

Univerzitet u Beogradu
Filozofski fakultet
Odeljenje za psihologiju

PSIHOLOGIJA OPAŽANJA

Tematske celine

PSIHOFIZIKA

ČULA

PERCEPCIJA

SLUH



FUNKCIJA

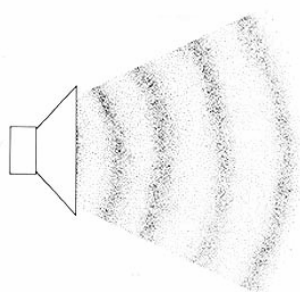
1. Detekcija (vizuelno zaklonjenih) objekata
2. Govorna komunikacija

“Slepi su odvojeni od sveta stvari, a gluvi od sveta ljudi.”
(*Evans, 1982*)

DRAŽ

ZVUK

Naizmenično sabijanje-razređivanje medijuma



Brzina

Jačina

Frekvenca

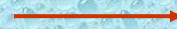
DRAŽ

BRZINA ZVUKA

- vazduh: 340 m/s



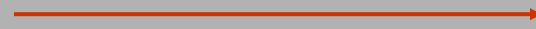
- voda: 1400 m/s



- drvo: 3000 m/s



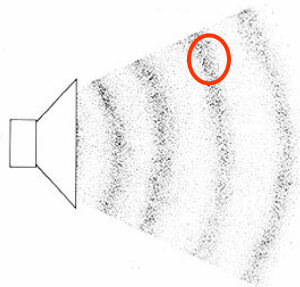
- čelik: 5000 m/s



DRAŽ

JAČINA ZVUKA

Pritisak pri sabijanju medijuma



Fizičke jedinice:

W/cm²
dyn/cm²

Arbitrarna jedinica:

Bel (B), Decibel (dB)

DRAŽ

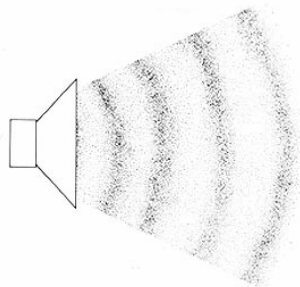
JAIČINA ZVUKA

DP →	0 dB	10^{-16} W/cm^2	1 : 10 000 000 000 000 000 W/cm^2
	10 dB	10^{-15} W/cm^2	Šuřtanje liřca
	
	60 dB	10^{-10} W/cm^2	Razgovor
	
GP →	130 dB	10^{-3} W/cm^2	

DRAŽ

FREKVENCA ZVUKA

Učestanost sabijanja medijuma



Fizička jedinica:

Hz = cycle/sec

DRAŽ

FREKVENCA ZVUKA

Opseg osetljivosti:

