



UNIVERZITET U BEOGRADU
FAKULTET ZA SPECIJALNU
EDUKACIJU I REHABILITACIJU

UNIVERSITY OF BELGRADE
FACULTY OF SPECIAL EDUCATION
AND REHABILITATION

11.

MEĐUNARODNI
NAUČNI SKUP
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DANAS”

11th

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TODAY”

ZBORNİK REZIMEA

BOOK OF ABSTRACTS

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ZNAČAJ CINKA U RADU MOZGA I RAZVOJU DECE – NARATIVNI PRIKAZ

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Uvod: Cink je drugi najzastupljeniji esencijalni metal u organizmu i jedini koji je prisutan u svim klasama enzima. Cink se resorbuje u tankom crevu. Nema depoa cinka u organizmu. On se izlučuje putem bubrega, kože i creva. Hrana životinjskog porekla ima manje cinka ali nema fitata pa je dobar izvor cinka.

Cilj: Cilj rada je da se pregledom relevantne literature izdvoje istraživanja koja potvrđuju značaj cinka u radu mozga i razvoju dece.

Metod: Izvršeno je pretraživanje baze podataka Pub Med korišćenjem ključnih reči cink, mozak, kognicija, deca.

Rezultati: Cink je neophodan za funkcionisanje centralnog nervnog sistema, učestvuje u neurotransmisiji, posebno u hipokampusu gde reguliše glutamate i gamaaminobuternu kiselinu koji su najzastupljeniji neurotransmiteri u mozgu. Ovim se omogućuju normalne kognitivne funkcije. Osim u prenosu informacija, cink u mozgu omogućava i metabolizam DNK, rast moždanog tubulina i fosforilaciju. Cink stabilizuje ćelijske membrane i druge ćelijske komponente i bitan je za transkripciju polinukleotida u procesu genetske ekspresije. Cink omogućava deobu, rast i diferencijaciju ćelija, što je bitno za intrauterini razvoj ploda, stimuliše rast i razvoj organizma, a važan je i za čulo ukusa i mirisa. Cink je kritičan za rast i razvoj mozga, u sintezi DNK, RNK i proteina, pa nedostatak cinka u intrauterinom period može da dovede do malformacija mozga, a kod dece do sporijeg i slabijeg razvoja. Smatra se da kao posledica nedostatka cinka u svetu godišnje umre oko 800,000 dece. Manjak cinka dovodi do usporenja rasta i razvoja kod dece, usporenja seksualnog razvoja, gubitka apetita, poremećaja imuniteta, dijareje, muškog hipogonadizma, infertiliteta i oštećenja oka.

Zaključak: Cink je ključan mikronutrijent za rad neurona i veoma je bitan u normalnom razvoju dece. Balans cinka je neophodno postići tokom celog života čoveka kako bi se omogućio normalan razvoj i kognicija.

Ključne reči: *cink, mozak, kognicija, deca*

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THE IMPORTANCE OF ZINC IN BRAIN FUNCTION AND CHILD DEVELOPMENT – A NARRATIVE REVIEW

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Introduction: Zinc is the second most abundant essential metal in the body and the only one present in all classes of enzymes. Zinc is absorbed in the small intestine. There is no zinc depot in the body. It is excreted through the kidneys, skin and intestines. Foods of animal origin have less zinc but no phytate so they are a good source of zinc.

Aim: The aim of this paper is to examine the importance of zinc in brain function and child development.

Method: The Pub Med database was searched using the keywords zinc, brain, cognition, children.

Results: Zinc is necessary for the functioning of the central nervous system, it participates in neurotransmission, especially in the hippocampus, where it regulates glutamate and gamma-aminobutyric acid, which are the most common neurotransmitters in the brain. This allows for normal cognitive functions. In addition to transmitting information, zinc in the brain also enables DNA metabolism, brain tubulin growth and phosphorylation. Zinc stabilizes cell membranes and other cell components and is essential for the transcription of polynucleotides in the process of genetic expression. Zinc balance disorder occurs in Alzheimer’s disease, depression, etc. Zinc enables cell division, growth and differentiation, which is important for the intrauterine development of the fetus, stimulates the growth and development of the organism, and is also important for the sense of taste and smell. Zinc is critical for the growth and development of the brain, in the synthesis of DNA, RNA and proteins, so the lack of zinc in the intrauterine period can lead to brain malformations, and in children to slower and weaker development. It is estimated that around 800,000 children die each year as a result of zinc deficiency in the world. Zinc deficiency leads to growth retardation and development in children, slowing of sexual development, loss of appetite, immune disorders, diarrhea, male hypogonadism, infertility and eye damage.

Conclusion: Zinc is a key micronutrient for the work of neurons and is very important in the normal development of children. Zinc balance is necessary to be achieved throughout a person’s life in order to enable normal development and cognition.

Keywords: *zinc, brain, cognition, children*

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