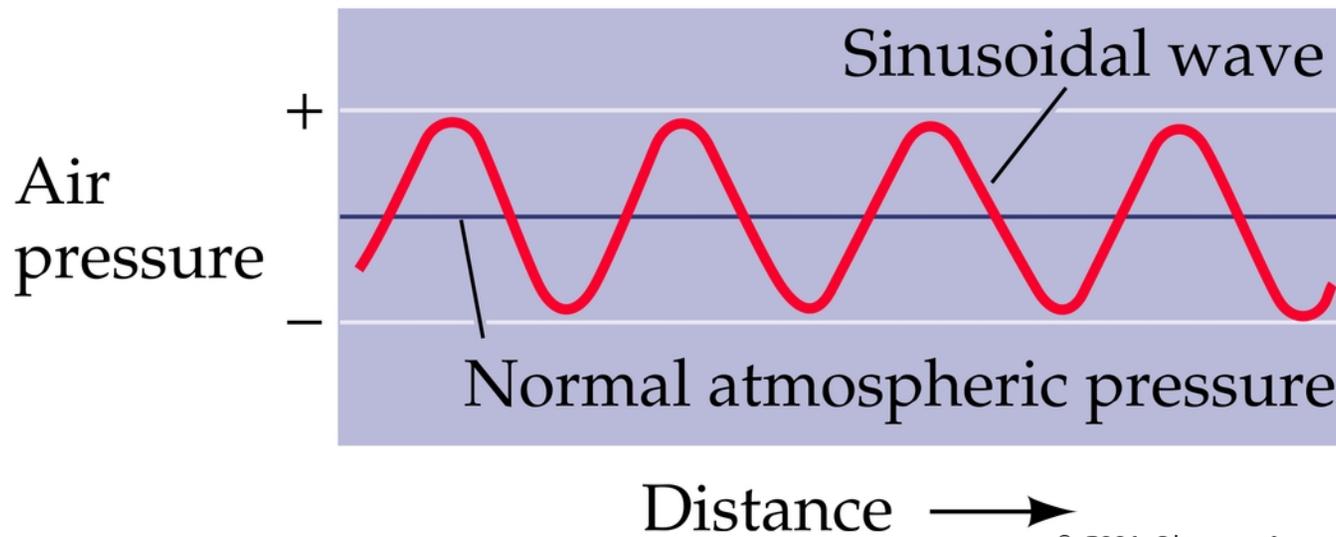
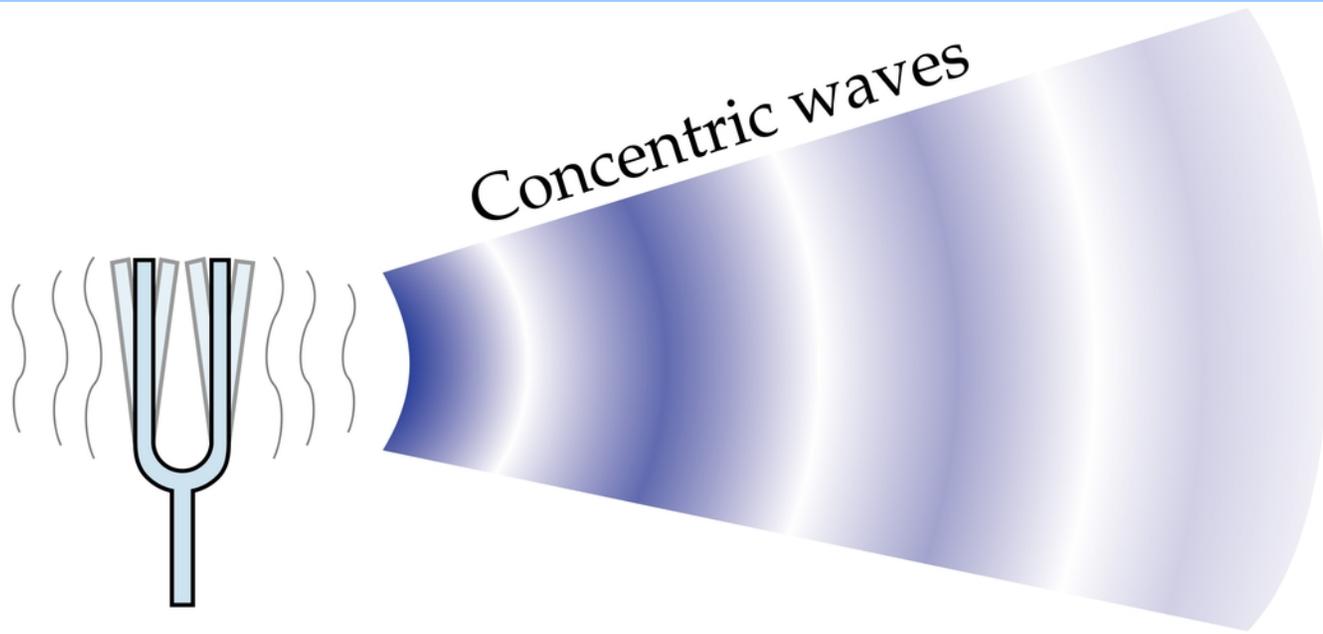


