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Binaural hearing for all

On the importance of listening with two ears

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Board

The European Doctoral Network on cochlear implants and spatial hearing



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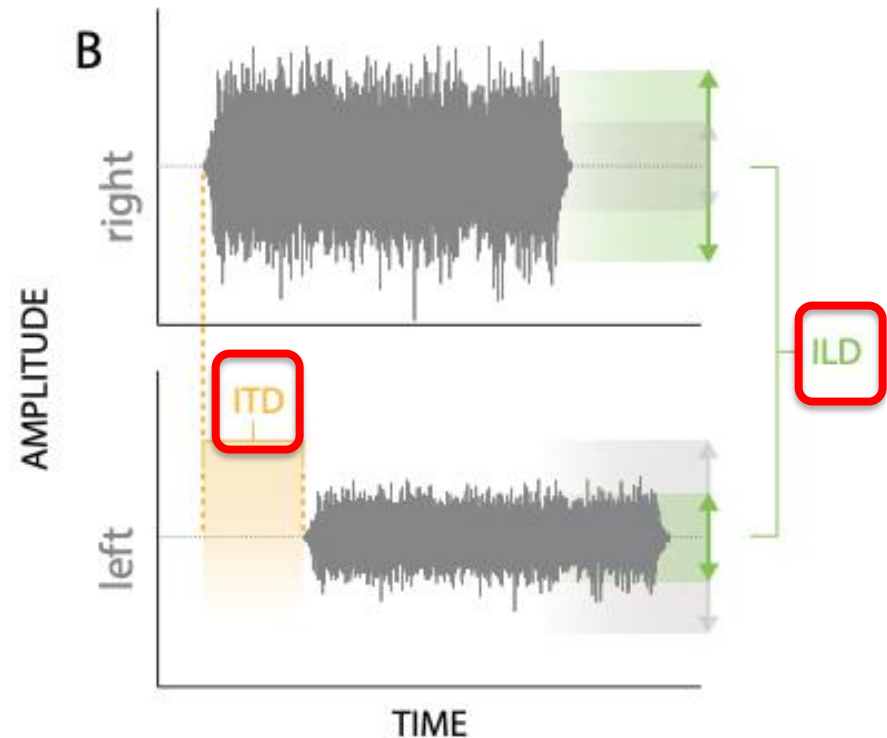
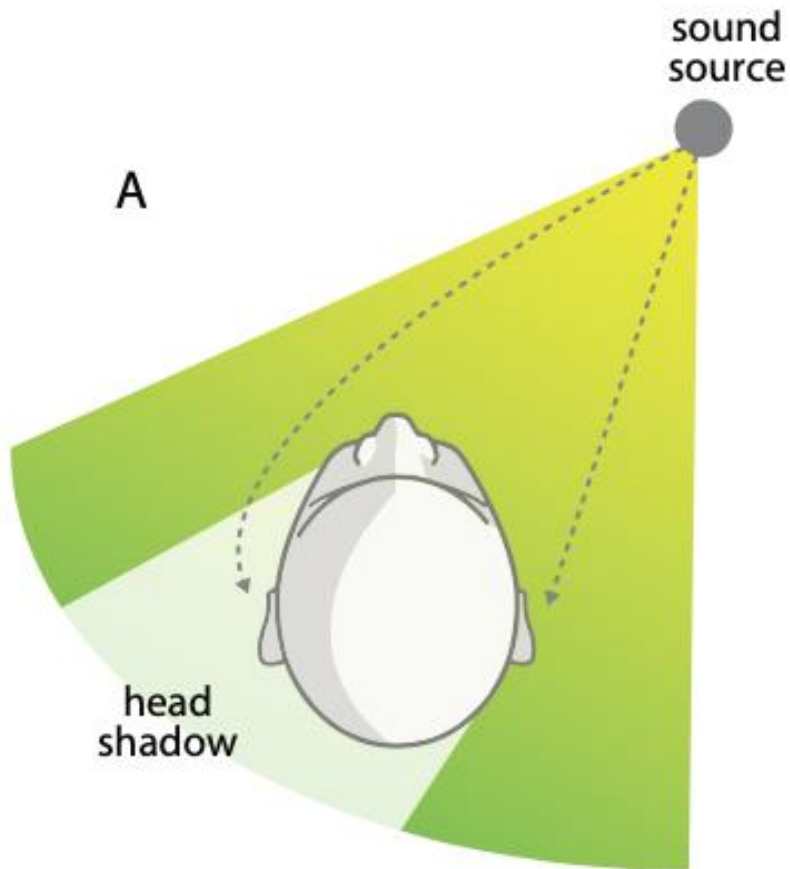
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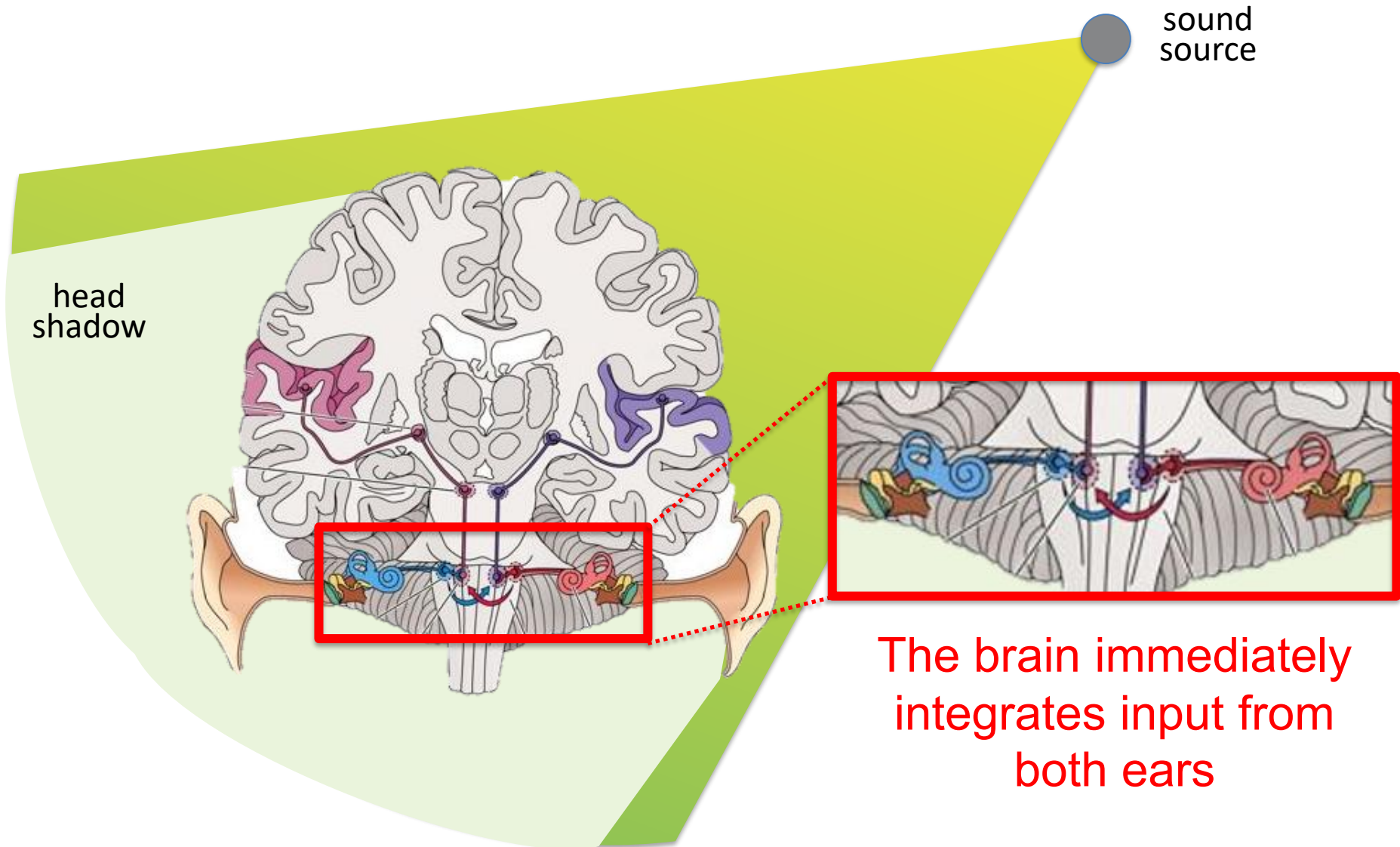