infrazvuk



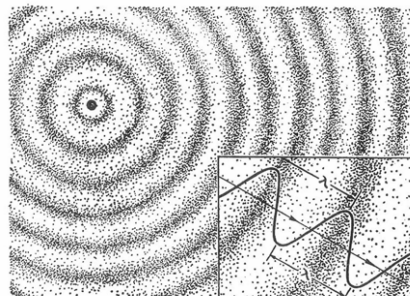
16 – 16 000 Hz

ultrazvuk



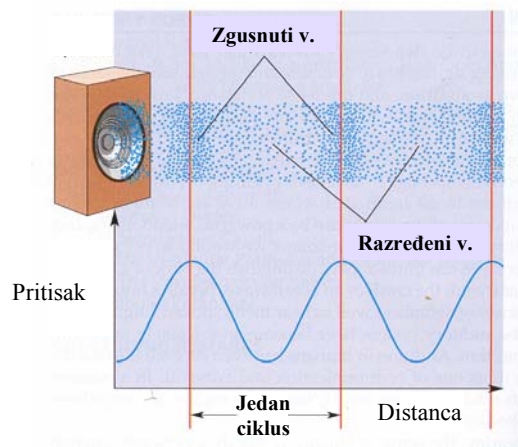
DRAŽ

ZVUK = TALAS



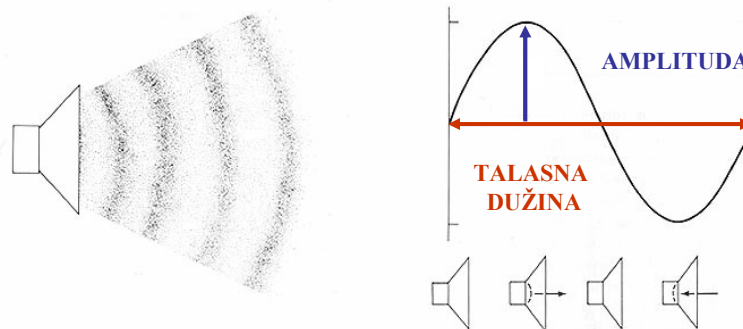
DRAŽ

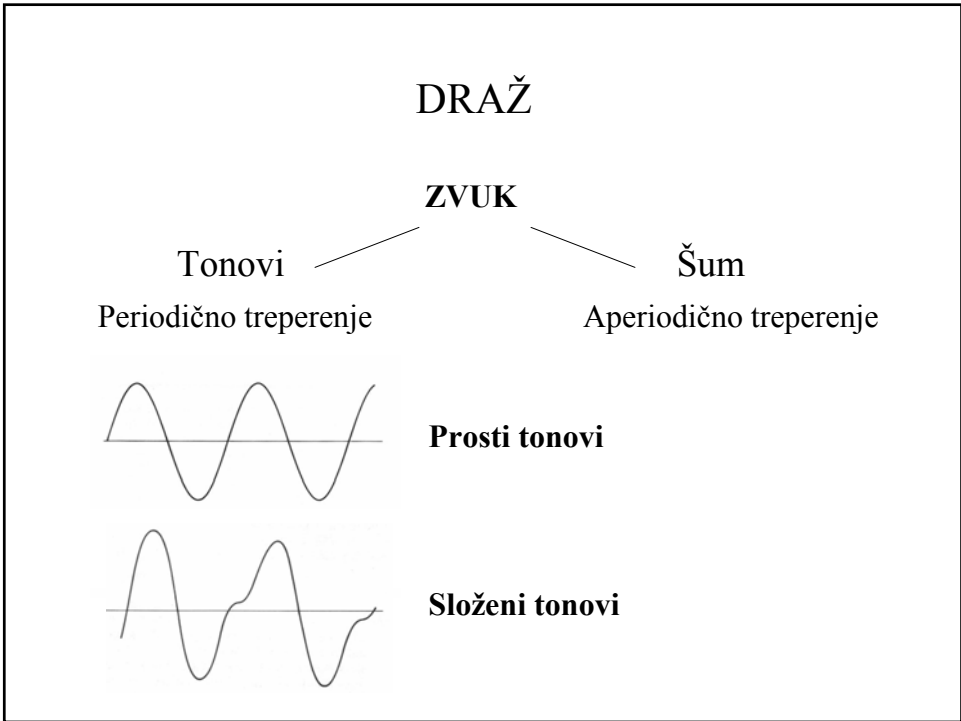
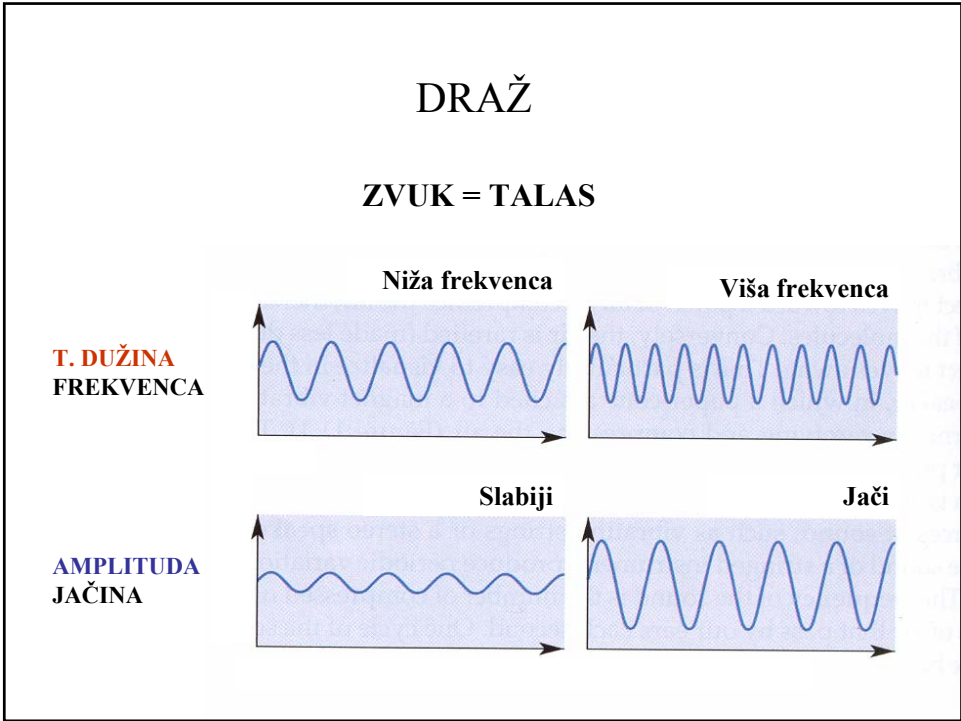
ZVUK = TALAS



