

Gerald J. and Dorothy R. Friedman School of Nutrition Science and Policy

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Health & YOUR GUIDE TO LIVING HEALTHIER LONGER Nutrition Letter

NEWS**BITES**

Fasting Diets Equivalent to More Traditional Calorie Cutting for Weight Loss

randomized controlled trial A recently published in *The* Journal of Nutrition found that intermittent calorie restriction and continuous calorie restriction were equally effective in promoting weight loss, with no significant differences in outcomes. Forty-six healthy women between the ages of 18 and 55 living in the U.K. who had overweight or obesity (BMI 25 or greater) were randomized to follow either a diet that cut daily energy intake by 25 percent or one that alternated days of regular calorie consumption with "fasting" days on which calories were reduced by 75 percent. Thirty women achieved at least 5 percent weight loss within 12 weeks, regardless of which approach they used to limit caloric intake.

Some studies have suggested that intermittent calorie restriction may be less likely than continuous calorie restriction to **NEWSBITES** continued on page 2

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Detox Dilemma

So-called detox diets and cleanses are not backed by science and can be harmful.

Preserve and supporting the body's natural detoxification systems with a healthy lifestyle is the safest and most effective plan.

Detox Defined: Simply put, detoxification is the removal of toxic substances from the body. "The human body has mechanisms of detoxification to deal with both exogenous toxicants (from the environment) and endogenous (those produced inside the body as a result of metabolic processes)," says Joel Mason, MD, senior scientist and director of the Vitamins and Carcinogenesis Laboratory at the Human Nutrition Research Center on Aging. The skin, lungs, GI tract, microbiome, liver, and kidneys are all involved in protecting our bodies from toxic substances.

"The liver and kidneys have great mechanisms for metabolizing many toxic substances," says Barbara-

jean Magnani, PhD, MD, FCAP, a professor at Tufts University School of Medicine and director of toxicology at Tufts Medical Center. "With the help of enzymes, the liver helps convert fat-soluble chemicals and toxic substances into more water-soluble





The liver and kidneys have the job of removing toxins from our bodies.



Fears about toxicants in our food, water, and environment help marketers sell special diets that are ineffective and sometimes dangerous.

chemicals so they can be easily excreted by the kidneys. Toxic substances can also be combined with other chemical substances in the liver to create a less toxic compound that can be safely eliminated."

Metabolism and excretion of some compounds is completed within a few hours of ingestion or exposure, but some, like lead, mercury, and persistent organic pollutants accumulate in body tissues or remain in

Detox continued on page 7

TAKE CHARGE!

Limiting exposure to toxic substances and making healthy lifestyle choices is the best way to support detoxification.

- Avoid radical diets, such as those recommending a very limited number of foods or beverages
- Be wary of products claiming to "cleanse" the colon, speed up the lymphatic system, or rid the body of built-up toxic substances, as these claims do not align with how the body actually works
- Support your liver and kidneys by getting plenty of fluids, controlling blood sugar, maintaining a healthy weight, avoiding refined carbohydrates, salt, and added sugars, getting regular physical activity, using alcohol responsibly, avoiding illicit drugs, and taking medications only as prescribed
- Limit intake of rice and rice-flour products to reduce arsenic exposure
- Scrub hard produce and rinse delicate fruits and veggies well to remove/reduce pesticide residues
- Limit intake of high-mercury fish, such as ahi tuna, king mackerel, marlin, orange roughy, shark, swordfish, and tilefish
- Don't freeze or microwave foods in plastic containers, as exposure to temperature changes may increase release of chemicals into food (see BPA: How Worried Should We Be? on page 3)
- Do not use tobacco products, and use appropriate protective gear when working around hazardous substances

Tufts

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lead to hunger and muscle loss, but this study showed that neither approach led to these undesirable outcomes.

Restricting overall calorie intake leads to weight loss no matter how it is done. People looking to lose weight should follow a healthy dietary pattern that deceases total calorie intake in whatever way works best for them.

