

Vpliv daljše izpostavljenosti hipoksičnim pogojem na nevrofiziološko in psihološko funkcioniranje

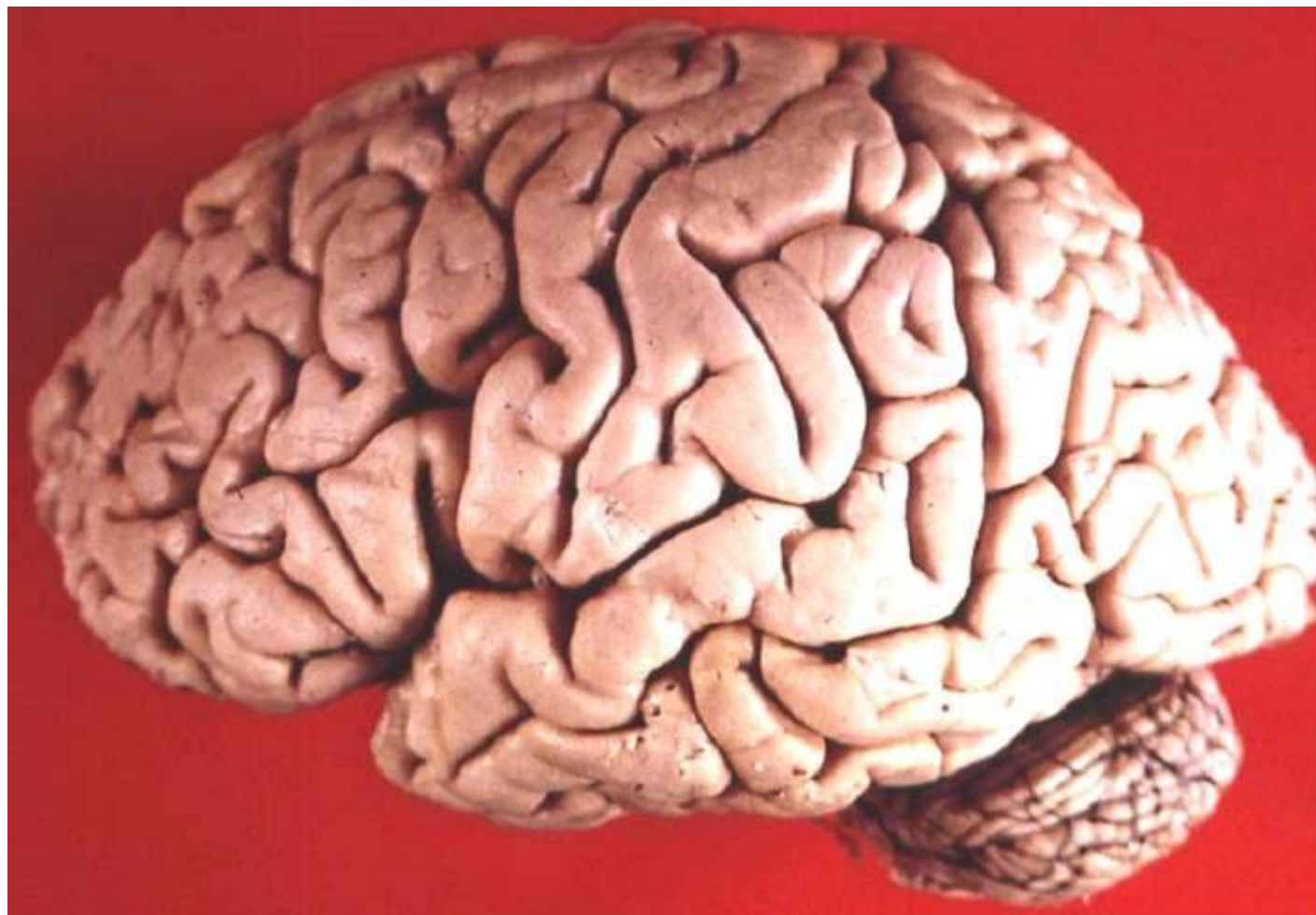
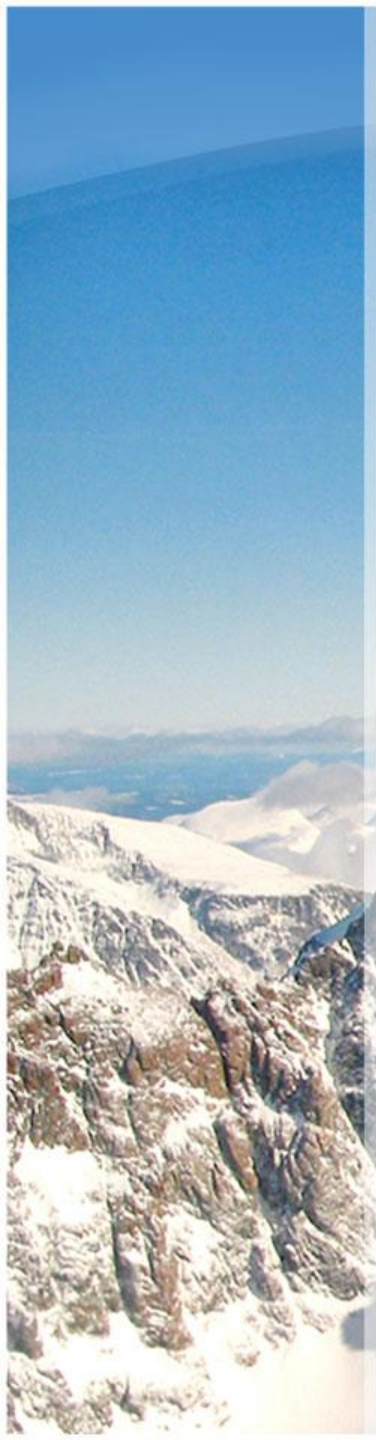
7. strokovni posvet GORE IN VARNOST

