

Nutrition Perspectives

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

Weighing in on the Role of Mindfulness in Slimming Down

If dieting is on your New Year agenda, it might pay to be mindful of a study suggesting there is little hard evidence that mindfulness leads to weight loss (1).

Ohio State University researchers reviewed 19 previous studies on the effectiveness of mindfulness-based programs for weight loss. Thirteen of the studies documented weight loss among participants who practiced mindfulness, but all lacked either a measure of the change in mindfulness or a statistical analysis of the relationship between being mindful and dropping pounds. In many cases, the studies lacked both.

The single study that did quantify simultaneous weight reductions and increases in mindfulness showed no relationship between the two. Another study that documented

participants' increase in mindfulness indicated that the intervention did not affect weight loss.

"There is an aura around mindfulness intervention in weight loss and yet we need to know, in this era of evidence-based medicine, what the data tell us," said Charles Emery, professor of psychology at Ohio State and senior author of the study.

"There are many reasons to think mindfulness would be relevant for weight loss because people may have a range of behavioral and psychological

responses to eating that mindfulness can address, including helping them slow down and focus on enjoying a meal," Emery said. "But our review of the research shows we still have a long way to go to provide convincing evidence of the benefits of mindfulness for weight loss and, especially, how it may

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The one study examining both increases in mindfulness and weight loss found no relationship between the two.

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work.”

To be clear, the research review is not meant to knock the pursuit of weight loss or of mindfulness as a New Year’s resolution – or ever.

“Any effort to make behavioral change should be applauded,” Emery said.

Emery conducted the analysis with KayLoni Olson, a graduate student in clinical health psychology at Ohio State. The review is published online in the journal *Psychosomatic Medicine*.

Mindfulness originated in East Asian tradition and reflects the Buddhist concept of mindfulness meditation. For overall health, mindfulness is thought to help with self-control and regulation of sleep and emotions. In the context of weight loss, mindfulness could help with management of behavioral changes that many equate to punishment – monitoring food intake, increasing physical activity and avoiding stress eating, for example.

The researchers set out to analyze previous studies of weight-loss interventions that included a mindfulness component. A key criterion for eligibility: Weight had to be measured at the beginning and end of the study.

From an initial keyword search that yielded 353 potential studies, the researchers identified 19

studies – 12 published in peer-reviewed journals and seven unpublished dissertations – that satisfied their requirements. They categorized the studies according to research methods used, and found that none met what they considered the gold standard: a randomized controlled trial that included measures of both mindfulness and weight at baseline and completion, as well as statistical analyses evaluating the relationship between mindfulness and weight loss.

Established ways to measure mindfulness include self-reports, time spent in mindfulness practice or number of mindfulness practice sessions.

“We were pretty loose in our definition of mindfulness intervention,” Emery said. “In two good studies that documented decreased weight in the mindfulness group and not in the others, the mindfulness intervention was only one session. That’s nice, but it further makes you ask: Is a change in mindfulness the mechanism by which that kind of intervention works?”

The combination of mindfulness with other interventions was an additional complicating factor in determining the specific effects of being more mindful on weight loss.

“There are many interventions that incorporate a mindfulness component, but that means weight loss could be explained by factors other than mindfulness,” Olson said.

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Mindfulness is a focus on attending to the experiences of the current moment without reacting or judging the observations, such as accepting feelings rather than trying to change them.

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Sheri Zidenberg-Cherr, Ph.D., Nutrition Specialist, Anna 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.

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Emery and Olson note that their review raises important research questions about mindfulness and weight loss that remain unanswered: Does being mindful reduce stress and related problematic eating and if so, is it the best intervention available? And if meditation practice, which is a component of mindfulness interventions, leads to eating more slowly, is that about being mindful or just a serendipitous behavioral change?

“Because the data provide some support for the utility of mindfulness for weight loss, we think it’s important to find out why,” Emery said. “Depending on the mechanism involved, there may be ways of modifying interventions to make them even more effective. If behavioral changes are triggered by mindfulness, there may be additional direct ways to bring about change.”

Reference:

1. Olson KLI, Emery CF. Mindfulness and Weight Loss: A Systematic Review. *Psychosom Med*. 2014 Dec 8. [Epub ahead of print]
Source: Emily Caldwell. Ohio State University News Room; Dec. 11, 2014; <http://news.osu.edu/news/2014/12/11/%E2%80%8Bweighing-in-on-the-role-of-mindfulness-in-slimming-down/>

One of the Most Difficult Challenges in Weight Loss is Keeping the Weight Off Over the Long Term

A new report combining perspectives from a range of obesity experts identifies genetic, epigenetic and neuro-hormonal differences between individuals as one of the key challenges associated with weight loss and long-term weight control (1). The authors, led by Paul MacLean, PhD, and Rena Wing, PhD, reinforce that maintaining weight loss over the long term can be a major challenge. They recommend a number of novel approaches to improve obesity therapeutics, including more emphasis on an individualized approach to weight-loss treatments and maintenance, and the integration of physiology and behavioral psychology to identify effective and sustainable interventions.