Coffee Consumption Associated with Lower Risk for Kidney Disease

A European study published in the American Journal of Kidney Diseases provides evidence that drinking coffee is associated with healthy kidney function. Data on nearly 228,000 people were included in the analysis, which found that drinking higher amounts of coffee was associated with a lower risk of developing chronic kidney disease (CKD). Recommendations on how much coffee (and what kind) cannot be drawn from a study of this type.

CKD affects around 10 percent of the global population. What it is about habitual coffee drinking that might help kidney function is unknown. Coffee drinking, decaf or regular, may ensure adequate



Drinking coffee was associated with lower risk of chronic kidney disease.

fluid intake; caffeine itself may help to keep the vessels of the kidneys dilated; and a number of noncaffeine chemical constitutes in coffee are known to reduce inflammation and oxidative stress, both of which are players in the onset and progression of CKD.

More research, including randomized controlled trials, is needed to prove that coffee really does benefit kidney health, and if so, what type of coffee. Coffee lovers can take heart in yet another association between their beverage-of-choice and good health, but these data do not suggest non-coffee drinkers should start or that the potential benefits of coffee provide a free pass on adding lots of sugar and cream.

Oat Soluble Fiber Influences Blood Sugar Control, But Not Appetite

A randomized, placebo-controlled, crossover trial published in *The American Journal of Clinical Nutrition* found the soluble fiber in oats (oat beta-glucan) affected blood glucose and insulin levels and slowed the movement of food from the stomach into the intestines, but it did not significantly affect appetite or food intake at subsequent meals. Sixteen males and 12 non-pregnant females between the ages of 18 and 60 years consumed breakfasts with varying amounts of oat beta-glucan. Compared with a

beta-glucan-free cereal, oatmeal with four grams of oat beta-glucan significantly reduced glucose and insulin levels and delayed the emptying of the stomach, but everyone chose to eat similar amounts of pizza when it was offered three hours after breakfast.

NEWSBITES



Soluble fiber in oats slows stomach emptying and helps with blood sugar control.

Oatmeal and other foods high in soluble fiber (like beans, apples, and barley) can help with blood sugar control (and they have been found to lower blood cholesterol levels as well), but they may not help reduce hunger.

Sustained Weight Loss Associated with Lower Breast Cancer Risk in Women 50 and Over

n analysis published in the Journal of **T** *the National Cancer Institute* found that losing even modest amounts of weight and keeping it off was associated with lower risk of breast cancer in women 50 and over. The study pooled information on the weight of nearly 181,000 women assessed in at least three surveys over approximately 10 years. The average body mass index (BMI) at the start of the study was 25.1 (slightly overweight). None of the participants were obese (BMI of 30 or higher). Women who lost as little as 2 kilograms (4.4 pounds) and kept it off had a lower risk of being diagnosed with breast cancer during the study period than those whose weight remained relatively stable. Losing nine or more kilograms (20 pounds) and gaining some (but not all) of it back was also associated with a lower risk of breast cancer.

Sustained weight loss has also been associated with improved cardiovascular health. (See *Regaining Lost Weight Negates Many Cardiometabolic Gains*, January 2020.) The authors of this study hope their findings will motivate overweight women to lose some weight and Image © VeselovaElena | Getty Images



BPA: How Worried Should We Be?

This common chemical is pervasive in our environment and food, but proof of harm is lacking.

B isphenol A, also known as BPA, is pervasive in our environment. Animal studies suggest that at very high levels it could have adverse health impacts, but there is as yet no solid evidence that BPA causes health problems in humans at current levels of exposure. Until we have more information, taking simple measures to limit exposure seems prudent.

What is BPA? BPA is one of the highestvolume chemicals globally produced. It gives resins and plastics strength, hardness, temperature stability, and resistance to acids and oils, making them ideal for food and beverage containers as well as many other common products. Beginning in the 1950s and '60s, BPA became ubiquitous in many everyday products. People are therefore frequently and unknowingly exposed to this compound.

We're exposed to BPA through skin contact and inhalation of air and dust, but more than 90 percent of total BPA exposure for the general population is through diet, partly due to plants and animals being exposed to BPA in the environment. Food packaging like plastic wrap, plastic containers, and can liners can leach BPA into food, especially when heated. Cans for canned foods may be lined with a BPA epoxy resin to protect the food from the metal can, although this practice is changing.