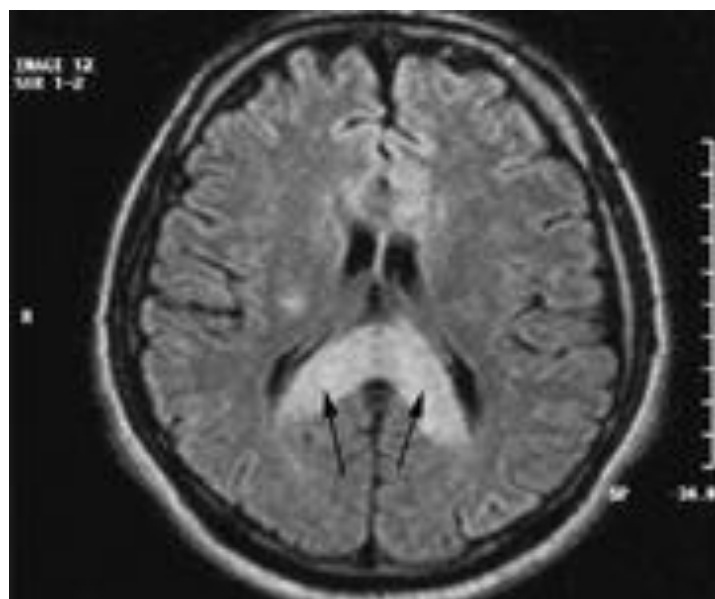
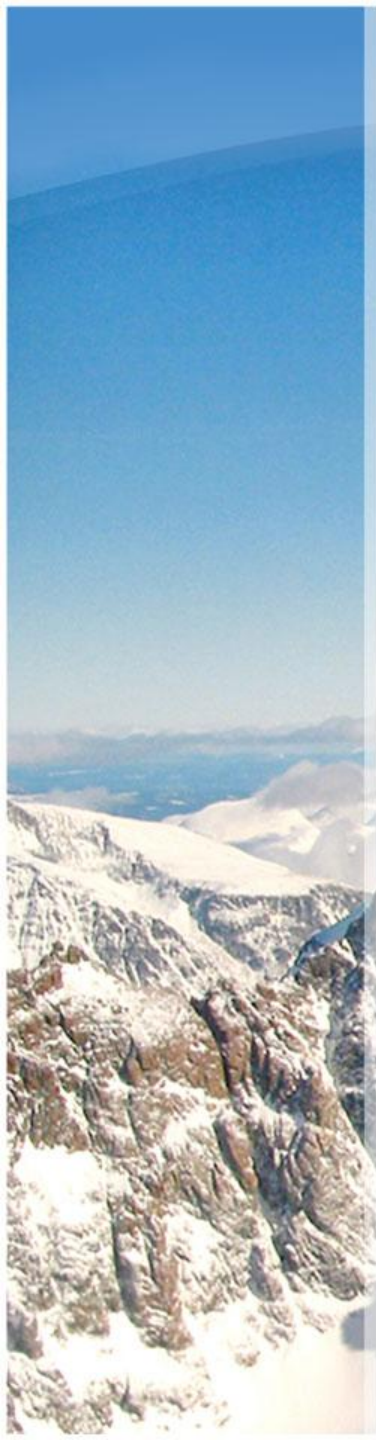
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Simon Brezovar, univ. dipl. psih.

