

# Nutrition Perspectives

University of California at Davis, Department of Nutrition, Cooperative Extension, and Center for Health and Nutrition Research

## Prevalence of Overweight, Obesity in the United States

New estimates suggest that more than two-thirds of Americans are either overweight or obese, according to an article published by *JAMA Internal Medicine* (1).

Overweight and obesity are associated with a variety of chronic health conditions, which could potentially be avoided by preventing weight gain and obesity.

Graham A. Colditz, M.D., Dr.P.H., and Lin Yang, Ph.D., of the Washington University School of Medicine, St. Louis, analyzed data from the National Health and Nutrition Examination Survey from 2007 to 2012 to estimate the prevalence of overweight and obesity. They collected data for 15,208 men and women 25 or

older, a sample that was representative of more than 188 million people.

The study, which was reported in a research letter, estimates that 39.96 percent of men (36.3 million) and 29.74

percent of women (almost 28.9 million) were overweight and 35.04 percent of men (31.8 million) and 36.84 percent of women (nearly 35.8 million) were obese.



*The study estimates that nearly 75 percent of men and 66 percent of women were overweight or obese.*

“Population-based strategies helping to reduce modifiable risk factors such as physical environment interventions, enhancing primary care efforts to

prevent and treat obesity, and altering societal norms of behavior are required,” the authors conclude.

Reference:

1. Yang L, Colditz GA. Prevalence of Overweight and Obesity in the United States, 2007-2012. *JAMA Intern Med.* 2015 Jun 22. doi: 10.1001/jamainternmed.2015.2405.

Source: JAMA News Releases; Jun. 22, 2015; <http://media.jamanetwork.com/news-item/prevalence-of-overweight-obesity-in-the-united-states/>

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## Study Finds High Prevalence of Metabolic Syndrome in U.S.

Nearly 35 percent of all U.S. adults and 50 percent of those 60 years of age or older were estimated to have the metabolic syndrome in 2011-2012, according to a study in *JAMA* (1).

The metabolic syndrome is combination of health conditions (such as obesity, high blood pressure, type 2 diabetes, poor lipid profile) that contribute to cardiovascular illness and death. Data from the National Health and Nutrition Examination Survey (NHANES) 1999-2006 reported a metabolic syndrome prevalence of 34 percent. Understanding updated prevalence trends may be important given the potential effect of the metabolic syndrome and its associated health complications on the aging U.S. population, according to background information in the article.

Robert J. Wong, M.D., M.S., of the Alameda Health System-Highland Hospital, Oakland, Calif., and colleagues used 2003-2012 NHANES data (a probability sample of the U.S. population) to evaluate trends in the metabolic syndrome among adults age 20 years or older. The researchers stratified metabolic syndrome prevalence by sex, race/ethnicity, and age groups (20-39, 40-59, and 60 years or older).

From 2003-2004 to 2011-2012, overall prevalence of the metabolic syndrome increased from 32.9 percent to 34.7 percent. When evaluating

trends from 2007-2008 to 2011-2012, overall prevalence of the metabolic syndrome remained stable, as did prevalence trends among men and all race/ethnic groups, whereas prevalence among women decreased from 39.4 percent in 2007-2008 to 36.6 percent in 2011-2012.

From 2003 to 2012, prevalence was higher in women compared with men. When stratified by race/ethnicity, the highest prevalence was seen in Hispanics, followed by non-Hispanic whites and blacks.

Prevalence increased by age groups, increasing from 18.3 percent among those 20 to 39 years of age to 46.7 percent among those 60 years or older. Among this age group, more than 50 percent of women and Hispanics had the metabolic syndrome. The authors write that the high prevalence among the oldest age group is “a concerning observation given the aging U.S. population.”

The researchers add that greater awareness of the metabolic syndrome and its health consequences may have contributed to improvements in optimizing treatment of risk factors such as hypertension and diabetes. “Furthermore, recent NHANES data demonstrate that obesity prevalence in the United States also appears to have stabilized, which also may contribute to the stabilizing prevalence of the metabolic syndrome.”

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*Conditions that are considered part of metabolic syndrome include high blood triglyceride levels, low HDL cholesterol, above normal blood glucose, and a large waist circumference.*

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Sheri Zidenberg-Cherr, Ph.D., Nutrition Specialist, Anna M. Jones, Ph.D., and staff prepare *NUTRITION PERSPECTIVES*. This newsletter is designed to provide research-based information on ongoing nutrition and food-related programs. It is published quarterly (four times annually) as a service of the UC Davis Center for Health and Nutrition Research, the University of California Cooperative Extension and the United States Department of Agriculture. *NUTRITION PERSPECTIVES* is available online, free of charge, at <http://nutrition.ucdavis.edu/perspectives>. Questions or comments on articles may be addressed to: *NUTRITION PERSPECTIVES*, Department of Nutrition, University of California, Davis, CA 95616-8669. Phone:(530) 752-3387; FAX: (530) 752-8905.

