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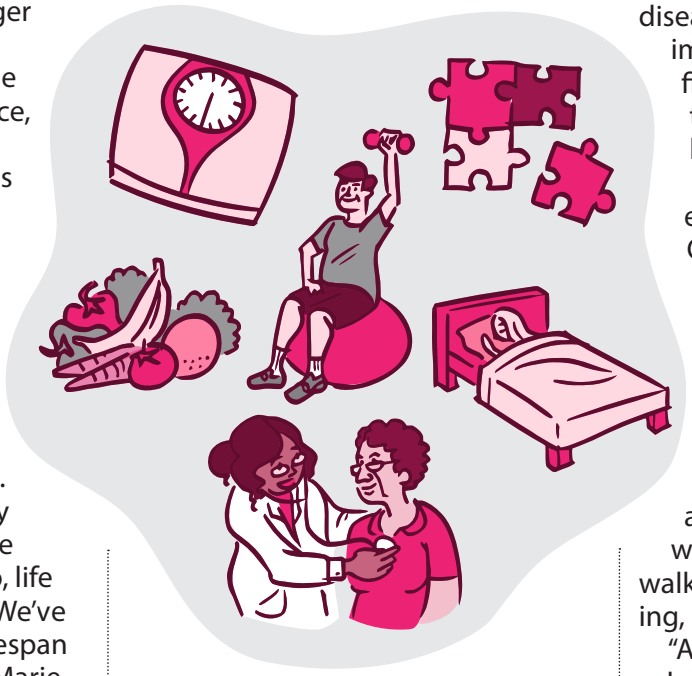
Can You Lengthen Your Life?

Researchers Explore How To Stay Healthy Longer

Want the secret to living a longer and healthier life? Scientists have found ways to prolong the healthy lifespans of worms, mice, and even monkeys. Their work has revealed exciting new clues about the biology of aging. But solid evidence still shows that the best way to boost the chance of living a long and active life is to follow the advice you likely heard from your parents: eat well, exercise regularly, get plenty of sleep, and stay away from bad habits.

People born in the U.S. today can expect to live to an average age of about 79. A century ago, life expectancy was closer to 54. "We've had a significant increase in lifespan over the last century," says Dr. Marie Bernard, deputy director of NIH's National Institute on Aging. "Now if you make it to age 65, the likelihood that you'll make it to 85 is very high. And if you make it to 85, the likelihood that you'll make it to 92 is very high. So people are living longer, and it's happening across the globe."

Older people tend to be healthier nowadays, too. Research has shown that healthful behaviors can help you stay active and healthy into your 60s, 70s, and beyond. In fact, a long-term study of Seventh-day Adventists—a religious group with a generally healthy lifestyle—shows that they tend to remain healthier into old age. Their life expectancy is nearly 10 years longer on average than most Americans. The Adventists' age-enhancing behaviors include regular exercise, a vegetarian diet, avoiding tobacco and alcohol, and maintaining a healthy weight.



"If I had to rank behaviors in terms of priority, I'd say that exercise is the most important thing associated with living longer and healthier," says Dr. Luigi Ferrucci, an NIH **geriatrician** who oversees research on aging and health. "Exercise is especially important for lengthening active life expectancy, which is life without disease and without physical and mental/thinking disability."

Natural changes to the body as we age can lead to a gradual loss of muscle, reduced energy, and achy joints. These changes may make it tempting to move less and sit more. But doing that can raise your risk for disease, disability, and even death. It's important to work with a doctor to find the types of physical activity that can help you maintain your health and mobility.

Even frail older adults can benefit from regular physical activity. One NIH-funded study included over 600 adults, ages 70 to 89, who were at risk for disability. They were randomly placed in either a moderate exercise program or a comparison group without structured exercise. The exercise group gradually worked up to 150 minutes of weekly activity. This included brisk walking, strength and balance training, and flexibility exercises.

"After more than 2 years, the physical activity group had less disability, and if they became disabled, they were disabled for a shorter time than those in the comparison group," Bernard explains. "The combination of different types of exercise—aerobic, strength and balance training, and flexibility—is important to healthy aging." NIH's Go4Life website at https://go4life.nia.nih.gov has tips to help older adults get and stay active.

