

# NIH News in Health

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## Dejunking Your Diet The Drawbacks of Ultra-Processed Foods

Eating healthy isn't always easy. Expert-recommended diets often emphasize fresh, whole foods and home-cooked meals. But that can be expensive and time-consuming. Highly processed foods are often cheap and convenient. But they also tend to be high in calories, added sugar, saturated fat, and salt, and low in fiber.

Scientists are starting to learn that highly processed foods can have certain effects on your body that may make sticking to your healthy eating goals even harder. Eating too much of them may lead to weight gain and increase your risk for certain diseases, like cancer, diabetes, and obesity.

**What Are Ultra-Processed Foods?** • Most foods that we eat are processed to some extent—they're modified from how they exist in nature. Chopping, grinding, drying, cooking, and freezing are all forms of food processing. Some forms of processing are good for your health. For example, cooking meat and pasteurizing milk can help prevent foodborne diseases. But if your food is processed too much, it may be harmful to your health.

Ultra-processed foods are those that have undergone the greatest level of processing. As a general rule, ultra-processed foods are those that have been made using additives, ingredients that you wouldn't likely have in your home kitchen. These



include things like hydrogenated oils, isolated proteins, and high-fructose corn syrup. Ultra-processed foods are often made using industrial processes that you can't easily do at home.

"If you're standing in the grocery store, in one of the middle aisles, and the thing that you're holding is in a crinkly package, you're probably holding an ultra-processed food," says Dr. Alexandra DiFeliceantonio, a neuroscientist who studies health behaviors at Virginia Tech.

Ultra-processed foods are designed to be low cost and have long shelf lives. They're tasty, convenient, and ready to eat. Examples include carbonated soft drinks, chips, chicken nuggets, and sausages. Having too much of these in your diet may result in overeating and can be harmful to your health.

**Understanding Over-eating** • It's difficult for scientists to study exactly how ultra-processed foods affect overeating. That requires carefully controlling people's diets for weeks at a time.

But NIH metabolism researcher Dr. Kevin Hall has done just that. In a recent study, he compared calorie intake and weight gain in participants who ate a highly processed diet with those who ate a minimally processed diet. Study participants stayed at NIH's Metabolic Clinical Research Unit for four weeks, spending two weeks on each diet. Both

diets offered the same amount of calories, sugar, fiber, fat, sodium, and carbohydrates on a daily basis. Participants could eat as much or as little as they wanted.

When people were on the diet with ultra-processed foods, they ate about 500 more calories each day. They also gained about 2 pounds on average. In contrast, when they were on the less-processed diet, they lost about 2 pounds.

The differences weren't due to different nutrients in the overall

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diet. And, the participants rated the meals on both diets as equally pleasant. So why did people eat more of the diet filled with ultra-processed foods? The researchers aren't sure.

Hall's team is now looking at what else might be in ultra-processed foods that leads people to overeat. The brain may react differently to those foods, he says, or the gut may send out different signals after they're digested.

The tendency for ultra-processed foods to lead to overeating may partly explain the recent rise in obesity. "But we rely on ultra-processed foods too much to get rid of them," Hall says. "They're tasty, they're convenient, and it doesn't take much time or effort or skill to prepare them."

Hall hopes that a better understanding of what's causing increased calorie consumption can help guide how such foods are made, or which ones people choose to eat.

"If we had ways to target problematic foods by understanding how they cause overeating, that might help manufacturers reformulate those foods so that they no longer cause problems," says Hall. "Or it

might help policymakers come up with ways to regulate potentially problematic foods."

**Changing the Brain** • One way that ultra-processed foods might lead to overeating is by altering the brain. DiFeliceantonio's team is using MRI scans to see how ultra-processed foods affect the brain's reward system. These are the parts of the brain that are activated by pleasure and drive us to seek it out. DiFeliceantonio is studying whether a diet high in ultra-processed foods affect this system, and if the changes lead to people eating more when they're not hungry.

If consuming ultra-processed foods and drinks might make you want more, does that mean you can get addicted to them? Right now, it's not clear whether ultra-processed foods are addictive. But some studies suggest they might be.

"These ultra-processed, highly rewarding foods have way more in common with a cigarette than they do with an apple or an orange or black beans," says Dr. Ashley Gearhardt, a clinical psychologist who studies overeating behaviors at the University of Michigan. "Some of the same brain circuitry turns on when we're craving drugs as when we're craving these ultra-processed foods."

