

Chemicals That Affect Hearing & Balance

What are ototoxic chemicals?

Chemicals that cause harm to hearing and balance are called **ototoxic**. Ototoxic chemicals can cause hearing loss. Sometimes, hearing loss can be worse when the person has been exposed to both ototoxic chemicals and loud noises. Damage can occur, even if both the noise and the chemical are at recommended levels. You can be exposed at work or at home. Medications that we take can be ototoxic. Your doctor will tell you if your medicine puts you at risk.

What are some examples of chemicals associated with hearing loss, and where they are found?

You can find ototoxic chemicals in many common household items, like cleaners, gardening supplies, and paints.

Check labels for these chemicals:

- arsenic—found in parasites and microorganism inhibitors
- benzene—found in plastics, paints, cleaning agents, and cigarette smoke
- carbon disulfide—found in pesticides
- carbon monoxide—emitted by vehicles, cigarette smoke, welding tools, gasoline-powered tools, cooking stoves, and so forth
- styrene—produced in plastics, fiberglass, and insulating material
- trichloroethylene—found in dry cleaning, spot remover, rug cleaners, paints, waxes, pesticides, and lubricants
- toluene—found in paints, lacquers, adhesives, rubber, leather tanning, spray paint, and many other products

- xylene—found in paints, varnishes, and thinners

Most people use more chemicals at home than at work. Exposure in the workplace is not as common. But, if you are exposed, it is usually higher and more consistent in the workplace. Sometimes, you can be exposed to both loud noises and ototoxic chemicals. Activities include boat building; working in construction; firefighting; fueling vehicles and aircraft; furniture making; manufacturing of metal, leather, and petroleum products; painting; printing; firing of weapons. Be sure to follow all directions to protect yourself.

What are the effects of chemical exposure on the ear?

Ototoxic chemicals can be eaten, can come in through the skin, or can be breathed in. Once in the blood, they can go to the ear and can be absorbed in different locations of the auditory pathways. These chemicals can also cause hearing loss by damaging the hair cells in the inner ear. When damage occurs, any degree and combination of hearing loss and balance problems are possible.

What are the symptoms of ototoxic chemical exposure?

Ototoxic chemicals can cause mild to severe hearing loss, or total hearing loss. The hearing loss will be different for each person. The hearing loss depends on various factors, including genetics and noise exposure. You can also have ringing in the ears, called **tinnitus**. These chemicals can also cause balance problems ranging from mild to severe. Some problems will get better; others will stay the same. Some signs of balance problems are as follows:

