
DISORDERS

SOUND SENSITIVITY

Hyperacusis is a sensitivity to sound that can cause pain, dizziness, vertigo, imbalance, and disorientation.

ARTICLE

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5018 NE 15th Ave.
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vestibular.org

Hyperacusis

By the Vestibular Disorders Association. Reviewed by Sarah Redding, AuD, CCC-A and Melissa Hazen, PhD, MSc, AuD

SOUND-INDUCED DIZZINESS

For most people, sound is something we hear. But for some people with vestibular disorders, sound can do much more than that – it can trigger dizziness, vertigo, imbalance, nausea, or a sudden sense of disorientation.

If you have ever felt dizzy when a truck rumbled past, a fire alarm sounded, music vibrated through a room, or even when exposed to certain tones or frequencies, you may have experienced sound-induced dizziness.

Sound-induced dizziness has historically presented in several different ways, all of which are variations of decreased sound tolerance that differ significantly in whether the issue is physical, emotional, or neurological, and whether the symptom is pain, fear, or vertigo. Distinguishing between them is key.

Today, sound-induced dizziness is a clearer and more accurate term because it distinguishes balance symptoms triggered by sound from a different condition called hyperacusis, which involves abnormal sensitivity to sound itself.

HYPERACUSIS VS. SOUND-INDUCED DIZZINESS: WHAT'S THE DIFFERENCE?

These conditions can overlap, but they are not the same.

HYPERACUSIS

Hyperacusis is an increased sensitivity to everyday sounds. Sounds that seem normal to others may feel painfully loud, overwhelming, irritating, or exhausting. People with hyperacusis may avoid noisy environments, cover their ears, or feel anxious about exposure to sound.

Common symptoms of hyperacusis include:

- Ear discomfort or pain
- Distress around everyday sounds
- Feeling overwhelmed by noise

HYPER = EXCESSIVE

**ACUSIS = SOUND
PERCEPTION**



- Sound-related fatigue
- Avoidance of noisy spaces

SOUND-INDUCED DIZZINESS

Sound-induced dizziness, on the other hand, involves the balance system and can be subdivided into two categories: phonophobia and Tullio phenomenon.

Instead of sound feeling “too loud,” sound may trigger:

- Dizziness
- Vertigo (the sensation that you or the environment is moving or spinning)
- Loss of balance
- Feeling pulled, pushed, or tilted
- Nausea
- Motion sensitivity
- Difficulty concentrating or “brain fog”

Phonophobia

Phonophobia is a fear issue (sound causes anxiety), defined as an irrational or excessive fear of sound, usually stemming from anxiety about how the sound will affect a person or fear that it will damage their ears. Symptoms include anxiety, panic attacks, and extreme avoidance of sound environments. A person with hyperacusis may develop phonophobia out of fear of the physical pain the sound causes, but it can exist independently.

Tullio PHENOMENON

The Tullio phenomenon is a balance issue (sound causes vertigo), a specific condition in which sound triggers vertigo, dizziness, or nystagmus (eye movement). Symptoms include unsteadiness, spinning, and/or nausea when hearing loud sounds, voices, or music. It is typically a symptom of a vestibular disorder, most commonly Superior Semicircular Canal Dehiscence (SSCD), where a thin spot in the inner ear bone allows sound to disturb the balance organs.

Some people experience hyperacusis and one or both forms of sound-induced dizziness, especially when the underlying cause affects both hearing and balance.

HOW CAN SOUND AFFECT BALANCE?

The hearing and balance systems live side by side in the inner ear.



The cochlea helps us hear by converting sound vibrations into electrical signals that the brain interprets as sound. Nearby, the vestibular system detects head movement, motion, and position in space to help us maintain balance.

Under normal circumstances, these systems work together but perform different jobs. In some vestibular conditions, however, sound can abnormally stimulate the balance organs. Instead of being processed only as sound, certain vibrations or pressure changes may trigger signals that the brain interprets as movement—even when you are standing still.

That mismatch between what your eyes, body, and inner ear tell your brain can cause dizziness, vertigo, imbalance, or nausea.

WHAT DOES SOUND-INDUCED DIZZINESS FEEL LIKE?

Symptoms vary widely from person to person. Some people experience a brief wave of disequilibrium. Others may have severe vertigo or feel unsafe standing or walking.

Triggers may include:

- Loud music
- Sirens
- Fire alarms
- Engine noise
- Heavy machinery
- Crowded restaurants
- Concerts
- Low-frequency vibrations



- Certain tones or pitches
- Pressure changes associated with sound

Patients describe symptoms such as:

- “The room jumps when I hear certain sounds.”
- “Bass vibrations make me feel like I’m moving.”
- “I feel suddenly pushed sideways.”
- “Loud environments make me nauseated.”
- “Noise makes it hard to think clearly.”

Because symptoms can be invisible and difficult to explain, people are sometimes misunderstood or told their symptoms are anxiety-related. While anxiety can worsen vestibular symptoms, as it can with many chronic conditions, sound-triggered vestibular symptoms can also reflect an underlying physiologic vestibular disorder that deserves proper evaluation.

