ΔΗΜΟΚΡΙΤΕΙΟ ΠΑΝΕΠΙΣΤΗΜΙΟ ΘΡΑΚΗΣ

ΣΧΟΛΗ ΚΛΑΣΙΚΩΝ ΚΑΙ ΑΝΘΡΩΠΙΣΤΙΚΩΝ ΣΠΟΥΔΩΝ

ΤΜΗΜΑ ΕΛΛΗΝΙΚΗΣ ΦΙΛΟΛΟΓΙΑΣ

σε συνεργασία με το

ΕΘΝΙΚΟ ΚΕΝΤΡΟ ΕΡΕΥΝΑΣ ΦΥΣΙΚΩΝ ΕΠΙΣΤΗΜΩΝ «ΔΗΜΟΚΡΙΤΟΣ»

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ΔΙΙΔΡΥΜΑΤΙΚΟ ΠΡΟΓΡΑΜΜΑ ΜΕΤΑΠΤΥΧΙΑΚΩΝ ΣΠΟΥΔΩΝ:
ΕΞΕΙΔΙΚΕΥΣΗ ΣΤΙΣ Τ.Π.Ε. ΚΑΙ ΕΙΔΙΚΗ ΑΓΩΓΗ – ΨΥΧΟΠΑΙΔΑΓΩΓΙΚΗ ΤΗΣ ΕΝΤΑΞΗΣ

ΜΕΤΑΠΤΥΧΙΑΚΗ ΔΙΑΤΡΙΒΗ

«ΒΙΤΑΜΙΝΕΣ, ΙΧΝΟΣΤΟΙΧΕΙΑ, ΟΡΜΟΝΕΣ, ΝΕΥΡΟΔΙΑΒΙΒΑΣΤΕΣ ΣΤΗΝ ΟΡΘΗ ΛΕΙΤΟΥΡΓΙΑ ΤΗΣ ΕΡΓΑΖΟΜΕΝΗΣ ΜΝΗΜΗΣ ΚΑΙ ΤΗΣ ΠΡΟΣΟΧΗΣ»

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Μεταπτυχιακή διατριβή που υποβάλλεται στην τριμελή επιτροπή για την απόκτηση του μεταπτυχιακού τίτλου του Προγράμματος Μεταπτυχιακών Σπουδών Εξειδίκευσης του Τ.Ε.Φ. – Δ.Π.Θ. σε συνεργασία με το Ε.Κ.Ε.Φ.Ε. Δημόκριτος – Ινστιτούτο Πληροφορικής και Τηλεπικοινωνιών με τίτλο: «Εξειδίκευση στις Τ.Π.Ε. και Ειδική Αγωγή – Ψυχοπαιδαγωγική της Ένταξης»

Εγκεκριμένο από την τριμελή επιτροπή:

Επιβλέπων Καθηγητής:	ΔΡ. ΑΘΑΝΑΣΙΟΣ ΔΡΙΓΚΑΣ, ΕΡΕΥΝΗΤΗΣ Ά ΒΑΘΜΙΔΑΣ Ι.Π.Τ. – Ε.Κ.Ε.Φ.Ε. «ΔΗΜΟΚΡΙΤΟΣ»
2ο Μέλος:	ΔΡ. ΑΓΑΘΗ ΣΤΑΘΟΠΟΥΛΟΥ, ΣΥΝΕΡΓΑΖΟΜΕΝΗ ΕΡΕΥΝΗΤΡΙΑ Ι.Π.Τ. – Ε.Κ.Ε.Φ.Ε. «ΔΗΜΟΚΡΙΤΟΣ»
3ο Μέλος	ΙΦΙΓΕΝΕΙΑ ΔΟΣΗ, ΕΠΙΚΟΥΡΗ ΚΑΘΗΓΗΤΡΙΑ ΤΜΗΜΑ ΕΛΛΗΝΙΚΗΣ ΦΙΛΟΛΟΓΙΑΣ Δ.Π.Θ.

Αθήνα

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ΠΕΡΙΛΗΨΗ

Αδιαμφισβήτητα, η εργαζόμενη μνήμη και η προσοχή αναγνωρίζονται ως δύο από τις κυριότερες γνωστικές ικανότητες. Δυσκολίες σε αυτές, προκαλούν προβλήματα και επιδρούν αρνητικά στην καθημερινή ζωή. Η παρούσα εργασία πραγματεύεται τη σχέση βιταμινών, ιχνοστοιχείων, ορμονών και νευροδιαβιβαστών με την ορθή λειτουργία της εργαζόμενης μνήμης και της προσοχής. Μέσα από μία συστηματική ανασκόπηση της βιβλιογραφίας αναδεικνύονται οι μηχανισμοί που επηρεάζουν τη γνωστική λειτουργία και κυρίως τη μνήμη και την προσοχή. Παράλληλα, αναφέρονται γνωστικά ελλείμματα που προκαλούνται από διαταραχές σε αυτές τις δύο δεξιότητες. Τα αποτελέσματα υπογραμμίζουν τη σημασία συγκεκριμένων βιταμινών, ιχνοστοιχείων, ορμονών και νευροδιαβιβαστών για την βελτίωση της γνωστικής απόδοσης και κατά συνέπεια της εργαζόμενης μνήμης και της προσοχής.

Λέξεις-κλειδιά: Βιταμίνες, ιχνοστοιχεία, ορμόνες, νευροδιαβιβαστές, γνωστική λειτουργία, εργαζόμενη μνήμη, προσοχή, ιππόκαμπος, προμετωπιαίος φλοιός.

ΒΙΒΛΙΟΓΡΑΦΙΑ:

Ackerman S. Discovering the Brain. Washington (DC): National Academies Press (US); 1992. 2, Major Structures and Functions of the Brain. Available from: https://www.ncbi.nlm.nih.gov/books/NBK234157/

Angelopoulou, E., Karabatzaki, Z., & Drigas, A. S. The Role of Working Memory and Attention in Older Workers' Learning. https://doi.org/10.3991/ijac.v14i1.20355

Angelopoulou, E., & Drigas, A. (2022). Working memory interventions via physical activity and ICTs: A strategic issue for the improvement of school students' learning performance. *Technium Social Sciences Journal*, *30*, 200-213. https://doi.org/10.47577/tssj.v30i1.6296

Alvarez, B. D., Morales, C. A., & Amodeo, D. A. (2021). Impact of specific serotonin receptor modulation on behavioral flexibility. *Pharmacology, biochemistry, and behavior*, *209*, 173243. https://doi.org/10.1016/j.pbb.2021.173243