Hearing

Martin Wikström

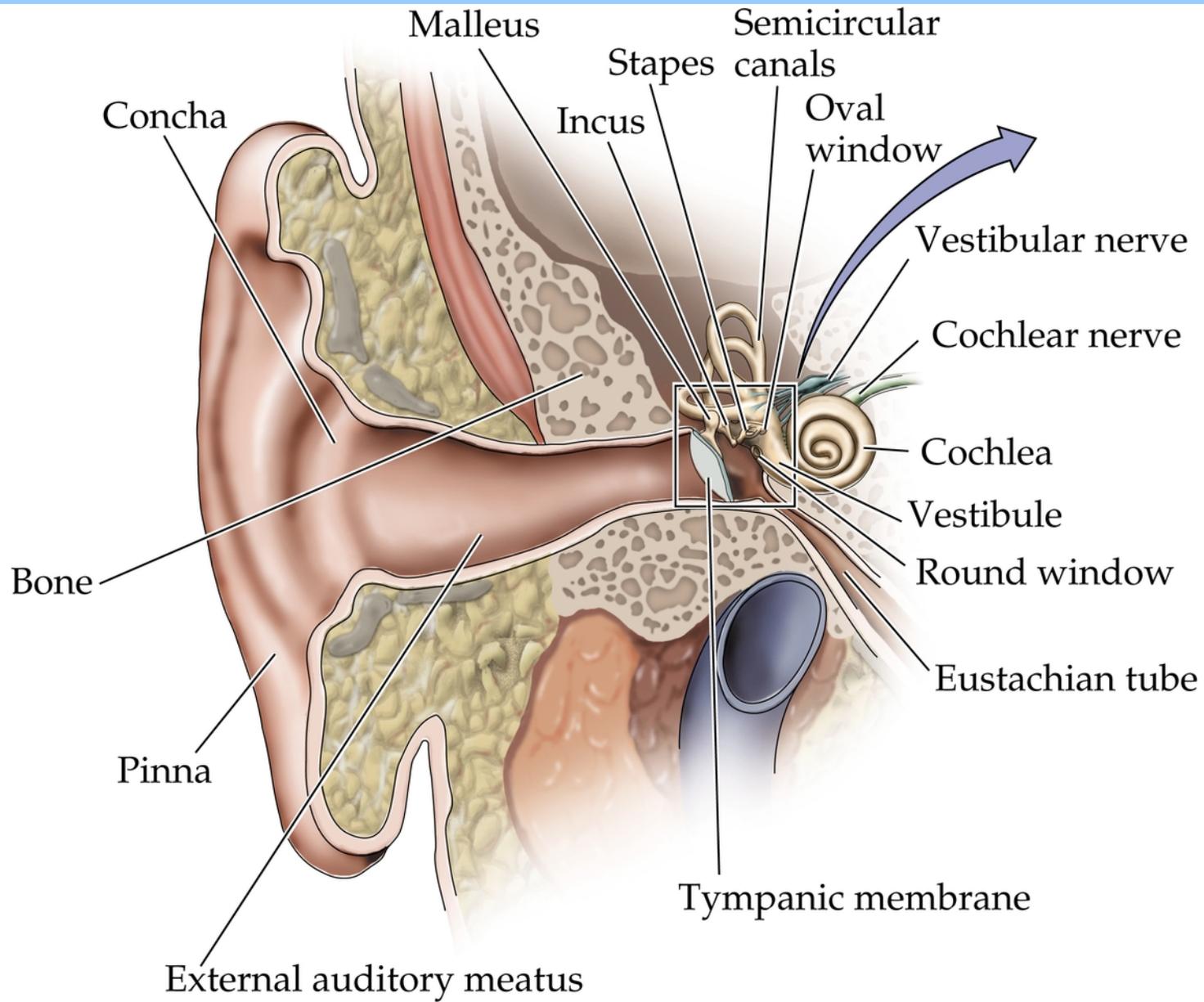
martin.wikstrom@neuro.ki.se



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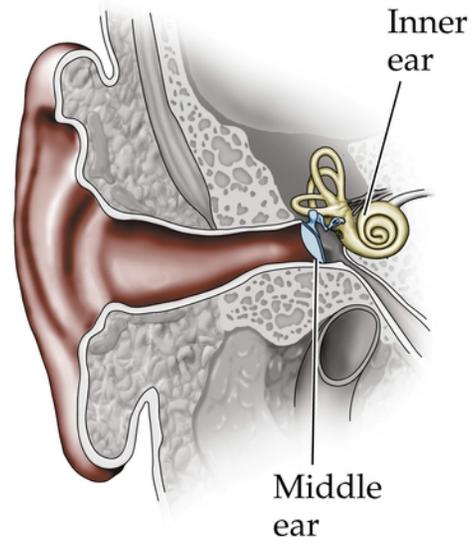
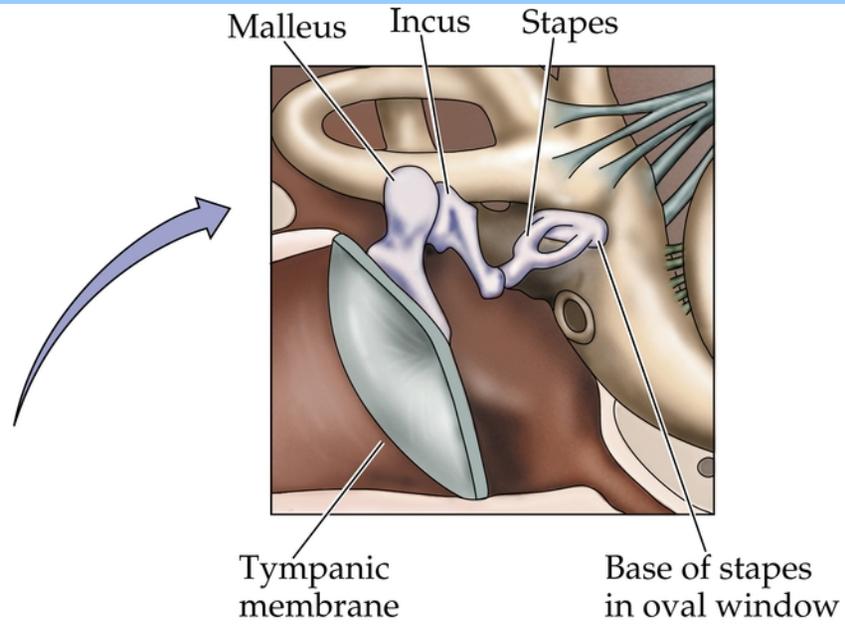
**Periodic Condensation and Rarefaction of Air Molecules
Produced by the Vibrating Tines of a Tuning Fork**





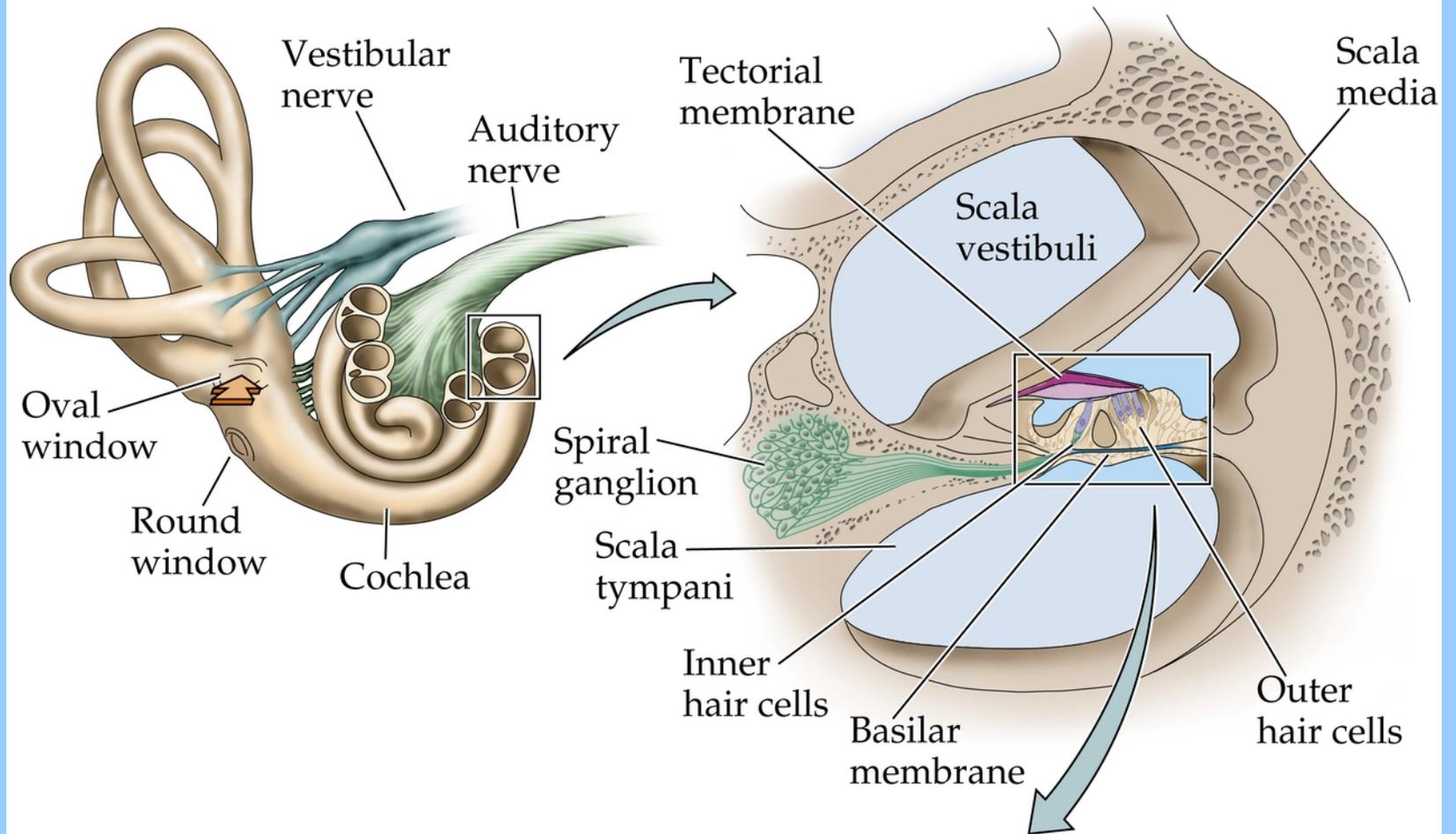
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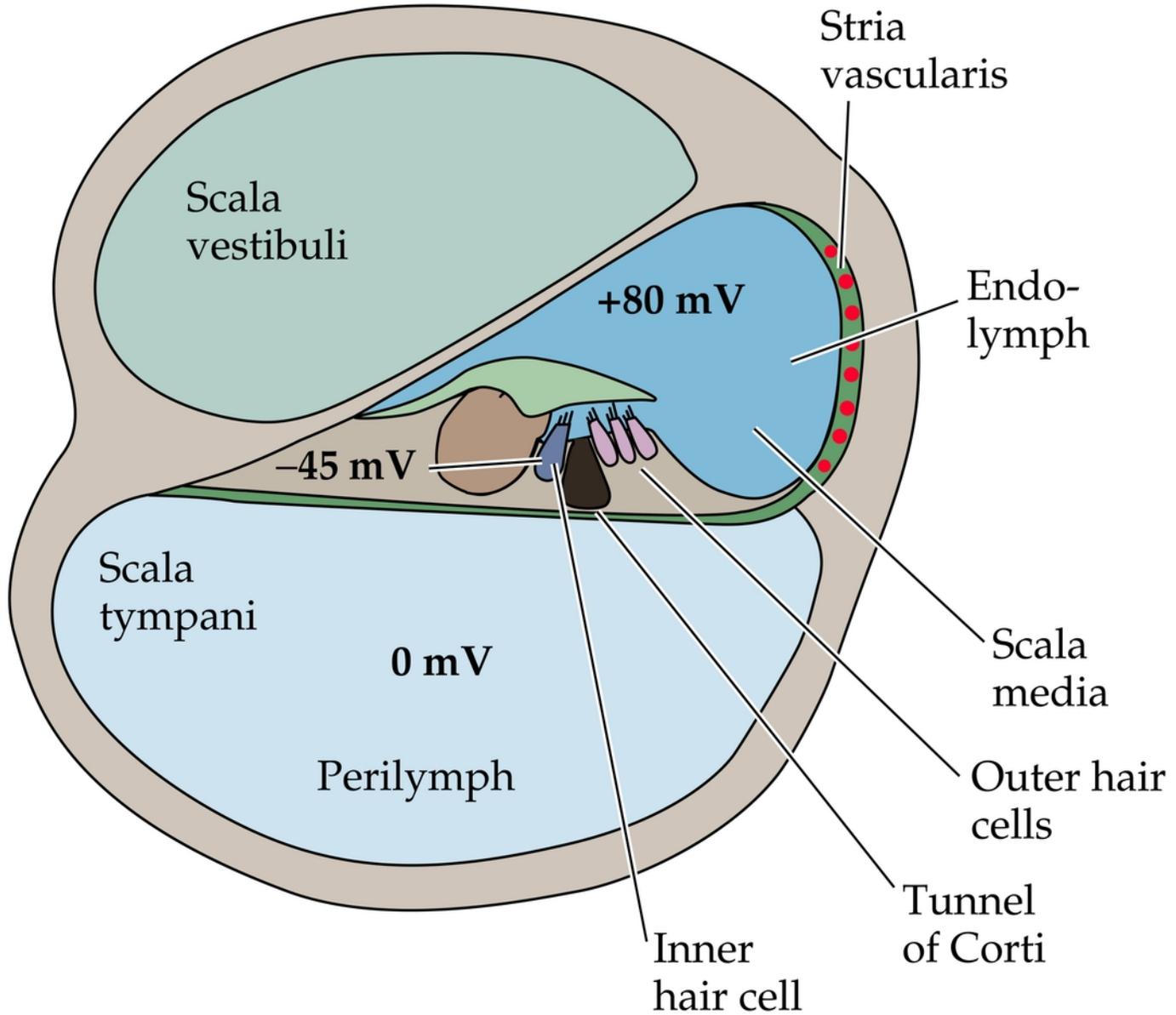


