



A newsletter by Dairy Management, Inc.[™] to provide the dairy industry with current research on nutrition and dairy foods

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ROLE OF DAIRY BEVERAGES IN THE DIET

According to this review, "Milk consumption and other dairy products have been positively associated with protection against insulin resistance syndrome (IRS), coronary heart disease, blood pressure, and some cancers." This paper reviews the nutrient contribution and health benefits of milk and responds to potential concerns about hormones, calcification, and vascular events.

Highlights:

- "Three cups of milk and low-fat dairy products are included in most patterns in the food guidance system of MyPyramid.gov in order to meet the Dietary Reference Intakes for several nutrients and calcium and potassium in particular."
- According to the report of the 2005 Dietary Guidelines for Americans Advisory Committee, when milk products are excluded from the diet, 19 to 50-year-old women would reach only 44% of calcium recommendations, 57% of magnesium recommendations, and 57% of potassium recommendations.
- "Milk constituents thought to influence bone health include calcium, protein, potassium, phosphorus, magnesium, zinc, vitamin B12 and vitamin D when fortified." "Individuals who avoid milk do not attempt to adjust their diets to replace the nutrients found in milk" - or concentrate only on replacing calcium and vitamin D.
- "Although concerns over the risk of hormones in milk for cancer risk have been raised, the levels of hormones [i.e., IGF-1] are low and milk has several chemoprotective constituents." The paper highlights calcium, conjugated linoleic acid and vitamin D as anti-carcinogens.
- "More research is needed to resolve potential concerns of milk consumption and risk of several disorders including ovarian cancer and soft tissue calcification."

[Weaver CM, *Physiology & Behavior*, published online February 4: 1-4, 2010.

CHANGING PATTERNS OF BEVERAGE USE

This paper evaluates historic and current patterns of beverage consumption of adults and children in the U.S. Data were collected from four nationally representative surveys of food intake in the U.S. from 1977-1978, 1989-1991, 1994-1996 and 2003-2006 for all people age two and older who reported one or two days of intake. According to the report, "the biggest shifts in beverage consumption among children aged 2 to 18 were an increase in sugar-sweetened beverages (from 87 to 154 kcal/day), a smaller increase in juices (+21 kcal/day), and a decrease

in milk consumption (-91 kcal/day)." In addition, sugar-sweetened beverage intake more than doubled over time among adults 19 and older.

Changing role of milk consumption:

- Milk consumption has steadily declined from its peak at the end of World War II to the present. Children's total daily milk intake has gone from 249.1 mL/day to 157.8 mL/day -- a reduction of over 90 mL/day (approximately one-third cup).
- Within an overall decline, consumption of low-fat and fat-free milk has increased, while that of whole milk has decreased.
- Whole milk remains the major contributor of beverage calories among children.
- "Hispanic children only consume whole milk while among other race-ethnic subpopulations there is a relatively higher proportion of milk derived from reduced fat products."

Most recent beverage intake (2005-2006):

- Average daily calories contributed by all beverages in 2005-2006 ranged from a low of 283 kcals among those aged 60+, to a peak of 533 kcals for those aged 19 to 39, and 367 kcals for 2 to 6-year-olds.
- Sugar-sweetened beverages are the major contributor of beverage calories among those 7 to 39 years.
- A promising trend among children in the most recent time period (2005-2006) was the slight decrease of total calories supplied by calorie-containing beverages.