Anglin, R. E. S., Samaan, Z., Walter, S. D., & McDonald, S. D. (2013). Vitamin D deficiency and depression in adults: systematic review and meta-analysis. *British Journal of Psychiatry*, *202*(2), 100–107. https://doi.org/10.1192/bjp.bp.111.106666

Annweiler, C., Rolland, Y., Schott, A. M., Blain, H., Vellas, B., Herrmann, F. R., & Beauchet, O. (2012). Higher vitamin D dietary intake is associated with lower risk of Alzheimer's disease: a 7-year follow-up. *Journals of Gerontology Series A: Biomedical Sciences and Medical Sciences*, *67*(11), 1205-1211. https://doi.org/10.1093/gerona/gls107

Arendt, J., & Skene, D. J. (2005). Melatonin as a chronobiotic. *Sleep medicine reviews*, *9*(1), 25-39. https://doi.org/10.1016/j.smrv.2004.05.002

Arnsten, A. F. (2009). Stress signalling pathways that impair prefrontal cortex structure and function. *Nature reviews neuroscience*, *10*(6), 410-422. https://doi.org/10.1038/nrn2648

Arnsten, A. F. (2009). The emerging neurobiology of attention deficit hyperactivity disorder: the key role of the prefrontal association cortex. *The Journal of pediatrics*, *154*(5), I. https://doi.org/10.1016/j.jpeds.2009.01.018

Arnsten, A. F., Wang, M. J., & Paspalas, C. D. (2012). Neuromodulation of thought: flexibilities and vulnerabilities in prefrontal cortical network synapses. *Neuron*, *76*(1), 223-239. https://www.cell.com/action/showPdf?pii=S0896-6273%2812%2900804-5

Awh, E., Vogel, E. K., & Oh, S. H. (2006). Interactions between attention and working memory. *Neuroscience*, *139*(1), 201-208. https://awhvogellab.com/files/pdfs/awh_2006_interactions.pdf

Baddeley, A. (2000). The episodic buffer: a new component of working memory?. Trends in cognitive sciences, 4(11), 417-423. https://doi.org/10.1016/s1364-6613(00)01538-2

Baddeley, A.D.(2003). Working Memory and Language: an overview. Journal of Communication Disorders, Elsevier Science, (36). 189-208 https://doi.org/10.1016/s0021-9924(03)00019-4

Baddeley, A. D., & Hitch, G. (1974). *Working memory*. Psychology of Learning and Motivation, 8, 47-89 https://doi.org/10.1016/S0079-7421(08)60452-1

Baddeley, A. (2003). *Working memory: Looking back and looking forward*. Nature Reviews Neuroscience, 4(10), 829-839 https://doi.org/10.1038/nrn1201

Barbagallo, M., & Dominguez, L. J. (2010). Magnesium and aging. *Current pharmaceutical design*, *16*(7), 832-839. https://doi.org/10.2174/138161210790883679

Barron, H. C., Vogels, T. P., Behrens, T. E., & Ramaswami, M. (2017). Inhibitory engrams in perception and memory. *Proceedings of the National Academy of Sciences*, *114*(26), 6666-6674. https://doi.org/10.1073/pnas.1701812114

Beard, J. (2003). Iron deficiency alters brain development and functioning. *The Journal of nutrition*, *133*(5), 1468S-1472S. https://doi.org/10.1093/jn/133.5.1468S

Beaulieu, J. M., & Gainetdinov, R. R. (2011). The physiology, signaling, and pharmacology of dopamine receptors. *Pharmacological reviews*, *63*(1), 182-217. https://doi.org/10.1124/pr.110.002642

Bégin, M. E., Langlois, M. F., Lorrain, D., & Cunnane, S. C. (2008). Thyroid Function and Cognition during Aging. *Current gerontology and geriatrics research*, *2008*, 474868. https://doi.org/10.1155/2008/474868

Benedict, C., & Grillo, C. A. (2018). Insulin resistance as a therapeutic target in cognitive disorders. *Diabetes, Obesity and Metabolism*, 20(Suppl 1), 154–160. https://doi.org/10.3389/fnins.2018.00215

Bernal, J. (2007). Thyroid hormone receptors in brain development and function. *Nature clinical practice Endocrinology & metabolism*, *3*(3), 249-259. https://doi.org/10.1038/ncpendmet0424

Berridge, C. W., & Waterhouse, B. D. (2003). The locus coeruleus–noradrenergic system: modulation of behavioral state and state-dependent cognitive processes. *Brain research reviews*, *42*(1), 33-84. https://doi.org/10.1016/S0165-0173(03)00143-7

Borrego-Ruiz, A., & Borrego, J. J. (2024). Neurodevelopmental disorders associated with gut microbiome dysbiosis in children. *Children*, *11*(7), 796. https://doi.org/10.3390/children11070796

Briguglio, M., Hrelia, S., Malaguti, M., Lombardi, G., Riso, P., Porrini, M., ... & Banfi, G. (2020). The central role of iron in human nutrition: from folk to contemporary medicine. *Nutrients*, *12*(6), 1761. https://doi.org/10.3390/nu12061761

Buhot, M. C., Martin, S., & Segu, L. (2000). Role of serotonin in memory impairment. *Annals of medicine*, *32*(3), 210-221. https://doi.org/10.3109/07853890008998828

Carrillo-Vico, A., Lardone, P. J., Álvarez-Sánchez, N., Rodríguez-Rodríguez, A., & Guerrero, J. M. (2013). Melatonin: buffering the immune system. *International journal of molecular sciences*, *14*(4), 8638-8640. https://doi.org/10.3390/ijms14048638

Casanueva-Morato, D., Ayuso-Martinez, A., Dominguez-Morales, J. P., Jimenez-Fernandez, A., & Jimenez-Moreno, G. (2024). Bio-inspired computational memory model of the Hippocampus: an approach to a neuromorphic spike-based Content-Addressable Memory. *Neural Networks*, 106474. https://doi.org/10.1016/j.neunet.2024.106474

Charlebois, E., & Pantopoulos, K. (2023). Nutritional aspects of iron in health and disease. *Nutrients*, *15*(11), 2441. https://doi.org/10.3390/nu15112441

Chrousos, G. P. (2009). Stress and disorders of the stress system. *Nature Reviews. Endocrinology*, *5*(7), 374-381. https://doi.org/10.1038/nrendo.2009.106

Claustrat, B., Bruna, J., & Chazot, G. (2005). The basic physiology and pathophysiology of melatonin. *Sleep Medicine Reviews*, *9*, 11-24. https://doi.org/10.1016/j.smrv.2004.08.001

