



A newsletter by Dairy Management, Inc.<sup>™</sup> to provide the dairy industry with current research on nutrition and dairy foods

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## ***STRONG EVIDENCE THAT CALCIUM AND VITAMIN D PROTECT AGAINST BREAST CANCER***

This meta-analysis conducted by Chinese researchers examined the overall effects of vitamin D intake, circulating 25(OH)D and 1 $\alpha$ ,25(OH)<sub>2</sub>D levels, and calcium intake on breast cancer risk. The analysis considered data from 11 studies on vitamin D intake, 7 studies on circulating 25(OH)D levels, 3 studies on circulating levels of 1 $\alpha$ ,25(OH)<sub>2</sub>D, and 15 studies on calcium intake and breast cancer risk. The results showed a significant inverse relationship between vitamin D intakes and breast cancer risk. The highest vs. lowest intake of vitamin D was associated with a 9% reduction in breast cancer risk. The highest vs. the lowest level of circulating 25(OH) D, the indicator of vitamin D status, was associated with a 45% decreased risk of breast cancer. For calcium, the highest vs. lowest calcium intake was associated with a 19% decrease in breast cancer risk. The authors say, "These findings provide support for the use of vitamin D and calcium as chemopreventive agents for breast cancer." More studies are needed to determine the optimal doses needed to optimize their cancer preventive effects. [Chen P, et al., *Breast Cancer Res Treat*, published online October 23, 2009]

## ***PROTEIN INTAKE IS MODESTLY FAVORABLE TO BONE***

Whether protein intake is beneficial or detrimental to bone health has been a long-standing debate. "This article," say the authors, "reports on the first systematic review and meta-analysis of the relation between protein and bone health in healthy human adults." The pooled results from 31 cross-sectional surveys conducted mainly in Western and Asian countries showed that higher protein intake was associated with significantly greater bone mineral density (BMD) at all clinically relevant sites - and that protein intake explained 1-2% of BMD. In addition, "A meta-analysis of randomized placebo-controlled trials indicated a significant positive influence of all protein supplementation on lumbar spine BMD but showed no association with relative risk of hip fractures," the authors report. They say, "No significant effects were identified for soy protein or milk basic protein on lumbar spine BMD." [Darling AL, et al., *Am J Clin Nutr*, 90: 1674-1692, 2009]

An accompanying editorial says it is "potentially significant" that an environmental factor such as protein intake contributes even 1-2% to a complex trait such as bone mass. Addressing the widely held view that a higher protein intake is detrimental to bone in that its metabolism contributes to a higher acid load resulting in bone resorption, the author questions whether the endogenous acid production from a high-protein diet is of sufficient magnitude to affect bone. She notes that in healthy individuals the body has "tremendous capacity to maintain pH within

a very narrow margin.” She notes that older adults are at the highest risk for osteoporosis and typically consume the least amount of protein per kilogram of body weight. Even though we need long-term intervention trials to know if adding a modest amount of protein to the diets of older individuals is a safe and effective way to improve bone health and reduce fracture risk, she says based on the results of the above meta-analysis we should encourage many of our frail older adults to add a small protein source to their “tea and toast” meals. [Kerstetter JE, *Am J Clin Nutr*, 90: 1451-1452, 2009]

## **NO EVIDENCE THAT INCREASING DIET ACID LOAD PROMOTES BONE LOSS**

According to the acid-ash hypothesis, protein and grain foods in the modern diet are detrimental to bone health because the metabolic production of acid from these foods stimulates the body to buffer this acid by mobilizing bone mineral, resulting in calcium loss in the urine. In contrast, fruit and vegetables are considered bone protective because of their potassium-organic anion content. “Despite no critical review,” say the authors, “the hypothesis is promoted to the public as the “alkaline diet” through the internet as a cure for almost any disease.” This meta-analysis assessed the effect of changes in net acid excretion (NAE) on both urine calcium and calcium balance among studies with superior methodological quality for the study of calcium metabolism. The authors explain that urinary calcium excretion is not a direct measure of osteoporosis or calcium balance, since changes in calcium absorption may offset any change in excretion. The researchers chose 5 studies for this critical analysis that compared adequate versus high protein intakes to answer the question, “Among adults, is there a dose-response relationship between NAE and calcium balance?” The results of this meta-analysis showed, “Despite a linear relationship between NAE and urine calcium, there was no relationship between NAE with either calcium balance or N-terminal telopeptides, a marker of bone metabolism.” Three recent studies with superior research designs (one randomized trial and two prospective cohort studies) were in agreement with the findings of this meta-analysis, the authors say – and there is evidence that protein may actually support bone health.

