

Window to Nutrition - EDITION 2, May 2015



YOUR TRUSTED  
DESTINATION FOR  
HEALTH, NUTRITION  
& GENERAL WELLNESS  
AND POLICIES

## Key Takeaways

- Taste preferences are modulated by general health and other physiological changes that individuals experience
- Protein, Nutritional Lipids, Prebiotics are key to meeting general wellness & nutritional needs across life stages and need states
- Developing nutrient dense general wellness and nutrition products will continue to be key for the global consumer





Maternal  
Nutrition



Healthcare  
Nutrition



Performance  
Nutrition



Weight  
Management



Scientific  
Conferences  
Tradeshows



## Nutrition Policy

The Asia Pacific & the Middle East operation of Global NGO **Consumers International** (CI) has called on the Malaysian government to implement a Traffic Light Labelling system to support consumers' to help determine the nutrient content of products.

**Soy Protein and Blood Cholesterol Lowering Health Claim - Health Canada** has concluded that "... the evidence consistently supports a direction of effect towards a reduction in total and LDL cholesterol levels when soy protein is consumed. A meta-analysis showed a statistically significant reduction in total and LDL cholesterol levels with soy protein consumption and no detrimental effect on HDL cholesterol and triglyceride levels ... The claim is relevant and generally applicable to the Canadian population on the basis that 39% of Canadians aged 6 to 79 years had unhealthy levels of total cholesterol (>5.2 mmol/L for adults) during the time period of 2009-2011 ..."

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## General Wellness

**Dietary patterns and their associations with childhood obesity in China.** Dietary patterns represent the combined effects of foods, and illustrate efficaciously the impact of diet on health outcomes. The present study data collected from 1282 children and adolescents aged 7-17 y from the 2011 China Health and Nutrition Survey (CHNS). Three dietary patterns were identified: modern (high intakes of milk, fast foods and eggs), traditional north (high intakes of wheat, tubers and other cereals) and traditional south (high intakes of vegetables, rice and pork). Subjects in the highest quartiles of the modern and traditional north patterns were found to have significantly greater risk of obesity (OR 3·10, & OR 2·42, respectively). In conclusion, the modern dietary pattern and the traditional north dietary pattern were associated with higher risk of obesity. Promoting healthier eating patterns could help prevent obesity in Chinese children.

**Three in every four British men will be overweight by 2030, says World Health Organization.** Rates of both overweight and obesity will continue to mount throughout Europe, the estimates from the WHO and the UK Health Forum reveal, suggesting that recent campaigns to improve diet and curb sugar and fat intake are still not having an impact. In some of Europe's worst-performing countries, including Ireland, the WHO predicts that "almost all adults" will be overweight within 15 years.

**Immune system protein may regulate sensitivity to bitter taste.** New research from the Monell Center in *Brain, Behavior, and Immunity* shows that tumor necrosis factor (TNF), an immune system regulatory protein that promotes inflammation, also helps regulate sensitivity to bitter taste. The finding may provide mechanisms to explain the taste system abnormalities and decreased food intake that can be associated with infections, autoimmune disorders, and chronic inflammatory diseases. "Reduced food intake and associated malnutrition is a significant concern that affects the long-term prognosis of many people who are very ill," said senior author Hong Wang, a molecular biologist at Monell. "Our findings reveal that bitter taste is regulated by the immune system. Specifically, TNF may make sick people more sensitive to bitterness so that foods taste more bitter and less appetizing."



## Infant & Child Nutrition

**Infants' environments play key role in their heights as adults.** Study published in J Peds demonstrates that environmental elements during the first year of one's life (including nutrition and health status, family structure, and economic and emotional factors) play a key role in determining one's growth and final adult height.

