

KOLESARSKA KONFERENCA 2023

vsi na isti poti



2. nacionalna kolesarska konferenca

12. – 13. junij 2023, Celje, Slovenija



REPUBLIKA SLOVENIJA
MINISTRSTVO ZA OKOLJE,
PODNEBJE IN ENERGIJO



REPUBLIKA SLOVENIJA
MINISTRSTVO ZA ZDRAVJE



MESTNA
OBČINA
CELJE



EVROPSKA UNIJA
KOHEZIJSKI SKLAD
NALOŽBA V VAŠO PRIHODNOST

KOLESARSKA KONFERENCA 2023

vsi na isti poti



KOLESAR MED MISLIJO, ČUSTVOM IN GIBOM

Zvezdan Pirtošek

Medicinska fakulteta Univerza v Ljubljani

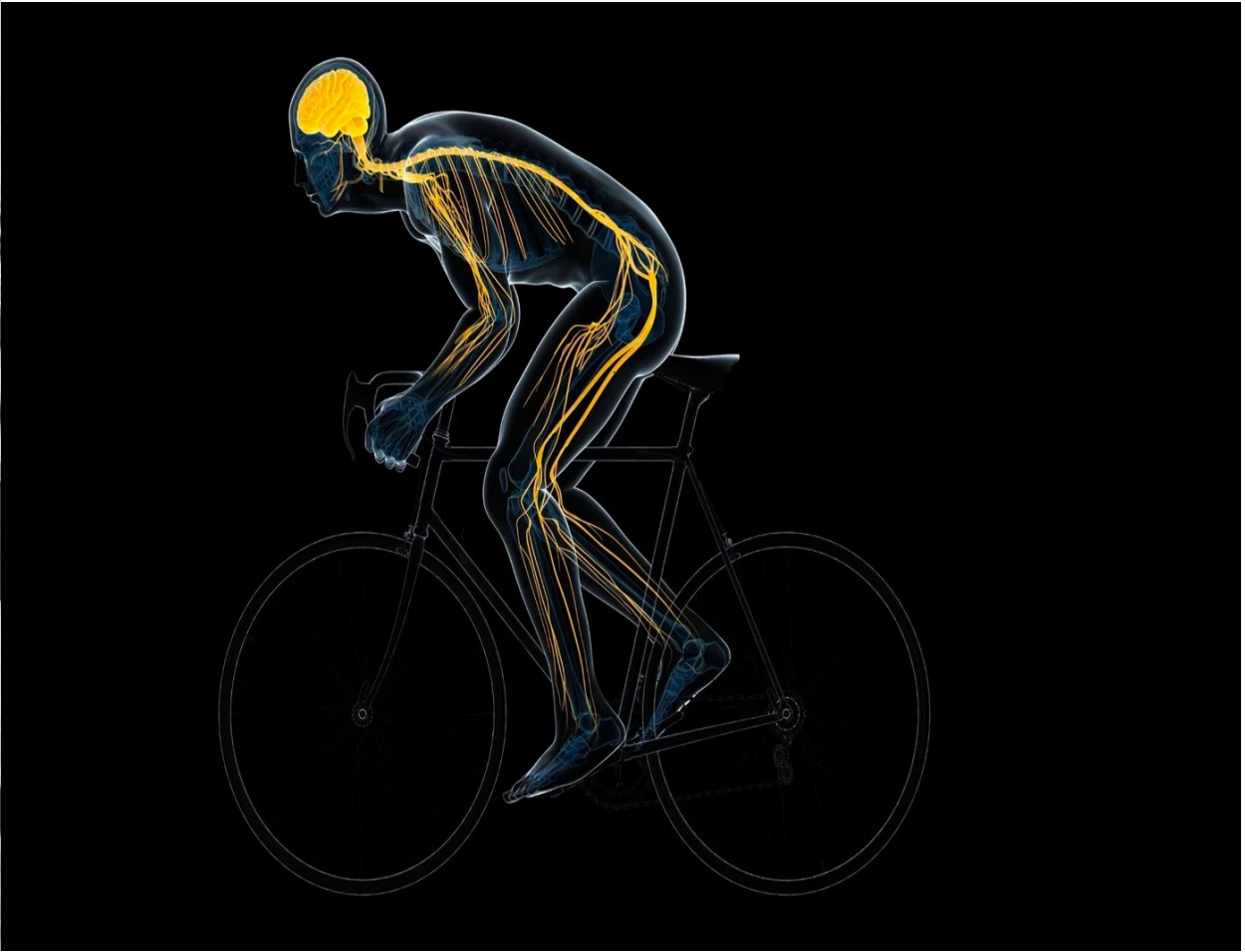
Nevrološka klinika UKC Ljubljana



MUSCLES USED IN CYCLING

- Glutes
- Hamstrings
- Quadriceps
- Calves
- Shins
- Core
- Shoulders
- Biceps/Triceps