The authors concluded that the findings from this meta-analysis do not support the concept that the increased urine calcium associated with altered NAE represents a loss of whole body calcium. They say, “Promotion of the acid-ash hypothesis or “alkaline diet” to the public to prevent calcium loss is not justified.” [Fenton TR, et al., *J Bone Min Res*, 24(11): 1835-1840, 2009]

## **HIGH PROTEIN INTAKE IS ASSOCIATED WITH LONG-TERM BENEFITS FOR MUSCLE AND BONE IN ELDERLY WOMEN**

Aging is associated with progressive loss of muscle and a decrease in bone mineral content, leading to increased risk of falls and fractures. Because few studies have evaluated the effects of protein intake on both bone and muscle in elderly women long-term, researchers in Australia examined the association of protein consumption at baseline with bone-free lean mass, muscle size, and bone mass 5 years later in a group of 862 community-dwelling elderly women (average age 75 years). The average baseline protein intake was 81 gm/day contributing 19% of total energy. Results showed:

- A higher baseline protein intake was associated with significantly higher whole body and appendicular (upper and lower limbs) bone-free lean mass, bone mineral content, and upper arm muscle area.
- “Compared with those in the lowest tertile of protein intake (<66 gm/day), women in the top tertile (>87 gm/day or 1.6 gm/kg/d) had 5.4-6% higher whole body and

appendicular lean mass and upper arm muscle area, and 5.3-6% higher whole body and appendicular bone mineral content.”

The authors say these findings are consistent with a review of recent nitrogen balance studies in the healthy elderly concluding that a protein intake of 1.0-1.3 gm/kg/d is necessary to maintain nitrogen balance, and a review of safe protein intake in the elderly suggesting 1.0-1.2 gm/kg/d of high-quality protein. “Providing further studies do not show adverse effects,” they conclude, “it would be reasonable to recommend such an increase in protein intake to elderly women.” [Meng X, et al., *J Bone Min Res*, 24(11): 1827-1834, 2009]

## **SOLUBLE FIBER ENHANCES THE SATIATING ABILITY OF LIQUID YOGURTS**

“Low energy-density foods with high satiating power may be useful tools for weight management,” say researchers from the University of Washington, in Seattle. They tested the effects of added inulin, a soluble fiber, on the satiating properties of low-energy-density (180 kcal; 0.4 kcal/g) and high-energy-density (440 kcal; 0.9 kcal/g) 16-ounce strawberry flavored yogurt beverages (Yoplait). Each study participant, 18 men and 20 women (18-35 years), completed six test sessions, spaced at least 1 week apart. On the study day, participants were instructed to eat a breakfast bar (supplied by the research center) at home at 8 a.m. One of six preloads in random order were served in the research center at 10 a.m.: two high energy (calorie) yogurt beverages with or without inulin, two low-energy (calorie)-density yogurt beverages with or without inulin, an equal volume of orange juice (0.4 kcal/g), or a no beverage control condition. The measured outcomes for the study were repeated ratings of hunger, fullness, and desire to eat and energy consumption at the lunch meal served two hours after the preload.

Result highlights:

- “Yogurt beverages and liquid orange juice significantly suppressed appetite and promoted satiety relative to the no beverage condition.”
- “Yogurt beverages had greater satiating power than did orange juice, as evidenced by higher satiety ratings and reduced energy intakes at lunch.
- “The satiating power of low-energy-density yogurt with inulin was comparable to that of high-energy-density yogurt.”