DRAŽ

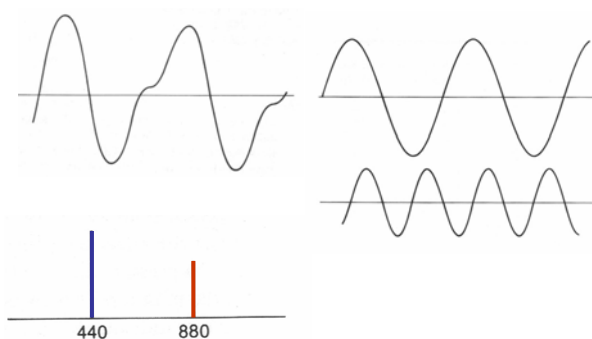
ZVUK = TALAS





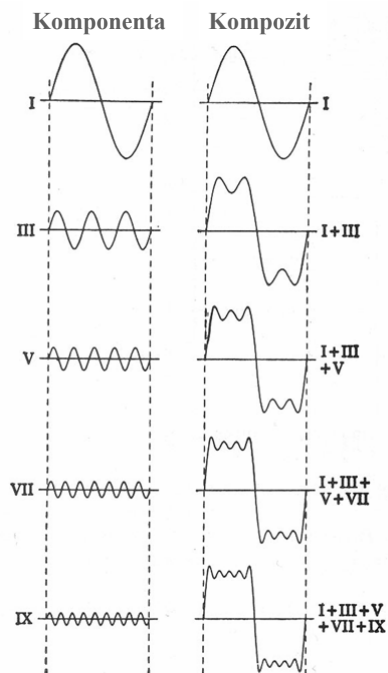
DRAŽ

Složeni tonovi: Furijeova analiza



FUNDAMENTALNA + **HARMONIK** = **ZVUČNI SPEKTAR**
FREKVENCA

Složeni tonovi Furijeova analiza i sinteza