The author concludes, "Overall results among food availability surveys are fairly consistent in reporting the large decrease in milk intake and an equally important increase in sugar-sweetened beverage consumption." "This paper," he continues, "shows that today all ages consume far more sugar from sugar-sweetened beverages and related beverages than any other time." [Popkin BM, *Physiology & Behavior*, published online January 4: 1-6, 2010]

NDC Research Update

META-ANALYSIS FOUND NO ASSOCIATION BETWEEN SATURATED FAT INTAKE AND CARDIOVASCULAR DISEASE

Some previous human studies have linked intake of dietary saturated fat and risk of coronary heart disease – while recent epidemiologic studies have had mixed results. This meta-analysis of 21 prospective epidemiologic studies, partially funded by a grant from the National Dairy Council, summarized the evidence related to the association of dietary saturated fat with risk of coronary heart disease (CHD), stroke, and cardiovascular disease (CVD). Included in the analysis were 16 studies that considered the association of saturated fat with CHD and 8 studies that evaluated the association of saturated fat and stroke. Results from this study showed no association of dietary saturated fat intake and an elevated risk of CHD, stroke, or CVD as a composite outcome. The researchers did not observe effects of sex and age on CHD risk. The authors conclude, "Our meta-analysis showed that there is insufficient evidence from prospective epidemiologic studies to conclude that dietary saturated fat is associated with an increased risk of CHD, stroke, or CVD." However, they were unable to assess associations with saturated fat intake in specific age and sex groups, due to lack of adequate data. This analysis was also unable to assess the effects on CVD of replacing some saturated fat with either polyunsaturated fat or carbohydrate. [Siri-Tarino PW, et al., *Am J Clin Nutr*, published online January 13: 1-12, 2010]

REPLACING SATURATED FAT WITH CARBOHYDRATE IN THE DIET MAY INCREASE CARDIOVASCULAR RISK

The major sources for saturated fat in the U.S. diet are full-fat dairy products and red meat. This Opinion article discusses the scientific evidence related to cardiovascular risk when dietary saturated fat is replaced by polyunsaturated fat or alternatively by carbohydrates. The authors report that when either polyunsaturated or monounsaturated fat replaces saturated fat in the diet, LDL- and HDL-cholesterol are reduced. However, substitution of carbohydrates, particularly refined carbohydrates, for sources of saturated fat in the diet, can worsen adverse changes in blood lipids (increased triglycerides, small LDL particles, reduced HDL-cholesterol) that may already be present due to obesity and insulin resistance. According to the authors, “dietary efforts to improve the increasing burden of cardiovascular disease risk” associated with abnormal blood lipids, “should primarily emphasize the limitation of refined carbohydrate intakes and a reduction in excess adiposity”. They express concern that if U.S. Dietary Guidelines call for dietary intakes of saturated fat below current recommendations (10% of total energy), subsets of the population who proportionately increase their intake of carbohydrates may be harmed. [Siri-Tarino PW, et al., *Am J Clin Nutr*, published online January 20: 1-8, 2010]

INCREASING VITAMIN D FORTIFICATION OF MILK, CHOCOLATE MILK AND YOGURT IS FEASIBLE

Fluid milk has been fortified with vitamin D for more than 50 years, but per capita intake of fluid white milk has steadily declined. In contrast, consumption of flavored milk and yogurt has been increasing over the last 20 years. If fortified with vitamin D, these products could provide an additional way to supply vitamin D to consumers. This study, funded by Dairy Management, Inc. and Midwest Dairy Association, determined the effect of increased vitamin D fortification (250 IU/serving) of high-temperature, short-time (HTST)-processed 2% fat milk, UHT-processed 2% fat chocolate milk, and low-fat strawberry yogurt on sensory characteristics and stability of vitamin D during processing and storage. For the study, each of the three products was manufactured at three different levels of vitamin D₃ fortification, 0 (control), 100 IU/serving (current level of vitamin D fortification), and 250 IU/serving.

Results:

- Vitamin D levels in the fortified products achieved the target levels of 100 IU and 250 IU per serving. This indicates that there was no loss of vitamin D during processing.
- Vitamin D was stable over the shelf-life of each product.
- Increased fortification did not change the sensory characteristics of the milk, chocolate milk, or strawberry yogurt.