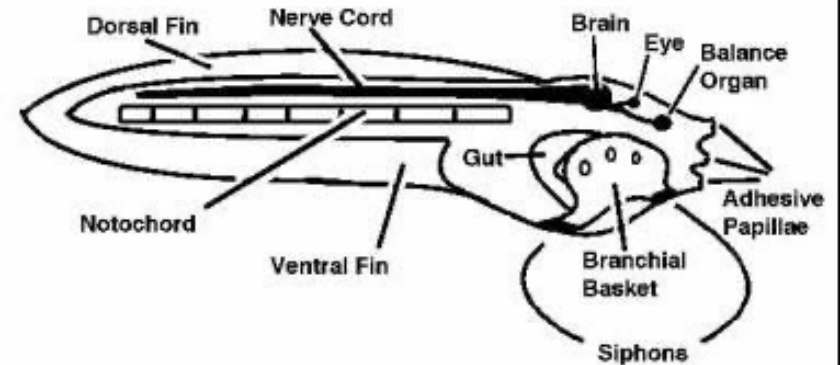




DANES...

- **Kaj imajo skupnega mišice in možgani?**
- **Zakaj imamo možgane?**
- **Kako gibanje deluje na možgane in zakaj nas lahko tako zelo osvoji?**
- **Zakaj je kolesarjenje posebej učinkovito?**
- **Kolo kot uteha in zdravilo**

ZAKAJ IMAMO ŽIVČEVJE/MOŽGANE?

