NEUROHACKING

OTIMIZANDO AS FUNÇÕES COGNITIVAS COM NEURONUTRIÇÃO®

DANIELLE LODETTI

neuro nutrição
COM DANIELLE LODETTI

PRAZER, DANIELLE LODETTI

- Criadora da Neuronutrição®
- Nutricionista pela Universidade Federal de Santa Catarina (2000)
- Especialista em Fisiologia do Exercício pela Escola Paulista de Medicina (2002)
- Especialista em Nutrição Estética pelo IPGS – Rio de Janeiro (2010)
- Aperfeiçoamento em Bioquímica Aplicada à Patologia - 2010 / 2016
- Especializaçao em Nutrição Ortomolecular e Nutrigenomica – FAPES – SP (2012)
- Especialização em Fitoterapia Integrativa
- Especialização Psiquiatria Ortomolecular -FAPES - SP (2022)
- Aperfeiçoamento em Bioquímica - Arvore do conhecimento (2022

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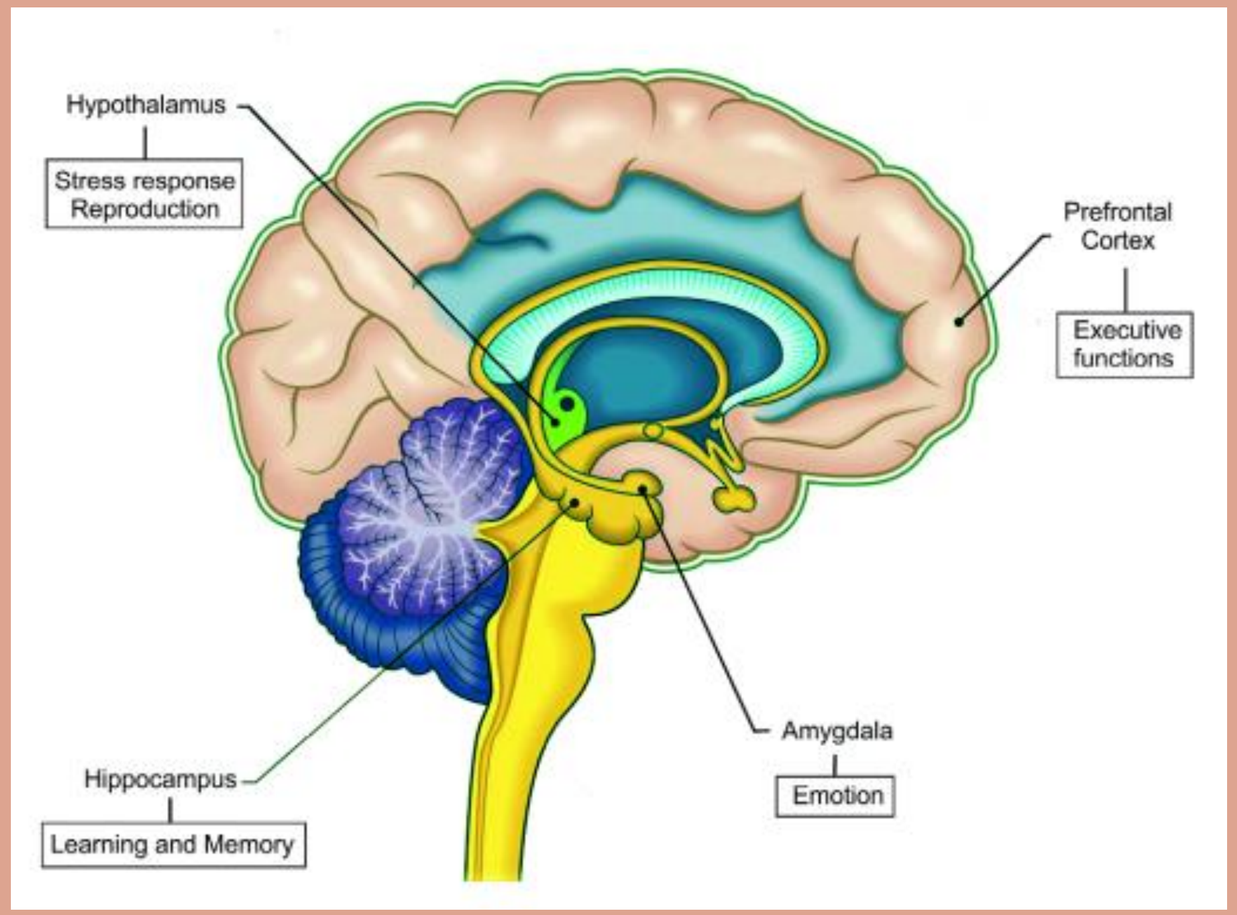

LOBO FRONTAL

- FUNÇÕES EXECUTIVAS

Tomada de decisões
Planejamento
Solução de problemas
Raciocínio

- COGNIÇÃO
- INTELIGÊNCIA
- ATENÇÃO, FOCO
- PROCESSAMENTO E
- EXPRESSÃO DA LINGUAGEM
- MOTIVAÇÃO

Acta Neurobiol Exp (Wars). 2020;80(2):117-128.

QUEVEDO, J; IZQUIERDO, I,. 2020

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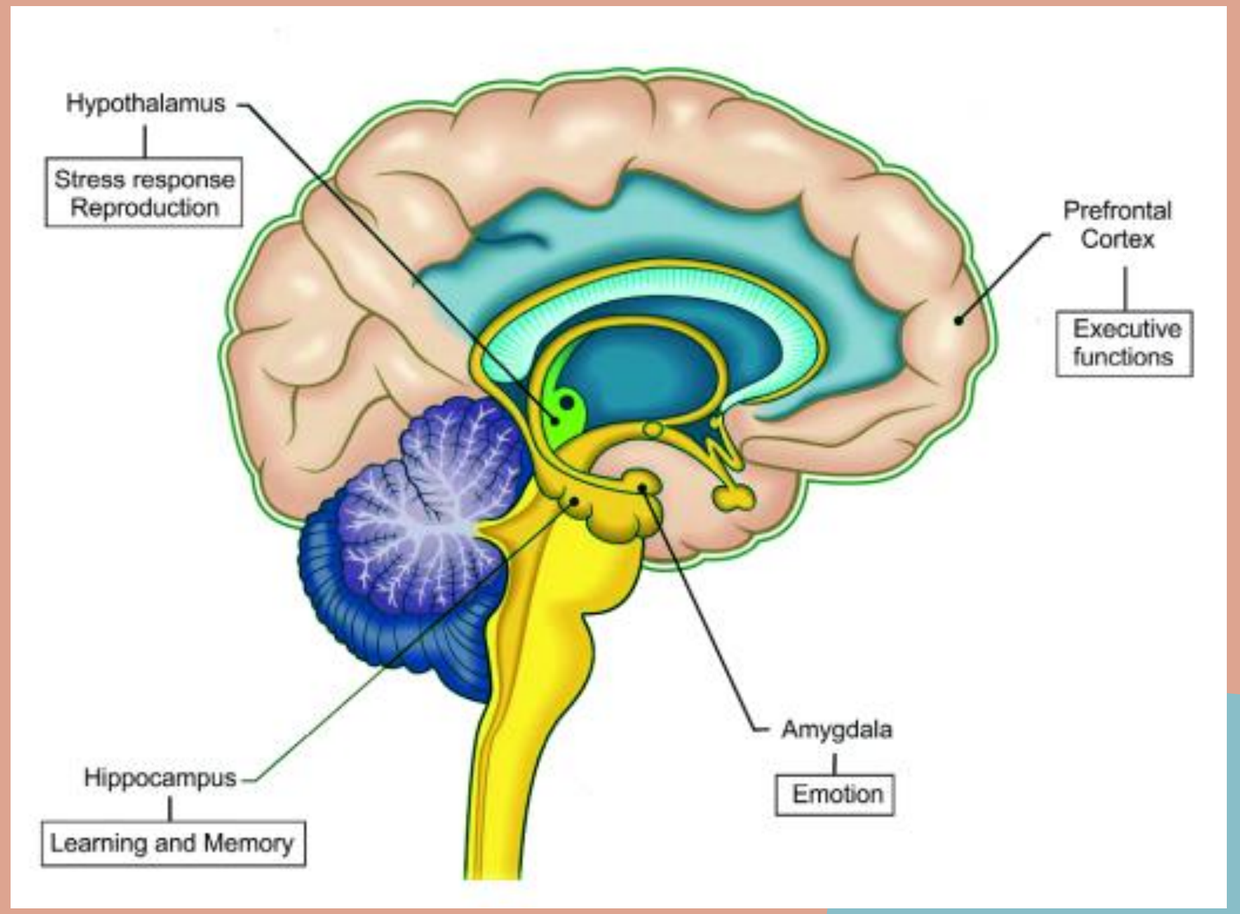
MEMÓRIA RECENTE

FORMAÇÃO DA MEMÓRIA DE LONGO PRAZO



Acta Neurobiol Exp (Wars). 2020;80(2):117-128.

QUEVEDO, J; IZQUIERDO, I,. 2020

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NEUROHACKING

SUBSTÂNCIA QUE MELHORA AS HABILIDADES COGNITIVAS ATRAVÉS DE VÁRIOS MECANISMOS FISIOLÓGICOS

Plants 2023, 12, 1364. https:// doi.org/10.3390/plants12061364

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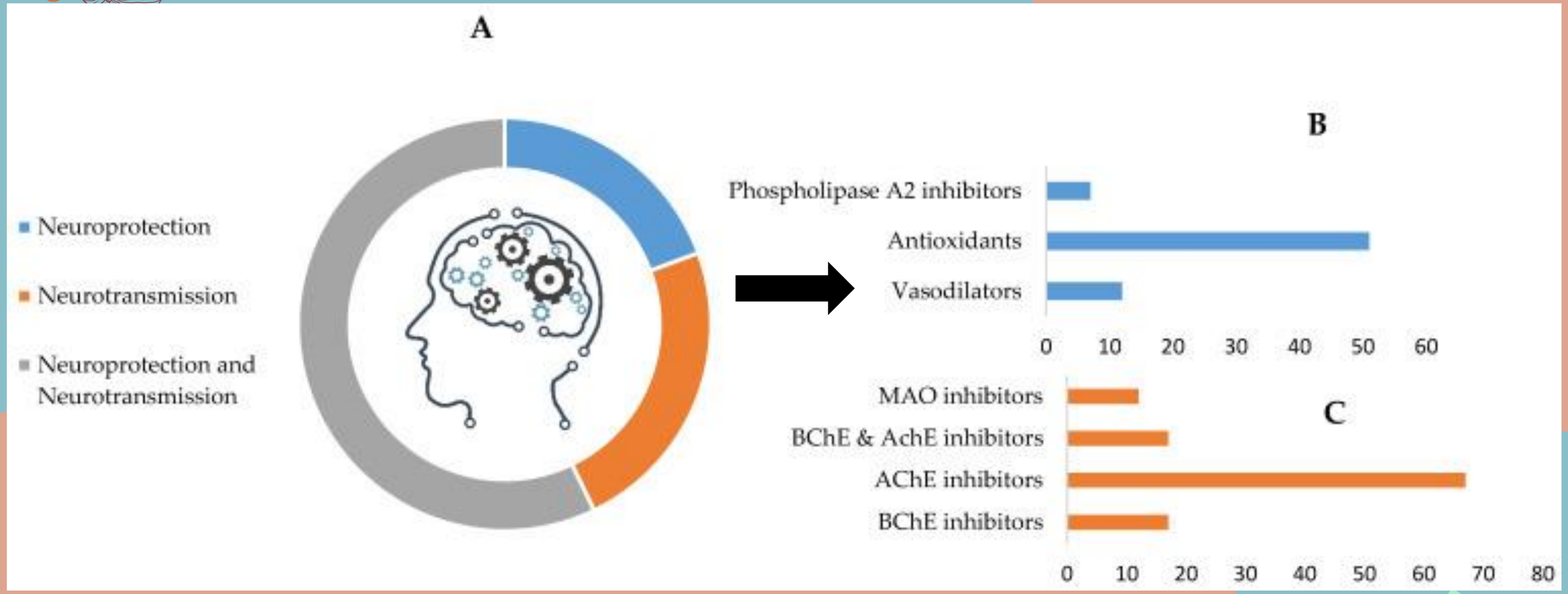
COMO AGEM OS NEUROHACKERS ?

- SÍNTESE DE MEBRANAS NEURONAIS (SINAPTOGÊNESE)
- ANTIOXIDANTES (NEUROPROTEÇÃO)
- PERFUSÃO SANGUÍNEA
- ANTIINFLAMATÓRIOS
- Ach, DOPAMINA, NE, SER
- NEUROGÊNESE

Pharmaceutics. 2021 Jan; 13(1): 124.
Potential Herb–Drug Interactions in the Management of Age-Related Cognitive Dysfunction

Malík, M.; Tlustoš, P. Nootropic Herbs, Shrubs, and Trees as Potential Cognitive Enhancers. Plants 2023, 12, 1364.

MECANISMOS DE AÇÃO



Pharmaceutics. 2021 Jan; 13(1): 124.
doi: 10.3390/pharmaceutics13010124
Potential Herb–Drug Interactions in the Management of Age-Related Cognitive Dysfunction

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OXIGÊNIO

The Brain uses 20% of the total oxygen supply consumed by the entire body.

Brain performance is highly sensitive to any decrease in oxygen supply. A reduction of the plasma oxygen pressure to 65 mmHg will impair the brain's ability to perform complex tasks, at 55 mmHg short-term memory will be impaired, while at <35 mmHg consciousness will be lost

Front Integr Neurosci. 2017 Sep 27;11:25. doi: 10.3389/fnint.2017.00025

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OXIGÊNIO E FORMAÇÃO DE MEMÓRIA

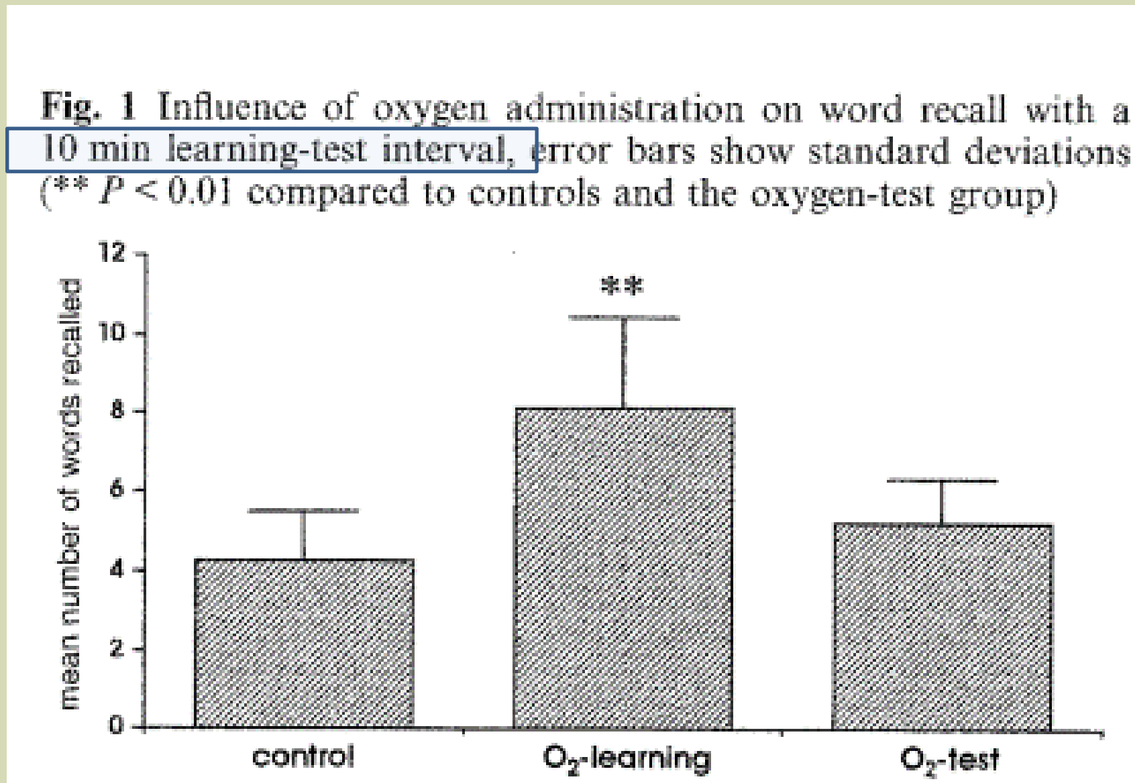

Fig. 1 Influence of oxygen administration on word recall with a 10 min learning-test interval, error bars show standard deviations (** $P < 0.01$ compared to controls and the oxygen-test group)

258

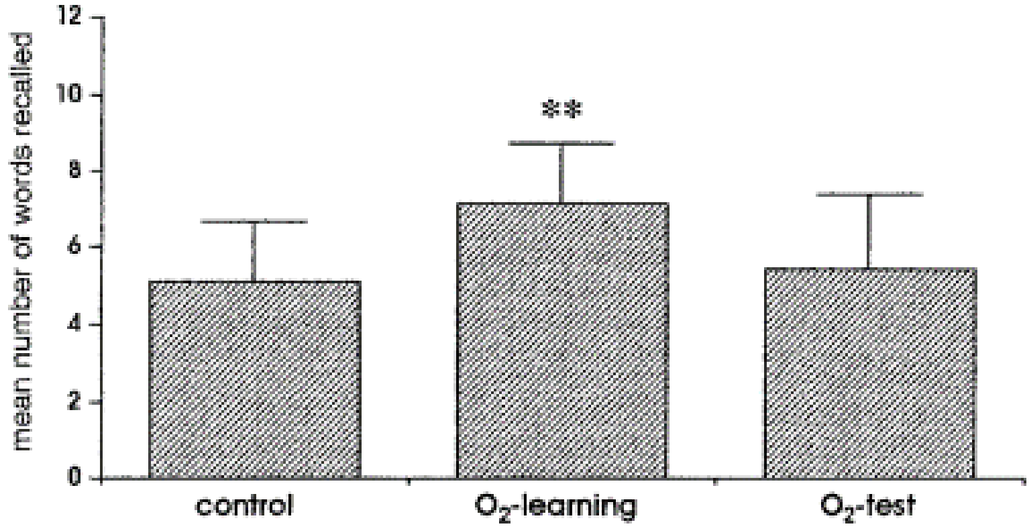

Fig. 2 Influence of oxygen administration on word recall with a 24 h learning-test interval, error bars show standard deviations (** $P < 0.01$ compared to controls and $P < 0.05$ compared to oxygen-test group)

M. C. Moss; A. B. Scholey (1996). *Oxygen administration enhances memory formation in healthy young adults. , 124(3), 255–260.*

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MÁSCARAS DE O2 COM CONCENTRAÇÕES DIFERENTES

INDIVIDUOS SAUDÁVEIS (mean age 72.9 1 4.7 years)

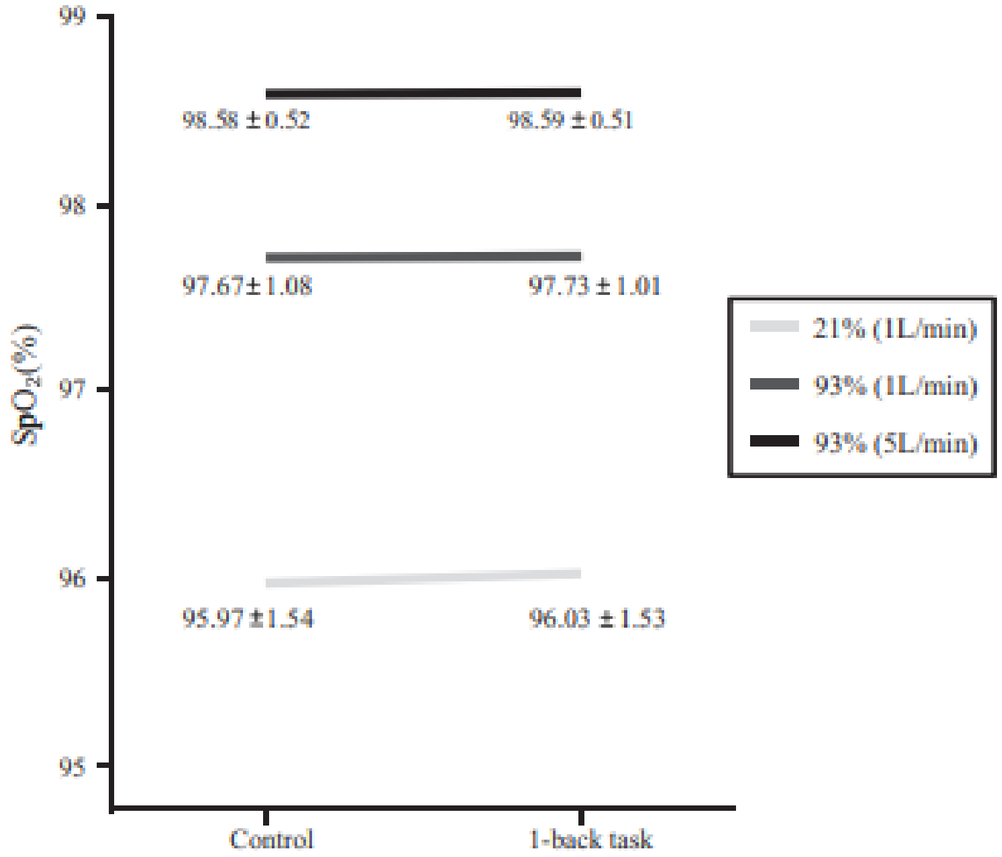


Figure 1 SpO_2 by three conditions and two phases.