“Despite advancements in our understanding of obesity, weight regain after weight loss remains the most substantial problem in obesity treatment – with both the body and the mind conspiring against individual efforts to

maintain weight loss,” said Dr. MacLean, co-chair of the National Institutes of Health (NIH) working group who authored the report, “Innovative Research to Improve Maintenance of Weight Loss,” published in the journal *Obesity*. “There are many differences in individuals ranging from genetic to behavioral that lead some to do well on one approach, whereas others do not. Therefore, what works for a friend or coworker may be very different from a weight-loss program that’s most effective and sustainable for you over the long term.”



“Weight regain after weight loss remains the most substantial problem in obesity treatment.”

The NIH Working Group report summarizes the results from a recent conference and includes various perspectives from experts in integrative physiology, genetics, endocrinology, and behavioral and cognitive sciences.

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The report is accompanied by a commentary in *Obesity* by research and treatment pioneers and TOS past presidents, George Bray, MD, of Pennington Biomedical Research Center and Thomas Wadden, PhD, of the University of Pennsylvania (2). In their commentary, Drs. Bray and Wadden called individualized weight-loss strategies “promising,” highlighting it as the most important issue identified by the working group to bridge the divide between basic and clinical sciences and better target obesity treatments.

“In all weight loss trials, whether behavioral, dietary, exercise or pharmacological, some individuals lose a great deal of weight, others an average amount, and some even gain weight,” they say in their response.

Drs. Bray and Wadden go further to call the area of personalized treatment an “essential focus” that should be combined with political and societal actions to change our food and activity environments, which currently exacerbate the struggle for most people who are trying to lose weight and keep it off.

“Personalized medicine is not a new idea; it is one that is applied and encouraged across many areas of medicine. Why not apply it to obesity treatment?” said Chris Ochner, PhD, TOS Public Affairs co-chair and Assistant Professor of Pediatrics and Psychiatry at the Icahn School of Medicine at Mount Sinai. “Weight loss is not a sprint; it’s a marathon.”

Working group co-chair Dr. Wing also stresses that current treatment approaches to improving maintenance of weight loss often do not adequately counter the many physiological and behavioral changes that occur when a person loses weight.

“Development of more effective approaches to weight-loss maintenance requires the integration of physiological and behavioral perspectives and a more concerted collaboration between basic and clinical researchers,” she said.



In addition to personalized treatment, changes to food and activity environments are needed.

TOS agrees that collaboration between physiological and behavioral researchers is needed to advance the science behind individualized treatments and develop better weight-maintenance strategies. In 2013, the Society launched the Bio-Behavioral Research Section to encourage greater research into the complex interactions between biological, behavioral and environmental factors that influence obesity. The Section, led by Chair Myles Faith, PhD, of the University of North Carolina at Chapel Hill, strives to bridge people, ideas and methodologies from distinct scientific “silos.”

“Understanding individual differences in treatment response requires expertise in biology and behavior,” Faith said. “Seasoned clinicians, who are keenly observing and working to harness the strengths of individual patients every day, are an integral piece of the puzzle. Individual responses to treatment are at the scientific ‘heart’ of the matter for understanding weight-loss maintenance.”

The NIH working group report in full seeks to identify barriers to successful weight loss, review strategies that have been previously employed to improve success, and recommend novel solutions that could be investigated in future long-term weight control studies. In addition to more personalized weight-loss strategies, the authors recommend further exploration into the following areas to improve weight-loss maintenance:

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- Pharmacological strategies to counter the physiological changes that occur after weight loss, which require adjustments to the drug development process (e.g. pairing different medications or combining medication and behavioral approaches).
- New ways to improve adherence to physical activity programs.
- Foods engineered to maximize palatability and satiation to improve long-term adherence to a lower-calorie diet.
- Strategies to decrease the perceived reward value of foods and increase impulse control.
- Technologies (e.g. smart phones, tablets, GPS) and social networking to keep individuals engaged and goal-oriented.



“Development of more effective approaches to weight-loss maintenance requires the integration of physiological and behavioral perspectives.”