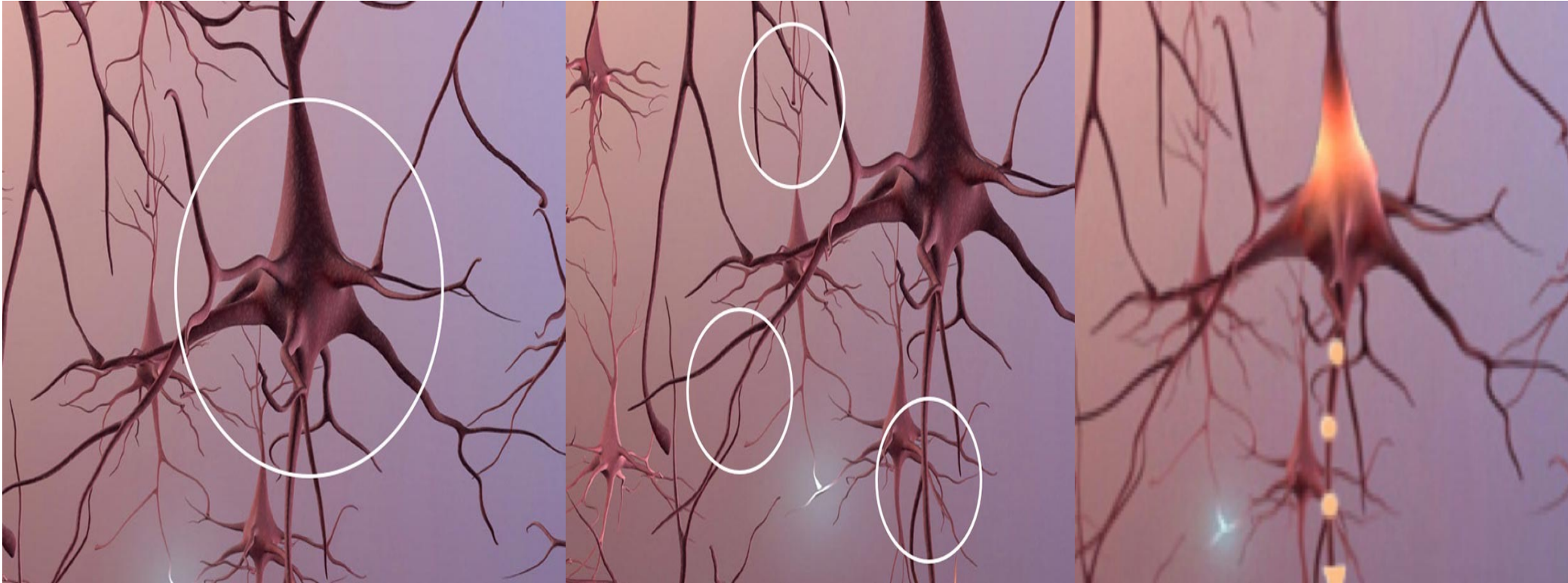


VELIKI MOŽGANI, MALI MOŽGANI

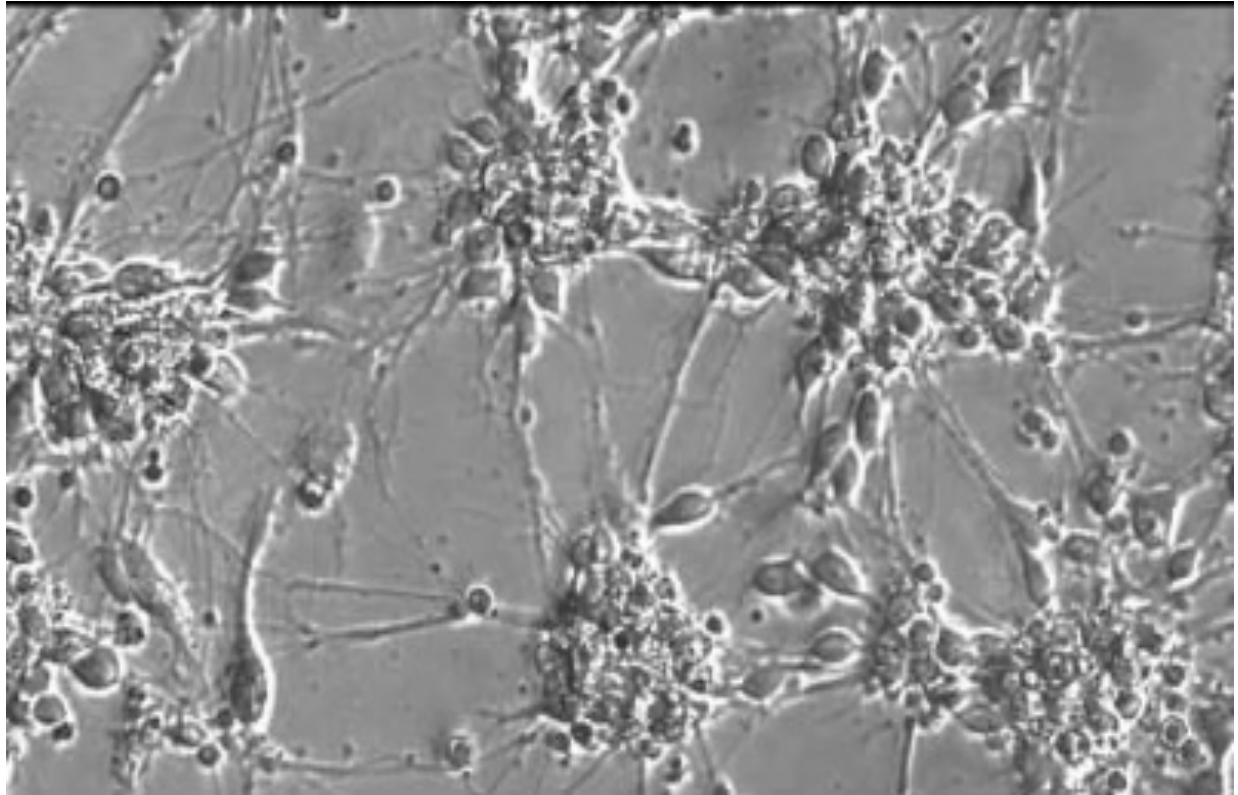




NEVRONI



V MOŽGANIH NASTAJAJO NOVE CELICE IN SE POVEZUJEJO: *NEUROGENEZA IN NEUROPLASTIČNOST*



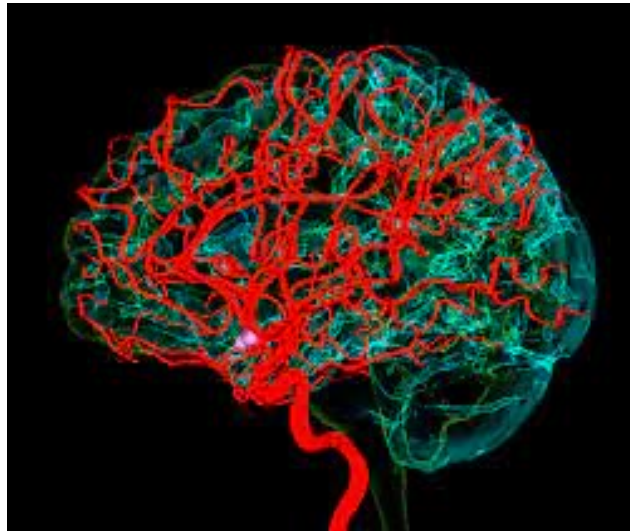
<https://www.youtube.com/watch?v=golqIqArZEK>

KAJ SE DOGAJA V MOŽGANIH, KO KOLESARIMO

- povečan možganski pretok krvi (*kisik in hranila v možganske celice*)
- spodbuja sproščanje endorfinov
- zmanjšanje insulinske rezistence, vnetja, manj zombi celic
- povišane ravni možganskega nevrotrofičnega faktorja (BDNF)
- povišane ravni vaskularni endotelijski rastni faktor (VEGF)
- poveča nekatere možganske predele
- podaljša življenje