Perilymfa in Scala Vestibuli & Scala Tympani
-High Na^+ , Low K^+

Endolymfa in Scala Media
-High K^+ , Low Na^+



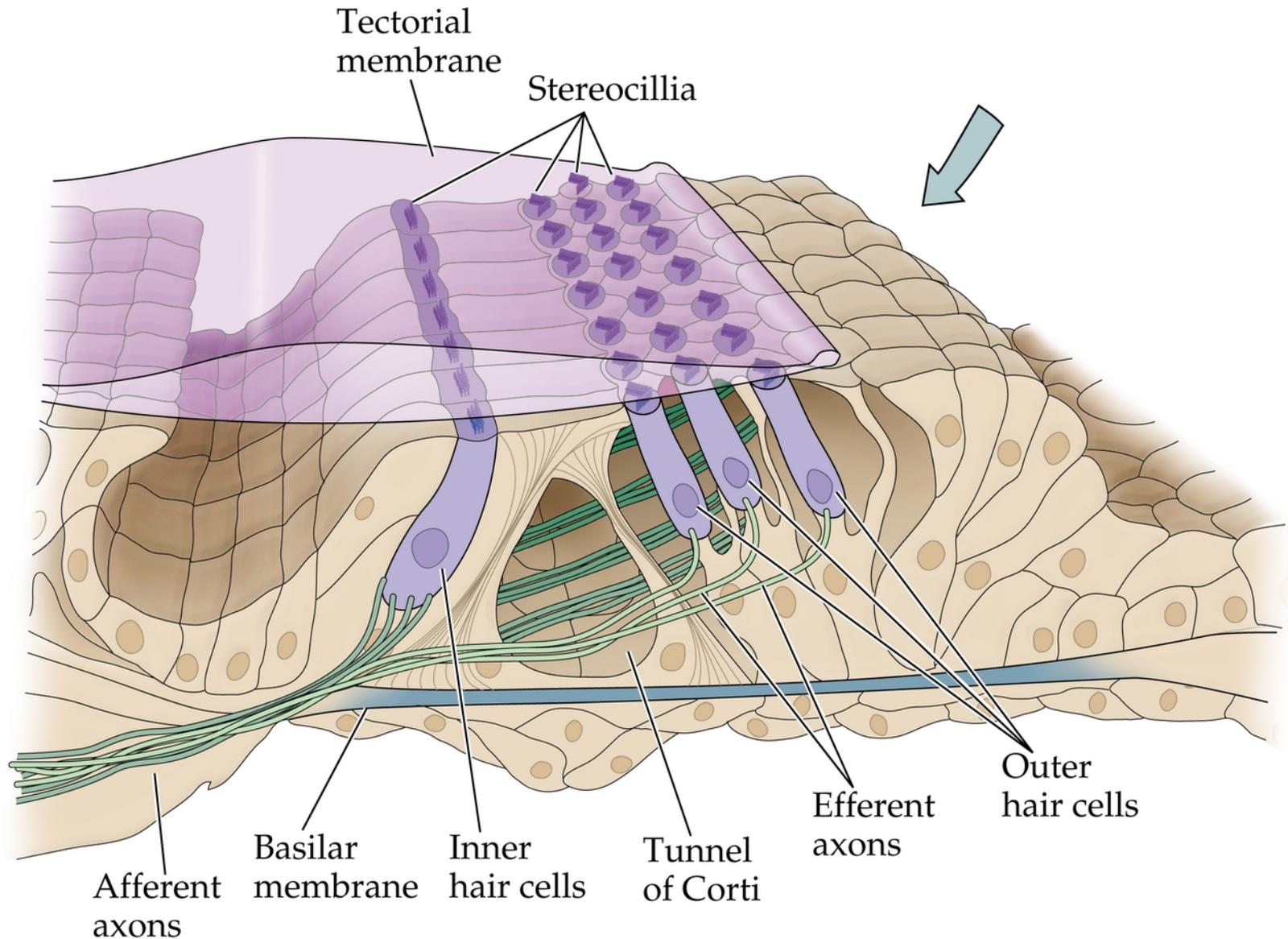
(D)



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Mechanoelectrical Transduction Mediated By Hair Cells

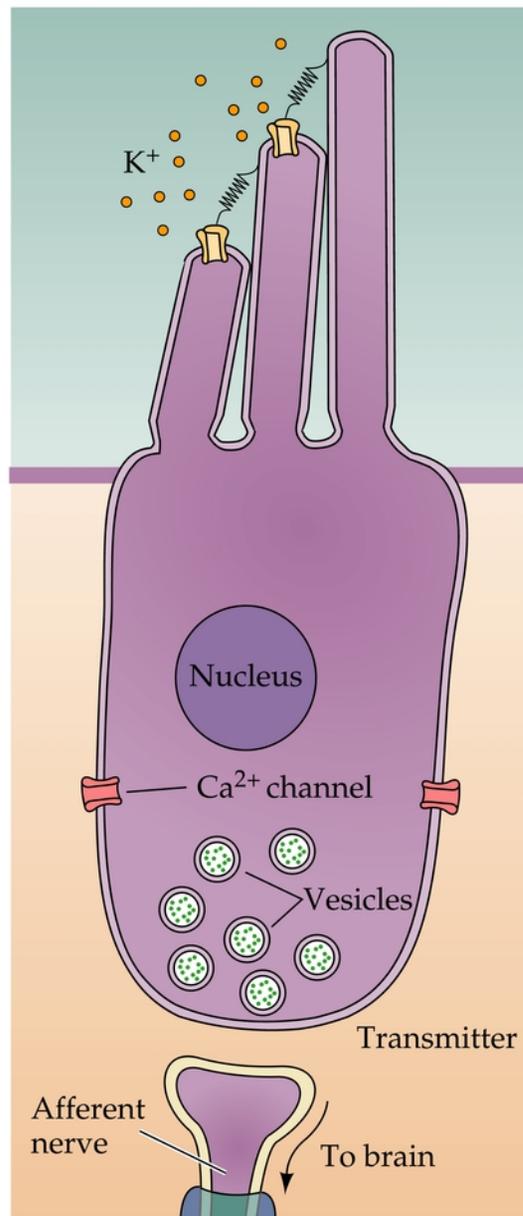




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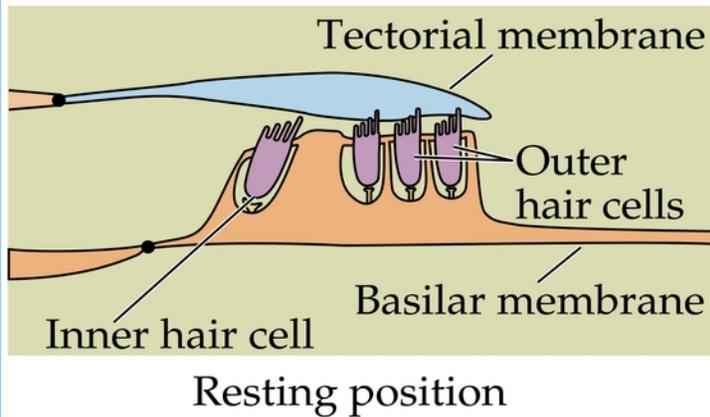
(A)



