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Cardiovascular Disease

The Healthy Beverage Index Is Associated with Reduced Cardiometabolic Risk in US Adults: A Preliminary Analysis

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Journal of the Academy of Nutrition and Dietetics, Vol. 115, No. 10; pp. 1682–1689.e2, 2015

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Link to full text: [Click here](#)

Significance: The healthy beverage index could be a valuable tool to evaluate overall beverage intake quality in adults.

This study developed a scoring algorithm, similar to the Healthy Eating Index-2010, for assessing beverage intake quality among US adults and examined the association between overall beverage quality and cardiometabolic risk. The scoring algorithm was developed using recommendations for total beverage energy, meeting fluid requirements, and consuming within recommended limits for beverage subgroups (e.g., low-fat milk, fruit juice). The final scoring system, which consisted of 10 components, was applied to the average of 2 days of 24-hour dietary intake data for adults from the NHANES, 2005-2010. The 10-item index had a mean score of 63 ± 16 from a possible 100 points. Each 10-point higher healthy beverage index (HBI) score was associated with lower odds ratios for hypertension (men and women); high fasting insulin level, high fasting glucose level, and high LDL-cholesterol level (women and overweight/obese men), low HDL-cholesterol level (women), and high C-reactive protein level (men). Positive associations were found between higher HBI scores and more favorable lipid profiles; hypertension risk; and, among men, C-reactive protein levels.

Dietary Almonds Increase Serum HDL Cholesterol in Coronary Artery Disease Patients in a Randomized Controlled Trial

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Journal of Nutrition, Vol. 145, No. 10; pp. 2287–2292, 2015

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Link to full text: [Click here](#)

Significance: A low dose of almonds (10 g/d) consumed before breakfast can increase HDL-cholesterol, in addition to improving other markers of abnormal lipid metabolism, in coronary artery disease patients with low initial HDL-cholesterol.

This clinical trial was designed to test the effect of almond supplementation on low HDL-cholesterol in 150 coronary artery disease (CAD) patients with serum LDL-cholesterol ≤ 100 mg/dL and HDL-cholesterol ≤ 40 mg/dL in men and ≤ 50 mg/dL in women. Subjects were randomly assigned to 1 of the following 3 groups (50/group): the no-intervention group (NI), the Pakistani almonds group (PA),

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and the American almonds group (AA). Almonds significantly increased HDL-cholesterol. At weeks 6 and 12, HDL-cholesterol was 12–14% and 14–16% higher, respectively, in the PA and AA than their respective baselines. In line with previous reports, serum concentrations of total cholesterol, triglycerides, LDL-cholesterol, and VLDL-cholesterol; total-to-HDL and LDL-to-HDL cholesterol ratios, and the atherogenic index were reduced in both the PA and AA at weeks 6 and 12 compared with baseline ($P < 0.05$). Effects on serum lipids did not differ between the 2 almond groups. Dietary patterns, body weight, and blood pressure did not change in any of the 3 groups during the trial.

Cardiometabolic Risks and Severity of Obesity in Children and Young Adults

A.C. Skinner, E.M. Perrin, L.A. Moss, J.A. Skelton

New England Journal of Medicine, Vol. 373, No. 14; pp. 1307–1317, 2015

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Link to full text: [Click here](#)

Significance: Severe obesity in children and young adults was associated with an increased prevalence of cardiometabolic risk factors, particularly among boys and young men.



A cross-sectional analysis of data from overweight or obese children and young adults 3 to 19 years of age who were included in NHANES from 1999 through 2012 was used to assess the prevalence of multiple cardiometabolic risk factors according to the severity of obesity. Among 8579 children and young adults with BMI at the ≥ 85 th percentile, 46.9% were overweight, 36.4% had class I obesity, 11.9% had class II obesity, and 4.8% had class III obesity. Mean values for some, but not all, cardiometabolic variables were higher with greater severity of obesity in both males and females, and the values were higher in males than in females; for HDL-cholesterol, the mean values were lower with greater severity of obesity. Multivariable models that controlled for age, race or ethnic group, and sex showed that the greater the severity of obesity, the higher the risks of a low HDL-cholesterol level, high systolic and diastolic blood pressures, and high triglyceride and glycated hemoglobin levels.

WHO Guidelines For a Healthy Diet and Mortality From Cardiovascular Disease in European and American Elderly: The CHANCES Project

N. Jankovic, A. Geelen, M.T. Streppel, L.C.P.G.M. de Groot, J.C. Kiefte-de Jong, P. Orfanos, et al.

American Journal of Clinical Nutrition, Vol. 102, No. 4; pp. 745–756, 2015

doi: 10.3945/ajcn.114.095117

Link to full text: [Click here](#)

Significance: Greater adherence to the WHO dietary guidelines was not significantly associated with cardiovascular disease mortality, but the results varied across regions.