The researchers conclude, “These results indicate that it is feasible to increase vitamin D fortification from 100 to 250 IU per serving in these products,” and to increase the range of dairy foods that are fortified with vitamin D. [Hanson AL and Metzger LE, *J Dairy Sci*, 93: 801-807, 2010]

CANADA’S EFFORTS TO REDUCE DIETARY SODIUM INTAKE

“Although sodium is an essential nutrient, intakes of most Canadians are too high, placing them at risk for elevated blood pressure and the associated health risks,” states this review. In 2007, Blood Pressure Canada and 16 health-related organizations released a policy statement

calling for Canadians' daily sodium intake to be reduced to between 1500 mg and 2300 mg – the range recommended by the Institute of Medicine's Dietary Reference Intakes. As background, the paper gives a brief overview of sodium's functions in the body and the basis for the current Dietary Reference Intakes, followed by a discussion of the adverse effects of excessive sodium intake, particularly hypertension. Then the author discusses current sodium intakes of Canadians, the functional roles of sodium as a food ingredient, and learnings from the United Kingdom and Finland as these countries sought to reduce sodium intakes in their populations.

Highlights:

- Sodium is a required nutrient, with Adequate Intakes for adults ranging from 1,200 to 1,500 mg/day and a Tolerable Upper Intake Level set at 2,300 mg/day, based on the relationship between sodium intake and increased blood pressure.
- "Excessive dietary sodium intake is not the only determinant of blood pressure." For example, consuming a diet rich in vegetables, fruit, and low-fat dairy products, as illustrated in the Dietary Approaches to Stop Hypertension (DASH) diet, "results in substantial reductions in blood pressure even when sodium intake is not decreased."
- "Sodium is widely distributed throughout the food supply, and it is estimated that in North America and Europe, $\geq 75\%$ of dietary sodium is added during the processing of foods, compared with 10%-12% naturally present in food and 10%-12% added at the table and during cooking." Foods contributing the most sodium to Canadian diets include pizza, sandwiches, submarines, hamburgers, and hot dogs.
- Sodium has several functions in foods including taste and palatability, preservation, and food processing.
- Initiatives to reduce sodium intakes population-wide in the United Kingdom and in Finland have included cooperation with the food industry and have taken many years to achieve a measure of success.

The author concludes, "Achieving meaningful decreases in sodium intake will require the cooperation of food industry and food service establishments. Based on experiences in other countries, it is probable that many years will be required to accomplish this. In the meantime, it is important not to lose sight of the need to continue to address other lifestyle behaviors that also affect blood pressure and health risk." [Barr SI, *Appl Physiol Nutr Metab*, 35: 1-8, 2010]

CAUTION URGED IN UNIVERSAL REDUCTION OF DIETARY SODIUM

This commentary discusses the available evidence most relevant to a recommendation for the universal reduction of dietary sodium. The author makes these key points:

- Although blood pressure has been associated with the incidence of stroke, heart attack, kidney dysfunction, and heart failure, it is only a marker for these clinical events. Randomized controlled trials have shown that sodium reduction sufficient to lower blood pressure produces conflicting physiological effects – the net of which determines its ultimate effect on health.
- At least 13 observational cohort studies have examined the relationship between sodium consumption and clinical outcomes, with conflicting results. Observational studies have inherent limitations; results from observational studies rarely justify a public health recommendation.
- The author hypothesizes that a most favorable dietary sodium intake may be around 3,450 mg/day – with possible risk both above and below this level.

The author outlines “rash” and “more cautious” approaches to the dietary sodium question. The rash approach advocates universal sodium reduction, despite the heterogeneity of blood pressure response to sodium reduction. The cautious approach calls for “rigorous, large-scale, population-based randomized clinical trials.” Both approaches are experimental, he says, in the absence of definitive evidence. “Based on what is known,” he concludes, “the prudent course of action may well be caution.” [Alderman MH, *JAMA*, 303(5): 448-449, 2010]