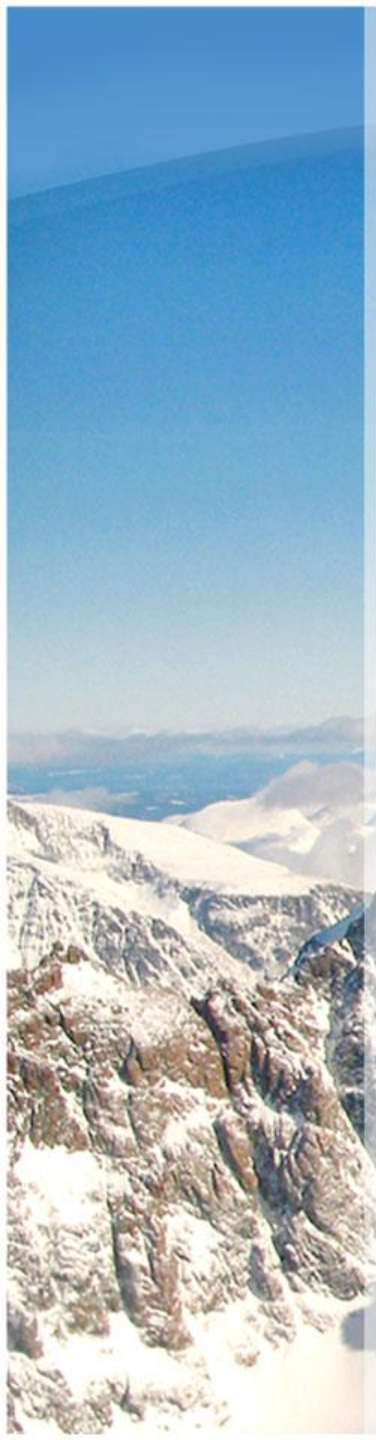
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Odnos med nadmorsko višino in kognitivnimi procesi



