

ČRKE V MOŽGANIH

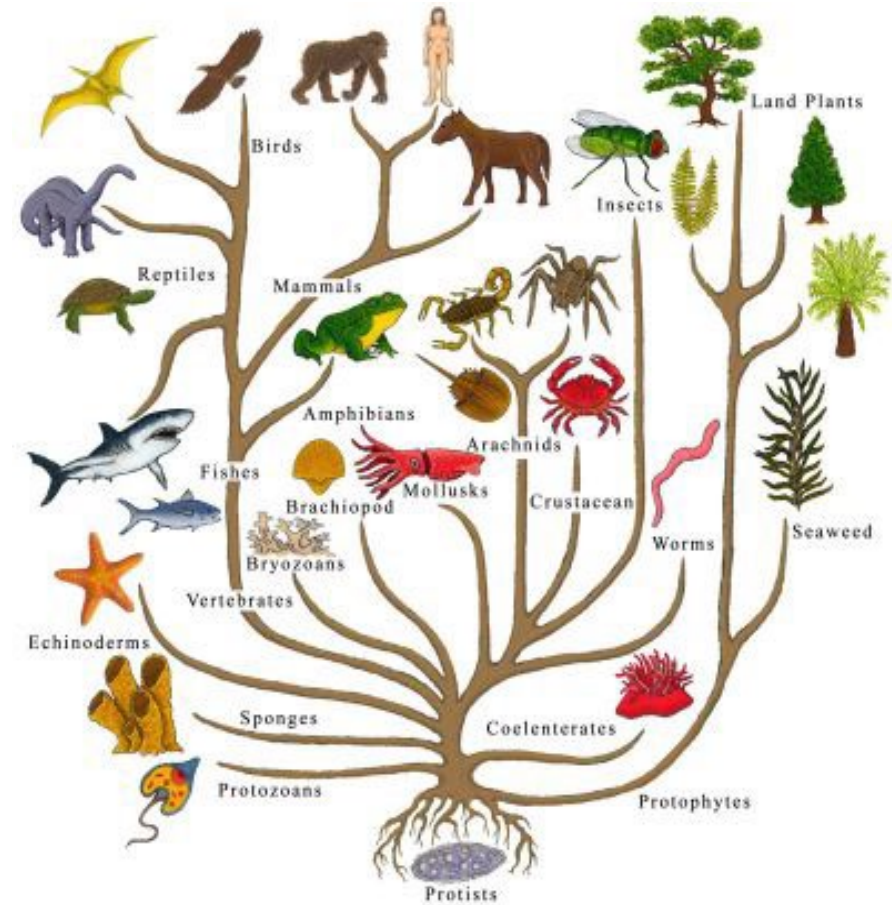
Zvezdan Pirtošek



STRUKTURA PREDAVANJA

- Branje kot čudež (ko z umrlimi in prihajajočimi komuniciram s svojimi očmi... ali prsti...)
- Zakaj je branje čudež tudi za nevrologa ('center za branje')
- Kako branje vpliva na možgane v zdravju in bolezni

Ostra ločnica med živaljo in človekom?

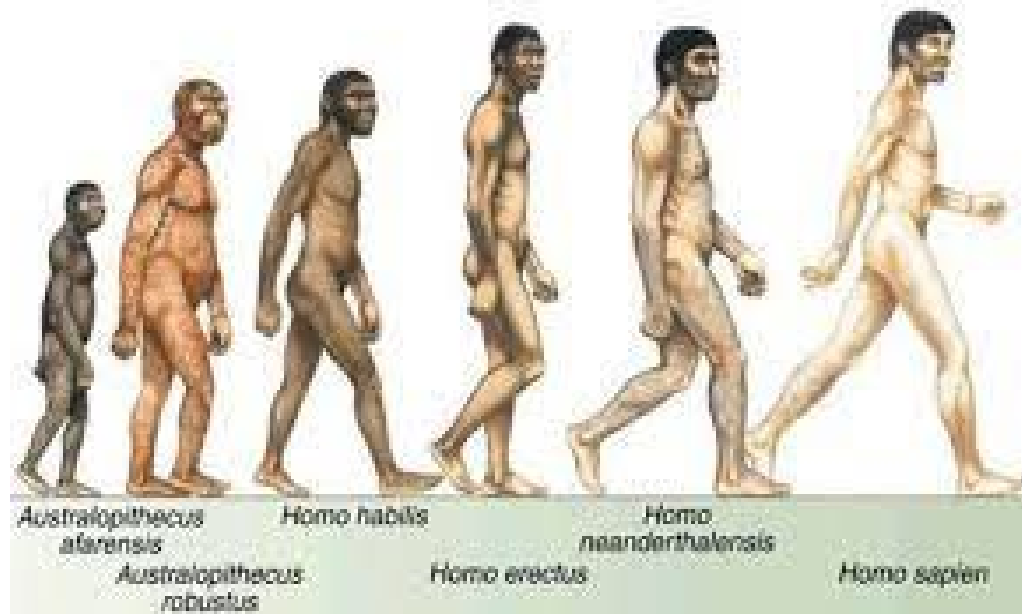


6500 jezikov

- Babilonski stolp: 6500 jezikov
- 1 sam center za vse jezike
- $\frac{1}{2}$ jih bo do konca 21.st. izginila

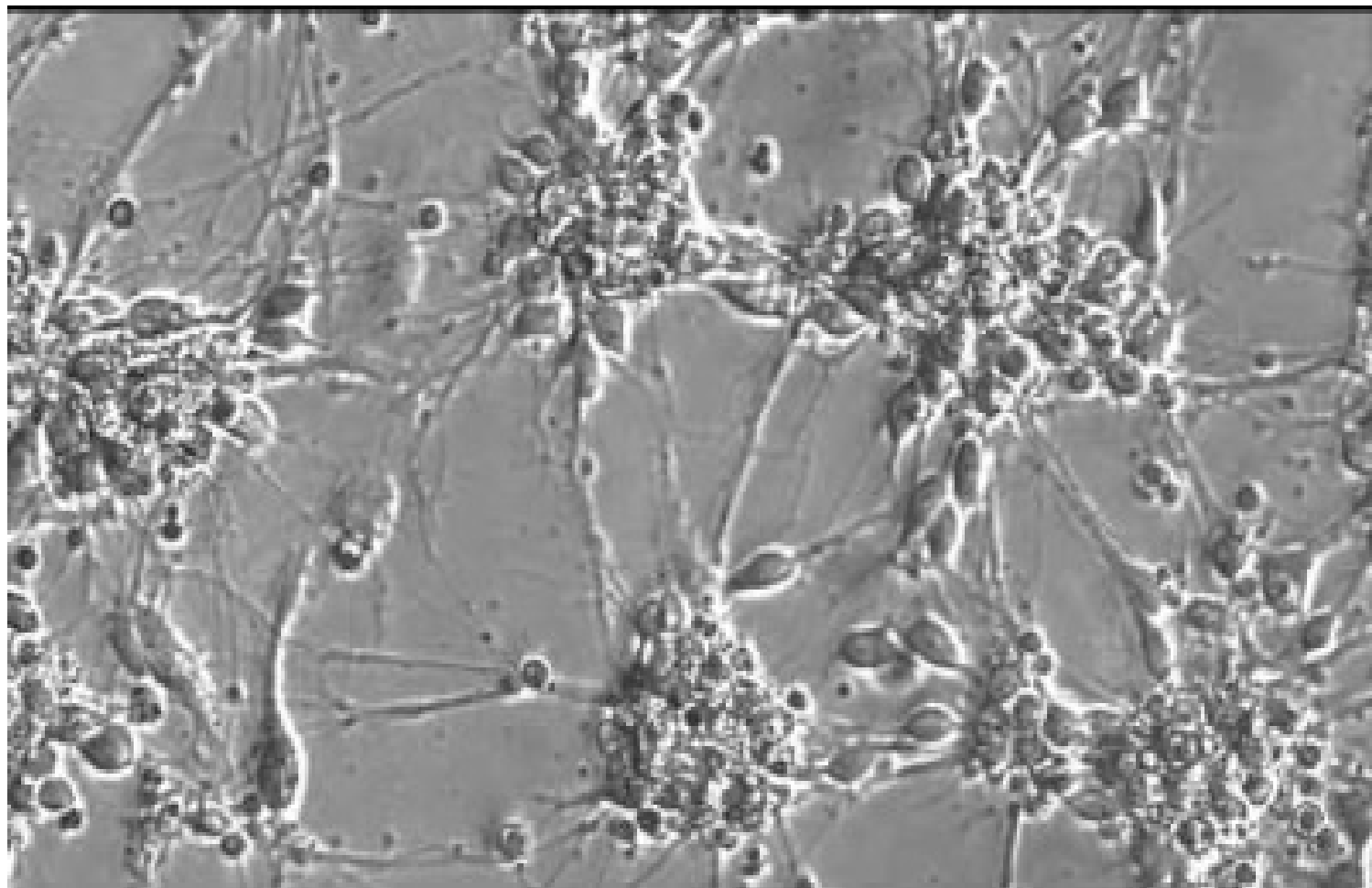


VZNIK GOVORA IN JEZIKA?