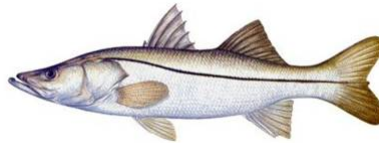


GRAĐA ORGANA

Evolucija

RIBE

Lateralna linija



GRAĐA ORGANA

Evolucija

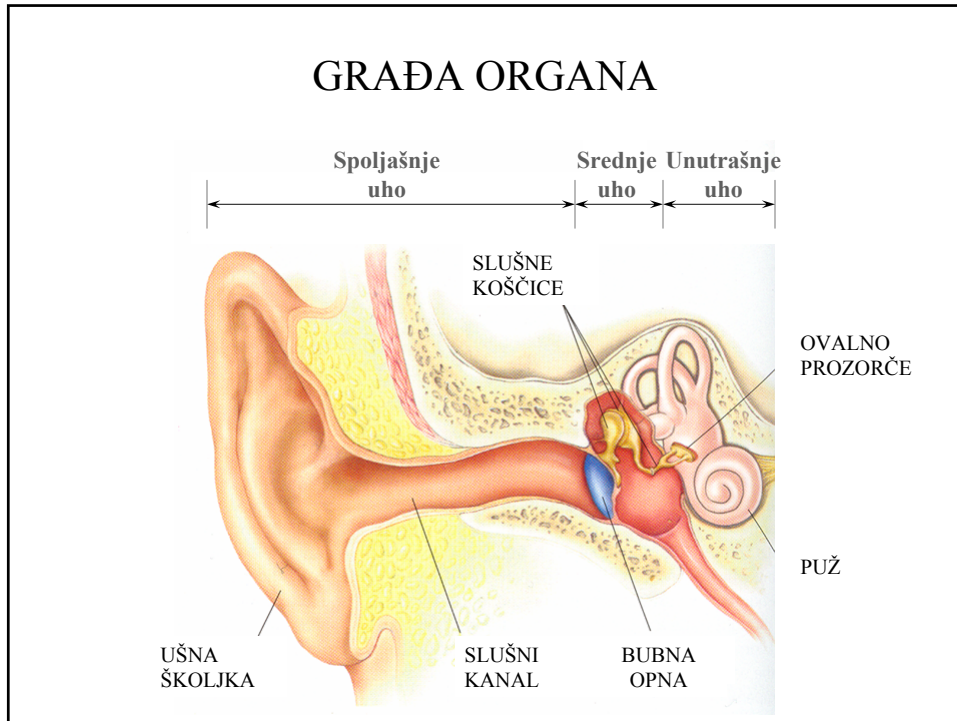
AMFIBIJE

PTICE

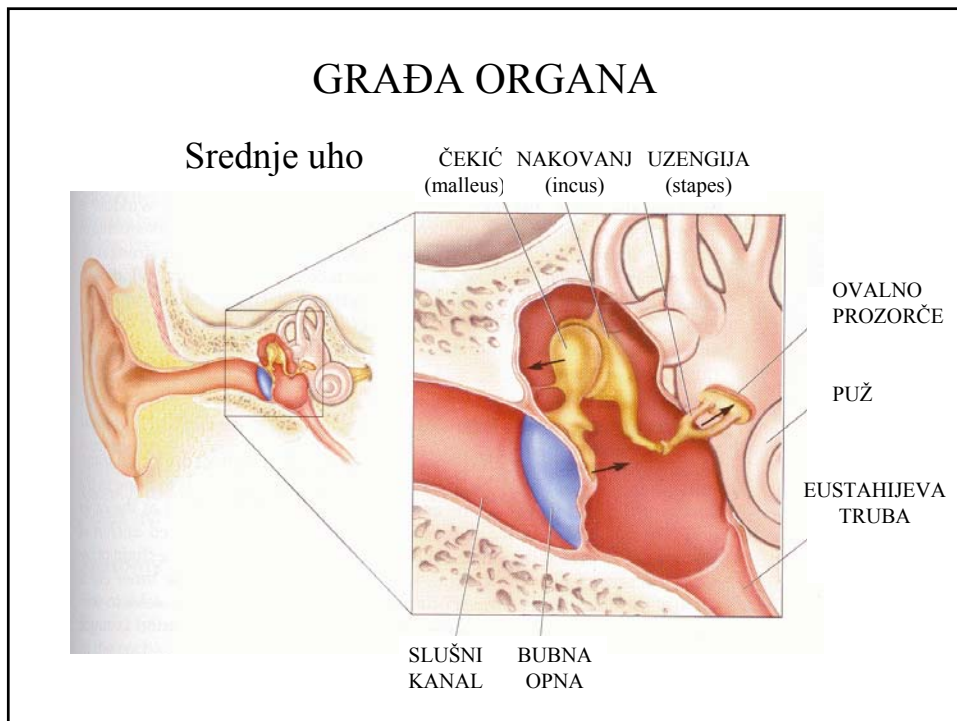