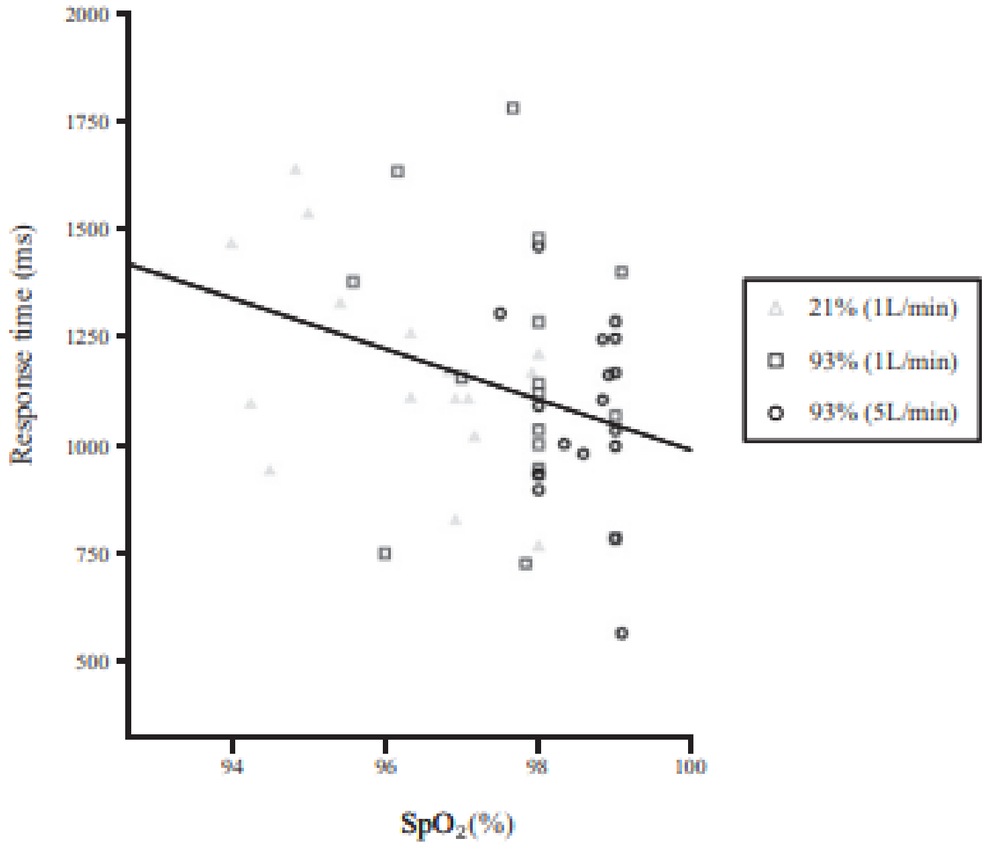
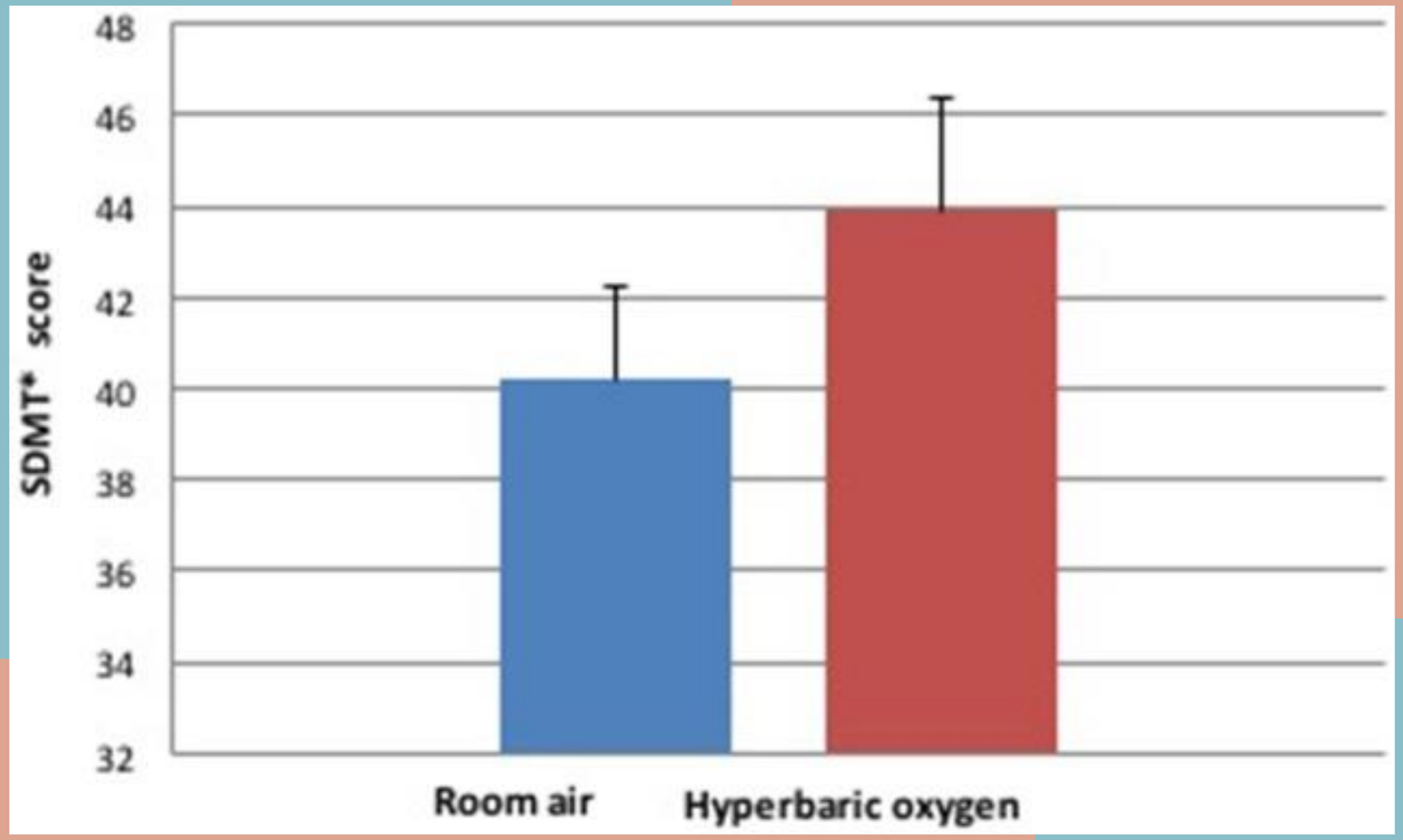


Figure 2 Correlation between response time and blood oxygen saturation level in 1-back task phase.

doi:10.1111/j.1447-0594.2012.00911.x

CÂMARA HIPERBÁRICA

Escala de atenção, digitalização visual , rastreamento e velocidade motora



Cognitive single task during hyperbaric oxygen compared to normal environments. *SDMT—Symbol Digit Modality Test.

Front Integr Neurosci. 2017 Sep 27;11:25. doi: 10.3389/fnint.2017.00025

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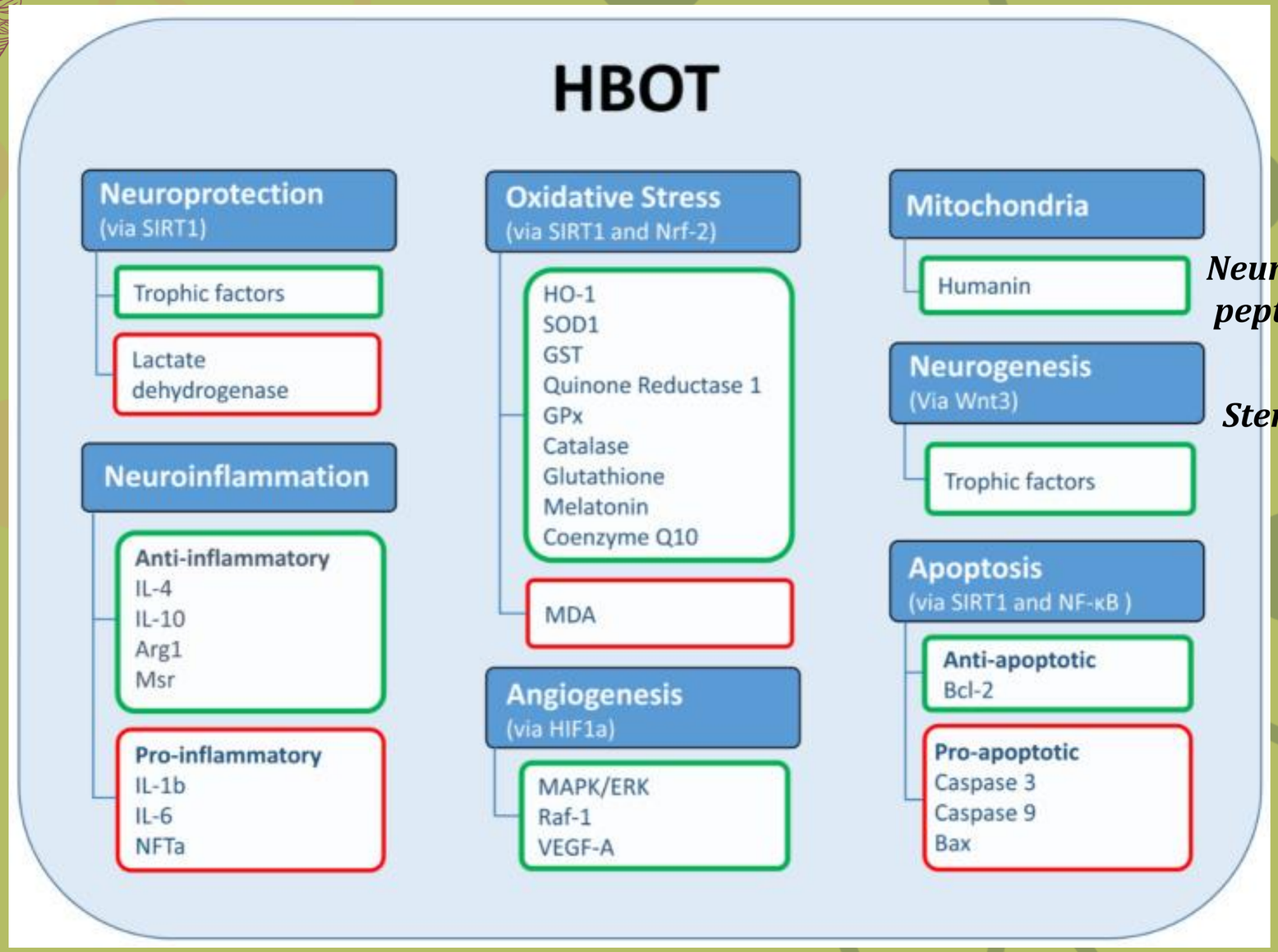
O2 –MECANISMOS SUGERIDOS



Neuroprotective mitochondrion-derived peptide in humans,

Stem cell proliferation

Biomolecules. 2021 Oct; 11(10): 1520.

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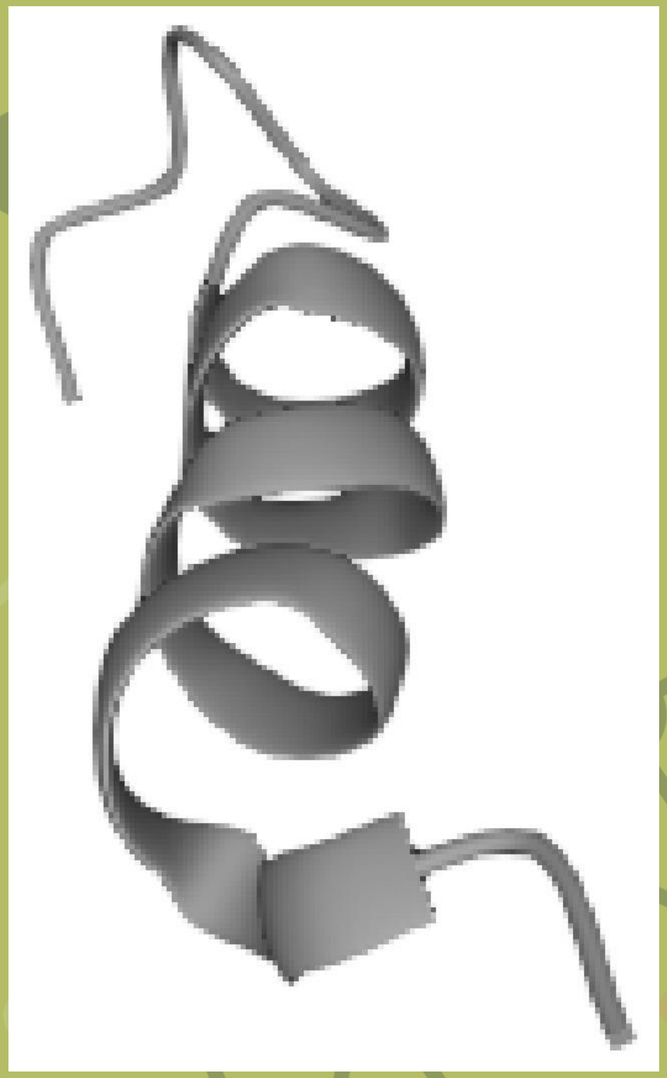
HUMANINA



Humanin molecule, whose sequence is: Met-Ala-Pro-Arg-Gly-Phe-Ser-Cys-Leu-Leu-Leu-Leu-Thr-Ser-Glu-Ile-Asp-Leu-Pro-Val-Lys-Arg-Arg-Ala

Biology (Basel). 2023 Apr; 12(4): 558.

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Table 1. Neuroprotective effect of Humanin, N/A is not applicable.

Article	Study Design	Population	Outcome Measures
Zárate, S.C. et al. (2019) [50]	In vivo study	Rat	Neuroprotective effect of humanin and relationship with ovarian hormones
Yen, K. et al. (2018) [38]	In vitro and in vivo study	SH-SY5Y cells, Mouse	Neuroprotective effect of humanin
Yen, K. et al. (2020) [40]	In vivo study	*C. elegans*, Mouse, Human	Circulating levels of humanin and their relation to diseases of aging and lifespan
Gong, Z. et al. (2022) [49]	Review	Mouse, Porcine	Protective effect of humanin in myocardial ischemia-reperfusion.
Kim, S.J. et al. (2021) [37]	Review	N/A	Humanin in age-related disease
Gong, Z. et al. (2014) [51]	Review	N/A	Role of humanin in age-related disease
Caso, V.M. et al. (2021) [42]	In vitro study	N/A	Neuroprotective effects of humanin and its homologs (HNG) from Aβ
Zacharias, D.G. et al. (2012) [43]	In vivo study	Mouse	Humanin reduced plaque accumulation in Alzheimer's disease and has a cytoprotective action in stroke
Park, T. et al. (2013) [55]	In vivo study	Middle-aged APPswe/PS1dE9 mice	Treatment with HNG significantly improves spatial learning and memory deficits, reduces Aβ plaque accumulation and insoluble Aβ concentration; decreases neuro-inflammatory responses

METABOLISMO CELULAR

O SIMPLES PRECISA SER FEITO

HIPERTENSOS
HIPERGLICEMIA
PLACAS DE ATEROMA EM CARÓTIDAS
HIPERHOMOCISTEÍNEMIA
ANEMIAS
HIDRATAÇÃO

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GLICOSE

Cérebro consome 25–30% do total de glicose consumida

Front Integr Neurosci. 2017 Sep 27;11:25. doi: 10.3389/fnint.2017.00025

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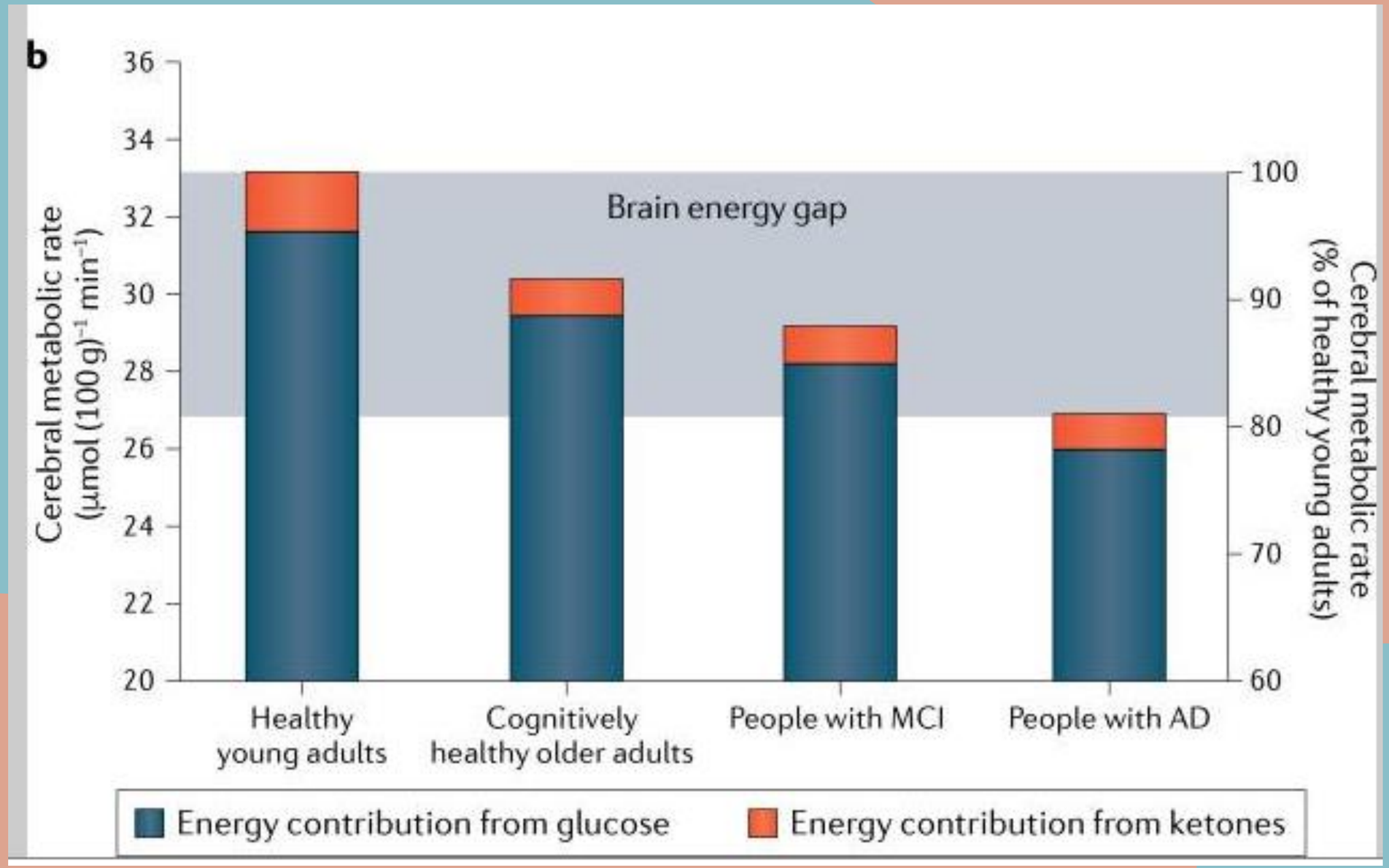

Glucose contributes to about 95% of total brain fuel supply in cognitively healthy young adults, and ketones supply the remaining 5%. In cognitively healthy older adults, brain glucose uptake is decreased by about 9%, in people with mild cognitive impairment (MCI) it is decreased by about 12% and in people with mild-to-moderate AD it is decreased by about 18%.

Nat Rev Drug Discov. 2020 Sep; 19(9): 609–633.

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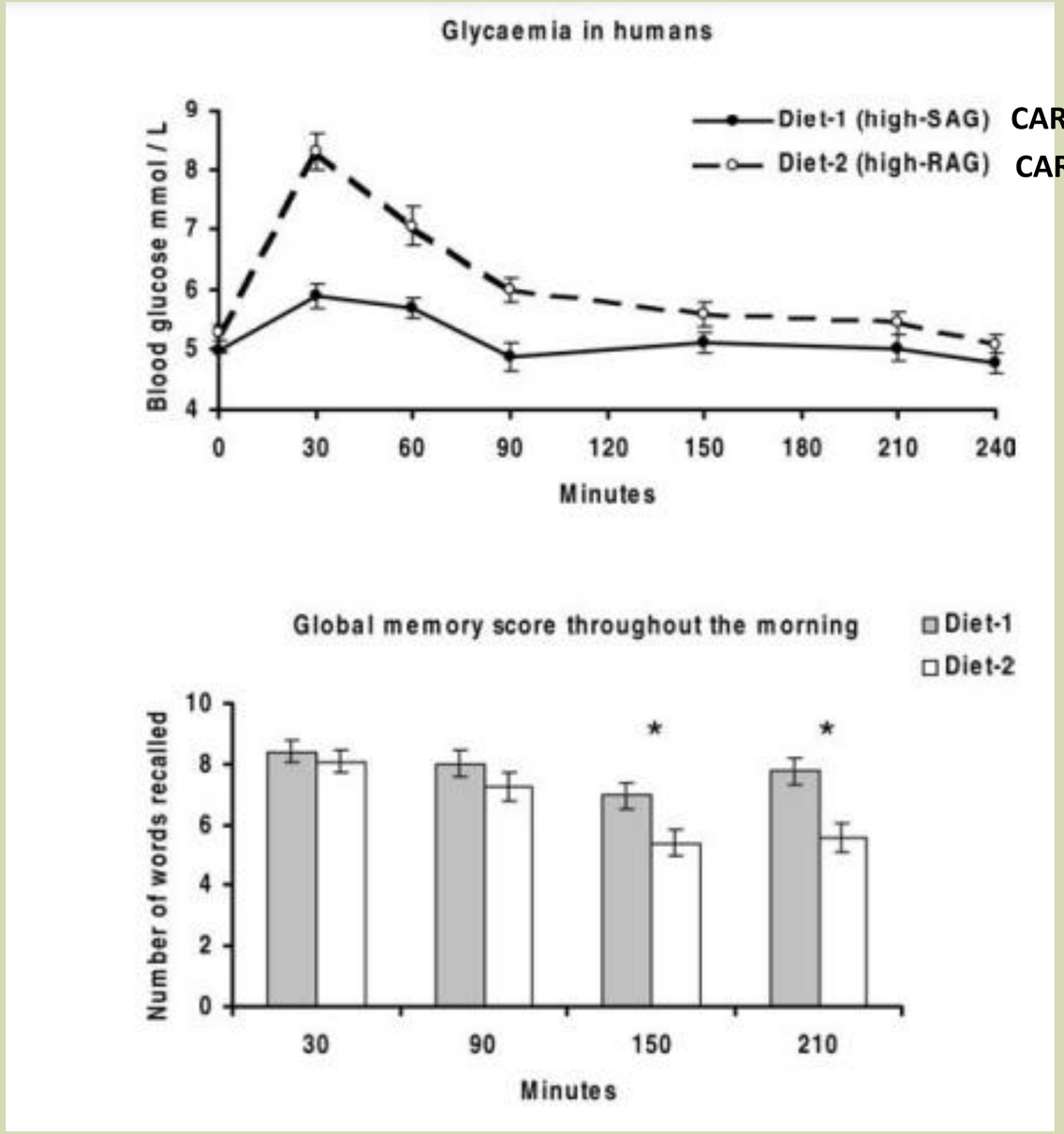
GLICEMIA X MEMÓRIA



CARGA GLICÊMICA MODERADA

CARGA GLICÊMICA ELEVADA

The delivery rate of dietary carbohydrates affects cognitive performance in both rats and humans. , 166(1), 86–90. *doi:10.1007/s00213-002-1334-5*

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GLICOSE

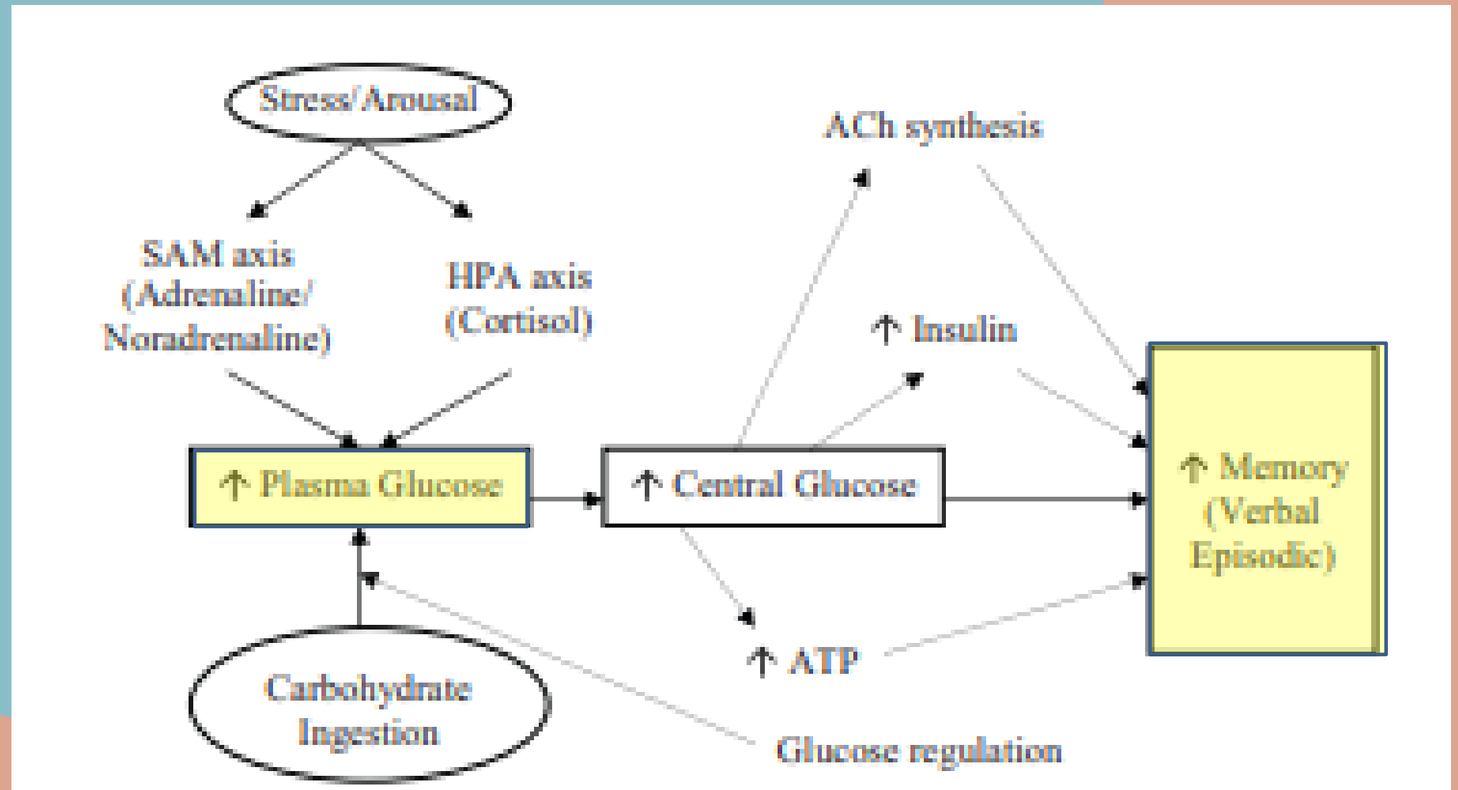

Fig. 1. A conceptual model of the glucose memory facilitation effect. The ingestion of oral glucose or acute stress/emotional arousal increases the concentration of circulating glucose in the periphery, and subsequently, the central nervous system. Via its proposed effects on a) insulin, b) ACh synthesis and/or c) K_{ATP} channel function, glucose enhances (verbal episodic) memory performance.

