

NIH News in Health

National Institutes of Health · Department of Health and Human Services · newsinhealth.nih.gov

Inside News: 1 Hearing Loss 3 Kidney Stones 4 Schizophrenia Genes 4 Vitamin D 4 Body & Soul

Hey, Parents: It's a Noisy Planet Protect Kids' Hearing

Before your kids go out to a concert or a dance at school, you might talk with them about their behavior. But have you also thought about having a heart-to-heart about protecting their hearing? The tricky thing about hearing loss is that you may not notice it until the damage has already been done.

Kids' ears contend with loud music from headphones and earbuds, power mowers, workshop tools, motorcycles, ambulance sirens, concerts, sporting events—and have you ventured into a school cafeteria recently? Let's face it, it's a noisy planet we live on.

Of course, some noises are good—like the chirping of robins in the morning or of crickets at night. Or when a child gets a case of the giggles, when your all-time favorite song plays on the radio or when a good friend calls your name.

But sounds that are too loud and that last for too long are unhealthy. In fact, they can damage your hearing and keep you from hearing the good sounds.

Loud sounds can damage tiny sensory cells in your inner ear called hair cells. Hair cells actually have nothing to do with hair. They get their name from the bristly structures that stand straight up from their tops, like a bad haircut. Hair cells are very important to your hearing. Once they're damaged, there's no way to grow them back.

Hearing loss that's caused by exposure to too much noise is called noise-induced hearing loss. People with noise-induced hearing loss have

trouble detecting high-pitched sounds—such as certain speech sounds or the voices of women and children. Many also have tinnitus, a disorder that causes a continuous ringing, roaring or clicking in the ears.

Even a small loss of hearing can diminish a child's quality of life forever. The ability to hear well helps children succeed in school, in sports and other activities, and in their personal relationships. As adults, hearing loss may affect some of their job opportunities. That's why it's so important to protect hearing at a young age.

"The good news is that there are simple steps that everyone can take to protect their hearing from potentially damaging sounds," says Dr. James F. Battey, Jr., director of NIH's National Institute on Deafness and Other Communication Disorders (NIDCD).

Sound is measured in units called decibels. On the decibel scale, an increase of 10 means that a sound is 10 times louder. The softest sound healthy ears can hear is 0 decibels—



near total silence. By comparison, a whisper measures 30 decibels, and normal conversation measures 60 decibels. A rocket launching into space is more than 180 decibels.

Researchers who study hearing loss in the workplace have found that someone who's exposed to noise levels at 85 dB or higher for a prolonged period of time is at risk for

continued on page 2

Subscribe @



newsinhealth.nih.gov



Wise Choices Threats to Hearing

Know which noises can cause hearing damage. Wear ear plugs or get some distance between yourself and noises at these levels:

- **110 Decibels** (Examples: chain saw, rock concert). Regular exposure of more than 1 minute risks permanent hearing loss.
- **100 Decibels** (Examples: snowmobile, wood shop tools). Experts recommended no more than 15 minutes of unprotected exposure.
- **85 Decibels** (Examples: heavy city traffic). Prolonged exposure to any noise at or above 85 decibels can cause gradual hearing loss.

ple between ages 8 and 92 from one rural Iowa county, 99% were found to have significant hearing loss.

Many young people, however, aren't even aware of noise-induced hearing loss or how they can prevent it. In a survey conducted on the MTV Web site, 61% of the teens and young adults who responded had experienced tinnitus or hearing impairment after concerts. However, only 16% of them reported that they had heard, read or seen any information on noise-induced hearing loss. Only 14% of them had used earplugs.

Even when young people understand the risk of noise-induced hearing loss, they don't always follow through by adopting habits to protect their hearing. One study of college students found that even though most knew about noise-induced hearing loss, nearly 3 in 4 had never worn hearing protection.

Just as children need to develop healthy eating habits to avoid excess weight, they also need to learn about the causes and prevention of noise-induced hearing loss early on, so that healthy hearing habits become a natural choice. These habits are simple, such as turning down the volume on a portable media player or wearing earplugs at a concert.

To help, NIDCD has launched a new educational campaign called *It's a Noisy Planet. Protect Their Hearing*. It's focused on "tweens"—kids ages 8 to 12—and their parents, along with teachers, coaches, scout leaders, health care professionals and other adults who work with this age group.

According to the campaign's



Web Links

For links to more information about noise-induced hearing loss, see this story online:

<http://newsinhealth.nih.gov/2008/October/feature1.htm>

coordinators, tweens are at a great age—they're no longer little children, and they are beginning to develop a sense of who they are and what they like to do. Reaching them at this age, while they're forming attitudes and habits related to their health, will help them prevent hearing problems later in life.

So teach them to turn down the volume on music players and video games, and to walk away from a loud sound. Set an example and teach them to wear hearing protection like earplugs when they're near loud sounds for a long time.