Another sure way to improve your chances for a longer, healthier life is to shed excess weight. "Being obese—with a body mass index (BMI) higher than 30—is a risk factor

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Definitions

Geriatrician
A doctor who specializes in the care and treatment of older adults.

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for early death, and it shortens your active life expectancy," Ferrucci says. BMI is an estimate of your body fat based on your weight and height. Use NIH's BMI calculator at www.nhlbi.nih.gov/guidelines/obesity/BMI/bmicalc.htm to determine your BMI. Talk with a doctor about reaching a healthy weight.

Studies in animals have found that certain types of dietary changes—such as extremely low-calorie diets—can lead to longer, healthier lives. These studies offer clues to the biological processes that affect healthy aging. But to date, calorie-restricted diets and other dietary changes have had mixed results in extending the healthy lives of people.

"We have indirect evidence that nutritional adjustments can improve active longevity in people, but this is still an area of intense research," Ferrucci says. "So far, we don't really have solid evidence about caloric restriction and whether it may have a positive effect on human aging." Researchers are now studying potential drugs or other approaches that might mimic calorie restriction's benefits.

Not smoking is another pathway to a longer, healthier life. "There's no question that smoking is a hard habit to break. But data suggest that from the moment you stop smoking, there are health benefits. So it's worthwhile making that effort," Bernard says.

You might think you need good **genes** to live longer. But genes are only part of the equation for most of us, says Dr. Thomas Perls, an aging expert and director of the New England Centenarian Study at the Boston University School of Medicine. "Research shows that genes account for less than one-third of your chances of surviving to age 85. The vast majority of variation in how old we live to be is due to our health behaviors," Perls says. "Our genes could get most of us close to the remarkable age of 90 if we lead a healthy lifestyle."

The influence of genes is stronger, though, for people who live to older ages, such as beyond 95. Perls has been studying people who live to age 100 and up (centenarians) and their families to learn more about the biological, psychological, and social factors that promote healthy aging.

"It seems there's not a single gene that imparts a strong effect on the ability to get to these older ages," Perls says. "Instead, it's the combined effects of probably hundreds of genes, each with weak effects individually, but having the right combination can lead to a very strong effect, especially for living to the oldest ages we study."

It's a good idea to be skeptical of claims for a quick fix to aging-related problems. Perls cautions against marketed "anti-aging" measures such as "hormone replacement therapy," which has little proven benefit for healthy aging and can have severe side effects. "People used to say, 'the older you get the sicker you get.' But with common sense, healthy habits such as regular exercise, a healthy weight, avoiding red meat, not smoking, and managing stress, it can be 'the older you get, the healthier you've been,'" Perls says.

The key to healthy aging is to engage fully in life—mentally, physically, and socially. "Transitioning to older years isn't about sitting in a rocking chair and letting the days slip by," Bernard says. "Older adults have unique experiences, intellectual capital, and emotional involvement that can be shared with younger generations. This engagement is really key to helping our society move forward." ■

Wise Choices
Stay Healthy at 50+

- **Get moving.** Exercise can reduce the risk for age-related diseases and disability. Get inspiration from NIH's https://go4life.nia.nih.gov.
- **Eat a healthy diet.** Get tips at www.choosemyplate.gov.
- **Pay attention to weight and shape.** Extra weight, especially at the waist or with muscle loss, can raise health risks. Talk to your doctor about weight concerns.
- **Don't smoke or use tobacco.**
- **Keep your brain active.** Get tips for a healthy brain at www.brainhealth.gov.
- **Be good to yourself.** Get enough sleep. Stay in touch with family and friends. And surround yourself with people you enjoy.
- **Get regular medical checkups.**
- **Drink only in moderation** if you drink alcohol.

Definitions

Genes
Stretches of DNA, a substance inherited from your parents, that define features such as your risk for certain diseases.