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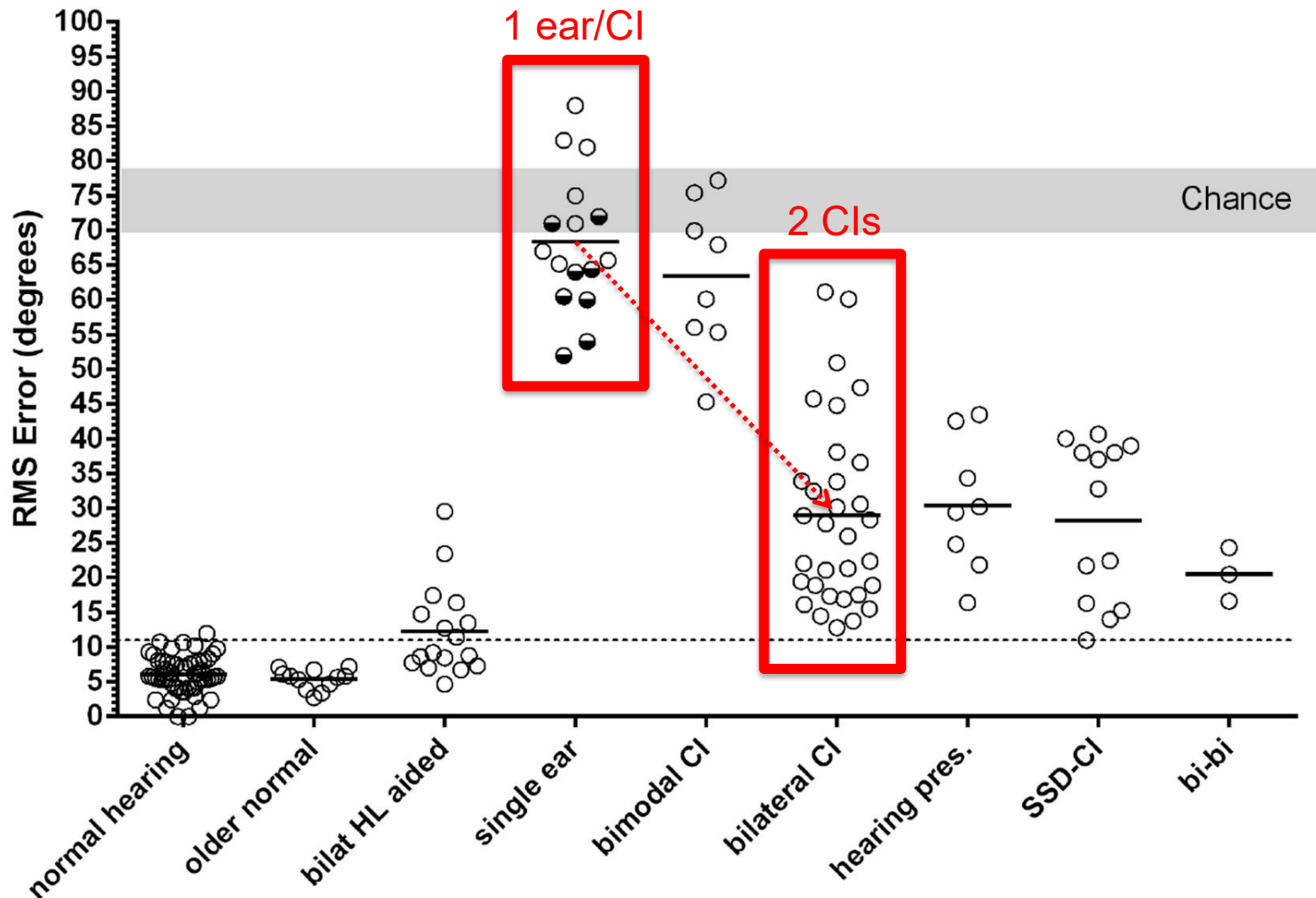