Make sure to choose hearing protectors that suit your child's activities. For example, special musicians' earplugs are available so your child can play an instrument loudly and clearly but hear the music at a softer level. There also are hearing protectors designed specifically for hunting or shooting sports. Hearing protectors are available from many pharmacies, sporting good stores, hardware stores and online vendors.

"Our goal through this campaign is to increase awareness among parents and children so that it will become second nature to use protective hearing techniques when they're exposed to loud noise, just like it's become second nature to wear sunscreen when you're at the beach or to snap on a helmet when you go biking," Battey says.

Protect your children's hearing. They'll thank you for it later. For more information, visit the Noisy Planet Web site at www.noisyplanet.nidcd.nih.gov or contact the NIDCD

Information Clearinghouse at 800-241-1044 or nidcdinfo@nidcd.nih.gov. ■

continued from page 1

hearing loss. For this reason, these workers are required to wear hearing protectors, such as earplugs or earmuffs, while they're on the job. Many devices that children use today have noise levels much higher than 85 dB. For example, an MP3 player at maximum level is roughly 105 dB. That's 100 times more intense than 85 dB!

Although we often think of rural areas as being quieter than the city, people who live there are especially at risk for hearing loss, most likely due to exposure to farm machinery and other noises. In a study of peo-

NIH News in Health (ISSN 1556-3898)

National Institutes of Health

Office of Communications
& Public Liaison
Building 31, Room 5B64
Bethesda, MD 20892-2094
nihnewsinhealth@od.nih.gov
Tel: 301-435-7489 Fax: 301-496-0019

Editor Harrison Wein, Ph.D.

Assistant Editor Vicki Contie

Contributors Vicki Contie, Alison Davis, Bryan Ewsichek (design), Margaret Georgiann (illustrations) Harrison Wein and Jennifer Wenger

newsinhealth.nih.gov

Attention Editors Reprint our articles and illustrations in your own publication. Our material is not copyrighted. Please acknowledge *NIH News in Health* as the source and send us a copy.

For more health information from NIH, visit

<http://health.nih.gov>

Keep Your Kidneys Clear

Kicking Kidney Stones

Some say that passing a kidney stone is like delivering a baby made of razor blades. The good news is that, although they can be excruciatingly painful, kidney stones rarely cause permanent damage, and you may be able to prevent them.

Back or side pain that won't go away is the primary symptom of a kidney stone. You may also have pinkish or foul-smelling urine, fever or painful urination. Experts say that the incidence of kidney stones is on the rise, although no one knows why. Caucasians are more prone to kidney stones than African Americans, and men are more prone than women. Age is also a factor. The chance of getting a kidney stone rises as men enter their 40s and continues to rise into their 70s. For women, the risk peaks in their 50s.

Each day, about 50 gallons of blood flows through your kidneys. The kidneys remove waste products, including various minerals and other substances, from the blood and transfer them into urine so your body can get rid of them. In people who

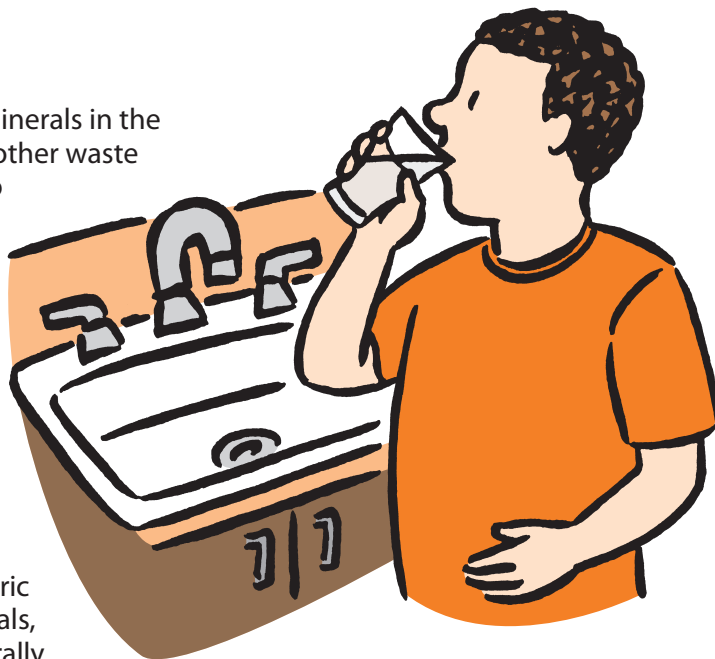
get stones, certain minerals in the urine combine with other waste products and start to form a stone.

Kidney stones aren't all the same. The most common type is made of the mineral calcium, combined with either oxalate or phosphate. Less common types of stones are made of uric acid or other chemicals, all of which are naturally found in the body. No one knows why these substances form kidney stones in some people but not in others, since we all have them in our urine. Stone formation may be related to the levels of these substances in urine or to other currently unknown factors that encourage or inhibit stone formation.