SISARI



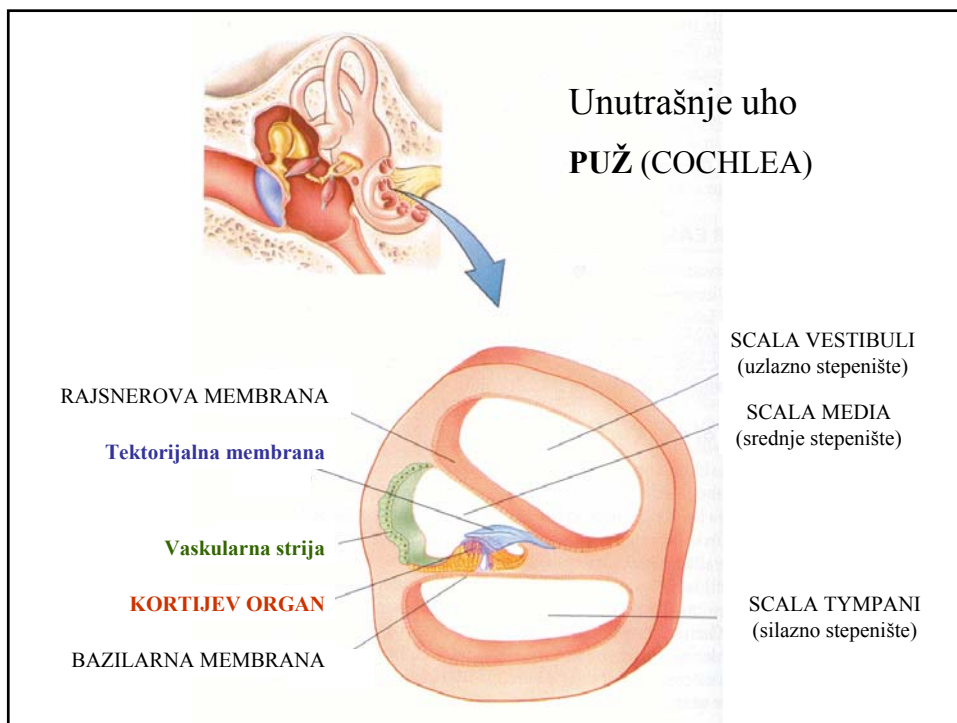
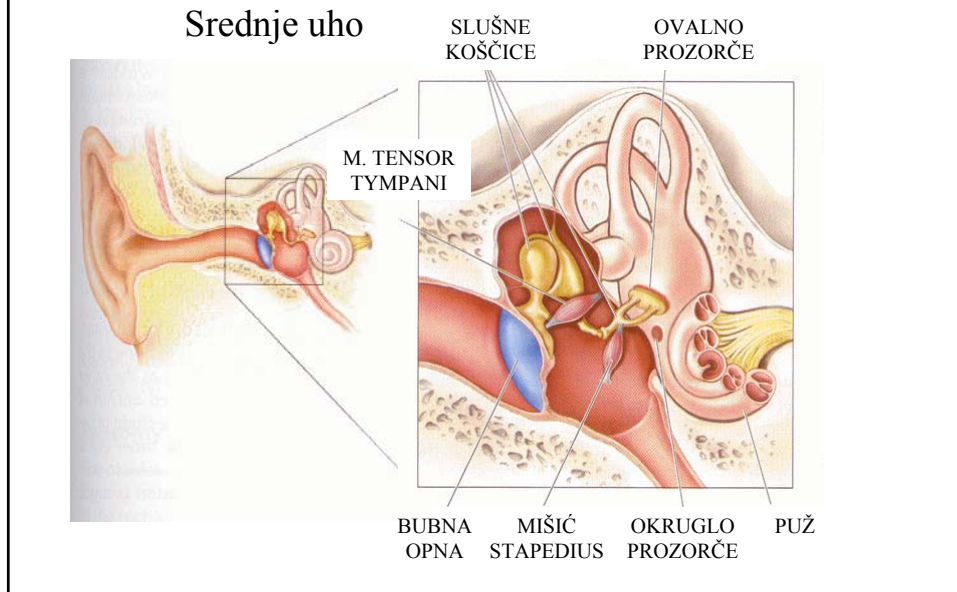
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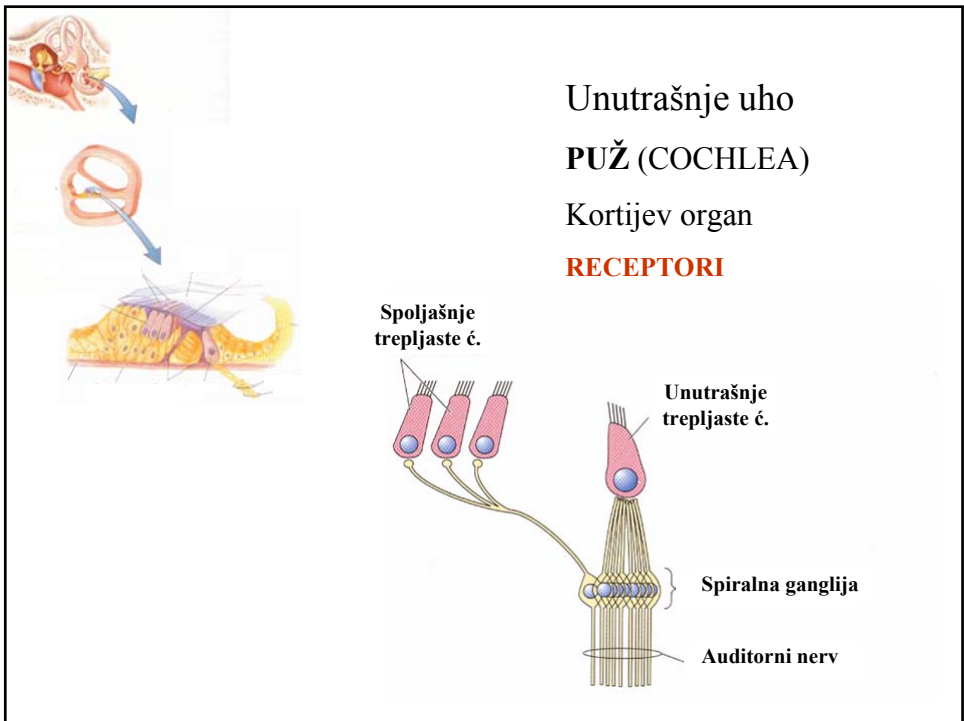
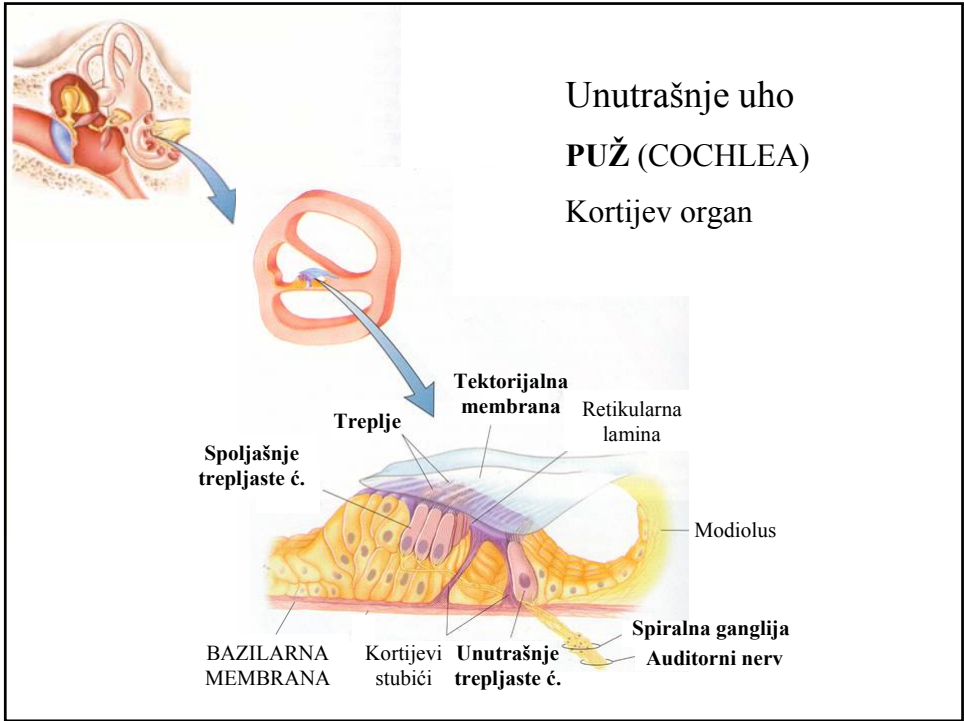