Front Integr Neurosci. 2017 Sep 27;11:25. doi: 10.3389/fnint.2017.00025

Glucose enhancement of human memory: A comprehensive research review of the glucose memory facilitation effect. , 35(3), 770–783. doi:10.1016/j.neubiorev.2010.09.008

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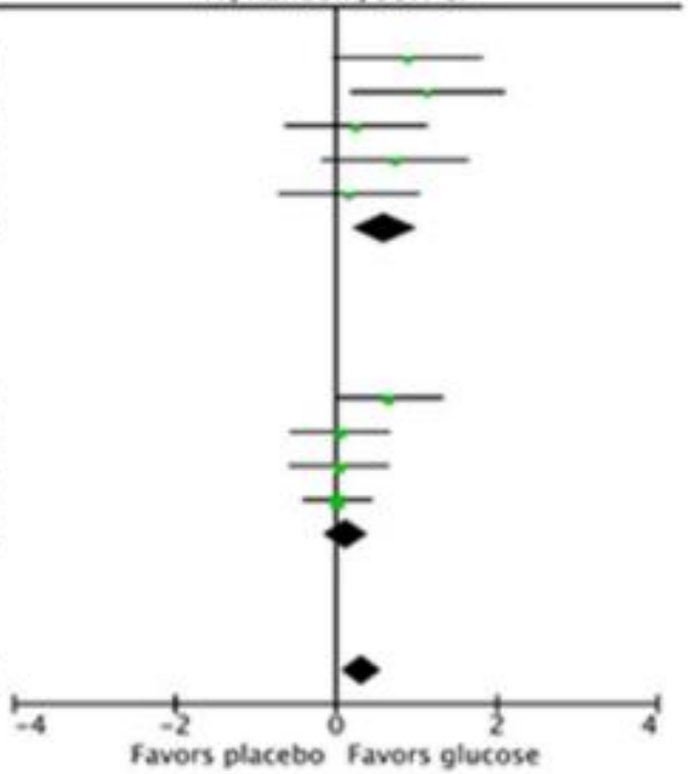
GLICOSE X MEMÓRIA

A Immediate Recall

MEMÓRIA IMEDIATA

Study or Subgroup	Glucose Mean	Glucose SD	Glucose Total	Placebo Mean	Placebo SD	Placebo Total	Weight	Std. Mean Difference IV, Random, 95% CI
1.1.1 Paralell Design								
Foster et al (1998) (50)	10	0.8	10	9.3	0.7	10	7.0%	0.89 [-0.04, 1.82]
Sünram-Lea et al (2001) (43)	10.4	3.63	10	7	1.83	10	6.6%	1.13 [0.17, 2.09]
Sünram-Lea et al (2001) (43)	8.9	1.66	10	8.4	2.17	10	7.7%	0.25 [-0.63, 1.13]
Sünram-Lea et al (2001) (43)	8.5	1.51	10	6.3	3.77	10	7.2%	0.73 [-0.18, 1.65]
Sünram-Lea et al (2002) (41)	13.3	3.54	10	12.8	2.42	10	7.7%	0.16 [-0.72, 1.04]
Subtotal (95% CI)			**50**			**50**	**36.1%**	**0.61 [0.20, 1.02]**
Heterogeneity: $Tau^2 = 0.00$; $Chi^2 = 3.23$, df = 4 (P = 0.52); $I^2 = 0\%$								
Test for overall effect: Z = 2.93 (P = 0.003)								
1.1.2 Cross-over Design								
Jones et al (2012) (28)	43.14	10.24	18	35.93	11.35	18	12.2%	0.65 [-0.02, 1.32]
Owen et al (2012) (29)	4.48	1.74	30	4.4	1.7	15	14.0%	0.05 [-0.57, 0.67]
Owen et al (2012) (29)	4.46	1.62	30	4.4	1.7	15	14.0%	0.04 [-0.58, 0.66]
Van der Zwaluw et al (2014) (55)	21.4	7.6	41	21.3	6.1	41	23.7%	0.01 [-0.42, 0.45]
Subtotal (95% CI)			**119**			**89**	**63.9%**	**0.14 [-0.14, 0.42]**
Heterogeneity: $Tau^2 = 0.00$; $Chi^2 = 2.75$, df = 3 (P = 0.43); $I^2 = 0\%$								
Test for overall effect: Z = 0.95 (P = 0.34)								
Total (95% CI)			**169**			**139**	**100.0%**	**0.32 [0.06, 0.57]**
Heterogeneity: $Tau^2 = 0.02$; $Chi^2 = 9.49$, df = 8 (P = 0.30); $I^2 = 16\%$								
Test for overall effect: Z = 2.39 (P = 0.02)								
Test for subgroup differences: $Chi^2 = 3.51$, df = 1 (P = 0.06), $I^2 = 71.5\%$								



Nutr Rev. 2021 Jan 9;79(2):171-187

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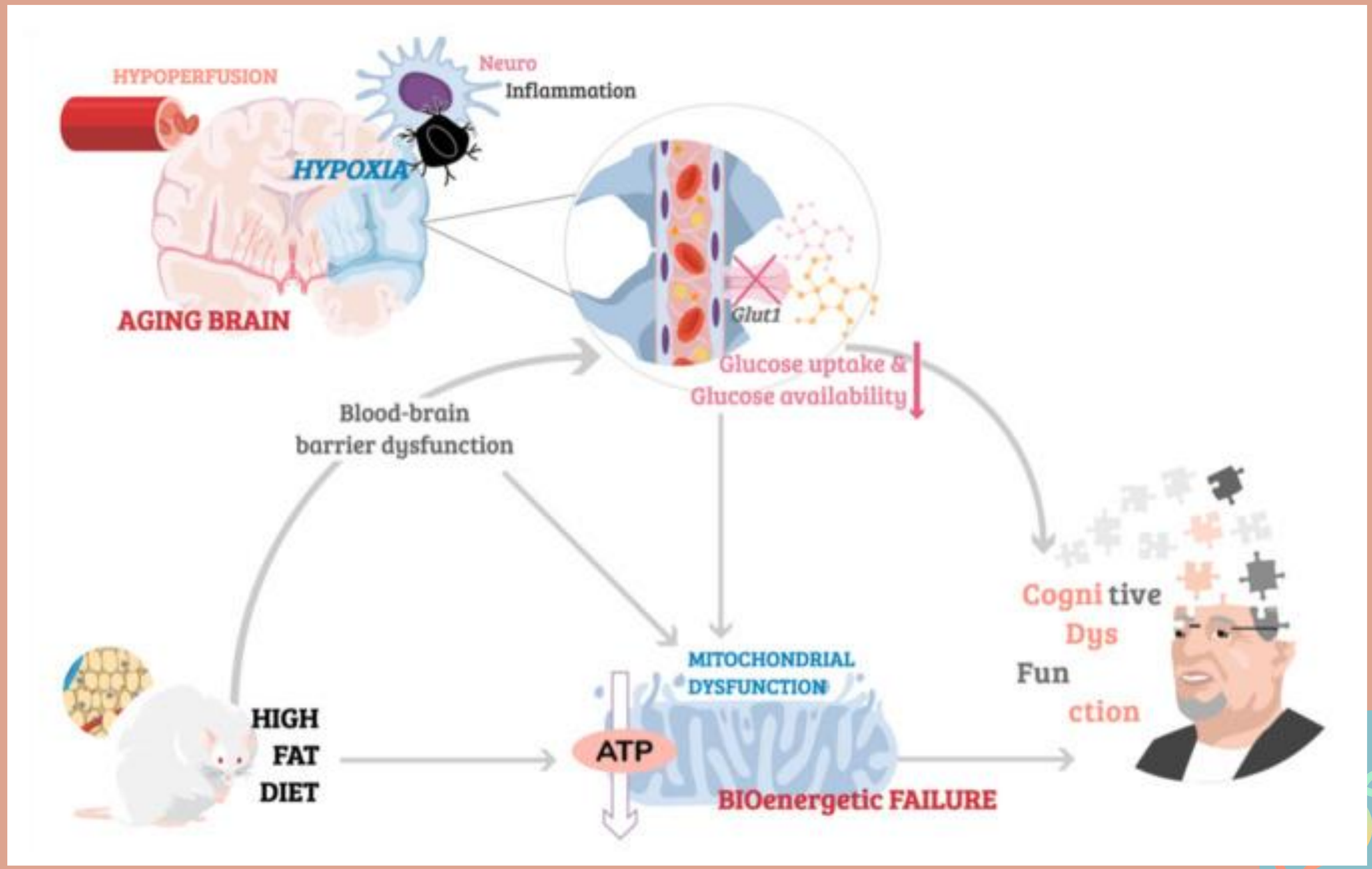

Int J Mol Sci. 2021 Apr; 22(7): 3574.
Published online 2021 Mar 30. doi: 10.3390/ijms22073574
The Interaction of Diet and Mitochondrial Dysfunction in Aging and Cognition

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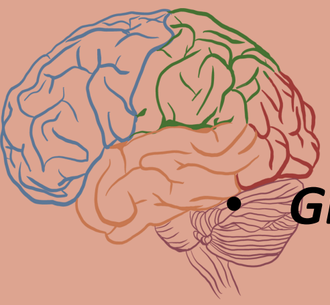

- ***GLICOTOXICIDADE***
- ***STRESS OXIDATIVO***
- ***PREJUÍZO NA NEUTOTRANSMISSÃO DOPAMINÉRGICA***

Acta Biochim. Biophys. Sin. 2014;46:950–956.

Int J Mol Sci. 2021 Nov; 22(22): 12366.

BMC Geriatrics

BMC Geriatr. 2020; 20: 424.
Published online 2020 Oct 23. doi: 10.1186/s12877-020-01827-x
PMCID: PMC7585218
PMID: 33096995

BMC Geriatr

Effect of poor glycemic control in cognitive performance in the elderly with type 2 diabetes mellitus: The Mexican Health and Aging Study

Alberto J. Mimenza-Alvarado,[1,2] Gilberto A. Jiménez-Castillo,[1,2,3] Sara G. Yeverino-Castro,[1] Abel J. Barragán-Berlanga,[3] Mario U. Pérez-Zepeda,[4] J. Alberto Ávila-Funes,[5] and Sara G. Aguilar-Navarro[1,2]

Conclusions

Glycemic control with a $Hb_{A1c} \geq 8\%$ was associated with worse cognitive performance.

BMC Geriatr. 2020; 20: 424.

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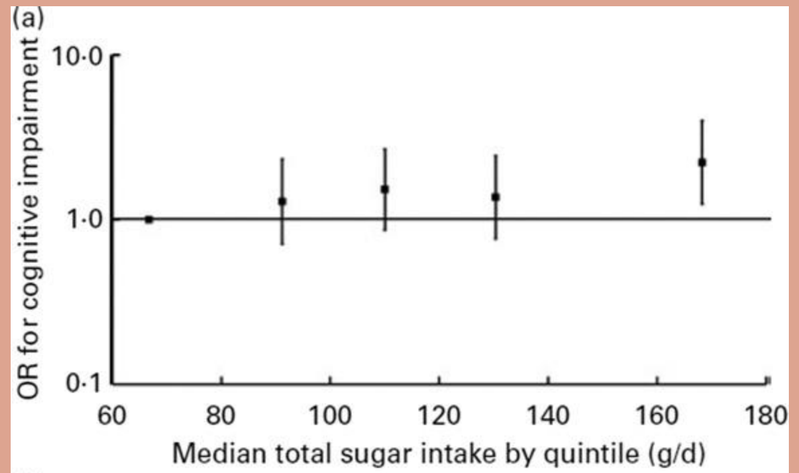
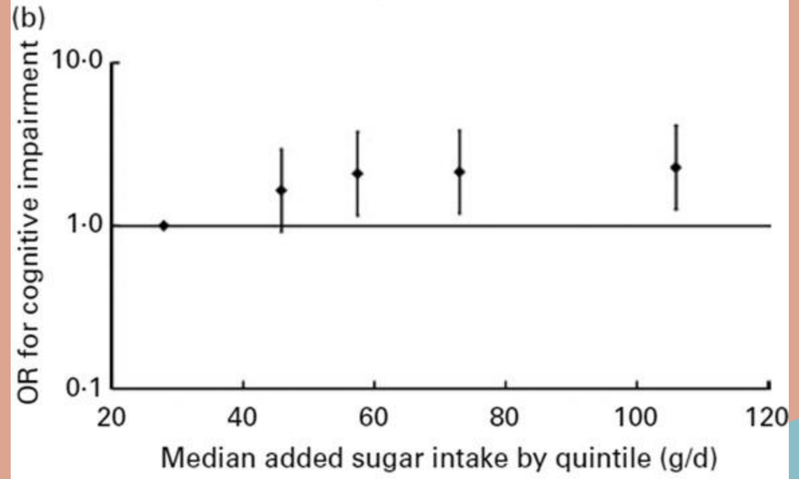
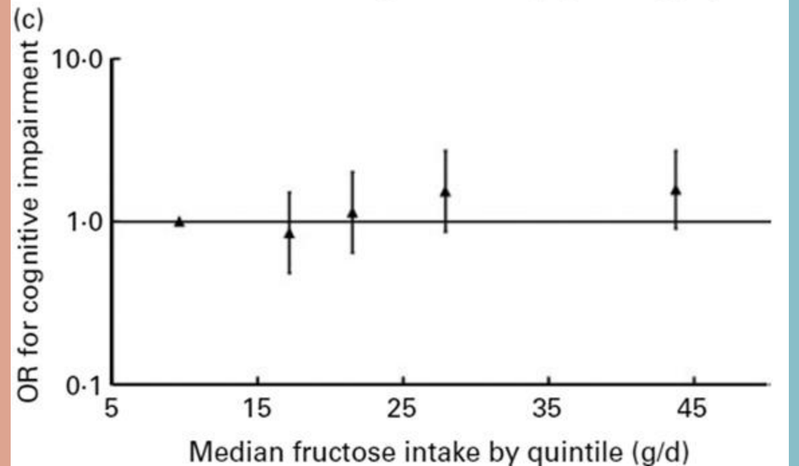
AÇÚCAR X COGNIÇÃO

Total sugars, added sugars, sucrose and added fructose were each inversely associated with cognitive performance. Consistently, a higher intake of SSB was significantly associated with lower cognitive performance.







Br J Nutr. 2011 Nov; 106(9): 1423–1432.

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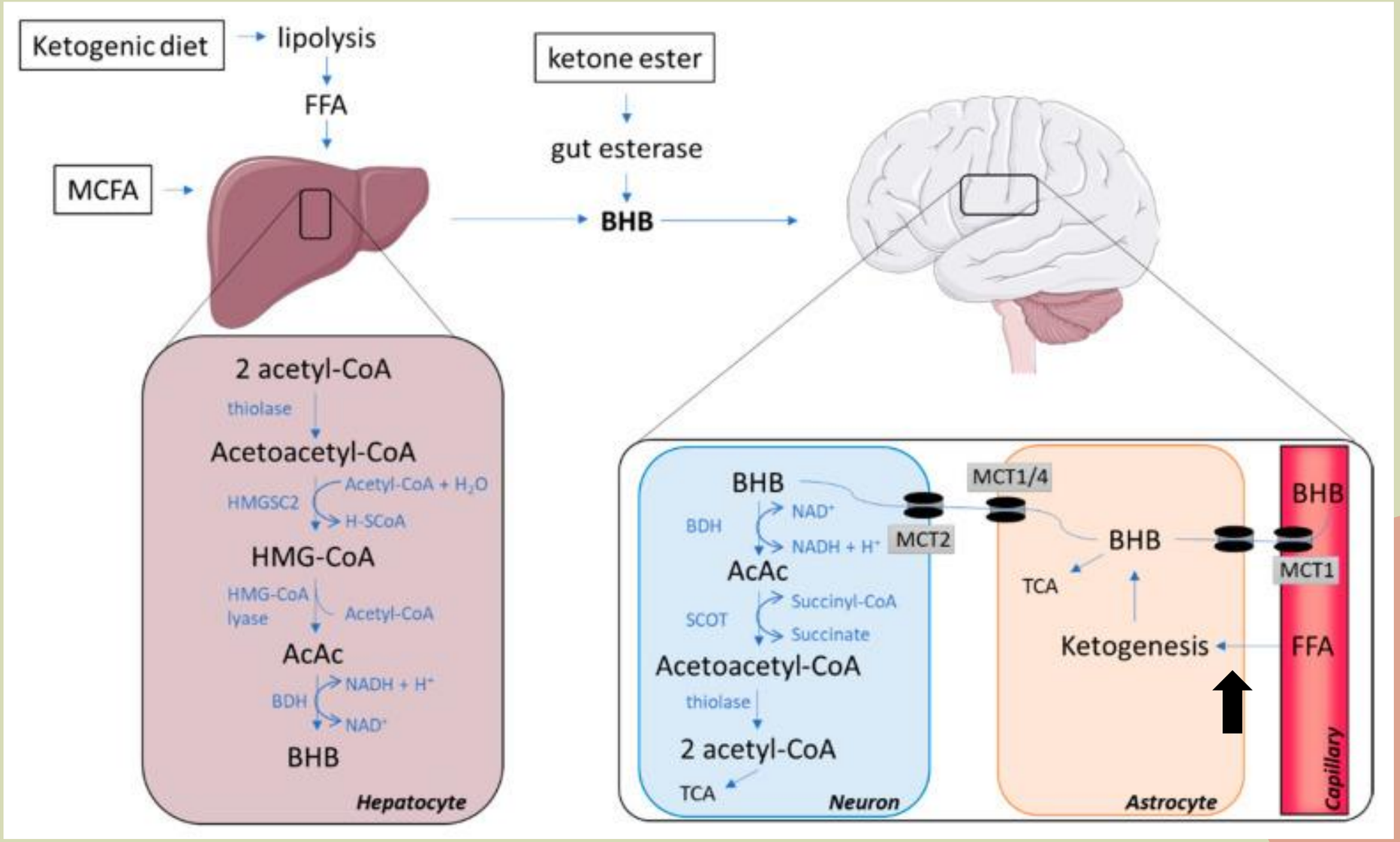
BIOENERGÉTICA CELULAR



Int J Mol Sci. 2020 Nov; 21(22): 8767.

