

NEUR0010
Week 7 (Audition) Study Guide

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<p>Sound waves</p> <ul style="list-style-type: none">- Frequency is related to the ---- that we perceive.- Amplitude is related to the ---- that we perceive. <p>Inner, middle, outer ears</p> <ul style="list-style-type: none">- Name the basic structures in each part <p>Middle ear</p> <ul style="list-style-type: none">- Technical term for eardrum?- Name the ossicles (Latin names preferred)- The innermost ossicle interacts with the cochlea at the round or oval window?	
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The basilar membrane
- Name the fluid-filled spaces on each side

- Base vs. apex: which is narrower/wider, which is stiffer/floppier, which processes high/low frequency sounds?

- Sounds that are too low in frequency pass through what structure?

Cross section of the cochlea
- Name the fluid-filled spaces and the fluids in each
- What's so special about endolymph? Which structure is the cause of that difference?

Organ of Corti

- Outer vs. inner hair cells: which is more abundant? Which connects to more fibers per hair cell? What is each responsible for?
- What is the name of the ganglion leaving the Organ of Corti?

Inner hair cell activity

- Bending away/towards the tallest stereocilium opens what ion channel?
- Does this ion enter or leave the cell? Does the cell depolarize or hyperpolarize?
- What other ion's entry is responsible?
- Does the inner hair cell fire action potentials? If not, how does it communicate?

Outer hair cell activity

- What is their major function?
- How do they achieve this function? What motor protein is responsible?

Describe phase-locking and volley coding. Diagrams may be helpful.

Describe auditory tonotopy.

Sketch the auditory pathway

- Which area of the brain is the first to receive binaural input?

- Does lesioning one side of A1 result in complete deafness?

Vertical sound localization:
what part of the ear is responsible?

Horizontal sound
localization

- How does the head's shadow play a role?
- Explain what is meant by interaural time delay and how it works, in terms of summation, in the superior olive. A diagram may be helpful.