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DAIRY Nutrition Digest

SCIENTIFIC NEWSLETTER ON NUTRITION AND HEALTH

The «*Dairy Nutrition Digest*» is EDA's quarterly scientific newsletter providing the latest science-based information on dairy-related nutrition and health topics. Scientific articles are summarized in user friendly language for a broad audience.

Dairy consumption has positive effect on chronic disease risk

This review aims to provide an update with respect to the evidence on the relationship between milk and milk product consumption and chronic disease risk in the following areas : bone health, insulin resistance syndrome (IRS) and type 2 diabetes, blood pressure and weight management.

Dietary calcium has been demonstrated to enhance bone health at every stage of life. Recent data reinforce current recommendations for daily consumption of milk and milk products and validate the critical need for regular, lifelong intake of three to four servings a day to maintain the structural integrity of the human skeleton. Information from observational studies shows a consistent inverse association between low calcium, vitamin D status or dairy intake and the prevalence and incidence of IRS and type 2 diabetes. In prospective studies, a moderate inverse association between dairy and type 2 diabetes and IRS was consistently reported. Also, studies indicate that dairy food consumption is associated with lower prevalence as well as lower risk of hypertension. The blood pressure-lowering effects contributed by dairy products are best demonstrated by the Dietary Approaches to Stop Hypertension (DASH) clinical trial. Finally, a growing body of evidence is indicating that dairy foods and/ or calcium intake may be beneficial to body weight and body composition. All of these reviews provide relevant data that supports a public health rationale for recommending the consumption of three to four servings of dairy foods per day.

Introduction. J Am Coll Nutr 2009. 28: 695-725.

Dairy is necessary to ensure adequate intake of calcium, magnesium and potassium

The aim of this study was to examine nutrient adequacy in Americans and define the role of dairy in helping individuals meet recommendations for these shortfall nutrients.

Data were issued from the 1999-2004 NHANES (National Health and Nutrition Examination Survey). Those data demonstrated that a significant proportion of the American population is not meeting recommendations for calcium, potassium, and magnesium. Less than 3% of the population consumed the recommended level or more of potassium. Only 30% of the US population obtained the recommended level of calcium or more and 55% consumed less than the Estimated Average Requirement for magnesium.

The study indicates that recommending 3-4 servings of dairy each day for people older than 9 years of age may be necessary in order to ensure adequate intake of calcium and magnesium. Besides, the authors suggest that more than 4 servings of dairy may be needed to meet the potassium recommendation at all ages, in addition to an increased fruit and vegetable intake. For individuals who do not consume dairy products, the authors suggest to better understand the barriers to consuming specific dairy products.

The Role of Dairy in Meeting the Recommendations for Shortfall Nutrients in the American Diet. Nicklas T.A, O'Neil C.A, and Fulgoni V.L. J Am Coll Nutr 2009. 28: 735-815.

No «bone healthy» diet for Americans without 3 servings of dairy per day

In this review, the author presents a few key points on bone biology and summarises the evidence for the role of nutrition and especially dairy products in maintaining bone health.

Osteoporosis is a serious health problem causing significant morbidity and mortality. It is characterized by low bone mass and bone micro-architectural deterioration leading to skeletal fragility and increased risk of fracture. Osteoporosis has many contributing factors. Heredity is the main but there are many environmental factors than can significantly alter risk, including exercise and nutrition.

Bone health is the result of optimal bone mass, bone architecture and body mechanics. Nutrients influence all these three components. Numerous studies support the critical role of calcium, protein and vitamin D, particularly as they are often deficient in American diets. Other essential micronutrients such as potassium, magnesium, zinc, vitamin A and vitamin C are also involved to varying extent.

Milk and milk products are described as primary sources for most of these nutrients. As a conclusion, respecting adequate servings of dairy appears as the best possible defence against osteoporosis.

Dairy and Bone Health. Heaney R.P. J Am Coll Nutr 2009. 28: 825-905.

Growing evidence that dairy reduces type 2 diabetes risk

Numerous studies show that those who consume more dairy have a reduced risk of type 2 diabetes.

In this review Canadian researchers examined various studies which have explored the relationship between dairy foods and type 2 diabetes. Lifestyle and health behaviours were also taken into consideration. They concluded that there is now consistent scientific evidence to show that those who consume more dairy have a reduced risk of type 2 diabetes.

Type 2 diabetes presents itself as abnormally high blood sugar levels, and is linked to a number of risk factors. It is becoming more widespread as overweight and obesity levels, which are on the increase globally, contribute to the condition. This review also highlighted the new and emerging research showing dairy has the ability to control weight and blood pressure, both of which are major risk factors and this in turn may explain dairy's role in reducing type 2 diabetes.

Milk Products, Insulin Resistance Syndrome and Type 2 Diabetes. Tremblay A, Gilbert J.A. J Am Coll Nutr 2009. 28: 915-1025.

Dairy consumption is beneficial for blood pressure

This review summarizes important studies on beneficial effects of dairy nutrients and dairy components on blood pressure.

Lifestyle practices incl. reducing body weight, moderate alcohol intake and health eating are critical for reducing blood pressure. It was shown that higher intake of dairy nutrients, such as calcium, potassium and magnesium, lowers blood pressure. When calcium intake is low, different cellular processes lead to greater resistance in blood vessels which increases blood pressure. New research indicates that dairy peptides improve blood pressure via a system in the kidney that causes dilation of blood vessels thereby reducing blood pressure.

The DASH (Dietary Approaches to Stop Hypertension) study showed that 2.7 servings of dairy per day together with high consumption of fruits, vegetables and fiber lowered blood pressure. The reduction was lower when dairy was taken out of this dietary pattern. Epidemiological studies have shown reductions in blood pressure with 3 servings of dairy a day. Other studies reported a reduction in blood pressure with higher intake of calcium (1200 mg) per day with greater benefits from dairy foods vs. supplements. Growing evidence shows that dairy product consumption is involved in regulation of blood pressure.

The authors consequently conclude that the inclusion of dairy products in a heart healthy diet is an important point to attain blood pressure benefits.

Milk Products, Dietary Patterns and Blood Pressure Management. Kris-Etherton P.M, Grieger J.A, Hilpert K.F, West S.G. J Am Coll Nutr 2009. 28: 1035-1195.

Beneficial effects of dairy foods on weight maintenance

Emerging scientific evidence over the past decade suggests that dairy foods may be beneficial on weight maintenance when included in a moderate energy restricted diet. This review presents some of the scientific evidence on the effect of dairy foods and dietary calcium on weight management.

Data from observational studies shows that dairy as part of a balanced diet, is inversely associated with body weight and body fat in children, adolescents and adults. In addition, several randomized clinical trials have demonstrated that diets including three servings of milk, yogurt and cheese per day enhance body weight and/or body fat loss in obese and overweight adults during caloric restriction when dairy and/or calcium intakes are increased from inadequate to adequate.

Moreover, weight loss was achieved in all clinical studies examining the role of dairy in weight loss where caloric-restriction was induced. Thus, if the inclusion of dairy and/or calcium in a weight loss diet does not preclude weight loss it may enhance it. While further research is needed to identify the molecular mechanisms responsible for this effect, it appears that multiple bioactive components of dairy are involved.

The Role of Dairy Foods and Dietary Calcium in Weight Management. Van Loan M. J Am Coll Nutr 2009. 28: 1205-1295.

The next issue will be out in October 2009.

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The European Dairy Association represents
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