## Metabolic (Continued from page 2)

Reference:

1. Aguilar M, Bhuket T, Torres S, et al. Prevalence of the metabolic syndrome in the United States, 2003-2012. JAMA. 2015 May 19;313(19):1973-4. doi: 10.1001/jama.2015.4260.

Source: JAMA News Releases; May 19, 2015; <http://media.jamanetwork.com/news-item/study-finds-high-prevalence-of-metabolic-syndrome-in-u-s/>

### The FDA Takes Step to Remove Artificial Trans Fats in Processed Foods

Based on a thorough review of the scientific evidence, the U.S. Food and Drug Administration finalized its determination that partially hydrogenated oils (PHOs), the primary dietary source of artificial trans fat in processed foods, are not “generally recognized as safe” or GRAS for use in human food. Food manufacturers will have three years to remove PHOs from products.

“The FDA’s action on this major source of artificial trans fat demonstrates the agency’s commitment to the heart health of all Americans,” said FDA’s Acting Commissioner Stephen Ostroff, M.D. “This action is expected to reduce coronary heart disease and prevent thousands of fatal heart attacks every year.”

This determination will significantly reduce the use of PHOs, the major source of artificial trans fats, in the food supply. In 2013, the FDA made a tentative determination that PHOs could no longer be considered GRAS and is finalizing that determination after considering public comments.

Since 2006, manufacturers have been required to include trans fat content information on

the Nutrition Facts label of foods. Between 2003 and 2012, the FDA estimates that consumer trans fat consumption decreased about 78 percent and that the labeling rule and industry reformulation of foods were key factors in informing healthier consumer choices and reducing trans fat in foods. While trans fat intake has significantly decreased, the

current intake remains a public health concern. The Institute of Medicine recommends that consumption of trans fat be as low as possible while consuming a nutritionally-adequate diet.

“Studies show that diet and nutrition play a key role in preventing chronic health problems, such as cardiovascular disease and today’s action goes hand in hand with other FDA initiatives to improve the health of Americans,

including updating the nutrition facts label,” said Susan Mayne, Ph.D., director of the FDA’s Center for Food Safety and Applied Nutrition. “This determination is based on extensive research into the effects of PHOs, as well as input from all stakeholders received during the public comment period.”



*Manufacturers have been required to include trans fat content on Nutrition Facts labels starting in 2006. The FDA estimates that trans fat consumption has declined 78 percent in the years since.*

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## Trans Fats (Continued from page 3)

The FDA has set a compliance period of three years. This will allow companies to either reformulate products without PHOs and/or petition the FDA to permit specific uses of PHOs. Following the compliance period, no PHOs can be added to human food unless they are otherwise approved by the FDA.

The FDA encourages consumers seeking to reduce trans fat intake to check a food's ingredient list for partially hydrogenated oils to determine whether or not a product contains PHOs. Currently, foods are allowed to be labeled as having "0" grams trans fat if they contain less than 0.5 grams of trans fat per serving, including PHOs, the primary dietary source of artificial trans fat in processed foods.

Many companies have already been working to remove PHOs from processed foods and the FDA anticipates that many may eliminate them ahead of the three-year compliance



*The restriction is in partially hydrogenated oils added to foods, which are the primary source of trans fats in the diet. Naturally occurring trans fats may also be present in small amounts in milk and meat products.*

Source: FDA News Releases; Jun. 16, 2015; <http://www.fda.gov/NewsEvents/Newsroom/PressAnnouncements/ucm451237.htm>

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## "Fitness" Foods May Cause Consumers to Eat More and Exercise Less



*Consumption of the snack labeled "Fitness" as opposed to "Trail Mix" was greater in those who were trying to watch their weight.*

*(Photo source: <https://www.flickr.com/photos/elanaspantry/2380736250/>)*

Weight-conscious consumers are often drawn to foods such as Clif Bars and Wheaties, whose packaging suggests that they promote fitness. But according to a new study in the *Journal of Marketing Research*, such "fitness branding" encourages consumers to eat more of those foods and to exercise less, potentially undermining their efforts to lose or control their weight (1).