The authors say that the 6 gm of inulin fiber in the yogurt beverages provided a satiating power equivalent to 260 kcals of energy. Other characteristics of yogurt, such as protein content, thickness, or viscosity likely play a role in satiety, the authors note. Additional studies will be needed to determine the ideal combination of protein, fiber, and viscosity to develop products that are highly satiating and low in fat and calories. They conclude, “Energy presented in liquid form can have satiating power. Added fiber can potentiate the satiating properties of low-energy-density yogurts. Adding fiber to low-energy-density foods may be an effective way to suppress appetite and control food intake.” [Perrigue MM, Monsivais P, and Drewnowski, A, *J Am Diet Assoc*, 109: 1862-1868, 2009]

## **HIGH DAIRY CALCIUM INCREASES FAT AND ENERGY EXCRETION**

Excretion of dietary fat is one mechanism explaining how calcium intake may contribute to a reduction in body weight. Researchers in Denmark evaluated the short-term effect of increasing

the intake of calcium from low-fat dairy products on quantitative and qualitative fecal fat loss. They used a randomized crossover study design with 11 subjects comparing fecal fat excretion from two 7-day diets - one high in calcium from low-fat dairy foods (2300 mg/day), and one low in calcium (700 mg/day). Results showed, "Dairy calcium significantly increased the total fecal fat excretion from 5.4 gm/d on the low-calcium diet to 11.5 gm/d on the high-calcium diet." The increase in fat excretion between the high dairy calcium diet and the low-calcium diet (6.1 gm/d) corresponds to a daily energy loss of ~230kJ which could potentially induce a 2.5 kg (5.5 pounds) weight loss per year. This estimate does not take into account any adjustments in energy expenditure that may counterbalance some of the effect. The authors conclude, "We found a highly significant increase in the fecal excretion of fat and energy when the intake of calcium from dairy products was increased by 1600 mg/day. Increasing dietary calcium intake increased both saturated, monounsaturated, and polyunsaturated fat when dairy products were the main fat source. The fecal excretion of bile acids was not affected by calcium content of the diet." [Bendsen NT, et al., *International Journal of Obesity*, 32: 1816-1824, 2009]

## **NO ASSOCIATION FOUND BETWEEN AMOUNT AND TYPE OF DIETARY FAT AND WEIGHT CHANGE**

In this large, prospective study, European researchers analyzed data from 89,432 men and women (average age range, 43-58 years) from six cohorts and five countries enrolled in the EPIC (European Prospective Investigation into Cancer and Nutrition) study to assess the association between the amount and type of dietary fat and subsequent weight change over time (3.7 to 10 years). Country-specific food-frequency questionnaires were used to assess baseline intake of total, saturated, polyunsaturated, and monounsaturated fats. Results showed that the average total fat intake ranged between 31.5% to 36.5% of calories, and average annual weight change was 109 gm/year in men and 119 gm/year in women. "No significant association was observed between fat intake (amount or type) and weight change." They conclude, "These findings do not support the use of low-fat diets to prevent weight gain." They add, "Our findings lend support to the scientific view that promoting low-fat diets may not offer the optimal approach for tackling the obesity epidemic and might potentially divert attention from the recommended goals of reducing the dietary total energy content or promoting greater physical activity as set out in the current U.S. national dietary guidelines." [Forouhi NG, et al., *Am J Clin Nutr*, 90: 1632-1641, 2009]

## **A MILK-MUCUS HYPOTHESIS IN NEED OF TESTING**

Large proportions of the population believe that excessive milk consumption is associated with increased mucus production, though medical evidence is limited. Several studies have examined the effect of dairy exposure on bronchostriction, but "none have shown any major effect," say the authors of this medical hypothesis. Some studies suggest that excluding milk products from the diet may improve asthma symptoms in some situations. In this paper, researchers in New Zealand put forth a hypothesis of why in some cases a cow's milk exclusion diet has been found beneficial. They say mucus overproduction is a characteristic of asthma and other respiratory diseases, but only when inflammation is present. A protein derived from the breakdown of A1 milk,  $\beta$ -casomorphin-7, has been shown to increase mucus production in the human colon. They speculate that under conditions of trauma or increased stress, the gut becomes more permeable, and "milk proteins could find their way into the systemic circulation to stimulate respiratory tract mucus production". The authors hypothesize that "A1 milk (milk high in  $\beta$ -casein A1) increases mucus production in the respiratory tract in a sub-population of people who have increased intestinal permeability". For an increase in mucus to occur, they