ISOFLAVONE-ENRICHED MILK HELPS REDUCE BONE LOSS IN RATS

This study examined the effect of isoflavone-enriched milk on bone loss in rats that had their ovaries removed to mirror the effect of menopause. Half of a group of 30 rats had their ovaries removed, while the other half underwent a sham operation. The ovariectomized group was divided into three diet groups: 1) milk without isoflavones; 2) isoflavone-enriched milk; and 3) isoflavone-enriched milk fortified with vitamins D and K and enriched with calcium. After 19 weeks of feeding, the rats in both isoflavone-enriched milk groups had heavier leg bones (femur and tibia). Bone density of the femur in the isoflavone plus calcium and vitamins group was significantly greater than that of the regular milk and isoflavone-enriched milk groups in the ovariectomized rats. Both isoflavone-enriched groups had highly filled trabecular bone. The authors conclude, “The present study indicated that isoflavone-enriched milk may have a partial preventive effect on ovariectomy-induced bone loss; however, vitamins D and K and calcium enrichment with isoflavone may enhance effectiveness for increasing bone mass in ovariectomized rats.” [Jeon B-J, Ahn J and Kwak H-S, *Journal of Medicinal Food*, 12(6): 1260-1267, 2009]

ADDING WHOLE MILK TO COFFEE DOES NOT AFFECT THE BIOAVAILABILITY OF PHENOLIC ANTIOXIDANTS

Coffee contains high levels of phenolic antioxidants called hydroxycinnamates. “If consumed regularly throughout the day, coffee may provide up to two-thirds of total daily dietary phenolic antioxidants”, say the authors. Researchers in Switzerland hypothesized that adding whole milk or sugar and non-dairy creamer to instant coffee might influence the bioavailability of coffee phenolics. Nine healthy volunteers were asked to randomly drink (in a crossover design) instant coffee, instant coffee with 10% whole milk, or instant coffee with sugar and non-dairy creamer (premixed). Compared with regular black instant coffee, the addition of milk did not significantly alter the amount of the three assessed phenolic antioxidants reaching the blood stream, or the time it took to reach its maximum concentration in the blood. However, when coffee contained sugar and non-dairy creamer, the delivery of two of the three phenolic antioxidants from coffee to the blood stream was delayed – though the total amount delivered was the same. [Renouf M, et al., *J Nutr*, 140: 259-263, 2010]

THE EFFECT OF VARYING FAT LEVELS OF MILK ON BLACK TEA ANTIOXIDANT CAPACITY

Black tea is rich in polyphenolic compounds and possesses considerable antioxidant capacity. UK researchers analyzed the antioxidant capacity of 5 brands of tea (in tea bags and as loose tea), the effect of tea bag and brewing time on antioxidant capacity, and tested the hypothesis that the addition of different volumes of whole milk, semiskimmed, and skimmed milk may affect the antioxidant capacity of the tea. When the tea leaves were analyzed, there was no significant difference in the total antioxidant capacity between the teas. Brewed loose tea,

when compared to tea in bags, had a higher antioxidant capacity that was achieved in a shorter time (2 vs. 10 minutes). The authors note that milk naturally contains fat soluble antioxidants, such as tocopherols (vitamin E), carotenoids (beta-carotene), and retinols (vitamin A) that help maintain milk quality. All teas were prepared and the effect on antioxidant capacity of adding 10, 15, 20 mL or water, whole milk, semi skimmed milk, or skimmed milk was tested. "For all brands of tea, the addition of 10, 15, and 20 mL of semi skimmed or skimmed milk significantly decreased the total antioxidant capacity compared to tea with the same volume of water added", the researchers report. The addition of whole milk decreased the total antioxidant capacity of the teas, but to a lesser extent. The authors note that since tea is widely consumed in the UK (3-4 cups/day) the antioxidant components of black tea may contribute significantly to the overall antioxidant intake in the UK diet. The authors conclude, "The degree to which the addition of milk reduces the antioxidant capacity of black tea depends on the amount added and the fat content of the milk." [Ryan L and Petit S, *Nutrition Research*, 30: 14-20, 2010]