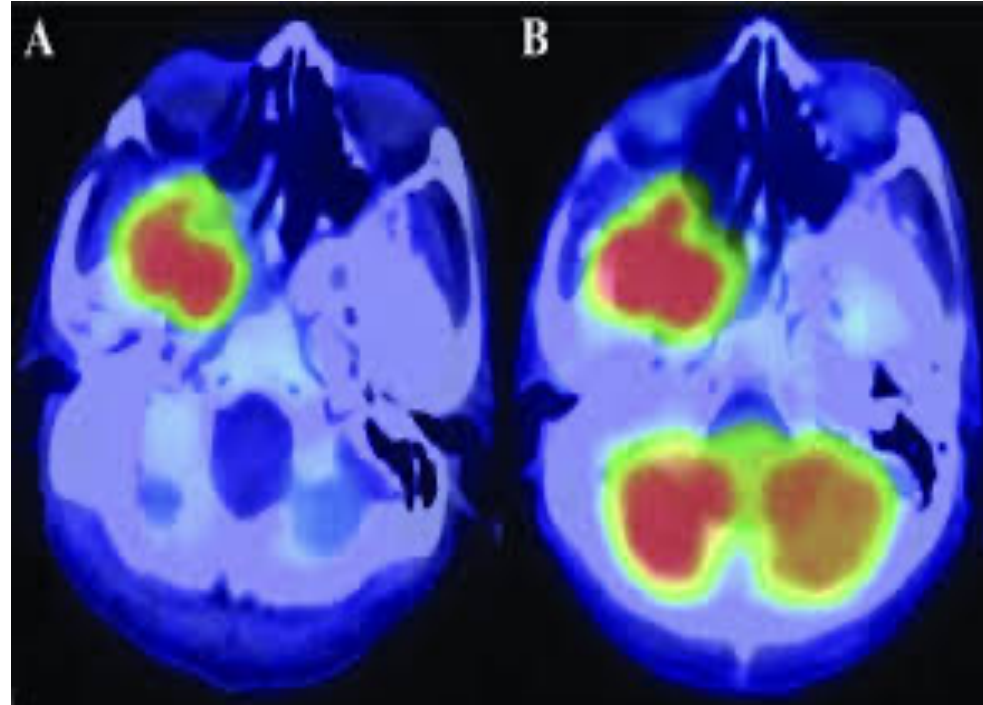
HOJA ZVIŠA PREKRVAVITEV, KISIK

- naši možgani porabijo približno 20 % celotne oskrbe našega telesa s kisikom
- približno tretjina možganov je sestavljena iz krvnih žil)