say, the person needs to consume A1 vs. A2 milk,  $\beta$ -casomorphin-7 has to pass into the systemic circulation, and the tissues need to be actively inflamed. If all three of these prerequisites have to be in place for the symptoms to appear, that could explain why only a subgroup of patients have found that their asthma or rhinitis symptoms improve on a dairy-free diet. They describe a study design that could potentially test this hypothesis. [Bartley J and McGlashan SR, *Medical Hypotheses*, in press, 2009]

## **CALCIUM SUPPLEMENTATION DOES NOT SIGNIFICANTLY IMPROVE BLOOD LIPIDS OR BODY COMPOSITION IN MEN**

This randomized controlled trial evaluated the effect of calcium supplementation on the change in the ratio of HDL to LDL cholesterol (primary endpoint) and on changes in cholesterol fractions, triglycerides, blood pressure, and body composition (secondary endpoints) in 323 generally healthy men over a 2-year period. Participants were randomly assigned to take 600 mg calcium citrate/day, 1200 mg calcium citrate/day, or a placebo. Their baseline dietary calcium intake was ~800-900 mg/day. Results showed that calcium supplementation had no effect on the ratio of HDL to LDL cholesterol, nor on weight, fat mass, lean mass, triglycerides, or total, LDL, or HDL cholesterol. Systolic and diastolic blood pressure were lower (borderline statistical significance) in those taking 1200 mg calcium/day when compared to the placebo group only in those with a baseline calcium intake below the median of 785 mg/day. Calcium supplementation with 1200 mg/d also had a blood pressure-lowering effect in those with low baseline magnesium intakes. Since previous studies in women showed improvements in blood lipids with calcium supplementation, the authors say their present data suggest "that calcium supplements have a smaller effect on lipid metabolism in men than in women."

The authors conclude, "The present data do not show biologically significant effects of calcium supplementation on serum lipids or body composition in healthy older men, indicating that these conditions are not indications for recommending higher calcium intakes. However, calcium supplementation in those with low dietary intakes may benefit blood pressure control." [Reid IR, et al., *Am J Clin Nutr*, published online November 11; 1-9, 2009]

## **REVIEW OF DETERMINANTS OF EARLY WEANING AND USE OF UNMODIFIED COW'S MILK IN INFANTS**

The World Health Organization recommends that infants should be exclusively breastfed for the first six months of life before introducing complementary foods and the American Academy of Pediatrics recommends that unmodified cow's milk not be fed to infants before age 12 months. However, despite evidence for adverse health outcomes, about one-third of American infants are given unmodified cow's milk before 12 months of age and about the same proportion are introduced to complementary foods before four months of age, the authors report. Researchers in the UK conducted a meta-analysis of 78 studies in developed countries to identify the factors associated with these practices and to evaluate the strength of evidence for the entire range of determinants in order to identify areas for future research. They found strong evidence (determinant was examined in three or more high-quality studies and  $\geq 75\%$  of results were consistent) for six determinants of early weaning, including young maternal age, low maternal education, low socioeconomic status, absence or short duration of breastfeeding, maternal smoking, and lack of information or advice from health care providers. There was strong evidence that low maternal education and low socioeconomic status were determinants of early introduction of unmodified cow's milk. Given these findings, the authors conclude that "Improving advice given by health care providers appears the most tractable area for

intervention in the short term.” They say future studies should examine the influence of psychosocial, community and policy factors on infant feeding practices. [Wijndaele K, et al., *J Am Diet Assoc*, 109: 2017-2028, 2009]

