

## WHAT IS HYPERACUSIS?

Imagine being at a movie where the sound track is turned to the highest volume. Actors' voices are screaming at you. After five minutes, you leave holding your ears and cursing the theater for its poor judgment. Turning newspaper pages, running water in the kitchen sink, your child placing dishes and silverware on the table - all are intolerable to your ears. A baby cries or a truck screeches its brakes to a halt and the sound is excruciating. What has happened to my ears?

The person who has hyperacusis can't simply get up and walk away from noise. Instead, the volume on the whole world seems stuck on high. Hyperacusis is a collapsed tolerance to normal environmental sounds. Ears lose most of their dynamic range.

Dynamic range is the ability of the ear to deal with quick shifts in sound loudness. Suddenly everyday noises sound unbearably or painfully loud. The disorder is often chronic and usually accompanied by tinnitus, but can occur in patients who have little or no measurable hearing loss.

Hyperacusis differs from recruitment, which is an abnormal growth in the perception of loudness accompanied with hearing loss. With recruitment, loud noises are uncomfortable. With hyperacusis, all sounds are too loud.

Most patients also experience inner ear pain or a feeling of fullness (pressure) in the ears. Hyperacusis can be devastating to the patient's career, relationships, and peace of mind. Finding the proper diagnosis is difficult because few doctors understand hyperacusis.

### **A LIFE ALTERING CONDITION**

Hyperacusis makes living in the noisy 20th century difficult and dramatically changes the patient's pattern of life. Moving about, traveling, and communicating with others is challenging. Ear protection must be worn in areas that seem too loud. This includes earplugs, industrial earmuffs or both if necessary.

Even then, many vocational and recreational activities must be curtailed or eliminated because, although protection reduces the noise entering the ears, it sometimes seems insufficient to block out certain frequencies or noise intensities. The things most of us take for granted, such as driving a car, walking down the street, riding a bicycle, listening to the TV, stereo, someone speaking over a telephone or microphone, shopping, attending indoor events, dining at restaurants, taking vacations, or participating in group activities often

are difficult or impossible. Many cannot use a vacuum cleaner, a hammer, a lawn mower, power tools, ride a motor boat or motorcycle.

Most jobs involve some level of noise. In some cases, the patient may need to seek other employment or attempt to secure disability with the help of an understanding doctor. Noise exposure generally makes the condition worse and exacerbates the accompanying tinnitus. Patients report they perceive sound - even their own voice - as uncomfortably loud and this not only causes tinnitus to increase but may also cause inner ear discomfort or a popping reflex in the ear.

## What Causes Hyperacusis?

Some first develop hyperacusis in one ear, but in most cases both ears become affected. Hyperacusis can come on slowly or suddenly. Some patients say they developed hypersensitivity to sound over a period of time it becomes less and less effective. Others may come down with hyperacusis suddenly by attending a rock concert, firing a gun, air bag deployment in their car, fireworks or any extremely loud sound.

Other causes include job related noise exposure, drugs, Lyme's disease, Meniere's, TMJ, head injury or postoperative surgery. A PUZZLING PROBLEM The appearance of hyperacusis in some of these disorders may provide clues as to the cause of hyperacusis. Sometimes it disappears once the patient heals from the surgery, Meniere's goes into remission, or TMJ is resolved.

The protective mechanisms a normal ear employs to minimize the harmful effects of loud noise are malfunctioning, so noise may seem too loud even with hearing protection. There is some speculation that the efferent portion of the auditory nerve has been affected - efferent meaning fibers that originate in the brain, which serve to regulate incoming sounds. This theory about hyperacusis suggests that the efferent fibers of the auditory nerve are selectively damaged while the hair cells that allow us to hear pure tones in an audiometric evaluation remain intact.

Since an estimated 10% of all tinnitus patients have no measurable hearing impairment; it comes as no surprise that other ear pathologies including hyperacusis can occur in the absence of hearing loss. Others feel hyperacusis is purely a central processing problem limited to how the brain perceives sound. Clues are beginning to surface which are very encouraging and hopeful.

## What Can Be Done?

The progression of hyperacusis is unpredictable. Many patients' tolerance improves while some cases grow steadily worse. The only factor we know of that unquestionably affects progression or regression is continued exposure to loud noise.

Proper guidelines must be followed especially when one first develops hyperacusis. The best source of information comes from The Hyperacusis Network. Many patients have seen improvement in sound tolerance through the use of sound generators (special hearing aids) that emit broad band white noise. This retraining therapy suggests that the ear will become desensitized to sound by listening to white noise at barely audible levels for a disciplined period of time each day. It can help one maximize the tolerances left in one's ears.

Another method is to have the patient listen to pink noise tapes. These methods represent great hope and can help the hyperacusis patient but they are not a cure.

Individuals who suddenly come down with hyperacusis go through a distressing crisis period where it may be difficult for the patient to sleep restfully at night. Getting proper sleep and reducing stress levels are very important and some medication may initially be needed to help facilitate this.

The underlying reasons why some people are more susceptible to ear problems than others is not understood. Of the various catalysts for the onset of hyperacusis, noise is the most common and preventable one. Avoid loud sounds whenever possible and wear ear protection when needed.

Those who come down with hyperacusis may overprotect their ears. For those who suddenly develop hyperacusis, this is often necessary so that the patient's ears have an opportunity to regroup and recover. After a few months however, over protection will only further collapse one's tolerance to sound. The patient is in a Catch 22 and walks a fine line between over protecting and under protecting their ears. Most, over a period of time learn to trust their instincts.

One major problem the hyperacusis patient must contend with are hearing professionals who, in their attempts to diagnose the problem, subject the patient to tests which involve loud sounds (MRI). Sound tolerances must be known before an audiometric evaluation is performed. Some patients with hyperacusis have the ability to hear sounds at minus decibel levels.

## Where To Find Help

Because no test will confirm hyperacusis, it is misunderstood by all - like an invisible disability. One feels isolated and helpless even in the company of those who love them. The Hyperacusis Network consists of individuals who have a common goal to share information and offer support to one another knowing full well that our condition at this time is incurable.

As a network we share ways to improve our condition, discuss treatments, review products which make our environment more noise friendly and make referrals to physicians who are knowledgeable and compassionate. Membership is free.

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For more information about brain injury or services and resources in Virginia,  
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