Clelland, C. D., Choi, M., Romberg, C. C. G. J., Clemenson Jr, G. D., Fragniere, A., Tyers, P., ... & Bussey, T. (2009). A functional role for adult hippocampal neurogenesis in spatial pattern separation. *Science*, *325*(5937), 210-213. https://doi.org/10.1126/science.1173215

Combs Jr, G. F., & McClung, J. P. (2016). *The vitamins: fundamental aspects in nutrition and health*. Academic press,309-323

Cools, R., & D'Esposito, M. (2011). Inverted-U-shaped dopamine actions on human working memory and cognitive control. *Biological psychiatry*, *69*(12), e113–e125. https://pmc.ncbi.nlm.nih.gov/articles/PMC3111448/#:~:text=https%3A//doi.org/10.1016/j.biopsych.2011.03.028

Costa, M. I., Sarmento-Ribeiro, A. B., & Gonçalves, A. C. (2023). Zinc: from biological functions to therapeutic potential. *International Journal of Molecular Sciences*, *24*(5), 4822. https://doi.org/10.3390/ijms24054822

Correia, N., Mullally, S., Cooke, G., Tun, T. K., Phelan, N., Feeney, J., ... & Gibney, J. (2009). Evidence for a Specific Defect in Hippocampal Memory in Overt and Subclinical Hypothyroidism, 3789-3797 https://www.researchgate.net/profile/Gillian-Cooke/publication/26653669_Evidence_for_a_Specific_Defect_in_Hippocampal_Memory_in_Overt_and_Subclinical_Hypothyroidism/links/56d1fe0608ae4d8d64a5f126/Evidence-for-a-Specific-Defect-in-Hippocampal-Memory-in-Overt-and-Subclinical-Hypothyroidism.pdf

Cowen, P. J., & Browning, M. (2015). What has serotonin to do with depression?. *World psychiatry : official journal of the World Psychiatric Association (WPA)*, *14*(2), 158–160. https://doi.org/10.1002/wps.20229

Craft, S., & Watson, G. S. (2004). Insulin and neurodegenerative disease: Shared and specific mechanisms. *The Lancet Neurology*, 3(3), 169–178. https://doi.org/10.1016/S1474-4422(04)00681-7

Cryan, J. F., & Kaupmann, K. (2005). Don't worry 'B'happy!: a role for GABAB receptors in anxiety and depression. *Trends in pharmacological sciences*, *26*(1), 36-43. https://doi.org/10.1016/j.tips.2004.11.004

Custodio, R. J. P., Kim, M., Sayson, L. V., Lee, H. J., Ortiz, D. M., Kim, B. N., ... & Cheong, J. H. (2021). Low striatal T3 is implicated in inattention and memory impairment in an ADHD mouse model overexpressing thyroid hormone-responsive protein. *Communications biology*, *4*(1), 1101. https://doi.org/10.1038/s42003-021-02633-w

Demay, M. B., Pittas, A. G., Bikle, D. D., Diab, D. L., Kiely, M. E., Lazaretti-Castro, M., ... & McCartney, C. R. (2024). Vitamin D for the prevention of disease: an Endocrine Society clinical practice guideline. *The Journal of Clinical Endocrinology & Metabolism*, *109*(8), 1907-1947. https://doi.org/10.1210/clinem/dgae290

D'Esposito, M., & Postle, B. R. (2015). The cognitive neuroscience of working memory. *Annual review of psychology*, *66*(1), 115-142. https://doi.org/10.1146/annurev-psych-010814-015031

Dighriri, I. M., Alsubaie, A. M., Hakami, F. M., Hamithi, D. M., Alshekh, M. M., Khobrani, F. A., Dalak, F. E., Hakami, A. A., Alsueaadi, E. H., Alsaawi, L. S., Alshammari, S. F., Alqahtani, A. S., Alawi, I. A., Aljuaid, A. A., & Tawhari, M. Q. (2022). Effects of Omega-3 Polyunsaturated Fatty Acids on Brain Functions: A Systematic Review. *Cureus*, *14*(10), e30091. https://doi.org/10.7759/cureus.30091

Dishman, R. K., Berthoud, H. R., Booth, F. W., Cotman, C. W., Edgerton, V. R., Fleshner, M. R., ... & Zigmond, M. J. (2006). Neurobiology of exercise. *Obesity*, *14*(3), 345-356. https://doi.org/10.1038/oby.2006.46

Dong, X., Wang, Y., & Qin, Z. (2009). "Molecular mechanisms of excitotoxicity and their relevance to pathogenesis of neurodegenerative diseases." *Acta Pharmacologica Sinica*, 30(4), 379-387, https://doi.org/10.1038/aps.2009.24

Drigas, A., & Sideraki, A. (2024). Brain neuroplasticity leveraging virtual reality and brain–computer interface technologies. *Sensors*, *24*(17), 5725. https://doi.org/10.3390/s24175725

Eckart, C., Woźniak-Kwaśniewska, A., Herweg, N. A., Fuentemilla, L., & Bunzeck, N. (2016). Acetylcholine modulates human working memory and subsequent familiarity based recognition via alpha oscillations. *Neuroimage*, *137*, 61-69. https://doi.org/10.1016/j.neuroimage.2016.05.049

Eichenbaum, H. (2017). On the integration of space, time, and memory. *Neuron*, *95*(5), 1007-1018. https://doi.org/10.1016/j.neuron.2017.06.036

Engle, R. W., & Kane, M. J. (2004). Executive Attention, Working Memory Capacity, and a Two-Factor Theory of Cognitive Control. In B. H. Ross (Ed.), The psychology of learning and motivation: Advances in research and theory, Vol. 44, pp. 145–199). Elsevier Science. http://dx.doi.org/10.1016/S0079-7421(03)44005-X

Fernstrom, J. D. (2012). Effects and side effects associated with the non-nutritional use of tryptophan by humans. *The Journal of nutrition*, *142*(12), 2236S-2244S. https://doi.org/10.3945/jn.111.157065

Fuster, J. (2015). *The prefrontal cortex*. Academic press. https://books.google.gr/books?hl=el&lr=&id=-8-cBAAAQBAJ&oi=fnd&pg=PP1&ots=9ov0SBOKhJ&sig=_QiE1AlgceirLAEdXKJGtG6Kc_A&redir_esc=y#v=onepage&q&f=false

Gazzaley A (2011). The relationship between attention and working memory. *Conference Abstract: XI International Conference on Cognitive Neuroscience (ICON XI).* *https://www.frontiersin.org/10.3389/conf.fnhum.2011.207.00576/event_abstract#:~:text=doi%3A%2010.3389/conf.fnhum.2011.207.00576*