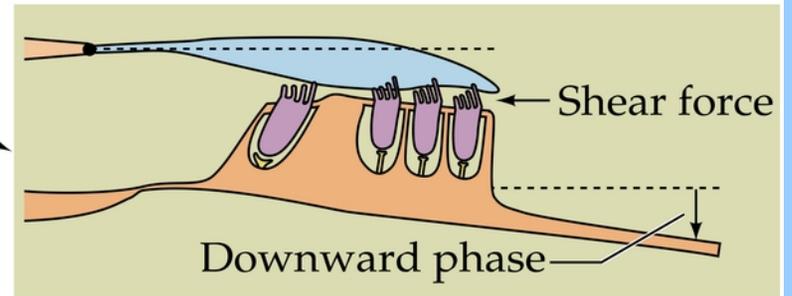
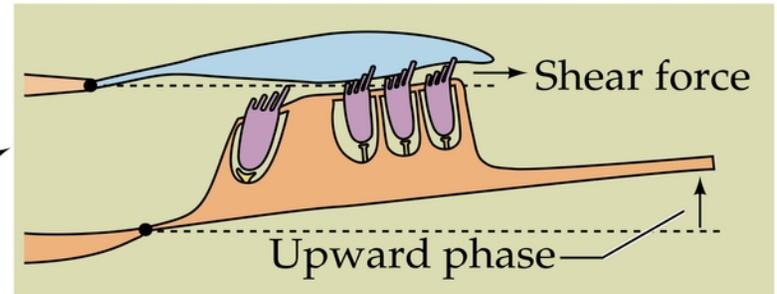
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Mechanoelectrical Transduction Mediated By Hair Cells





Sound-induced vibration

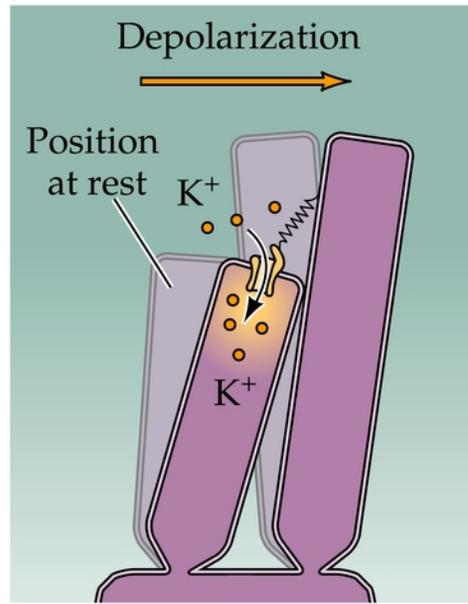
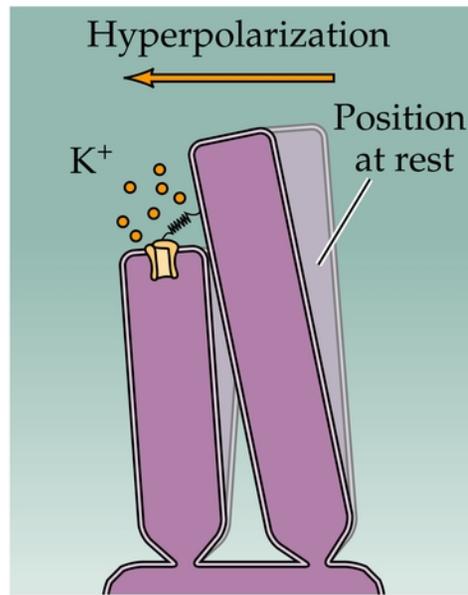


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Basilar Membrane Movement Creates a Shearing Force that Bends the Stereocilia of the Hair Cells

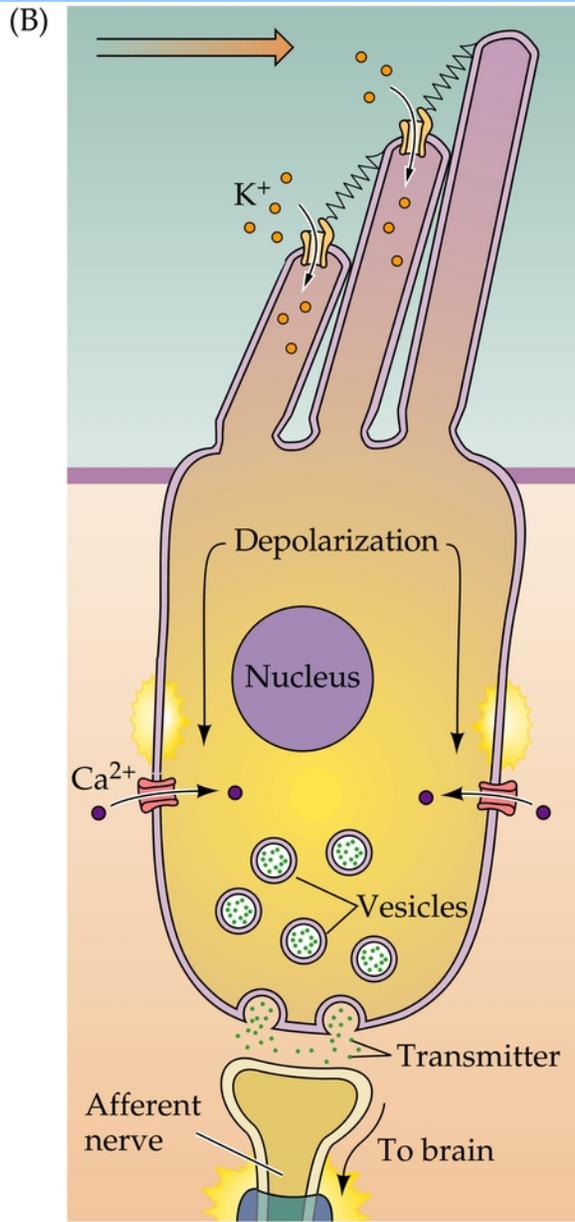


(D)



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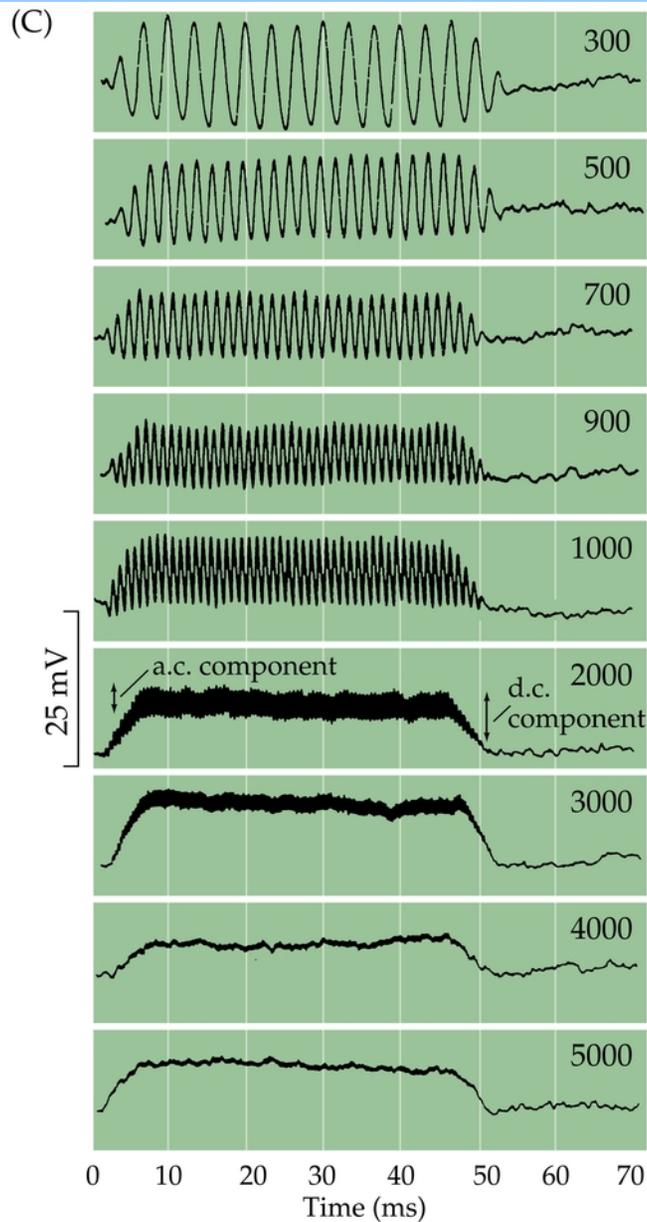
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Mechano-electrical Transduction Mediated By Hair Cells