Most kidney stones eventually pass out of the body during urination. But some can grow large enough to begin blocking the flow of urine. That causes intense pain and may also put you at risk for infection.

Most kidney stones that don't pass on their own are treated in an outpatient setting. The most common procedure is called lithotripsy. Greek for "stone crushing," this technique uses shock waves to reduce kidney stones into small fragments, which then easily flow away in urine.

If you've had more than one kidney stone, you're at higher risk for forming another. But there are ways to help prevent most types of kidney stones. First, your doctor needs to know what type of stone it is. If you pass a stone, try to catch it in a strainer. A laboratory analysis can help your doctor plan a strategy to prevent more stones. Other tests, which may include urine and blood tests, can help your doctor figure out



why you had a kidney stone. Your medical history, occupation and eating and drinking habits can also hold clues.

Drinking more water may help prevent kidney stones. Depending on the type of stone you're at risk for, your doctor may also advise you to avoid certain foods or drinks. For example, people prone to forming calcium oxalate stones should avoid spinach, peanuts and chocolate. People prone to uric acid stones should cut back on meat. Doctors can also prescribe certain medications to help prevent these types of stones.

NIH continues to fund research on the causes, treatments and prevention of kidney stones. In the meantime, make sure to see a doctor if you think you have a kidney stone. While most pass out of the body on their own, some just won't go away by themselves. ■



Wise Choices

Watch Out for Kidney Stones

Call a doctor if you have any of the following signs of a kidney stone:

- extreme pain in your back or side that won't go away
- blood in your urine (it will look pink)
- fever and chills
- vomiting
- urine that smells bad or looks cloudy
- a burning feeling when you urinate



Web Links

For links to more information about diabetes in youth, see this story online: <http://newsinhealth.nih.gov/2008/October/feature2.htm>



Health Capsules

For links to more information about these topics, visit this page online:
<http://newsinhealth.nih.gov/2008/October/capsules.htm>

Genetic Quirks Linked to Schizophrenia

Scientists have been searching for the genetic roots of schizophrenia for decades. If a few common genetic glitches, or mutations, were linked to the disorder it could open new strategies for treatment and diagnosis. But new research suggests that schizophrenia is a lot more complicated than many scientists had hoped.

People with schizophrenia have problems with thinking and concentration. They may hear voices others don't hear or believe their thoughts are being broadcast to the world. Schizophrenia affects about 1 in 100 adults nationwide. Symptoms usually first appear in older teens or young adults.

Three new studies, funded in part

by NIH, compared the **genomes** of thousands of patients with schizophrenia with thousands without the disorder. The research teams found that patients with schizophrenia were more likely to have several different, unusual genetic quirks. Many of the mutations disrupt **genes** that are important to brain development.

"We're moving toward an understanding of the causes of the disease, but we've only explained a tiny fraction of why people might develop schizophrenia," said Dr. Pamela Sklar of Massachusetts General Hospital. "Much more work needs to be done to connect the specific genetic changes to the full spectrum of the disorder." ■

Understanding Vitamin D

Vitamin D helps your body absorb calcium, which keeps your bones strong. Some recent studies suggest that taking extra vitamin D can have other health benefits, but the evidence to date has been unclear.

Medical experts held a conference at NIH to take a closer look at the scientific evidence on vitamin D. They reported their conclusions in August 2008.

The strongest evidence suggesting other benefits from more vitamin D is for older people. Several clinical studies found that additional vitamin D can improve bone health and prevent falls in elderly men and postmenopausal women. The experts say they don't yet have enough

information to know if extra vitamin D might help people of other ages. More research is also needed to know if vitamin D can help prevent diseases like diabetes and cancer.

"It's tempting to think that an essential nutrient is safe at any level—that if some is good, more is better—but that isn't always true," said Dr. Paul M. Coates, director of the NIH Office of Dietary Supplements.

"There are potential harms associated with high levels of many nutrients."

Scientific experts will continue to evaluate recent research to decide if current vitamin D recommendations should be revised. Talk to your doctor if you have questions about how much vitamin D you need. ■



Definitions

Genes

Stretches of DNA, a substance you inherit from your parents, that define characteristics like height, eye color and how likely you are to get certain diseases.

Genome

All the genes and DNA in a person.



Featured Web Site Body & Soul

<http://bodyandsoul.nih.gov>

Body & Soul was developed for African-American churches to help their members take care of their bodies as well as their spirits. The program is effective at increasing the amount of fruits and vegetables that church-goers eat every day. A healthy diet can help to reduce the risk for many serious and deadly diseases, including cancer, heart disease and stroke.

How to get NIH News in Health

Read it online.

Visit newsinhealth.nih.gov

Subscribe

Get it by email.

See the "About" tab on the web site to get email updates when new issues are posted online.

Get it in print.

Download PDF files at our web site for printing, or contact us to get print copies free of charge by mail for display in offices, libraries or clinics within the U.S. See page 2 for our contact information.