"Unless a food was forbidden by their diet, branding the product as 'fit' increased consumption for those trying to watch their weight," write authors Joerg Koenigstorfer (Technische Universität München) and Hans Baumgartner (Pennsylvania State University). To make matters worse, these eaters also reduced their physical activity,

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## “Fitness” Foods (continued from page 4)

apparently seeing the ‘fit’ food as a substitute for exercise.” the snack.

The authors investigated the effects of fitness-branded food on consumption and physical activity in “restrained” eaters—eaters who are chronically concerned about their body weight. Participants were given trail-mix style snacks marked either “Fitness” or “Trail Mix.” To make the “Fitness” snack appear even healthier, a picture of running shoes was added to the packaging. Participants were told to pretend that they were at home helping themselves to an afternoon snack, and were given eight minutes to taste and rate the product. Another phase of the study gave them the option to exercise as vigorously as they liked on a stationary bicycle after eating



*Those who were specifically trying to watch their weight expended less energy during the exercise phase after eating the “Fitness” trail mix compared to the plain trail mix.*

For those who were specifically trying to watch their weight, the effect of labeling was significant, causing them to eat far more of the snack marked “Fitness.” Snackers eating the “Fitness” brand also chose to expend less energy during the exercise phase.

“It is important that more emphasis be placed on monitoring fitness cues in marketing. For example, a brand could offer gym vouchers or exercise tips instead of just implying fitness via a label or image. Reminding the consumer that exercise is still necessary may help counteract the negative effect of these fitness-branded foods,” conclude the authors.

Reference:

1. Koenigstorfer J, and Baumgartner H. The Effect of Fitness Branding on Restrained Eaters' Food Consumption and Post-Consumption Physical Activity. *J Marketing Research*; In-Press. doi: <http://dx.doi.org/10.1509/jmr.12.0429>

Source: American Marketing Association News Releases; Jun. 23, 2015; <https://www.ama.org/publications/JournalOfMarketingResearch/Documents/pr-jmr.12.0429-fitness%20branding.pdf>

## Does Exercise Type Matter in the Fight Against Obesity?

Medical experts widely recommend a combined program of diet and fitness to fight obesity. But when it comes to the type of exercise most effective at reducing weight and body mass—strength training, endurance exercise or a combination of both—opinions vary widely on which exercise regimen is best. Now, a new clinical study by a team of Spanish researchers working as part of the Nutrition and Physical Activity Programs for Obesity Treatment project suggests that the type of exercise may be less important than previously thought (1).

Researchers from the Technical University of Madrid and La Paz University Hospital set out to measure whether the type of exercise—endurance training, strength training, strength plus endurance training or simply following



*Type of exercise may be less important than previously thought.*

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government recommendations for weekly activity goals—combined with diet made a significant difference on body weight and body composition. Their article “Change in weight and body composition in obese subjects following a hypocaloric diet plus different training programs or physical activity recommendations” is published in the *Journal of Applied Physiology*.

The research team followed 96 obese subjects (48 men and 48 women) ranging in age from 18 to 50 through a 22-week supervised program. All participants followed a similar reduced-calorie diet. The diet was measured to provide each individual with 30 percent fewer calories than he or she burned each day.

In addition to the diet, participants were randomly assigned to follow one of three different types of exercise training programs or to follow the American College of Sports Medicine recommendations for weekly physical activity. Subjects assigned to exercise training groups performed either endurance exercise alone (their choice of running, elliptical or cycling); strength exercises alone (shoulder press, squats, barbell row, biceps curl, lateral split, front split, bench press and French press); or a combination of strength and endurance exercises (choice of cycling, treadmill or elliptical plus squats, rowing machine, bench press and front split). All subjects performed their exercise programs three times a week for the same length of time and at the same intensity (51 minutes at 50 percent intensity during weeks 2–5; 50 minutes at 60 percent intensity in weeks 6–14;

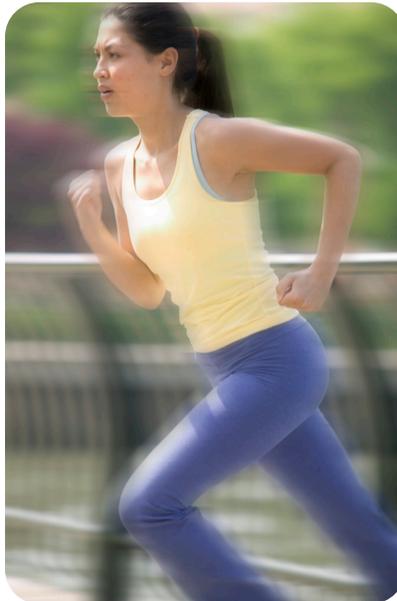
Reference:

1. Benito PJ, Bermejo LM, Peinado AB, et al. Change in weight and body composition in obese subjects following a hypocaloric diet plus different training programs or physical activity recommendations. *J Appl Physiol* (1985). 2015 Apr 15;118(8):1006-13.