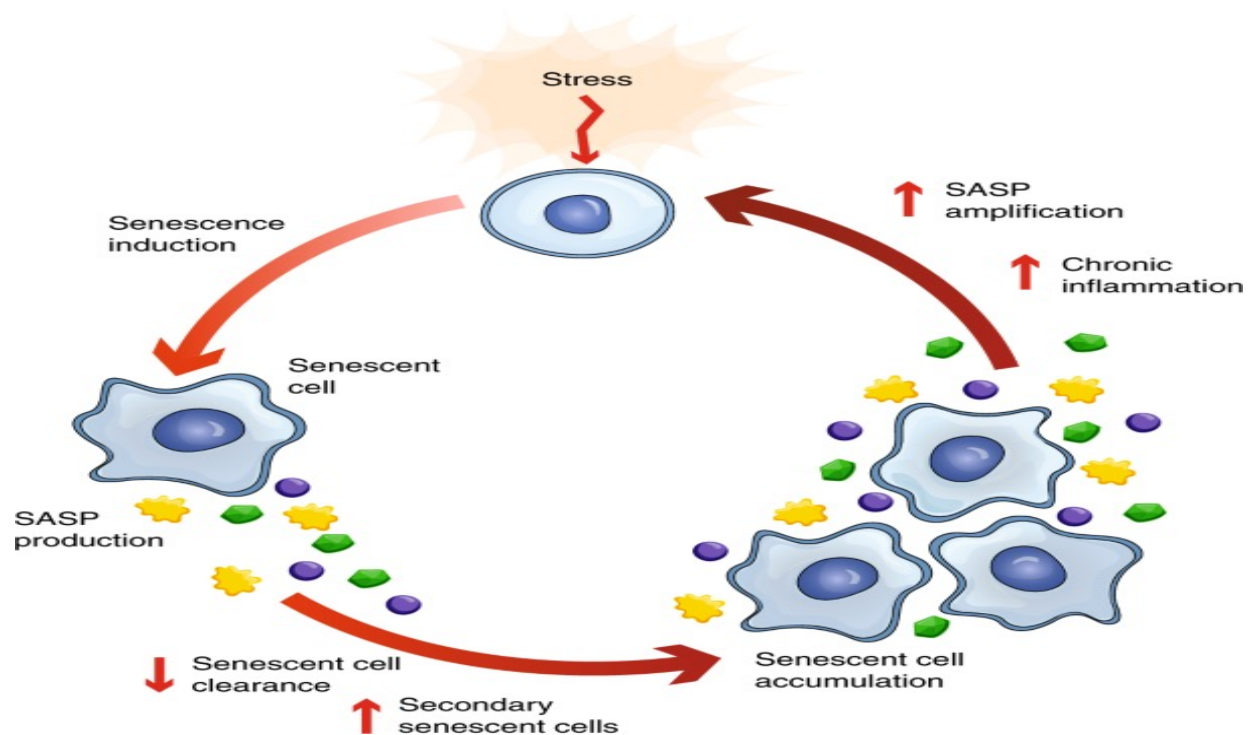
ENDORFINI

- zmanjšajo bolečino in nelagodje
- vzbujajo občutek ugodja
- zmanjšujejo stres, depresijo in tesnobo
- ublažujejo vnetje
- izboljšujejo razpoloženje
- ? podpirajo imunski sistem
- ? izboljšujejo spomin in um

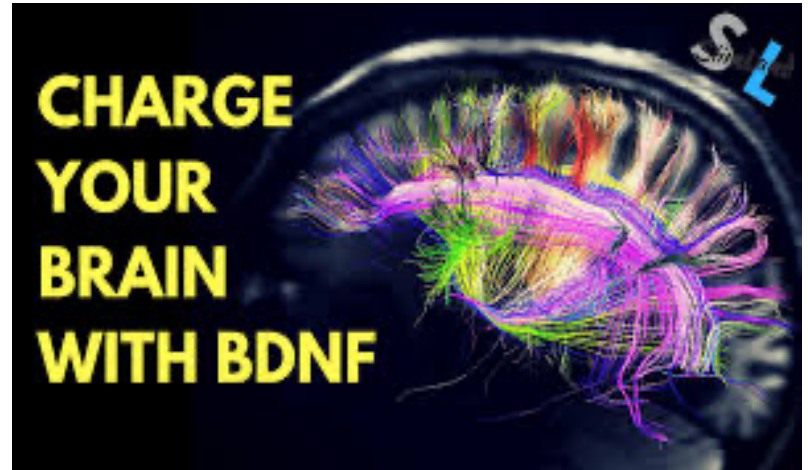
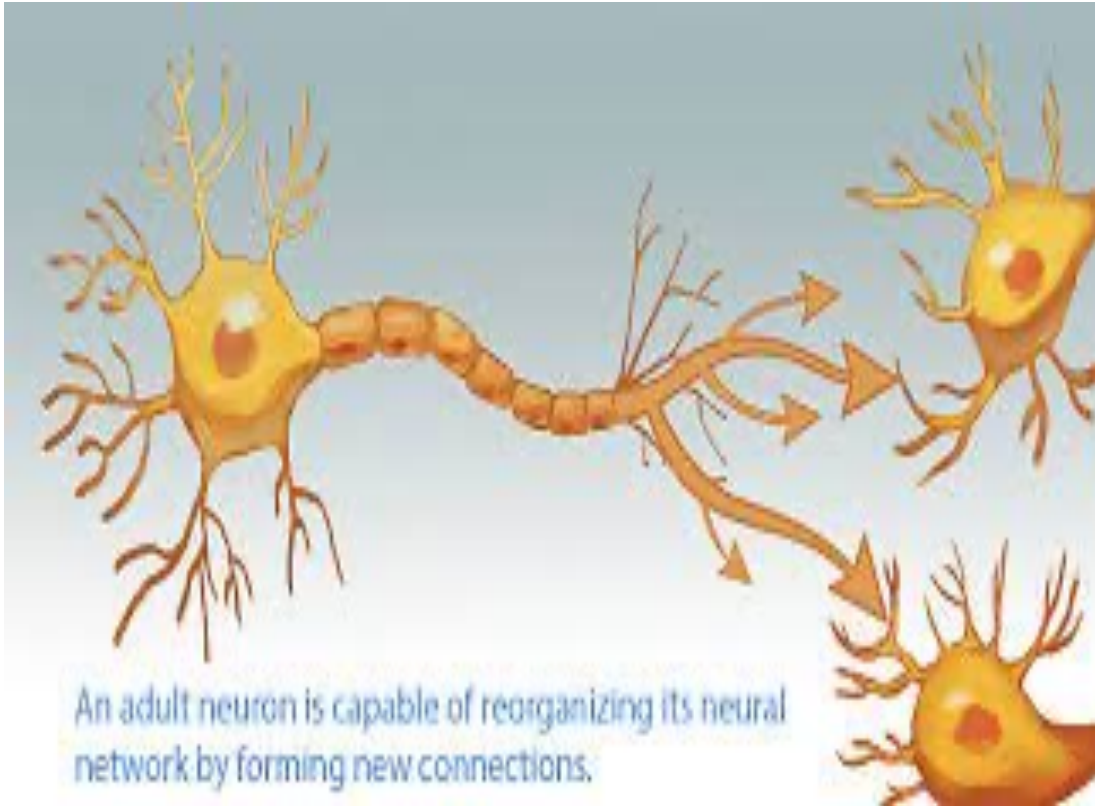