Gearhardt says that eating ultra-processed foods may lead to a compulsive habit. This means you have difficulty cutting back even when you want to. This is similar to what happens with addictive substances.

Addictive substances can also cause withdrawal symptoms when you stop taking them. Symptoms can include irritability, agitation, depression, and strong cravings for the substance. Gearhardt and others are studying whether cutting back on ultra-processed foods can cause similar withdrawal symptoms.

This research may help explain why

eating healthier can be harder for some people.

"Right now, we tell people they should feel better if they're eating healthier," Gearhardt says. "But we hear a lot of people say: 'When I start to eat healthier, I feel so irritable and agitated. My cravings are so strong that I don't feel better. I feel worse.'"

If we recognize that these symptoms can occur, we could give people strategies to manage them, says Gearhardt. That might make it easier for people to change their eating habits. If you're looking for ways to start eating healthier, see the Wise Choices Box for tips. ■



## Wise Choices Eating Healthier

- **Choose whole foods whenever possible.** These include fruits and vegetables, unprocessed meat and seafood, and nuts and legumes.
- **Drink fewer sugar-sweetened beverages,** such as soda and sports drinks.
- **Choose foods made from whole grains** rather than refined grains. For example, eat whole grain bread or pasta and brown rice instead of white bread, pasta, or rice.
- **Keep healthy snacks on hand,** like vegetables and hummus, fruit, low-fat yogurt, nuts, and seeds. That can make it easier to choose healthy foods when you're hungry.
- **Read nutrition labels.** Choose nutrient-rich products with simple ingredients. Limit those that are high in sugar and salt. Learn more at Nutrition.gov.
- **Seek support.** Get help from your family and friends. Consider consulting a dietitian.

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## Web Links

For more about ultraprocessed foods and an online-only Q&A, see "Links" in the online article:  
[newsinhealth.nih.gov/2024/02/dejunking-your-diet](https://newsinhealth.nih.gov/2024/02/dejunking-your-diet)

# Decoding Dyslexia

## Helping Kids Who Struggle With Reading

Kids have a lot to learn in their first five years of life. They learn to walk, talk, and eventually to start reading. But while kids can pick up walking and talking naturally, they must be taught how to read. Children who struggle with the building blocks of reading may be at risk for developing dyslexia.

Dyslexia is a reading disorder in which people find it hard to link speech sounds to letters and words. They also have trouble with spelling and recognizing words. These issues make reading difficult.

“To develop reading skills, your brain has to reorganize itself,” says Dr. Jack Fletcher, a neuropsychologist at the University of Houston. “It takes brain areas that are built for language and for visual attention and repurposes them for reading.”

But everyone’s brain is different. These differences can make it harder for certain people to learn to read. Your **genes** can affect your chance of developing dyslexia. The disorder tends to run in families. Environmental factors, like not having access to quality instruction, can also raise your risk.

“We can lessen that risk with instruction on reading and on how language works and other approaches,” says Fletcher. But early intervention is key.

“We want to identify kids who are at risk for dyslexia and intensify their instruction early on to try and keep them from developing dyslexia,” Fletcher explains.

Kids who struggle to keep up with classmates are also at risk for developing mental health issues, like anxiety and depression. “We know that in first grade in particular, kids are very aware of how well they’re reading, and who in the classroom is not reading well. That is troublesome to lots of kids,” Fletcher says.

Decades of research has identified the best way to teach most children to read. Kids must first learn what’s called “phonemic awareness.” This means they understand that words are composed of distinct sounds, or “phonemes.” Then they have to apply this knowledge to printed text and understand that the letters represent the structured sounds of speech. If they don’t gain these skills early on, it can affect their progress in learning to read as they get older.

If your child has trouble reading, talk with their teacher and their doctor. Health professionals can help rule out certain other issues, like hearing or vision problems, that may underlie reading problems. An evaluation for dyslexia may involve visits



to specialists such as speech-language pathologists, psychologists, or a reading or education specialist.

If your child attends public school, you may be able to request a free evaluation. Public schools in the U.S. are required to provide free special education support to children with specific learning disabilities, including dyslexia.

Children with dyslexia sometimes have other learning problems, too, such as difficulties with writing or reading comprehension. These problems can be caused by dyslexia or by separate learning disabilities. Many kids with dyslexia also have attention deficit hyperactivity disorder (ADHD). ADHD is not a learning disability. But it can interfere with learning because it disrupts attention span and the ability to organize. ADHD requires its own treatments.