Source: APS Press Releases; Apr. 23, 2015; <http://www.the-aps.org/mm/hp/Audiences/Public-Press/2015/17.html>

60 minutes at 60 percent intensity in weeks 15–22).

Participants following the physical activity guidelines were advised to get 30–60 minutes of exercise on most, if not all, days of the week for a total of 200–300 minutes of moderate-intensity activity. They were also encouraged to swap walking for driving, take the steps instead of the elevator and to undergo other lifestyle interventions to increase daily activity.



*Outcomes were the same regardless of the training program used, whether it was endurance, strength, a combination of the two, or following recommendations for weekly physical activity.*

Perhaps surprisingly, the outcomes for the participants—including significant reductions in body weight, body mass index, waist circumference, total fat mass, and a significant increase in lean mass—were positive across the board despite the differences in the type of exercise performed.

“To our knowledge, this is the first clinical trial designed to examine the effect of different physical activity interventions, in combination with a hypocaloric diet, on body weight and composition variables in obese Spanish people,” the research team wrote. The present study shows that different exercise training programs (endurance, strength, or their combination) or the following of physical activity recommendations are equally efficient in terms of improving body weight and body composition variables in obesity management, when adhered to alongside a hypocaloric diet. They stressed the importance of adding exercise from the health point of view. “One calorie burned in exercise is not the same as one not ingested,” they said.

## Ease of Weight Loss Influenced by Individual Biology

For the first time in a lab, researchers at the National Institutes of Health found evidence supporting the commonly held belief that people with certain physiologies lose less weight than others when limiting calories (1). Study results were published in *Diabetes*.

Researchers at the Phoenix Epidemiology and Clinical Research Branch (PECRB), part of the NIH's National Institute of Diabetes and Digestive and Kidney Diseases, studied 12 men and women with obesity in the facility's metabolic unit. Using a whole-room indirect calorimeter – which allows energy expenditure to be calculated based on air samples – researchers took baseline measurements of the participants' energy expenditure in response to a day of fasting, followed by a six-week inpatient phase of 50 percent calorie reduction. After accounting for age, sex, race and baseline weight, the researchers found that the people who lost the least weight during the calorie-reduced period were those whose metabolism decreased the most during fasting. Those people have what the researchers call a “thrifty” metabolism, compared to a “spendthrift” metabolism in those who lost the most weight and whose metabolism decreased the least.

“When people who are obese decrease the amount of food they eat, metabolic responses vary greatly, with a ‘thrifty’ metabolism possibly contributing to less weight lost,” said Susanne Votruba, Ph.D., study author and PECRB clinical

investigator. “While behavioral factors such as adherence to diet affect weight loss to an extent, our study suggests we should consider a larger picture that includes individual physiology – and that weight loss is one situation where being thrifty doesn't pay.”



*Researchers do not know whether the biological differences are innate or develop over time.*

Researchers do not know whether the biological differences are innate or develop over time. Further research is needed to determine whether individual responses to calorie reduction can be used to prevent weight gain.

“The results corroborate the idea that some people who are obese may have to work harder to lose weight due to metabolic differences,” said Martin Reinhardt, M.D., lead author and PECRB postdoctoral fellow. “But biology is not destiny. Balanced diet and regular physical activity over a long period can be very effective for weight loss.”

More than one-third of American adults are obese. Complications from obesity can include heart disease, type 2 diabetes and certain types of cancer, some of the leading causes of preventable death.

“What we've learned from this study may one day enable a more personalized approach to help people who are obese achieve a healthy weight,” said NIDDK Director Griffin P. Rodgers, M.D. “This study represents the latest advance in NIDDK's ongoing efforts to increase understanding of obesity.”

**Weight Loss continued with references on page 8**

## Weight Loss (Continued from page 7)

Reference:

1. Reinhardt M, Thearle MS, Ibrahim M, et al. A Human Thrifty Phenotype Associated With Less Weight Loss During Caloric Restriction. *Diabetes*. 2015 May 11. pii: db141881. [Epub ahead of print]

Source: NIH News and Events; May 11, 2014; <http://www.nih.gov/news/health/may2015/niddk-11.htm>

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## Grandparental Support Helps Reduce the Risk of Child Obesity

According to an English saying, it takes a whole village to raise a child. A new study from Karolinska Institutet has shown how important the support from grandparents could be. According to the study, published in *Pediatric Obesity*, emotional support from grandparents has a protective effect against child obesity, even with the presence of other risk factors (1).