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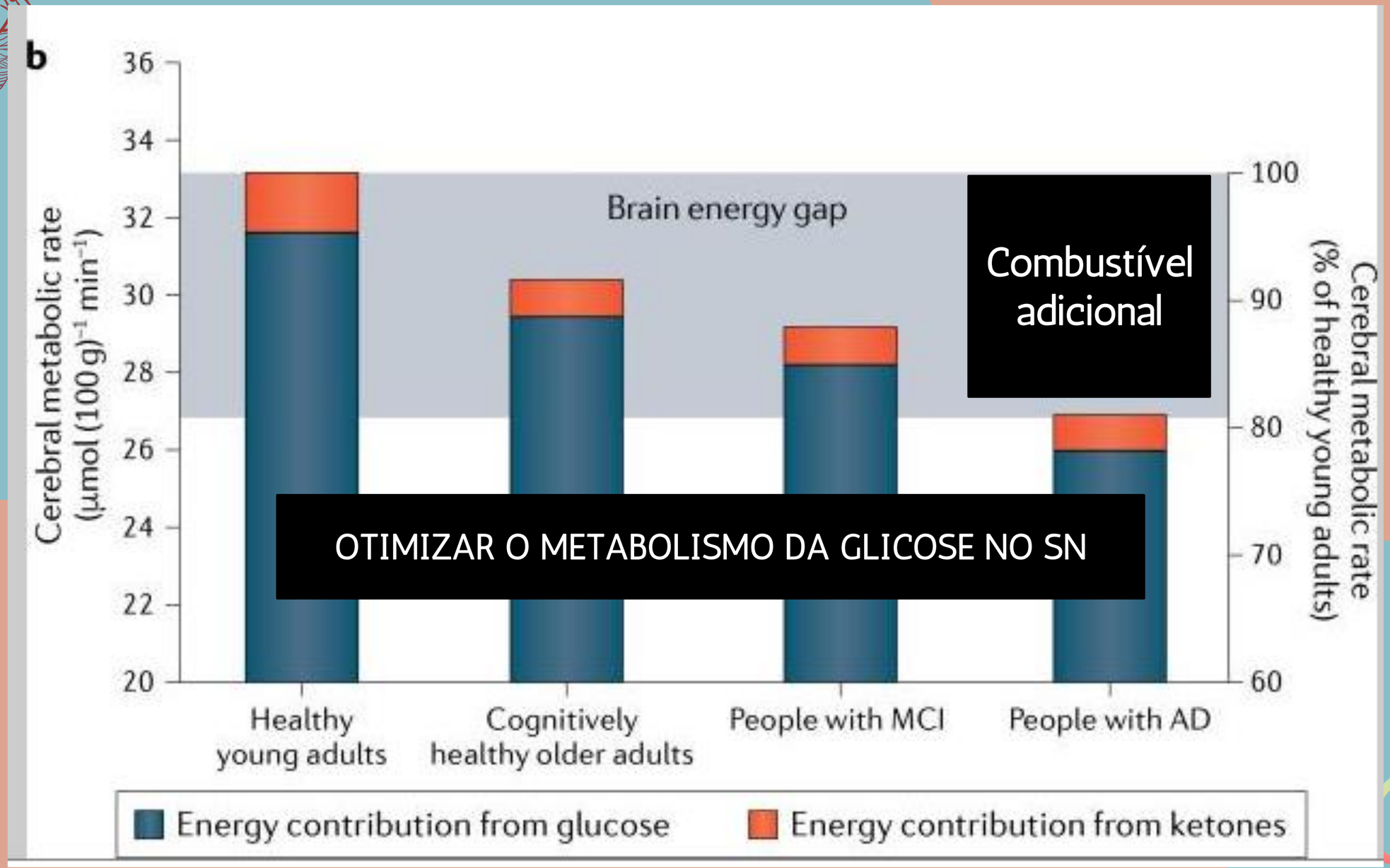

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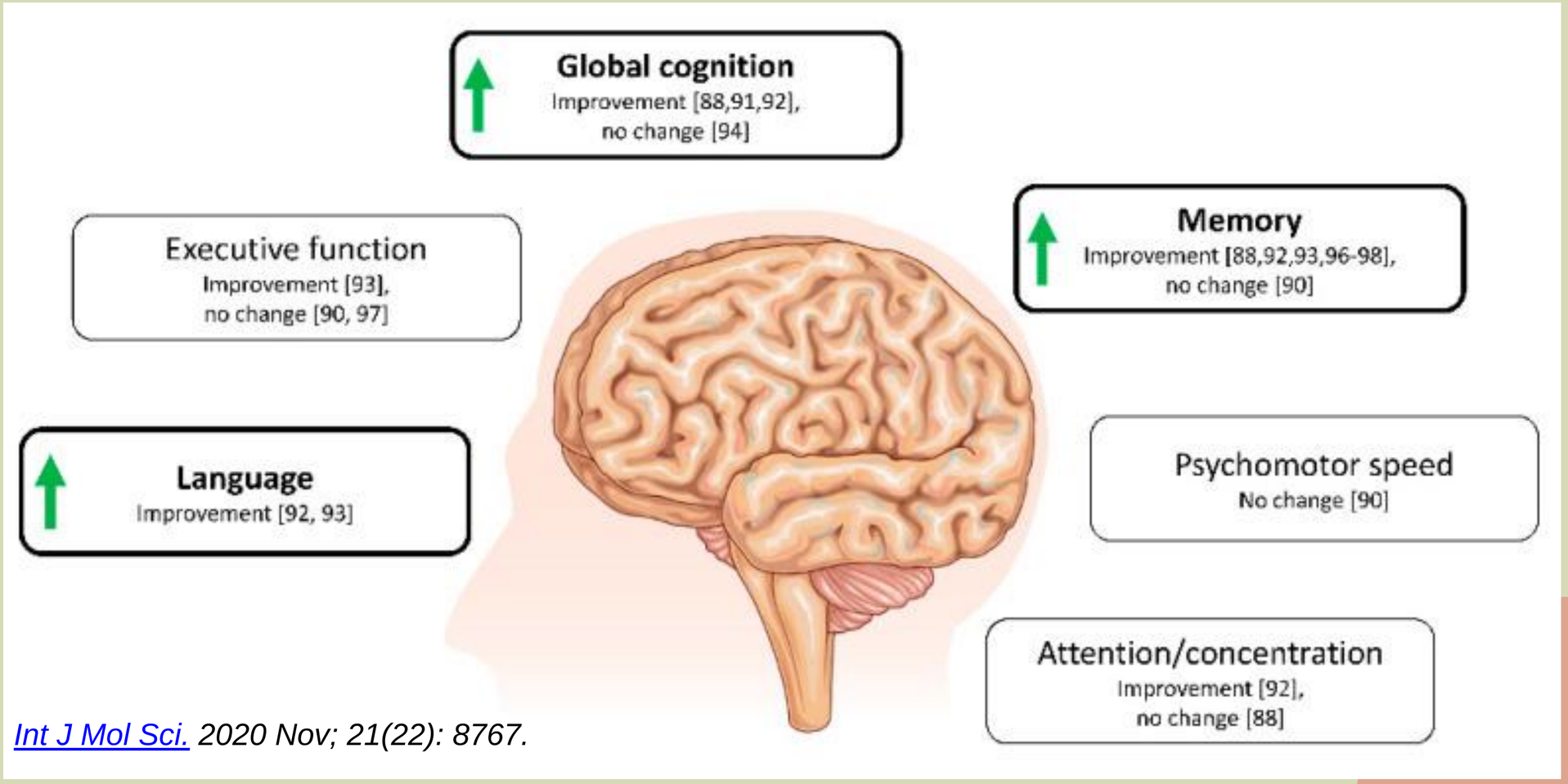
CORPOS CETÔNICOS - BIOENERGÉTICA



Int J Mol Sci. 2020 Nov; 21(22): 8767.

*Overview of cognitive domains affected by ketogenic interventions in **patients with mild cognitive impairment or AD**. Overall improvements are demonstrated by green arrows. Illustration is solely based on studies using a randomized-controlled study design (cross-over or parallel groups). **Interventions included ketogenic diets [97,98] or supplementation with MCFAs [88,90,91,92,93,94,96]** ranging from acute (90 min after ingestion) to 6 months in duration and studies include between 12 and 413 participants.*

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PRELIMINARES :

GARATIR OXIGENAÇÃO E ¨COMBUSTÍVEL ¨ADEQUADO AO SNC

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NEUROHACKERS

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BF7

peptídeos da seda com padronização única em > 80% de fibroína,

alanine 24%
tryptophan 8%

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JOURNAL OF MEDICINAL FOOD
J Med Food 12 (3) 2009, 643–648
© Mary Ann Liebert, Inc. and Korean Society of Food Science and Nutrition
DOI: 10.1089/jmf.2008.1236

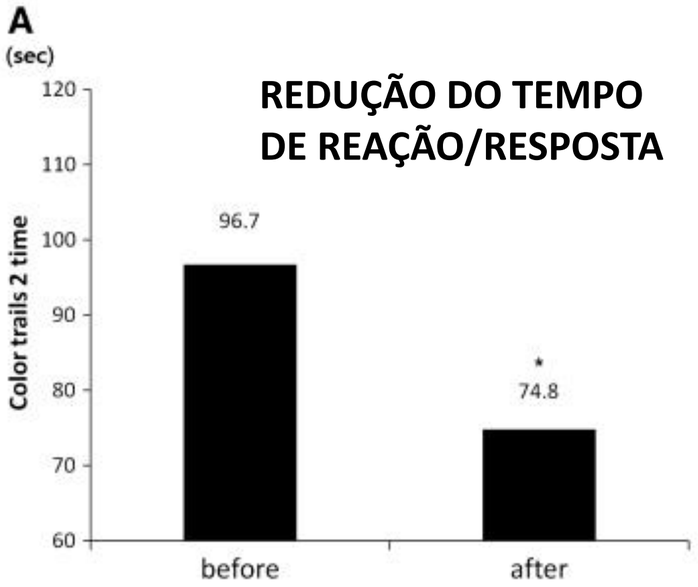
Full Communication

Brain Factor-7 Extracted from *Bombyx mori* Enhances Cognition and Attention in Normal Children

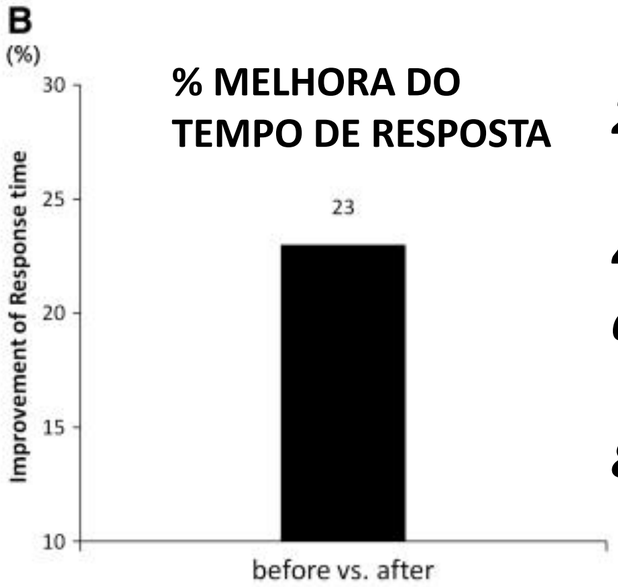
Kunwoo Kim,[1] Subin Park,[1] Hanik K. Yoo,[1] Jun-Young Lee,[2] Hee-Yeon Jung,[2] Do-Hee Kim,[3] Hyun-Jung Lee,[3] Jin-Young Kim,[3] Young-Chul Youn,[4] Maurice R. Marshall,[5] Sung-Su Kim,[3] and Yoonhwa Jeong[6]

[1]Department of Psychiatry, College of Medicine, University of Ulsan, Asan Medical Center; [2]Department of Psychiatry, College of Medicine, Seoul National University, Seoul Municipal Boramae Hospital; Departments of [3]Anatomy and Cell Biology and [4]Neurology, College of Medicine, Chung-Ang University, Seoul; [6]Department of Food Science and Nutrition, College of Natural Science, Dankook University, Gyeonggi-do, Republic of Korea; and [5]Department of Food Science and Human Nutrition, University of Florida, Gainesville, Florida

J Med Food. 2009 Jun;12(3):643-8. doi: 10.1089/jmf.2008.1236.



REDUÇÃO DO TEMPO DE REAÇÃO/RESPOSTA



% MELHORA DO TEMPO DE RESPOSTA

FIG. 1. (**A**) The improvement of response time by BF-7. The CTT-2 response time was determined before BF-7 and after 16 weeks of treatment with 400 mg of BF-7/day. The repeated measures of multivariate analysis of covariance were used to find changes before and after administration of BF-7. Significant differences are shown as $*P < .05$. (**B**) The improvement of response time was evaluated. The percentage of reduced time per baseline is given.

200 mg BF7 2 x dia

46 crianças com inteligência acima da média

8-11 anos

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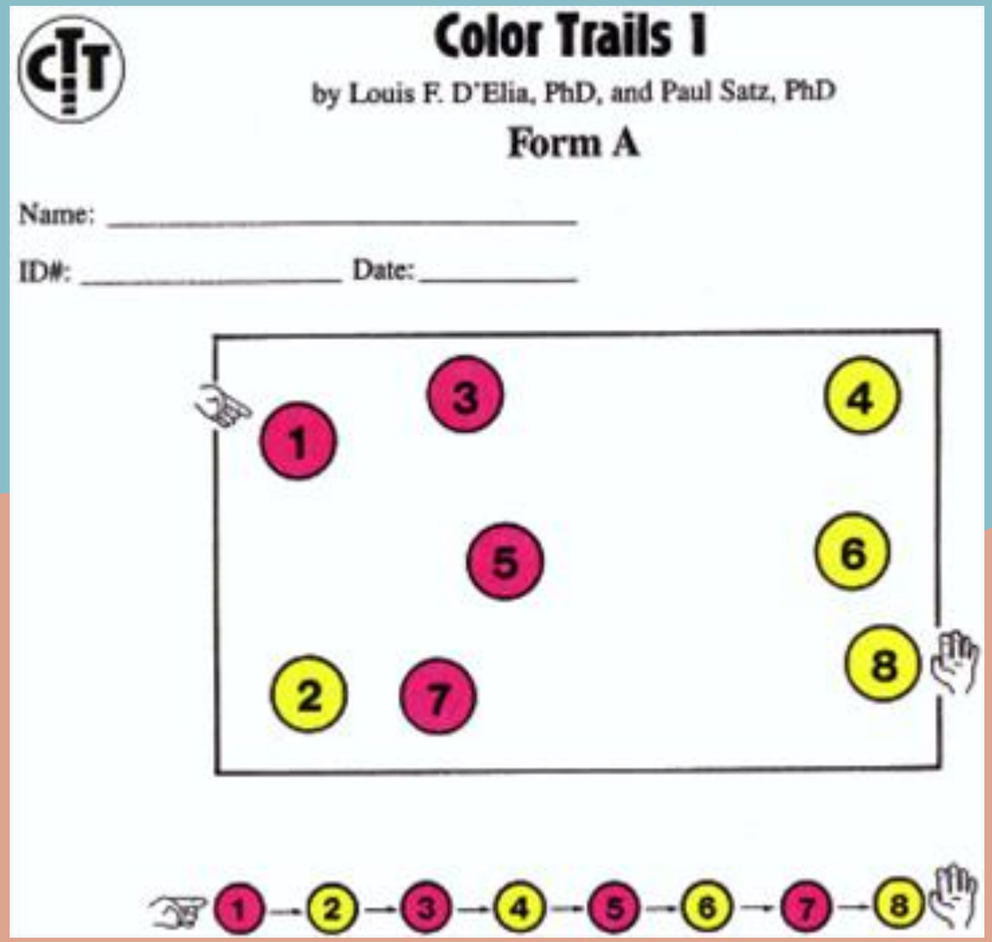

Para a Parte 1, o entrevistado usa um lápis para conectar rapidamente os círculos numerados de 1 a 25 em sequência. Para a Parte 2, o respondente conecta rapidamente círculos numerados em sequência, mas alterna entre rosa e amarelo. O tempo para completar cada tentativa é registrado, juntamente com características qualitativas de desempenho indicativas de disfunção cerebral, como quase erros, prompts, erros de sequência de números e erros de sequência de cores.

https://www.parinc.com/Products/Pkey/77

neuro nutrição
COM DANIELLE LODETTI

BF-7 É EFICAZ EM MELHORAR O FUNCIONAMENTO CEREBRAL EM CRIANÇAS, JOVENS E ADULTOS.

FUNÇÕES COGNITIVAS, INCLUINDO ATENÇÃO E FLEXIBILIDADE COGNITIVA, PODEM SER MELHORADOS INCLUSIVE EM INDIVÍDUOS COM INTELIGÊNCIA ACIMA DA MÉDIA

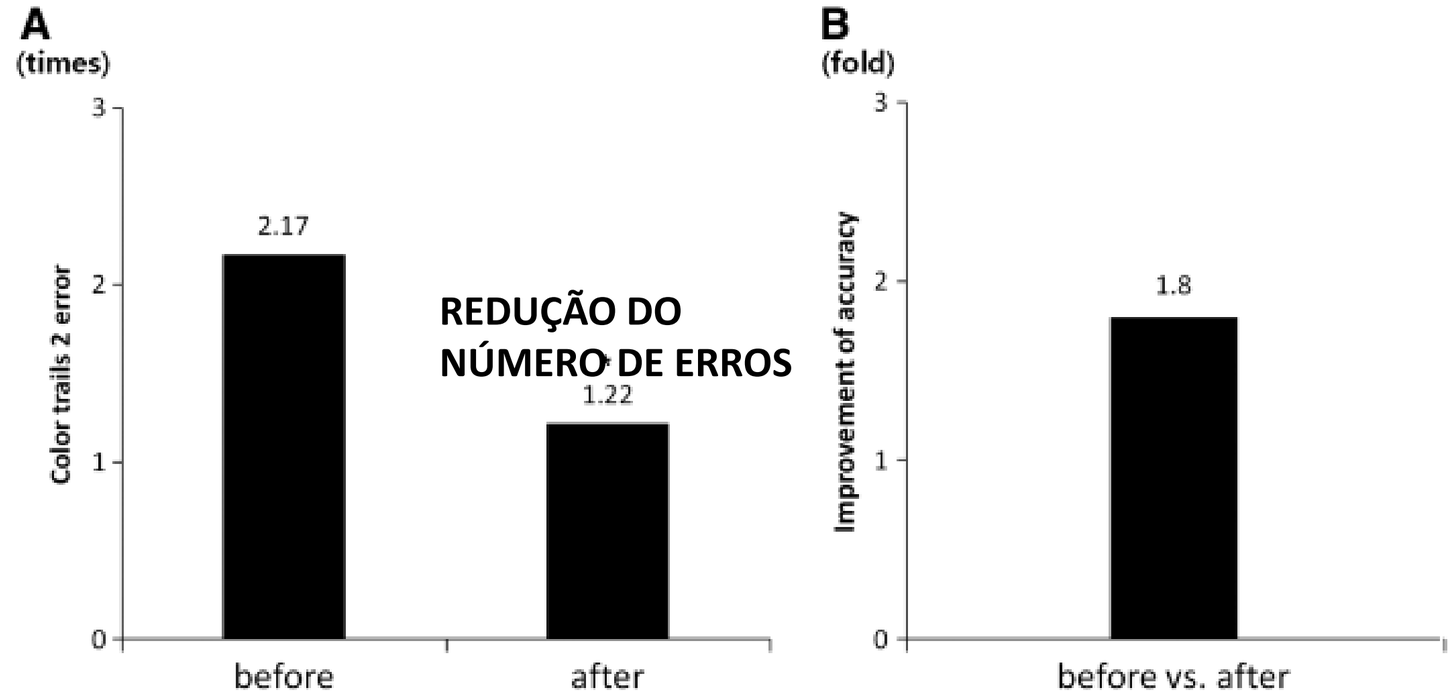

FIG. 2. (**A**) Enhancement of accuracy by BF-7. The CTT-2 error was determined before and after 16 weeks of treatment with 400 mg of BF-7/day. The repeated measures of multivariate analysis of covariance were used to find changes before and after administration of BF-7. Significant differences are shown as $*P < .05$. (**B**) Improvement of accuracy by BF-7. The fold improvement in reduced error per error at baseline is given.

J Med Food. 2009 Jun;12(3):643-8. doi: 10.1089/jmf.2008.1236.

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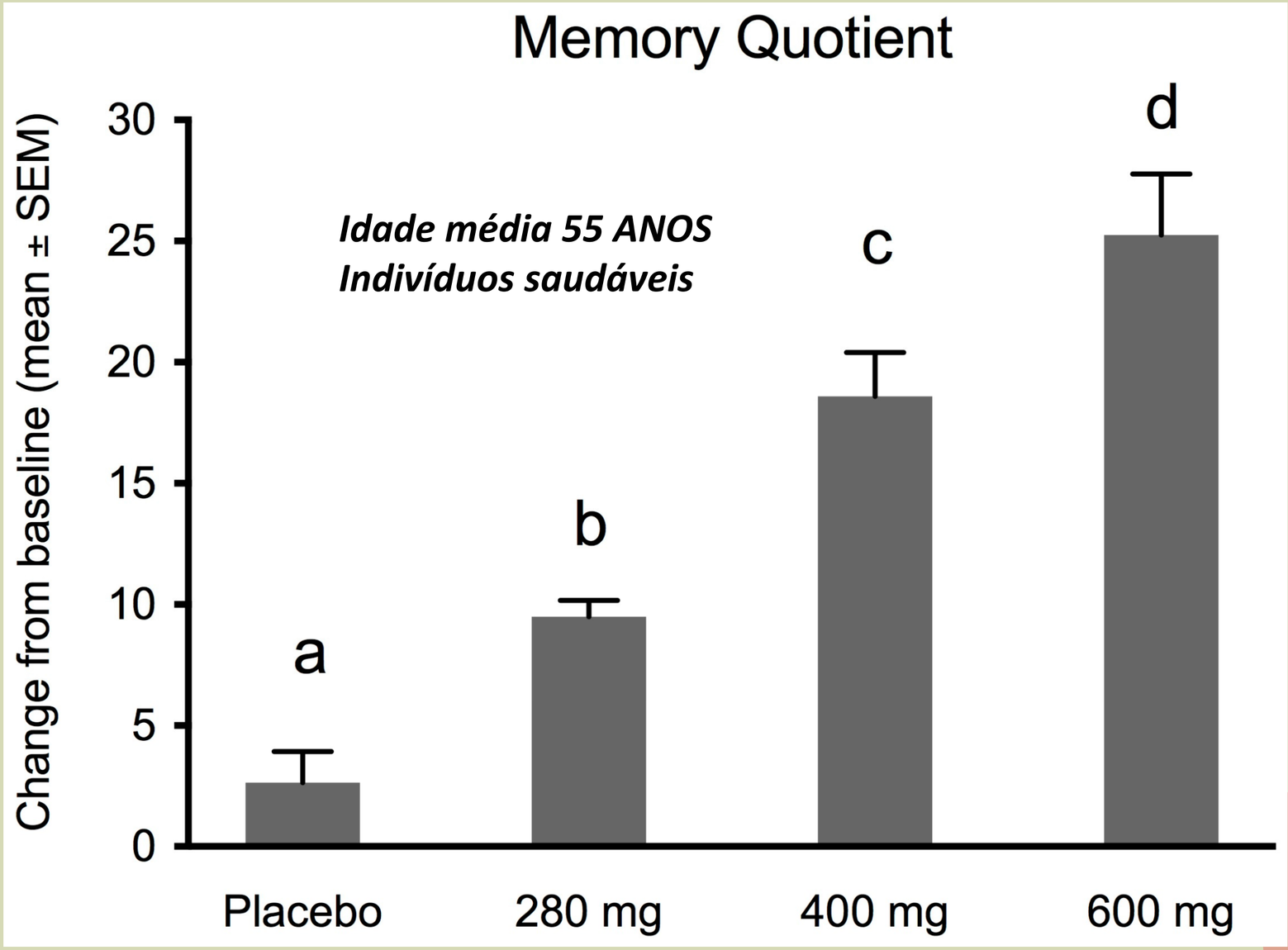