The objective of this study was to generate evidence on the association between WHO dietary recommendations and mortality from cardiovascular disease (CVD), coronary artery disease (CAD), and stroke in the elderly aged ≥ 60 y. Data from 10 prospective cohort studies from Europe and the United States were analyzed that comprised a total of 281,874 men and women free from chronic diseases at baseline. Components of the Healthy Diet Indicator (HDI) included saturated fatty acids, polyunsaturated fatty acids, mono- and disaccharides, protein, cholesterol,

dietary fiber, and fruit and vegetables. During 3,322,768 person-years of follow-up, 12,492 people died of CVD. An increase of 10 HDI points (complete adherence to an additional WHO guideline) was, on average, not associated with CVD mortality (HR: 0.94; 95% CI: 0.86, 1.03), CAD mortality (HR: 0.99; 95% CI: 0.85, 1.14), or stroke mortality (HR: 0.95; 95% CI: 0.88, 1.03). However, after stratification of the data by geographic region, adherence to the HDI was associated with reduced CVD mortality in the southern European cohorts (HR: 0.87; 95% CI: 0.79, 0.96; I² = 0%) and in the US cohort (HR: 0.85; 95% CI: 0.83, 0.87; I² = not applicable).

Diabetes

Acute Cocoa Supplementation Increases Postprandial HDL Cholesterol and Insulin in Obese Adults with Type 2 Diabetes after Consumption of a High-Fat Breakfast

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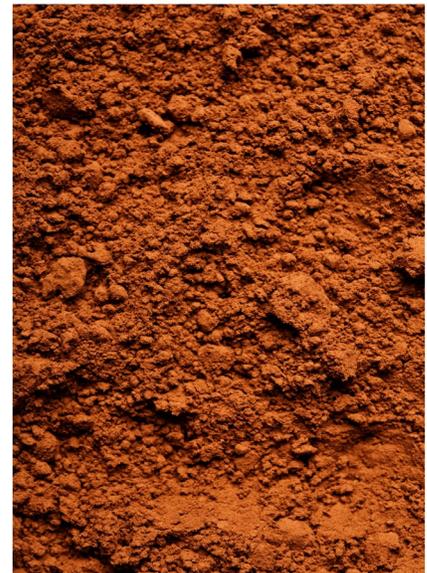
Journal of Nutrition, Vol. 145, No. 10; pp. 2325–2332, 2015

doi: 10.3945/jn.115.215772

Link to full text: [Click here](#)

Significance: Acute cocoa supplementation showed no clear overall benefit in type 2 diabetic patients after a high-fat fast-food–style meal challenge.

This study tested the hypothesis that cocoa reduces metabolic stress in 18 obese adults with type 2 diabetes (T2D) after a high-fat fast-food–style meal. Subjects were randomly assigned to receive cocoa beverage (960 mg total polyphenols; 480 mg flavanols) or flavanol-free placebo (110 mg total polyphenols; <0.1 mg flavanols) with a high-fat fast-food–style breakfast [766 kcal, 50 g fat (59% energy)] in a crossover trial. After an overnight fast (10–12 h), participants consumed the breakfast with cocoa or placebo, and a blood sample was obtained to measure markers of metabolic stress and vascular measurements at 0.5, 1, 2, 4, and 6 h postprandial on each study day. Over the 6-h study, and specifically at 1 and 4 h, cocoa increased HDL-cholesterol vs. placebo (overall Δ : 1.5 \pm 0.8 mg/dL; $P \leq 0.01$). Cocoa increased serum insulin concentrations overall (Δ : 5.2 \pm 3.2 mU/L; $P < 0.05$) and specifically at 4 h but had no overall effects on insulin resistance (except at 4 h, $P < 0.05$). Large artery elasticity was overall lower after cocoa vs. placebo (Δ : -1.6 \pm 0.7 mL/mm Hg; $P < 0.05$), with the difference significant only at 2 h.



Comparison of Low- and High-Carbohydrate Diets for Type 2 Diabetes Management: A Randomized Trial

J. Tay, N.D. Luscombe-Marsh, C.H. Thompson, M. Noakes, J.D. Buckley, G.A. Wittert, et al.

American Journal of Clinical Nutrition, Vol. 102, No. 4; pp. 780–790, 2015

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Link to full text: [Click here](#)

Significance: The low- and high-carbohydrate diets achieved substantial weight loss and reduced HbA1c and fasting glucose; however, the low-carbohydrate diet achieved greater improvements in lipid profile, blood glucose stability, and reductions in diabetes medication requirements.