Frequency detection

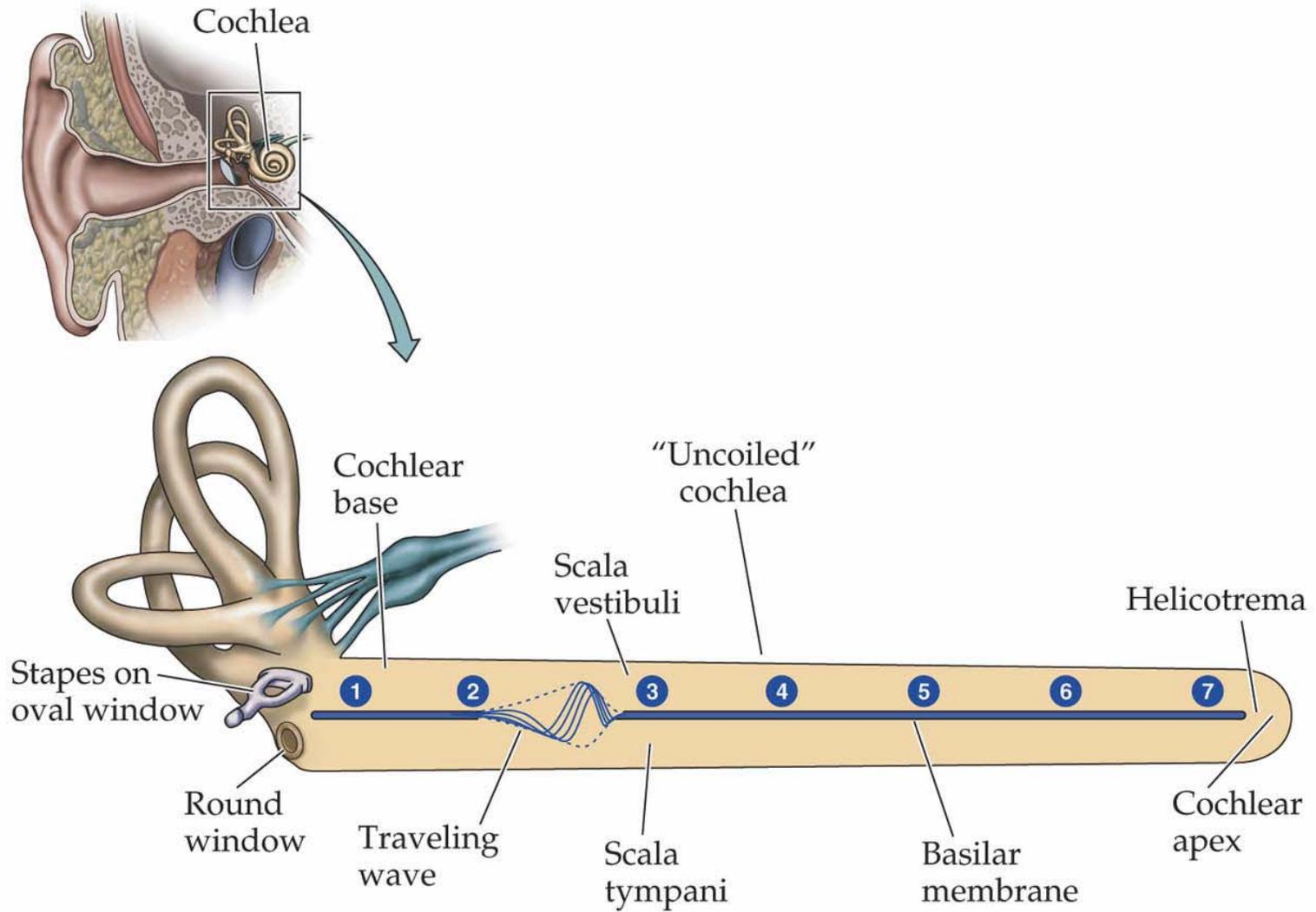




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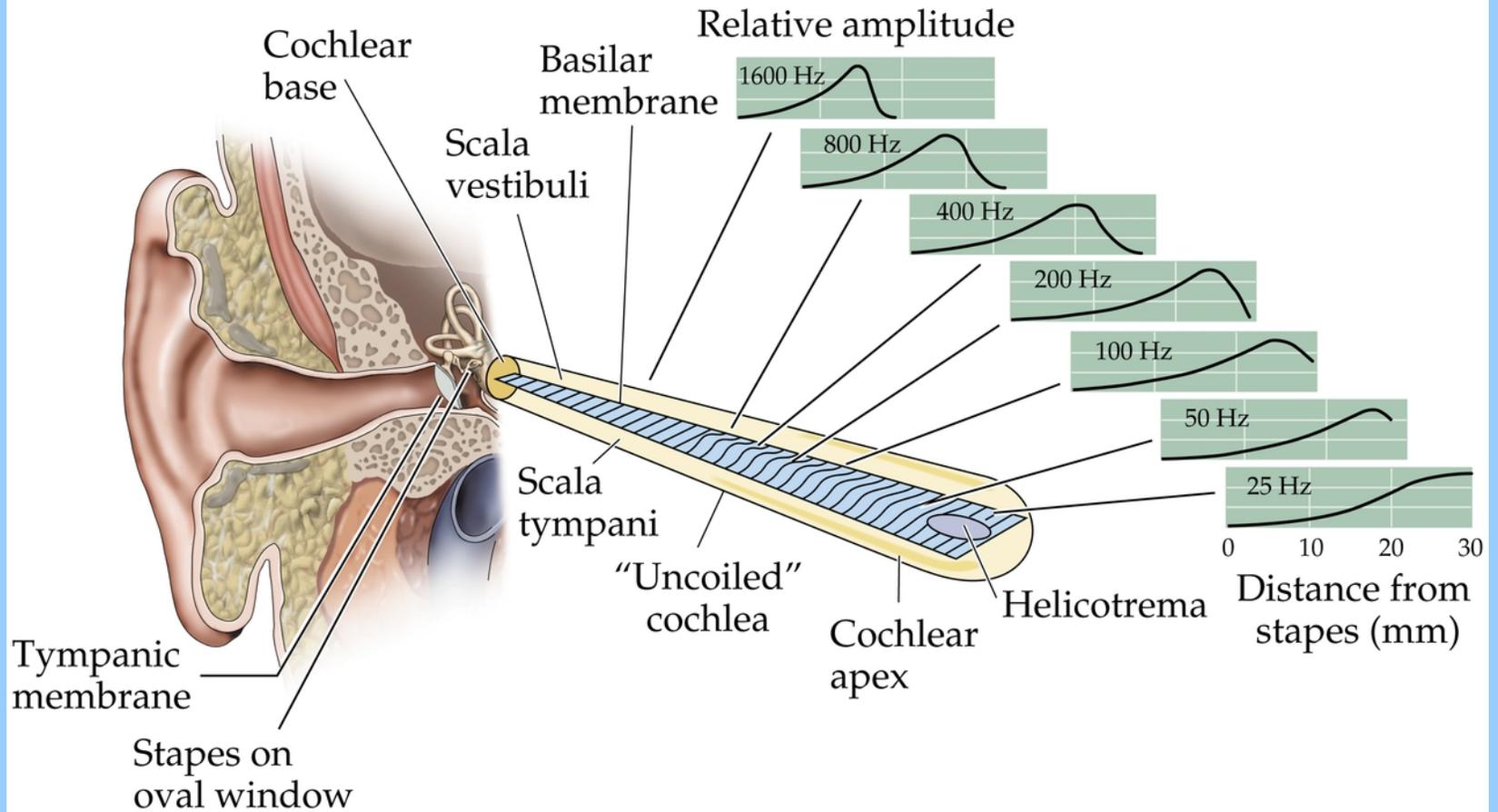
Mechanoelectrical Transduction Mediated By Hair Cells