## ***THE ADA EMPHASIZES A FOOD FIRST PHILOSOPHY***

In a published position, the American Dietetic Association (ADA) states, “It is the position of the ADA that the best nutrition-based strategy for promoting optimal health and reducing the risk of chronic disease is to wisely choose a wide variety of foods. Additional nutrients from supplements can help some people meet their nutrition needs as specified by science-based nutrition standards such as the Dietary Reference Intakes.” With about one-third of adult consumers using a multivitamin and mineral supplement regularly, “The expertise of dietetics practitioners is needed to help educate consumers on the safe and appropriate selection and use of nutrient supplements to optimize health,” the paper states. According to the paper, multivitamin and mineral supplements are not likely to substantially increase intakes of key nutrients such as calcium, magnesium, and potassium – so “Increasing consumption of foods rich in these nutrients will still be necessary to meet recommended amounts.” One section of the paper includes the results of a systematic review of the literature using ADA’s Evidence Analysis Process and rates the evidence level of questions related to the effect of vitamin B12 and vitamin D supplementation in particular age/gender groups. The paper delineates the roles and responsibilities of dietetic practitioners as they assist consumers on the appropriate use of dietary supplements and provides a number of resources to help them stay informed. [Position of the American Dietetic Association: Nutrient Supplementation, *J Am Diet Assoc*, 109(12): 2073-2085, 2009]

## ***DRINKING LITTLE OR NO MILK IN ADOLESCENCE IS ASSOCIATED WITH GREATER WEIGHT GAIN***

This 5-year longitudinal study among 2,294 adolescents enrolled in Project EAT (Eating Among Teens) examined the association between beverage consumption and 5-year change in body weight change. Beverage intake was assessed using a 149-item youth and adolescent food-frequency questionnaire tested for validity and reliability for this age group. Beverages assessed included soft drinks, punch, low-calorie soft drinks, milk, chocolate milk, instant breakfast, apple juice, orange juice, sweetened iced tea, beer, liquor (e.g., vodka or rum), wine or wine coolers, tea, and coffee. At baseline, the majority of participants consumed seven or more servings of white milk per week, and consumed punch and soft drinks 0.5-6 times per week.

### **Results:**

- Higher low calorie soft drink consumption was associated with a significant increase in body mass index (BMI) over 5 years, whether beverages were assessed individually or together and adjusted for potential confounding variables. However, the positive association was no longer present after adjustment for dieting and parental weight-related concerns.
- Higher consumption of white milk was associated with a smaller change in BMI over 5 years. “Adolescents who consumed little or no white milk gained significantly more weight than their peers who consumed white milk.”
- There was no association between sugar-sweetened beverage consumption, juice consumption, and adolescent weight gain over 5 years.

The authors conclude, "Interventions with adolescents should promote the consumption of low-fat white milk and other low-calorie, nutrient-dense beverages and decrease the availability of sugar sweetened beverages in school and home settings." [Vanselow MS, et al., *Am J Clin Nutr*, 90: 1489-1495, 2009]

## **NEW ESTIMATES FOR THE CALCIUM REQUIREMENT OF ADOLESCENTS**

In 1997, an adequate intake (AI) of 1300 mg/day of calcium was set for North American adolescents aged 9-18 years based on the best available data. Now, researchers in Canada present longitudinal data covering the same age span (9-18 years), and report the average accumulation of calcium during these years in Caucasian Canadian boys and girls. While the 1997 Dietary Reference Intake (DRI) report used calcium accrual during peak calcium accretion during the pubertal growth spurt, these researchers use calcium retention data from 9 to 18 years. They estimated the calcium requirement based on age subgroups, ages 9-13 and 14-18 years to be more compatible with the biological need for calcium according to sex differences in timing and pattern of bone and body growth in boys and girls.

### **Findings:**

- The calculated average calcium requirement for girls and boys 9-13 years is similar, 1,000 mg/day to 1,100 mg/day.
- In the 14-18 year age group, the calculated average calcium requirement for girls remained relatively stable at 1,000 mg/day, while the requirement for boys increased to 1,200 mg/day.

