

## Metabolic Syndrome

### Glycemic Index, Glycemic Load, and Prevalence of the Metabolic Syndrome in the Cooper Center Longitudinal Study

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**Significance:** A lifestyle that includes a low glycemic diet can improve metabolic risk profiles in men and women.

This cross-sectional study examined whether glycemic index (GI) and glycemic load (GL) were associated with prevalent metabolic syndrome (MetS) and its components after adjustment for cardiorespiratory fitness in 1775 women and 9137 men. Prevalence of MetS was 24% in men and 9% in women. A positive association across quintiles of GI and MetS, elevated triglycerides, and low HDL-C in men was observed in the fully adjusted model ( $P$  for trend  $< 0.05$ ). In women, GI was positively associated with large waist girth, low HDL-C, and elevated triglycerides ( $P$  for trend  $< 0.05$  for all) after multivariate adjustment including cardiorespiratory fitness. GL was positively associated with elevated triglycerides and low HDL-C ( $P$  for trend  $< 0.0001$ ) and inversely associated with prevalence of large waist girth and elevated glucose ( $P$  for trend  $< 0.0001$ ) in men. Among women, GL was positively associated with elevated triglycerides ( $P$  for trend = 0.04) and low HDL-C ( $P$  for trend  $< 0.0001$ ) in the multivariate model including cardiorespiratory fitness.

## Cardiovascular Disease

### Skipping Breakfast: Longitudinal Associations with Cardiometabolic Risk Factors in the Childhood Determinants of Adult Health Study

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**Significance:** Skipping breakfast over a long period may have detrimental effects on cardiometabolic health.

This study examined longitudinal associations of breakfast skipping (not eating between 0600 and 0900) in childhood and adulthood with cardiometabolic risk factors in adulthood. Participants were classified into 4 groups: skipped breakfast in neither childhood nor adulthood ( $n=1359$ ), skipped breakfast only in childhood ( $n=224$ ), skipped breakfast only in adulthood ( $n=515$ ), and skipped breakfast in both childhood and adulthood ( $n=86$ ). After

adjustment for age, sex, and sociodemographic and lifestyle factors, participants who skipped breakfast in both childhood and adulthood had a larger waist circumference (mean difference: 4.63cm; 95%CI: 1.72-7.53 cm) and higher fasting insulin (mean difference: 2.02mU/L; 95%CI: 0.75-3.29 mU/L), total cholesterol (mean difference: 0.40mmol/L; 95%CI: 0.13-0.68 mmol/L), and LDL-cholesterol (mean difference: 0.40mmol/L; 95%CI: 0.1-0.64 mmol/L) concentrations than did those who ate breakfast at both time points.

## Lipids

### The Effects of Phytosterols Present in Natural Food Matrices on Cholesterol Metabolism and LDL-Cholesterol: A Controlled Feeding Trial

X. Lin, S.B. Racette, M. Lefevre, C.A. Spearie, M. Most, L. Ma, R.E. Ostlund  
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**Significance:** Intrinsic phytosterols at levels present in a healthy diet are biologically active and have large effects on whole-body cholesterol metabolism not reflected in circulating LDL.

This randomized, crossover feeding trial tested the hypothesis that intrinsic phytosterols present in unmodified foods alter whole-body cholesterol metabolism. Each subject (n=20) consumed two diets for 4 weeks each. The diets differed in phytosterol content (phytosterol-poor diet, 126 µg phytosterols/2000 kcal; phytosterol-abundant diet, 449 µg phytosterols/2000 kcal), but were otherwise matched for nutrient content. The phytosterol-abundant diet resulted in lower cholesterol absorption (54.2±2.2% (95%CI = 50.5%, 57.9%) vs 73.2±1.3% (69.5%, 76.9%), P<0.0001) and 79% higher fecal cholesterol excretion (1322±112 (1083.2, 1483.3) vs 739±97 µg/day (530.1, 930.2), P<0.0001) relative to the phytosterol-poor diet. Plasma lathosterol/cholesterol ratio rose by 82% (from 0.71±0.11 (0.41, 0.96) to 1.29±0.14 µg/mg (0.98, 1.53), P<0.0001).

## Sugars

### Misperceptions of Peer Norms as a Risk Factor for Sugar-Sweetened Beverage Consumption among Secondary School Students

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**Significance:** Misperceptions of peer sugar-sweetened beverage consumption norms may contribute to intake of excess calories, potentially contributing to adolescent obesity.