Previous studies have shown that the parents' socioeconomic status affects the risk of children developing obesity. But the effect of other family-related aspects on this risk has not been investigated to the same extent. Researchers from Karolinska Institutet and researchers in social anthropology at Oxford University have jointly investigated the importance of grandparental support in this context.

The study included 39 preschool-aged children from Stockholm County who had received treatment for obesity. Both the mother and father of the children answered detailed questionnaires in

which socio-economic status was measured by education and income levels, work and domestic situation and by how much money they had left at the end of the

month. After this, they answered questions about the kinds of support – and how much – they received from their own parents, i.e. the children's grandparents. The questions aimed to establish the extent to which grandparents contributed daily support, e.g. help with washing and cleaning, financial support and emotional support, which could create a sense of being



*When the parents received emotional support from their own parents, it had a protective effect against obesity in their children.*

seen and understood.

It transpired that when the parents received emotional support from their own parents, it had a protective effect against obesity in their children. Parental income is in itself linked to the BMI, Body Mass Index, in children. But the children of parents with a low income and a low level of emotional support had a higher degree of obesity than children whose parents had a low income but a high level of

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## Support (Continued from page 8)

emotional support.

“Our study shows that emotional support from grandparents may have a preventive effect against child obesity, which is a serious disease. These findings could, for instance, be incorporated into the planning of public health programs that are aimed at reducing obesity in children. Greater social support for families with small children could help alleviate stress in parents, who will thereby be in a better position to make better food choices,” says Paulina Nowicka, Associate Professor at the Department of Clinical Science, Intervention and Technology at Karolinska Institutet.



*Greater social support for families with small children could help alleviate stress in parents.*

Reference:

1. Lindberg L, Ek A, Nyman J, et al. Low grandparental social support combined with low parental socioeconomic status is closely associated with obesity in preschool-aged children: a pilot study. *Pediatr Obes*. 2015 Jun 19. doi: 10.1111/ijpo.12049. [Epub ahead of print]

Source: Karolinska Institutet News; Jun. 22; 2015; <http://ki.se/en/grandparental-support-helps-reduce-the-risk-of-child-obesity>

## Study Finds Inadequate Hydration Among U.S. Children

More than half of all children and adolescents in the U.S. are not getting enough hydration—probably because they’re not drinking enough water—a situation that could have significant repercussions for their physical health and their cognitive and emotional functioning, according to the first national study of its kind from Harvard T.H. Chan School of Public Health (1).

The study also found racial/ethnic and gender gaps in hydration status. Black children and adolescents were at higher risk of inadequate hydration than whites; boys were at higher risk than girls.

The study appeared in the *American Journal of*

*Public Health*.



*The researchers found that a little more than half of all children and adolescents weren’t getting enough hydration.*

“These findings are significant because they highlight a potential health issue that has not been given a whole lot of attention in the past,” said lead author Erica Kenney, a postdoctoral research fellow in the Department of Social and Behavioral Sciences at Harvard Chan School. “Even though for most of these kids this is not an immediate, dramatic health threat, this is an issue that could really be reducing quality of life and well-being for many, many children and youth.”

Drinking enough water is essential for physiological processes such as circulation, metabolism, temperature regulation, and waste removal. Although excessive dehydration is

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associated with serious health problems, even mild dehydration can cause issues, including headaches, irritability, poorer physical performance, and reduced cognitive functioning.

The researchers looked at data from 2009-2012 on more than 4,000 children and adolescents aged 6 to 19 years who participated in the National Health and Nutrition Examination Survey, a study of the health of U.S. children and adults conducted each year by the Centers for Disease Control and Prevention. They used urine osmolality—a measure of how concentrated a person’s urine is—to determine whether or not participants were adequately hydrated.



*Nearly a quarter of the children and adolescents in the study reported drinking no plain water at all.*

They found that a little more than half of all children and adolescents weren’t getting enough hydration. Boys were 76 percent more likely than girls, and non-Hispanic blacks were 34 percent more likely than non-Hispanic whites, to be inadequately hydrated.

Notably, nearly a quarter of the children and adolescents in the study reported drinking no plain water at all.

“The good news is that this is a public health problem with a simple solution,” said senior author Steven Gortmaker, professor of the practice of health sociology. “If we can focus on helping children drink more

water—a low-cost, no-calorie beverage—we can improve their hydration status, which may allow many children to feel better throughout the day and do better in school.”