The authors say, "We provide new data on calcium accrual during the whole age range of adolescence (9-18 years), which demonstrates the sex difference in time and pattern of calcium retention during adolescence." [Vatanparast H, et al., *British Journal of Nutrition*, published online October 26, 2009]

## ***In Brief***

### **Physician and patient adherence to guidelines and lifestyle recommendations lowers blood pressure**

According to this paper, rates of blood pressure control are low, despite widely publicized treatment guidelines for physicians and lifestyle recommendations for patients. This randomized, controlled trial of physician intervention versus control and/or patient intervention versus control on change in systolic blood pressure at 6 months. The physician intervention consisted of internet-based training, self-monitoring, and quarterly feedback reports. The patient intervention included 20 weekly group sessions followed by 12 monthly telephone counseling sessions focused on weight loss, the Dietary Approaches to Stop Hypertension dietary pattern, exercise, and reduced sodium intake. Thirty-two physicians were randomly assigned to the intervention or control group, and 574 patients (men and women, average age 60 years) were randomly assigned to the intervention or the control group. This trial demonstrated that an intensive behavioral lifestyle intervention significantly reduced systolic blood pressure in 6 months, but the intervention with the primary care physicians treating these patients did not result in better blood pressure management. "The largest impact was observed with the combination of physician and patient intervention," a 9.7 mmHg reduction in systolic blood pressure. The authors conclude, "Given the potential impact of lifestyle modification on blood pressure and the apparent role that doctors play in encouraging

healthy behaviors, future development and testing of both patient and provider interventions should be a high priority." [Svetky LP, et al., *Hypertension*, 54: 1226-1233, 2009]

### **Review discusses the role of inulin and oligofructose for gut health**

This review paper presents an overview of the role of two prebiotics, inulin and oligofructose from chicory, on the composition of microbes in the gut and how these changes might affect gut health in healthy people. Prebiotics encourage the growth of beneficial bacteria in the colon. The authors say, when taken in small amounts of about 5-15 gm/d, inulin and oligofructose encourage a shift toward having relatively more bifidobacteria in the colon, which may reduce the production of toxic metabolites and increase compounds that are beneficial to the host. Further studies are needed to confirm a positive effect for a prebiotic mixture to reduce atopic dermatitis in infants and diarrheal disease in young children and adults. [Meyer D and Stasse-Wolthuis M, *European Journal of Clinical Nutrition*, 63: 1277-1289, 2009]

### **Casein helps maintain a positive protein balance in a condition of energy balance**

"Increasing the protein content in the diet results in increased satiety and energy expenditure", say the researchers. They hypothesized that a protein lacking indispensable amino acids (an incomplete protein) such as gelatin, may stimulate appetite suppression and energy expenditure, but may limit a positive protein balance. They tested this hypothesis in a randomized, single-blind crossover study that compared appetite, energy expenditure, and substrate balances between gelatin (incomplete protein) and casein (complete protein). During a 36-hour stay in a respiration chamber, 23 healthy men and women (approximately 25 years old) consumed in random order four diets of the same calorie content. The diets had either casein or gelatin providing 25% of the protein calories (20% fat and 55% carbohydrate) or 10% of the protein calories (35% fat and 55% carbohydrate). The protein source was provided in a custard. Results showed, "When we compared the effects of an incomplete protein (gelatin) and a complete protein (casein) at two concentrations over 36 hours, gelatin resulted in greater appetite suppression; casein caused a greater positive (smaller negative) protein balance, and effects on energy expenditure did not differ." In overweight people seeking to lose weight, the authors say, consuming gelatin may help suppress hunger and reduce energy intake, whereas long-term use of casein may help preserve lean body mass. [Hockstenbach-Waelen A, et al., *J Nutr*, 139: 2285-2292, 2009]

