

Ossicula auditus

In the middle ear cavity the smallest paired ossicles of the body can be found, namely the auditory ossicles. They create a transmission complex of vibrations from the eardrum to the fenestra vestibuli ossis temporalis, to the perilymphatic space. There are three bones:



- **malleus** – hammer, bone pressing on the ear drum
- **incus** – anvil, middle bone
- **stapes** – stirrup, the most medial bone adjacent to the base of the fenestra vestibuli

Anatomical structures

Malleus

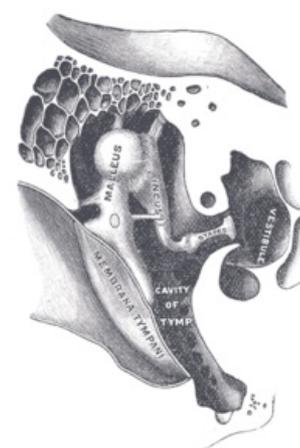
Bone club-shaped, tapering caudally. We recognize several formations on it:

- **caput mallei** – rounded part for connection with the anvil, projecting high above the upper edge of the eardrum;
- **collum mallei** – neck pressing medially from the pars flaccida membranae tympani;
- **manubrium mallei** – handle fused with the drum in the stria mallearis;
- proc. lateralis and proc. anterior are projections, performing minor functions.

Incus

It is located between the hammer and the stirrup. It contains:

- **corpus incudis** – the body, which on one side is articulated with the collum mallei and on the other, tapering side with the caput stapedis;
- **crus breve** – a short arm extending to the wall of the aditus ad antrum, used for fixation;
- **crus longum** – a long shoulder in the mediocaudal direction, passes in **proc. lenticularis**, a cartilaginous projection connected to the head of the stirrup.



Auditory ossicles

Stapes

The last of the ossicles embedded in the fenestra vestibuli:

- **caput stapedis** – spherical head of the stirrup attached to the cartilaginous process of the anvil;
- **crus anterius et posterius** – bony arms towards the base;
- **basis stapedis** – elongated plate fixed with lig. annulare stapedis to the fenestra vestibuli.

Connection of auditory ossicles

The auditory ossicles are connected by ligaments, sometimes with the character of a joint connection. Numerous ligaments bind them to the surroundings.

Functions

Thanks to the connection of these three bones, a transmission chain is created that perceives the vibrations of the eardrum, which are transferred to the perilymph of the labyrinth of the Inner ear. At the same time, the oscillations **change from high amplitude and low intensity** starting at the drum **to low amplitude with high intensity**. This ensures transmission to the perilymph, from there to the endolymph, to the hearing receptor itself in the cochlea.

Links

Related articles

- Development of auditory and balance systems
- Hearing

- Bones of the splanchnocranium

Used literature

- ČIHÁK, Radomír. *Anatomie*. 2. edition. Praha : Grada, 2001. 516 pp. vol. 1. pp. 177. ISBN 978-80-7169-970-5.
- ČIHÁK, Radomír – GRIM, Miloš. *Anatomie*. 2.. edition. Praha : Grada Publishing, 2004. 673 pp. vol. 3. pp. 628-629. ISBN 80-247-1132-X.

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