WHAT CAUSES SOUND-INDUCED DIZZINESS?

Sound-induced dizziness is not a diagnosis by itself. It is a symptom that can occur in several conditions.

Superior Semicircular Canal Dehiscence (SSCD)

One of the best-known causes is superior semicircular canal dehiscence (SSCD), where a thinning or opening in the inner ear bone creates an abnormal “third window.” This changes how sound and pressure move through the inner ear, allowing sound energy to stimulate the balance organs inappropriately.

This can cause:

- Sound-induced vertigo
- Pressure-induced dizziness
- Hearing internal body sounds unusually loudly
- Pulsatile tinnitus
- Imbalance

Sound-triggered vertigo associated with SSCD is sometimes described as Tullio phenomenon, named after the researcher who first described sound-induced vestibular responses.

Perilymphatic Fistula

A perilymphatic fistula (PLF) is an abnormal connection between the fluid-filled inner ear and the air-filled middle ear.

This may occur after:

- Head injury
- Barotrauma
- Heavy lifting or straining
- Surgery
- Sometimes without a clearly identified cause

Because this connection alters pressure and sound transmission, many people with PLF experience dizziness triggered by changes in pressure or sound.

Vestibular Migraine

While symptoms can be highly variable, people with vestibular migraine often experience heightened sensory sensitivity, including sensitivity to sound (phonophobia), light, motion, and visual stimulation. For some patients, sound exposure may worsen dizziness, motion sensitivity, or cognitive symptoms, even without structural inner ear damage.

Head Trauma or Concussion

After a concussion or other head trauma, the vestibular system may become more sensitive or dysfunctional.

Patients may develop:

- Motion intolerance
- Sensory overload
- Sound sensitivity
- Dizziness triggered by complex sensory environments

In some cases, trauma may also contribute to structural inner ear injury.

Other Inner Ear Disorders

Less commonly, sound-triggered dizziness may occur in association with other vestibular conditions, depending on how the inner ear is affected.

HOW IS SOUND-INDUCED DIZZINESS DIAGNOSED?

Diagnosis starts with your story.

Your healthcare provider may ask:

- What sounds trigger symptoms?
- Are symptoms triggered by loud sounds, low frequencies, vibration, or pressure?
- Do you feel spinning, imbalance, nausea, or cognitive fog?



- Do symptoms occur with coughing, sneezing, lifting, or straining?
- Have you had migraine, head trauma, ear surgery, or hearing changes?

Because several conditions can produce similar symptoms, evaluation may involve specialists such as:

- Otolologists or neurotologists
- Audiologists
- Neurologists
- Vestibular physical therapists

Testing may include:

- Comprehensive hearing testing
- Vestibular function testing
- Vestibular evoked myogenic potential (VEMP) testing
- Imaging such as high-resolution CT of the temporal bone
- Clinical balance assessment

Not every patient needs every test. The right evaluation depends on the symptom pattern and suspected cause.

HOW IS IT TREATED?

Treatment depends on the underlying cause.

Treat the Root Cause

If sound-induced dizziness is caused by a specific condition, treating that condition may improve symptoms.

Examples include:

- Migraine management for vestibular migraine
- Surgical treatment in selected cases of SSCD
- Management strategies for suspected perilymphatic fistula
- Rehabilitation for post-concussion vestibular dysfunction

VESTIBULAR REHABILITATION THERAPY

For some patients, vestibular rehabilitation therapy (VRT) can help improve balance, reduce motion sensitivity, and support recovery. A vestibular physical therapist can determine whether exercises are appropriate based on the underlying diagnosis.



SOUND MANAGEMENT

If you also experience hyperacusis, careful sound management may help. However, constant overprotection with earplugs in everyday environments can sometimes increase sound sensitivity over time in some patients with hyperacusis. Management should be individualized.

LIFESTYLE ADJUSTMENTS

Depending on the cause, practical strategies may include:

- Avoiding known triggers temporarily
- Managing migraine triggers
- Improving sleep
- Reducing stress
- Pacing activities
- Using supportive mobility tools when needed for safety

When Should You Seek Medical Care?

Seek evaluation if:

- Sound reliably triggers dizziness or vertigo
- Symptoms affect your safety or ability to walk
- You experience new hearing changes
- Symptoms began after trauma
- Pressure changes trigger symptoms
- Symptoms interfere with work, driving, or daily life

Sound-induced dizziness is uncommon enough that not every provider will immediately recognize it, so referral to a vestibular specialist may be appropriate.

HOPE FOR PATIENTS

Sound-triggered dizziness can be frightening, especially when symptoms seem unpredictable or difficult to explain.

The good news is that these symptoms are increasingly recognized within vestibular medicine, and in many cases, effective evaluation and treatment options exist.

If sound makes you dizzy, you are not imagining it, and you are not alone.

The most important next step is identifying why it is happening so the right treatment plan can be built around your specific condition.



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