Carry a reusable water bottle to avoid plastic bottles made with BPA.

Health impacts: The FDA estimates that we actually absorb less than one percent of the total BPA we ingest

through diet, and much of that is excreted from the body. Detectable levels of BPA have been found in the urine of an estimated 90 percent of the population of the U.S. Unfortunately, BPA has also been found in blood, and in the placenta, breast milk, and amniotic fluid of pregnant women.

Concern that BPA may cause adverse health effects arises from its potential to mimic or interfere with hormones such as estrogen, androgens, and thyroid hormone. This interference could theoretically affect the reproductive system, nervous system, metabolic and immune function, and the development and growth of babies. There is actually very little data on the long-term impact of BPA on human health. Most studies were conducted on animals, and the rodents or primates were often exposed to much higher levels of BPA—as much as 100 to 1,000 times higher—than typical human exposure.

How Worried Should We Be? Based on studies on the health effects of BPA, the Environmental Protection Agency (EPA) has set a daily limit of 23 micrograms of BPA per pound of bodyweight as a reference for safe exposure. A 2019 study published in the journal *Environmental Science and Pollution Research International* calculated the average human daily intake of BPA globally as 2.53 micrograms per pound of body weight well below the EPA limit.

The Food and Drug Administration (FDA), which controls food packaging, has responded to consumer and scientific interest in the safety of BPA by conducting additional research through the National Center for Toxicological Research to ensure public safety. In 2014 the FDA completed a four-year review



BPA, a chemical compound that gives plastic some of its key properties, is now ubiquitous in our environment.

of more than 300 studies and concluded there was no need to change food packaging rules. The U.S. does enforce some limits on BPA in products, including a ban on its use in baby bottles, sippy cups, and infant formula packaging.

While at this time there is no proof that BPA adversely impacts human health at current levels of exposure, people who wish to minimize exposure should limit use of plastics, Styrofoam, and other BPA-laden products (see *Take Charge!* box for tips on limiting exposure to BPA).

TAKE CHARGE!

It may not be possible to avoid BPA completely, but it can't hurt to minimize exposure. Here are a few ways to do so:

Limit use of plastic food containers, especially those stamped with the recycling number 7



- Carry a refillable metal or BPA-free water bottle instead of buying water in plastic bottles
- Look for canned foods in BPA-free cans, and go with frozen and fresh foods when possible
- Purchase and store foods and drinks in glass jars or bottles when possible, not plastic
- Beware of freezing or microwaving foods in plastic containers unless they are marked "BPA free," as exposure to temperature changes may increase release of BPA into food
- Consider washing plastic containers by hand, as heat and harsh detergents in dishwashers may break plastic down, releasing BPA
- Choose baby toys that are wooden or are labeled BPA-free
- Have receipts emailed or minimize contact with your skin, as some receipt paper is made with BPA

SPECIALREPORT

The Low FODMAP Diet

Cutting back on certain carbs can help alleviate intestinal distress in some people, but this diet is not for everyone.

ODMAPs (fermentable oligosaccharides, disaccharides, monosaccharides and polyols) are a group of sugars and fibers that serve as beneficial prebiotics, feeding the gut microbes that are important to many facets of health. Most people have no problem consuming as many high FODMAP foods as they want. Unfortunately, some people are sensitive to FODMAPs and may need to adjust their diets in order to reduce gastrointestinal symptoms.

What are FODMAPs? "FODMAPs are groups of small chain carbohydrates that are commonly poorly absorbed in the small intestine," says Alicia Romano, MS, RD, LDN, CNSC, a Registered Dietitian/Nutritionist at the Frances Stern Nutrition Center at Tufts Medical Center. (See What Does "FODMAP" Stand For?").

FODMAPs are found naturally in nearly all food groups. "They are in many foods that are quite common in our diet, including milk, wheat, garlic, onion, apples, watermelon, pears, honey, agave, cauliflower, and mushrooms," says Romano. The presence or absence of FODMAPs says nothing about the nutritional value of a food (high-FODMAP asparagus and low-FODMAP green beans are both nutritious). Additionally, it's impossible to guess the FODMAP content of a food just by looking at it or tasting it. FODMAP content varies widely within food groups. For example, apples are a high FODMAP food, and grapes are a low FODMAP food; honey is high in FODMAPs, and maple syrup is low.