**Oligosaccharides in infant formula: more evidence to validate the role of prebiotics.** The gastrointestinal (GI) microbiota differs between breast-fed and classic infant formula-fed infants. Breast milk is rich in prebiotic oligosaccharides (OS) and may also contain some probiotics. Many infant formula companies often add one or the other or both. Different types of prebiotic OS are used in infant formula, including galacto-oligosaccharide, fructo-oligosaccharide, polydextrose and mixtures of these OS, but none adds human milk OS. There is evidence that the addition of prebiotics to infant formula brings the GI microbiota of formula-fed infants closer to that of breast-fed infants. Prebiotics change gut metabolic activity (by decreasing stool pH and increasing SCFA), have a bifidogenic effect and bring stool consistency and defecation frequency closer to those of breast-fed infants. Although there is only limited evidence that these changes in GI microbiota induce a significant clinical benefit for the immune system, interesting positive trends have been observed in some markers. Additionally, adverse effects are extremely seldom. Because most studies suggest a trend of beneficial effects and because these ingredients are very safe, prebiotics bring infant formula one step closer to the golden standard of breast milk.



## Maternal Nutrition

**Docosahexaenoic acid supplementation in lactating women increases breast milk and plasma docosahexaenoic acid concentrations and alters infant omega 6:3 fatty acid ratio.** Abbott sponsored study in *PLEAF* investigated the effects of DHA supplementation on the fatty acid composition of breast milk and plasma concentrations in lactating women and their infants. Infant plasma omega 6:3 and arachidonic acid (AA):DHA were significantly greater in the placebo group compared to both supplement groups (67% and 106%; 71% and 116%, respectively,  $p < 0.05$ ). DHA supplementation impacts infant fatty acids important for brain development and breast milk fatty acid composition.

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## Healthcare Nutrition

### HEALTHY AGING COGNITIVE HEALTH

**New 'MIND' diet linked to reduced risk of Alzheimer's.** New diet developed by researchers from Rush University Medical Center in Chicago, IL, could significantly reduce the risk of Alzheimer's disease, even for those who do not follow it precisely. The diet -called the Mediterranean-DASH Intervention for Neurodegenerative Delay (MIND) diet consists of 15 dietary components: 10 "brain-healthy food groups" and five unhealthy food groups. Green leafy vegetables, other vegetables, nuts, berries, beans, whole grains, fish, poultry, olive oil and wine make up the brain-healthy foods, while red meats, butter and stick margarine, cheese, pastries and sweets, and fried or fast food are the food groups that should be limited.

## DIETARY INTAKE

**Specific food preferences of older adults with a poor appetite. A forced-choice test conducted in various care settings.** Food preferences of elderly with a poor appetite may influence food intake. A computer experiment showing food images was used to study food preferences. Elderly with a poor appetite preferred varied, non-dairy, high-fiber, solid foods. In conclusion, elderly with a poor appetite may have specific food preferences. These results are useful to develop attractive meals for elderly with a poor appetite.

**Micronutrient intakes and potential inadequacies of community-dwelling older adults: a systematic review.** A new systematic review & meta-analysis sponsored by Nutricia published in *Br J Nutr* shows that individuals >65 y had inadequate intakes of micronutrients, especially vitamin D, thiamin, riboflavin, Ca, Mg and Se, which could impact functional decline, frailty and difficulties with independent living. Micronutrient deficiencies and low dietary intakes among community-dwelling older adults are associated with functional decline, frailty and difficulties with independent living.

**Fortified sauces may offer nutritional benefit for the elderly.** A study in the *J Fd Sci* shows that fortifying sauces with micro- and macronutrients may offer an approach to improving energy intake for hospitalized older people. The researchers fortified tomato, gravy, and white sauces with a micronutrient blend at 0.1% (w/w). The premix (100 mg) contained iron (6 mg), zinc (6.4 mg), riboflavin (0.8 mg), vitamin B6 (0.86 mg), folic acid (134 µg), vitamin C (26.6 mg), and vitamin D (6.6 µg). The sauces were also enriched with potassium and magnesium. The fortified sauces had higher nutritional value than the conventional ones. The healthy older consumers preferred the fortified tomato sauce compared with unfortified. There were no significant differences in liking between the fortified and standard option for gravy. Limitations in the extent of fortification with protein, potassium, and magnesium, as excessive inclusion resulted in bitterness, undesired flavors, or textural issues. Researchers conclude that "the development of fortified sauces is a simple approach to improving energy intake for hospitalized older people, both through the nutrient composition of the sauce itself and due to the benefits of increasing sensorial taste and lubrication in the mouth."