CELL STUDY SHOWS WHEY PROTEIN MAY HAVE THE POTENTIAL TO MODULATE IMMUNITY

"Innate immunity depends on the efficiency of neutrophils to be activated rapidly to restore homeostasis," say the authors of this paper. Neutrophils are the chief white blood cells responsible for consuming debris and foreign bodies. Priming agents can enhance neutrophil capacity. Since bovine whey protein extract (WPE) has been shown to prime normal human blood neutrophils, researchers in Canada investigated the role of WPE and its mechanisms of action on the production of immune factors from neutrophils collected from the blood of healthy volunteers. Results showed when neutrophils were incubated with WPE, they were primed and activated to produce immune modulating factors. The priming effect specifically depended only on the whey proteins β -lactalbumin and α -lactalbumin. The authors conclude, "Our data suggest that WPE, through β -lactalbumin and α -lactalbumin, has immunomodulatory properties and the potential to increase host defenses." [Rusu D, et al., *J Nutr*, 140: 382-391, 2010]

In Brief...

No effect of fermented milk on ACE inhibition in persons with borderline-high blood pressure

This 8-week double-blind randomized placebo-controlled study of 94 Danish adults with borderline-high blood pressure, investigated the effect of consuming *Lactobacillus helveticus* fermented milk (300 mL or 150 mL) compared with a placebo on components of the rennin-angiotensin-aldosterone system that controls blood pressure. Results showed that fermented milk did not inhibit ACE (angiotensin-converting enzyme), probably due to poor absorption or fast degradation, the authors speculate. Intake of fermented milk decreased sympathetic activity of the nervous system, but not enough to affect 24-hour ambulatory blood pressure or heart rate. This finding, the researchers say, deserves further research. [Usinger L, et al., *Clin Physiol and Functional Imaging*, 30(2): 162-168, 2010]

Protein-rich breakfast reduced appetite and calorie intake at lunch in adolescents

This study in 13 normal to overweight adolescents who routinely skip breakfast, examined the impact of consuming a normal protein (NP—18 gm) breakfast vs. a protein-rich (PR—49 gm) breakfast on perceived appetite and satiety, hormonal responses, and subsequent food intake at lunch and over the entire day. On separate testing days, participants randomly consumed either a NP, PR breakfast, or skipped breakfast (BS--control condition). Perceived appetite,

satiety and hormonal responses were measured throughout a 5-hour period, followed by an *ad libitum* lunch buffet. Participants then completed a food record, documenting all food and beverages consumed over the remaining 24 hours. Results showed that the PR breakfast led to greater reductions in appetite ratings 4 hours after the meal (before lunch) than did the NP or BS conditions. Those who ate the PR breakfast also consumed fewer calories at lunch (~370) than did those who ate the NP breakfast or skipped breakfast (~500). However, total daily calorie intake did not differ between breakfast conditions. The authors say, "These findings suggest that the addition of a protein-rich breakfast might be an effective strategy to improve appetite control in young people." [Leidy HJ and Racki EM, *International Journal of Obesity*, published online February 2: 1-9, 2010]

A preliminary study finds casein hydrolysate improves peripheral blood pressure in Japanese adults

Lactotripeptides, prepared from milk casein have shown significant blood pressure-lowering activity in some people. Food containing the lactotripeptides VPP (valine-proline-proline) and IPP (isoleucine-proline-proline) have shown promise in improving vascular endothelial function and ambulatory arterial stiffness. This preliminary study investigated the effects of casein hydrolysate containing the peptides VPP and IPP on central blood pressure and other hemodynamic outcomes in 12 hypertensive adults. Participants consumed four tablets containing the lactotripeptides VPP and IPP each day for 9 weeks. Treatment for 6 and/or 9 weeks "showed a significant reduction in peripheral systolic and diastolic blood pressure, AI (augmentation index), and central systolic blood pressure (-21.8 mmHg by 9 weeks). The authors say, "Although small and not placebo-controlled, this study suggests that continuous intake of VPP and IPP might have the potential to improve arterial stiffness as well as central systolic blood pressure and peripheral brachial blood pressure." Larger, high-quality studies are warranted. [Nakamura T, et al., *Journal of Medicinal Food*, 12(6): 1221-1226, 2009]