Gut Check: "In those with a sensitive gastrointestinal tract, these poorly absorbed carbohydrates may lead to a cascade of unpleasant GI symptoms,"

says Romano. "Unabsorbed FODMAPs in the small intestine attract water into the gut, stretching it. In patients with quick transit, this may contribute to diarrhea. The malabsorbed carbohydrates also provide a quick fuel source for gut microbiota; the gut microbes 'feast' off these poorly absorbed carbohydrates, leading to excess fermen-

tation, gas, and potentially constipation. Patients with a diagnosis of irritable bowel syndrome (IBS) in particular may be FODMAP sensitive."

IBS is the most common disease diagnosed by gastroenterologists in the U.S., and one of the most common disorders seen by primary care physicians. The American College of Gastroenterology (ACG) estimates that 10 to 15 percent of the adult population in the U.S. suffer from symptoms of IBS, although only five to seven percent of adults have been diagnosed with the disease. "There



Symptoms of IBS may be helped by an expertguided low FODMAP diet.



One cannot tell if a food is high for low in FODMAPs just by looking at it. Some of these foods (like asparagus and peas) are high in FODMAPs, and some (like green beans and zucchini) are low.

are a number of GI symptoms that patients may experience related to their IBS diagnosis, including bloating, gas, changes in bowel habits (diarrhea, constipation or a combination of the two), and abdominal discomfort," says Romano. "These GI symptoms also overlap with a number of other gastrointestinal conditions, including Celiac disease, inflammatory bowel disease, heartburn, and gastro-esophageal reflux. I recommend working with your primary care physician or your gastroenterologist to obtain a proper workup and diagnosis of your GI symptoms to yield the most appropriate treatment. People should never self-diagnose or self-treat."

Low FODMAP Diet Plan: "The low FOD-MAP nutritional approach was created by Australian researchers at Monash University, and continues to be studied and updated," says Romano. There is no diagnostic test for FODMAP sensitivity. Once other digestive issues and diseases have been ruled out by a gastroenterologist, a referral may be made to a Registered Dietitian (RD) to begin a FOD-MAP elimination diet.



SPECIALREPORT

"This diet has three phases: elimination, reintroduction, and individualization," says Romano. "The elimination phase lasts two to six weeks. If you have experienced symptomatic improvement, your RD will guide you through the next phases of the diet, including reintroduction of FODMAP food groups and then individualization to the most liberal diet possible."

Proceed with Caution: Entirely FOD-MAP-free diets are not meant to be followed long-term, and they can lead to nutrient deficiencies. Foods must be added back in to liberalize the diet. "This diet has many nuances and can be tricky to follow without guidance," says Romano. "For some patients, a low FODMAP diet may not be appropriate."

While it is generally accepted that a low FODMAP diet can be effective in reducing or alleviating IBS symptoms, research on the subject is somewhat limited. A 2018 review of randomized controlled trials published in the *American Journal of Gastroenterology* found evidence that a low FODMAP diet was effective in treating symptoms of IBS, although it graded this evidence as "very low quality." The authors indicate this rating is a result of low study size and potential for the placebo effect, given that participants could easily tell if they were

What does "FODMAP" stand for?

FODMAP is a collective term used to describe short-chain carbohydrates that are incompletely absorbed in the small intestine. It is an acronym for *fermentable oligosaccharides, disaccharides,* monosaccharides and polyols.



FODMAPs like fructose can cause gastrointestinal symptoms in some people.