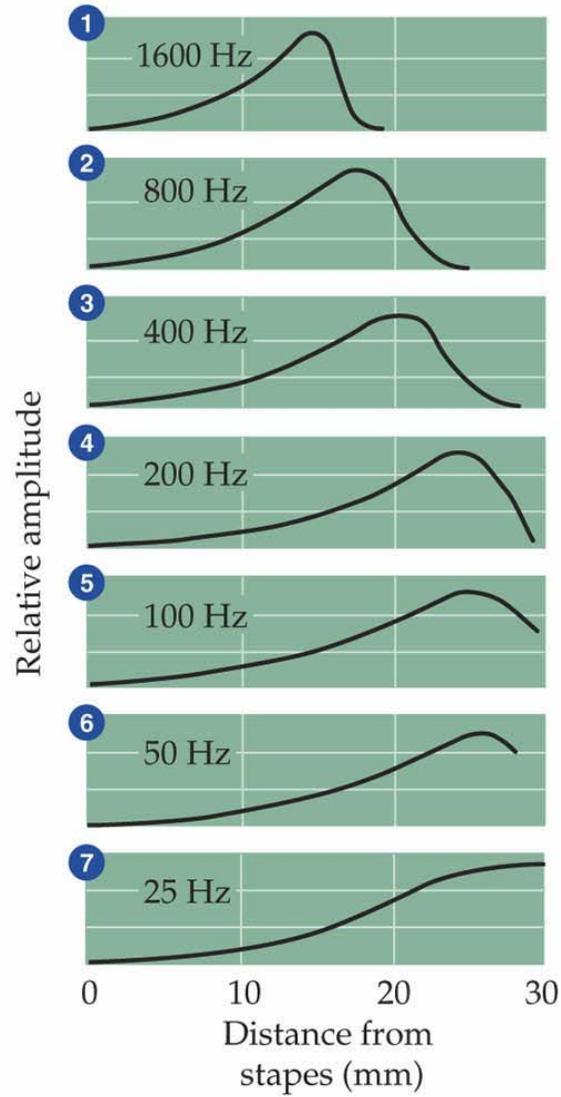
NEUROSCIENCE, Third Edition, Figure 12.5 (Part 1) © 2004 Sinauer Associates, Inc.





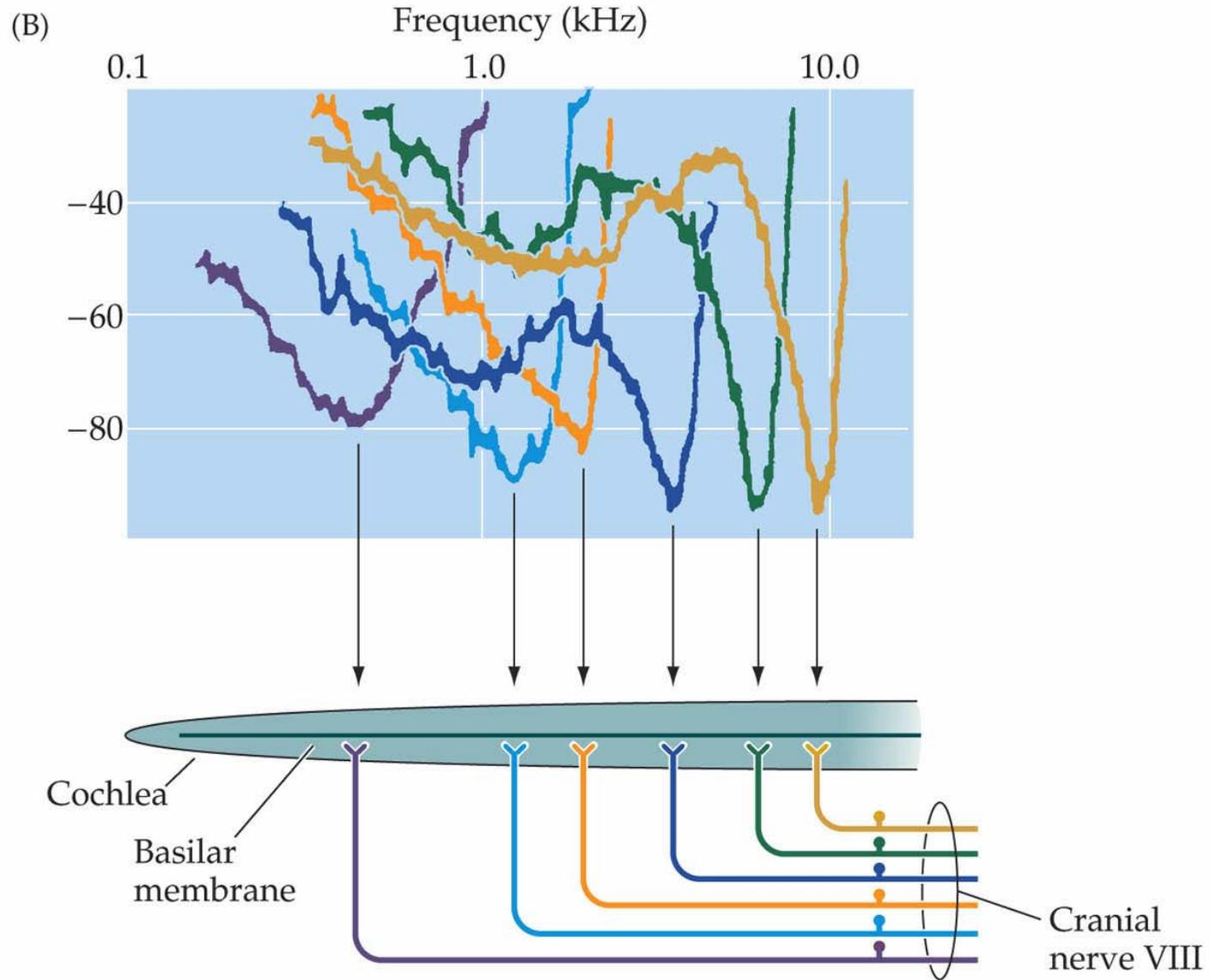
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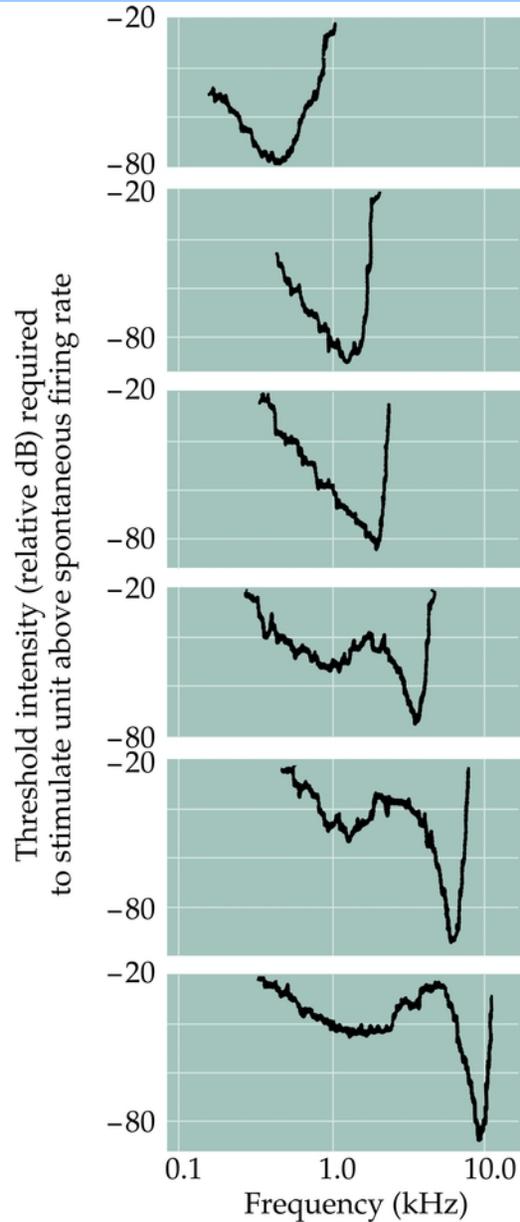




NEUROSCIENCE, Third Edition, Figure 12.5 (Part 2) © 2004 Sinauer Associates, Inc.



