

Moisture in hearing aids

The performance of any hearing aid can be affected by moisture. It is useful to divide moisture into two main categories: External moisture and Internal moisture.

External Moisture

This is the most easily understood type. Moisture can enter the hearing aid through a variety of gaps and openings including the switch volume control and battery drawer. This could be perspiration, water in the form of rain or a shower, or any other liquid which the hearing aid may have been immersed in. Normally the hearing aid is sufficiently protected to prevent any permanent damage. However, if the moisture is corrosive or the exposure is prolonged, corrosion may damage the amplifier circuit, switch, volume control, or connecting wires inside the hearing aid. External moisture is not likely to affect the receiver unless the aid has been immersed in water.

Internal Moisture

Internal moisture is less easily understood. Moisture can enter the hearing aid through the sound outlet in the ear canal. The moisture may consist of normal ear wax (cerumen), perspiration or water trapped in the canal after swimming, showering, or washing the hair. However, it is frequently condensation or normal atmospheric moisture. Internal moisture usually only affects the receiver (the hearing aid's "speaker"). It can be a difficult problem to avoid.

How internal moisture causes problems

There are two ways that internal moisture can affect the operation of the hearing aid: blockage of the sound outlet and obstruction of the receiver diaphragm.

Blockage

A droplet or moisture forms in the outlet tubing. The hearing aid is still amplifying but very little can be heard through the blockage. The hearing aid should return to normal when the blockage is cleared

Obstruction of the receiver diaphragm

Like all speakers the hearing aid receiver produces sound by means of a vibrating diaphragm. When moisture or any other foreign matter enters the small space inside the receiver casing where the diaphragm acts, it may be partially or completely obstructed. The sound may be reduced or become very distorted or dull. The hearing aid may return to normal when the moisture dries out. However, if corrosion has occurred or solids have been deposited inside the receiver it may be permanently affected. The receiver cannot be dismantled, only replaced as a unit. Unfortunately, this is quite expensive.

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Symptoms of a moisture problem

- Intermittent stopping and starting
- Hearing aid stops working but then starts working again later on or the next day
- Loss of clarity or distortion
- Cutting out loud noises
- Sound fading, coming and going

If the hearing aid stops, but works again after a while, check that batteries are not the cause. Batteries recover some charge when rested. They will go flat, then work again for a short while after a rest. Buzzing and distortion are commonly experienced just before the battery goes completely flat. To eliminate batteries as a cause of problems, replace the battery as soon as the aid stops and keep new and used batteries separated.

Solving Moisture Problems

- In BTE (behind-the-ear) models the moisture droplets can often be seen in the earmould tubing. This can be cleared by separating the mould from the aid where the tubing connects to the hook and blowing through the tubing with an ear-mould blower.
- In ITE (in-the-ear) models the moisture can only be removed by drying it out. We recommend Dri aid kits for overnight storage of all hearing aids. The aid may also be kept in the hot water cupboard.
- Do not attempt to dry hearing aids in conventional or microwave ovens or leave in direct sunlight. Excessive heat may melt the plastic components and microwaves cause almost immediate destruction of all the electrical components.
- In ITE models it helps to keep the sound outlet clear of wax using a wire loop cleaning tool. Care must be taken to not damage the tubing or receiver by using excessive force or pushing the loop too far into the aperture.
- Increasing the vent size for better ventilation of the ear canal will help reduce moisture problems but this is not always possible as it also affects the acoustic performance of the aid.
- If possible, avoid wearing the hearing aid in wet, humid or steamy conditions or during strenuous exercise. When not in use, the hearing aid should always be kept in a warm, dry place.

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