

## What is the Australian Temporal Bone Bank?

The Australian Temporal Bone Bank is the first temporal bone bank in Australia and only one of a few in the world to specialise in balance disorders, with a joint interest in conditions that affect hearing.

Similar to organ donation, temporal bone donors are needed so that the ATBB can conduct research to improve our knowledge of the inner ear. The ATBB aims to help us to better understand diseases that affect hearing and/or balance, as well as the impacts of cochlear implants.

Housed in the Royal Victorian Eye and Ear Hospital, the ATBB is a joint initiative between the hospital and the University of Melbourne's Department of Otolaryngology. The ATBB was established following a successful collaboration between the hospital and the Massachusetts Eye and Ear Infirmary (MEEI). The MEEI houses the National Temporal Bone, Hearing and Balance Pathology Resource Registry, which is the largest bank of temporal bones in the United States.

Funding for the ATBB project was provided by The Garnett Passe and Rodney Williams Memorial Foundation.

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### For more information

If you would like to find out more about the ATBB and how to register as a donor, contact Dr David Szmulewicz, Head of Balance Disorders and Ataxia Service at the Royal Victorian Eye and Ear Hospital, ph (03) 9929 8666, email [dsz@me.com](mailto:dsz@me.com) or Prof Stephen O'Leary, Chair of Otolaryngology and cochlear implant surgeon, ph (03) 9929 8366, email: [sjoleary@unimelb.edu.au](mailto:sjoleary@unimelb.edu.au)



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# Australian Temporal Bone Bank

Hearing and balance disorders affect a significant number of Australians and can be quite debilitating conditions that severely impact the sufferer's quality of life. To help understand and research these disorders, the Royal Victorian Eye and Ear Hospital and the University of Melbourne have established the Australian Temporal Bone Bank (ATBB) and are looking for patients to donate their temporal bone.

Many hearing and balance disorders can be caused by damage to the inner ear. While one part of the inner ear is for hearing, another part, called the vestibular system, relates to balance and if damaged can cause a balance disorder.

One in six Australians currently suffer from hearing loss or impairment, with that number expected to increase over the coming years. Balance disorders are also widespread, with 40 per cent of patients over 40 and more than two-thirds of people over 60 experiencing some form of dizziness or loss of balance. The difficulty with balance disorders is that in many cases little is known about their cause, which severely affects our ability to identify and manage the disorders.

Given the impact of hearing and balance disorders on the patient's quality of life, identifying the nature and cause of the disorder is critical to improving treatment outcomes. A key component of this is the study of the temporal bone, which houses the inner ear – the body's hearing and balance systems.

The ATBB is looking for donors to register their consent to donate their temporal bone to assist with this research.

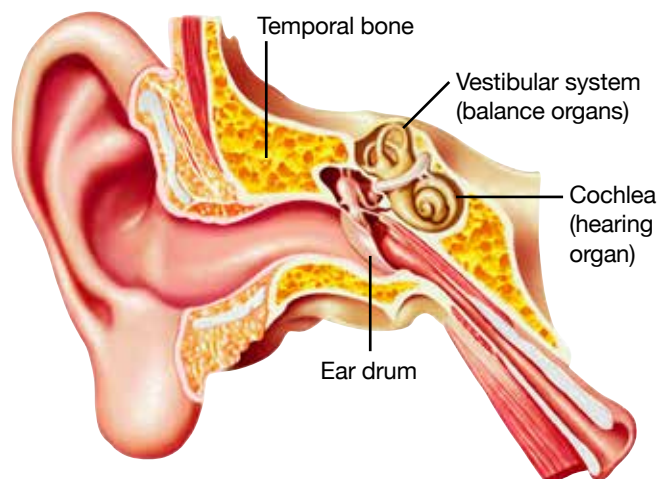
### Who can donate their temporal bone?

Anyone with a hearing disorder, balance disorder and/or cochlear implant is eligible to register as a donor with the ATBB.

### How is the temporal bone collected?

As the temporal bone is deep within the skull, it can only be examined by removing it from deceased donors. A small part of the temporal bone is surgically removed soon after death, without impacting the donor's physical appearance. Inner ear structures can then be prepared for a variety of research techniques, including microscopic study and procedures that allow identification of hearing and balance defects at a microscopic level.

People who register to donate their temporal bone may also be asked if they are willing to donate their brain to assist with the research.



### Improving understanding of balance through temporal bone research

The benefits of temporal bone research have already been realised through recent advancements in the understanding of a newly-identified balance condition called Cerebellar Ataxia with Neuropathy and Vestibular Areflexia Syndrome, or CANVAS. Temporal bone research has helped to gain an insight into CANVAS and, in particular, which parts of the body's balance system are affected. This has only been possible because of temporal bone research.

### Improving cochlear implants through temporal bone research

Temporal bone research will also help to improve the cochlear implant. Research will help to provide a greater insight into patient's understanding of speech with the implant, and preserving existing hearing following the surgery. The clinic at the Eye and Ear is at the forefront of this research.