KAJ SE DOGAJA V NAŠIH MOŽGANIH, KO ČITAMO
TALE STAVEK?

MOŽGANSKE CELICE



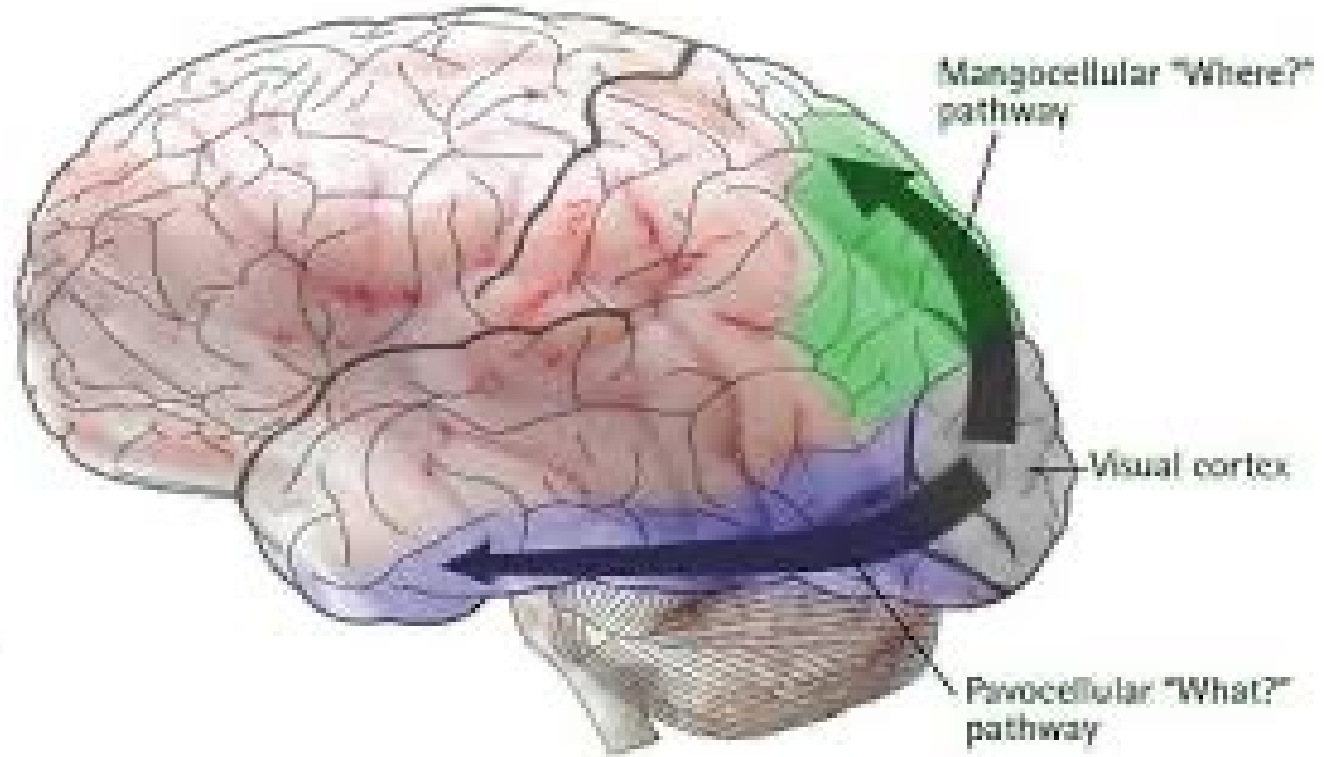
<https://www.youtube.com/watch?v=golqlqArZEk>