In this randomized controlled trial, the effects of a very-low-carbohydrate, high-unsaturated fat, low-saturated fat (LC) diet were compared with a high-carbohydrate, low-fat (HC) diet on glycemic control and cardiovascular disease risk factors in 115 obese adults with type 2 diabetes after 52 wk. Subjects were randomly

assigned to consume either a hypocaloric LC diet [14% of energy as carbohydrate (carbohydrate <50 g/d), 28% of energy as protein, and 58% of energy as fat (<10% saturated fat)] or an energy-matched HC diet [53% of energy as carbohydrate, 17% of energy as protein, and 30% of energy as fat (<10% saturated fat)] combined with supervised aerobic and resistance exercise (60 min; 3 d/wk). Results showed that both groups achieved similar completion rates (LC diet: 71%; HC diet: 65%) and mean reductions in weight, blood pressure, HbA1c, fasting glucose, and LDL-cholesterol (P-diet effect ≥ 0.10). Compared with the HC-diet group, the LC-diet group achieved greater mean reductions in the diabetes medication score (P=0.02), glycemic variability assessed by measuring the continuous overall net glycemic action-1 (P=0.003), and triglycerides (P=0.001) and greater mean increases in HDL-cholesterol (P=0.002).

Sugars

Consumption of Honey, Sucrose, and High-Fructose Corn Syrup Produces Similar Metabolic Effects in Glucose-Tolerant and -Intolerant Individuals

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Link to full text: [Click here](#)



Significance: Daily intake of 50 g carbohydrate from honey, sucrose, or high fructose corn syrup for 14 d resulted in similar effects on measures of glycemia, lipid metabolism, and inflammation.

This study compared the effects of chronic consumption of 3 nutritive sweeteners (honey, sucrose, and high-fructose corn syrup containing 55% fructose [HFCS55]) on circulating glucose, insulin, lipids, and inflammatory markers; body weight; and blood pressure in individuals with normal glucose tolerance (GT; n=28; mean age 38.9 \pm 3.6; mean BMI 26 \pm 0.8) and impaired glucose tolerance (IGT; n=27; mean age 52.1 \pm 2.7 y; mean BMI 31.5 \pm 1.0). Body weight and serum glucose, insulin, inflammatory markers, and total and LDL-cholesterol concentrations were significantly higher in the IGT group than in the GT group at baseline. Glucose, insulin, homeostasis model assessment of insulin resistance, and the oral-glucose-tolerance tests incremental areas under the curve for glucose or insulin were significantly higher in the IGT group compared with the GT group. Diastolic blood pressure was significantly lower in response to sugar intake across all treatments. An increase in high-sensitivity C-reactive protein was observed in the IGT group in response to all sugars. Triglyceride (TG) concentrations increased significantly from pre- to post-treatment in response to all sugars tested.

Metabolic Syndrome

Consumption of Yogurt, Low-Fat Milk, and Other Low-Fat Dairy Products Is Associated with Lower Risk of Metabolic Syndrome Incidence in an Elderly Mediterranean Population

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Journal of Nutrition, Vol. 145, No. 10; pp. 2308–2316, 2015

doi: 10.3945/jn.115.214593

Link to full text: [Click here](#)

Significance: Higher consumption of low-fat dairy products, yogurt and low-fat milk was associated with a reduced risk of metabolic syndrome in individuals at high cardiovascular disease risk from a Mediterranean population.

This prospective study evaluated the associations between consumption of dairy products (total and different subtypes) and incident metabolic syndrome (MetS) in a Mediterranean population at high cardiovascular disease risk. Men and women (55–80 y old) without MetS at baseline (n=1868) were recruited between October 2003 and June 2009 and followed up until December 2010. Multivariable-adjusted HRs of MetS or its components were estimated for each of the 2 upper tertiles (vs. the lowest one) of mean consumption of dairy products during the follow-up. During a median follow-up of 3.2 y, 930 incident MetS cases were documented. In the multivariable-adjusted model, HRs (95% CIs) of MetS for the comparison of extreme tertiles of dairy product consumption were 0.72 (0.61, 0.86) for low-fat dairy, 0.73 (0.62, 0.86) for low-fat yogurt, 0.78 (0.66, 0.92) for whole-fat yogurt, and 0.80 (0.67, 0.95) for low-fat milk. The respective HR for cheese was 1.31 (1.10, 1.56).

Type and Amount of Dietary Protein in the Treatment of Metabolic Syndrome: A Randomized Controlled Trial

A.M. Hill, K.A.H. Jackson, M.A. Roussell, S.G. West, P.M. Kris-Etherton

American Journal of Clinical Nutrition, Vol. 102, No. 4; pp. 757–770, 2015

doi: 10.3945/ajcn.114.104026

Link to full text: [Click here](#)

Significance: Weight loss was the primary modifier of metabolic syndrome resolution regardless of protein source or amount.