Reference:

1. Kenney EL, Long MW, Cradock AL, Gortmaker SL. Prevalence of Inadequate Hydration Among US Children and Disparities by Gender and Race/Ethnicity: National Health and Nutrition Examination Survey, 2009-2012. *Am J Public Health*. 2015 Jun 11:e1-e6. [Epub ahead of print]

Source: Harvard T.H. Chan School of Public Health Press Releases; Jun. 11, 2015; <http://www.hsph.harvard.edu/news/press-releases/study-finds-inadequate-hydration-among-u-s-children/>

## Potassium Improved Blood Pressure in Teen Girls, Salt Had No Adverse Effect

Eating 3,000 mg per day of salt or more appears to have no adverse effect on blood pressure in adolescent girls, while those girls who consumed 2,400 mg per day or more of potassium had lower blood pressure at the end of adolescence, according to an article published by *JAMA Pediatrics* (1).

The scientific community has historically believed most people in the United States consume too much salt



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in their diets. The current Dietary Guidelines for Americans recommends limiting sodium intake to less than 2,300 mg per day for healthy individuals between the ages of 2 and 50. The relationship between dietary sodium and blood pressure in children and adolescents is largely unexamined in prospective studies, according to the study background.

Lynn L. Moore, D.Sc., M.P.H., of the Boston University School of Medicine, and coauthors examined the long-term effects of dietary sodium and potassium on blood pressure at the end of adolescence. The authors used data from the National Heart, Lung and Blood Institute's Growth and Health Study and participants included 2,185 black and white girls (ages 9 to 10) who were followed up for 10 years.

The authors found no evidence that higher sodium intakes (3,000 to <4,000 mg per day and  $\geq$ 4,000 mg per day vs. < 2,500 mg per day) had an adverse effect on adolescent blood pressure. Some analysis showed that those girls consuming 3,500 mg per day or more of salt had generally lower diastolic blood pressures than girls who consumed less than

2,500 mg per day. Food consumption was based on self reports and blood pressure was measured annually.

Overall, girls in the highest category of potassium intake (2,400 mg per day or more) had lower late-adolescent systolic and diastolic blood pressure than those girls who consumed less potassium, the results show.

Girls who consumed the most sodium and potassium consumed the most calories too, along with the most dairy, fruits, vegetables and fiber, according to the results.

“This prospective study showed that black and white adolescent girls who consumed more dietary potassium had lower BPs [blood pressures] in later adolescence. In contrast, the data

indicated no overall effect of sodium intake alone on BP, and, thus do not support the call for a global reduction in sodium intake among children and adolescents. This study emphasizes the need to develop methods for estimating salt sensitivity to be used in future studies of high-risk populations and points to the potential health risks associated with the existing low dietary potassium intakes among U.S. children and adolescents,” the study concludes.



*A variety foods are good sources of potassium, including potatoes with skin, oranges, acorn squash, tomatoes, milk, and spinach.*

*(Photo by Peggy Greb, USDA ARS)*

### Reference:

1. Buendia JR, Bradlee ML, Daniels SR, Singer MR, Moore LL. Longitudinal effects of dietary sodium and potassium on blood pressure in adolescent girls. *JAMA Pediatr.* 2015 Jun 1;169(6):560-8. doi: 10.1001/jamapediatrics.2015.0411.

Source: JAMA News Releases; Apr. 27, 2015; <http://media.jamanetwork.com/news-item/potassium-improved-blood-pressure-in-teen-girls-salt-had-no-adverse-effect/>

## Food Industry Has Achieved Only Baby Steps to Improve Nutritional Quality of Foods Advertised to Children on TV

Children are exposed to a considerable amount of televised food advertising: more than six ads accounting for about 2:21 minutes per hour during typical programming. Concerns about the role of televised food advertising as a contributor to childhood obesity led to the food industry adopting a program of self-regulation. A new study published in the *American Journal of Preventive Medicine* evaluated the effectiveness of industry self-regulation and found that this program has achieved little improvement in the nutritional quality of foods advertised to children. The study found that four of every five foods advertised to children (80.5 percent) are classified in the poorest nutritional category, according to US Department of Health and Human Services guidelines.