The extent of misperception about peer sugar-sweetened beverage consumption (SSBC) norms and the association of perceived peer norms with personal self-reported consumption were examined among 3,831 6th- to 12th-grade students. Students' personal perception of the daily SSBC norm in their school within their grade (School Grade

group) was compared with aggregate self-reports of daily SSBC for each School Grade group. The median daily SSBC from personal reports was one beverage in 24 of 29 School Grade groups, two beverages in four School Grade groups, and three beverages in one School Grade group. Seventy-six percent of students overestimated the daily norm in their School Grade group, with 24% perceiving the norm to be  $\geq 3$  beverages/day. Fixed-effects multiple regression analysis showed that the perceived peer SSBC norm was much more positively associated with personal consumption than was the estimated actual SSBC norm per School Grade group. Misperceptions of peer SSBC norms were pervasive and associated with unhealthy SSBC behavior.

### **Risk Associations of Obesity with Sugar-Sweetened Beverages and Lifestyle Factors in Chinese: the ‘Better Health for Better Hong Kong’ Health Promotion Campaign**

G.T. Ko, W-Y. So, C-C. Chow, P.T. Wong, S.D. Tong, S.S. Hui, et al. on behalf of the BHBHK Research Committee

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Link to full text: <http://www.nature.com/ejcn/journal/v64/n12/pdf/ejcn2010181a.pdf>

**Significance:** Sugar sweetened beverage consumption in women and physical inactivity, smoking and high meat intake in men were associated with obesity.

The association between sugar-sweetened beverage (SSB) intake, lifestyle factors and obesity in Hong Kong Chinese was examined in a cross-sectional survey with 2295 (49.6%) men and 2334 (50.4%) women. SSB intake was based on a 1-week recall (1 unit of SSB=250 ml, frequent SSB consumption=daily intake 2 units). Men were more likely than women to smoke, drink alcohol, frequently consume SSB (20.5 vs. 9.5%) and ate more meat portions (2.32 $\pm$ 0.57 vs. 2.15 $\pm$ 0.44) but were physically more active (no exercise: 31.2 vs. 39.2%) (*P*-values: all <0.001). After adjusting for confounding factors, frequent SSB intake remained independently associated with obesity in women (odds ratio (95% CI)=1.86 (1.36–2.55)) while physical inactivity (1.84 (1.41–2.39) for none vs. regular), smoking (1.29 (1.05–1.58)) and high daily meat intake (2.15 (1.36, 3.42)) predicted obesity in men.

## **Glycemic Index**

### **A Low–Glycemic Index Diet Combined with Exercise Reduces Insulin Resistance, Postprandial Hyperinsulinemia, and Glucose-Dependent Insulinotropic Polypeptide Responses in Obese, Prediabetic Humans**

T.P.J. Solomon, J.M. Haus, K.R. Kelly, M.D. Cook, J. Filion, M. Rocco, et al.

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Link to full text: <http://www.ajcn.org/content/92/6/1359.full>

**Significance:** The gut is important in mediating the effects of a low glycemic index diet on type 2 diabetes risk reduction.

The effect of a low-glycemic index (GI) diet and exercise intervention on glucose metabolism and insulin secretion in obese, prediabetic individuals was examined in 22 participants who underwent a 12-wk exercise-training intervention (1 h/d for 5 d/wk at  $\approx 85\%$  of maximum heart rate). Subjects were randomly assigned to receive either a low-GI diet (LoGIX;  $40 \pm 0.3$  units) or a high-GI diet (HiGIX;  $80 \pm 0.6$  units). Both groups lost equal amounts of body weight ( $-8.8 \pm 0.9\%$ ) and adiposity and showed similar improvements in peripheral tissue ( $76.2 \pm 14.9\%$ ) and hepatic insulin sensitivity ( $27.1 \pm 7.1\%$ ) (all  $P < 0.05$ ). However, oral glucose-induced insulin secretion was reduced only in the LoGIX group ( $6.59 \pm 0.86$  nmol in the prestudy compared with  $4.70 \pm 0.67$  nmol in the poststudy,  $P < 0.05$ ), which was a change related to the suppressed postprandial response of glucose-dependent insulinotropic polypeptide. When corrected for changes in  $\beta$  cell glucose exposure, changes in insulin secretion were attenuated in the LoGIX group but became significantly elevated in the HiGIX group.