BRANJE: DOTIK IN PREPLET TREH POTI

- VID
- GOVOR/JEZIK
- MISEL

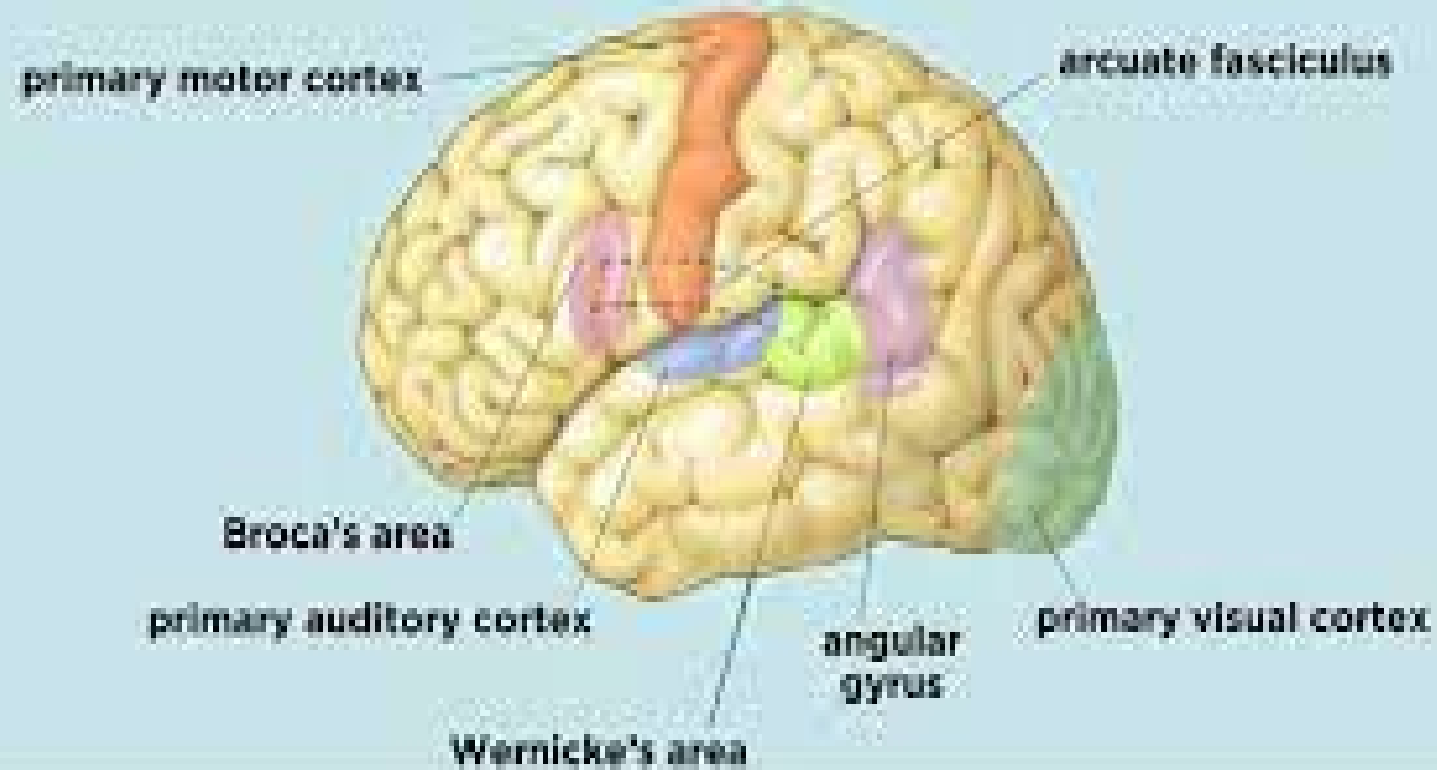


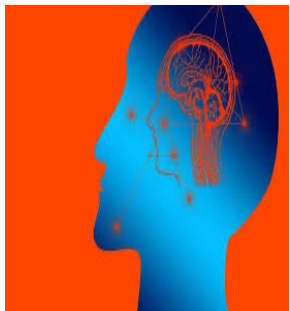
VIDNA POT



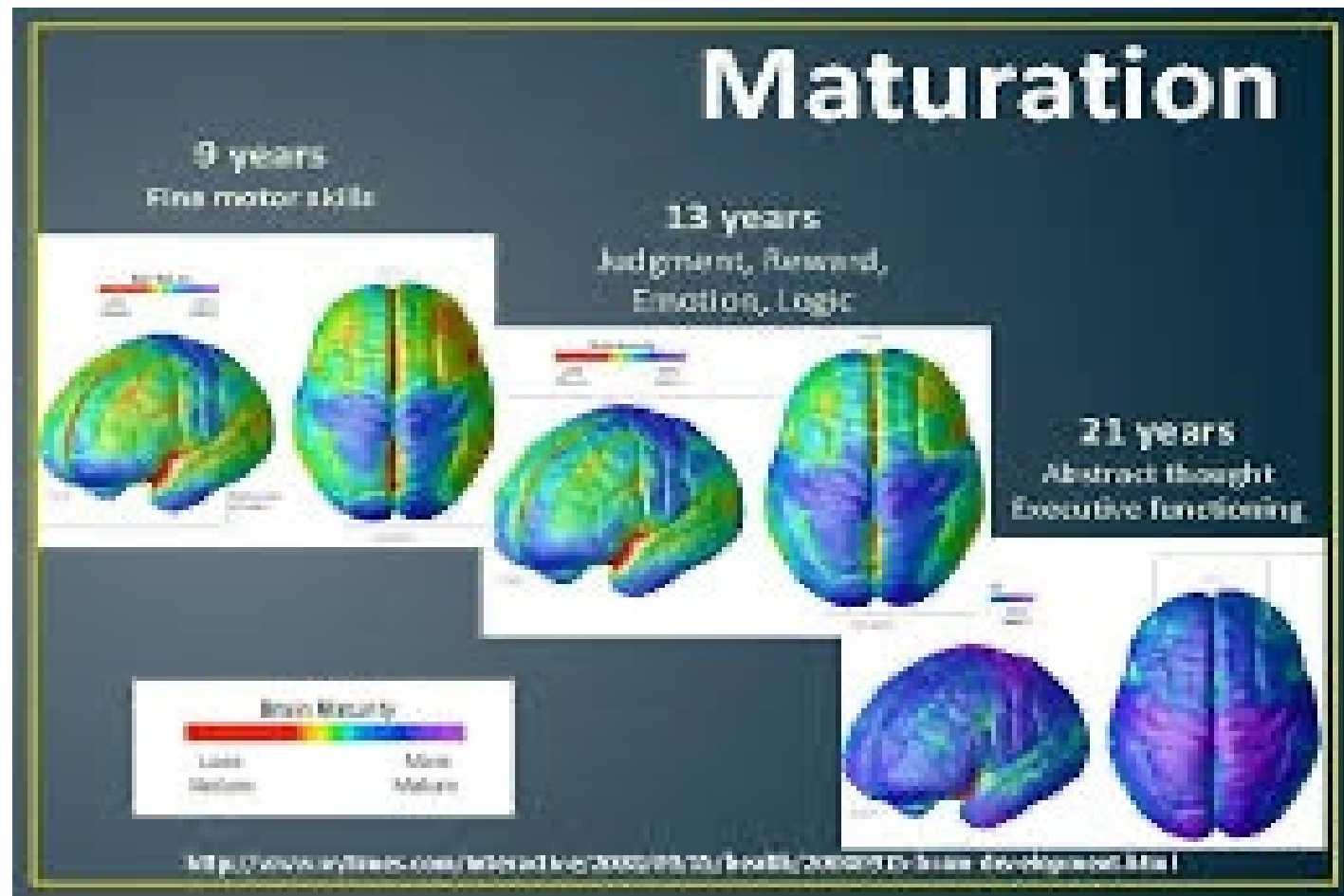
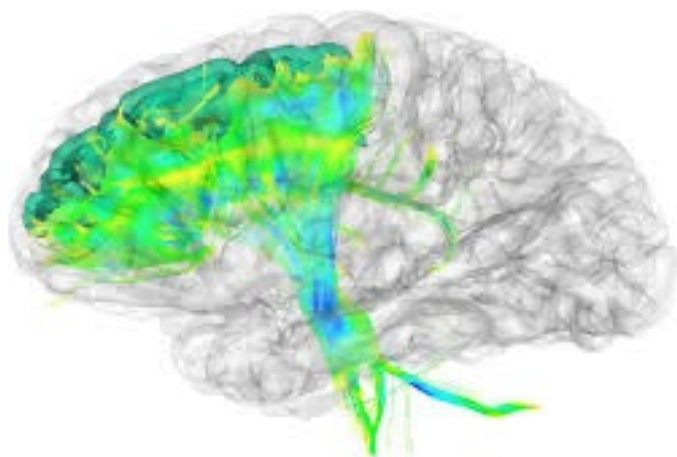
GOVOR, JEZIK...