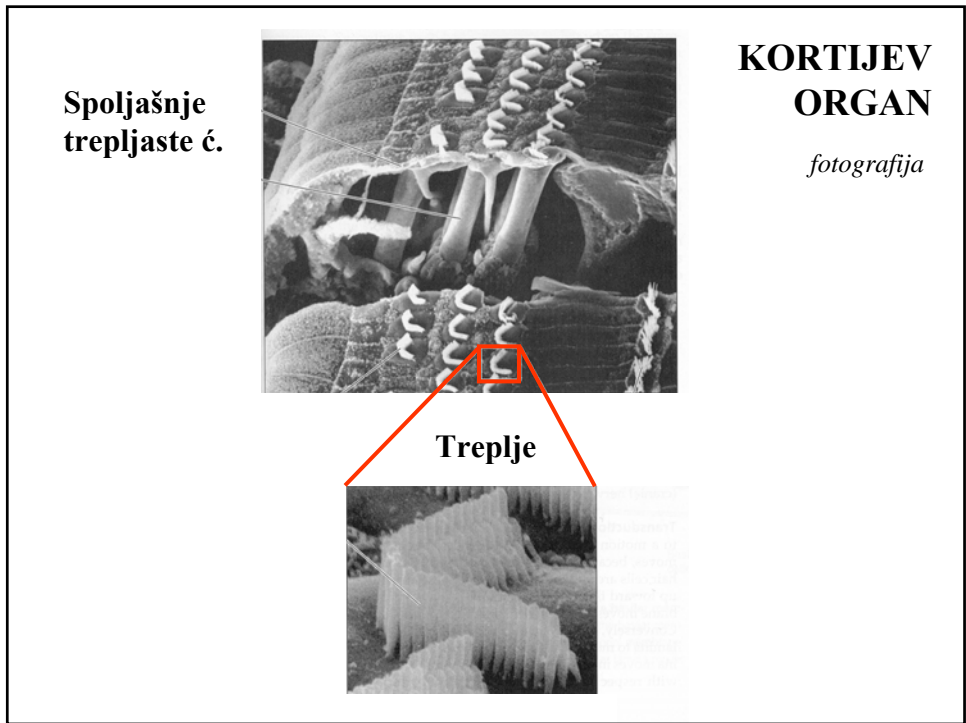
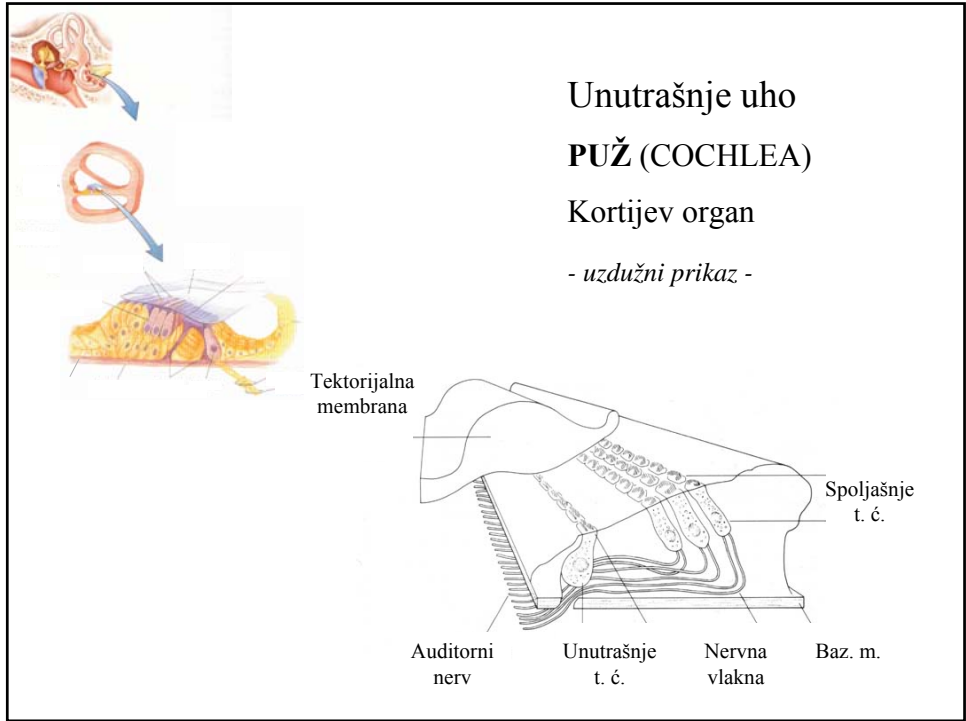
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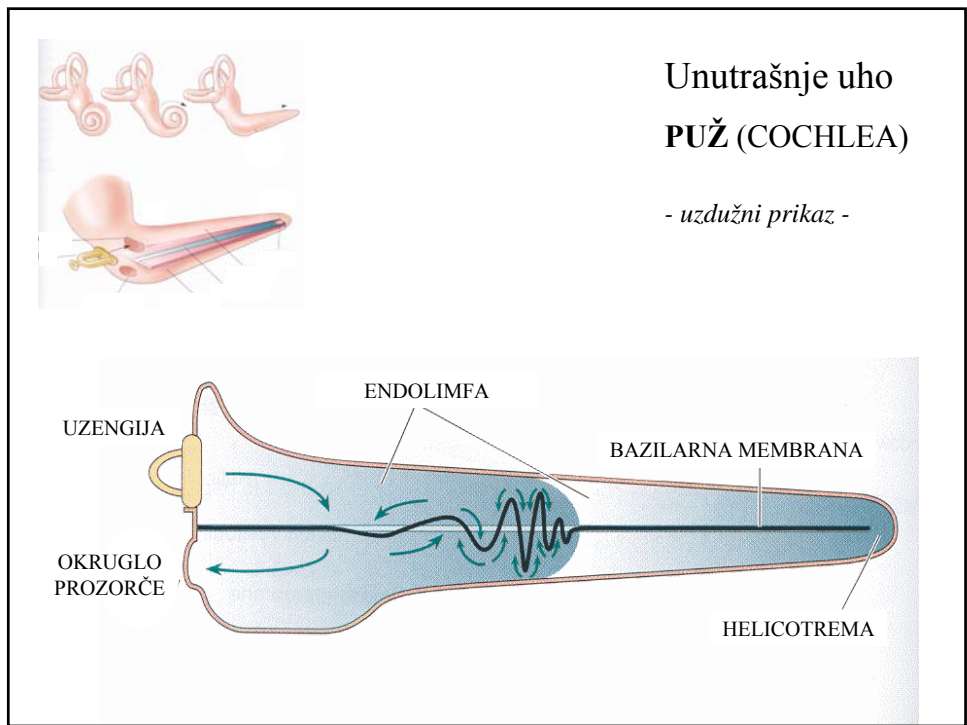
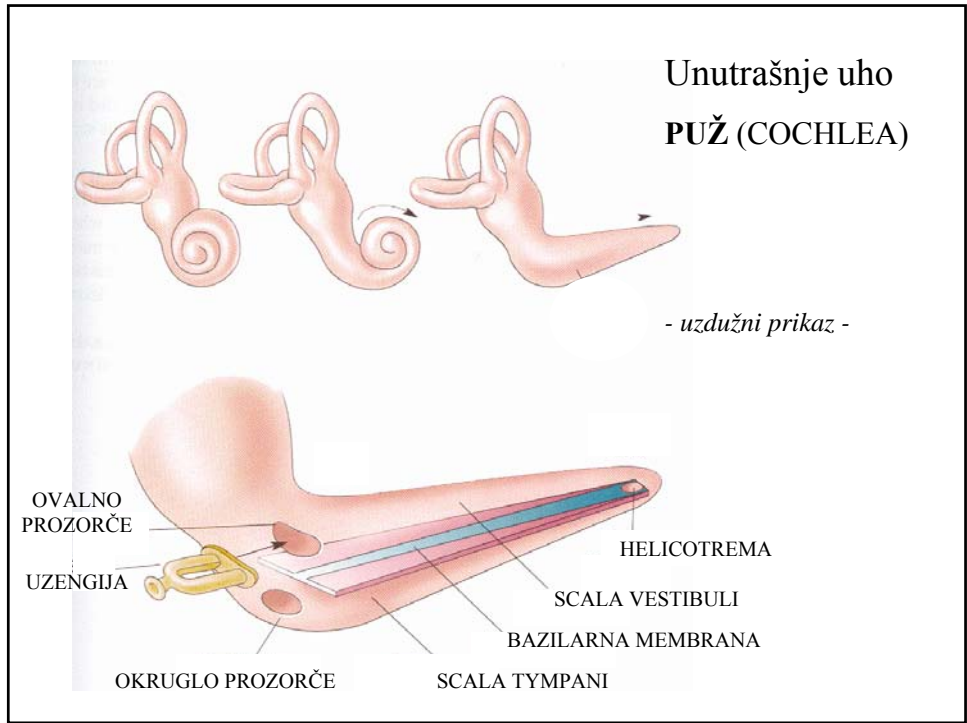