Nutrients **2018**, *10*(2), 233; https://doi.org/10.3390/nu10020233

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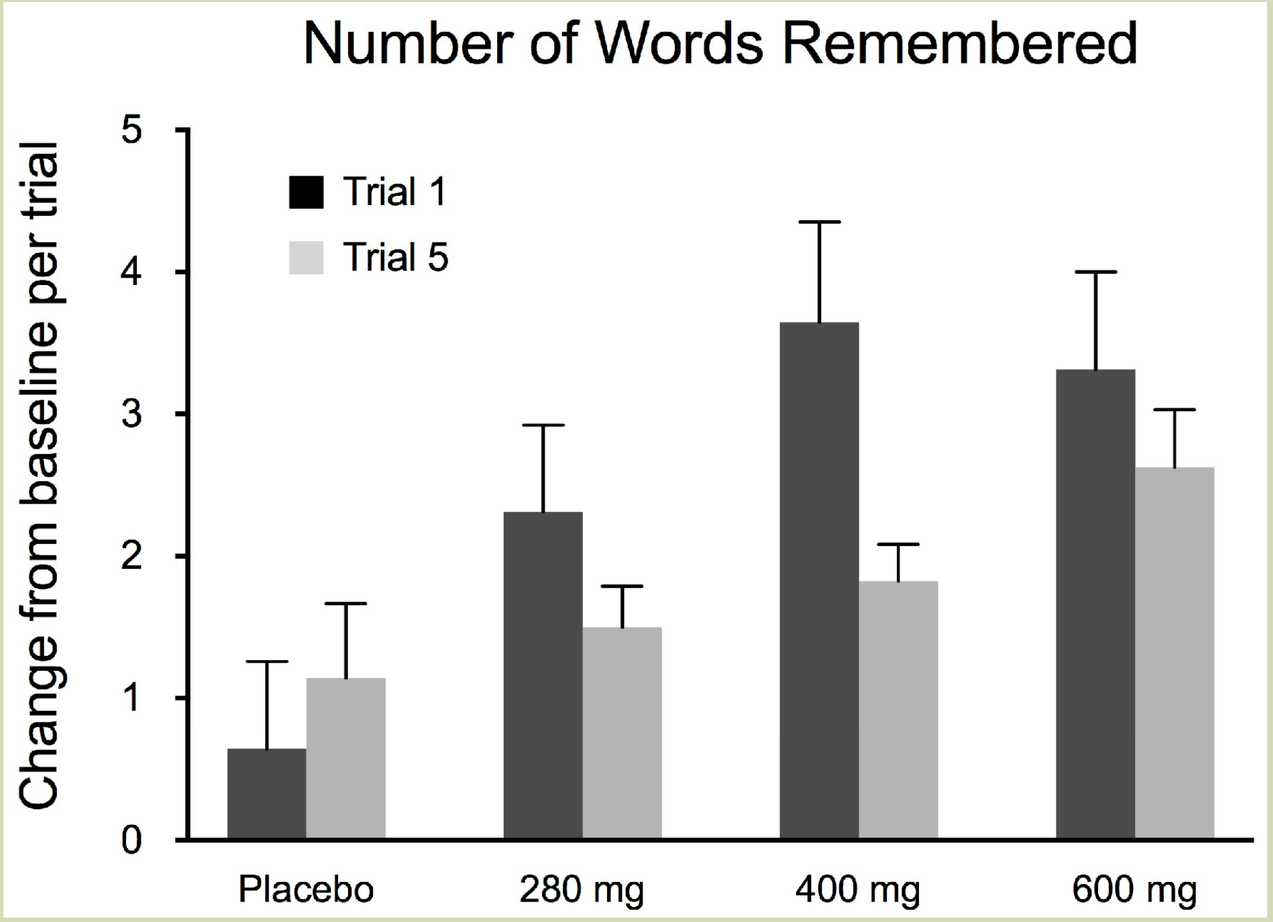

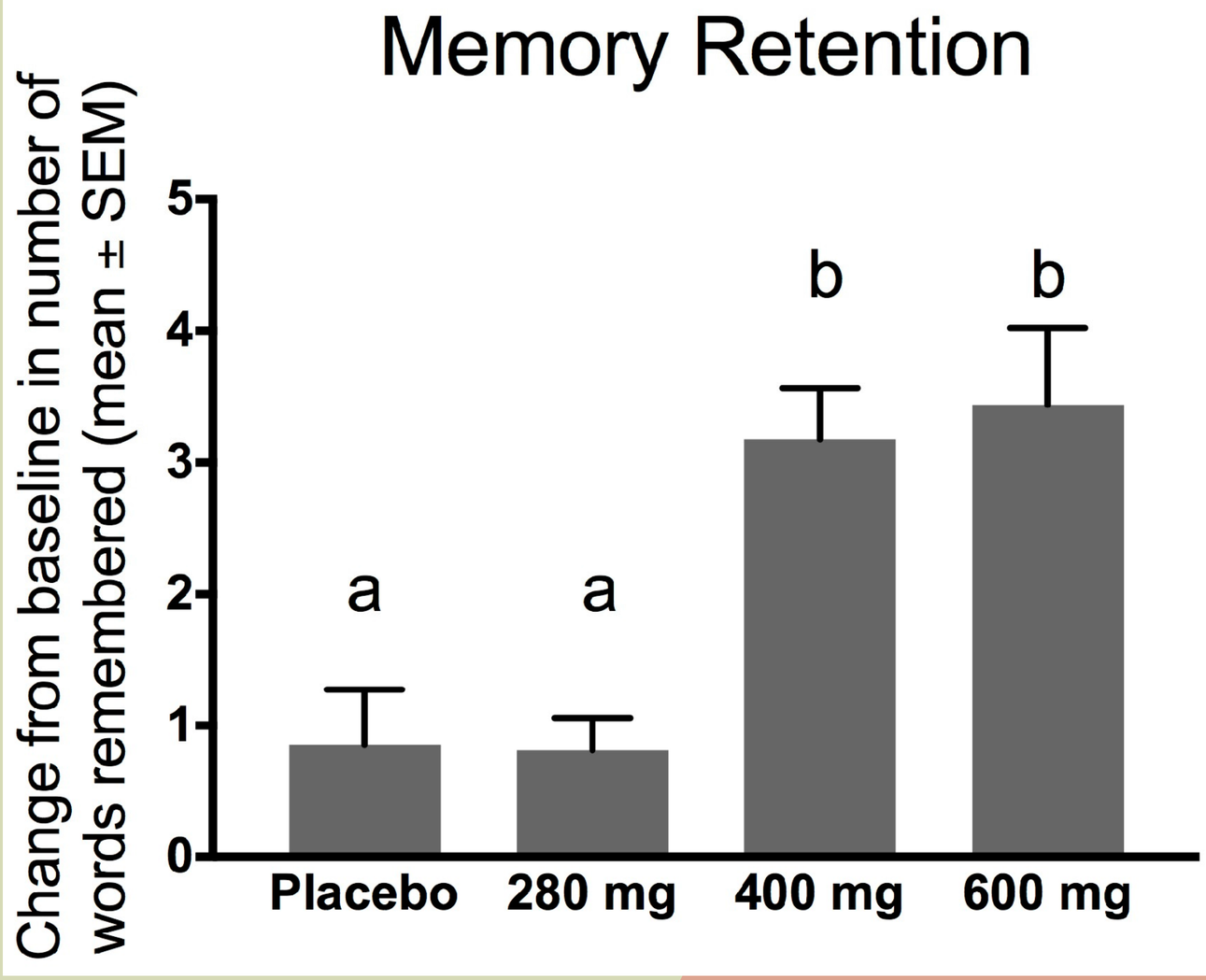

Nutrients **2018**, *10*(2), 233; https://doi.org/10.3390/nu10020233

neuro nutrição
COM DANIELLE LODETTI

FIBROÍNA É EFICAZ NA MELHORA DOS PARÂMETROS DE MEMÓRIA VERBAL E VISUAL, DE FORMA DOSE DEPENDENTE , ATINGINDO UM PLATÔ ENTRE 400 - 600 mg

MECANISMOS DE AÇÃO SUGERIDOS :

REDUÇÃO DA AGREGAÇÃO BETA AMILÓIDE

AUMENTO DA CAPTAÇÃO DE GLICOSE PELO CÉREBRO

AUMENTO DA PERFUSÃO SANGUÍNEA CEREBRAL

ATIVIDADE ANTIOXIDANTE

Nutrients **2018**, *10*(2), 233; https://doi.org/10.3390/nu10020233

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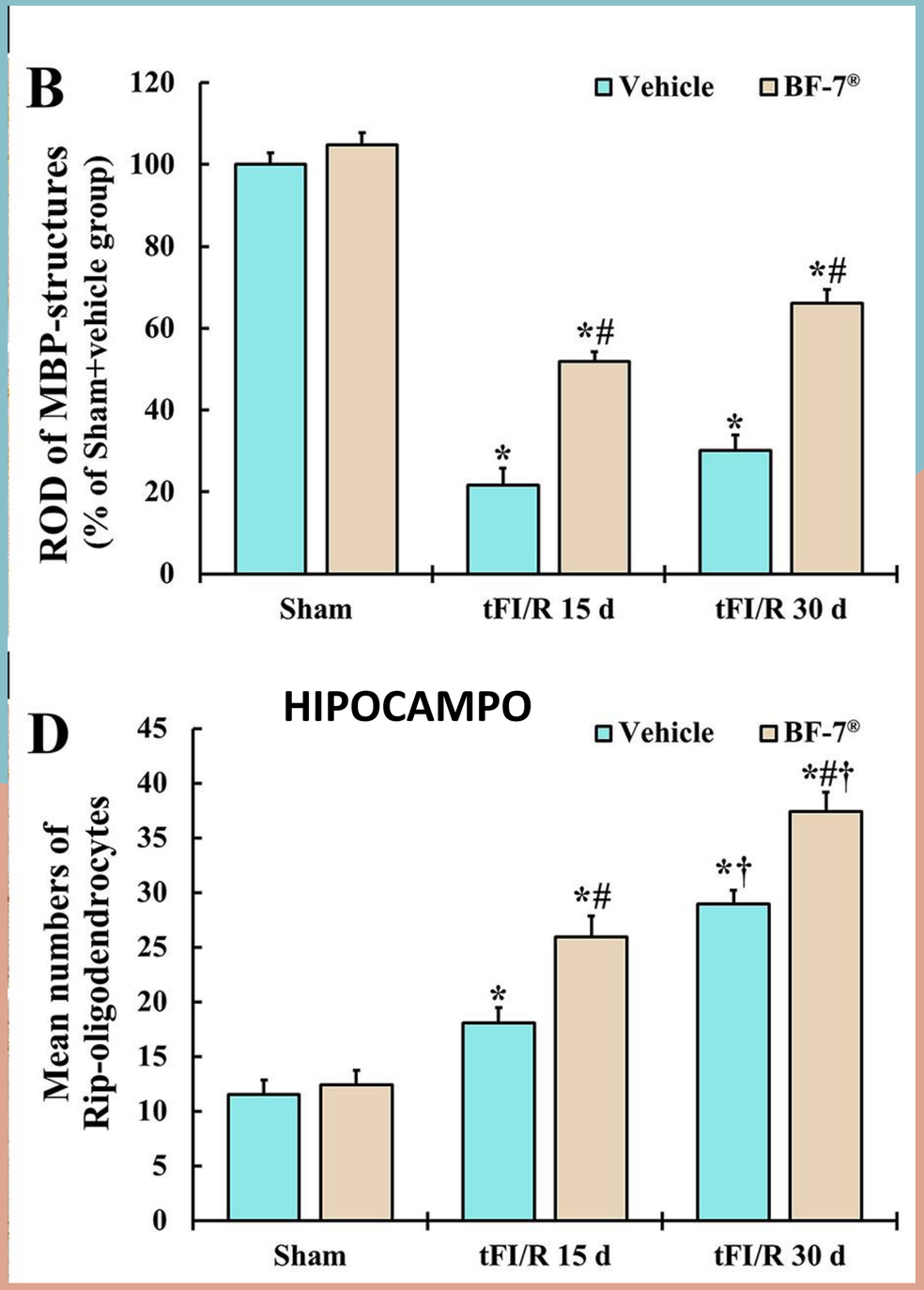
COM DANIELLE LODETTI

PÓS ISQUEMIA – REPERFUSÃO (CARÓTIDAS) ESQUILOS



↑ *MBP , PROTEÍNA IMPORTANTE PARA A MILELINIZAÇÃO*

↑ *OLIGODENDRÓCITOS*

Front Biosci (Landmark Ed). 2022 Dec 28;27(12):337. doi: 10.31083/j.fbl2712337.

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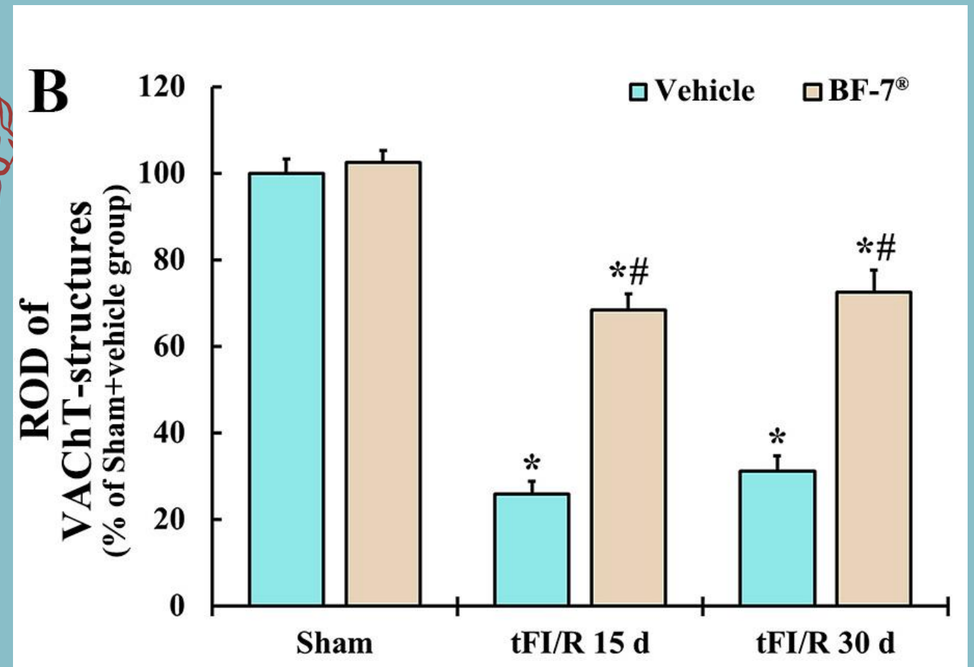
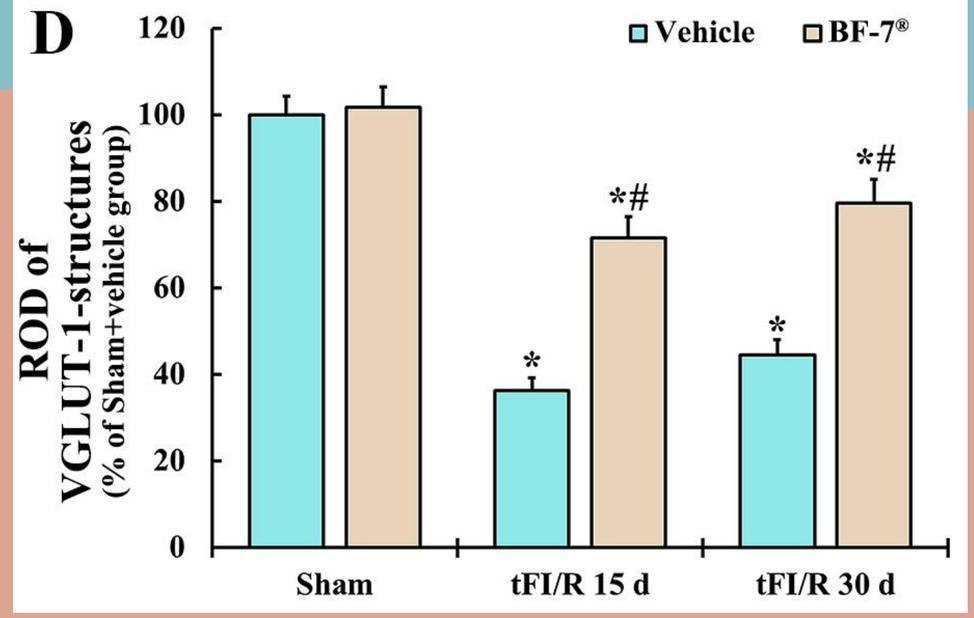


HIPOCAMPO



↑ *VAChT, AUMENTANDO LIBERAÇÃO DE Ach NA FENDA SINÁPTICA*

↑ *GLUT-1, TRASPORTADOR DE GLUTAMATO*

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COM DANIELLE LODETTI

Front Biosci (Landmark Ed). 2022 Dec 28;27(12):337. doi: 10.31083/j.fbl2712337.

***Conclusions**: Based on these results, we suggest that BF-7® can be utilized for improving cognitive impairments induced by ischemic injury as an additive for health/functional foods and/or medicines..*

Front Biosci (Landmark Ed). 2022 Dec 28;27(12):337. doi: 10.31083/j.fbl2712337.

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APOPTOSE INDUZIDA POR BETA AMILÓIDE

PRÉ TRATAMENTO COM BF-7

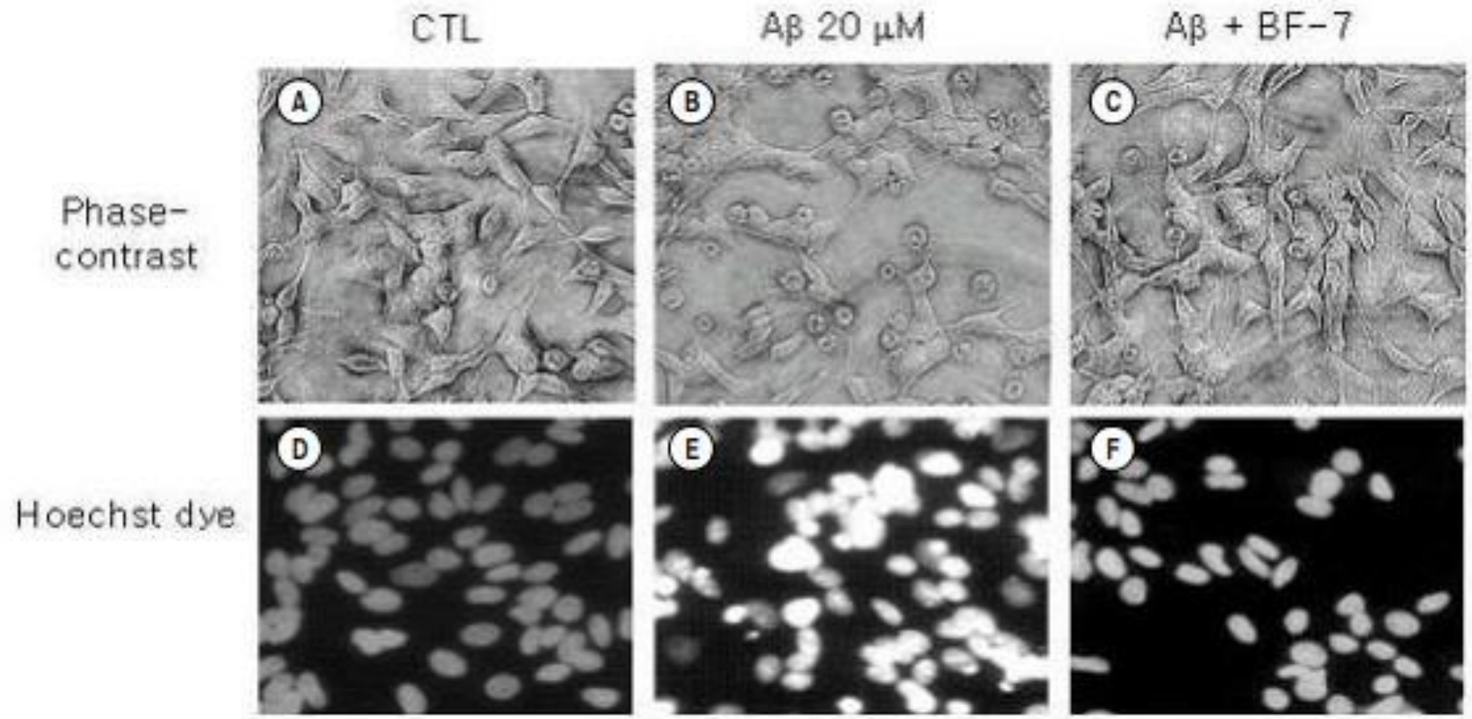

Fig. 2. Morphological assessment of apoptosis by phase-contrast and fluorescence microscopy. The SKN-SH cells were either not treated (A, D) or treated (B, E) with 20μM of Aβ for 24 h. The BF-7 pretreated (10μM of BF-7 for 2 h cells were treated with 20μM of Aβ for 24 h (C, F). The figures show the optical microscopic morphology (A−C) and Hoechst 33258 stained nuclear morphology over fluorescence microscope (D−F). The figures are representative of three different experiments. Scale bar indicates 10μm.