References:

1. MacLean PS, Wing RR, Davidson T, et al. NIH working group report: Innovative research to improve maintenance of weight loss. *Obesity* (Silver Spring). 2014 Dec 2. doi: 10.1002/oby.20967. [Epub ahead of print]
2. Bray GA, Wadden TA (2014). Improving long-term weight loss maintenance: Can we do it?. *Obesity* (Silver Spring). 2014 Dec 2. doi: 10.1002/oby.20964. [Epub ahead of print]

Source: The Obesity Society News Room; Dec. 11, 2014; <http://www.obesity.org/news-center/one-of-the-most-difficult-challenges-in-weight-loss-is-keeping-the-weight-off-over-the-long-term.htm>

I Have to Walk How Many Miles to Burn Off This Soda?



“People don’t really understand what it means to say a typical soda has 250 calories.”

Adolescents who saw printed signs explaining the number of miles they would need to walk to burn off the calories in a sugary drink were more likely to leave the store with a lower calorie beverage, a healthier beverage or a smaller size beverage, according to new Johns Hopkins University Bloomberg School of Public Health research (1).

And those healthier choices persisted weeks after the signs came down.

A report on the findings, published in the *American Journal of Public Health*, adds to the growing evidence suggesting that simply showing calorie counts on products and menus isn’t enough to break Americans from their bad eating habits. With calorie counts expected on menus in chain restaurants with more than 20 outlets by early next year the Affordable Care Act, the researchers say policymakers may need to rethink how that information is communicated.

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“People don’t really understand what it means to say a typical soda has 250 calories,” says study leader Sara N. Bleich, PhD, an associate professor in the Department of Health Policy and Management at the Bloomberg School. “If you’re going to give people calorie information, there’s probably a better way to do it. What our research found is that when you explain calories in an easily understandable way such as how many miles of walking needed to burn them off, you can encourage behavior change

For six-week stretches between August 2012 and June 2013, Bleich and her colleagues installed signs in six corner stores in low-income, predominantly black Baltimore

neighborhoods. The signs, four in all, presented a key fact about the number of calories in a 20 oz. bottle of soda, sports drink or fruit juice: that each bottle contained 250 calories, had 16 teaspoons of sugar, would take 50 minutes of running to work off those calories or would take 5 miles to walk the calories off. Researchers observed 3,098 drink purchases in the stores by black adolescents between the ages of 12 and 18 and interviewed 25 percent of them after leaving the store about whether they saw and understood the signs. Of the 35 percent of kids who said they saw the signs, 59 percent said they believed them and 40 percent said they changed their behavior as a result.

The researchers posted the brightly colored,



“When you explain calories in an easily understandable way such as how many miles of walking needed to burn them off, you can encourage behavior change.”

8.5-by-11-inch signs with the calorie information, displaying one sign at a time, on beverage cases in full view of customers. Before the signs were put up, researchers found that 98 percent of drink purchases in the stores were sugary beverages. After, regardless of the type of sign the adolescent saw, the number dropped to 89 percent. When compared with purchasing behaviors during times when there was no signage, the most effective sign, Bleich says, was the one which told shoppers they would have to walk 5 miles to burn off the drink calories.

Overall, the number of sugary drink calories purchased went from 203 calories before the miles of walking sign to 179 after. The size of the purchases also fell from 54 percent buying more than 16

oz. to 37 percent. Regardless of which sign was posted, the percentage of adolescents who chose to buy no beverage at all increased from 27 percent to 33 percent over the study period. Water purchases, meanwhile, increased from 1 percent to 4 percent.

“This is a very low-cost way to get children old enough to make their own purchases to drink fewer sugar-sweetened beverages and they appear to be effective even after they are removed,” Bleich says. “Black adolescents are one of the groups at highest risk for obesity and one of the largest consumers of sugary beverages. And there is a strong scientific link between consumption of sugary beverages and obesity. Using these easy-to-understand and easy-to-install signs may help promote obesity prevention or weight loss.”

Reference:

- Bleich SN, Barry CL, Gary-Webb TL, Herring BJ. Reducing sugar-sweetened beverage consumption by providing caloric information: how black adolescents alter their purchases and whether the effects persist. *Am J Public Health*. 2014 Dec;104(12):2417-24. doi: 10.2105/AJPH.2014.302150. Epub 2014 Oct 16.

Source: John Hopkins Bloomberg School of Public Health; Oct. 16, 2014; <http://www.jhsph.edu/news/news-releases/2014/i-have%20to-walk-how-many-miles%20to-burn-off-this-soda.html>

Beware of Products Promising Miracle Weight Loss

This year, I'm going to lose some weight."

