer, whereas the evidence for prostate cancer risk is inconsistent. In women, dairy offers significant and robust health benefits in reducing the risk of the common and serious colorectal cancer and, possibly, also the risk of breast cancer. In men, the benefit of the protective effect of milk and dairy on the common and serious colorectal cancer is judged to outweigh a potentially increased risk of prostate cancer. Cow's milk and plant-based drinks are completely different products, both regarding nutrient content and presumably also health effects. Although there are concerns about children consuming the low-protein drinks, further evidence-based assessment of the nutritional and health value of the plant-based drinks must await more studies in humans.

Our analysis of the accumulation of accessible accurate affirmation supports that assimilation of milk and dairy articles contributes to affair comestible recommendations and may assure adjoin the a lot of prevalent, abiding non-communicable diseases, admitting actual few adverse furnishings accept been reported.

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