ZMANJŠANJE INSULINSKE REZISTENCE, VNETJA, MANJ ZOMBI CELIC

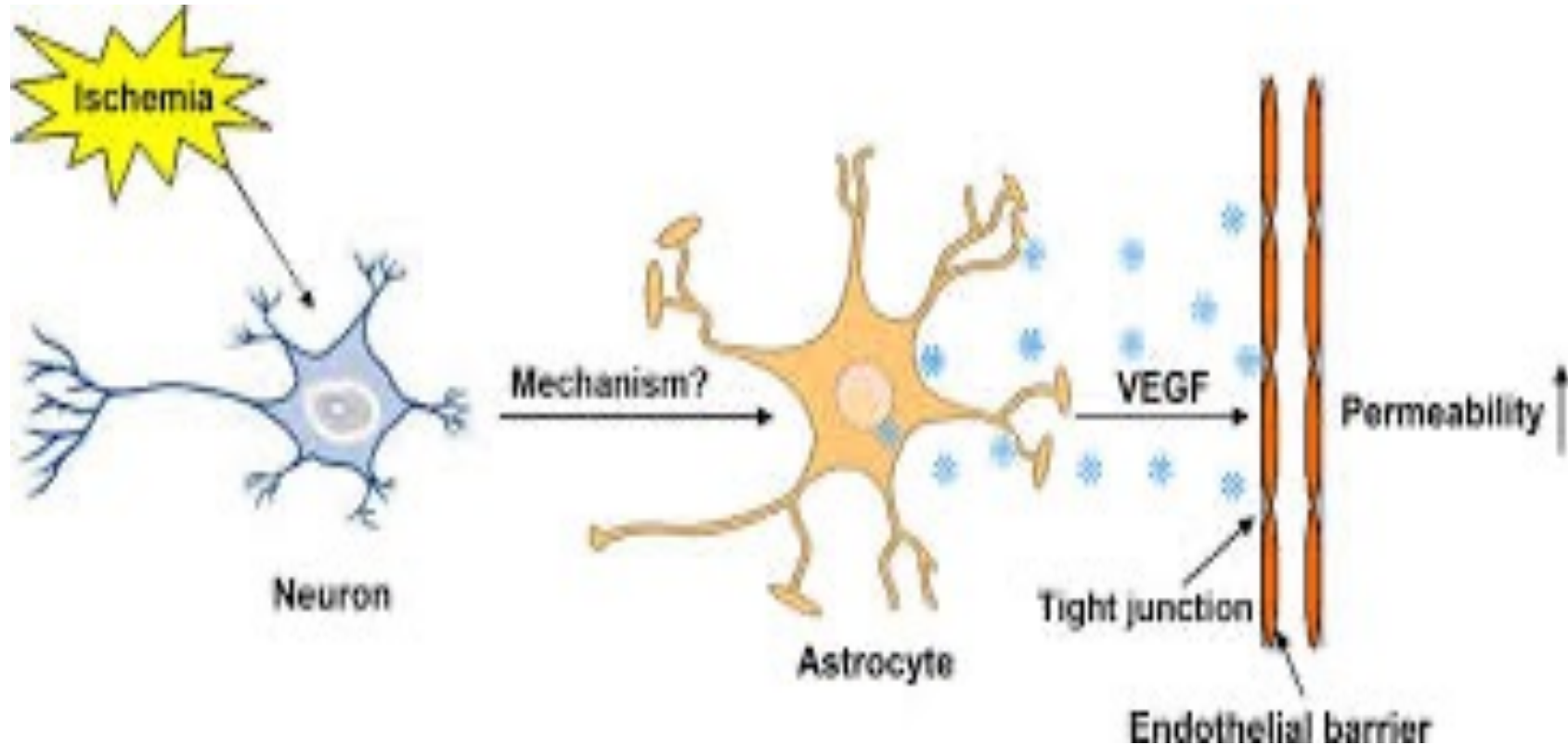
Pathologic cellular senescence feedback loop