Our two ears are essential for knowing where sounds are coming from



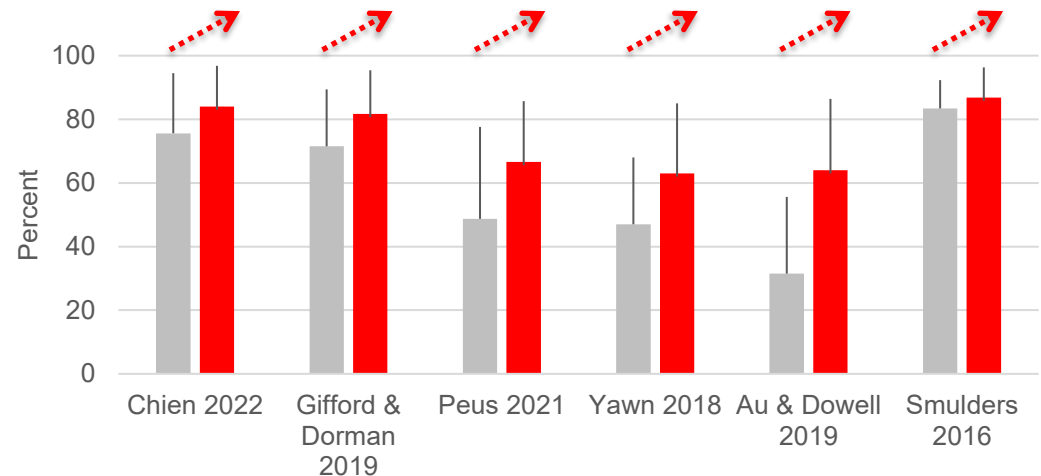


Binaural CI improves sound localization

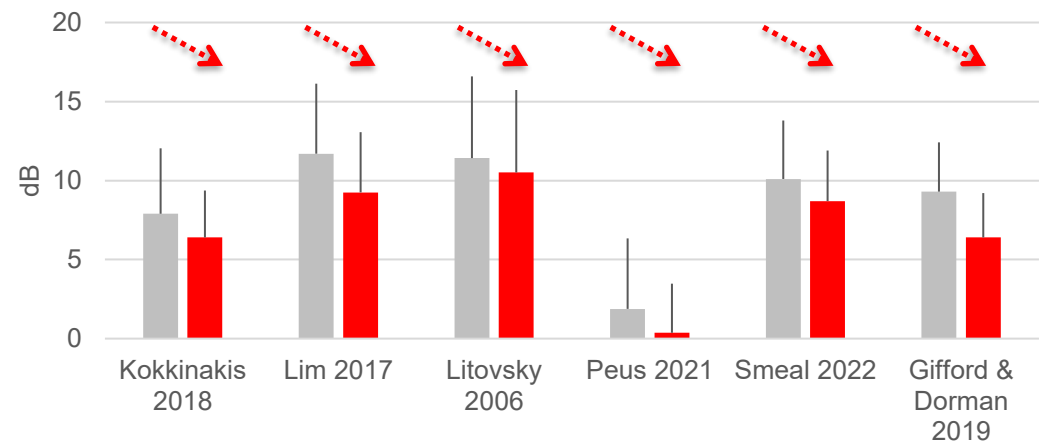


Binaural CI improves speech recognition

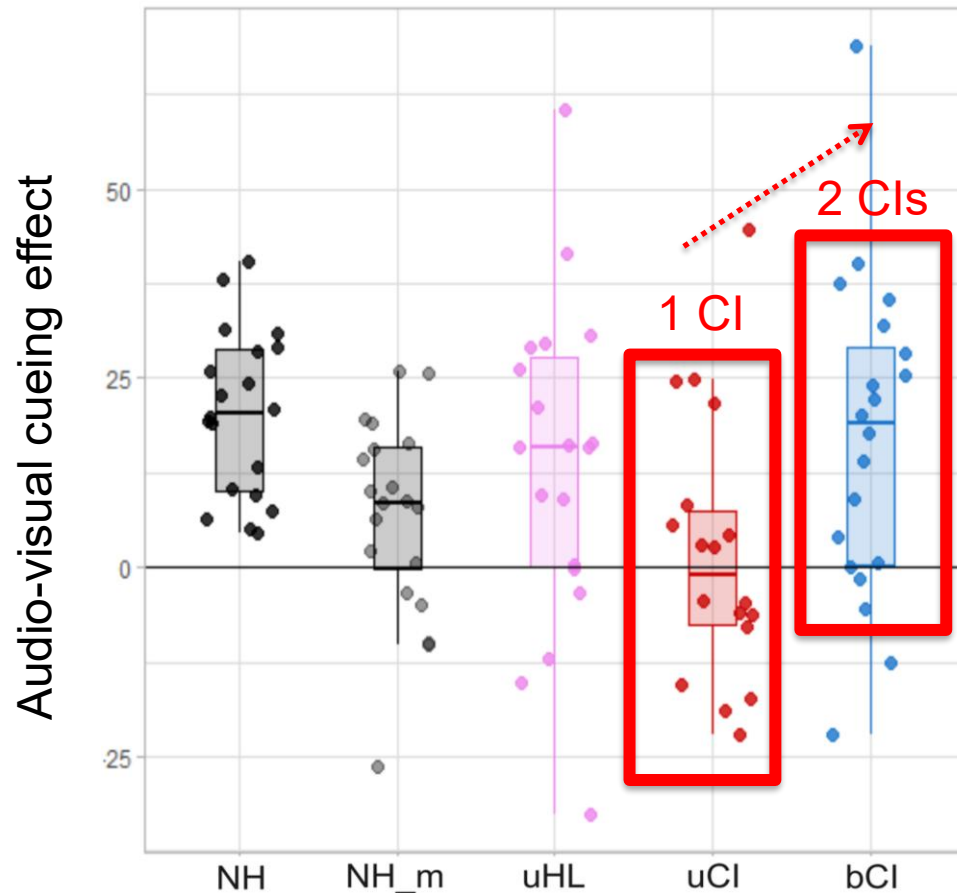