### **Bovine lactoferrin retards growth of colon polyps in adults 63 years and younger**

Lactoferrin (LF) is an iron-binding glycoprotein component of milk. Experiments in rats have shown that oral administration of LF has anticancer effects in the colon. This randomized, double-blind, controlled trial tested whether oral bovine LF could inhibit the growth of adenomatous colorectal polyps in human patients. 104 participants, 40-75 years, with polyps  $\leq 5$  mm in diameter and likely to be adenomas, were randomly assigned to receive a placebo or 1.5 gm or 3.0 gm of bovine LF daily for 12 months. Results showed that 3.0 gm of LF significantly retarded polyp growth in participants 63 years old or younger. The authors say that since some polyps may be overlooked by colonoscopy or cannot always be completely removed, "the daily intake of 3.0 gm of bovine LF could be a clinically beneficial adjunct to colorectal polyp extraction." [Kozu T, et al., *Cancer Prevention Research*, 2(11): 975-983, 2009]

### **Paper addresses the complex issue of food allergy**

This paper notes that only a small percentage of the population, approximately 4-8% of children and roughly 2% of adults have a diagnosed food allergy, though many may self-diagnose the onset of food allergy or receive faulty medical advice based on unreliable tests. The most

common allergens are cow's milk, egg, soy, wheat, peanut and tree nuts, fish, and shellfish – “though individuals can eventually develop tolerance of some foods, most commonly milk, egg, soy, and wheat – whereas allergies to seafood, nuts, and peanuts tend to persist,” say the authors. The dependability of food allergy tests, such as the skin prick test (high rate of false positives), is an issue. “Diagnostic tests should not be considered the means for determining presence of allergy, but should be used to support or exclude a diagnosis of specific allergies based on the history,” the paper states. The results of the diagnostic test are one piece of the puzzle and should be confirmed with a medically supervised oral food challenge, so as not to misunderstand the body's response to a food by the patient, family members, or a health care professional. A reliable diagnosis is important, both because a food allergy could be fatal and because misdiagnosis can lead to restrictive diets and undernutrition. When a dietitian is approached by a client asking for an elimination diet to diagnose a potential food allergy, the dietitian should recommend diagnostic testing with a board-certified allergist as a first step. The RD can assist the allergist by helping clients complete a detailed food history and by creating diet strategies when short- or long-term avoidance of the offending food is necessary. [Stein K, *Journal of the American Dietetic Association*, 109(11): 1832-1837, 2009]

### ***Other Publications of Interest***

- *A saturated fatty acid-rich diet induces an obesity-linked proinflammatory gene expression profile in adipose tissue of subjects at risk of metabolic syndrome.* [van Dijk S, et al., *Am J Clin Nutr*, 90: 1656-1664, 2009] This 8-week controlled feeding trial conducted in 20 abdominally overweight adults investigated the effect of a saturated fatty acid- (SFA) and monounsaturated fatty acid-rich (MUFA) diet on insulin sensitivity, serum lipids, and gene expression profiles of adipose tissue in subjects at risk of metabolic syndrome. Results showed, “Consumption of a SFA diet resulted in a proinflammatory ‘obesity-linked’ gene expression profile, whereas consumption of a MUFA diet caused a more anti-inflammatory profile.”
- *Mediterranean-style dietary pattern, reduced risk of metabolic syndrome traits, and incidence in the Framingham Offspring Cohort.* [Rumawas ME, et al., *Am J Clin Nutr*, 90: 1608-1614, 2009] This prospective study, examining the association between the Mediterranean-style dietary pattern and metabolic syndrome among 2730 participants of the Framingham Heart Study Offspring Cohort, found that “the consumption of a diet consistent with the principles of the Mediterranean-style diet may protect against metabolic syndrome in Americans.”
- *Effect of short-term high-protein compared with normal-protein diets on renal hemodynamics and associated variables in healthy young men.* [Frank H, et al., *Am J Clin Nutr*, 90: 1509-1516, 2009] This 7-day crossover study compared the effect of a high-protein (HP, 2.4 gm/kg/d) with a normal-protein (NP, 1.2 gm/kg/d) diet on kidney function. The researchers found that the short-term HP diet “alters renal hemodynamic and renal excretion of uric acid, sodium, and albumin” and that more attention should be paid to the potential adverse effects of HP diets on kidney function.
- *Increased food energy supply is more than sufficient to explain the U.S. epidemic of obesity.* [Swinburn B, Sacks G, and Ravussin E, *Am J Clin Nutr*, 90: 1453-1456, 2009] Predicted weight changes from estimated energy intakes in U.S. children and adults between the 1970s and 2000s were compared with weight increases measured in representative U.S. surveys over the same time period. The authors conclude, “Increased energy intake appears to be more than sufficient to explain weight gain in the U.S. population,” and that to return to the average body weights of the 1970s, adults would need to reduce their energy intake by 500 kcal/d and children by 350 kcal/d.