Wernicke-Geschwind Model



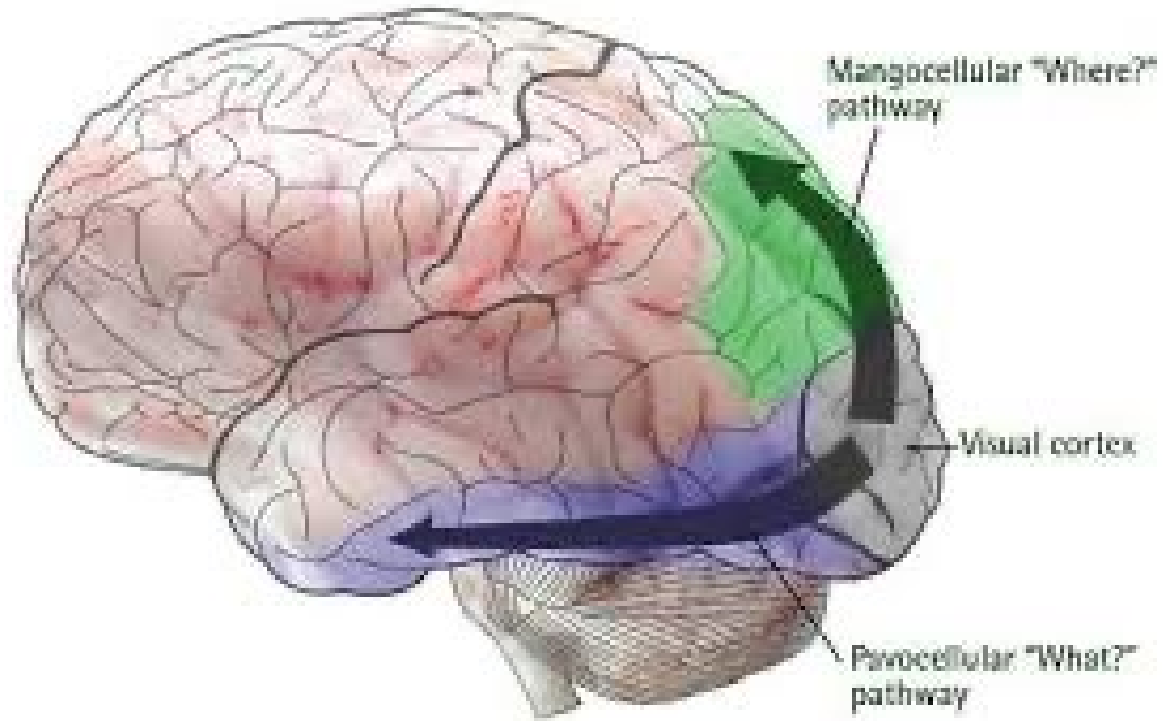


RAZVOJ FRONTALNEGA REŽNJA



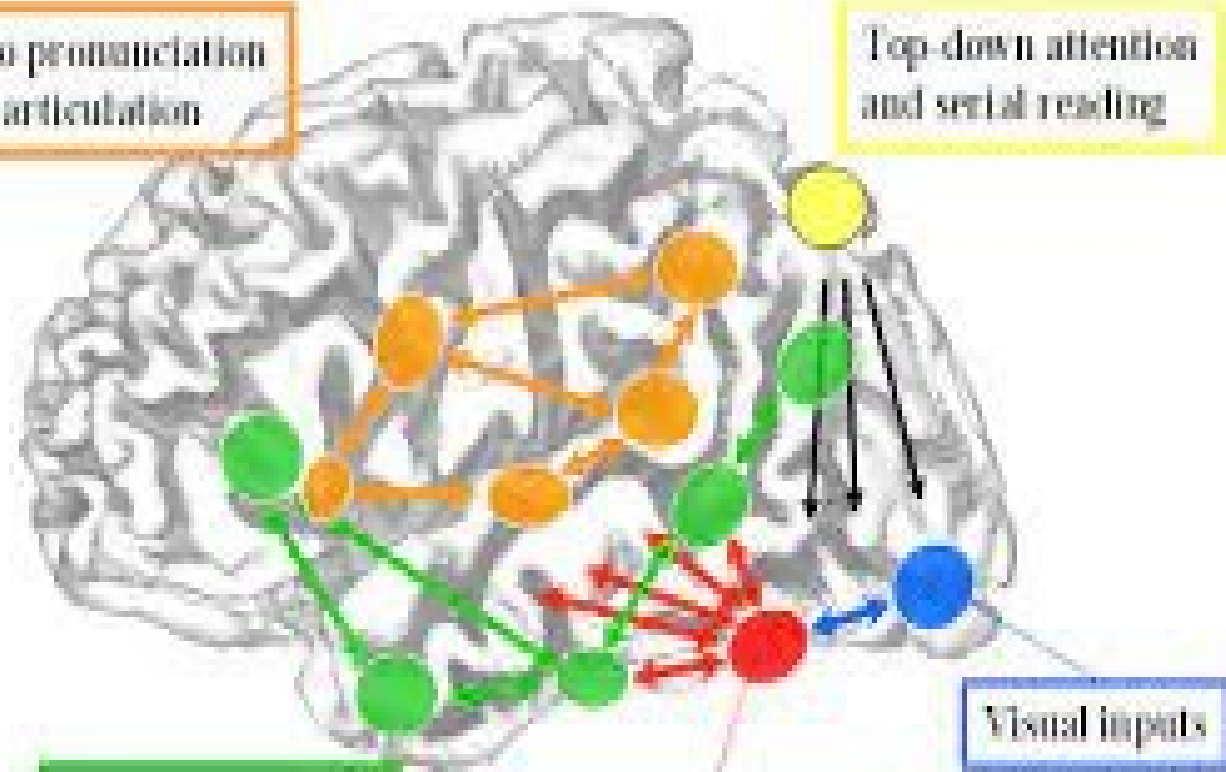


MOŽGANSKA POT BRANJA



Access to pronunciation and articulation

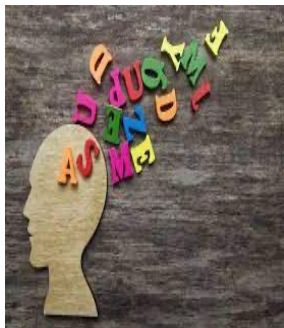
Top-down attention and serial reading



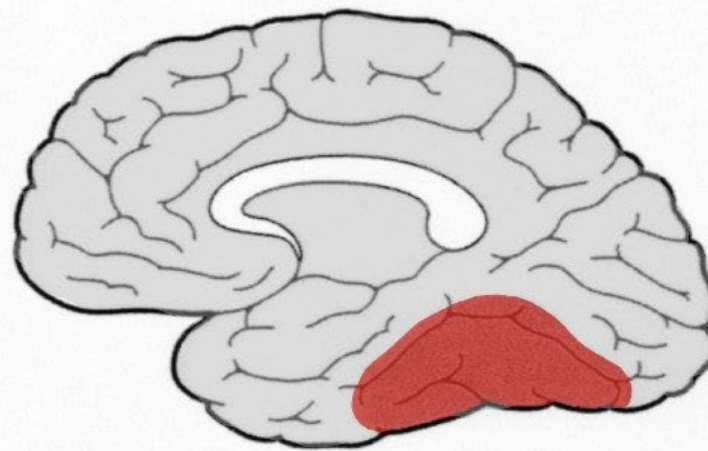
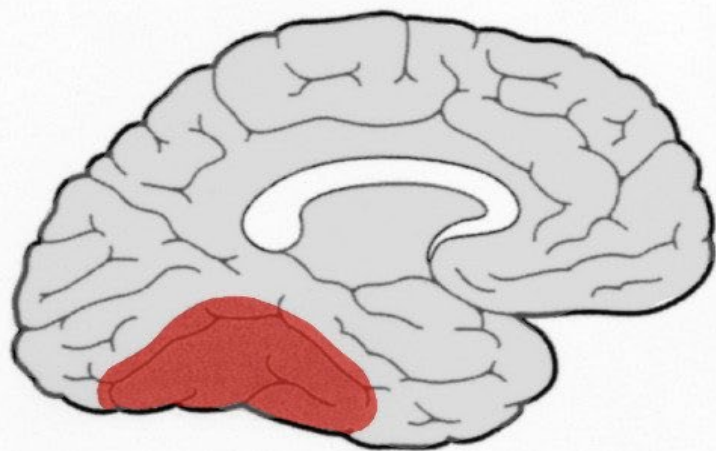
Access to meaning

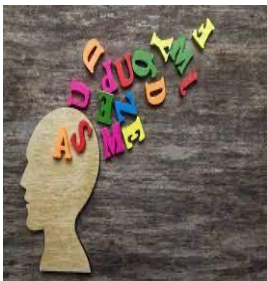
Visual word form area (the brain's letter bus)

Visual inputs



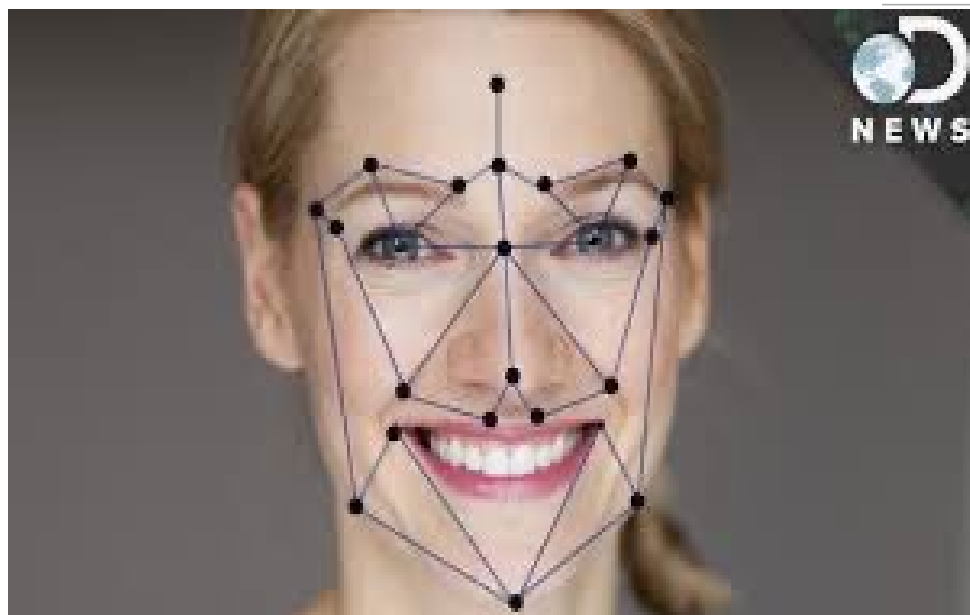
KJE PREPOZNAMO ČRKE





PISMENI

- Manj zaznave obrazov
- Horizontalne in vertikalne obrazov in predmetov



Individual stimuli (targets)		
Letters	Shapes	Pseudo-letters
A	△	△

Individual stimuli (targets)			Surrounding shapes (non-targets)	
Letters	Shapes	Pseudo-letters	Congruent	Incongruent
A	△	△	△	○
L	□	+	□	△
C	○	Σ	○	□

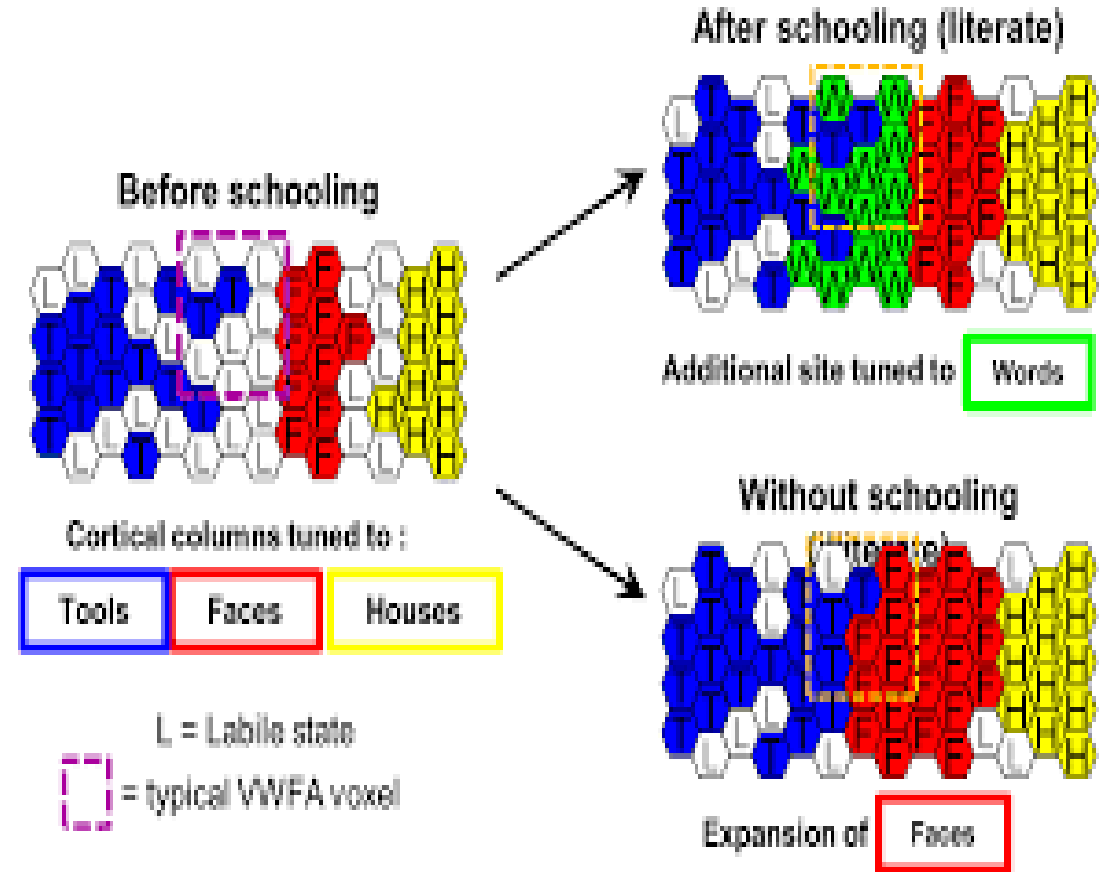


NEPISMENI

- aktivacija obrazov predmetov, pokrajin, hiš
- tekmovanje med obrazom in črko in vse večja lateralizacija