Performance increase **in quiet** by 12.6%



Lower SNR **in noise** by 1.5 dB

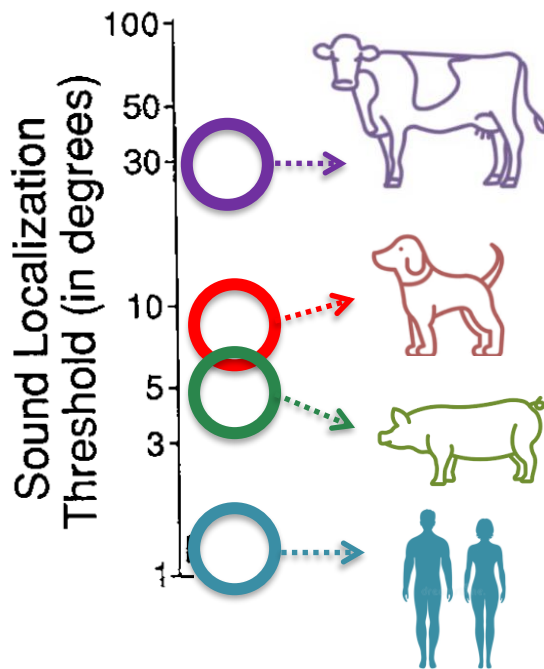


Binaural CI improves multisensory attention



Bilateral CI restores the possibility to **use sounds to orient visual attention**