Web Links

For more about living healthy and longer, click the "Links" tab at:
http://newsinhealth.nih.gov/issue/Jun2016/Feature1

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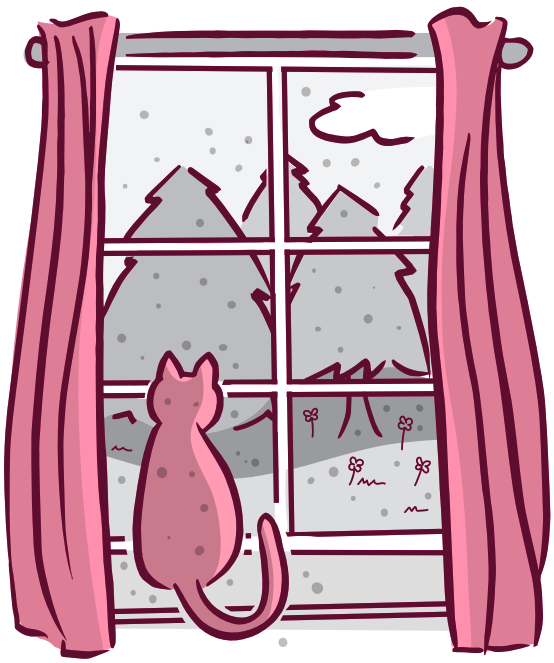
Seeking Allergy Relief

When Breathing Becomes Bothersome



A change in season can brighten your days with vibrant new colors. But blooming flowers and falling leaves can usher in more than beautiful backdrops. Airborne substances that irritate your nose can blow in with the weather. When sneezing, itchy eyes, or a runny nose suddenly appears, allergies may be to blame.

Allergies arise when the body's **immune system** overreacts to substances, called **allergens**, that are normally harmless. When a person with allergies breathes in allergens—such as pollen, mold, pet dander, or dust mites—the resulting allergic reactions in the nose are called allergic rhinitis, or hay fever.

Allergy is one of the most common long-term health conditions. "Over the past several decades, the prevalence of allergies has been increasing," says Dr. Paivi Salo, an allergy expert at NIH. "Currently, airborne allergies affect approximately 10-30% of adults and 40% of children."

Avoiding your allergy triggers is the best way to control your symptoms. But triggers aren't always easy to identify. Notice when and where your symptoms occur. This can help you figure out the cause.

"Most people with allergies are sensitive to more than one allergen," Salo explains. "Grass, weed, and tree pollens are the most common causes of outdoor allergies." Pollen is often the source if your symptoms are seasonal. Indoor allergens usually trigger symptoms that last all year.

If your symptoms become persistent and bothersome, visit your family physician or an allergist. They can test for allergy sensitivities by using a skin or blood test. The test results, along with a medical exam and information about when and where your symptoms occur, will help your doctor determine the cause.

Even when you know your triggers, avoiding allergens can be difficult. When pollen counts are high, stay inside with the windows closed and use the air conditioning. Avoid bringing pollen indoors. "If you go outside, wash your hair and clothing," Salo says. Pets can also bring in pollen, so clean them too.

For indoor allergens, keep humidity levels low in the home to keep dust mites and mold under control. Avoid upholstered furniture and carpets because they harbor allergens. Wash your bedding in hot water, and vacuum the floors once a week.

Allergies run in families. Your children's chances of developing allergies are higher if you have them. While there's no "magic bullet" to prevent allergies, experts recommend breast feeding early in life. "Breast milk is the least likely to trigger allergic reactions, it's easy to digest, and it strengthens an infant's immune system," Salo says.

Sometimes, avoiding allergens isn't possible or isn't enough. Untreated allergies are associated with chronic conditions like sinus infections and **asthma**. Over-the-counter antihistamines, nasal sprays, and decongestants can often ease mild symptoms. Prescription medications and allergy shots are sometimes needed for more severe allergies. Talk with your doctor about treatment options.

Allergy relief can help clear up more than just itchy, watery eyes. It can allow you to breathe easy again and brighten your outlook on seasonal changes. ■

Wise Choices
Allergy Symptoms

- Runny or stuffy nose
- Sneezing
- Itchy nose, eyes, ears, and mouth
- Red and watery eyes
- Swelling around the eyes
- Coughing
- Wheezing
- Chest tightness
- Shortness of breath

Definitions

Immune System
The body's defense against germs and foreign substances.