NYC Department of Education changed milk policy reducing fat/calories served to school children

Beginning in the 2005-2006 school year, the New York City (NYC) Department of Education changed its milk policy as a way to address the increasing prevalence of obesity in NYC. School cafeterias in all public schools (1.1 million school children) phased out whole milk and among flavored milk (i.e. chocolate milk), made only fat-free available. Recognizing that school milk provides an important source of protein, calcium, and vitamins such as A and D, "the goal of the milk policy change was to reduce a key source of dietary calories and fat without reducing the total amount of milk purchased per student", the authors say. Initially (2004-2006), student school milk purchases declined by 8%, but purchases gradually increased, so that by 2009 per student milk purchased (adjusted for school system enrollment) had increased by 1.3%. In addition, chocolate milk purchases remained stable; chocolate milk was popular with the students and accounted for about 60% of the milk purchased before and after the policy change. Based on purchasing data, it was estimated that each milk-drinking student in New York public schools were served 5,960 fewer calories and 619 fewer grams of fat per school year since the policy change. However, no data were collected on total daily food consumption – so it is not known whether the milk switch affected the overall diet. [Alberti PM, et al., *Morbidity and Mortality Weekly Report*, Centers for Disease Control and Prevention, 59(03): 70-73, 2010]

Adult prevalence and trends in obesity 1999-2008

The National Center for Health Statistics, Centers for Disease Control and Prevention reports that among adults in 2007-2008, "The prevalence of obesity in the United States is high,

exceeding 30% in most age and sex groups except for men aged 20 to 39 years." Prevalence of obesity (BMI of 30 or higher) was 32.2% among adult men and 35.5% among adult women. The age-adjusted prevalence of overweight and obesity combined (BMI of 25 and over) was 72.3% among men and 64.1% among women. In general, the prevalence of obesity was higher among Hispanic and non-Hispanic black Americans than in whites. When the data were examined over a ten-year period from 1999-2008, the prevalence of obesity among women had not increased (non-significant increase of 2.1 percentage points) but there was a significant linear trend among men (increase of 4.7 percentage points). The authors say, "These data suggest that the increases in the prevalence of obesity previously observed between 1976-1980 and 1988-1994 and between 1988-1994 and 1999-2000 may not be continuing at a similar level over the period 1999-2008, particularly for women but possibly for men." [Flegel KM, et al., *JAMA*, 303(3): 235-241, 2010]

Obesity prevalence among children and adolescents has remained stable for 10 years

The National Center for Health Statistics, Centers of Disease Control and Prevention reports new statistics on the prevalence of overweight among children and adolescents in 2007-2008 as well as trends from 1999-2008. Overweight in children is defined as a BMI \geq 85th to 94th percentile; obesity in children is defined as age- and gender-specific BMI $>$ 95th percentile. According to the report, "In 2007-2008, approximately 10% of infants and toddlers younger than 2 years were at or above the 95th percentile of the weight-for-recumbent length growth charts. Almost 12% of 2-19-year-old children and adolescents were at or above the 97th percentile of the BMI-for-age growth charts while almost 17% were at or above the 95th percentile and almost 32% were at or above the 85th percentile." When examining trends in weight for length or high BMI over time periods 1999-2000, 2001-2002, 2003-2004, 2005-2006, and 2007-2008, the authors conclude that "the prevalence of high BMI in childhood has remained steady for 10 years and has not declined." The only exception was a significant increase in prevalence of BMI \geq 97 percentile among boys 6-19 years. [Ogden CL, et al., *JAMA*, 303(3): 242-249, 2010]