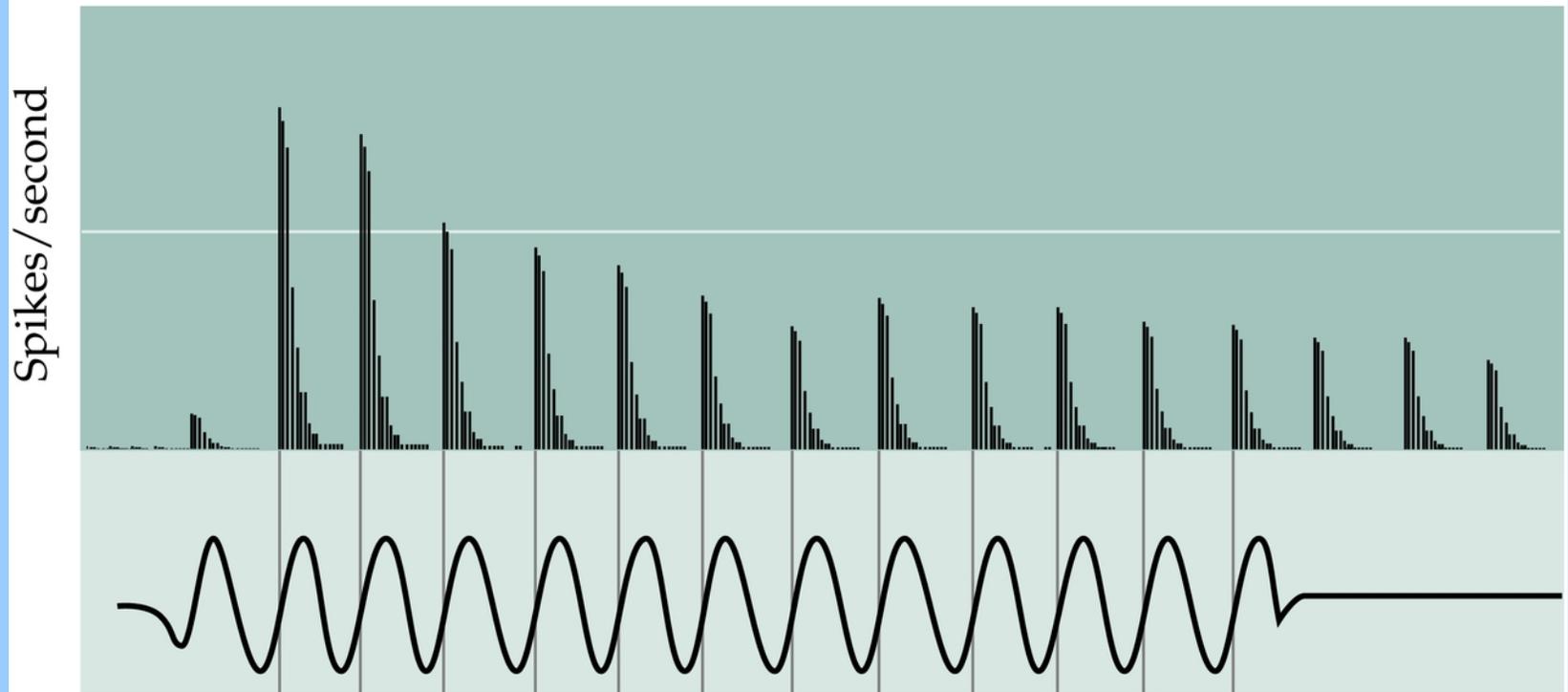




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Frequency Tuning Curves of Different Fibers in the Auditory Nerve





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Temporal Response Patterns of a Low-Frequency Axon in the Auditory Nerve



