



**ABSTRACTS**

**BEHAVIORAL HEALTH**

**Effective behavior change techniques for physical activity and healthy eating in overweight and obese adults; systematic review and meta-regression analyses.**

Samdal G, Eide G, Barth T, et al. *Int J Behav Nutr.* 2017; <http://dx.doi.org/10.1186/s12966-017-0494-y>.

The researchers aim to synthesize the evidence of behavioral interventions that seek to improve physical activity and healthy eating among overweight adults in both the short and long term, as well as examine the effectiveness across studies depending on behavior change techniques (BCT). To study this, the researchers employed a systematic review and meta-regression analysis. The review included 48 studies containing 82 outcome reports. The studies utilized included 46 random control trials and 2 cluster random control trials with a total pooled population of 11,183 participants. Eligible studies include published, peer-reviewed, randomized and cluster randomized controlled trials concerning behavior change interventions providing baseline and/or follow-up data at minimum 12 weeks after randomization. The interventions had to include changes in diet, physical activity, compared-to-usual care, waiting list control, or less intensive interventions. Other inclusionary criteria were: A mean/median age over 40 years and a body mass index over 30; only interventions applying behavior and/or cognitive strategies used; only papers in Scandinavian languages or English. The search was performed using the electronic databases MEDLINE, PsycInfo, and EMBASE in cooperation with the Medicine and Dentistry Library at University of Bergen, Norway. Articles published between January 2007 and April 2013 were searched using terms: *psychological interventions, healthy eating, diet, physical activity, walking, and exercise*. Manual searches were also performed in the *International Journal of Obesity, International Journal of Behavioral Nutrition and Physical Activity, Obesity Research and Clinical Practice*, and the *International Journal of Behavioral Medicine*. IBM SPSS Statistics was used to record meta-data and prepare for the meta-analyses in Stata 14 (StataCorp, 2015). The researchers report that BCTs utilizing goal setting and self-monitoring of behavior are particularly

effective when counseling overweight and obese adults.

**BUSINESS & INDUSTRY**

**To what extent do food purchases reflect shoppers' diet quality and nutrient intake?**

Appelhans B, French S, Tangney C, et al. *Int J Behav Nutr Phys Act.* 2017; doi: <http://dx.doi.org/10.1186/s12966-017-0502-2>.

Researchers examined the hypothesis that nutrient densities and Healthy Eating Index-2010 diet quality scores from 2 weeks of household food purchases would agree with estimates from three associated 24-hour diet recalls in adult food purchasers. A secondary consideration was the agreement in terms of participant characteristics. A cross-sectional study was utilized with a 196-participant sample. The sample came from Chicago, IL, households in the Study of Household Purchasing Patterns, Eating and Recreation (SHoPPER). The sample was: 83.2% female with a mean age of 44 years, 44.4% African American, 11.2% Hispanic/Latino, 31.1% white, 43.4% employed full-time, with a median body mass index of 29.9 and daily energy intake of 1,912. Criteria included being an adult making 75% of the household food purchases. Exclusionary criteria were: nonfluency in English, living outside Chicago, food allergies, dietary restrictions, living in group housing, lacking telephone access, inability to walk two blocks unassisted, serious medical conditions that could interfere with participation, mental illness, unwillingness to meet researchers in home, or unsafe home conditions. Participants collected and annotated receipts for household food and beverage purchases over 14 days. Dietitians visited the homes four times to record the packaging and nutrition labels of the

items, performing 24-hour diet recalls at three of the four visits and one weekend dietary intake recall. The food/beverages purchased were analyzed against the Healthy Eating Index-2010, as was the actual dietary intake. The primary shopper's height, weight, age, sex, ethnicity/race, educational attainment, employment status, household size and composition, tobacco use, and income were all recorded at baseline. Analyses were performed using Stata 13.1 (StataCorp, 2013) and descriptive statistics were calculated to characterize the sample and food purchasing variables. Healthy Eating Index-2010 scores derived from the food purchases showed moderate agreement and minimal bias with the same scores from 24-hour recalls. No significant relationship between the purchases and other variables was reported.

**CLINICAL NUTRITION**

**Diagnostic criteria for severe acute malnutrition among infants aged under 6 mo.**

Mwangome M, Ngari M, Fegan G, et al. *Am J Clin Nutr.* 2017; <http://dx.doi.org/10.3945/ajcn.116.149815>.

The authors examine the association of anthropometric indexes with mortality rates among a large cohort of Kenyan infants aged 1 to 6 months who were at increased risk of short- and long-term mortality due to illnesses resulting in hospitalization. A cohort study was designed to address the issue. A total of 2,882 infants was included in the analysis. The infants were of Kenyan birth, 60% male, and the median age at admission was 3 months. The analysis included all data from all infants aged 4 weeks to 6 months admitted to one Kenyan hospital between January 2007 and December 2013. The post-discharge analysis

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included the subset of infants discharged who were alive and followed up from January 2007 through March 2014. The primary outcomes were inpatient death and death during follow-up 1 year post-discharge. The Kilifi Health and Demographic Surveillance System was utilized to access pertinent data as needed. Statistical analyses were conducted using STATA 13.1 (StataCorp, 2013). Anthropometric z scores were calculated using 2006 World Health Organization growth references grouped into normal and mild, moderate, and severe malnutrition. The authors report finding that mid-upper arm circumference and weight-for-age scores best predicted death in infants under 6 months in age.

## COMMUNITY NUTRITION

### Cost effectiveness of subsidizing fruit and vegetable purchases through the Supplemental Nutrition Assistance Program.

Choi S, Seligman H, Basu S. *Am J Prevent Med.* 2017;52(5):e147-e155.