This study compared 3 diets varying in type (animal vs. plant) and amount of protein on metabolic syndrome (MetS) criteria. Sixty-two overweight adults with MetS consumed a healthy American diet for 2 wk before being randomly allocated to either a modified Dietary Approaches to Stop Hypertension (DASH) diet rich in plant protein (18% protein, two-thirds plant sources, n=9 males, n=12 females), a modified DASH diet rich in animal protein (Beef in an Optimal Lean Diet: 18.4% protein, two-thirds animal sources, n=9 males, n=11 females), or a moderate-protein diet (Beef in an Optimal Lean Diet Plus Protein: 27% protein, two-thirds animal sources, n=10 males, n=11 females). Diets were compared across 3 phases of energy balance: 5 wk of controlled (all foods provided) weight maintenance (WM), 6 wk of controlled weight loss (minimum 500-kcal/d deficit) including exercise (WL), and 12 wk of prescribed, free-living weight loss (FL). All groups achieved ~5% weight loss at the end of the WL phase and maintained it through FL, with no between-diet differences (WM compared with WL, FL, $P < 0.0001$; between diets, $P = \text{NS}$). All MetS criteria decreased independent of diet composition (main effect of phase, $P < 0.01$; between diets, $P = \text{NS}$). After WM, all groups had a MetS prevalence of 80–90% [healthy American diet (HAD) compared with WM, $P = \text{NS}$], which decreased to 50–60% after WL and was maintained through FL (HAD, WM vs WL, FL, $P < 0.01$).

Food Allergy

Safety, Clinical, and Immunologic Efficacy of a Chinese Herbal Medicine (Food Allergy Herbal Formula-2) For Food Allergy

J. Wang, S.M. Jones, J.A. Pongracic, Y. Song, N. Yang, S.H. Sicherer, et al.



Journal of Allergy and Clinical Immunology, Vol. 136, No. 4; pp. 962–970.e1, 2015

doi: 10.1016/j.jaci.2015.04.029

Link to full text: [Click here](#)

Significance: FAHF-2 is a safe herbal medication for subjects with food allergy and shows favorable *in vitro* immunomodulatory effects; however, efficacy for improving tolerance to food allergens was not demonstrated at the dose and duration used.

This double-blind, randomized, placebo-controlled study evaluated the safety and effectiveness of Food Allergy Herbal Formula-2 (FAHF-2), a 9-herb formula based on traditional Chinese medicine that blocks peanut-induced anaphylaxis in a murine model, as a treatment for food allergy. Sixty-eight subjects aged 12 to 45 years with allergies to peanut, tree nut, sesame, fish, and/or shellfish, which were confirmed by baseline double-blind, placebo-controlled oral food challenges (DBPCFCs), received FAHF-2 (n=46) or placebo (n=22). After 6 months of therapy, subjects underwent DBPCFCs. Treatment was well tolerated, with no serious adverse events. By using intent-to-treat analysis, the placebo group had a higher eliciting dose and cumulative dose ($P=.05$) at the end-of-treatment DBPCFC. There was no difference in the requirement for epinephrine to treat reactions ($P=.55$). There were no significant differences in allergen-specific IgE and IgG4 levels, cytokine production by PBMCs, or basophil activation between the active and placebo groups. *In vitro* immunologic studies performed on subjects' baseline PBMCs incubated with FAHF-2 and food allergen produced significantly less IL-5, greater IL-10 levels, and increased numbers of regulatory T cells than untreated cells.

Sugar-Sweetened Beverages

Sugar-Sweetened Beverage Consumption and Incident Hypertension: A Systematic Review and Meta-Analysis of Prospective Cohorts

V.H. Jayalath, R.J. de Souza, V. Ha, A. Mirrahimi, S. Blanco-Mejia, M. Di Buono, et al.

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doi: 10.3945/ajcn.115.107243

Link to full text: [Click here](#)

Significance: Sugar-sweetened beverages were associated with a modest risk of developing hypertension in 6 cohorts.

This systematic review and meta-analysis of prospective cohort studies quantified the association between fructose-containing sugar-sweetened beverages (SSBs) and risk of hypertension. MEDLINE, Embase, Cumulative Index to Nursing and Allied Health Literature, and the Cochrane registry were searched from conception through 11 November 2014. Six prospective cohort studies (n=240,508) with 79,251 cases of hypertension observed over $\geq 3,197,528$ person-years of follow-up were included. SSB consumption significantly increased the risk of developing hypertension by 12% (risk ratio: 1.12; 95% CI: 1.06, 1.17) with evidence of significant heterogeneity ($I_2 = 62\%$, $P = 0.02$) when highest [≥ 1 serving (6.7, 8, or 12 oz)/d] and lowest (none) quantiles of intake were compared. With the use of a dose-response analysis, a significant 8.2% increase in risk of every additional SSB per day from none to ≥ 1 SSB/d ($\beta=0.0027$, $P<0.001$) was identified.

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