Ko se učijo čitati

- po učenju že nekaj tednov po začetku črke aktivirajo ustrezno skorjo in potem tu prevladajo
- nevroni se ne spreminjajo, spreminja se preferencejo
- starejši manj prostih nevronov – se naučijo, a ne zelo tekoče





DISLEKSIJA, ALEKSIJA

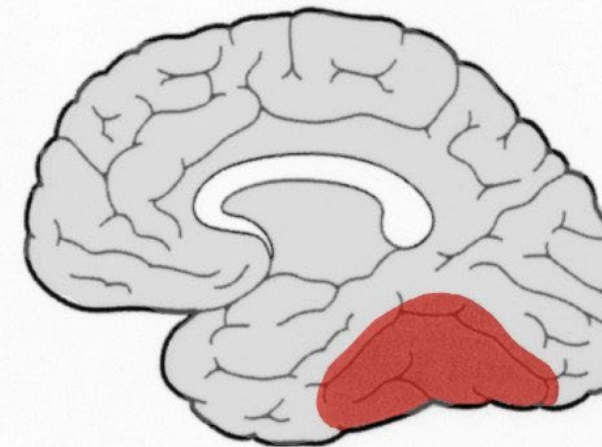
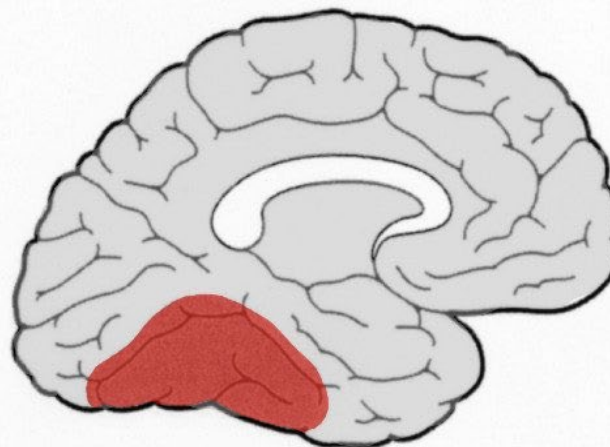
- razvojna disleksija
- aleksija (pridobljena disleksija)
- čista aleksija
 - “branje črko za črko”
 - težavna prepoznavna črk in števil
- Manj aktivacije tako za črke L fuzif.