- *Complement component 3 polymorphisms interact with polyunsaturated fatty acids to modulate risk of metabolic syndrome.* [Phillips CM, et al., *Am J Clin Nutr*, 90: 1665-1673, 2009] The LIPGENE-SU.VI.MAX. study is a prospective case-control candidate gene study among 13,000 French men (45-60 years) and women (35-60 years) to determine the relationship between C3 polymorphisms and metabolic syndrome and whether interaction with plasma polyunsaturated fatty acids (PUFAs), a biomarker of dietary PUFA, influence this relationship. The researchers found that “Common genetic variants at the C3 locus were associated with risk of metabolic syndrome and its phenotypes, including dyslipidemia, abdominal obesity, and insulin sensitivity” - and that PUFAs appeared to modulate these genetic influences. The authors say, “Such gene-nutrient interactions suggest that dietary fat may modify genetic susceptibility to metabolic syndrome, which warrants further investigation.”
- *A conjugated linoleic acid-enriched beef diet attenuates lipopolysaccharide-induced inflammation in mice in part through PPAR $\gamma$ -mediated suppression of toll-like receptor 4.* [Reynolds CM, et al., *J Nutr*, 139: 2351-2357, 2009] This study found that feeding a high-CLA beef diet in mice with induced septic shock exerted “profound anti-inflammatory effects”. The authors conclude, “Further studies should help to underscore the potential importance of CLA as a viable, functional food in the treatment and prevention of sepsis.”
- *Vitamin D and non-Hodgkin lymphoma risk in adults: A review.* [Kelly JL, et al., *Cancer Investigation*, 27: 942-951, 2009] This comprehensive review concludes there is limited evidence of an association between vitamin D status and risk of non-Hodgkins lymphoma, which may be due to limitations of study methodology. The authors conclude that further investigation is warranted.
- *Obesity in the transition to adulthood.* [Harris KM, Perreira KM and Lee D, *Arch Pediatr Adolesc Med*, 163(11): 1022-1028, 2009] Researchers used growth curve modeling to trace how racial/ethnic and immigrant disparities in body mass index (BMI) change over time as adolescents 11-19 years transition to young adulthood (20-28 years). Results showed that disparities in BMI widen with age, with females, second- and third-generation immigrants, and Hispanic and black individuals experiencing more rapidly increasing BMIs from adolescence into young adulthood.
- *Health disparities in the Latino population.* [Vega WA, Rodriguez MA, and Gruskin E, *Epidemiologic Reviews*, 31: 99-112, 2009] This review examines the demographic structure of the Latino population and how nativity, age, income, and education are related to observed patterns of health and mortality. It documents that Latinos have higher death rates for diabetes, cancers of the liver, cervix, and stomach, liver disease, HIV, homicide and work-related injury and outlines some suggested strategies for improving overall community health.
- *Worksite Wellness Programs for Cardiovascular Disease Prevention: A Policy Statement from the American Heart Association.* [Circulation, 120: 1725-1741, 2009] This policy statement supports “incremental efforts to achieve a comprehensive worksite wellness program to address cardiovascular disease and stroke prevention.” The statement says worksite programs should include tobacco cessation and prevention, regular physical activity, stress management/reduction, early detection/screening, nutrition education and promotion, weight management, and disease management - and should “encourage healthy behaviors and promote occupational safety and health”.