	DEFINITION	EXAMPLES THAT MAY TRIGGER IBS	FOUND IN
ERMENTABLE	Able to be broken down by microbes in a process that provides energy for the microbes, along with gas		
OLIGOSACCHARIDES	A chain of five sugar molecules	Fructans: chains of fruc- tose sugars GOS (galacto-oligosaccha- rides): chains of galactose sugars	Wheat, rye, onions, garlic, legumes/peas
DISACCHARIDES	Two sugar molecules linked together	Lactose (milk sugar)	Dairy products (milk, soft cheeses, yogurts)
Monosaccharides	Single sugar molecules	Fructose (when a sweetener or food contains more fructose than glucose)	Honey, agave nectar, apples, high fructose corn syrup
And			
POLYOLS	Sugar alcohols (short chains of sugars attached to a chemical group called an "alcohol"). These com- pounds are not alcoholic.	Sorbitol; Mannitol	Some fruits and vegetables such as peaches, plums, mushrooms, and cauliflower; Used as an artificial sweetener, particularly in foods labeled as "diet" or "sugar free"
Source: Monash University, https://www.monashfodmap.com/about-fodmap-and-ibs/			

TAKE CHARGE!

FODMAPs are beneficial carbohydrates and intake should not be reduced unless one has Irritable Bowel Syndrome and is under medical guidance.

- See your primary care physician or a gastroenterologist if you experience unexplained intestinal distress.
- Do not undertake a low FODMAP diet without the guidance of a nutrition professional such as a Registered Dietitian
- Do not attempt long-term exclusion of FODMAPs, as this can lead to nutrient deficiencies and disordered eating

being put on a low FODMAP diet or not. Additionally, study durations were typically short.

A low FODMAP diet is generally low in dietary fiber, an important health-promoting bioactive food component. The diet is complex, can lead to low calorie intake, and may reduce concentrations of beneficial gut microbes. It also is difficult for vegans and vegetarians to adhere to and is potentially dangerous for people with diabetes and those with a history of eating disorders. While this diet is the most effective dietary intervention for IBS to date, it should not be undertaken without guidance from a nutrition professional.

"If you have been diagnosed with IBS," says Romano, "the low FODMAP diet may play an important role in your symptom management along with other traditional medical therapies."

RESOURCES

Monash University

Monash University conducts laboratory analyses to understand FODMAP content of food and makes this information (and other information on IBS and FODMAPs) available online and in a free mobile phone app. The app uses a traffic light rating system to indicate whether foods are low (green), moderate (yellow), or high (red) in FODMAPs.

For more information, see

MonashFODMAP.com



A Report Card on the American Diet

Tufts' research identifies progress—and areas for improvement—in how Americans eat.

he latest available data show that, as of 2016, Americans had made some significant dietary improvements, reducing intake of low-quality carbohydrates like added sugars and increasing high-quality carbohydrates, plant protein, and polyunsaturated fatty acids. However, they were still eating too many low-quality carbohydrates and consuming more than the recommended level of saturated fat, according to researchers at Tufts' Friedman School of Nutrition Science and Policy and the Harvard T.H. Chan School of Public Health.

The study, published recently in *JAMA*, analyzed data from nearly 44,000 U.S. adults aged 20 and older who took part in the National Health and Nutrition Examination Survey (NHANES) from 1996 to 2016. The researchers used the Healthy Eating Index 2015, which measures adherence to the 2015-2020 Dietary Guidelines for Americans (DGA), to examine overall diet quality; trends in intake of carbohydrates, protein, and fats; and major food sources of carbohydrate and protein. The study results can be considered a "report card" on America's diet.

The Carb Conundrum: Contrary to popular belief, Americans do not consume

TAKE CHARGE!

Try these tips to improve the quality of your diet:

- Reduce Low-Quality Carbs: Skip foods and drinks with added sugars and refined grains, choosing high-quality carbs like whole grains and whole fruits and vegetables instead.
- Replace Some Animal Proteins with Plant-Based Proteins to Decrease Saturated Fat Intake: Animal proteins, like red meats and processed meats, contain saturated fat. Americans eat more saturated fat than is recommended for a healthy diet. Aim to get more protein from legumes/beans, nuts, seeds, and whole grains like quinoa.

ns eat. too many

carbohydrates, but it appears they eat the wrong ones. The data show that most carbohydrates Americans eat are low quality. Diets high in lowquality carbohydrates like sugar and refined grains are associated with higher disease risk, while diets that emphasize high-quality carbohydrates from foods

like fruits, vegetables, and whole grains



Americans still eat too many low-quality carbohydrates like sodas, sweets, and refined flour.

are associated with health benefits. "Fruits, vegetables, and whole grains are high in fiber and contain many other bioactive compounds," says Fang Fang Zhang, MD, PhD, an associate professor at the Friedman School and senior and corresponding author on the study. "High dietary fiber intake has been associated with lower risk of obesity, type 2 diabetes, heart disease, stroke, and some cancers."