The role of BF-7 on neuroprotection and enhancement of cognitive function. Korean J. Physiol. Pharmacol. ***2004****, 8, 173–179*

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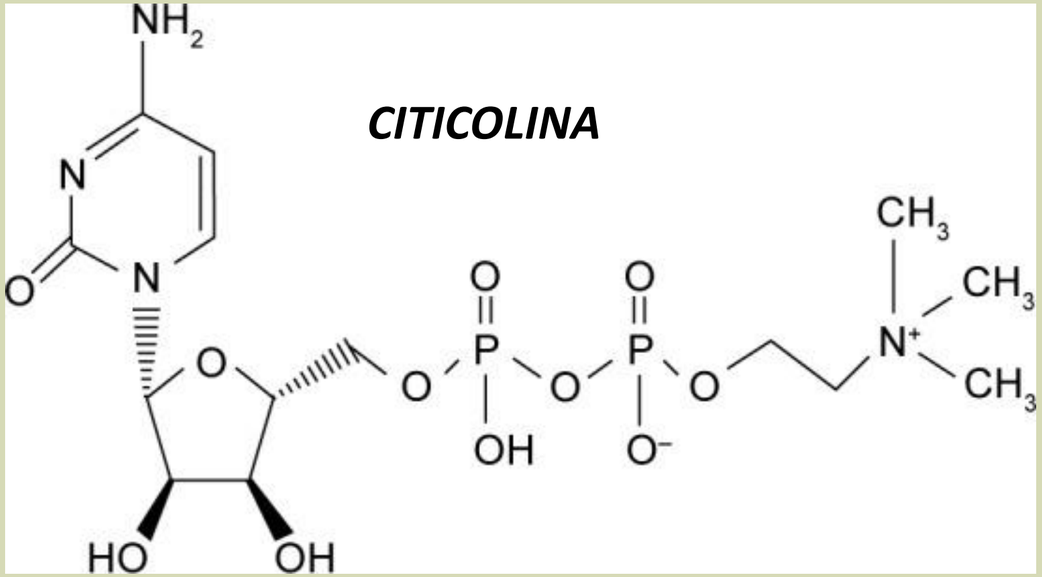
COLINA

neuro
nutrição
COM DANIELLE LODETTI



NEUROPLASTICIDADE

FOSFATIDILCOLINA (FOSFOLIPÍDEO DE MEMBRANA)

ACETILCOLINA

↑ METABOLISMO NEURONAL

↑ MONOAMINAS

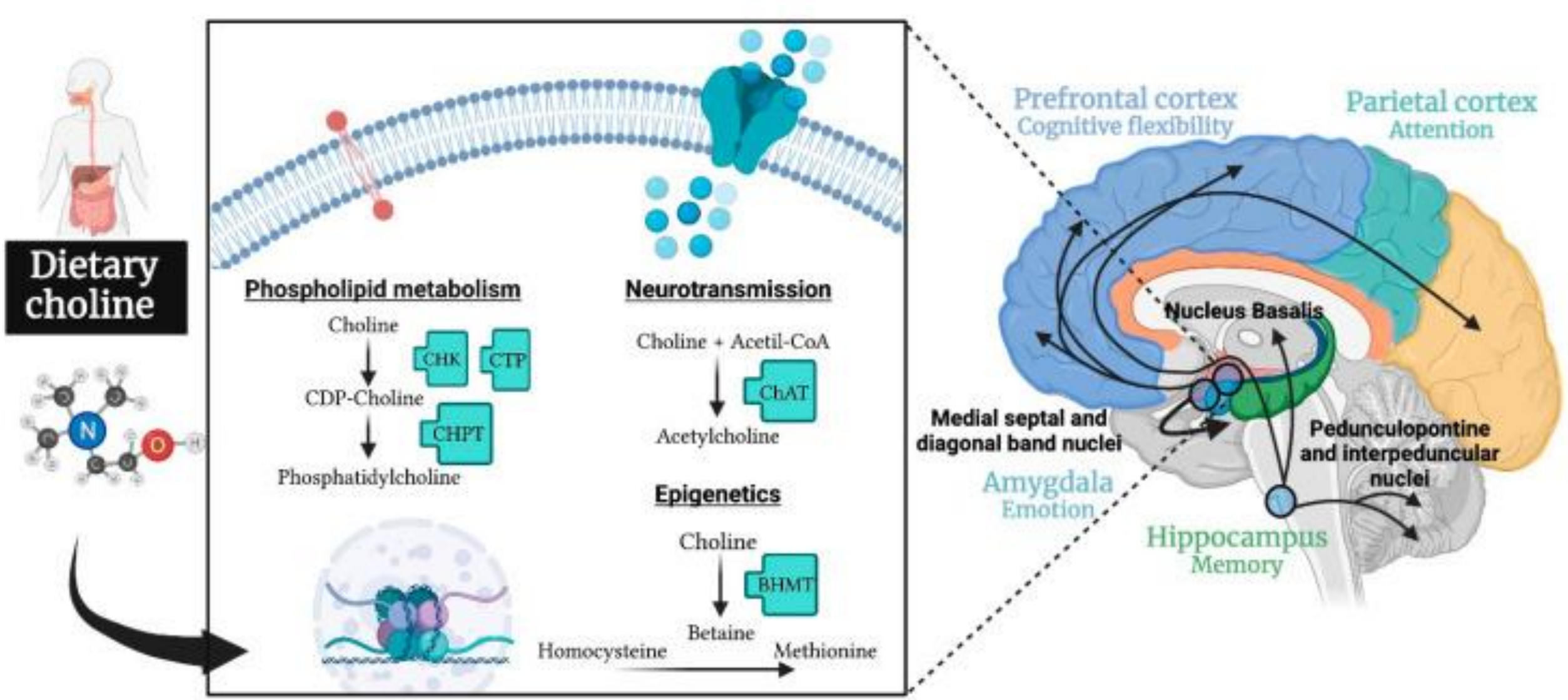
↓PLA2 (neuroproteção)

https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4562749/

Nutrients. 2021 Jun; 13(6): 1966.

neuro nutrição
COM DANIELLE LODETTI

METABOLISMO DA COLINA



Nutrients. 2021 Jun; 13(6): 1966.

REVIEW

Association between Maternal Choline, Fetal Brain Development, and Child Neurocognition: Systematic Review and Meta-Analysis of Human Studies

Rima Obeid,[1] Emma Derbyshire,[2] and Christiane Schön[3]

[1] Department of Clinical Chemistry and Laboratory Medicine, University Hospital of the Saarland, Homburg, Germany; [2] Nutritional Insight, Surrey, United Kingdom; and [3] BioTeSys GmbH, Esslingen, Germany

↓ CONSUMO DE COLINA DURANTE A GESTAÇÃO

2,3 X MAIS CHANCES DE DEFEITOS NA FORMAÇÃO DO TUBO NEURAL

↑ CONSUMO DE COLINA DURANTE A GESTAÇÃO

MELHOR NEURODESENVOLVIMENTO

Adv Nutr. 2022 Nov; 13(6): 2445–2457.

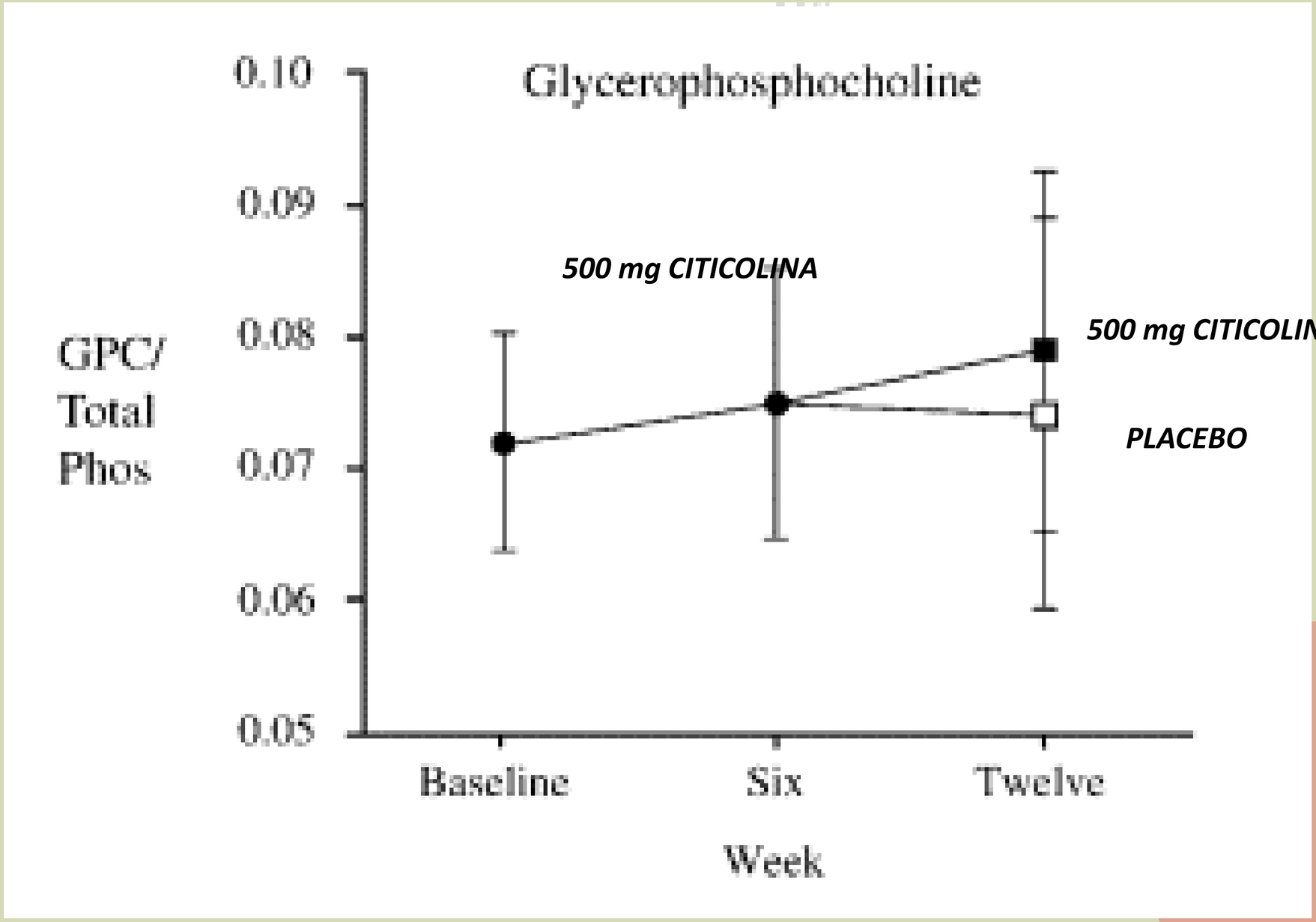
neuro nutrição
COM DANIELLE LODETTI

Application of Citicoline in Neurological Disorders: A Systematic Review

Table 3. Key clinical features of studies in dementia patients and healthy volunteers.

References	Number of Patients Received Citicoline	Mean Age (Years)	Dose of Citicoline (mg/Daily)	Period of Citicoline Administration (Days)	Used Methods to Assessment Effectiveness of Citicoline	Frequency of Examination by Scales (Days after Start Treatment)
Castagna et al. [46]	92	81.3	1000	270	MMSE, ADL, IADL, NPI, GDS	90, 270
Cotroneo et al. [47]	265	79.9	500 × 2	270	MMSE, ADL, IADL, GDS	90, 270
Gareri et al. [48]	251	-	1000	270	MMSE, ADL, IADL, NPI, GDS	90, 270
Zhenguang et al. [49]	41	61.7	200 × 3	18 months	MoCA, SCOPA-COG	12, 18 months
Alvarez et al. [50]	13	73	1000	84	ADAS	84
Babb et al. [15]	19	70.3	500	42, 84	CVLT	42, 84
Spiers et al. [51]	46	67.2	1000	90	WMS, WMSR	30, 90
Cohen et al. [52]	15	78.1	1000			180, 360
McGlade et al. [53]	51	15.41	250/500	28	FTT, RSAT, CPT-II	28
Bruce et al. [54]	30	24.2	250	-		30 min
Bruce et al. [55]	10	28.1	250	-	EEG	30 min
Knott et al. [56]	24	21.3	500/1000	-	Cogstate	12-14
Chutko et al. [57]	46	32.3	1000	30	TOVA, CERQ,	30, 60

Mini-Mental State Examination (MMSE); Activities of Daily Living (ADL); Instrumental Activity of Daily Living (IADL); The Neuropsychiatric Inventory (NPI); Geriatric Depression Scale (GDS); Montreal Cognitive Assessment (MoCA); Scales for Outcomes in Parkinson's Disease-Cognition (SCOPA-COG); The Alzheimer's Disease Assessment Scale (ADAS); the California Verbal Learning Test (CVLT); the Wechsler Memory Scale (WMS); the Wechsler Memory Scale-Revised (WMSR); The Finger Tap Test (FTT); Ruff 2&7 Selective Attention Test (RSAT); Computerized Performance Test, Second Edition (CPT-II); electroencephalography (EEG); Test of Variables of Attention (TOVA); Cognitive Emotional Regulation Questionnaire (CERQ).



DOI: 10.1007/s00213-002-1045-y

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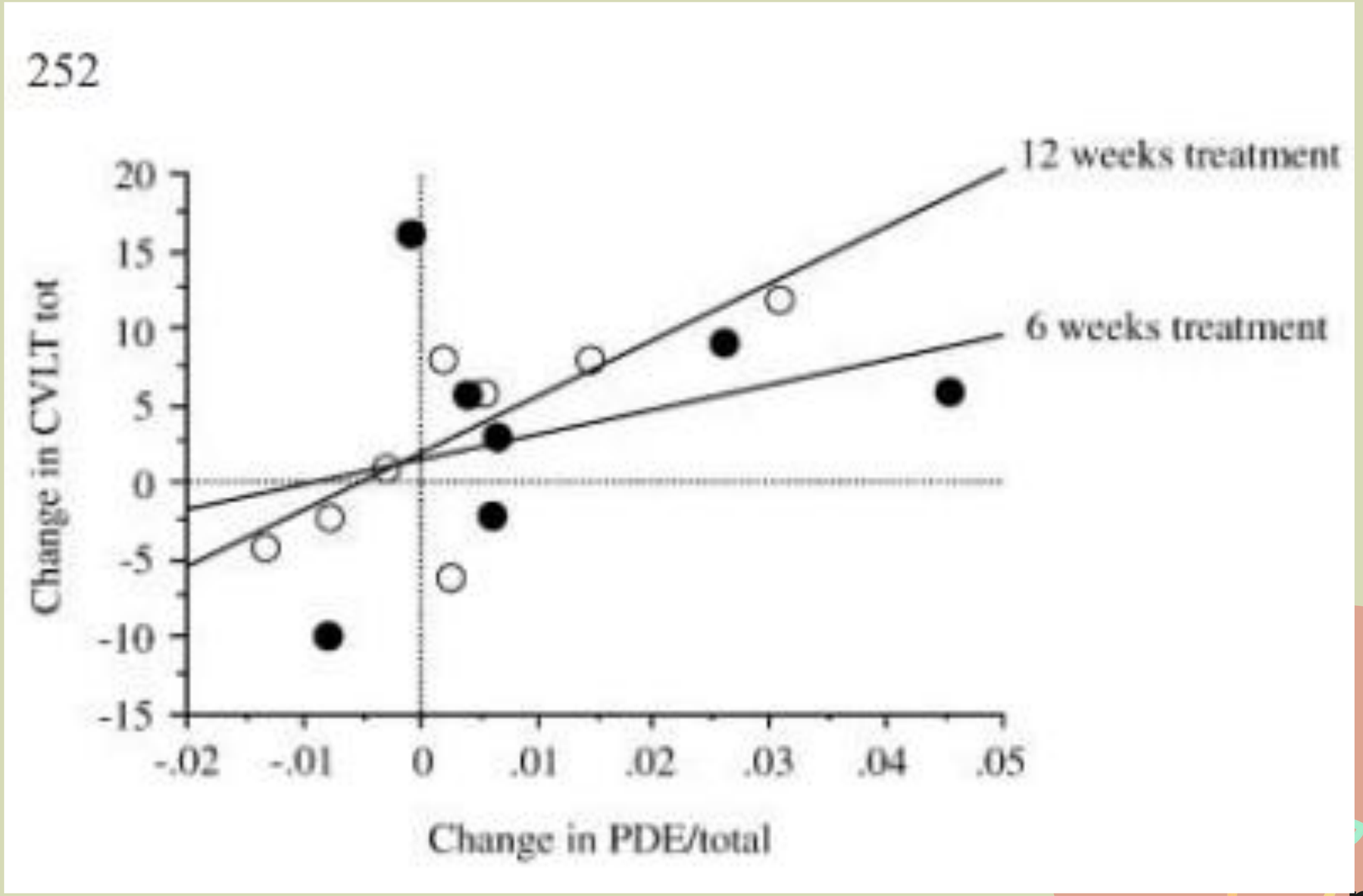
COM DANIELLE LODETTI

TESTE DE APRENDIZAGEM VERBAL



DOI: 10.1007/s00213-002-1045-y

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Article

Journal of Attention Disorders
1–14

DOI: 10.1177/1087054715593633
jad.sagepub.com
SAGE

The Effect of Citicoline Supplementation on Motor Speed and Attention in Adolescent Males

Erin McGlade[1], Anna Monica Agoston[1], Jennifer DiMuzio[1], Miho Kizaki[2], Eri Nakazaki[2], Toshikazu Kamiya[3], and Deborah Yurgelun-Todd[1]

ATENÇÃO E VELOCIDADE DE REAÇÃO

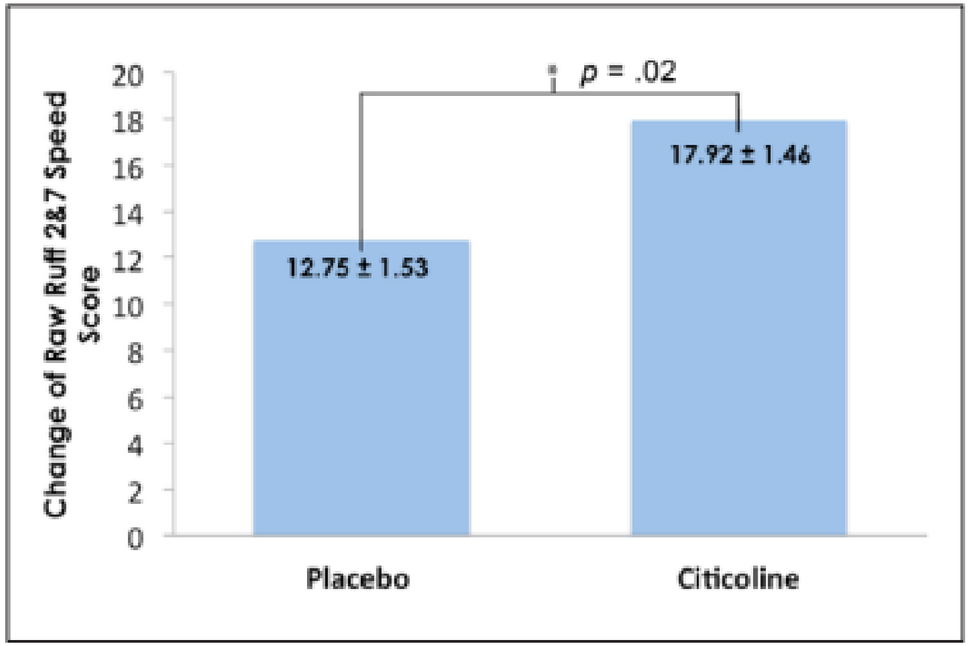

Figure 2. Improved performance on the Ruff 2&7 Speed task after supplementation.

250 MG CITICOLINA X
500 MG CITICOLINA X
PLACEBO

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The Effect of Citicoline Supplementation on Motor Speed and Attention in Adolescent Males. Journal of Attention Disorders, doi:10.1177/1087054715593633

HOMÔNIOS X COGNIÇÃO

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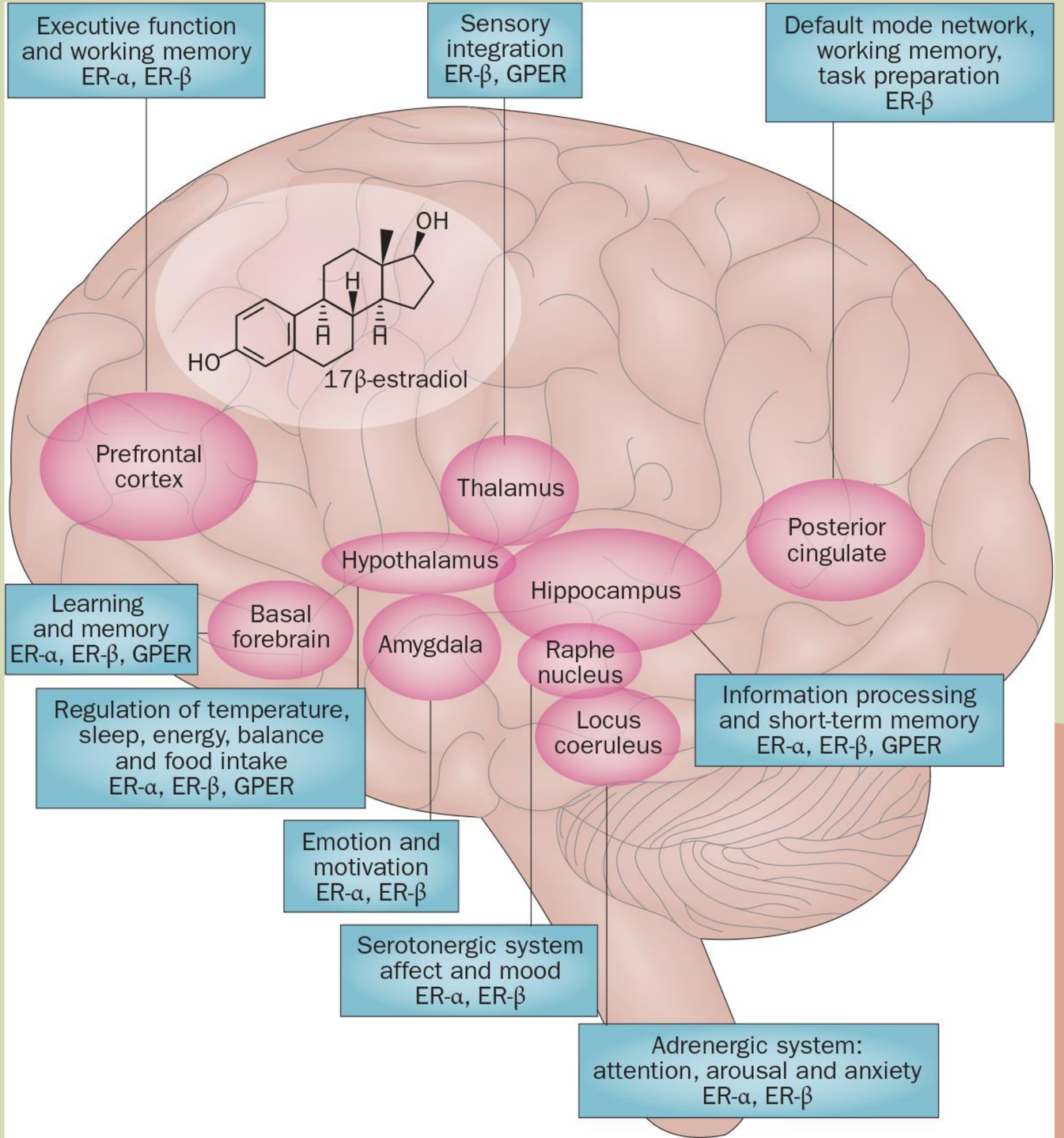
REGIÕES DO CÉREBRO E SUAS FUNÇÕES CORRESPONDENTES REGULADAS POR ESTROGÊNIO



Nat Rev Endocrinol. 2015 Jul; 11(7): 393–405.

Menopause: The Journal of The North American Menopause Society
Vol. 22, No. 2, pp. 198-206
DOI: 10.1097/gme.0000000000000290

Do soy isoflavones improve cognitive function in postmenopausal women? A meta-analysis

Peng-Fei Cheng, PhD,[1,2,3] Jian-Jun Chen, PhD,[1,2,3] Xin-Yu Zhou, PhD,[1,2,3] Yi-Fei Ren, MD,[1,2,3] Wen Huang, PhD,[4] Jing-Jing Zhou, MD,[1,2,3] and Peng Xie, MD[1,2,3]

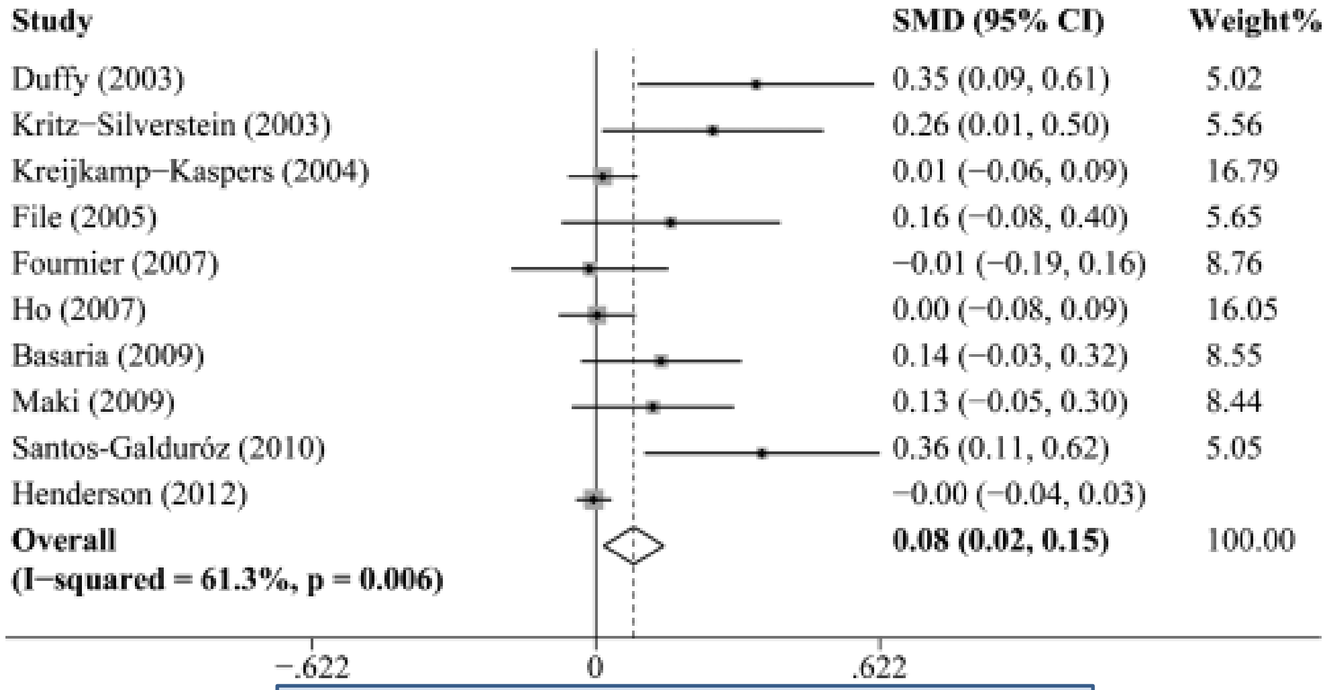


FIG. 3. Standardized mean differences (SMDs) in summary cognitive function and memory test scores. Data on all tests within each trial and on the pooled effect across all trials are provided. The overall result was statistically significant ($P = 0.014$).

