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**Inside News:** 3 Huntington's Disease 4 Memory and Aging 4 Food Tolerance 4 Wellness Toolkits

## Creating a Healthier Home

### Simple Steps to Reduce Everyday Exposures

Home is where we eat, sleep, relax, and spend time with family. It's where children grow and develop. Because we spend so much time there, scientists say the home is one of the most important places to think about health.

Over the past decade, researchers have learned much more about the harms we're exposed to indoors. They have also learned how to reduce some of these risks. The science has advanced. So have the tools for measuring what's in our air, water, and dust.

"The home environment plays a powerful role in shaping health," says Dr. Heather Patisaul, an environmental toxicology expert at NIH. "The good news is that there are simple, manageable steps people can take to lower common exposures."

#### Chemicals in Everyday Products •

Many everyday products in our homes contain chemicals that can be slowly released into the air or settle into dust over time. These include flame retardants in electronics and furniture, plastic



flame retardants used in electronics and products, like home insulation.

Many products are now available without flame retardants, such as furniture, mattresses, and clothing.

#### Air, Dust, and Mold •

One key way chemicals move through a home is by attaching to dust. "They're very sticky," Stapleton explains. "They're going to stick to particles that are in the air or in settled dust. So dust becomes

a sink for these chemicals."

Dust can especially affect children's health. Kids spend more time close to the floor. They touch surfaces and often put their hands in their mouths, increasing exposure.

"Home hygiene plays a big role in reducing exposures coming from dust," Patisaul says.

Stapleton's NIH-funded work suggests that cleaning routines can make a difference. In her ongoing study, families are using a robotic vacuum on a set schedule at home.

*continued on page 2*

additives, pesticides, dyes in fabrics, and PFAS. PFAS stands for a group of chemicals called perfluoroalkyl and polyfluoroalkyl substances.

"As building materials have evolved and we've shifted to newer construction standards, we're introducing a lot more chemicals and a lot more plastics into our homes," says Dr. Heather Stapleton, an environmental chemist at Duke University.

Flame retardants are chemicals added to products to slow the spread of fire. Years ago, certain flame retardants were widely used in couch cushions and other items in the home. Over time, research raised concerns about some of these older chemicals. Some were linked to problems with brain development and thyroid hormones.

Many of the older flame retardants have now been phased out, Stapleton says. But she adds that scientists continue to pay attention to newer

#### Definitions

##### Hormones

Molecules sent through the bloodstream to signal another part of the body to react a certain way.

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*continued from page 1*

After 10 weeks, Stapleton says her team saw exposure go down for many types of chemicals. This included flame retardants and plastic additives.

Cooking, smoking, pets, candles, cleaners, and building materials can all add harmful particles and gases to indoor air, too.

“If you burn something in your house, it’s going to release toxic chemicals,” she says. “What you need to do is ventilate it.” Ventilation means bringing in fresh air and pushing out stale air. Use a vent hood or open windows when possible.

Moisture indoors can also affect health because it can lead to mold. Mold is a fungus that grows on damp surfaces, such as around leaks or in humid bathrooms. It releases spores that can irritate the nose and lungs. So, it’s important to control moisture in the home.

**Water Quality** • Water quality is another important part of a healthy home. “It’s something that people are consuming frequently and directly, across the lifespan,” says Dr. Abby Fleisch, a pediatrician and

environmental health researcher at MaineHealth.

Most public water systems in the U.S. are regulated and monitored for some contaminants like lead, arsenic, and pesticides, but not all. Drinking water levels of PFAS are monitored or regulated only in certain areas. And problems can still occur, especially with corroded pipes that can leach lead or other harmful chemicals.

Filtering your water can be an effective way to protect against contaminants. But be sure to check what the filters can be used for. Different filters protect against different contaminants.

Private wells are not regulated the same way. That means well owners should test their water regularly. Some contaminants, like PFAS, often have no taste, smell, or color.

“People need to do testing to be able to identify contaminants in well water,” Fleisch says. She adds that even small levels can matter because exposure can add up over time.

A recent report linked higher PFAS levels to higher cholesterol, lower response to some vaccines, higher risk of kidney cancer, and low birth weight in babies.

Fleisch stresses that exposure does not mean someone will get sick. “Having been exposed to PFAS doesn’t mean that a person is definitely going to develop a particular health outcome,” she says. She describes PFAS as a risk factor. That means it may raise the chance of some health problems, but it is only one part of the picture.

**Build a Healthier Home** • Experts say that you don’t need to make drastic changes all at once. Small steps, taken over time, can create a healthier home.