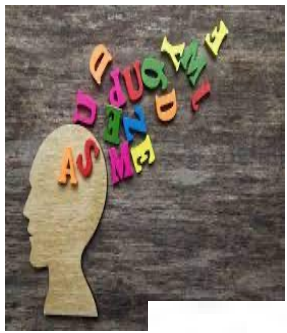


Left



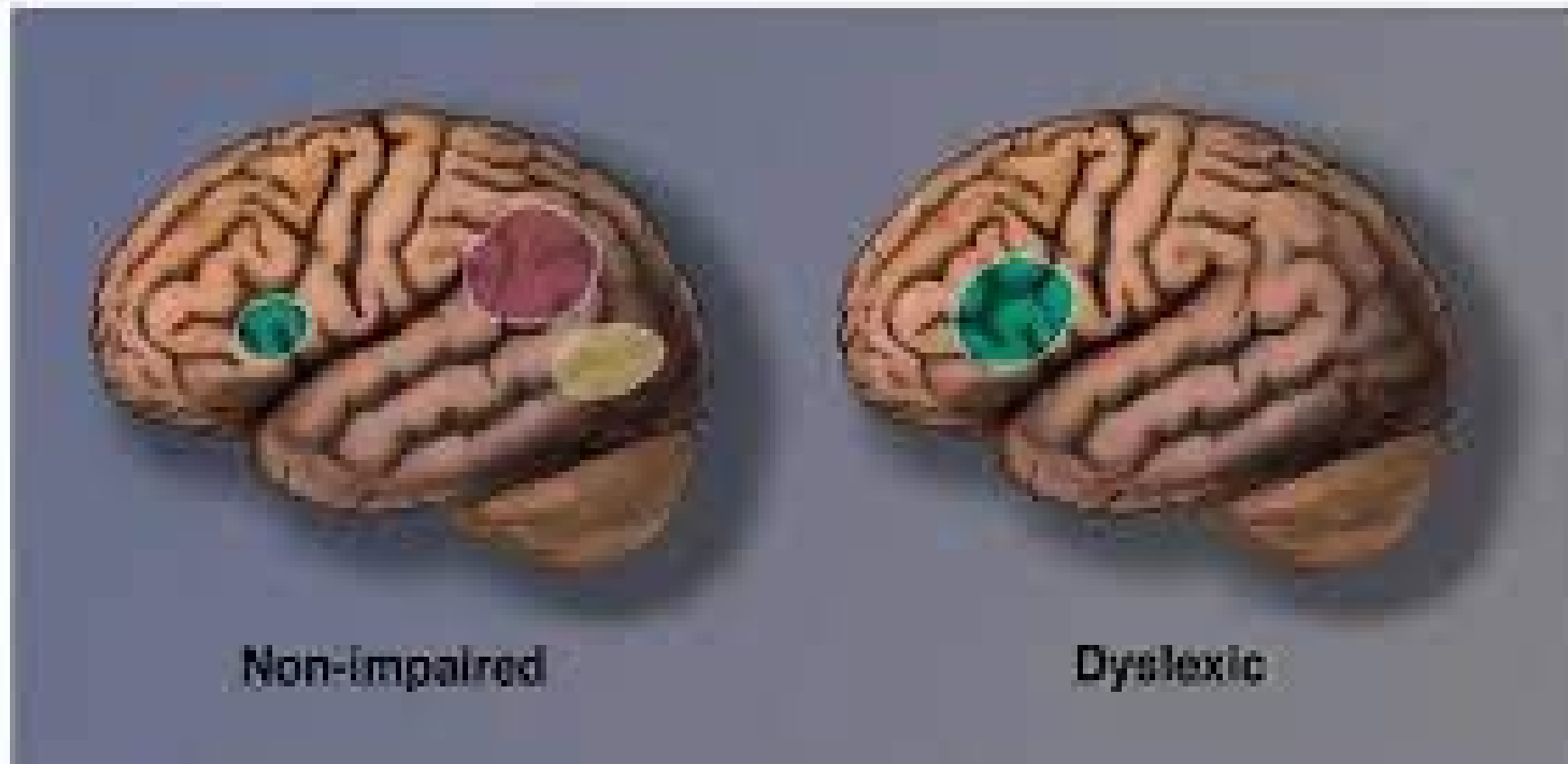
Right

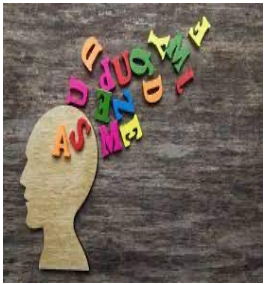




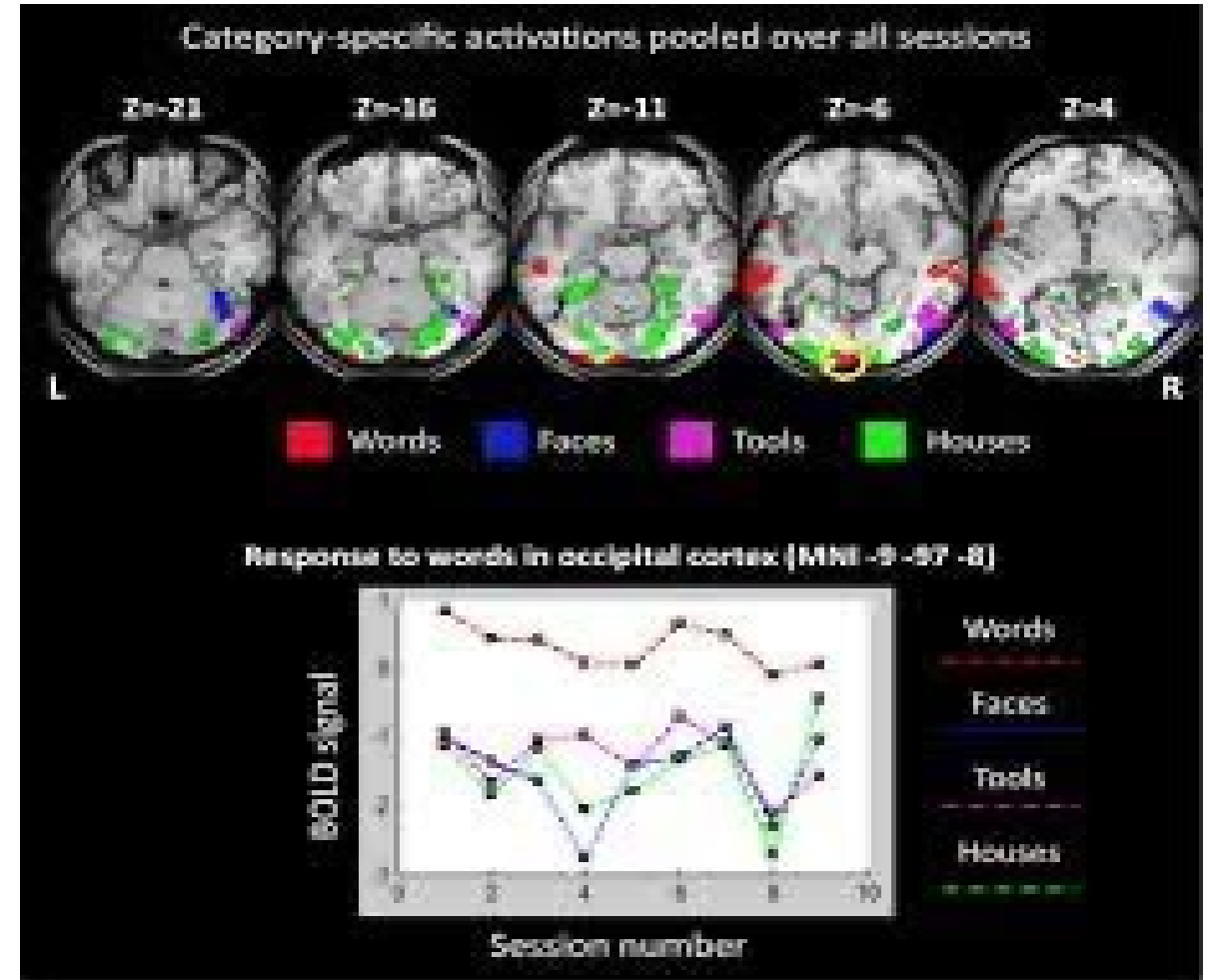
DISLEKSIJA

Disruption of Posterior Reading Systems



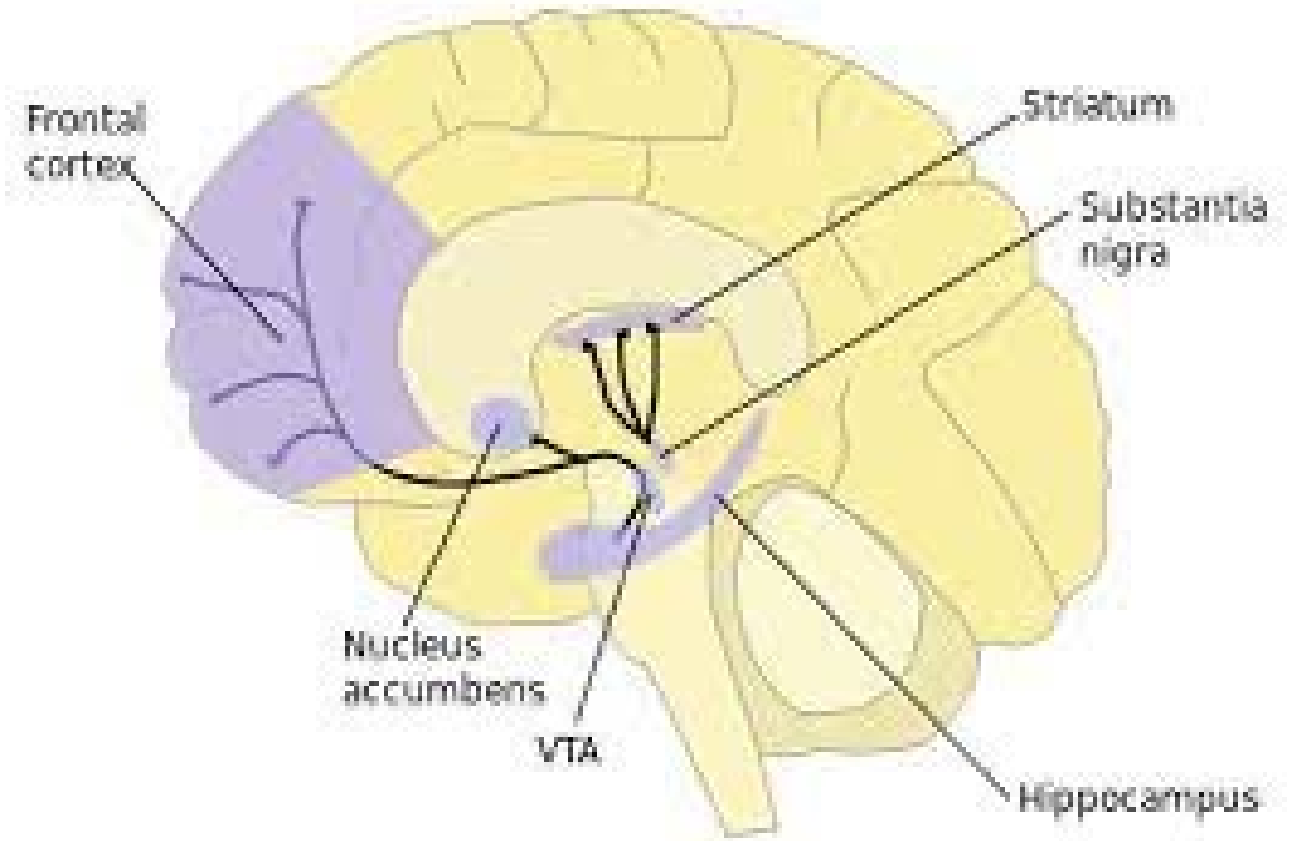
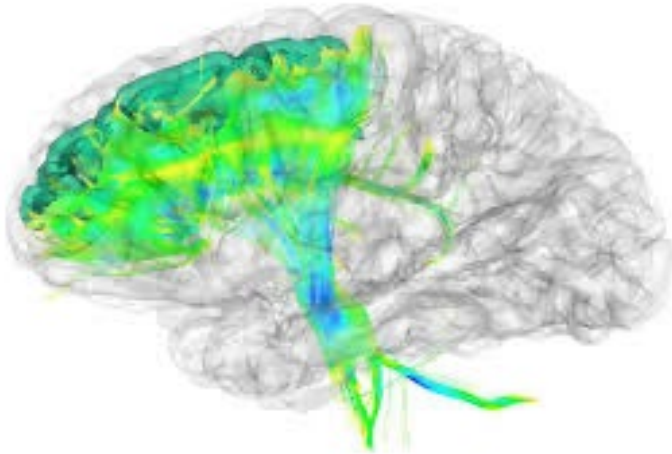