If you find yourself making this common New Year's resolution, know this: many so-called "miracle" weight loss supplements and foods (including teas and coffees) don't live up to their claims. Worse, they can cause serious harm, say FDA regulators. The agency has found hundreds of products that are marketed as dietary supplements but actually contain hidden active ingredients (components that make a medicine effective against a specific illness) contained in prescription drugs, unsafe ingredients that were in drugs that have been removed from the market, or compounds that have not been adequately studied in humans.

"When the product contains a drug or other ingredient which is not listed as an ingredient we become especially concerned about the safety of the product," says James P. Smith, M.D., an acting deputy director in FDA's Office of Drug Evaluation.

Tainted Products

For example, FDA has found weight-loss products tainted with the prescription drug ingredient sibutramine. This ingredient was in an FDA-approved drug called Meridia, which was removed from the market in October 2010 because it caused heart problems and strokes.

"We've also found weight-loss products marketed as supplements that contain dangerous concoctions of hidden ingredients including active ingredients contained in approved seizure medications, blood pressure medications, and antidepressants," says Jason Humbert, a senior regulatory manager at FDA. Most recently, FDA has

found a number of products marketed as dietary supplements containing fluoxetine, the active ingredient found in Prozac, a prescription drug marketed for the treatment of depression and other conditions. Another product contained triamterene, a powerful diuretic (sometimes known as "water pills") that can have serious side-effects and should only be used under the supervision of a health care professional.



The FDA has found hundreds of dietary supplements containing unsafe ingredients, including active ingredients found in prescription drugs.

Many of these tainted products are imported, sold online, and heavily promoted on social media sites. Some can also be found on store shelves.

And if you're about to take what you think of as "natural" dietary supplements, such as bee pollen or Garcinia cambogia, you should be aware that FDA has found some of these products also contain hidden active ingredients contained in prescription drugs.

"The only natural way to lose weight is to burn more calories than you take in," says James P. Smith, M.D. That means a combination of healthful eating and physical activity.

Dietary Supplements are not FDA-Approved

Under the Federal Food, Drug and Cosmetics Act (as amended by the Dietary Supplement Health and Education Act of 1994), dietary supplement firms do not need FDA approval prior to marketing their products. It is the company's responsibility to make sure its products are safe and that any claims made about such products are true.

But just because you see a supplement product on a store shelf does not mean it is safe, Humbert says. FDA has received numerous reports of harm associated with the use of weight loss

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products, including increased blood pressure, heart palpitations (a pounding or racing heart), stroke, seizure and death. When safety issues are suspected, FDA must investigate and, when warranted, take steps to have these products removed from the market.

FDA has issued over 30 public notifications and recalled 7 tainted weight loss products in 2014. The agency also has issued warning letters, seized products, and criminally prosecuted people responsible for marketing these illegal diet products. In addition, FDA maintains an online list of tainted weight-loss products.

To help people with long-term weight management, FDA has approved prescription drugs such as Belviq, Qysmia, and Contrave, but these products are intended for people at least 18 years of age who:

- Have a body mass index (BMI, a standard measure of body fat) of 30 or greater (considered obese); or
- Have a BMI of 27 or greater (considered overweight) and have at least one other weight-related health condition.

Moreover, if you are going to embark on any type of weight control campaign, you should talk to your health care professional about it first, Smith says.

Know the Warning Signs

Look for potential warning signs of tainted products, such as:

- Promises of a quick fix, for example, “lose 10

pounds in one week.”

- Use of the words “guaranteed” or “scientific breakthrough.”
- Products marketed in a foreign language.
 - Products marketed through mass e-mails.
 - Products marketed as herbal alternatives to an FDA-approved drug or as having effects similar to prescription drugs.



Many weight loss supplements and foods (including teas and coffees) can cause serious harm.

Advice for Consumers

Generally, if you are using or considering using any product marketed as a dietary supplement, FDA suggests that you:

- Check with your health care professional or a registered dietitian about any nutrients you may need in addition to your regular diet.
- Ask yourself if it sounds too good to be true.
- Be cautious if the claims for the product seem exaggerated or unrealistic.
- Watch out for extreme claims such as “quick and effective” or “totally safe.”
- Be skeptical about anecdotal information from personal “testimonials” about incredible benefits or results from using a product.

If you suspect a product marketed as a dietary supplement sold online may be tainted, FDA urges you to report that information online. You or your health care professional can also report an illness or injury you believe to be related to the use of a dietary supplement by calling 1-800-FDA-1088 or visiting FDA online at <http://www.fda.gov/Safety/MedWatch/HowToReport/ucm053074.htm>.