Predpostavljeni model nevropsiholoških sprememb

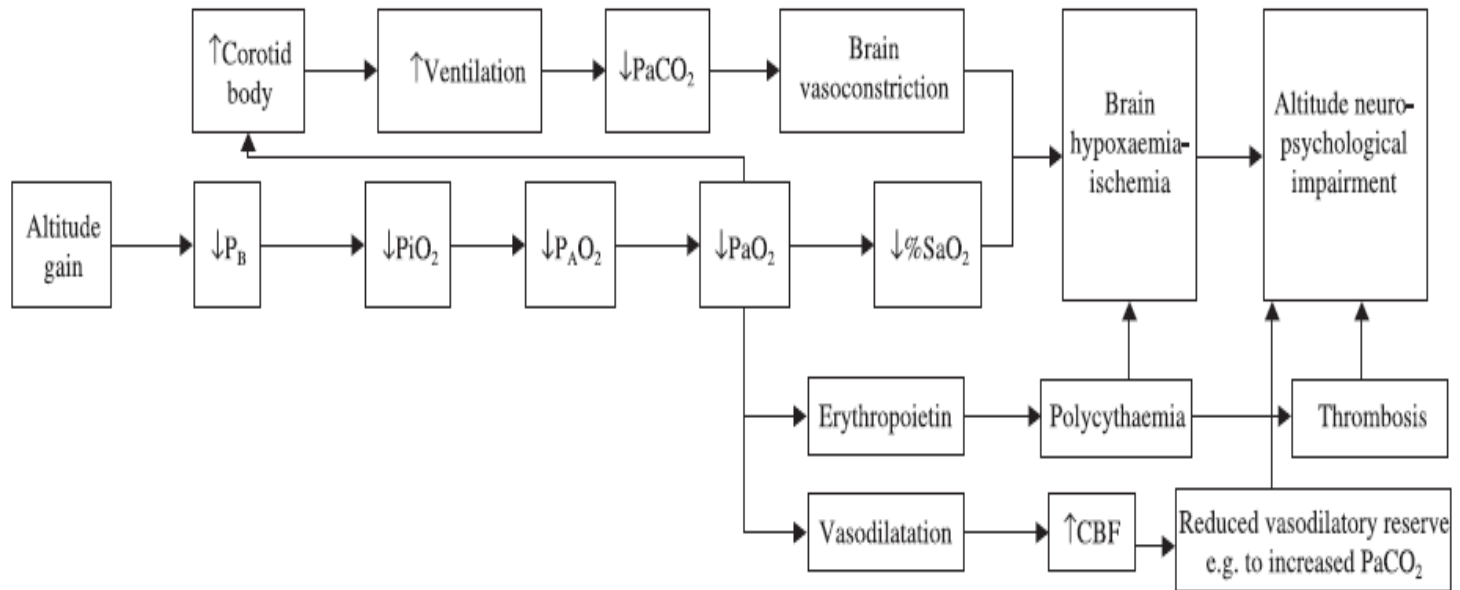


Figure 2 *The biological process underlying altitude neurobehavioural impairment.*

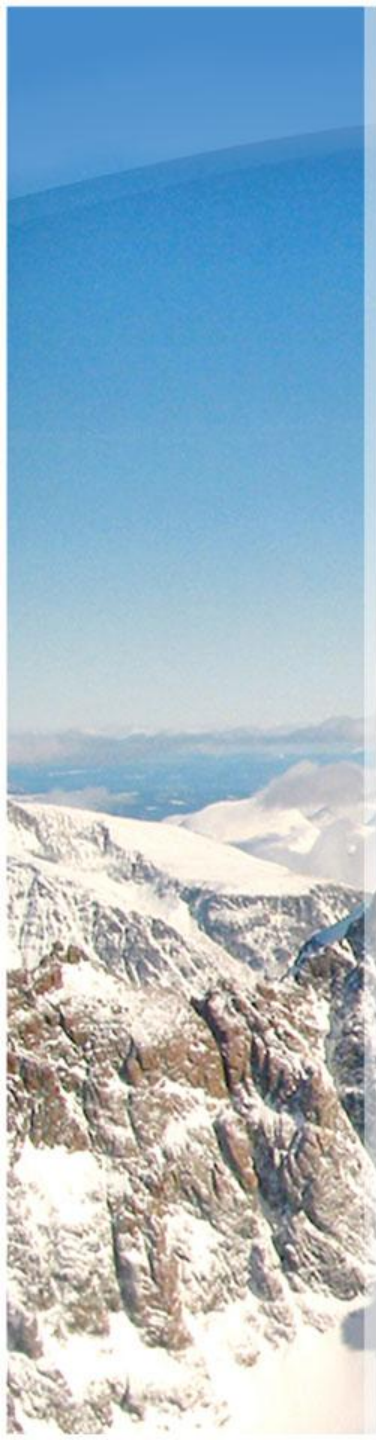
Note: CBF = cerebral blood flow, P_B = barometric pressure, P_{iO_2} = pressure of inspired oxygen in the trachea, P_{AO_2} = alveolar pressure of oxygen, P_{aO_2} = partial pressure of oxygen in arterial blood, $PaCO_2$ = partial pressure of carbon dioxide in arterial blood, $\%SaO_2$ = percent saturation of hemoglobin with oxygen in the arterial blood.