Frekvensdetektion

Haircell activation pattern

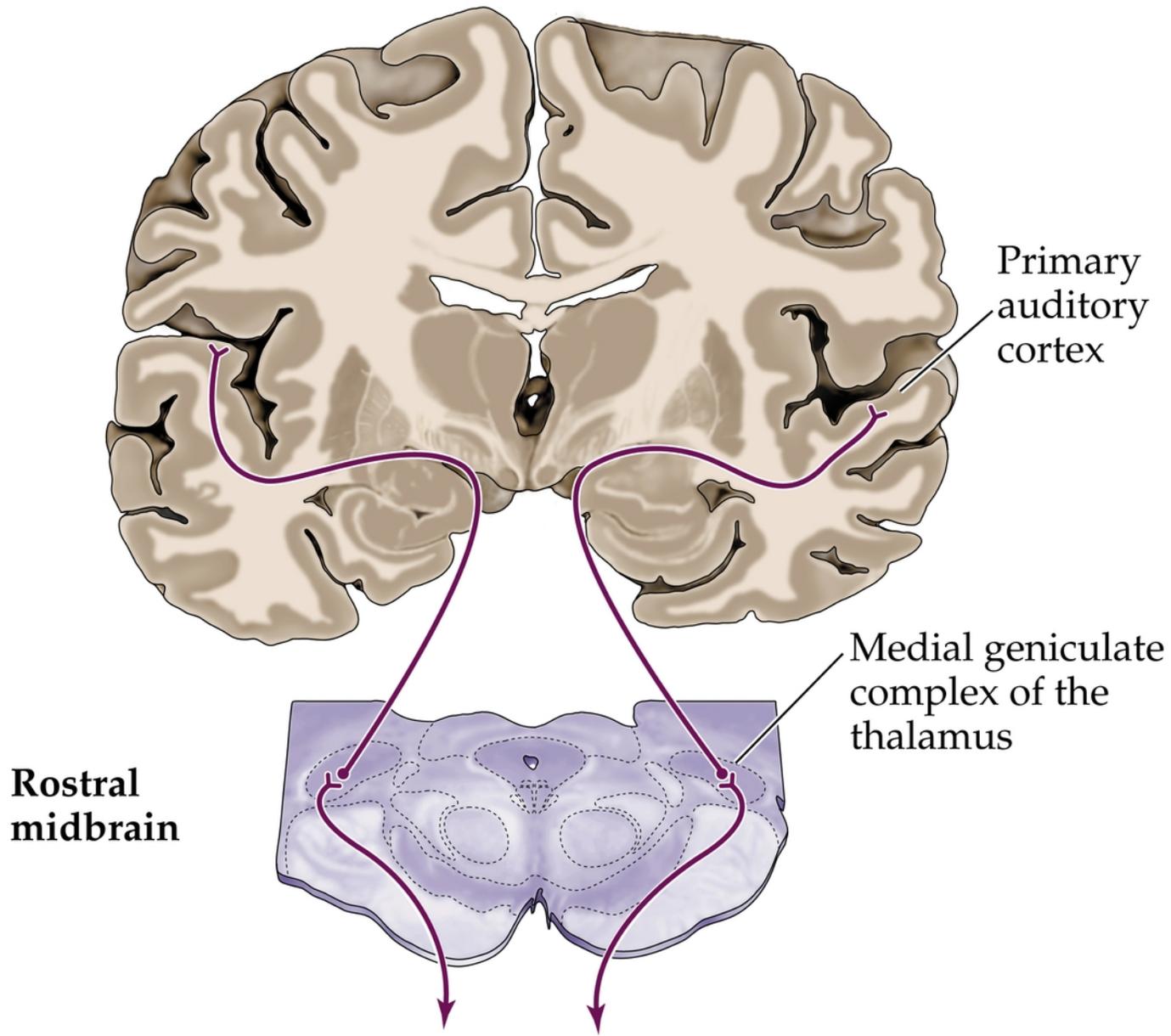
Structure of the Basilar membrane

Structure of the haircells

Electric resonance

Outer haircell modulation

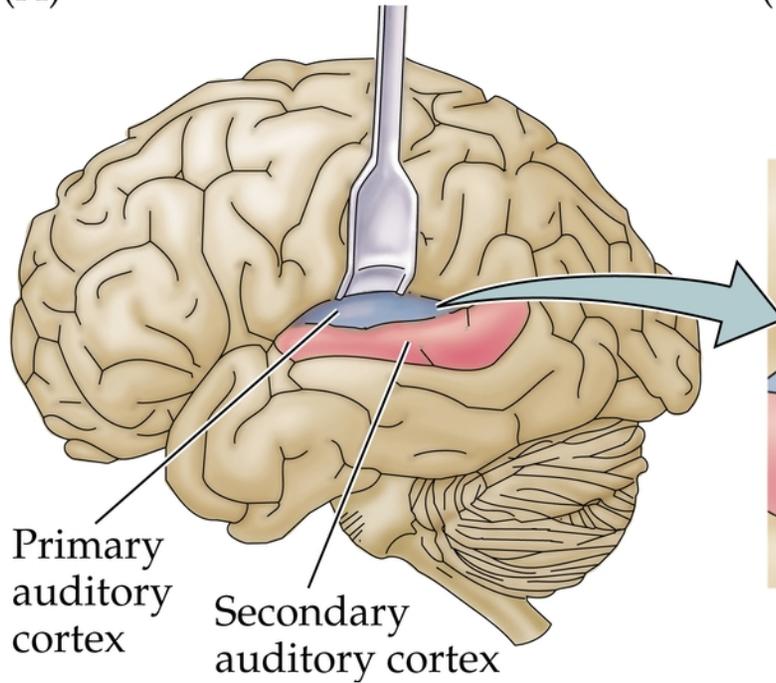




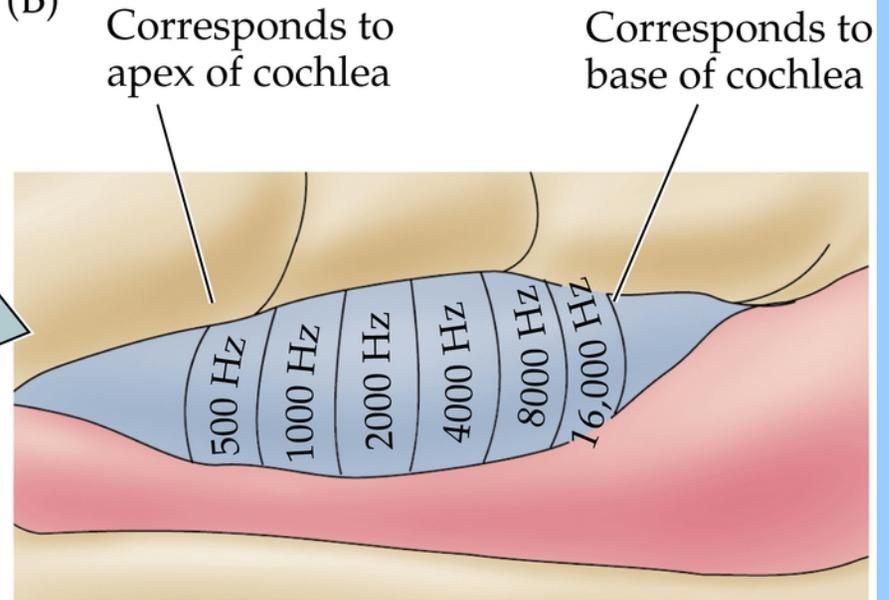
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(A)



(B)

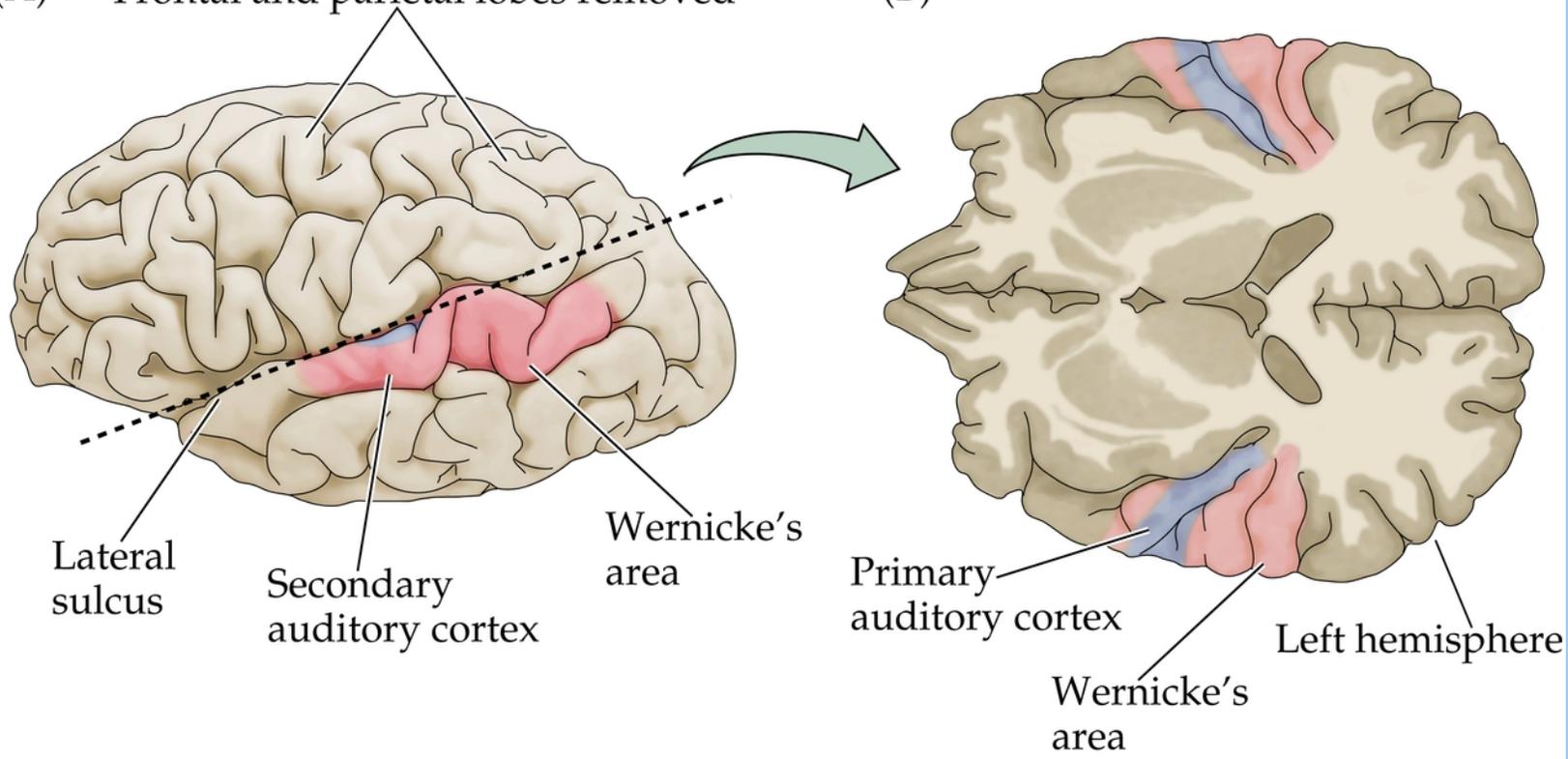


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(A) Frontal and parietal lobes removed

(B)



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The Human Auditory Cortical Speech Areas Related to Processing Speech Sounds

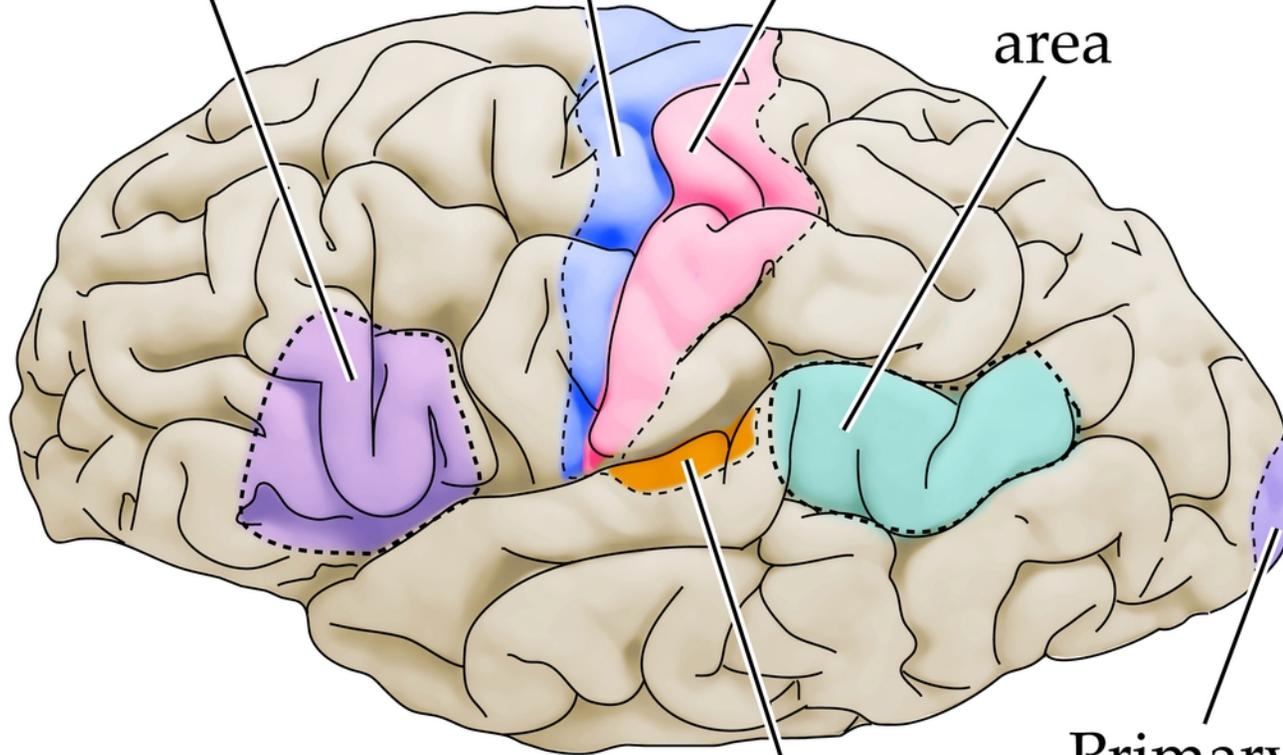


Primary motor cortex

Primary somatic sensory cortex

Broca's area

Wernicke's area



Primary auditory cortex

Primary visual cortex

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The Major Brain Areas Involved in the Comprehension and Production of Language