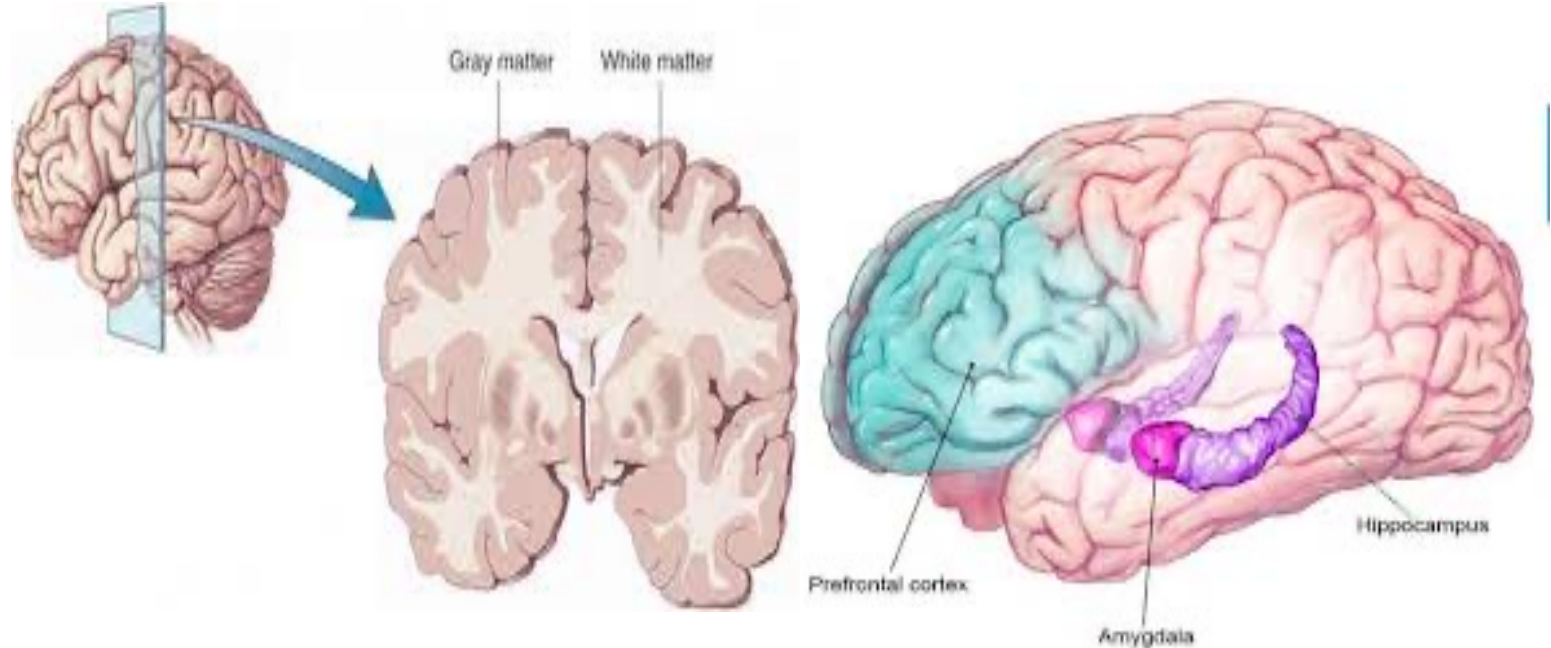
GRADITI MOŽGANSKE CELICE: *BDNF*



GRADITI ZDRAVO ŽILNO STENO: *VEGF*

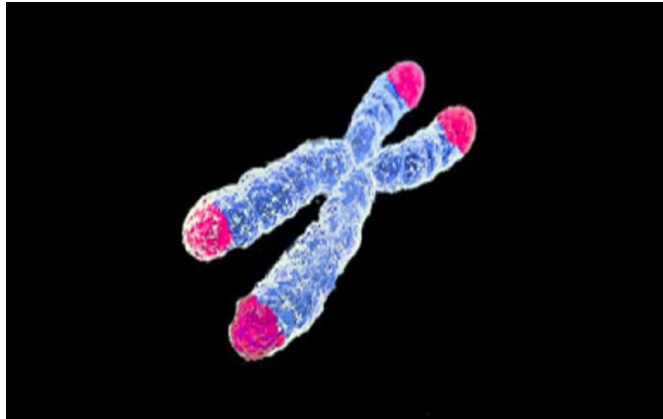


POVEČA NEKATERE MOŽGANSKE PREDELE



- Sivina
- Belina
- Hipokampus
- Čelni reženj
- VIDNO-PROSTOSRKA ORIENTACIJA

DALJŠE ŽIVLJENJE



Svetovna zdravstvena organizacija (WHO):

redni kolesarji (tj. kolesarjenje 3 ure/teden, 36 tednov/leto ali 108 ur/leto) so imeli v povprečju 28 % manjšo verjetnost smrti kot nekolesarji.



<https://heatwalkingcycling.org/#homepage>

KOLO KOT ZDRAVILO



- 2x dnevno

Stranski učinki:

- Več sreče
- Manj stresa
- Izguba telesne teže
- Daljše življenje

The Acute Effects of a Single Bout of Moderate-intensity Aerobic Exercise on Cognitive Functions in Healthy Adult Males

ABSTRACT

Background: Large-scale observational studies across various life settings have been found to suggest a positive association between physical activity and cognitive function. However, the underlying mechanisms are not fully understood. The purpose of this study was to investigate the acute effects of a single bout of moderate-intensity aerobic exercise on cognitive functions in healthy adult males. Methods: A heterogeneous group of 10 healthy, healthy adult males participated in the study and were subjected to a cognitive function test including 5 tests: Digit Span, Trail Making, Stroop, Flaming, and Flaming, using a 30-min moderate-intensity aerobic exercise protocol. Results: Significant improvements were observed in Digit Span, Stroop, and Flaming tests, while no significant changes were observed in Trail Making and Flaming tests. Conclusion: A single bout of moderate-intensity aerobic exercise acutely improves cognitive functions in healthy adult males. The underlying mechanisms are not fully understood and require further research.