There is no cure for dyslexia. But early recognition of the condition, and support at home and school, can help set kids with dyslexia on the road to success. The Wise Choices box lists early signs to look for. ■



### Wise Choices

#### Signs of Dyslexia

- Trouble sounding out letters, spelling, and recognizing words.
- Delay in being able to speak.
- Difficulty learning songs and rhymes.
- Trouble understanding what others are saying.
- Difficulty organizing written and spoken language.
- Difficulty learning new words, either while reading or hearing.
- Slow rate of reading, both silently and out loud.
- Giving up on longer reading tasks.
- Difficulty understanding questions and following directions.
- Problems remembering numbers in sequence, like phone numbers.
- Trouble expressing thoughts or feelings.



### Definitions

#### Genes

Stretches of DNA you inherit from your parents that define characteristics, like how likely you are to get certain diseases.



### Web Links

For more about dyslexia and an online-only Q&A, see “Links” in the online article: [newsinhealth.nih.gov/2024/02/decoding-dyslexia](https://newsinhealth.nih.gov/2024/02/decoding-dyslexia)







## Health Capsules

For links to more information, please visit our website and see these stories online.

### Mindfulness Training Can Promote Healthy Choices

An eating plan called the DASH diet can lead to heart-healthy changes, like lower blood pressure. The diet encourages eating fruits, vegetables, and whole grains, and avoiding saturated fats. But despite its known benefits, many people have trouble sticking to this eating plan. A new study tested whether mindfulness training might help people follow the DASH diet.

Mindfulness is a focus on the present moment. It makes you more aware of what's going on inside and around you. The training program taught people mindfulness skills.

These include yoga, meditation, and self-awareness. It also stressed taking other steps to lower blood pressure. Such steps include increasing physical activity and taking blood pressure medicines.

The study enrolled about 200 volunteers with high blood pressure. Half received usual medical care. The rest received mindfulness training. They were asked to perform mindfulness practices at home for at least 45 minutes a day, six days a week. They also attended weekly classes and other group training.

After six months, people in the

mindfulness group had a significant drop in blood pressure compared to the other group. The mindfulness group also followed the DASH diet more closely. And they had greater awareness of their body's signals, like hunger cues.

“The program gives participants the tools to make heart-healthy diet changes that can lower their blood pressure and decrease their risk of cardiovascular disease,” says study leader Dr. Eric B. Loucks at Brown University. The researchers are now testing different adjustments to the training program. ■

### Alcohol-Related Blackouts

Alcohol-related blackouts are gaps in memory, when you can't recall what happened while you were intoxicated. Blackouts can happen to anyone who drinks alcohol, regardless of their age or experience with drinking.

Blackouts happen when you drink so much alcohol that your brain isn't able to store memories long-term. There are two types of blackouts. The most common is a fragmentary blackout, which leads to only partial memories being formed, with

missing periods of time. The more serious type is an “en bloc” blackout, or completely forgetting what happened. With this type, memories of events do not form. It is as if the events never happened.

Blackouts are different from passing out. Passing out means a person has either fallen asleep or lost consciousness from too much drinking. In contrast, a person is awake during a blackout, but their brain is not creating new memories.

Sometimes a person can transition from having a blackout to passing out.

Blackouts become more likely as your blood alcohol concentration reaches a high level quickly, as occurs with binge drinking. They're also more likely with certain medications.

Blackouts are not necessarily a sign of alcohol use disorder. But you may want to reconsider your relationship with alcohol. Learn more at [go.nih.gov/NIHNiHFeb23Blackouts](https://go.nih.gov/NIHNiHFeb23Blackouts). ■



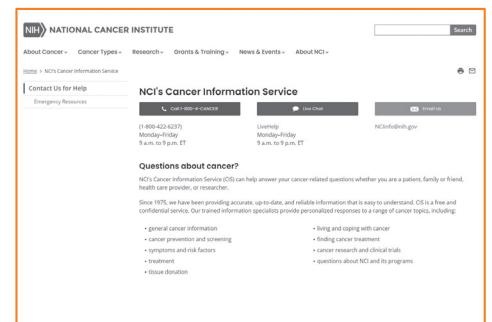
### Featured Website

Cancer Information Service

[www.cancer.gov/contact](https://www.cancer.gov/contact)

NIH specialists can help answer your questions about cancer. This free and confidential service is available to anyone. Get information on clinical trials, treatments,

the latest cancer research, quitting smoking, and more. You can call 1-800-4-CANCER, send an email, or chat online. Services are available in English or Spanish.



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