



Can Calibrations damage equipment?

What happens to an Audiometer during calibration, and can it cause damage to the equipment?



The short answer is NO

Calibrations will not cause any damage to equipment.

A simple summary of the calibration process involves a qualified technician connecting the audiometer to specialized equipment in a laboratory to test and adjust accuracy. (For a more detailed explanation see the box "*What happens during a calibration*").

At times faults will be detected during or following a calibration. This is not due to the calibration process itself. Existing faults due to aging equipment or wear and tear of consumable parts may become apparent simply because the audiometer has been unplugged, packaged, transported, and reconnected. Even without this process, the same faults will surface in time anyway.



Aging Equipment

Commonly assets such as computers, office machines, and research equipment have an estimated useful lifespan of 5 years. Likewise, we cannot expect our Audiometric equipment to last forever. Ask yourself, how old is my Audiometer?

Many Audiometers we calibrate are 5+ years old. With correct maintenance and care they continue to work accurately. However, at this age, we should not be surprised if some faults appear and repairs are required.

If considering the purchase of NEW equipment it is advisable to contact the experts at Precision Acoustics to ensure you have selected a quality product.



Consumables

Below is a list of common "consumable" items that are expected to wear out and be replaced at regular intervals. The length of time they last will vary depending on treatment, maintenance, and frequency of use.

Headset Cushions: Worn headset cushions are unsightly and uncomfortable. A variety of headset cushions are available at relatively low cost and are generally simple to replace.

Headset Cables: Due to the constant flexing of a headset cable it is inevitable the internal wire will wear and break. Common signs of a breaking cable include crackling or intermittent failure. Headset cables are generally easy to replace for little cost.

Patient Response Button: Any button that is pushed repeatedly, dropped, and pulled will eventually break. Although most Patient Response Buttons can be repaired the cost is comparable to purchasing an inexpensive new Response Button.



What happens during a calibration?

A standard air-conduction calibration involves using an ear simulator or acoustic coupler that is open on one side to allow the application of your headphones for testing. This coupler is connected to an analyser via an internal microphone. The microphone detects the sound pressure level that a real listener's eardrum would be exposed to in hearing tests and levels are fine-tuned to ensure accuracy. Other functions of the audiometer that are critical for achieving accurate results are also tested for compliance.

Bone-conduction testing involves a mechanical coupler or artificial mastoid. Using a series of rubber layers to couple the bone-vibrator to a force transducer, the vibrations applied when testing are measured and adjusted accordingly.

The calibration involves the adjustment of levels from the audiometer and measuring devices, such as the headset and bone conductor. After calibrating the audiometer, it is essential that they then remain for use together. If a new or alternate device is used such as another headset, the audiometer must be re-calibrated for that headset to ensure levels are true.

For accurate results and Workcover Accreditation, all audiometric calibrations must take place in a controlled environment such as an acoustic laboratory. Calibrations carried out on-site may be affected by existing environmental factors such as background noise, air movement, or vibrations resulting in incorrect results. This is especially critical for bone conduction calibration. The test equipment itself is extremely sensitive to environmental change and must be allocated a minimum of two days to settle if transferred between locations.