Vpliv nadmorske višine na kognitivne procese

Table 1 *Cognitive capabilities as a fraction of sea-level performance for unacclimatized subjects according to McFarland (1972)*

Altitude (m)	Visual sensitivity	Attention span	Short-term memory	Arithmetic ability	Decision making
2500	83%	100%	97%	100%	100%
3500	67%	83%	91%	95%	98%
4200	56%	70%	83%	92%	95%
5000	48%	57%	76%	86%	90%

Note: Adapted from McFarland, 1972.



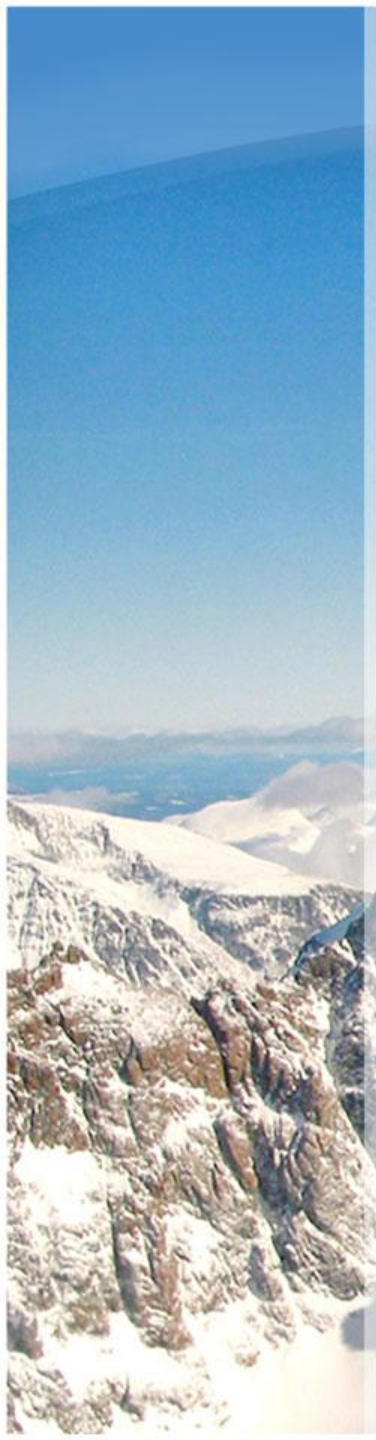


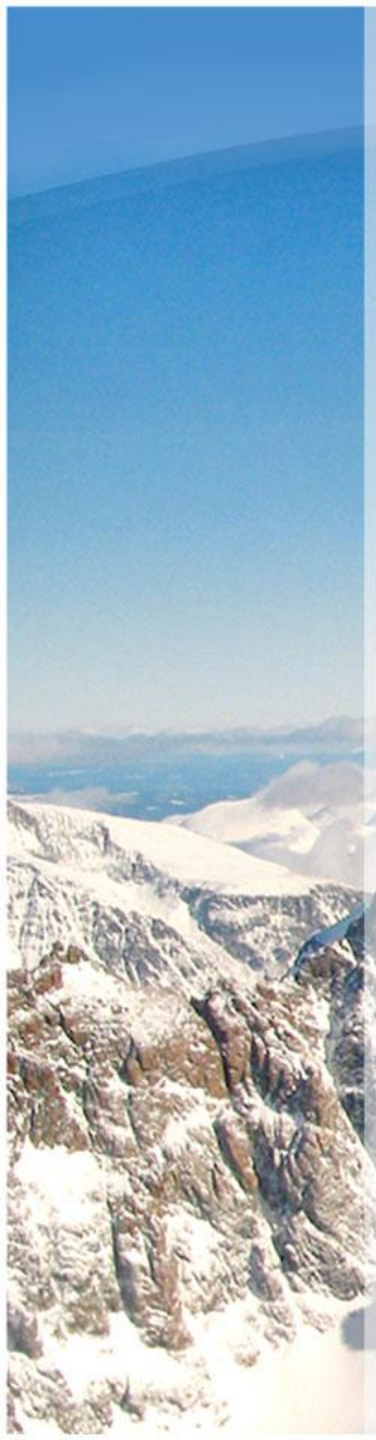
Psihološke komponente raziskovanja