## Food Allergy

### **Guidelines for the Diagnosis and Management of Food Allergy in the United States: Summary of the NIAID-Sponsored Expert Panel Report**

J.A. Boyce, A. Assa'ad, A.W. Burks, S.M. Jones, H.A. Sampson, R.A. Wood, et al.  
*Journal of Allergy and Clinical Immunology*, Vol. 126, No. 6; pp. 1105-1118, 2010  
Link to full text: [http://www.jacionline.org/article/S0091-6749\(10\)01569-1/fulltext](http://www.jacionline.org/article/S0091-6749(10)01569-1/fulltext)

**Significance:** This report presents best practice clinical guidelines for the diagnosis and management of food allergy in the U.S.

Food allergy (FA) is an important public health problem that affects adults and children and may be increasing in prevalence. Despite the risk of severe allergic reactions and even death, there is no current treatment for FA: the disease can only be managed by allergen avoidance or treatment of symptoms. Moreover, the diagnosis of FA may be problematic, given that nonallergic food reactions, such as food intolerance, are frequently confused with FAs. Due to these concerns, the National Institute of Allergy and Infectious Diseases and more than 30 professional organizations, federal agencies, and patient advocacy groups, led the development of “best practice” clinical guidelines for the diagnosis and management of FA. The Guidelines were developed by and designed for medical practitioners and researchers in various fields of medicine. They focus on diseases that are defined as FA and include both IgE-mediated reactions to food and some non-IgE-mediated reactions to food.

### **Diagnosis and Rationale for Action against Cow's Milk Allergy (DRACMA): A summary report**

A. Fiocchi, H.J. Schünemann, J. Brozek, P. Restani, K. Beyer, R. Troncone, et al.  
*Journal of Allergy and Clinical Immunology*, Vol. 126, No. 6; pp. 1119-1128, 2010  
Link to full text: [http://www.jacionline.org/article/S0091-6749\(10\)01578-2/fulltext](http://www.jacionline.org/article/S0091-6749(10)01578-2/fulltext)

**Significance:** This report summarizes the first consensus-based approach to the management of cow's milk allergy.

At the 2nd Milan Meeting on Adverse Reactions to Bovine Proteins, the contributions in allergen science, epidemiology, natural history, evidence-based diagnosis, and therapy synthesized in the World Allergy Organization Diagnosis and Rationale for Action against Cow's Milk Allergy guidelines were presented. A consensus emerged between discussants that cow's milk allergy management should reflect not only basic research but also a newer and better appraisal of the literature in the light of the values and preferences shared by patients and their caregivers in partnership. In the field of diagnosis, atopy patch testing and microarray technology have not yet evolved for use outside the research setting. With foreseeable breakthroughs (e.g., immunotherapy and molecular diagnosis) in the offing, the step ahead in leadership can only stem from a worldwide organization implementing consensus-based clinical practice guidelines to diffuse and share clinical knowledge.

### **Maternal Consumption of Peanut during Pregnancy is associated with Peanut Sensitization in Atopic Infants**

S.H. Sicherer, R.A. Wood, D. Stablein, R. Lindblad, A.W. Burks, A.H. Liu, et al.

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Link to full text: [http://www.jacionline.org/article/S0091-6749\(10\)01334-5/fulltext](http://www.jacionline.org/article/S0091-6749(10)01334-5/fulltext)

**Significance:** Maternal ingestion of peanut during pregnancy was strongly associated with a high level of peanut sensitization.

This study identified factors associated with peanut sensitization in 503 infants, 3-15 months of age, with likely milk or egg allergy but no previous diagnosis of peanut allergy. A total of 308 had experienced an immediate allergic reaction to cow's milk and/or egg, and 204 had moderate to severe atopic dermatitis and a positive allergy test to milk and/or egg. A peanut IgE level  $\geq 5$  kUA/L was considered likely indicative of peanut allergy. A total of 140 infants had peanut IgE levels  $\geq 5$  kUA/L. Multivariate analysis showed frequent peanut consumption during pregnancy (OR=2.9; 95%CI, 1.7-4.9), IgE levels to milk ( $P=.001$ ) and egg ( $P<.001$ ), male sex ( $P=.02$ ), and nonwhite race ( $P=.02$ ) to be the primary factors associated with peanut IgE  $\geq 5$  kUA/L. Frequency of peanut consumption during pregnancy and breast-feeding showed a dose-response association with peanut IgE  $\geq 5$  kUA/L, but only consumption during pregnancy was a significant predictor. Among 71 infants never breast-fed, frequent consumption of peanut during pregnancy was strongly associated with peanut IgE  $\geq 5$  kUA/L (OR=4.99, 95%CI, 1.69-14.74).