## DIGESTIVE HEALTH

**Healthy subjects experience bowel changes on enteral diets: addition of a fiber blend attenuates stool weight and gut bacteria decreases without changes in gas.** Nestle sponsored randomized, double blind cross-over clinical trial in *JPEN* demonstrates that the addition of a fiber blend moderated changes in bowel function and gut bacteria in healthy subjects. Dietary fiber affects laxation and can be fermented by gut bacteria to metabolites that influence gut health and fecal moisture. The aim of the study was to compare the effects of a fiber-blend fortified enteral formula (FB, 15 g/L), a fiber-free formula (FF), and habitual diet on bowel function, fecal bacteria, and quality of life. On formula diets, 5-day fecal output decreased by >55% from habitual diet, but was 38% higher on FB than FF (P = .0321). WGTT was ~1.5 times longer on formula diets than habitual diet (P < .0004). Total bacteria declined from habitual diet on FF (P < .004), but not on FB. Numbers of bifidobacteria and lactobacilli declined from habitual diet on both formula diets, but bifidobacteria was higher on FB compared with FF (P < .0001). Bacteroides and clostridia numbers did not change between diets. GIQLI and incidence of gas symptoms did not differ between formulas. Results support adding mixed fiber sources to enteral nutrition if no contraindication exists.

**In vitro colonic metabolism of coffee and chlorogenic acid results in selective changes in human faecal microbiota growth.** Coffee is a relatively rich source of chlorogenic acids (CGA). A considerable proportion of ingested CGA reaches the large

intestine, and may be capable of exerting beneficial effects in the large gut. Study in *Br J Nutr* demonstrated that incubation of coffee samples with the human faecal microbiota led to the rapid metabolism of CGA (4 h) and the production of dihydrocaffeic acid and dihydroferulic acid. Coffee with the highest levels of CGA induced a significant increase in the growth of *Bifidobacterium* spp. vs. control at 10 h after exposure ( $P < 0.05$ ). An equivalent quantity of CGA (80.8 mg) induced a significant increase in the growth of *Bifidobacterium* spp. ( $P < 0.05$ ). CGA alone also induced a significant increase in the growth of the *Clostridium coccoides*-*Eubacterium rectale* group ( $P < 0.05$ ). This selective metabolism and subsequent amplification of specific bacterial populations could be beneficial to host health.

## METABOLIC HEALTH

**Association between yogurt consumption, dietary patterns, and cardio-metabolic risk factors.** Recent study in *Eur J Nutr* suggests that yogurt consumption may be associated with healthy eating, with lower anthropometric indicators and a more beneficial cardio-metabolic risk profile in overweight/obese individuals. Yogurt consumption was associated with lower body weight, waist-to-hip ratio, and waist circumference and tended to be associated with a lower BMI. Overweight/obese yogurt consumers had lower levels of fasting total cholesterol, triglyceride and insulin. Consumers of yogurt had a positive Prudent dietary pattern mean score, while the opposite trend was observed in non-consumers of yogurt.

**Effects of inorganic nitrate and beetroot supplementation on endothelial function: a systematic review and meta-analysis.** Review in *Eur J Nutr* of 9 crossover trials and 3 parallel trials demonstrated that inorganic nitrate and beetroot consumption was associated with an improvement in vascular function ( $P < 0.001$ ). The effect on EF was significantly associated with the dose of inorganic nitrate ( $P < 0.001$ ), age ( $P = 0.02$ ), baseline BMI ( $P = 0.05$ ) and systolic BP ( $P = 0.02$ ). Review suggests that inorganic nitrate and beetroot supplementation was associated with beneficial effects on EF. These effects appear to be reduced in older subjects and in subjects with greater cardiometabolic risk.