ALEKSIJA PO KAPI PRED IN PO TERAPIJI



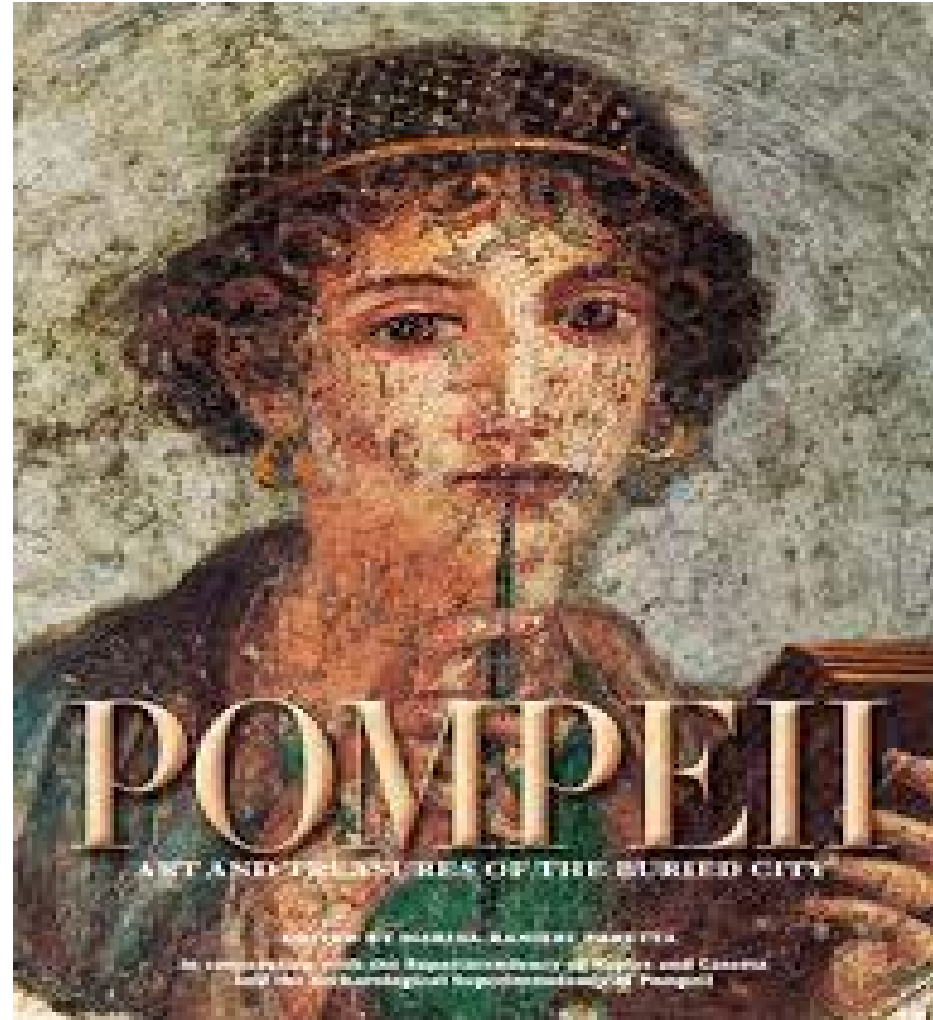


STRIATUM IN PREFRONTALNA SKORJA: DREVO IN GOZD, JABOLKO IN SADJE



VPLIV BRANJA NA TELO IN MOŽGANE

Bogatejše in bolj števične
povezave v možganih



VPLIV BRANJA NA TELO IN MOŽGANE

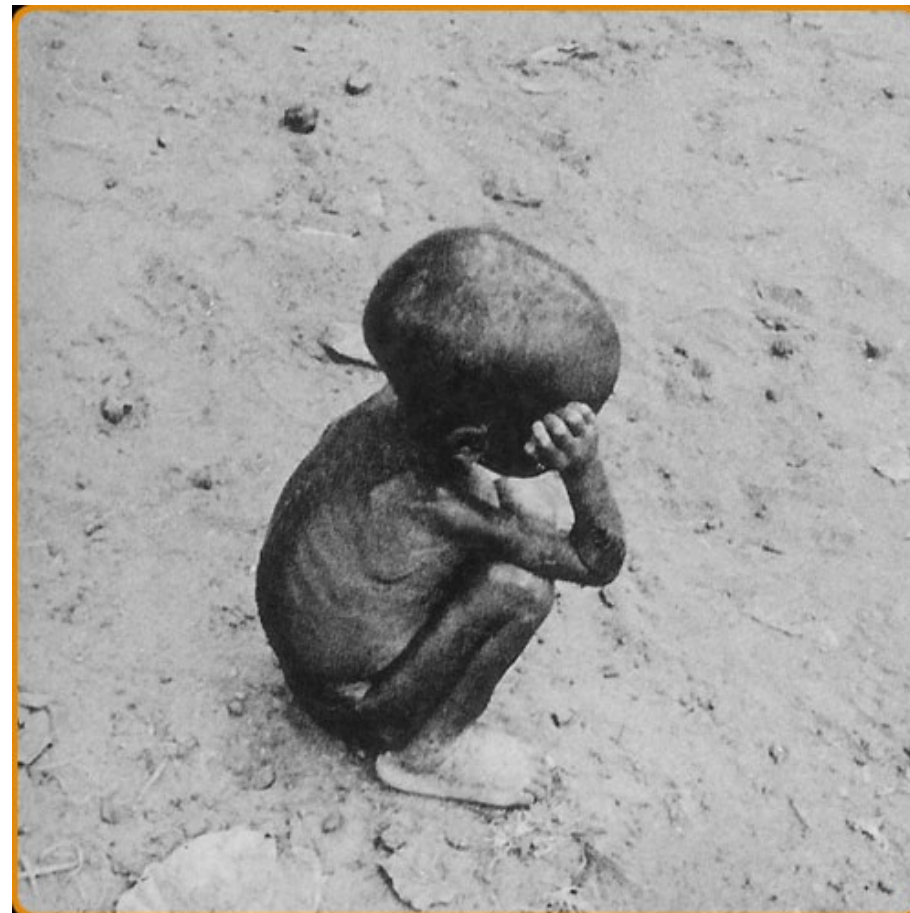
- Okrepi različne kognitivne sposobnosti (Matejev učinek)
- *Kdor že nekaj ima, bo dobil še več, tako da bo imel več kot dovolj, kdor pa nima, mu bo vzeto tudi tisto malo, kar ima.*