Ghalibaf, M. H. E., Kianian, F., Beigoli, S., Behrouz, S., Marefati, N., Boskabady, M., & Boskabady, M. H. (2023). The effects of vitamin C on respiratory, allergic and immunological diseases: an experimental and clinical-based review. *Inflammopharmacology*, *31*(2), 653-672. doi: 10.1007/s10787-023-01169-1

Goldman-Rakic, P. S. (1995). Cellular basis of working memory. *Neuron*, *14*(3), 477-485. https://doi.org/10.1016/0896-6273(95)90304-6

Goldman-Rakic, P. S. (1995). Cellular basis of working memory. *Neuron*, *14*(3), 477-485. https://doi.org/10.1016/0896-6273(95)90304-6

Goldman-Rakic, P. S., Cools, A. R., & Srivastava, K. (1996). The Prefrontal Landscape: Implications of Functional Architecture for Understanding Human Mentation and the Central Executive [and Discussion]. *Philosophical Transactions: Biological Sciences*, *351*(1346), 1445–1453. http://www.jstor.org/stable/3069191

Grace, A. A. (2016). Dysregulation of the dopamine system in the pathophysiology of schizophrenia and depression. *Nature reviews. Neuroscience*, *17*(8), 524-532. https://doi.org/10.1038/nrn.2016.57

Grigorova, M., & Sherwin, B. B. (2012). Thyroid hormones and cognitive functioning in healthy, euthyroid women: A correlational study. *Hormones and behavior*, *61*(4), 617. https://doi.org/10.1016/j.yhbeh.2012.02.014

Gropper, Sareen S. and Smith, Jack L. and Groff, James L. (2009) *Advanced Nutrition and Human Metabolism Fifth Edition.* E-Book,364-372 https://repository.poltekkes-kaltim.ac.id/1170/1/9.%20Advanced%20Nutrition%20and%20Human%20Metabolism.pdf

Gottesmann, C. (2002). GABA mechanisms and sleep. *Neuroscience*, *111*(2), 231-239. https://doi.org/10.1016/S0306-4522(02)00034-9

Haam, J., & Yakel, J. L. (2017). Cholinergic modulation of the hippocampal region and memory function. *Journal of neurochemistry*, *142*, 111-121. https://doi.org/10.1111/jnc.14052

Hardeland, R., Pandi-Perumal, S. R., & Cardinali, D. P. (2006). Melatonin. *The international journal of biochemistry & cell biology*, *38*(3), 313-316. https://doi.org/10.1016/j.biocel.2005.08.020

Harvard T.H. Chan School of Public Health: Vitamin B12 https://nutritionsource.hsph.harvard.edu/vitamin-b12/

Harvard T.H. Chan School of Public Health: Iron https://nutritionsource.hsph.harvard.edu/iron/

Hatch-McChesney, A., & Lieberman, H. R. (2022). Iodine and iodine deficiency: a comprehensive review of a re-emerging issue. *Nutrients*, *14*(17), 3474. https://doi.org/10.3390/nu14173474

Hasselmo, M. E. (2006). The role of acetylcholine in learning and memory. *Current opinion in neurobiology*, *16*(6), 710-715. https://doi.org/10.1016/j.conb.2006.09.002

Heilig, M., & Egli, M. (2006). Pharmacological treatment of alcohol dependence: target symptoms and target mechanisms. *Pharmacology & therapeutics*, *111*(3), 855-876. https://doi.org/10.1016/j.pharmthera.2006.02.001

Ibrahim, S. A., Kerkadi, A., & Agouni, A. (2019). Selenium and health: an update on the situation in the Middle East and North Africa. *Nutrients*, *11*(7), 1457. https://doi.org/10.3390/nu11071457

Innis, S. M. (2007). Dietary (n-3) fatty acids and brain development1. *The Journal of nutrition*, *137*(4), 855-859. https://doi.org/10.1093/jn/137.4.855

Isola, S., Gammeri, L., Furci, F., Gangemi, S., Pioggia, G., & Allegra, A. (2024). Vitamin C Supplementation in the Treatment of Autoimmune and Onco-Hematological Diseases: From Prophylaxis to Adjuvant Therapy. *International Journal of Molecular Sciences*, *25*(13), 7284. https://doi.org/10.3390/ijms25137284

Jack, C. R., Knopman, D. S., Jagust, W. J., Petersen, R. C., Weiner, M. W., Aisen, P. S., ... & Trojanowski, J. Q. (2013). Tracking pathophysiological processes in Alzheimer's disease: an updated hypothetical model of dynamic biomarkers. *The lancet neurology*, *12*(2), 207-216. https://doi.org/10.1016/S1474-4422(12)70291-0

Jackson, P. A., Deary, M. E., Reay, J. L., Scholey, A. B., & Kennedy, D. O. (2012). No effect of 12 weeks' supplementation with 1 g DHA-rich or EPA-rich fish oil on cognitive function or mood in healthy young adults aged 18–35 years. *British Journal of Nutrition*, *107*(8), 1232-1243. https://doi.org/10.1017/S000711451100403X

Joseph, J., Cole, G., Head, E., & Ingram, D. (2009). Nutrition, brain aging, and neurodegeneration. *Journal of Neuroscience*, *29*(41), 12795-12801. https://doi.org/10.1523/JNEUROSCI.3520-09.2009

Καλύβας Χάρης & Γιάννου Δήμητρα . (2016). Τι είναι η εργαζόμενη μνήμη και ποια η σημασία της, άρθρο δημοσιευμένο στον ιστότοπο https://proseggisi.gr/

Kardan, O., Stier, A. J., Cardenas-Iniguez, C., Schertz, K. E., Pruin, J. C., Deng, Y., ... & Rosenberg, M. D. (2022). Differences in the functional brain architecture of sustained attention and working memory in youth and adults. *PLoS Biology*, *20*(12), e3001938. https://doi.org/10.1371/journal.pbio.3001938

Karim, N. (2018). Copper and human health-a review. *Journal of Bahria University Medical and Dental College*, *8*(2), 117-122. https://doi.org/10.51985/JBUMDC2018046

Keating E, Pinto E and Almeida A (2023) Editorial: Iodine in health and disease. Front. Nutr. 10:1260834. https://doi.org/10.3389/fnut.2023.1260834

Kempermann, G., Song, H., & Gage, F. H. (2015). Neurogenesis in the adult hippocampus. *Cold Spring Harbor perspectives in biology*, *7*(9), a018812. https://doi.org/10.1101/cshperspect.a018812