Fleisch points to an encouraging finding from her own NIH-supported research. In a large study, she looked at adults at risk for diabetes. People with higher PFAS levels were more likely to gain weight and develop high cholesterol or diabetes over time. But

people who followed a program focused on healthy eating and regular exercise did not show this increased risk.

The lifestyle changes appeared to undo the health risk in the study.

That’s an important takeaway.

“People shouldn’t feel overwhelmed,” Patisaul says. “They should feel empowered to ask questions and stay informed, so that they can make choices that support their families’ health.” ■



## Wise Choices

### Make Your Home Healthier

- **Cut down on dust.** Vacuum regularly using a HEPA filter, if possible. Wet-mop floors and wipe surfaces with a damp cloth to trap dust.
- **Take off your shoes.** Leave shoes at the door to avoid tracking pesticides, dirt, and other pollutants into the house.
- **Prevent mold.** Fix leaks, dry wet areas quickly, improve airflow, and clean mold.
- **Improve indoor air.** Open windows when possible to bring in fresh air. Use kitchen and bathroom exhaust fans to reduce moisture and pollutants.
- **Choose products with fewer added chemicals.** Look for fragrance-free soaps, cleaners, and personal care products. Try to avoid products marketed as stain resistant or nonstick.
- **Check your drinking water.** If you use a private well, have the water tested regularly. Use a certified water filter if testing shows contaminants.
- **Practice healthy habits.** Balanced eating and regular physical activity can help support overall health even when environmental exposures occur.

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**Editor** Harrison Wein, Ph.D.

**Managing Editor** Tianna Hicklin, Ph.D.

**Graphics** Erina He (illustrations) and Mariah Felipe-Velasquez (layout)

**Contributors** Tianna Hicklin, Brandon Levy, and Caroline Stetler

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Office of Communications & Public Liaison  
Building 31, MSC 2094  
Bethesda, MD 20892-2094  
email: nihnewsinhealth@od.nih.gov  
phone: 301-451-8224



**Web Links**

For more about making your home healthier, see “Find More Information” in the online article: [newsinhealth.nih.gov/2026/06/creating-healthier-home](https://newsinhealth.nih.gov/2026/06/creating-healthier-home)

# Understanding Huntington's

## Scientists Search for Therapeutic Targets

Huntington's disease can be devastating. The illness reduces your ability to control your body's movements. It can also give rise to problems with thinking and memory. It's caused by changes in one gene, and those changes are passed down from generation to generation. Scientists are looking for ways to lessen the impact of the disease.

Huntington's disease is caused by a gene that makes a protein called huntingtin. Certain changes in the gene cause it to make a defective protein. The defective protein has toxic effects in brain cells, causing them to die. The brain areas most affected are those that control voluntary movements.

People with Huntington's may develop uncontrollable, irregular movements. These are called chorea. They may also have body stiffness and trouble moving, called akinesia. Symptoms get worse over time, and the disease is eventually fatal.

"Right now, we don't have a therapy that can prevent the disease, or slow down or stop it," says Dr. X. William Yang, an expert on neurodegenerative diseases at the University of California, Los Angeles.

As the disease worsens, people can experience problems with swallowing, eating, thinking, emotions, body posture, or speaking. Eventually, they cannot walk or care for themselves. Some people may also have hallucinations or believe things that aren't true, called delusions.

The problem in the huntingtin gene is in a short DNA sequence that's repeated multiple times in a row. As the number of those repeats increases, so does your risk for Huntington's disease.

Most people have fewer than 27 of these repeats. People with

Huntington's disease usually have at least 36 repeats. Those with 27 to 35 repeats are not likely to develop the disease, but they may pass along genes that increase their children's risk.

The number of these repeats also influences when symptoms appear. "The more repeats, the earlier the disease onset," Yang says. The disease can start as early as childhood, though that's rare.

Children inherit two copies of the huntingtin gene—one from each parent. They only need to get one copy of the gene with too many repeats to develop the disease.

A genetic test can tell you how many repeats your huntingtin genes have. But the test itself isn't a diagnosis. The diagnosis is based on a clinical exam and specific movement symptoms.

Scientists are studying ways to lessen the effects of the disease-causing huntingtin gene. They're looking at ways to alter the gene and testing how to lower levels of the defective huntingtin protein.