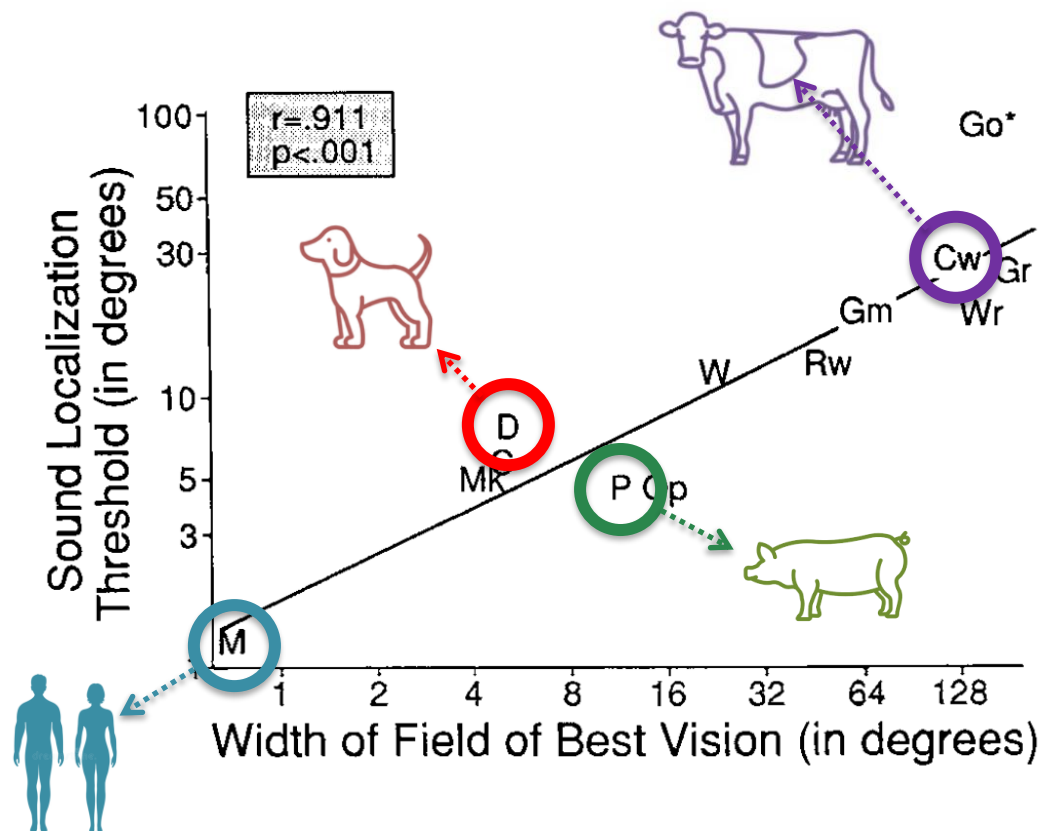
Our senses evolved assuming spatial hearing