- spanje
- psihomotorika
- zaznavanje
- spomin, učenje, **pozornost**
- govor, izvršilne sposobnosti
- konativni vidik osebnosti

Relevantne možganske strukture

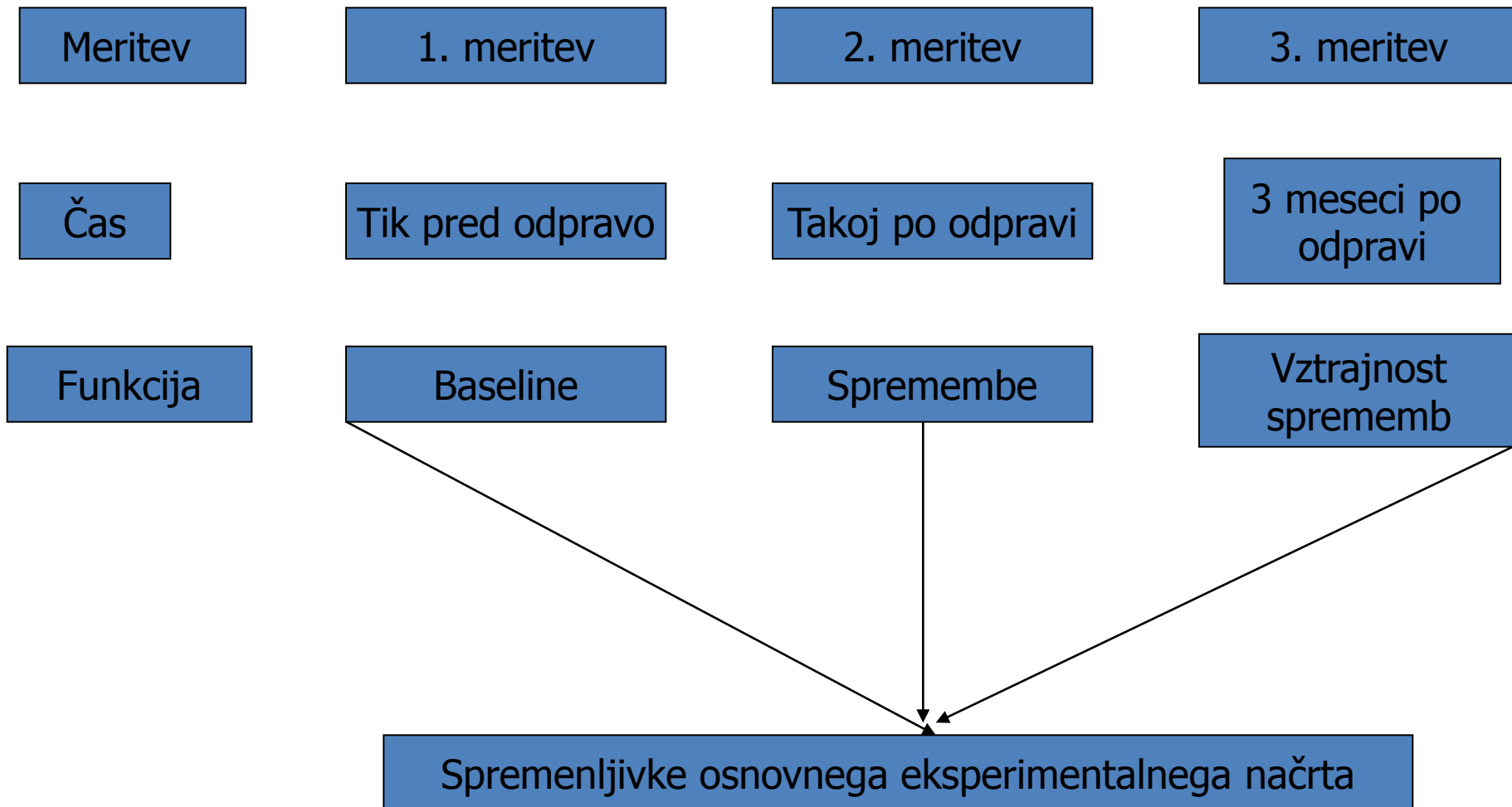
- zmanjšano delovanje insule ter ACC (Yan et al., 2011)
- pomembno zmanjšan (absolutni) cerebralni metabolizem (rCMRglc) v treh frontalnih regijah (Hochachka et al., 1999)
- okcipitoparietalna področja zelo ranljiva (Howard et al., 1987)
- MRI študije – kortikalne atrofije (npr. Fayed et al., 2006)