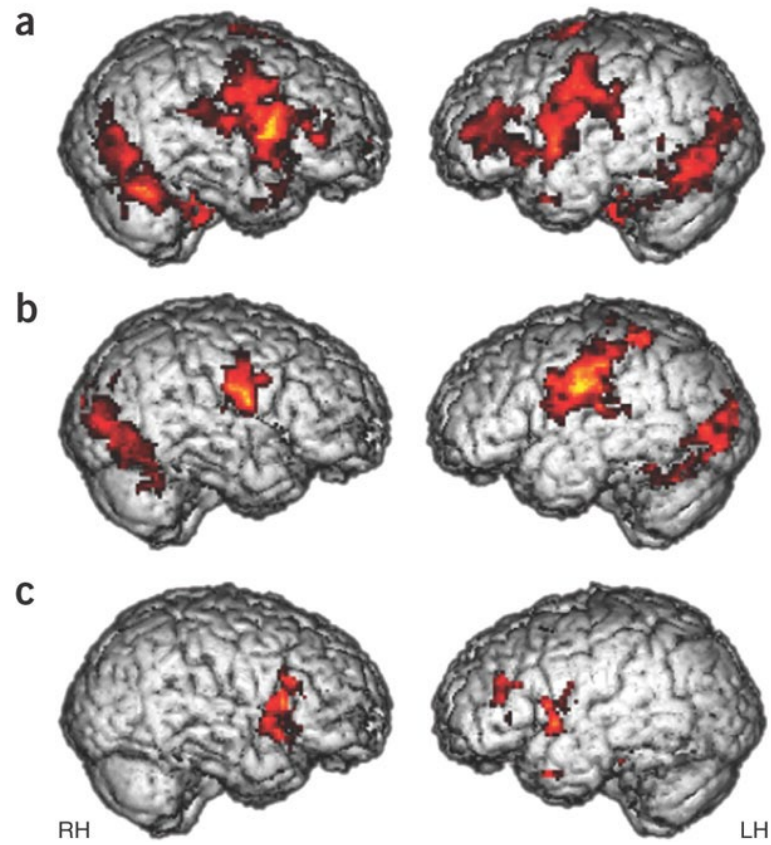
Caravaggio
Navdih apostola Mateja

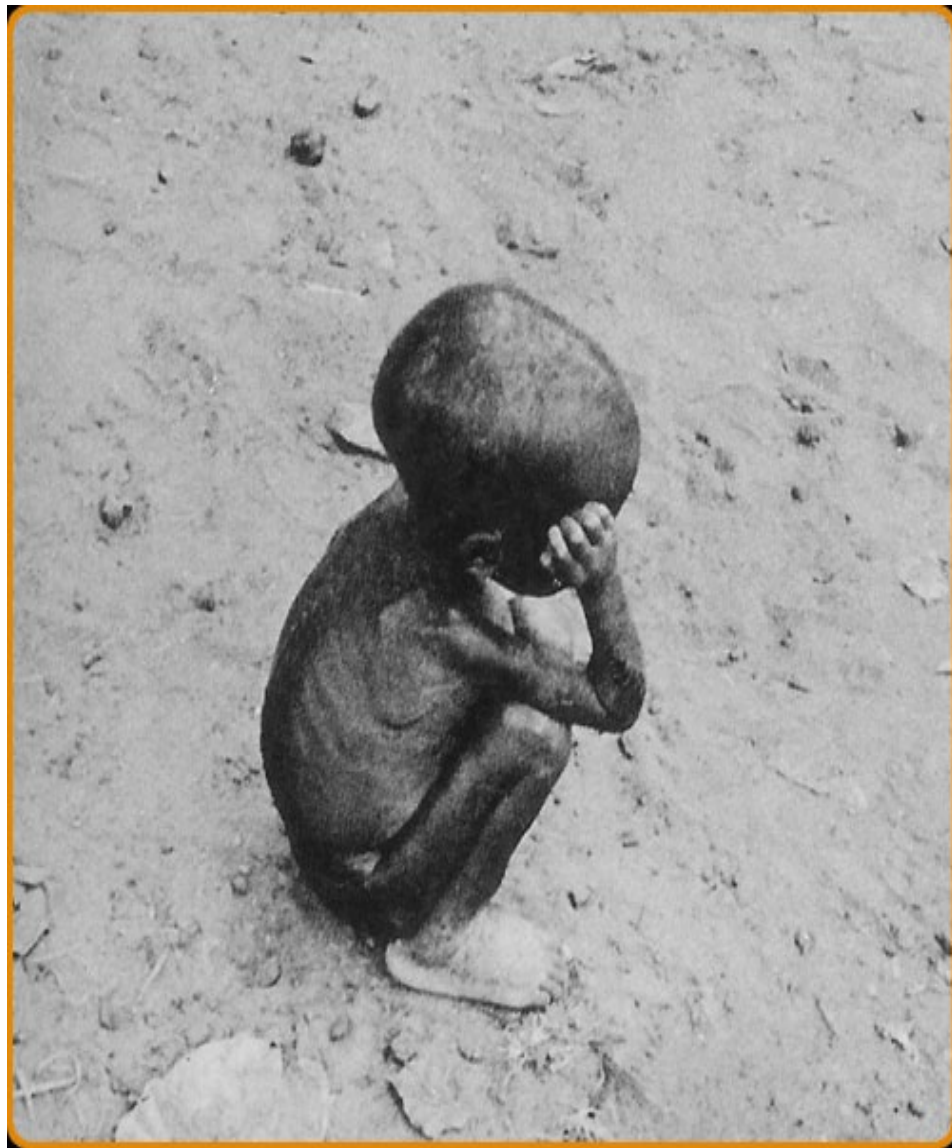
VPLIV BRANJA NA TELO IN MOŽGANE

- Okrepi empatijo in teorijo uma

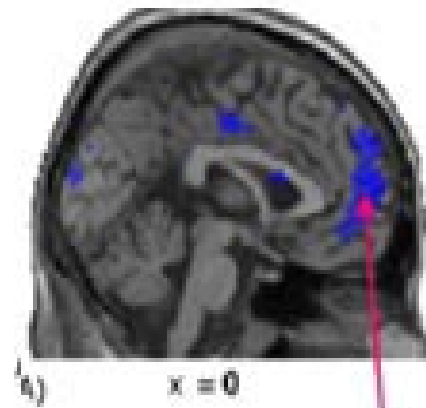


ZRCALNI NEVRONI

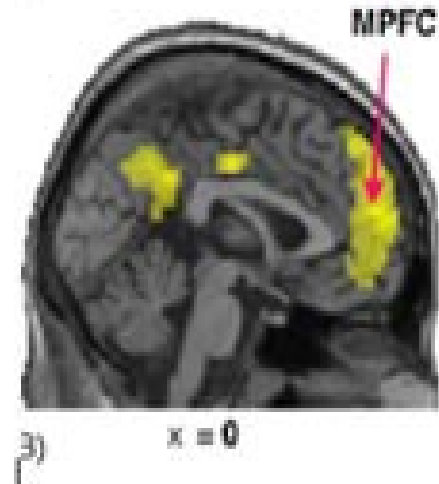




BOLEČINA DRUGEGA JE MOJA BOLEČINA



Imagining
Self in Pain



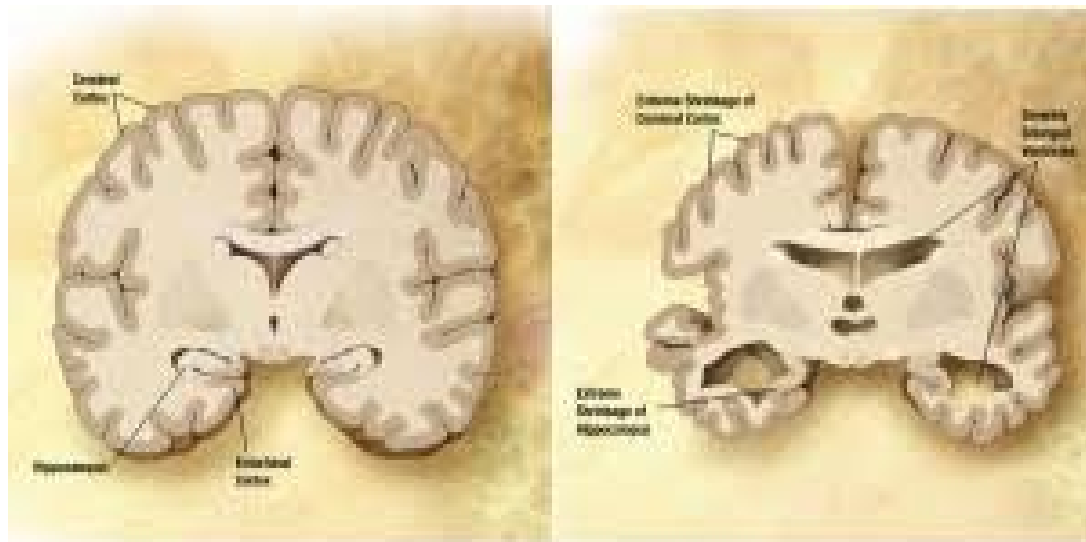
Imagining
Another in Pain

Matej 7, 12

- **»Tako torej vse, kar hočete, da bi ljudje storili vam, tudi vi storite njim! To je namreč postava in preroki.«**
- “zlato pravilo” mnogih kultur in religij

VPLIV BRANJA NA TELO IN MOŽGANE

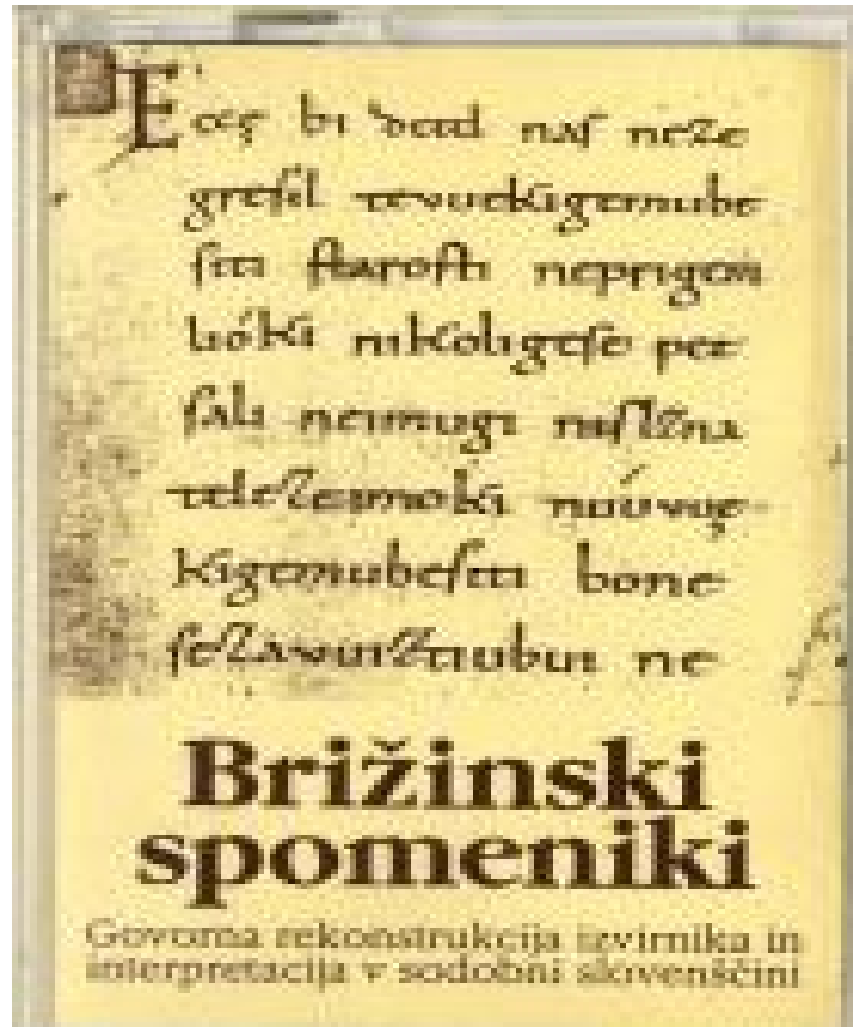
s starostjo povezan kognitivni upad
demenca



A representation of the normal human brain on the left, and the brain affected by Alzheimer's disease on the right.



....UČITI SE (TUJEGA) JEZIKA



VPLIV BRANJA NA TELO IN MOŽGANE: STRES



Why yes, I'm a bit stressed.
Why do you ask?

VPLIV BRANJA NA TELO IN MOŽGANE

dolgost življenja

- 3635 ljudi 12 let
- bralci – 2 leti dlje živijo