Kennedy, D. O. (2016). B vitamins and the brain: mechanisms, dose and efficacy—a review. *Nutrients*, *8*(2), 68. https://doi.org/10.3390/nu8020068

Kim, J. J., & Diamond, D. M. (2002). The stressed hippocampus, synaptic plasticity and lost memories. *Nature Reviews Neuroscience*, *3*(6), 453-462. https://doi.org/10.1038/nrn849

King's College London. (2015, January). *Acetylcholine's role in cognitive flexibility*. Retrieved from https://www.kcl.ac.uk/archive/news/ioppn/records/2015/january/acetylcholines-role-in-cognitive-flexibility

Knezevic, E., Nenic, K., Milanovic, V., & Knezevic, N. N. (2023). The role of cortisol in chronic stress, neurodegenerative diseases, and psychological disorders. *Cells*, *12*(23), 2726. https://doi.org/10.3390/cells12232726

Knudsen, E. I. (2007). Fundamental components of attention. *Annu. Rev. Neurosci.*, *30*(1), 57-78. https://doi.org/10.1146/annurev.neuro.30.051606.094256

Κολιάδης,Ε.Α,(2002),Γνωστική Ψυχολογία . Γνωστική Νευροεπιστήμη και Εκπαιδευτική Πράξη . Τόμος Δ. Αθήνα,159

Κοντοχρήστου, Β. Ν., & Μαλισιόβα, Χ. (2020). ΣΤΡΑΤΗΓΙΚΕΣ ΔΙΑΧΕΙΡΙΣΗΣ ΜΕΣΑ ΣΤΗΝ ΤΑΞΗ ΤΩΝ ΕΛΛΕΙΜΜΑΤΩΝ ΤΗΣ ΕΡΓΑΖΟΜΕΝΗΣ ΜΝΗΜΗΣ ΚΑΙ ΤΗΣ ΠΡΟΣΟΧΗΣ ΠΑΙΔΙΩΝ ΜΕ ΔΕΠ-Υ ΚΑΙ ΠΑΙΔΙΩΝ ΜΕ ΕΙΔΙΚΕΣ ΜΑΘΗΣΙΑΚΕΣ ΔΥΣΚΟΛΙΕΣ. http://repository.library.teimes.gr/xmlui/handle/123456789/10357

Kumar, S. B., Arnipalli, S. R., Mehta, P., Carrau, S., & Ziouzenkova, O. (2022). Iron deficiency anemia: efficacy and limitations of nutritional and comprehensive mitigation strategies. *Nutrients*, *14*(14), 2976. https://doi.org/10.3390/nu14142976

Kullmann, S., Heni, M., Veit, R., et al. (2016). Brain Insulin Resistance at the Crossroads of Metabolic and Cognitive Disorders in Humans. *Physiological Reviews*, 96(4), 1169–1209. https://doi.org/10.1152/physrev.00032.2015

Lambert, G. W., Reid, C., Kaye, D. M., Jennings, G. L., & Esler, M. D. (2002). Effect of sunlight and season on serotonin turnover in the brain. *The Lancet*, *360*(9348), 1840-1842. https://doi.org/10.1016/s0140-6736(02)11737-5

Li, J., Cao, D., Huang, Y., Chen, B., Chen, Z., Wang, R., ... & Liu, L. (2022). Zinc intakes and health outcomes: An umbrella review. *Frontiers in nutrition*, *9*, 798078. https://doi.org/10.3389/fnut.2022.798078

Liao, S., Omage, S. O., Börmel, L., Kluge, S., Schubert, M., Wallert, M., & Lorkowski, S. (2022). Vitamin E and Metabolic Health: Relevance of Interactions with Other Micronutrients. *Antioxidants*, *11*(9), 1785. https://doi.org/10.3390/antiox11091785

Liet, C., Amenouche, F., Freret, T., Boulouard, M., Mauvieux, B., Lelong-Boulouard, V., & Bocca, M. L. (2015). Effects of acute administration of melatonin on attentional, executive, and working memory processes in rats. *Fundamental & Clinical Pharmacology*, *29*(5), 472-477. https://doi.org/10.1111/fcp.12134

Linus Pauling Institute, Oregon State University https://lpi.oregonstate.edu/mic/vitamins/folate

Logie, R.H. (1995). Visuo-spatial Working Memory (1st ed.). Psychology Press. https://doi.org/10.4324/9781315804743

Lupien, S. J., McEwen, B. S., Gunnar, M. R., & Heim, C. (2009). Effects of stress throughout the lifespan on the brain, behaviour and cognition. *Nature Reviews Neuroscience, 10*(6), 434–445. https://psycnet.apa.org/doi/10.1038/nrn2639

Maywald, M., & Rink, L. (2022). *Zinc in Human Health and Infectious Diseases. Biomolecules 2022, 12, 1748*. https://doi.org/10.3390/biom12121748

Mayne, P. E., & Burne, T. H. J. (2019). Vitamin D in Synaptic Plasticity, Cognitive Function, and Neuropsychiatric Illness. Trends in Neurosciences, 293-306. https://doi.org/10.1016/j.tins.2019.01.003

McEwen, B. S., & Morrison, J. H. (2015). The brain on stress: Vulnerability and plasticity of the prefrontal cortex over the life course. *Neuron, 79*(1), 16–29 https://doi.org/10.1016/j.neuron.2013.06.028

McNulty, H., & Scott, J. M. (2008). Intake and status of folate and related B-vitamins: considerations and challenges in achieving optimal status. *British Journal of Nutrition*, *99*(S3), S48-S54. https://doi.org/10.1017/S0007114508006855

Meister, A. (1988). Glutathione metabolism and its selective modification. *Journal of biological chemistry*, *263*(33), 17205-17208. https://doi.org/10.1016/S0021-9258(19)77815-6

Meldrum, B. S. (2000). Glutamate as a neurotransmitter in the brain: review of physiology and pathology. *The Journal of nutrition*, *130*(4), 1007S-1015S. https://doi.org/10.1093/jn/130.4.1007S

Mendelsohn, D., Riedel, W. J., & Sambeth, A. (2009). Effects of acute tryptophan depletion on memory, attention and executive functions: a systematic review. *Neuroscience and biobehavioral reviews*, *33*(6), 926–952. https://doi.org/10.1016/j.neubiorev.2009.03.006

Meneses, A. (2015). Serotonin, neural markers, and memory. *Frontiers in Pharmacology*, *6*, 143-143. https://doi.org/10.3389/fphar.2015.00143

Messier, C. (2004). Glucose improvement of memory: a review. *European journal of pharmacology*, *490*(1-3), 33-57. https://doi.org/10.1016/j.ejphar.2004.02.043