Allergens
Substances that produce an allergic reaction when a person comes in contact with them.

Asthma
A lung disease that inflames and narrows the airways.

Web Links

For more about airborne allergies, click the "Links" tab at:
http://newsinhealth.nih.gov/issue/Jun2016/Feature2

Health Capsules

For links to more information, see these stories online:
http://newsinhealth.nih.gov/issue/Jun2016/Capsule1

Experimental Therapy Shows Promise for Type 1 Diabetes

Patients with difficult cases of type 1 diabetes were helped by transplants of insulin-producing islet cells. The experimental therapy helped to prevent dangerous drops in blood sugar levels.

People with diabetes have trouble managing and using blood glucose, a sugar that serves as fuel for the body. When blood glucose levels rise, islet cells in the pancreas normally make and secrete hormones such as insulin. Insulin triggers cells to take up sugar from the blood.

In type 1 diabetes, the immune system attacks and destroys these insulin-producing cells. People with type 1 diabetes must regularly measure their blood glucose and use insulin injections to maintain their blood sugar levels.

When blood sugar levels drop too low (hypoglycemia), symptoms like shaking or sweating usually warn people to eat or drink to raise their blood sugar levels. However, many people with type 1 diabetes can't tell when their blood sugar is too low. This raises their risk for severe hypoglycemia, which can cause seizures, loss of consciousness, and death.

One strategy to treat type 1 diabetes is to transplant pancreatic islets from deceased human donors. To test this experimental procedure, NIH-funded researchers studied 48 people with hard-to-treat type 1 diabetes. Participants received at least one transplant of pancreatic islets.

During the first year after treatment, 88% of participants were free of severe hypoglycemic events, had near-normal control of blood glucose levels, and were able to tell when their blood sugar was low. After 2 years, 71% still had these positive effects. Some people had side effects. Researchers are still monitoring the patients to assess the benefits and risks of this therapy.

"While still experimental, and with risks that must be weighed carefully, the promise of islet transplantation is undeniable and encouraging," says Dr. Griffin P. Rodgers, director of NIH's National Institute of Diabetes and Digestive and Kidney Diseases. ■

Complementary Approaches for Depression

Depression affects about 1 in 10 U.S. adults. Standard therapies, including antidepressants and some types of psychotherapy, are often effective. Many people also turn to complementary health approaches, some of which haven't been thoroughly tested for depression. Here's a brief look at the science behind some complementary approaches:

St. John's wort. Studies have had mixed results for treating depression. Research has shown that St. John's wort can interfere with many medications' intended effects, so its safety risks outweigh any benefits.

Omega-3 fatty acids. Some studies suggest that these supplements may have slight benefits for depression when used with conventional therapy. But questions remain about how, or if, omega-3 supplements might work to have this effect.

Mind and body practices. When used with standard depression therapies, these practices show modestly promising results in some adults. For example, some evidence suggests that music therapy may help improve mood.

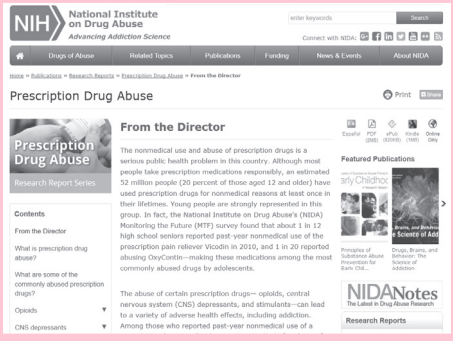
Talk with your doctor about any complementary health approaches you use. Discuss benefits and risks, so you can make informed decisions. Learn more at https://nccih.nih.gov/health/tips/depression. ■

Featured Website

Prescription Drug Abuse

www.drugabuse.gov/publications/research-reports/prescription-drugs/director

Each day, 44 people in the U.S. die from an overdose of prescription drugs. Learn how prescription drugs like opioids, sleep and anxiety medications, and stimulants affect the brain and body. Protect yourself and your loved ones from prescription drug abuse.



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