The authors examine the circumstances under which a fruit and vegetable (F/V) subsidy would be cost effective within the Supplemental Nutrition Assistance Program (SNAP) relative to the general US population. The authors established a cost-effectiveness analysis model using data from a comprehensive meta-analysis studying obesity, type 2 diabetes, myocardial infarction, and stroke. A sample of 10,000 participants was simulated for the study. The simulated sample designed to be nationally representative and was aged 0 to 85 years using National Health and Nutrition Examination Survey (NHANES) 2003-2012 data. A stochastic microsimulation model of obesity, type 2 diabetes, myocardial infarction, and stroke based on the 2015 US general population was used. Model parameters were based on nationally representative SNAP data. The risk of each of the four major health outcomes was estimated before and after a 30% SNAP subsidy was applied to F/V purchases using standard rules. Disease incidence was estimated based on previously validated risk equations incorporating individual risk factors. Following current cost-effectiveness guidelines, costs were integrated over the life course of all simulated individuals from a societal perspective. Food price data were obtained from the US Department of Agriculture Quarterly Food-at-Home Price Database linked to NHANES. Costs were expressed in 2015 US dollars using the Consumer Price Index and discounted at a 3% annual discount rate. All analyses were performed in R, version 3.2.1 (R Foundation, 2015), and in each scenario the model was re-run 10,000 times with repeated Monte Carlo sampling from the probability distributions of

all input parameters to capture uncertainties. The authors suggest nationwide SNAP F/V subsidies would reduce chronic disease morbidity, mortality, and costs over long-term horizons.

## CULINARY

### Cognitive and mood improvements following acute supplementation with purple grape juice in healthy young adults.

Haskell-Ramsay C, Stuart R, Okello J, et al. *Eur J Nutr.* 2017; <http://dx.doi.org/10.1007/s00394-017-1454-7>.

The authors examine the acute cognitive and mood effects of purple grape juice in healthy young adults. A randomized, placebo-controlled, double-blind, counterbalanced-crossover study was designed to address the issue. A sample of 20 participants was utilized. The sample was 65% female with a mean age of 21.05 years, drawn from the United Kingdom. Age range was 18 to 35 years and no participants were pregnant/lactating, had pre-existing medical conditions or history of health issues, current or historic drug/alcohol abuse, or food allergies. The intervention treatment consisted of 200 mL of Welch's purple grape juice and 30 mL of Schweppes blackcurrant flavor cordial. The placebo consisted of 200 mL of Welch's white grape juice plus 10 mL of blackcurrant flavor cordial and 20 mL of cold water. Participants attended two 90-minute sessions in a university laboratory setting between 1 and 3 PM on days separated by 6 to 7 days. Participants consumed one of the two juice mixtures and were given approximately 20 minutes for absorption prior to testing. The process was repeated on the second day session where the type of juice was switched. Participants completed the Bond-Lader mood scales as a measure of mood, as well as the Computerized Mental Performance Assessment System to measure cognitive performance. All statistical analyses were performed on SPSS version 22 (IBM Corp, 2013). The authors report the purple grape juice consumption was associated with improved reaction time and increased calm ratings.

## RESEARCH

### Weight loss and heart failure: A nationwide study of gastric bypass surgery versus intensive lifestyle treatment.

Sundstrom J, Bruze G, Ottosson J, et al. *Circulation.* 2017; <https://doi.org/10.1161/CIRCULATIONAHA.116.025629>.

Researchers test the hypothesis that gastric bypass surgery leads to lower incidences of heart failure compared with lifestyle modification among obese

people. They compare incidence of heart failure in a nationwide registry of obese individuals treated with a structured lifestyle modification program against those in a nationwide quality of care registry for gastric bypass surgery. A cohort study was designed to address this. The study sampled 25,804 individuals treated with gastric bypass surgery and 13,701 with lifestyle modification. The samples were a mean age of 41.3 and 41.5 years old, respectively, 23.7% and 22.8% male, with a mean body weight of 119 kg. The researchers utilized the Scandinavian Obesity Surgery Registry (SOReg) and the Itrim Health Database to access patient information between 2007 and 2012 in the former and 2006 and 2013 in the latter. Inclusion criteria included patients over 18 years of age with a baseline body mass index between 30 and 49.9 who were in the registries. Individuals were excluded if they crossed over the two registries. The gastric bypass surgeries were 96% laparoscopic. The weight-loss program consisted of a liquid-based formula diet of 500 kcal/d for 3 to 10 weeks followed by a 2- to 8-week gradual introduction of normal food. Covariables included were present in the registries: Socioeconomic status, disease history, and drug treatments. Participants were followed up in the National Patient Register and the Causes of Death Register until December 31, 2014. Primary outcome was the first hospitalization for heart failure with a secondary outcome of nonischemic heart failure defined as the first hospitalization of heart failure not preceded by a myocardial infarction. Statistical analyses were performed using Stata 14 (StataCorp, 2014). Researchers reported gastric bypass surgery was associated with about one half the incidence of heart failure compared with the lifestyle modification.

## WELLNESS/PREVENTION

### Change in lifestyle behaviors and diabetes risk: Evidence from a population-based cohort study with 10-year follow-up.

Feldman A, Long G, Johansson I, et al. *Int J Behav Nutr Phys Act.* 2017; doi: <http://dx.doi.org/10.1186/s12966-017-0489-8>.

Researchers aim to quantify the impact of feasible changes in lifestyle behavior on risk for type 2 diabetes among adults. An observational prospective cohort study was designed to address this. A cohort of 35,680 participants was used. The sample was 53.2% female. At baseline, 14.6% was aged 30 years, 42.1% aged 40 years, and 43.3% aged 50 years, and 16.9% had a family history of diabetes. The study took place in Sweden and utilized data and participants as established via the Vast-erbotten Intervention Programme (VIP)

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