Projekt 2012/2013

Osnovni eksperimentalni načrt



Spremenljivke osnovnega eksperimentalnega načrta

- Odvisne spremenljivke:
 - ERP komponente vidne pozornosti
 - vedenjski rezultati na testu vidne pozornosti
 - rezultati na testu MST (izvršilne sposobnosti)
- Neodvisne spremenljivke:
 - starost
 - antropometrične spremenljivke: teža, višina
 - hematološke raziskave (analiza krvi)
 - srčni utrip, krvni pritisk (sistolčni in diastolični)
 - v mirovanju
 - v gibanju
 - fNIRS (oksigenacija krvi v možganih)
 - v mirovanju
 - v gibanju
 - ergometrija
 - v mirovanju
 - v gibanju
 - test osebnosti

Razširjeni eksperimentalni načrt

- eksogene spremenljivke

- temperatura

1. meritev

- zračni tlak

2. meritev

- endogene spremenljivke

Tik pred odpravo

- Lake Louise ocenjevalna lestvica (AMS)

Takoj po odpravi

- najvišja dosežena nadmorska višina

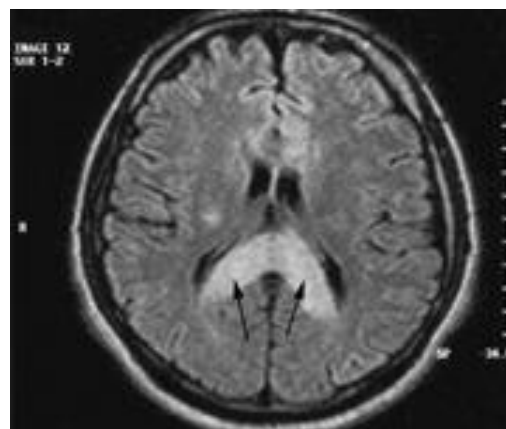
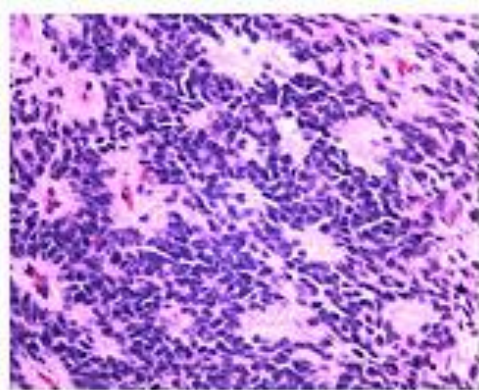
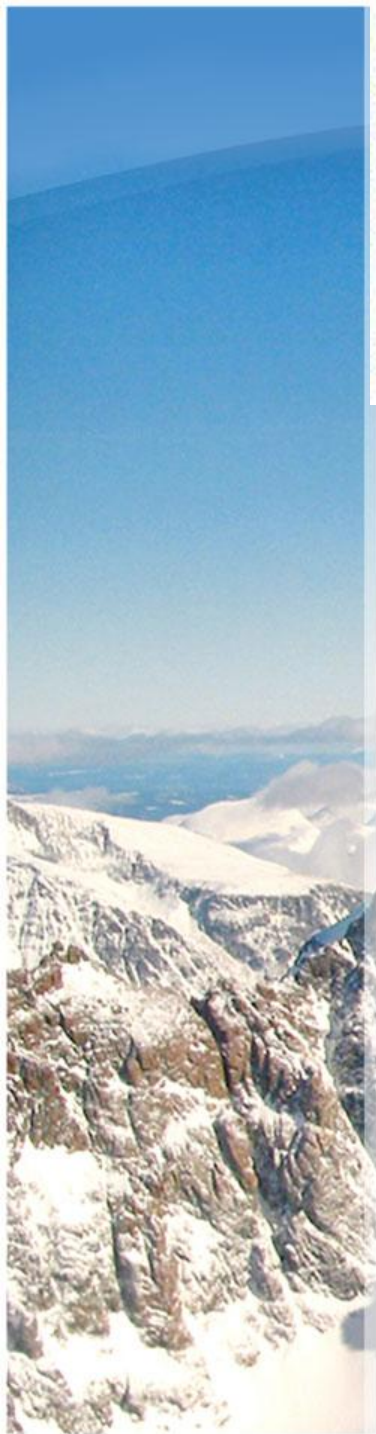
Spremembe

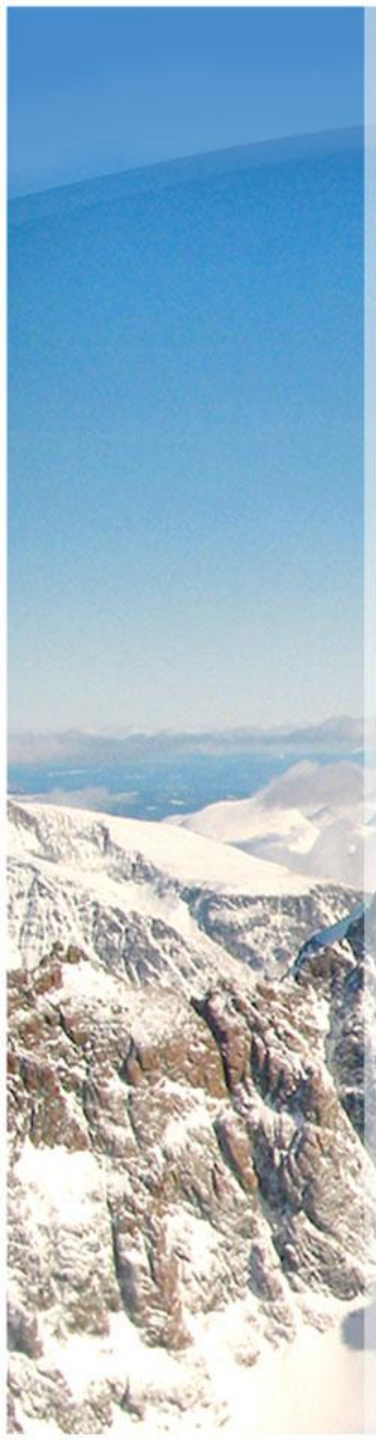
- tempo vzpenjanja Oksimetrija

- vodenje dnevnika dodatni vprašalniki

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Hvala za vašo
pozornost!