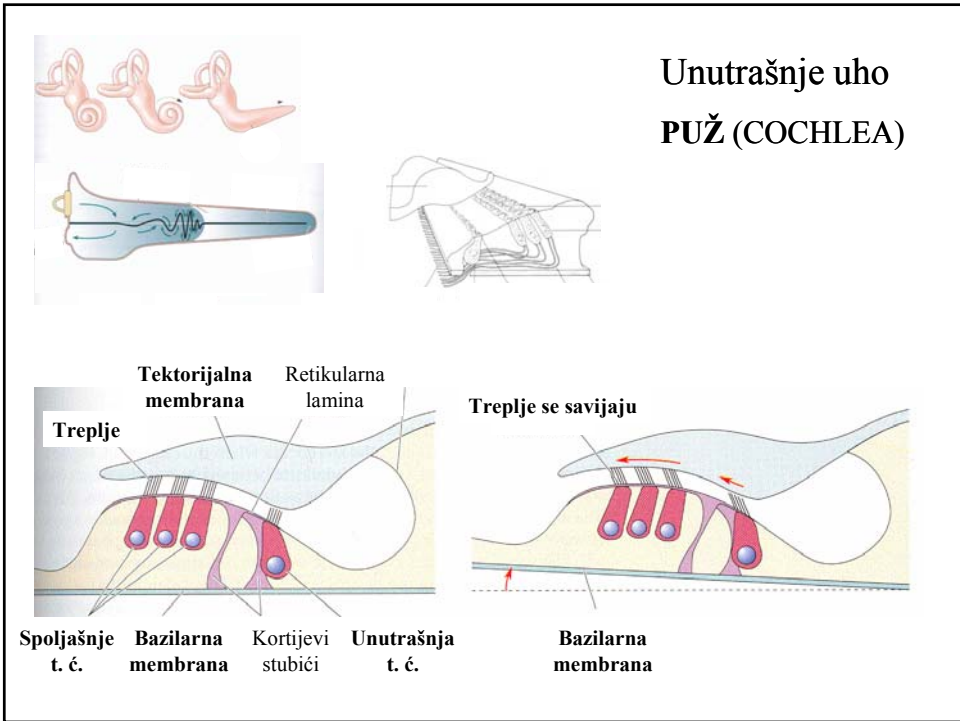
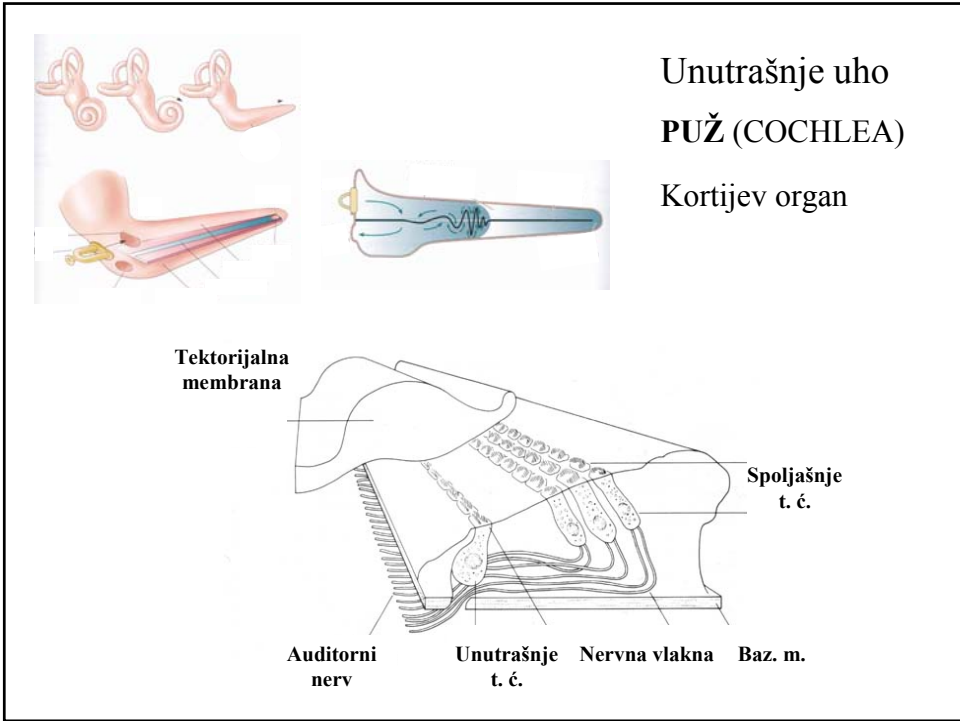
GRAĐA ORGANA