During the study period, total carbohydrate intake decreased by two percent (from 52.5 to 50.5 percent), remaining in the recommended intake range of 45 to 60 percent of calories. Intake of low-quality carbohydrates decreased by three percent, but these less-healthful choices still made up nearly 42 percent of total calories. "Refined grains and added sugars are the two major components of low-quality carbs," says Zhang. "We know from our

A new study from Tufts' researchers provides a report card on the American diet. previous studies that sugarsweetened beverages contribute a large proportion of added sugar consumption in Americans' diets. We did not study

the major sources of refined grains but suspect that low-quality carbs may come primarily from processed packaged foods and fast foods."

Intake of high-quality carbohydrates like whole grains and whole fruit only increased by around one percent (from 7.4 to 8.6 percent), and these choices made up only nine percent of total calorie intake. "It is surprising to see that nearly 42 percent of our daily calories come from low-quality carbs," says Zhang. "In particular, our consumption of refined grains has been increasing in the past 15 years."

The Protein-Fat Connection: Caloriesfrom protein and fat in the Americandiet each increased one percent. Half ofthe estimated intake of fat was saturat-ed fatty acids, which have beenassociated with higher riskof cardiovascular disease.The other half came fromheart-healthy mono- andpolyunsaturated fatty acids.While the DGA recommend

limiting saturated fat intake

to no more than a 10 percent of calories, this study found that total saturated fat intake was 12 percent of daily calories. "A large proportion of the saturated fat Americans consume comes from animal proteins," says Zhang. "These include red meats such as beef, pork, and lamb; processed meat such as sausages and bacons; and poultry with skin. Dairy foods such as butter, cream, whole milk, and cheese also contribute to saturated fat intake." Protein from other sources like seafood, whole grains, nuts, and legumes remain a much smaller percentage.

"Although there is a moderate improvement in the diet quality of Americans over the past few decades, the progress that we have made has not yet brought us to where we need to be," says Zhang. "These results provide insights into the priority areas that we should focus on to improve public health."



Diet and Blood Pressure continued from page 1

the blood (see *BPA: How Worried Should We Be?* on page 3). There is no evidence, however, that over-the-counter cleansing protocols remove these compounds from the body.

Diets and Cleanses: Detox diets are suggested as ways to remove toxic substances from the body, lose weight, or promote health. "Unfortunately, there is a void in rigorous scientific evidence that so-called detox diets are helpful in any of these ways," says Mason. Popular "detoxification" programs include fasting, drinking only juices or similar beverages, eating only certain foods, using dietary supplements or herbs, and "cleansing" the colon with enemas, laxatives, or colon hydrotherapy (also called "colonic irrigation" or "colonics").

There have been only a small number of studies on "detoxification" programs, and these are often of low quality or were conducted in animals and therefore do not have direct application to humans. A literature search turned up no randomized controlled trials assessing the effectiveness of commercial detox diets in humans. As for other claims, a 2017 review said that juicing and "detox" diets can cause initial weight loss because of low intake of calories but they don't guarantee sustained weight loss. Additionally, if these radical diets should lead to rapid weight loss, toxins sequestered in fat may be released more quickly than the body can process them (although the health impact of this release is undetermined).

There are other potential harms from these products/diets. The U.S. Food and Drug Administration and Federal Trade Commission have taken action against several companies selling detox/cleansing products because they contained illegal, potentially harmful ingredients; were marketed using false claims that they could treat serious diseases; or—in the case of medical devices used for colon cleansing were marketed for unapproved uses.

Optimizing Natural Systems: The best way to protect your body from toxic substances is to limit exposure and follow healthy lifestyle practices. (See *Take Charge!* box for suggestions on avoiding environmental toxicants.)