According to lead investigator Dale Kunkel, PhD, Department of Communication, University of Arizona, Tucson, "The long-standing pattern favoring nutritionally deficient food products over more-healthy items clearly persisted despite the advent of industry self-regulation. This outcome occurred largely because participants in self-regulation achieved no significant improvement in the nutritional quality of their advertised foods between 2007 and 2013."

warned that unhealthy food advertising puts children's health at risk (2). This report triggered a public debate that resulted in the formation of the

Children's Food and Beverage Advertising Initiative (CFBAI), a self-regulatory program that included 17 of the nation's largest food companies. The participants promised that child-directed ads would feature only healthier foods that meet nutritional standards specified by each company. For example, the Kellogg Company pledged that all child-targeted advertising will contain a maximum per serving of 200 calories, 2 g saturated fat/0 g trans fat, 230 mg sodium, and 12 g added sugar.

Dr. Kunkel and colleagues' evaluation of the efficacy of industry self-regulation resulted in two highly dissonant findings. First, CFBAI-participating companies have completely fulfilled all specified commitments by

advertising only products that meet nutritional guidelines stipulated by their parent corporations and have used licensed characters solely in advertising for products that comply with their parent corporations' guidelines for healthier products. The industry has done everything it



*The Children's Food and Beverage Advertising Initiative (CFBAI) is a self-regulatory program that included 17 of the nation's largest food companies. The participants promised that child-directed ads would feature only healthier foods that meet nutritional standards specified by each company.*

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promised.

However, the second finding revealed that the nutritional standards employed by companies participating in the CFBAI do not necessarily reflect high benchmarks. Many companies classify a product as healthy if a small portion of the undesirable ingredients is removed from its original formulation. This consideration accounts for the disparity between industry claims that companies promote only healthier foods to children, and the study's finding that the majority of products advertised by CFBAI participants fall in the poorest nutritional category. "Deficiency in the nutritional standards employed by industry self-regulation has already been recognized as a critical shortcoming," explained Dr. Kunkel.

The researchers compared a sample of child-targeted food ads aired in 2007 (before CFBAI) with an equivalent sample of 2013 food advertising (after CFBAI). Over a period of 10 weeks, one episode of each regularly scheduled children's program that aired between 7:00 AM and 10:00 PM was recorded and analyzed. The programs were carried on five broadcast networks (ABC, CBS, Fox, NBC, CW) and two cable networks (Cartoon Network, Nickelodeon) that deliver large volumes of children's programming. The 2007 sample included 145 shows, representing 73.5 hours of programming. The 2013 sample consisted of 103 shows and 55.0 hours of content.

In this study, the advertised products were categorized according to a rating system devised by

the Department of Health and Human Services, which differentiates three types of products: Go, Slow, and Whoa. Go foods are rich in nutrients and low in calories, fat, and added sugar, such as vegetables, fruits, whole grain breads/cereals, low-fat yogurt, nonfat milk, and diet soda. Slow foods are higher in fat, added sugar, and calories. Examples include broiled hamburgers, nuts or peanut butter, waffles, most pastas, 100 percent juice, and 2 percent low-fat milk. Whoa foods are high in calories, fat, and added sugar, and are low in

nutrients. Examples include fried chicken, hamburgers, cookies, ice cream, whole milk, and regular soda.

When using the Go, Slow, Whoa methodology, 79.4 percent of food ads in 2007 were for Whoa products, which in fact increased to 80.5 percent in 2013. There was also little change for Slow products, at 16.5 percent of all food ads in 2007 and 18.4 percent in 2013. Ads for truly health Go products were so rare that no statistical comparisons could be made.

Another factor in the lack of improvement in food advertising to children

is that approximately 30 percent of the ads were from companies that did not participate in industry self-regulation, with the two most prominent being Chuck E. Cheese (pizza) and Topps Company (candy), which accounted for 14.7 percent and 9.0 percent of all food ads, respectively.

"In the face of pleas for advertising reform, the food industry has achieved what might be labeled as baby steps," stated Dr. Kunkel. "Indeed, this study demonstrates that no significant decline in



*There was actually an increase in products advertised categorized as "Whoa" foods, the poorest nutrition category, between 2007 and 2013. This was in spite of companies adhering to CFBAI requirements.*

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## Advertised (Continued from page 13)

the proportion of food ads devoted to unhealthy Whoa products occurred as a result of self-regulation, even among CFBAI participants. Given that corporate profit concerns unavoidably mitigate more-stringent industry-based reforms, continued reliance upon self-regulation to resolve this problem seems destined to yield only modest benefits. With a persistent national obesity crisis, the failure to act more strongly holds adverse implications for America's children. As the IOM suggested in 2006, governmental restrictions on advertising practices will likely be required to end the predominance of unhealthy products in child-targeted food marketing. Such steps are increasingly being pursued by countries worldwide."