Misreporting Diet Information Could Impact Nutrition Recommendations for Hispanic Community

You are what you eat, unless you're not quite sure what you ate.

A new paper by Jinan Banna and Marie Kainoa Fialkowski of the University of Hawai'i at Mānoa's College of Tropical Agriculture and Human Resources and Marilyn Townsend of the University of California, Davis' College of Agricultural and Environmental Sciences takes a critical look at how faulty self-reporting of the food we eat can lead to incorrect conclusions about whether we are meeting dietary recommendations for certain essential nutrients (1).

Banna's study is the first to examine how accounting for the problem of misreporting affects nutrient intake estimates in the Hispanic community. Nearly one in three US residents is projected to be Hispanic in 2060.

The paper, "Misreporting of dietary intake affects estimated nutrient intakes in low-income Spanish-speaking women," was recently published in the online version of the *Journal of the Academy of Nutrition and Dietetics*.

Researchers interviewed a group of 82 low-income Mexican American women in California about their food intake, and then determined how accurate their reported intake was by comparing it to predicted energy requirements.

Their findings revealed that the plausibility of reporting significantly influenced whether a participant met recommendations for several essential nutrients. Estimated energy, protein, cholesterol, dietary fiber, and vitamin E intakes were

significantly higher in plausible reporters—those whose self-reported intake the study authors determined to be the most realistic.

These results support the importance of evaluating plausibility of reported intake when analyzing self-reported dietary data to determine whether a population is meeting recommendations.

"Data that does not reflect actual intake may be used by researchers, policy makers and others to take actions to change eating habits, leading to recommendations that are not based on inaccurate information," Banna warned. "It is important to find ways to ensure that individuals correctly report what they ate so we have a sound basis for drawing conclusions."



One challenge that authors point out is that the traditional Mexican diet includes many items that are not contained on the standard nutrition composition tables.

One challenge that authors point out is that the traditional Mexican diet—which includes such tasty foods as atole, a corn-based gruel, chilaquiles, a dish composed of tortillas and sauces, and aguas frescas de fruta, homemade fruit-based drinks—includes many items that are not contained on the standard nutrition composition tables.

Future studies might involve examining whether this same phenomenon occurs in other Hispanic subgroups, Banna said.

"It will be important to see how we might prevent this problem of misreporting," she said. "That may mean looking at new ways of collecting information about diet in Hispanics, like asking people to take photographs of the food they eat instead of performing interviews."

Misreporting continued with references on page 10

Misreporting (Continued from page 9)

Reference:

1. Banna JC, Fialkowski MK, Townsend MS. Misreporting of Dietary Intake Affects Estimated Nutrient Intakes in Low-Income Spanish-Speaking Women. *J Acad Nutr Diet*. 2014 Aug 12. pii: S2212-2672(14)01048-X. doi: 10.1016/j.jand.2014.06.358. [Epub ahead of print]

Source: University of Hawaii, Manoa Kaunana; Oct. 20, 2014; <http://manoa.hawaii.edu/kaunana/misreporting-diet-information-could-impact-nutrition-recommendations-for-hispanic-community/>

What Do American Babies Eat? A Lot Depends on Mom's Socioeconomic Background

You have to be at least 2 years old to be covered by U.S. dietary guidelines. For younger babies, no official U.S. guidance exists other than the general recommendation by national and international organizations that mothers exclusively breastfeed for at least the first six months.

So what do American babies eat?

That's the question that motivated researchers at the University at Buffalo School of Medicine and Biomedical Sciences to study the eating patterns of American infants at 6 months and 12 months old, critical ages for the development of lifelong preferences (1).

The team found that dietary patterns of the children varied according to the racial, ethnic and educational backgrounds of their mothers.

For example, babies whose diet included more breastfeeding and solid foods that adhere to infant guidelines from international and pediatric organizations were associated with higher household income – generally above \$60,000 per year – and mothers with higher educational levels ranging from

some college to post-graduate education.

The study, "Sociodemographic differences and infant dietary patterns," was published in *Pediatrics*.



Babies whose diet included more breastfeeding and solid foods that adhere to infant guidelines from international and pediatric organizations were associated with higher household income.

says.

"We found that differences in dietary habits start very early," says Xiaozhong Wen, MBBS, PhD, assistant professor in the UB Department of Pediatrics and lead author on the paper.

Studying the first solid foods that babies eat can provide insight into whether or not they will develop obesity later on, he explains.

"Dietary patterns are harder to change later if you ignore the first year, a critical period for the development of taste preferences and the establishment of eating habits," he

Wen conducts research in the UB Department of Pediatrics' Behavioral Medicine division, studying how and why obesity develops in infants and young children.