Miller, E. K., & Cohen, J. D. (2001). An integrative theory of prefrontal cortex function. *Annual review of neuroscience*, *24*(1), 167-202. https://doi.org/10.1146/annurev.neuro.24.1.167

Miyake, A., Friedman, N. P., Emerson, M. J., Witzki, A. H., Howerter, A., & Wager, T. D. (2000). The unity and diversity of executive functions and their contributions to complex "frontal lobe" tasks: A latent variable analysis. Cognitive psychology, 41(1), 49-100.https://doi.org/10.1006/cogp.1999.0734

Morris, R. G. M. (2003). "NMDA receptors and memory encoding." *Neuropharmacology*, 74(4), 377-390, https://doi.org/10.1016/j.neuropharm.2013.04.014

Mozaffarian, D., & Wu, J. H. (2011). Omega-3 fatty acids and cardiovascular disease: effects on risk factors, molecular pathways, and clinical events. *Journal of the American College of Cardiology*, *58*(20), 2047-2067. https://doi.org/10.1016/j.jacc.2011.06.063

Mullur, R., Liu, Y. Y., & Brent, G. A. (2014). Thyroid hormone regulation of metabolism. *Physiological reviews*.355-365 https://doi.org/10.1152/physrev.00030.2013

Müller, C. P., Pum, M. E., Schumann, G., & Huston, J. P. (2010). The role of serotonin in drug addiction. In *Handbook of Behavioral Neuroscience* .Vol. 21, pp. 507-545. Elsevier. https://doi.org/10.1016/S1569-7339(10)70099-0

Muthukumaraswamy, S. D., Edden, R. A., Jones, D. K., Swettenham, J. B., & Singh, K. D. (2009). Resting GABA concentration predicts peak gamma frequency and fMRI amplitude in response to visual stimulation in humans. *Proceedings of the National*

Academy of Sciences, *106*(20), 8356-8361.
https://doi.org/10.1073/pnas.0900728106
National Institutes of Health (NIH) - Office of Dietary Supplements: Vitamin B6
https://ods.od.nih.gov/factsheets/VitaminB6-Consumer/
National Institutes of Health (NIH) - Office of Dietary Supplements Vitamin C
https://ods.od.nih.gov/factsheets/VitaminC-HealthProfessional/
National Institutes of Health (NIH) - Office of Dietary Supplements Vitamin D.
https://ods.od.nih.gov/factsheets/VitaminE-Consumer/
National Institutes of Health website. Magnesium: fact sheet for health professionals. ods.od.nih.gov/factsheets/Magnesium-HealthProfessional/
National Institutes of Health (NIH) - Office of Dietary Supplements
https://ods.od.nih.gov/factsheets/list-all/#Magnesium
National Institutes of Health. (2023). *Copper: Essential for human health*. NIH Office of Dietary Supplements. Retrieved December 14, 2024, https://ods.od.nih.gov/pdf/factsheets/Copper-Consumer.pdf
ΝΙΚΟΛΟΠΟΥΛΟΣ Γ., ΠΟΘΗΤΟΥ Κ., & ΤΡΙΠΟΤΣΕΡΗ Γ. (2019). Ανάκληση Συμβόλων και Εργαζόμενη Μνήμη. *Πανελλήνιο Συνέδριο Επιστημών Εκπαίδευσης*, *1*, 820–834. https://doi.org/10.12681/edusc.1682
Newman, E. L., Gupta, K., Climer, J. R., Monaghan, C. K., & Hasselmo, M. E. (2012). Cholinergic modulation of cognitive processing: insights drawn from computational models. *Frontiers in behavioral neuroscience*, *6*, 24916. https://doi.org/10.3389/fnbeh.2012.00024
Office of Dietary Supplements. (n.d.). *Selenium: Fact sheet for health professionals*. National Institutes of Health. Retrieved December 14, 2024 https://ods.od.nih.gov/factsheets/Selenium-HealthProfessional/
Παναγιωτακόπουλος Γ.(2018).Η προσοχή στο σχολικό πλαισιο,αρθρο δημοσιευμένο στον ιστότοπο https://physiart.com/
Pandi-Perumal, S. R., Trakht, I., Srinivasan, V., Spence, D. W., Maestroni, G. J., Zisapel, N., & Cardinali, D. P. (2008). Physiological effects of melatonin: role of melatonin receptors and signal transduction pathways. *Progress in neurobiology*, *85*(3), 335-353. https://doi.org/10.1016/j.pneurobio.2008.04.001

Panichello, M.F., Buschman, T.J. Shared mechanisms underlie the control of working memory and attention. *Nature* **592**, 601–605 (2021). https://doi.org/10.1038/s41586-021-03390-w

Papanastasiou, G., Drigas, A., & Papanastasiou, P. (2021). The association of diet quality and lifestyle factors in children and adults with ADHD: a systematic review and meta-analysis. http://dx.doi.org/10.36560/14920211441

Papanastasiou, P., & Drigas, A. (2023). The mediterranean diet, lifestyle factors, dyslexia, ADHD in university students of Greece. *Brazilian Journal of Science*, *2*(7), 92-102. https://doi.org/10.14295/bjs.v2i7.335

Pascoe, M. C., Thompson, D. R., & Ski, C. F. (2017). Yoga, mindfulness-based stress reduction and stress-related physiological measures: A meta-analysis. *Psychoneuroendocrinology, 86*, 152–168. https://doi.org/10.1016/j.psyneuen.2017.08.008

Patel, V., Akimbekov, N. S., Grant, W. B., Dean, C., Fang, X., & Razzaque, M. S. (2024). Neuroprotective effects of magnesium: Implications for neuroinflammation and cognitive decline. *Frontiers in Endocrinology*, *15*, 1406455. https://doi.org/10.3389/fendo.2024.1406455

Petersen, M. C., & Shulman, G. I. (2018). Mechanisms of Insulin Action and Insulin Resistance. *Physiological Reviews*, 98(4), 2133–2223. https://doi.org/10.1152/physrev.00063.2017

Petroff, O. A. (2002). Book review: GABA and glutamate in the human brain. *The Neuroscientist*, *8*(6), 562-573. https://doi.org/10.1177/1073858402238515

Picciotto, M. R., Higley, M. J., & Mineur, Y. S. (2012). Acetylcholine as a neuromodulator: cholinergic signaling shapes nervous system function and behavior. *Neuron*, *76*(1), 116-129. https://doi.org/10.1016/j.neuron.2012.08.036