*Governmental restrictions on foods advertised to children will likely be necessary to end marketing of unhealthy to children.*

Reference:

1. Kunkel DL, Castonguay JS, Filer CR. Evaluating Industry Self-Regulation of Food Marketing to Children. *Am J Prev Med.* 2015 Apr 29. pii: S0749-3797(15)00095-1. doi: 10.1016/j.amepre.2015.01.027. [Epub ahead of print]
2. National Research Council. *Food Marketing to Children and Youth: Threat or Opportunity?*. Washington, DC: The National Academies Press, 2006.

Source: Elsevier Press Releases; May 8, 2015; <http://www.elsevier.com/about/press-releases/research-and-journals/food-industry-has-achieved-only-baby-steps-to-improve-nutritional-quality-of-foods-advertised-to-children-on-tv>

## Attractive Packaging Makes Identical Products Taste Better to Children

If the packaging has an appealing design, primary school children also reach for healthy foods. This was revealed in a study in cooperation with the Research Institute for Child Nutrition in Dortmund under the direction of scientists from the University of Bonn (1). The results were published in the journal *Frontiers in Psychology*.

Children are especially eager to reach for snacks if the packaging has an appealing design. "The food industry has a lot of experience in using marketing effects to increase product sales amongst children," says Prof. Bernd Weber from the Center for Economics and Neuroscience (CENs) of the University of Bonn. "By comparison, there is very



*Children rated the snacks with cartoon characters on the packaging as the best tasting, and also were willing to exert the most effort for the snack.*

little knowledge about how such marketing effects can be used to better promote healthy food products to children." This gap was addressed by a study performed by a team working with Prof. Dr. Weber from the CENs and Prof. Dr. Mathilde Kersting from the Dortmund Research Institute for Child Nutrition (FKE).

A total of 179 boys and girls from primary schools in Dortmund participated in the research project. The children, aged eight to ten, could choose between three identical yogurt -fruit- cereal snacks, that fulfilled nutritional requirements according to the FKE guidelines.

Critically, only the packaging designs differed: The

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## Packaging (Continued from page 14)

first was a plain standard packaging, the second packaging depicted additional health information and the third packaging included cartoon characters and an attractive product name – the latter packaging probably more enticing for children, compared to the other two designs.

How big is the primary schoolers' motivation to receive a particular snack from among the three choices? This is what the researchers determined, using a special measuring device that measures hand grip strength. It indicates the strength with which the children squeezed their hand in order to receive their desired muesli package. "Using this handgrip dynamometer, we were able to determine the effort that the children were willing to exert to receive the respective product," explains lead author Laura Enax from Prof. Weber's team. Then the children were also allowed to sample the snacks in the different forms of packaging.

The results show that the children's motivation was greatest for the snack in the packaging with the enticing cartoon characters. The measurements with the dynamometer revealed that children significantly provided more effort to receive the child-oriented snack. Also in the taste test, the snack with the playful cartoon characters scored best. The standard packaging as well as the packaging appealing to health were far less favored by the children. The

results of the survey as well as the measurement of handgrip force both helped to explain the later product selection. This indicates that merely asking the children for their taste preference was not sufficient on its own to explain the childrens' choices, says the researcher.

"This is a classical marketing placebo effect," says Prof. Weber. As in the case of a placebo medication, effects ascribed to certain products, which are not justified by the ingredients. In the study, each cup contained the same yogurt and fruit cereal snack, however, the primary school students believed that they could discern a difference in the flavor of the snack in the different packages.

"Attractively designed food packaging can tempt children to pick unhealthy foods," says Prof. Kersting from the Dortmund Research Institute for Child Nutrition. "However, marketing effects of this type can also be used to promote healthy food products to children." The method developed in the study can be used, for instance, to investigate how the appeal of school milk or whole-grain sandwiches can be increased.

The scientists want to investigate in additional studies whether significantly overweight children in particular are especially receptive to marketing placebo effects on packaging.



*"The method developed in the study can be used, for instance, to investigate how the appeal of school milk or whole-grain sandwiches can be increased."*

Reference:

1. Enax L, Weber B, Ahlers M, et al. Food packaging cues influence taste perception and increase effort provision for a recommended snack product in children. *Front Psychol*; 2015; 6:882. doi: 10.3389/fpsyg.2015.00882 Source: JAMA News Releases; May 12, 2014; <http://media.jamanetwork.com/news-item/resveratrol-in-red-wine-chocolate-grapes-not-associated-with-improved-health/>

Source: Universitat Bronn Press Releases; Jun. 23; <http://www3.uni-bonn.de/Press-releases/getting-children-to-embrace-healthy-food>

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