While drastic dietary interventions are not a good idea, health-promoting lifestyle choices are. Eat plenty of plant foods; get sufficient fluids; control blood sugar; maintain a healthy weight; cut back

DETOX DANGERS

"Detoxification" programs are unregulated, do not have to prove their claims, and can be dangerous. Many make claims at odds with how the body actually functions, and none have rigorous scientific evidence behind them. The National Institutes of Health provides the following cautions regarding detox programs:

 Some juices used in "detoxes" and "cleanses" that haven't been pasteurized or treated in other ways to kill harmful bacteria can make people sick. The resulting illnesses can be serious in



A healthy diet, including plenty of colorful fruits and vegetables, helps support the body's natural detox systems.

children, elderly people, and those with weakened immune systems.

- Some juices are made from foods that are high in oxalate, a naturally occurring substance. Two examples of high-oxalate foods are spinach and beets. Drinking large quantities of high-oxalate juice can increase the risk for kidney problems and interfere with the absorption of some essential minerals.
- Diets that severely restrict calories or the types of food you eat usually don't lead to lasting weight loss and may not provide all the nutrients you need.

Colon cleansing procedures may have side effects, some of which can be serious. Harmful effects are more likely in people with a history of gastrointestinal disease, colon surgery, severe

hemorrhoids, kidney disease, or heart disease.

- "Detoxification" programs may include laxatives, which can cause diarrhea severe enough to lead to dehydration and electrolyte imbalances.
- Drinking large quantities of water and herbal tea and not eating any food for days in a row could lead to dangerous electrolyte imbalances.
- Dramatic dietary changes can be dangerous for people with diabetes. If you have diabetes, consult your health care providers before making major changes in your eating habits, such as going on a "detox" diet or changing your eating patterns.

on refined carbohydrates, salt, and added sugars; get regular physical activity; use alcohol responsibly; avoid illicit drugs and tobacco products; and take medications only as prescribed. "The bottom line," says Magnani, "is to keep your liver and kidneys happy and healthy so they can do their jobs effectively."

FEATURED RECIPE: MONASH TZATZIKI DIP



Try this low FODMAP version of a classic Greek sauce as a dip, with meat or poultry, in sand-wiches, with rice dishes, or any way you like.

INGREDIENTS

2 cloves garlic, cut in half 1½ Tbsp olive oil 3½ cups (about 35 oz) Plain Greek yogurt 3 medium cucumbers, finely chopped (about 1¼ cups) 1 Tbsp dried mint flakes

STEPS

- 1. Add garlic cloves to olive oil and set aside for a few minutes to let the garlic infuse into the oil.
- **2.** Empty yogurt into a large bowl.
- Discard liquid that comes from chopping the cucumber. Mix cucumber and mint into yogurt.
- 4. Discard garlic cloves from the olive oil and stir olive oil into yogurt mixture.
- Taste test and add in more cucumber or dried mint to taste.
- 6. Refrigerate and serve cold.

Yield: 50 Servings

Nutrients per 1½ Tablespoon serving*: Calories: 23; Total Fat: 1.4 g; Saturated Fat: 0.6 g; Total Carbohydrate: 1.1 g; Total Sugars: 1.7 g (Added, 0 g); Dietary Fiber: 0 g; Protein: 1.2 g; Sodium: 7.2 mg; Potassium: 42.5 mg; Calcium: 21.5 mg; Vitamin D: 0 IU ; Iron: 0 mg *calculated using whole milk yogurt

(Tbsp = Tablespoon; oz = ounces; g = gram; mg = milligram; IU = International Units)

Source: Department of Gastroenterology, Monash University. This recipe was created and reproduced with permission by Monash University (monashfodmap.com).



Image CharlieAJA | Getty Image

ASK TUFTS EXPERTS

Vegan Egg Replacements ... Cutting Sugar in Baking

FEATURED TUFTS EXPERT



Alicia Romano, MS, RD, LDN, CNSC, is a registered dietitian/ nutritionist and board-certified nutrition support clinician. She received her master's degree in nutrition from the Friedman School and currently provides medical nutrition therapy to patients with chronic diseases related to gastroenterology and oncology at the Frances Stern Nutrition Center. Ms. Romano is also a national media spokesperson for the Academy of Nutrition & Dietetics. See her comments on low FODMAP diets on page 4.