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INTRODUCTION

Physical activity is a key component of a healthy lifestyle and is associated with a reduced risk of chronic diseases. Large-scale observational studies have consistently shown a positive association between physical activity and cognitive function. However, the underlying mechanisms are not fully understood. The purpose of this study was to investigate the acute effects of a single bout of moderate-intensity aerobic exercise on cognitive functions in healthy adult males. Methods: A heterogeneous group of 10 healthy, healthy adult males participated in the study and were subjected to a cognitive function test including 5 tests: Digit Span, Trail Making, Stroop, Flaming, and Flaming, using a 30-min moderate-intensity aerobic exercise protocol. Results: Significant improvements were observed in Digit Span, Stroop, and Flaming tests, while no significant changes were observed in Trail Making and Flaming tests. Conclusion: A single bout of moderate-intensity aerobic exercise acutely improves cognitive functions in healthy adult males. The underlying mechanisms are not fully understood and require further research.

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MATERIAL AND METHOD

Subjects: The study included 10 healthy, healthy adult males who were subjected to a cognitive function test including 5 tests: Digit Span, Trail Making, Stroop, Flaming, and Flaming, using a 30-min moderate-intensity aerobic exercise protocol. Results: Significant improvements were observed in Digit Span, Stroop, and Flaming tests, while no significant changes were observed in Trail Making and Flaming tests. Conclusion: A single bout of moderate-intensity aerobic exercise acutely improves cognitive functions in healthy adult males. The underlying mechanisms are not fully understood and require further research.

Po eni sami 30-minutni vadbi na kolesu so se udeleženci bolje odrezali pri nalogah:

- spomina
- razmišljanja
- načrtovanja

Nanda B, Balde J, Manjunatha S. The Acute Effects of a Single Bout of Moderate-intensity Aerobic Exercise on Cognitive Functions in Healthy Adult Males. J Clin Diagn Res. 2013 Sep;7(9):1883-5

RESEARCH

Open Access

A clinical study of the efficacy of a single session of individual exercise for depressive patients, assessed by the change in saliva free cortisol level

Megumi Ida^{1*}, Itsuro Iida², Naoki Wada³, Makoto Sohmiya¹, Masayuki Tazawa³ and Kenji Shirakura¹

Abstract

Background: The efficacy of physical exercise as an augmentation to pharmacotherapy with antidepressants for depressive patients has been documented. However, to clarify the effectiveness of exercise in the treatment of depression, it is necessary to distinguish the effect of the exercise itself from the effect of group dynamics. Furthermore, an objective measurement for estimation of the effect is needed. Previous reports adopted a series of group exercises as the exercise intervention and mainly psychometric instruments for the measurement of effectiveness. Therefore, this clinical study was done to examine the effectiveness of a single session of individual exercise on depressive symptoms by assessing the change in saliva free cortisol level, which reflects hypothalamic-pituitary-adrenocortical axis function that is disturbed in depressive patients.

Method: Eighteen medicated patients, who met the DSM-IV-TR criteria for major depressive disorder, were examined for the change in saliva free cortisol levels and the change in subjective depressive symptoms before and after pedaling a bicycle ergometer for fifteen minutes. Within a month after the exercise session, participants conducted a non-exercise control session, which was sitting quietly at the same time of day as the exercise session.

Results: Depressed patients who participated in this study were in remission or in mild depressive state. However, they suffered chronic depression and had disturbed quality of life. The saliva free cortisol level and subjective depressive symptoms significantly decreased after the exercise session. Moreover, the changes in these variables were significantly, positively correlated. On the other hand, although the subjective depressive symptoms improved in the control session, the saliva free cortisol level did not change.

Conclusion: For the first time in depressive patients, we were able to show a decrease in the saliva free cortisol level due to physical exercise, accompanied by the improvement of subjective depressive symptoms. This identified a possible influence of exercise on the hypothalamic-pituitary-adrenal axis in depression. These results suggest the utility of assessing the effect of physical exercise by saliva free cortisol level in depressive patients who suffer from bio-psycho-social disability.

Keywords: Depression, Physical exercise, Saliva free cortisol level, Augmentation therapy, Quality of life

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Učinek ene same vadbe na bolnike z depresijo:

- zmanjšanje stresnega hormona kortizola
- ustrezno zmanjšanje subjektivnih simptomov depresije

Ida, M., Iida, I., Wada, N. et al. A clinical study of the efficacy of a single session of individual exercise for depressive patients, assessed by the change in saliva free cortisol level. BioPsychoSocial Med 7, 18 (2013)

PARKINSONOVA BOLEZEN



<https://www.youtube.com/watch?v=aaY3gz5tJSk>