Adult snacking and its contribution to total calorie intake has increased

This study used data from four national representative surveys of food intake in the U.S. population to compare patterns and trends in adult (19+ years) snacking behavior using the 1977-1978, 1989-1991, 1994-1996 and 2003-2006 surveys. Snacks included eating occasions defined by the respondent as a "snack", food and/or coffee/beverage breaks, and included all foods eaten within a 15 minute period. "Results showed," the paper reports, "that snacking prevalence increased significantly from 71 to 97% in 2003-2006 with increases in both the 1989-1994 and the 1994-2006 periods." There was an increase in almost one snacking occasion over this time period and "the contribution of snacks to total energy intake increased from 18 to 24%." The types of foods eaten as snacks changed over time. Between 1977-1978 and 2003-2006 there was a major increase in salty snacks, with smaller increases in candies, nuts/seeds, alcoholic beverages and sport drinks. There was a decrease in overall desserts (although low-fat desserts increased), milk/dairy, and in juices/fruit eaten as a snack. [Piernas C and Popkin BM, *J Nutr*, 140: 325-332, 2010]

Dairy foods are among the top four protein sources in the PREMIER trial

"The PREMIER trial, conducted from 1999 to 2002, compared the impact on blood pressure of two structured behavioral interventions focusing on the traditional lifestyle modifications for blood pressure control with or without the Dietary Approaches to Stop Hypertension [DASH] dietary pattern." The DASH diet is a low-fat diet, rich in fruits, vegetables, and low-fat dairy foods. This report describes specific sources of animal and plant proteins in the diets of

PREMIER participants at the start of the study and how the intervention and participant demographics affected protein sources. The authors report, "The top four protein sources for all the study participants were poultry, dairy, refined grains and beef, each contributing approximately 10% to 17% in descending order to the total protein intake at baseline." The amount of protein contributed by animal and plant sources was approximately 66% and 34%, respectively, and did not change from baseline throughout the 18-month study period. Dairy foods contributed a larger share of total animal protein intake among participants following the DASH diet, compared to those who did not include the DASH diet as part of the intervention. Compared to African-American participants, white participants consumed more animal protein from beef and dairy, and less from seafood and poultry. The authors conclude, "Although the contribution of various food groups to the intakes of animal and plant proteins were affected by the PREMIER intervention, daily contribution of animal and plant proteins to total protein intake was unchanged." They say differences in the health impact of protein sources should be explored. [Lin P-H, et al., *J Am Diet Assoc*, 110: 291-295, 2010]

High-sugar and high-fat food intake in Mexican school children is associated with cardiovascular risk factors

"The Mexican population has a high intake of fat, sugar, soft drinks, and processed foods." This study identified how key dietary energy sources correlated with risk factors for cardiovascular disease in children (9-13 years) from three public urban schools of low socioeconomic status in Mexico City. Results showed that these children "have a significant intake of high-fat dairy, red meats, and refined carbohydrates, but less than recommended consumption of low-fat dairy, fruits, vegetables, whole-grain cereals, fish, and other healthful foods." In addition, "more than half of children in this study did not eat the recommended daily servings of fruits, vegetables, or dairy, and 46% of children drank more than the recommended limit of soft drinks." Foods related to cardiovascular risk factors were mainly refined carbohydrates (associated with higher blood glucose and insulin levels) or those with high fat (associated with high triglyceride levels) or sugar content (diastolic blood pressure was positively associated with intake of sweetened beverages). High-fat dairy foods were the greatest energy source for these children, followed by refined carbohydrates. Intake of high-fat dairy was associated with an increase in diastolic blood pressure and with an increase in HDL-cholesterol (beneficial). The authors say new policies are needed to offer more healthful foods in Mexican schools. [Perichart-Perera O, et al., *J Am Diet Assoc*, 110: 253-260, 2010]