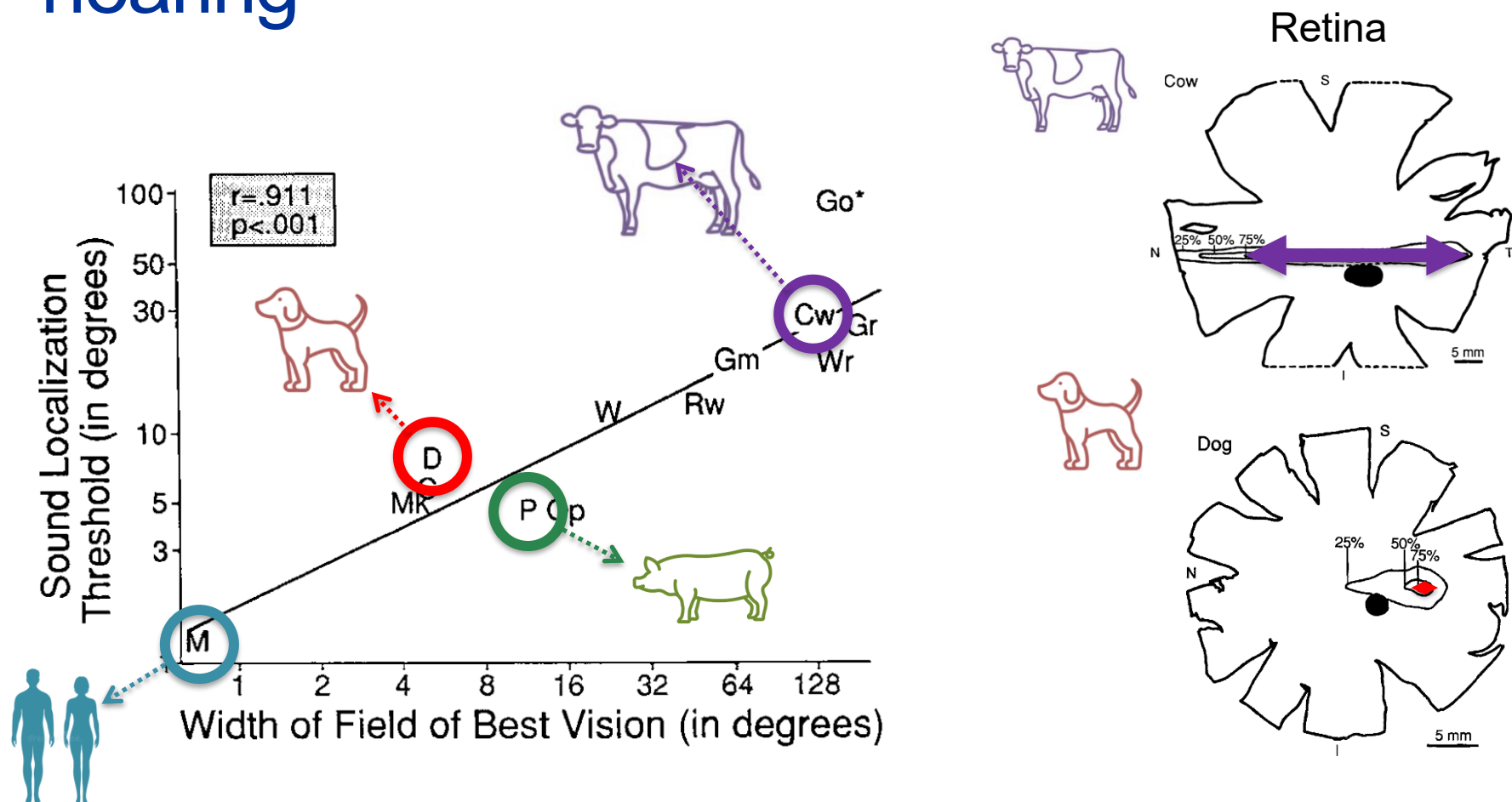
All mammals have two organs of hearing – one on each side of the head

But sound localization abilities differ between species

Our senses evolved assuming spatial hearing



Our senses evolved assuming spatial hearing



Species with **poorer spatial hearing** have a **broad area of best vision** in the retina

Conclusions

- The brain **process and expects binaural hearing**, also for the interactions with vision
- **Binaural hearing is essential for spatial hearing**, which plays a key role in auditory scene analysis and in the orienting of attention
- This extends also to people with **SSD+CI**

Conclusions

- The brain **process and expects binaural hearing**, also for the interactions with vision
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Yet, in some countries, social security does not reimburse or fund bilateral implantation for CI users.

All cochlear implant users deserve the ability to hear binaurally. Access to this technology is crucial and should be a right.

Thank you!

Stay tuned and
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channels