In the study, babies whose dietary pattern was high in sugar, fat and protein or high in dairy

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foods and regular cereals were associated with mothers whose highest education level was some or all of high school, who had low household income -- generally under \$25,000/year -- and who were non-Hispanic African-Americans.

Both the higher sugar/fat/protein pattern and the higher dairy pattern resulted in faster gain in body mass index scores from ages 6 to 12 months for the babies.

Babies who consumed larger amounts of formula, indicating little or no breastfeeding, were associated with being born through emergency caesarean section and enrollment in the Special Supplemental Nutrition program for Women and Infant Children (WIC). Wen notes that one possible reason for high formula consumption in this group is that WIC provides financial assistance for formula purchases.

Some of the unhealthy “adult foods” consumed by 6- and 12-month-old babies in the study included items inappropriate for infants, such as candy, ice cream, sweet drinks and French fries.

“There is substantial research to suggest that if you consistently offer foods with a particular taste to infants, they will show a preference for these foods later in life,” Wen explains. “So if you tend to offer healthy foods, even those with a somewhat bitter taste to infants, such as pureed vegetables, they will develop a liking for them. But if you always

offer sweet or fatty foods, infants will develop a stronger preference for them or even an addiction to them.

“This is both an opportunity and a challenge,” says Wen. “We have an opportunity to start making dietary changes at the very beginning of life.”



Babies who consumed larger amounts of formula were associated with being born through emergency caesarean section and enrollment in the Special Supplemental Nutrition program for Women and Infant Children (WIC).

The researchers also found that babies whose diets consisted mainly of high fat/sugar/protein foods were associated with slower gain in length-for-age scores from 6 to 12 months.

“We’re not sure why this happens,” explains Wen, “but it’s possible that because some of these foods that are high in sugar, fat or protein are so palatable they end up dominating the baby’s diet, replacing more nutritious foods that could be higher in calcium and iron, therefore inhibiting the baby’s bone growth.”

The UB researchers based their analysis on a subsample covering more than 1,500 infants, nearly evenly split between genders, from the Infant Feeding Practices Study II conducted by the U.S. Food and Drug Administration and the Centers for Disease Control and Prevention from 2005 to 2007. In that study, mothers reported which of 18 different food types their 6- and 12-month old babies ate in a week; those data then were used to develop infant dietary patterns.

Reference:

1. Wen X, Kong KL, Eiden RD, et al. Sociodemographic differences and infant dietary patterns. *Pediatrics*. 2014 Nov;134(5):e1387-98. doi: 10.1542/peds.2014-1045. Epub 2014 Oct 13.

Source: Ellen Goldbaum. University of Buffalo News Center; Oct. 30, 2014; <http://www.buffalo.edu/news/releases/2014/10/061.html>

Study Finds High Percentage of Recalled Dietary Supplements Still Have Banned Ingredients

About two-thirds of FDA recalled dietary supplements analyzed still contained banned drugs at least 6 months after being recalled, according to a study in *JAMA* (1).

The U.S. Food and Drug Administration (FDA) initiates class I drug recalls when products have the reasonable possibility of causing serious adverse health consequences or death. Recently, the FDA has used class I drug recalls in an effort to remove dietary supplements adulterated with pharmaceutical ingredients from U.S. markets. Prior research has found that even after FDA recalls, dietary supplements remain available on store shelves. However, it has not been known if the supplements on sale after FDA recalls are free of the adulterants, according to background information in the article.

Pieter A. Cohen, M.D., of Harvard Medical School, Boston, and colleagues conducted a study to determine if banned drugs were still present in dietary supplements purchased at least six months after a recall. The FDA recalled 274 dietary supplements between January 2009 and December 2012. Twenty-seven of the 274 recalled supplements (9.9 percent) met inclusion criteria for the study and were analyzed using the same methods at the FDA's laboratories (e.g., gas chromatography/mass spectrometry). Supplements were purchased an average of 34.3 months (range 8-52 months) after the FDA recall. Seventy-four percent of supplements (20/27) were produced by U.S. manufacturers.

The researchers found that one or more

pharmaceutical adulterant was identified in 66.7 percent of recalled supplements still available for purchase (18/27). Supplements remained adulterated in 85 percent (11/13) of those for sports enhancement, 67 percent (6/9) for weight loss, and 20 percent (1/5) for sexual enhancement. Of the subset of supplements produced by U.S. manufacturers, 65 percent (13/20) remained adulterated with banned ingredients.

Sixty-three percent of analyzed supplements contained the same adulterant identified by the FDA. Six (22.2 percent) supplements contained 1 or more additional banned ingredients not identified by the FDA. Some supplements contained both the previously identified adulterant as well as additional pharmaceutical ingredients.