Other Publications of Interest

- *Whey protein ingestion activated mTOR-dependent signaling after resistance exercise in young men: A double-blinded randomized controlled trial.* [Farnfield MM, et al., *Nutrients*, 1: 263-275, 2009] This randomized controlled trial in young untrained men demonstrated that a single dose of whey protein isolate (26.6 gm) immediately after resistance exercise stimulates a key step in muscle protein synthesis within the exercised muscle.
- *Screening for obesity in children and adolescents: U.S. Preventive Services Task Force Recommendation (USPSTF) Statement.* [*Pediatrics*, 125(2): 361-367, 2010] This statement, updating the 2005 statement of the USPSTF on screening for overweight in children and adolescents, "recommends that clinicians screen children aged 6 years and older for obesity and offer them or refer them to intensive counseling and behavioral interventions to promote improvements in weight status (grade B recommendation)."
- *Osteoporosis and gait and balance disturbances in older sarcopenic obese New Zealanders.* [Waters DL, et al., *Osteoporos Int*, 21: 351-357, 2010] In this sample of 183 older adults at increased risk

of falling, osteoporosis was prevalent in those with low appendicular skeletal muscle mass (both obese and non-obese) and was related to gait and balance deficits, particularly in those who were obese with low skeletal muscle mass.

- *Application of the National Osteoporosis Foundation (NOF) Guidelines to postmenopausal women and men: the Framingham Osteoporosis Study.* [Berry SD, et al., *Osteoporos Int*, 21: 53-60, 2010] 2003 clinical guidelines for the treatment of osteoporosis in postmenopausal women were revised in 2008 to report the 10-year probability of hip and major osteoporotic fracture in women and men. Researchers applied the 2008 NOF guidelines to participants of the Framingham Osteoporosis Study and found nearly one half of Caucasian postmenopausal women and one sixth of men aged 50 years and older would be recommended for osteoporosis treatment. The authors say the budget impact of these guidelines should be evaluated.
- *A public health perspective on healthy lifestyles and public-private partnerships for global childhood obesity prevention.* [Kraak VI and Story M, *J Am Diet Assoc*, 110(2): 192-200, 2010] This commentary uses a public health perspective to review the concept of healthy lifestyles for the prevention of childhood obesity and explores the optimal characteristics and major challenges faced when initiatives are promoted through public-private partnerships. For example, programs that focus on creating supportive environments and healthy communities are more likely to produce sustainable changes than those focusing on individual behavior change.
- *Impact of body mass index and the metabolic syndrome on the risk of cardiovascular disease and death in middle-aged men.* [Arnlov J, et al., *Circulation*, 121: 230-236, 2010] Researchers in Sweden compared risk of cardiovascular disease and death over 30 years of follow-up in 1,758 middle-aged men. Results showed that “middle-aged men with metabolic syndrome had increased risk for cardiovascular events and total death regardless of body mass index (BMI)” – but overweight and obese individuals without metabolic syndrome also had an increased risk.
- *Diagnosis and management of vitamin D deficiency.* [Pearce SHS, and Cheetham TD, *BMJ*, 340: 142-147, 2010] This clinical review of vitamin D deficiency and its treatment concludes that the vitamin D deficiency diseases, rickets and osteomalacia, “are entirely preventable diseases that are becoming increasingly common in the UK population.” The authors say there is a need for changes in the UK health policy, including more food fortification with vitamin D, including milk.
- *Nutrition menu labeling may lead to lower-calorie restaurant meal choices for children.* [Tandon PS, et al., *Pediatrics*, 125: 244-248, 2010] In this randomized, controlled experiment, 99 parents of children 3 to 6 years of age were presented with a McDonald’s menu and were asked to select meals for themselves and their child. Half the menus contained nutritional information about the meals and the other half didn’t (control group). Parents who received menus with nutritional information ordered an average of 102 fewer calories for their children than did those in the control group. However, labeled menus did not influence the foods parents chose for themselves.
- *Interventions for preventing falls in older people in nursing care facilities and hospitals (Review).* [Cameron ID, et al., *The Cochrane Collaboration*, issue 1, 2010] This review of 41 trials involving 25,422 participants in nursing care facilities found that the prescription of vitamin D reduces falls, as may a review of medication by a pharmacist. “There is no evidence that other interventions targeting single risk factors reduce falls and this includes exercise interventions,” concludes the review.