Yang's team is investigating the role of other genes in Huntington's disease. They're studying an animal model of the illness. In these animals, the huntingtin gene gains more repeats during their lifetime, like it does in people with the disease. Yang's team has found that the extra repeats are added most rapidly in the brain cells most affected by the disease. The changes happened more slowly in animals lacking certain other genes. In these animals, the huntingtin protein is also much less toxic.

Yang thinks these other genes may make good targets for interventions. His team is now searching for molecules that can turn off those genes.



Although we can't stop Huntington's disease, there are ways to improve quality of life for people with the illness. Medications are available that decrease uncontrolled movements, curb hallucinations, and soothe emotional symptoms.

Identifying the disease as early as possible may make those treatments more effective. ■



### Wise Choices

#### Signs of Huntington's Disease

Huntington's disease has many possible symptoms, including:

- Clumsiness or problems with balance
- Uncontrollable shaking of body parts, called tremors
- Unusual eye movements
- Slurred speech
- Difficulty solving problems or paying attention
- Poor judgment and trouble making good decisions
- Mood swings



For more about Huntington's disease, see "Find More Information" in the online article: [newsinhealth.nih.gov/2026/06/understanding-huntingtons](https://newsinhealth.nih.gov/2026/06/understanding-huntingtons)



## Health Capsules

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

### Unique Brain Features Found in Cognitive SuperAgers

Most of us have some decline in our memory and learning abilities as we age. But certain older adults can remember past events better than most people 25 to 30 years younger. Researchers recently found that exceptional recall and memory is linked to the ability to create new brain cells.

An NIH-funded research team analyzed more than 350,000 individual brain cells from younger and older adults, including cognitive SuperAgers. Cognitive SuperAgers are people at least 80 years old with

memory test scores as good as or better than people in their 50s and 60s. The cells were from donated postmortem brains.

The team looked for newly formed brain cells. They found that the molecular make up of new brain cells differed depending on the donor's cognitive abilities. SuperAgers' brain cells had a unique molecular make-up. SuperAgers also had more newly created brain cells than other groups.

Certain cell processes in the SuperAgers' brains appeared to

be better maintained, too. These processes serve important functions. Some are involved in communication between brain cells. Others help with cell survival.

"Determining why some brains age more healthily than others can help researchers make therapeutics that will boost memory in aging and prevent Alzheimer's disease and related dementias," says Dr. Orly Lazarov at the University of Illinois, Chicago, who co-led the study. ■

### Certain Proteins May Help Prevent Food Allergies

In food allergies, the body's defense system, called the immune system, reacts to harmless food as if it were a threat. To understand why this happens, scientists first need to know how the body develops a tolerance to a food. A new study showed that certain parts of dietary proteins normally act as signals that foods are safe.

Researchers found seven different sensors in specialized immune cells in the mouse gut. The sensors reacted to proteins in mouse chow. Five of the sensors were activated by corn

protein found in mouse chow. One was activated by a wheat protein, and the other by a soybean protein.

The sensors only detected certain parts of the proteins, called epitopes. The most frequently recognized epitope was on a corn protein. The specialized cells that recognized the corn protein first appeared when the mice were four weeks of age. This was about the same time that the mice first ate the food. The cells sent signals to other immune cells not to attack the food protein.

Scientists are just starting to

understand how the body builds tolerance to food. "For a long time, we thought food tolerance simply meant the immune system was ignoring the foods we eat—that is to say that tolerance is the absence of allergy," says Dr. Elizabeth Sattely of Stanford University, who co-led the study. "But we now know that tolerance is active and adaptive behavior. Certain cells in our intestines survey the foods we eat, looking for specific proteins. When found, the cells signal the immune system that the food is safe." ■



### Featured Website

Your Healthiest Self: Wellness Toolkits

[www.nih.gov/wellnesstoolkits](http://www.nih.gov/wellnesstoolkits)

We each have a unique "healthiest self." We have different minds, bodies, living situations, and people helping to shape our health and well-being. This page offers

science-based health tips in five different areas. Find ways to improve your relationships, emotional and physical well-being, disease defenses, and surroundings.

#### Your Healthiest Self: Wellness Toolkits

Each person's "healthiest self" is different. We have different bodies, minds, living situations, and people influencing our lives. Each area can impact your overall health. This means we each have a unique set of health needs. Use our wellness toolkits to find ways to improve your well-being in any area you'd like.

En español



#### Your Surroundings

Learn how to make your environment safer and limit your exposure to potentially harmful substances to stay



#### Your Feelings

Find out how to successfully handle life's stresses and adapt to change and difficult times.



#### Your Body

Discover which physical health habits can help decrease your stress, lower your risk of disease, and increase your

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