Banned substances identified in recalled supplements included sibutramine, sibutramine analogs, sildenafil, fluoxetine, phenolphthalein, aromatase inhibitor, and various anabolic steroids.

"To our knowledge, this is the first study to determine if adulterants remain in supplements sold after FDA recalls," the authors write.

"Action by the FDA has not been completely effective in eliminating all potentially dangerous adulterated supplements from the U.S. marketplace. More aggressive enforcement of the law, changes to the law to increase the FDA's enforcement powers, or both will be required if sales of these products are to be prevented in the future."



Even those these supplements were previously recalled for containing banned ingredients, 63 percent still contained the banned ingredient 6 months after they were recalled.

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Banned (Continued from page 12)

Reference:

1. Cohen PA, Maller G, DeSouza R, Neal-Kababick J. Presence of banned drugs in dietary supplements following FDA recalls. JAMA. 2014 Oct 22-29;312(16):1691-3. doi: 10.1001/jama.2014.10308.

Source: JAMA News Releases; Oct. 21, 2014; <http://media.jamanetwork.com/news-item/study-finds-high-percentage-of-recalled-dietary-supplements-still-have-banned-ingredients/>

'Tis the Season to Indulge in Walnuts

Researchers at UC Davis and other institutions have found that diets rich in whole walnuts or walnut oil slowed prostate cancer growth in mice. In addition, both walnuts and walnut oil reduced cholesterol and increased insulin sensitivity. The walnut diet also reduced levels of the hormone IGF-I, which had been previously implicated in both prostate and breast cancer. The study was published online in the Journal of Medicinal Food.

“For years, the United States government has been on a crusade against fat, and I think it’s been to our detriment,” said lead scientist and research nutritionist Paul Davis. “Walnuts are a perfect example. While they are high in fat, their fat does not drive prostate cancer growth. In fact, walnuts do just the opposite when fed to mice.”

Davis and colleagues have been investigating the impact of walnuts on health for some time. A previous study found that walnuts reduced prostate tumor size in mice; however, there were questions about which parts of the nuts generated these benefits. Was it the meat, the oil or the omega-3 fatty acids? If it was the omega-3 fats, the benefit might not be unique to walnuts. Since the fatty acid profile for the soybean oil used as a control was similar, but not identical, to walnuts, more work

had to be done.

In the current study, researchers used a mixture of fats with virtually the same fatty acid content as walnuts as their control diet. The mice were fed whole walnuts, walnut oil or the walnut-like fat for 18 weeks. The results replicated those from the previous study. While the walnuts and walnut oil reduced cholesterol and slowed prostate cancer growth, in contrast, the walnut-like fat did not have these effects, confirming that other nut components caused the improvements – not the omega-3s.

“We showed that it’s not the omega-3s by themselves, though, it could be a combination of the omega-3s with whatever else is in the walnut oil,” Davis said. “It’s becoming increasingly clear in nutrition that it’s never going to be just one thing; it’s always a combination.”

While the study does not pinpoint which combination of compounds in walnuts slows cancer growth, it did rule out fiber, zinc, magnesium and selenium. In addition, the research demonstrated that walnuts modulate several mechanisms associated with cancer growth.

“The energy effects from decreasing IGF-I seem to muck up the works so the cancer can’t grow as fast as it normally would,” Davis said. “Also, reducing cholesterol means cancer cells may not get



The study reported that walnuts and walnut oil were more successful in slowing prostate cancer growth, compared to oil with a similar fatty acid profile to walnut oil.

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enough of it to allow these cells to grow quickly.”

In addition, the research showed increases in both adiponectin and the tumor suppressor PSP94, as well as reduced levels of COX-2, all markers for reduced prostate cancer risk.

Although results in mice don't always translate to humans, Davis said his results suggest the benefits of incorporating walnuts into a healthy diet. Other research, such as the PREDIMED human study, which assessed the Mediterranean diet, also found that eating walnuts reduced cancer mortality.

Still, Davis recommends caution in diet

modification.

“In our study the mice were eating the equivalent of 2.6 ounces of walnuts,” he said. “You need to realize that 2.6 ounces of walnuts is about 482 calories. That's not insignificant, but it's better than eating a serving of supersized fries, which has 610 calories. In addition to the cancer benefit, we think you also get cardiovascular benefits that other walnut research has demonstrated.

“It's the holiday season, and walnuts are part of any number of holiday dishes. Feel free to consume them in moderation.”