60 -160 mg /dia

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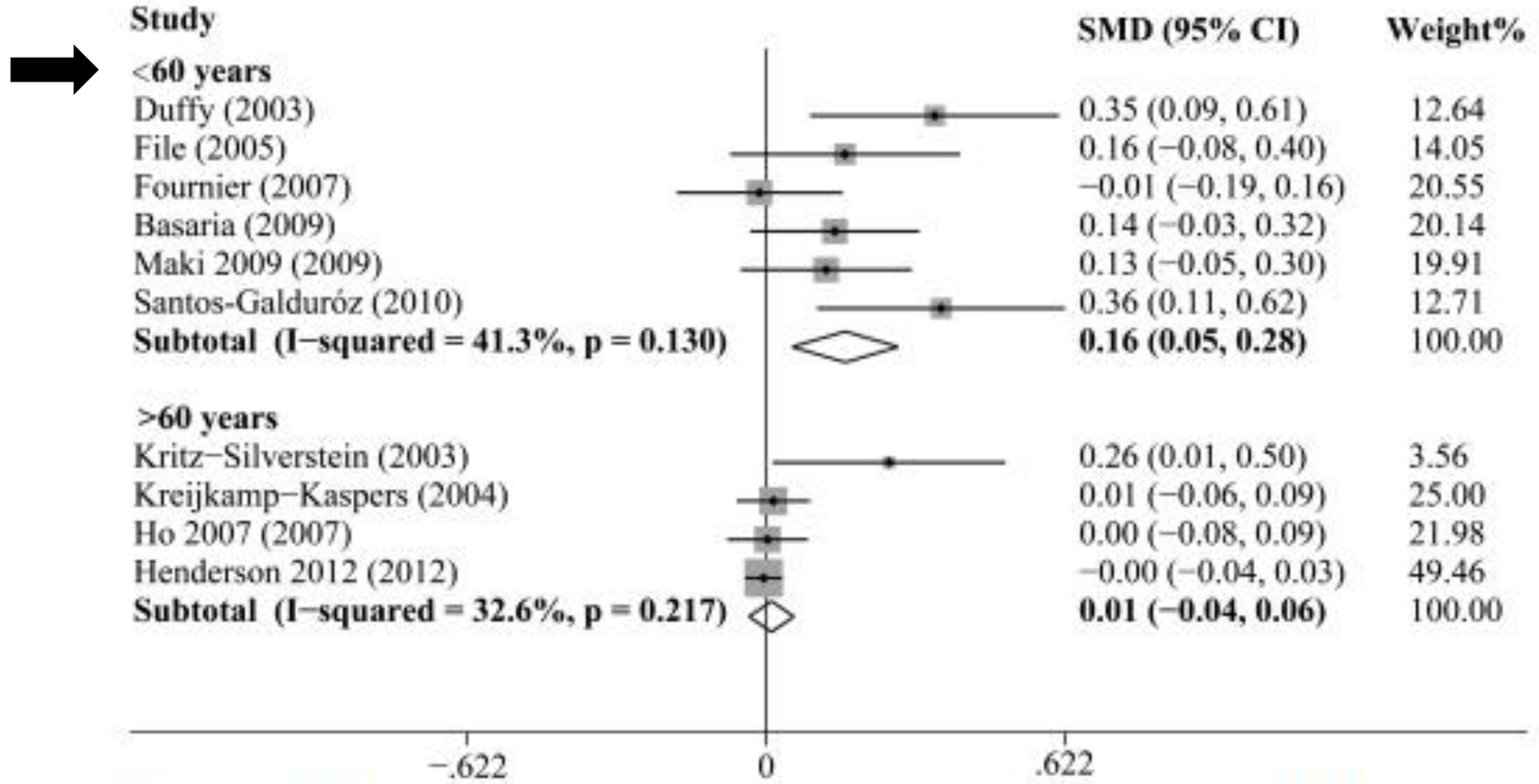

FIG. 6. Standardized mean differences (SMDs) in cognitive function test scores by age. The summary SMD for mean age younger than 60 statistically significant ($P = 0.004$).

(*2015). Do soy isoflavones improve cognitive function in postmenopausal women? A meta-analysis. Menopause, 22(2), 198–206. doi:10.1097/GME.0000000000000290*

CAFEÍNA

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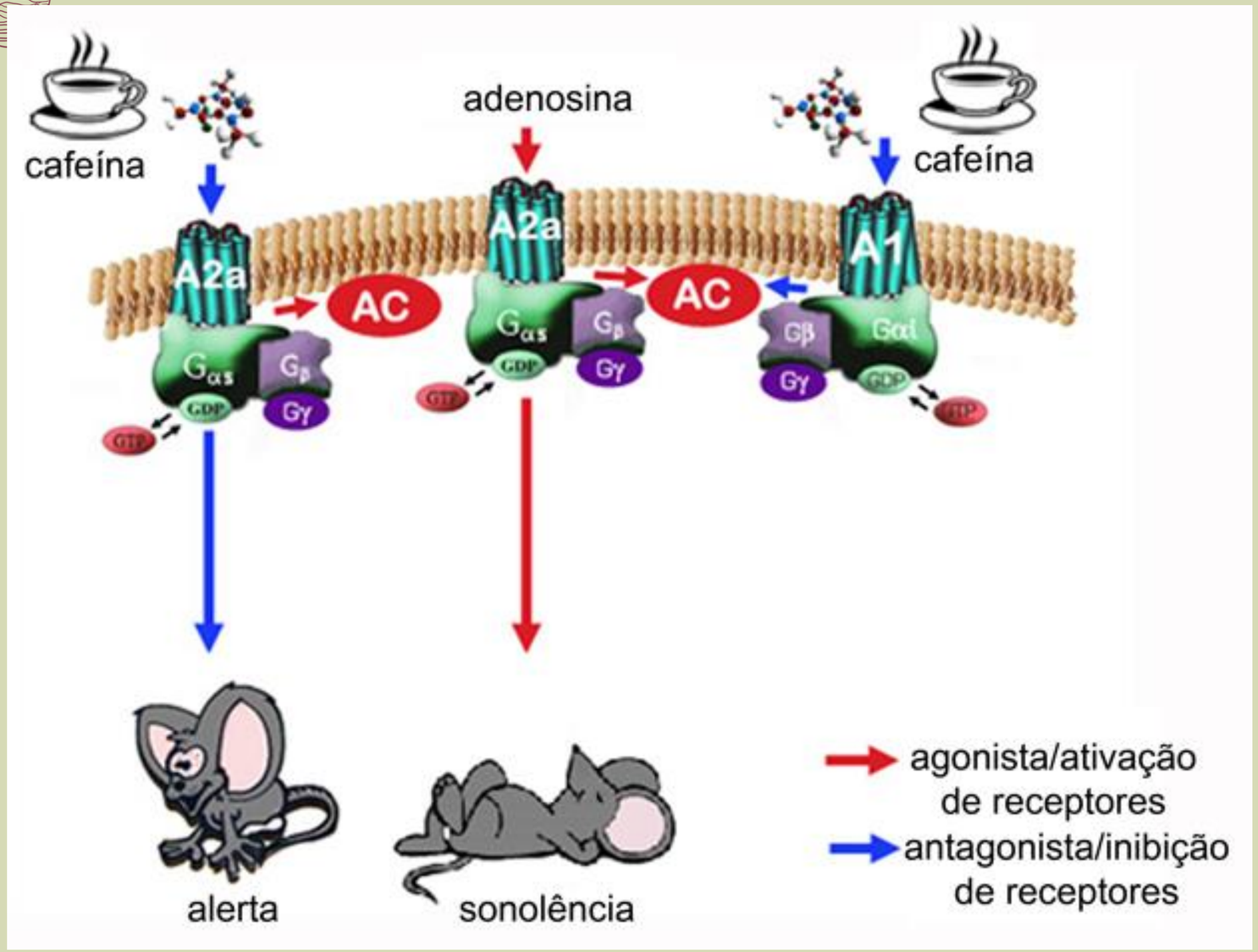
Caffeine blocks adenosine receptors, mainly A1 and A2A subtypes, competitively antagonizing their action and causing an increased release of dopamine, noradrenalin, and glutamate



Current Neuropharmacology, 13(1), 71–88. doi:10.2174/1570159x13666141210215655

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CAFEÍNA MELHORA A CONCENTRAÇÃO E AJUDA A MANTER O FOCO, REDUZINDO OS MOMENTOS DE DISTRAÇÃO

MELHORA A AQUISIÇÃO DE INFORMAÇÕES

Nehlig A. (2010) Is caffeine a cognitive enhancer?. J. Alzheimer's Dis. 20, S85–94. 10.3233/JAD-2010-091315

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CAFEÍNA

Highlights

- Caffeine in beverages and foods blocks central and peripheral adenosine receptors.
- Low (40 mg, 0.5 mg·kg^{-1}) to moderate (300 mg, 4 mg·kg^{-1}) doses improve cognition.
- Doses >200 mg (~3 mg·kg^{-1}) are ergogenic across a spectrum of exercise modalities.
- Caffeine is effective to offset physical and cognitive degradation with sleep loss.

Neuroscience & Biobehavioral Reviews, 71, 294–312.

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200mg CAFEÍNA

REDUÇÃO DO TEMPO DE RESPOSTA (SENTINELAS) POR 3 HORAS

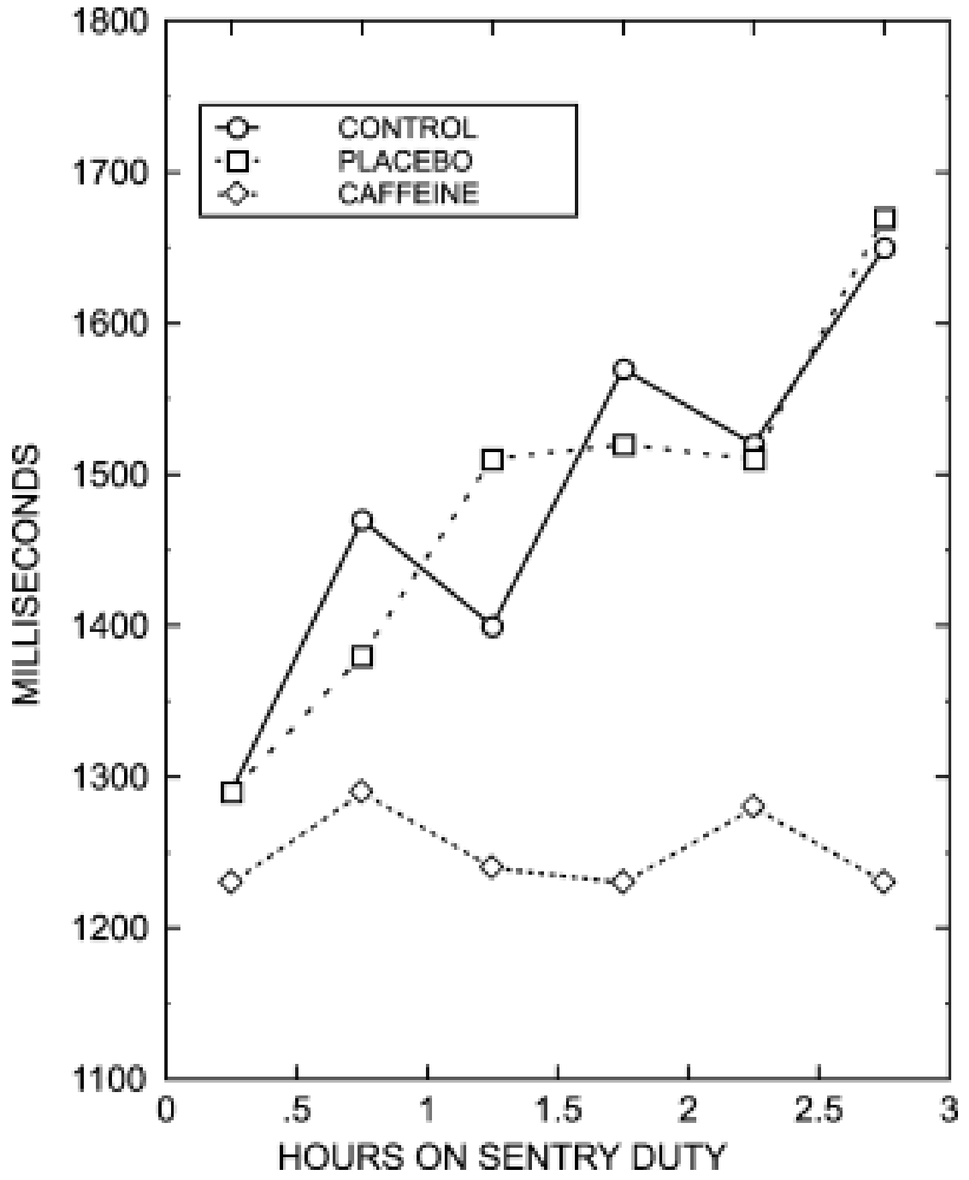

Fig. 2. The effects of 200 mg of caffeine versus either a placebo or a no-treatment (control) condition on target detection response time over three hours of a simulated sentry duty task ($N = 24$) (Johnson & Merullo, 2000).

Appetite, 40(3), 245–254. doi:10.1016/s0195-6663(03)00010-2

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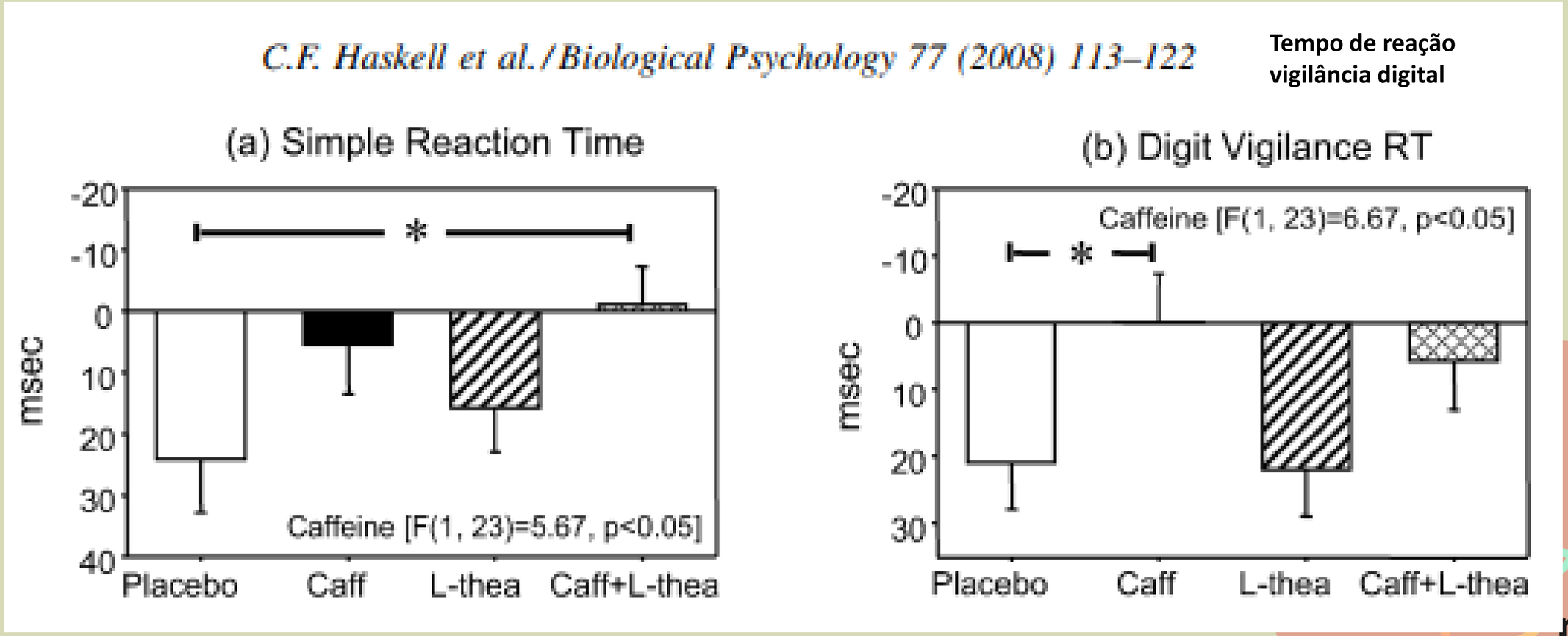
CAFEÍNA + L-TEANINA

250mg L-THEANINA + 150 mg CAFEÍNA



Biol Psychol. 2008 Feb;77(2):113-22

neuro nutrição
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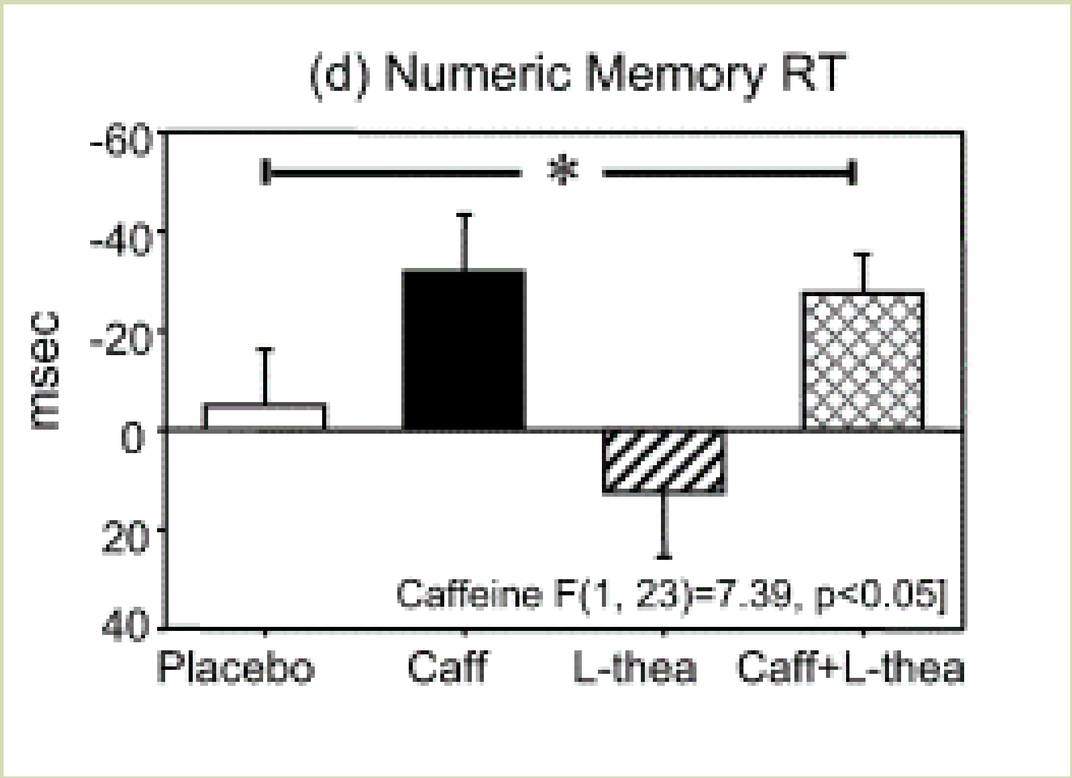
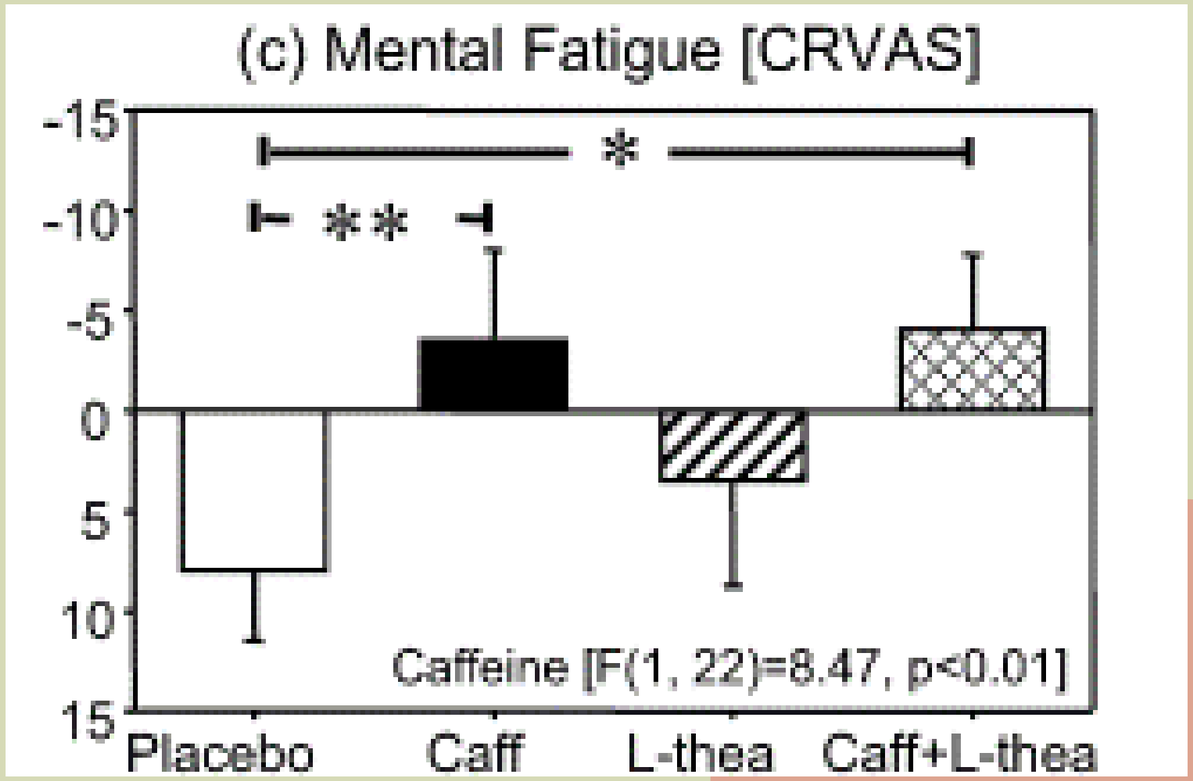
CAFEÍNA + L-TEANINA