HAVE A QUESTION FOR TUFTS EXPERTS?

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Sorry, because of the volume of questions, we cannot respond to each inquiry individually.

If you have a condition that may need medical attention, or personal questions related to our articles, please consult your physician.

IN COMING

- What to eat with DIABETES
- EGGS: How to choose
- The latest on CANCER AND DIET
- Avoiding KIDNEY STONES

What makes a good vegan egg replacement?

A Melissa Townsend, MS, RD, CDN, Registered Dietitian, Tufts N19, answers: "Eggs are an important ingredient in baking and cooking because of their functionality, including emulsifying, binding, foaming, leavening, and thickening. For those who are looking for a vegan egg replacement, the best option depends on what you're trying to make.

- Ground flaxseeds or chia seeds are one of the most common egg replacements. To replace one egg, combine one tablespoon of ground flaxseed or chia seeds with three tablespoons of water and let sit for 10 to 30 minutes to create a
- gel that works well in cakes and brownies.
 Aquafaba, the liquid from canned chickpeas, is another option. It can be whipped to stiff peaks like egg whites. Three tablespoons can

be used to replace each egg white or whole egg in meringues, cakes, or cookies. (Note that this brine can be high in sodium.)

- Two tablespoons cornstarch mixed with three tablespoons water is a flavorless option to replace each egg in custards and pies.
- One teaspoon of baking soda mixed with one tablespoon of white or cider vinegar per egg can be used in cakes, cupcakes, and quick breads.
- One-quarter cup of pureed silken tofu or soy yogurt can be used for each egg in breads, muffins, and pound cakes. This will result in a denser, moist texture. Extra baking powder may be necessary.
- Fruit or vegetable purees, such as one-half to one mashed banana or one-quarter cup of applesauce, pureed pumpkin, or mashed sweet potato can be used in breads and muffins. With these options, you may need to reduce the sugar in the recipe.
- Three tablespoons of creamy nut butter can be used per egg in cookies. Make sure you choose a recipe that will taste good with a nutty flavor!
- Commercial vegan egg replacers are also available. These are made from starches and have directions for how to replace whole eggs or egg yolks when mixing the replacer with water."

Q What are some ways I can decrease sugar when baking?

A Judith C. Thalheimer, RD, LDN, managing editor of *Tufts Health & Nutrition Letter*, answers. "The added sugars, refined carbohydrates, and saturated fats in baked goods like muffins, cakes, and cookies are associated with numerous chronic health problems, and nutrition experts universally recommend cutting back on their intake (see *A Report Card on the American Diet* on page 6). For those who want to bake a treat, reducing the amount of sugar in the recipe (and adding fruit and whole-grain ingredients) improves the nutritional content.

"Sugar plays many roles in baked goods beyond providing sweetness. Cutting sugar can

make baked goods less moist

and blander. Their shelf-life

will be shorter and brown-

ness will not be as good an

made with less than the rec-

ommended amount of sugar

will not spread as much, and

crunchy. It will take some trial

they will be cakier and less

indicator of doneness. Cookies



Reducing the amount of sugar or using egg substitutes in baked goods can change the appearance, texture, and taste.

and error to adjust recipes to your liking.

"One popular way to cut back on sugar is to substitute fruit. Fruit provides sweetness along with fiber and other bioactive compounds. Onequarter cup of applesauce or puree of banana, figs, or other fruits can be used to replace one cup of sugar in a recipe, although this may result in changes to texture and rising. Sprinkling in chopped dried fruit can also replace a few tablespoons of sugar (and add beneficial fiber).

"Sugar substitutes can be used: for example, one teaspoon of a Stevia replaces one cup of white sugar (or 1/8 teaspoon Stevia for every Tablespoon of sugar). So-called 'baking blends' that mix sugar with a sugar substitute are available in many markets. See product packages for substitution details.

"Sprinkling sugar on top of a baked good or drizzling on a glaze of confectioners' sugar mixed with milk or water can provide a strong sugary taste with less sugar overall.

"Remember, while making adjustments to recipes is fine, cutting back on portion sizes and overall intake of sweets and baked goods (and choosing sweet fruits when the craving hits) is considerably better."