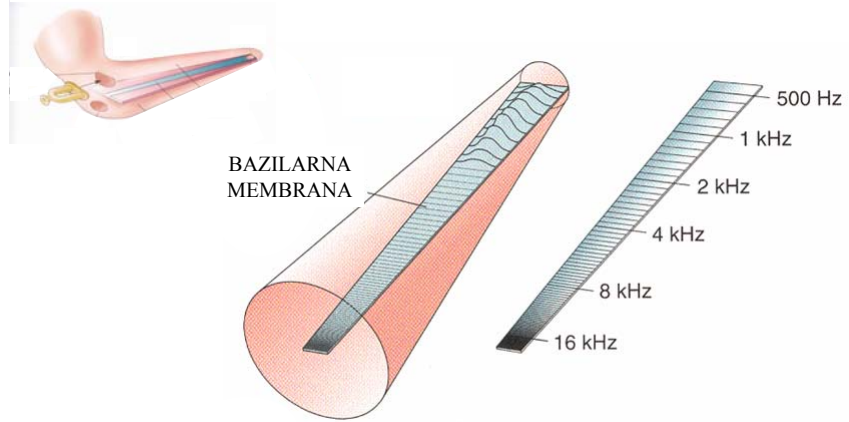




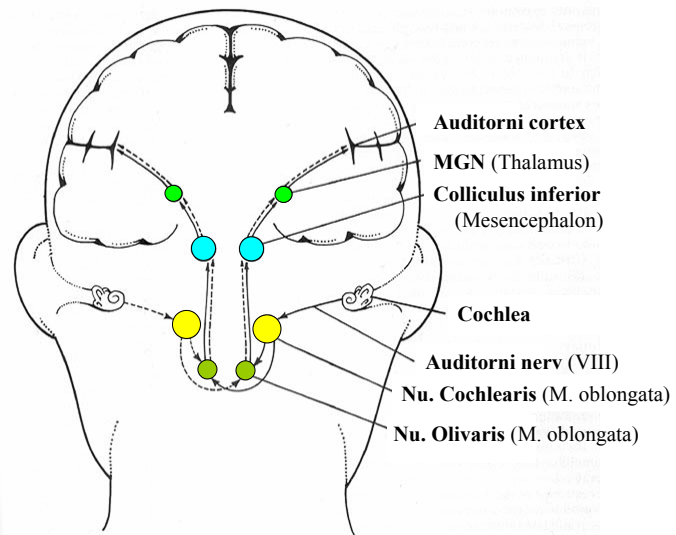


RECEPTORI

Specijalizacija => tonotopska organizacija B. M.

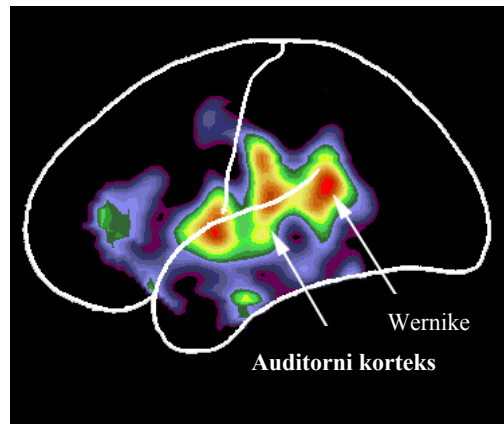


PUTEVI I CENTRI



CENTRI

Auditorni korteks



CENTRI

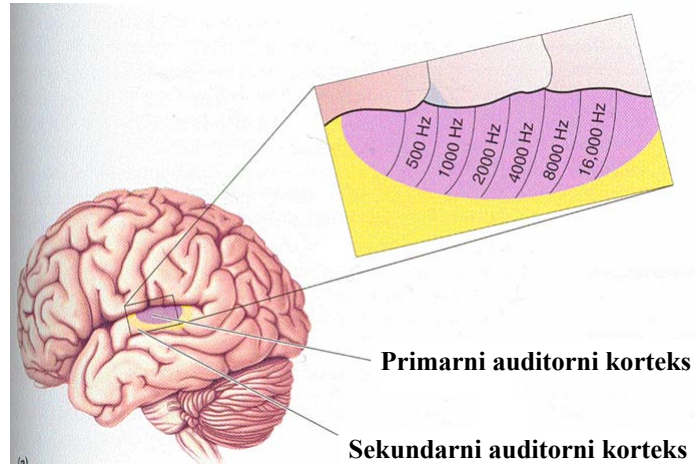
Specijalizacija

- Tonotopska organizacija
- Auralna (mono i bi) dominacija
- Ekscitatorni i inhibitorni
- ON, OFF i ON-OFF ćelije
- Porast frekvence; sniženje frekvence

Itd.

CENTRI

Tonotopska organizacija auditornog korteksa



CENTRI