## MUSCLE HEALTH

**Hypoenergetic diet-induced reductions in myofibrillar protein synthesis are restored with resistance training and balanced daily protein ingestion in older men.** Spread protein throughout the day for muscle gain and weight loss. Nestlé study published in *Am J Physiology* shows that during energy restriction in overweight/obese older men a balanced consumption of protein (25% protein/meal, ~30 g/meal; 4x/d) stimulated muscle protein synthesis (by 20%) more effectively than traditional, skewed protein intake distribution and contributed to fat weight loss. Quantity and distribution of protein consumed along with resistance training would be key to preserving muscle, especially among sarcopenic obese adults, and institutionalized adults.

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### **Protein Ingestion before Sleep Increases Muscle Mass and Strength Gains during Prolonged Resistance-Type Exercise Training in Healthy Young Men.**

Protein ingestion before sleep increases muscle protein synthesis rates during overnight recovery from an exercise bout. It is unclear whether dietary protein ingestion before sleep can effectively augment the muscle adaptive response to resistance-type exercise training. Study in *J Nutr* assessed the impact of dietary protein supplementation before sleep on muscle mass and strength gains during resistance-type exercise training. 44 young men ( $22 \pm 1$  y) were randomly assigned to a progressive, 12-wk resistance exercise training program. One group consumed a protein supplement containing 27.5 g of protein, 15 g of carbohydrate, and 0.1 g of fat every night before sleep. The other group received a non-caloric placebo. Muscle strength increased after resistance exercise training to a significantly greater extent in the protein-supplemented (PRO) group than in the placebo-supplemented (PLA) group (+164 kg and +130 kg, respectively;  $P < 0.001$ ). Quadriceps muscle cross-sectional area increased in both groups over time ( $P < 0.001$ ), with a greater increase in the PRO group than in the PLA group (+8.4 cm<sup>2</sup> vs. +4.8 cm<sup>2</sup>, respectively;  $P < 0.05$ ). Both type I and type II muscle fiber size increased after exercise training ( $P < 0.001$ ), with a greater increase in type II muscle fiber size in the PRO group (+2319  $\mu\text{m}^2$ ) than in the PLA group (+1017  $\mu\text{m}^2$ ;  $P < 0.05$ ). Protein ingestion before sleep represents an effective dietary strategy to augment muscle mass and strength gains during resistance exercise training in young men.

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## **Weight Management**

**Consuming High-Protein Soy Snacks Affects Appetite Control, Satiety, and Diet Quality in Young People and Influences Select Aspects of Mood and**



**Cognition.** DuPont study in *AJCN* showed afternoon snacking, particularly high protein soy foods, improves appetite, satiety, and diet quality in adolescents, while beneficially influencing aspects of mood and cognition. Study compared 1088 kJ of high-protein (HP) or high-fat (HF) afternoon snacks vs. no snacking on appetite, food intake, mood, and cognition. 31 healthy adolescents (17y) consumed the snacks for 3 d: HP snack (26 g of protein/6 g of fat per 27 g of carbohydrates), HF snack (4 g of protein/12 g of fat per 32 g of carbohydrates), and no snack (NoS). HP, but not HF, delayed eating initiation vs. NoS ( $P < 0.05$ ). Both snacks reduced appetite vs. NoS ( $P < 0.001$ ) with HP eliciting greater reductions than HF ( $P < 0.05$ ). Although no treatment differences in daily energy intake were detected, HP led to greater protein consumption than NoS ( $P < 0.05$ ) and greater protein and lower fat consumption than HF (both,  $P < 0.05$ ). HP led to fewer HF/high-sugar evening snacks than NoS ( $P < 0.01$ ) and HF ( $P = 0.09$ ). HP tended to reduce confusion-bewilderment ( $P = 0.07$ ) and increase cognitive flexibility ( $P = 0.09$ ).

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## Scientific Conferences & Tradeshows

### Conference Attendance, Presentations & Exhibits

- Experimental Biology 2015
- ESPGHAN 2015
- NDC INDI Sports Nutrition Symposium
- Functional Ingredients Vietnam
  
- Kerry Vietnam Booth
- Sebastiano Pagano: *Solving the Taste Challenge in Beverage & Savoury Products*
- John Reilly: *Where Taste Meets Nutrition*

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