Picone, P., Girgenti, A., Buttacavoli, M., & Nuzzo, D. (2024). Enriching the Mediterranean diet could nourish the brain more effectively. *Frontiers in Nutrition*, *11*, 1489489. https://doi.org/10.3389/fnut.2024.1489489

Pludowski, P., Grant, W. B., Karras, S. N., Zittermann, A., & Pilz, S. (2024). Vitamin D Supplementation: A Review of the Evidence Arguing for a Daily Dose of 2000 International Units (50 µg) of Vitamin D for Adults in the General Population. *Nutrients*, *16*(3), 391. https://doi.org/10.3390/nu16030391

Πόρποδας, Κ., & Ψυχολογία, Γ. (1996). Η διαδικασία της μάθησης. Τόμος Α, Αθήνα,196-197

Radomska, D., Czarnomysy, R., Radomski, D., Bielawska, A., & Bielawski, K. (2021). Selenium as a bioactive micronutrient in the human diet and its cancer chemopreventive activity. *Nutrients*, *13*(5), 1649. https://doi.org/10.3390/nu13051649

Ranganath, C., & D'Esposito, M. (2001). Medial temporal lobe activity associated with active maintenance of novel information. *Neuron*, *31*(5), 865-873. https://doi.org/10.1016/S0896-6273(01)00411-1

Reiter, R. J., Tan, D. X., & Fuentes-Broto, L. (2010). Melatonin: a multitasking molecule. *Progress in brain research*, *181*, 127-151. https://doi.org/10.1016/S0079-6123(08)81008-4

Richardson, A. J., & Montgomery, P. (2005). The Oxford-Durham study: a randomized, controlled trial of dietary supplementation with fatty acids in children with developmental coordination disorder. *Pediatrics*, *115*(5), 1360-1366. https://doi.org/10.1542/peds.2004-2164

Rogers, N. L., Kennaway, D. J., & Dawson, D. (2003). Neurobehavioural performance effects of daytime melatonin and temazepam administration. *Journal of sleep research*, *12*(3), 207-212. https://doi.org/10.1046/j.1365-2869.2003.00360.x

Roodenrys, K., Agostinho, S., Roodenrys, S., & Chandler, P. (2012). Managing one's own cognitive load when evidence of split attention is present. *Applied Cognitive Psychology*, *26*(6), 878-886. https://doi.org/10.1002/acp.2889

Rorsman, P., & Ashcroft, F. M. (2018). Pancreatic β-cell electrical activity and insulin secretion: of mice and men. *Physiological reviews*, *98*(1), 117-214. https://doi.org/10.1152/physrev.00008.2017

Roseland, J. M., Spungen, J. H., Patterson, K. Y., Ershow, A. G., Gahche, J. J., & Pehrsson, P. P. (2023). USDA, FDA, and ODS-NIH Database for the Iodine Content of Common Foods. https://www.ars.usda.gov/ARSUSERFILES/80400535/DATA/IODINE/IODINE%20DATABASE_RELEASE_2_DOCUMENTATION.PDF

Ruggiero, M., Cianciulli, A., Calvello, R., Porro, C., De Nuccio, F., Kashyrina, M., ... & Panaro, M. A. (2024). Ser9p-GSK3β Modulation Contributes to the Protective Effects

of Vitamin C in Neuroinflammation. Nutrients, 16(8), 1121. https://doi.org/10.3390/nu16081121

Sailike, B., Onzhanova, Z., Akbay, B., Tokay, T., & Molnár, F. (2024). Vitamin D in Central Nervous System: Implications for Neurological Disorders. *International Journal of Molecular Sciences*, *25*(14), 7809. https://doi.org/10.3390/ijms25147809

Sam C, Bordoni B. Physiology, Acetylcholine. [Updated 2023 Apr 10]. In: StatPearls [Internet]. Treasure Island (FL): StatPearls Publishing; 2024 Jan-. Available from: https://www.ncbi.nlm.nih.gov/books/NBK557825/#:~:text=https%3A//www.ncbi.nlm.nih.gov/books/NBK557825/

Sandi, C. (2013). Stress and cognition. *Wiley Interdisciplinary Reviews: Cognitive Science, 4*(3), 245–261. https://doi.org/10.1002/wcs.1222

Sara, S. J. (2009). The locus coeruleus and noradrenergic modulation of cognition. *Nature reviews neuroscience*, *10*(3), 211-223. https://doi.org/10.1038/nrn2573

Sarris, J., Logan, A. C., Akbaraly, T. N., Paul Amminger, G., Balanzá-Martínez, V., Freeman, M. P., Hibbeln, J., Matsuoka, Y., Mischoulon, D., Mizoue, T., Nanri, A., Nishi, D., Parletta, N., Ramsey, D., Rucklidge, J. J., Sanchez-Villegas, A., Scholey, A., Su, K. P., & Jacka, F. N. (2015). International Society for Nutritional Psychiatry Research consensus position statement: nutritional medicine in modern psychiatry. *World psychiatry : official journal of the World Psychiatric Association (WPA)*, *14*(3), 370–371. https://doi.org/10.1002/wps.20223

Schwabe, L., Joëls, M., Roozendaal, B., Wolf, O. T., & Oitzl, M. S. (2012). Stress effects on memory: An update and integration. *Neuroscience & Biobehavioral Reviews, 36*(7), 1740–1749. https://www.psy.uni-hamburg.de/arbeitsbereiche/kognitionspsychologie/publikationen/schwabe2012b-nbbr.pdf

Sideraki, A., & Drigas, A. (2024). GABA and Executive functions in ASD. *Scientific Electronic Archives*, *17*(3). http://dx.doi.org/10.36560/17320241940

Sideraki, A., & Drigas, A. (2023). The role of cortisol and microbiome in the anxiety of people with ASD and the use of ICTs for regulation. https://doi.org/10.30574/wjbphs.2023.14.3.0253

Σκουρα, Α. (2019). Ο ρόλος της μνήμης για την καλύτερη εξέλιξη της μάθησης,8-13

Sletten, T. L., Vincenzi, S., Redman, J. R., Lockley, S. W., & Rajaratnam, S. M. (2010). Timing of sleep and its relationship with the endogenous melatonin rhythm. *Frontiers in Neurology*, *1*, 137. https://doi.org/10.3389/fneur.2010.00137

Slutsky, I., Abumaria, N., Wu, L. J., Huang, C., Zhang, L., Li, B., ... & Liu, G. (2010). Enhancement of learning and memory by elevating brain magnesium. *Neuron*, *65*(2), 165-177. http://hdl.handle.net/1721.1/96066