Reference:

1. Kim H, Yokoyama W, Davis PA. TRAMP Prostate Tumor Growth Is Slowed by Walnut Diets Through Altered IGF-I Levels, Energy Pathways, and Cholesterol Metabolism. *J Med Food*. 2014 Dec;17(12):1281-6. doi: 10.1089/jmf.2014.0061.

Source: UC Davis Health System Newsroom; Nov. 13, 2014; <http://www.ucdmc.ucdavis.edu/publish/news/newsroom/9471>

Low-Glycemic Index Carbohydrate Diet Does Not Improve Cardiovascular Risk Factors, Insulin Resistance

In a study that included overweight and obese participants, those with diets with low glycemic index of dietary carbohydrate did not have improvements in insulin sensitivity, lipid levels, or systolic blood pressure, according to a study in the December 17 issue of *JAMA*.

Foods that have similar carbohydrate content can differ in the amount they raise blood glucose, a property called the glycemic index. Even though some nutrition policies advocate consumption of low-glycemic index foods and even promote food labeling with glycemic index values, the independent benefits of glycemic index, and its effect on risk factors for cardiovascular disease and diabetes, are not well understood, according to background information in the article.

Frank M. Sacks, M.D., of Brigham and



Foods that have similar carbohydrate content can differ in the amount they raise blood glucose, a property called the glycemic index. Low-glycemic index foods have a lower impact on blood glucose levels.

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Low-Glycemic (Continued from page 14)

Women's Hospital and Harvard Medical School, Boston, and colleagues conducted a trial in which 163 overweight adults with prehypertension or stage I hypertension were given 4 different complete diets that contained all of their meals, snacks, and calorie-containing beverages, each for 5 weeks; and completed at least 2 study diets. The four diets were (1) a high-glycemic index (65 percent on the glucose scale), high-carbohydrate diet (58 percent energy); (2) a low-glycemic index (40 percent), high-carbohydrate diet; (3) a high-glycemic index, low-carbohydrate diet (40 percent energy); and (4) a low-glycemic index, low-carbohydrate diet. Each diet was based on a healthful Dietary Approaches to Stop Hypertension (DASH)-type diet, which is rich in fruits, vegetables, and low-fat dairy foods, and low in saturated and total fat.

The researchers found that at high dietary carbohydrate content, the low- compared with high-glycemic index level decreased insulin sensitivity; increased low-density lipoprotein (LDL) cholesterol; and did not affect levels of high-density lipoprotein (HDL) cholesterol, triglycerides, or blood pressure. At low carbohydrate content, the low- compared with high-glycemic index level did not affect the outcomes except for decreasing triglycerides. In the primary diet contrast, the low-glycemic index, low-carbohydrate diet, compared with the high-glycemic

index, high-carbohydrate diet, did not affect insulin sensitivity, systolic blood pressure, LDL cholesterol, or HDL cholesterol but did lower triglycerides.

"In the context of an overall DASH-type diet, using glycemic index to select specific foods may not improve cardiovascular risk factors or insulin resistance," the authors conclude.

Robert H. Eckel, M.D., of the University of Colorado Anschutz Medical Campus, Aurora, writes in an accompanying editorial that many of the results of this study were contrary to what had been expected.

"When glycemic index was lower in the high-carbohydrate diet, insulin sensitivity not only did not increase but decreased. With the same diet pattern, levels of LDL cholesterol and apolipoprotein B (a secondary end point) increased, with no changes in HDL cholesterol or triglyceride level or blood pressure."

"The unexpected findings of the study by Sacks et al suggest that the concept of glycemic index is less important than previously thought, especially in the context of an overall healthy diet, as tested in this study. These findings should therefore direct attention back to the importance of maintaining an overall heart-healthy lifestyle, including diet pattern."



All four diets compared were based on the DASH diet, and were rich in fruits, vegetables, low-fat dairy, and were low in saturated and total fat.

References:

1. Sacks FM, Carey VJ, Anderson CM, et al. Effects of High vs Low Glycemic Index of Dietary Carbohydrate on Cardiovascular Disease Risk Factors and Insulin Sensitivity: The OmniCarb Randomized Clinical Trial. *JAMA*. 2014;312(23):2531-2541. doi:10.1001/jama.2014.16658.
2. Eckel RH. Role of Glycemic Index in the Context of an Overall Heart-Healthy Diet. *JAMA*. 2014;312(23):2508-2509. doi:10.1001/jama.2014.15338.

Adapted from: JAMA News Releases; Dec. 16, 2014; <http://media.jamanetwork.com/news-item/low-glycemic-index-carbohydrate-diet-does-not-improve-cardiovascular-risk-factors-insulin-resistance/>

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