Smith, M. A., Riby, L. M., van Eekelen, J. A. M., & Foster, J. K. (2011). Glucose enhancement of human memory: A comprehensive research review of the glucose memory facilitation effect. *Neuroscience and Biobehavioral Reviews, 35*(3), 770–783. https://doi.org/10.1016/j.neubiorev.2010.09.008

Streeter, C. C., Gerbarg, P. L., Saper, R. B., Ciraulo, D. A., & Brown, R. P. (2012). Effects of yoga on the autonomic nervous system, gamma-aminobutyric-acid, and allostasis in epilepsy, depression, and post-traumatic stress disorder. *Medical hypotheses*, *78*(5), 571-579. https://doi.org/10.1016/j.mehy.2012.01.021

Swanson, D., Block, R., & Mousa, S. A. (2012). Omega-3 fatty acids EPA and DHA: health benefits throughout life. *Advances in nutrition*, *3*(1), 1-7. https://doi.org/10.3945/an.111.000893

Tapiero, H., Mathe, G., Couvreur, P., & Tew, K. D. (2002). II. Glutamine and glutamate. *Biomedicine & pharmacotherapy*, *56*(9), 446-457. https://doi.org/10.1016/S0753-3322(02)00285-8

Treiman, D. M. (2001). GABAergic mechanisms in epilepsy. *Epilepsia*, *42*, 8-12. https://doi.org/10.1046/j.1528-1157.2001.042suppl.3008.x

Tully, K., & Bolshakov, V. Y. (2010). Emotional enhancement of memory: how norepinephrine enables synaptic plasticity. *Molecular brain*, *3*, 1-9. https://doi.org/10.1186/1756-6606-3-15

University of Rochester Medical Center.https://www.urmc.rochester.edu/encyclopedia/content.aspx?contenttypeid=19&contentid=VitaminB-9

University of Rochester Medical Center , http://www.urmc.rochester.edu/encyclopedia/content.aspx?contentid=VitaminE&contenttypeid=19

van Galen, K. A., Ter Horst, K. W., & Serlie, M. J. (2021). Serotonin, food intake, and obesity. *Obesity Reviews*, *22*(7), e13210. https://doi.org/10.1111/obr.13210

Valls-Pedret, C., Sala-Vila, A., Serra-Mir, M., Corella, D., De la Torre, R., Martínez-González, M. Á., ... & Ros, E. (2015). Mediterranean diet and age-related cognitive decline: a randomized clinical trial. *JAMA internal medicine*, *175*(7), 1094-1103. https://doi.org/10.1001/jamainternmed.2015.1668

Van Praag, H., Christie, B. R., Sejnowski, T. J., & Gage, F. H. (1999). Running enhances neurogenesis, learning, and long-term potentiation in mice. *Proceedings of the National Academy of Sciences*, *96*(23), 13427-13431. https://doi.org/10.1073/pnas.96.23.13427

Volkow, N. D., Wang, G. J., & Baler, R. D. (2011). Reward, dopamine and the control of food intake: implications for obesity. *Trends Cogn Sci*, *15*(1), 37-46. https://pmc.ncbi.nlm.nih.gov/articles/PMC3124340/

Wang, M., Yang, Y., Wang, C. J., Gamo, N. J., Jin, L. E., Mazer, J. A., ... & Arnsten, A. F. (2013). NMDA receptors subserve persistent neuronal firing during working memory in dorsolateral prefrontal cortex. *Neuron*, *77*(4), 736-749. https://doi.org/10.1016/j.neuron.2012.12.032

WebMD. (2024). Difference between epinephrine and norepinephrine. WebMD. Retrieved December 19, 2024, from https://www.webmd.com/brain/difference-between-epinephrine-and-norepinephrine

Wikipedia contributors. (2024, November 15). Adrenaline. In *Wikipedia, The Free Encyclopedia*. Retrieved 06:25, December 21, 2024, from https://en.wikipedia.org/w/index.php?title=Adrenaline&oldid=1257595419

Wikipedia contributors. (2024, November 9). Acetylcholine. In *Wikipedia, The Free Encyclopedia*. Retrieved 14:58, December 30, 2024, from https://en.wikipedia.org/w/index.php?title=Acetylcholine&oldid=1256291292

Williams, G. V., & Goldman-Rakic, P. S. (1995). Modulation of memory fields by dopamine Dl receptors in prefrontal cortex. *Nature*, *376*(6541), 572-575. https://psycnet.apa.org/doi/10.1038/376572a0

Yang, Y., Jing, X. P., Zhang, S. P., Gu, R. X., Tang, F. X., Wang, X. L., ... & Liu, R. (2013). High dose zinc supplementation induces hippocampal zinc deficiency and memory

impairment with inhibition of BDNF signaling. *PloS one*, *8*(1), e55384. https://doi.org/10.1371/journal.pone.0055384

Yonelinas, A. P. (2013). The hippocampus supports high-resolution binding in the service of perception, working memory and long-term memory. *Behavioural brain research*, *254*, 34-44. https://doi.org/10.1016/j.bbr.2013.05.030

Young, S. N. (2007). How to increase serotonin in the human brain without drugs. *Journal of psychiatry & neuroscience: JPN*, *32*(6), 394-399. https://pmc.ncbi.nlm.nih.gov/articles/PMC2077351/

Zavitsanou, A. M., & Drigas, A. (2021). Attention and Working Memory. *Int. J. Recent Contributions Eng. Sci. IT*, *9*(1), 81-91. https://doi.org/10.3991/ijes.v9i1.19933

Zhang, T., Yi, X., Li, J., Zheng, X., Xu, H., Liao, D., & Ai, J. (2023). Vitamin E intake and multiple health outcomes: an umbrella review. *Frontiers in Public Health*, *11*, 1035674. https://doi.org/10.3389/fpubh.2023.1035674

Zhu, D. M., Zhao, W., Cui, S., Jiang, P., Zhang, Y., Zhang, C., ... & Yu, Y. (2022). The relationship between vitamin D, clinical manifestations, and functional network connectivity in female patients with major depressive disorder. *Frontiers in Aging Neuroscience*, *14*. https://doi.org/10.3389/fnagi.2022.817607

Zhou, G., Ji, X., Cui, N., Cao, S., Liu, C., & Liu, J. (2015). Association between serum copper status and working memory in schoolchildren. *Nutrients*, *7*(9), 7185-7196. https://doi.org/10.3390/nu7095331

Zhou, Y., Curtis, C. E., Sreenivasan, K. K., & Fougnie, D. (2022). Common neural mechanisms control attention and working memory. *Journal of Neuroscience*, *42*(37), 7110-7120. https://doi.org/10.1523/JNEUROSCI.0443-22.2022