250mg L-THEANINA + 150 mg CAFEÍNA





Biol Psychol. 2008 Feb;77(2):113-22

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CAFEÍNA + L-TEANINA

50 mg Cafeína + 100 ml L-teanina

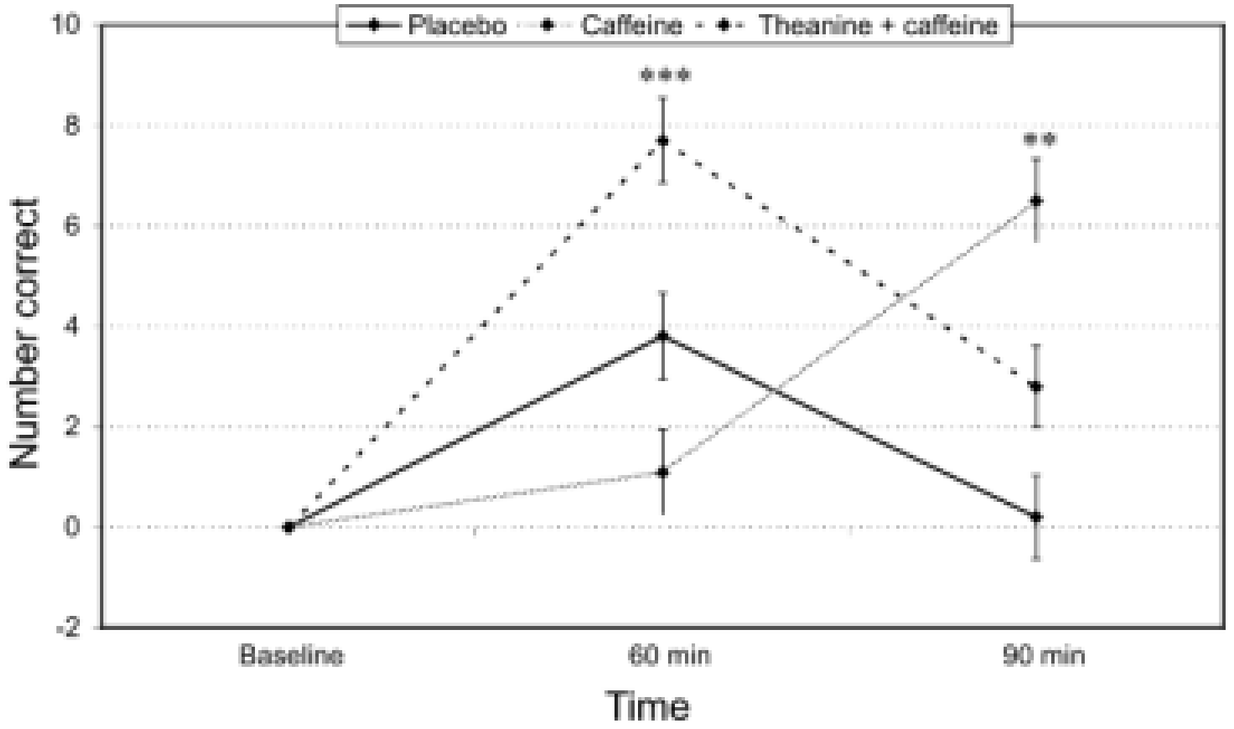

Figure 3 Change in the number of correct responses in the attention-switching task

Nutritional Neuroscience, 11(4), 193–198. doi:10.1179/147683008x301513

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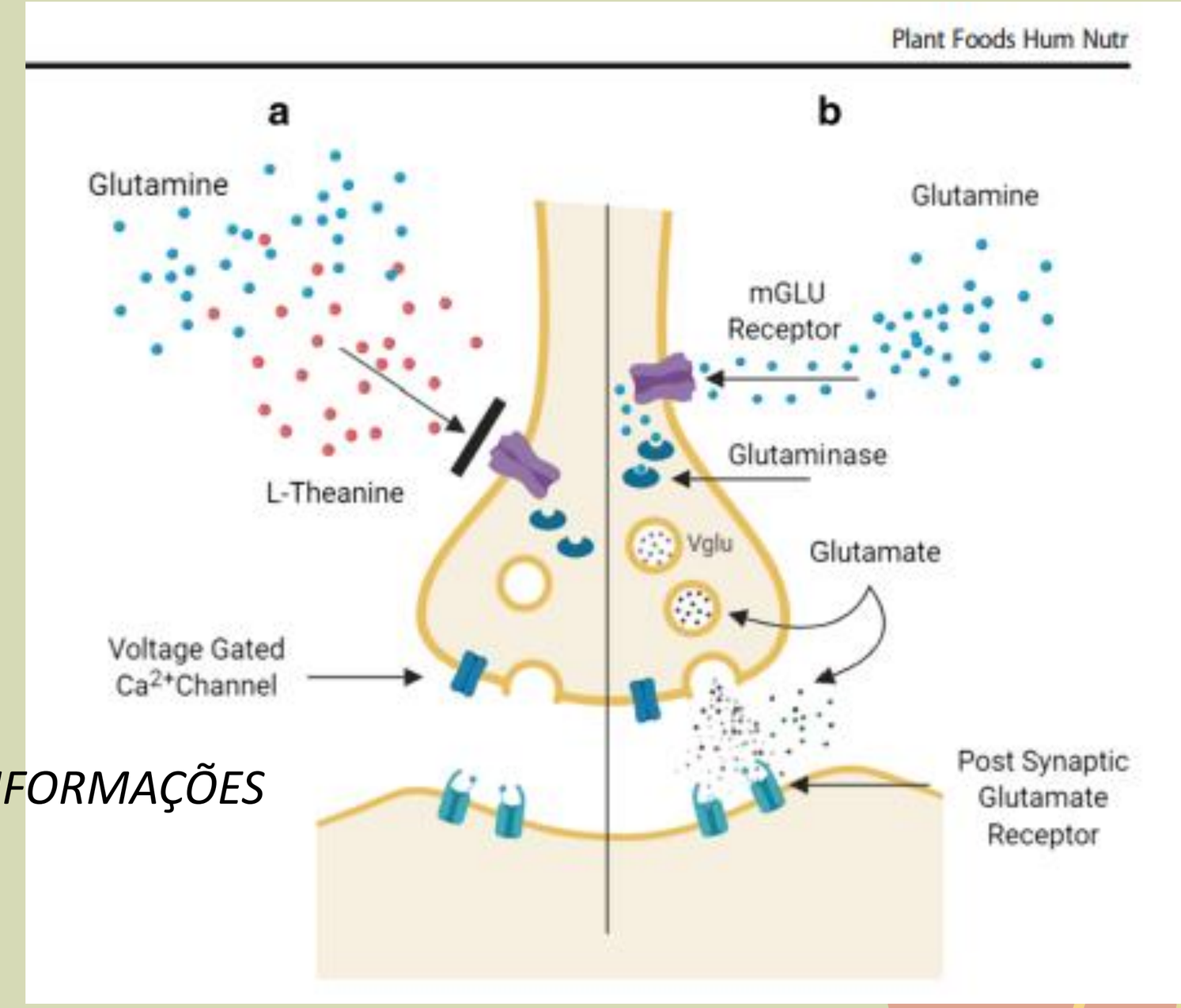
L-TEANINA *-FOCO*

CAFEÍNA *– AQUISIÇÃO DE INFORMAÇÕES*



Nutrients, 11(10), 2362. doi:10.3390/nu11102362

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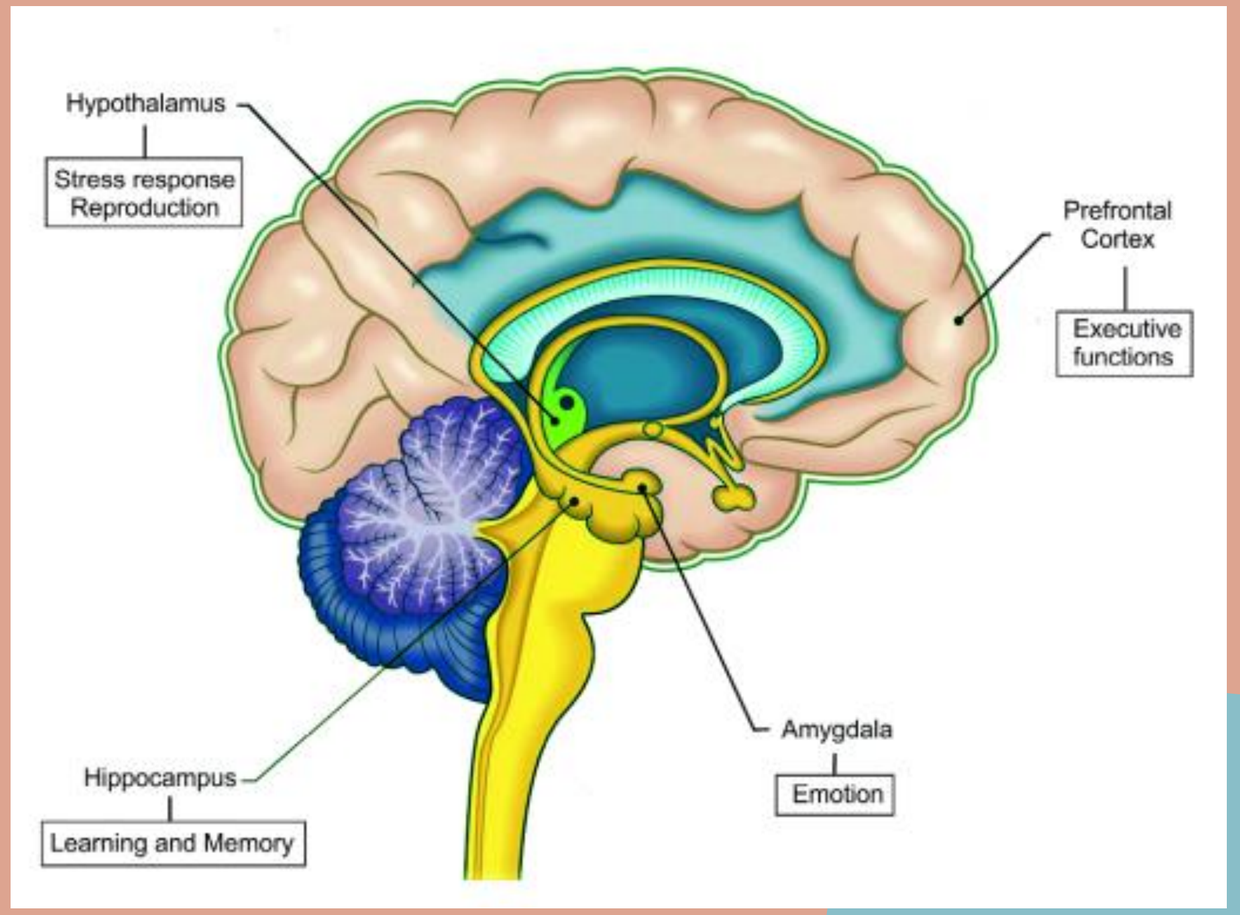
MEMÓRIA RECENTE

FORMAÇÃO DA MEMÓRIA DE LONGO PRAZO

ACETILCOLINA



Acta Neurobiol Exp (Wars). 2020;80(2):117-128.

QUEVEDO, J; IZQUIERDO, I,. 2020

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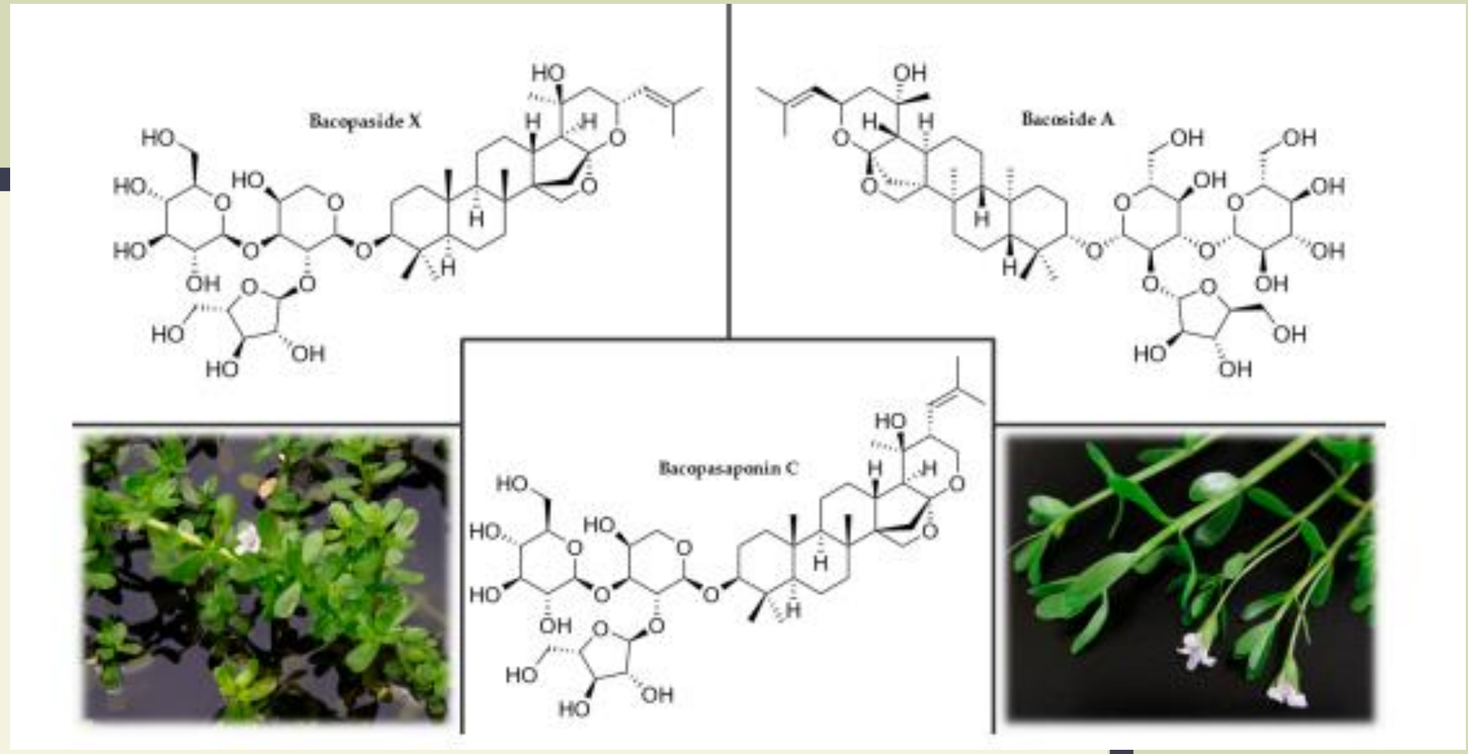

BACOPA MONIERI

neuro nutrição
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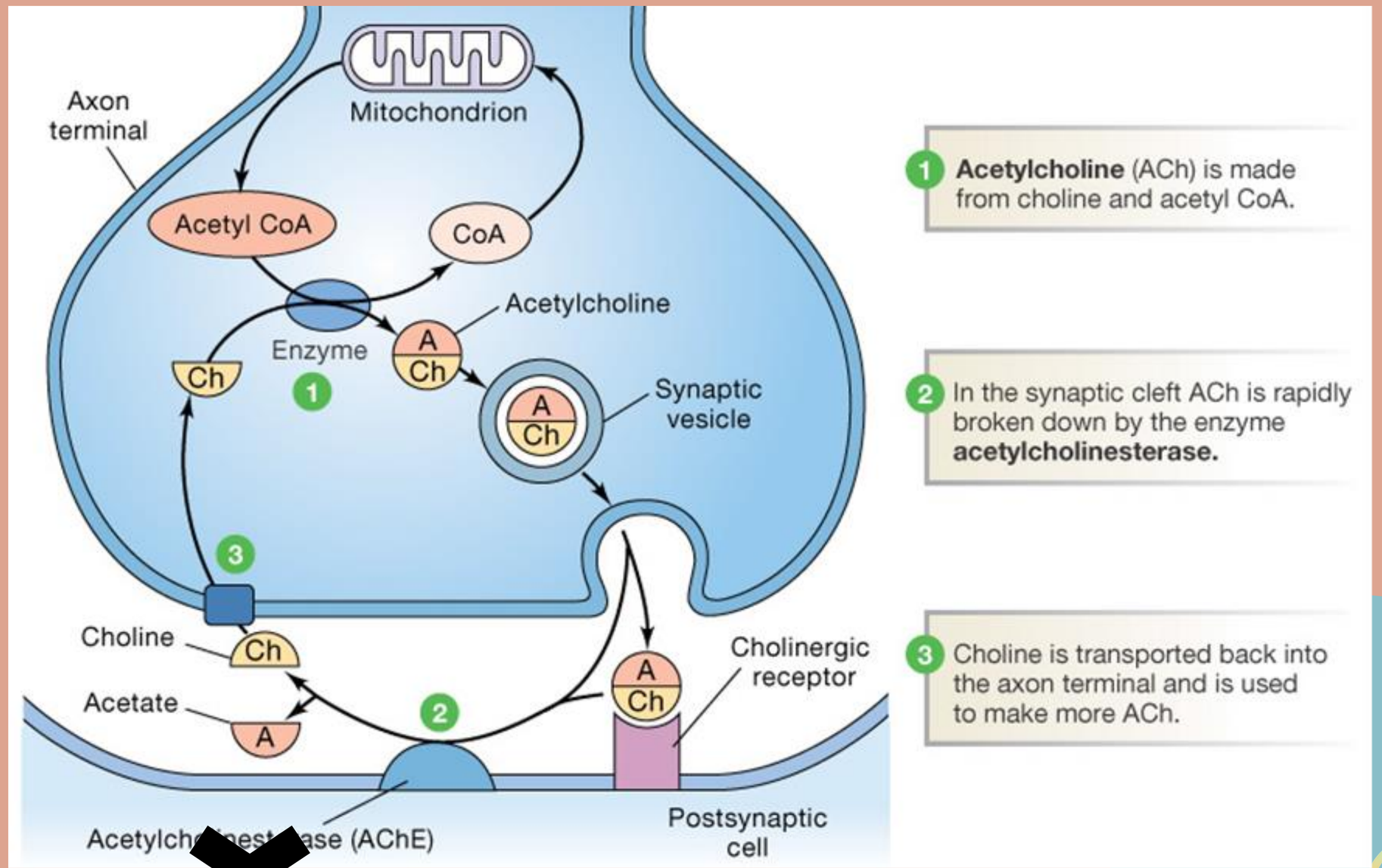
BACOPA MONIERI



~~***Butirilcolinesterase (Bche)***~~

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Journal of Ethnopharmacology ▮ (▮▮▮▮) ▮▮▮–▮▮▮

Contents lists available at ScienceDirect

Journal of Ethnopharmacology

journal homepage: www.elsevier.com/locate/jep

Meta-analysis of randomized controlled trials on cognitive effects of *Bacopa monnieri* extract

Chuenjid Kongkeaw [a,b,c,*], Piyameth Dilokthornsakul [a,b,d], Phurit Thanarangsarit [a], Nanteetip Limpeanchob [a], C. Norman Scholfield [a,c]

Meta-analysis of randomized controlled trials on cognitive effects of Bacopa monnieri extract. Journal of Ethnopharmacology, 151(1), 528–535. doi:10.1016/j.jep.2013.11.008

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Outcomes	Analysis	No. of studies	Outcome differences		Heterogeneity[d]		References
			Mean (95% CI)	p-value	I^2	p-value	
Memory tests							
Picture recognition (ms)	All studies	2	−85 (−308 to 137)	0.45	70.7	0.065	Peth-Nui et al. (2012), Stough et al. (2008)
Picture recognition (% accuracy)	All studies	2	3.5 (−7.2 to 14.3)	0.52	99.2	0.522	Peth-Nui et al. (2012), Stough et al. (2008)
Numeric working memory (ms)	All studies	2	−145 (−351 to 61)	0.17	71.8	0.167	Peth-Nui et al. (2012), Stough et al. (2008)
Numeric working memory (%accuracy)	All studies	2	5.60 (−3.22 to 14.42)	0.21	97.8	<0.001	Peth-Nui et al. (2012), Stough et al. (2008)
AVLT immediate recall (words)	All studies	1	0.06 (−0.10 to 0.12)	0.06	N/A	N/A	Barbhaiya et al. (2008)
AVLT delayed recall (words)	All studies	3	0.49 (0.29 to 1.28)	0.22	96.4	<0.001	Barbhaiya et al. (2008), Calabrese et al. (2008), Sathyanarayanan et al. (2013)
AVLT learning rate (words)	All studies	2	0.22 (1.17 to 1.13)	0.97	98.7	<0.001	Sathyanarayanan et al. (2013), Stough et al. (2001)
AVLT forgetting rate (words)	All studies	2	−0.39 (−1.15 to 0.36)	0.31	91.0	<0.001	Sathyanarayanan et al. (2013), Stough et al. (2001)
Time to complete tasks (Trail B test) (ms)	All studies	1	−17.9 (−24.6 to −11.2)	<0.001	N/A	N/A	Stough et al. (2001)
Word recognition (%accuracy)	All studies	2	4.8 (−6.8 to 16.4)	0.42	99.5	<0.001	Peth-Nui et al. (2012), Stough et al. (2008)
Word recognition (ms)	All studies	2	−76 (−206 to 53)	0.25	90.7	0.001	Peth-Nui et al. (2012), Stough et al. (2008)
Spatial working memory (%accuracy)	All studies	2	10.5 (−4.0 to 25.0)	0.16	97.6	<0.001	Peth-Nui et al. (2012), Stough et al. (2008)
Spatial working memory (ms)	All studies	2	−52 (−292 to 188)	0.67	77.8	0.034	Peth-Nui et al. (2012), Stough et al. (2008)
Attention tests							
Choice reaction time (ms)	All studies	3	−30 (−80 to 20)	0.24	98.3	<0.001	Peth-Nui et al. (2012), Stough et al. (2008, 2001)
	Subgroup (300 mg)[a]	2	−10.6 (−12.1 to −9.2)	<0.001	0.0	0.341	Stough et al. (2008, 2001)
Choice reaction time (%accuracy)	All studies	2	5.4 (−5.5 to 16.3)	0.33	99.3	<0.001	Peth-Nui et al. (2012), Stough et al. (2008)
Simple reaction time (ms)	All studies	3	−35 (−115 to 45)	0.39	98.5	<0.001	Peth-Nui et al. (2012), Stough et al. (2008, 2001)
	Subgroup[b]	2	−5.5 (−26.4 to 15.4)	0.61	24.4	0.250	Stough et al. (2008, 2001)
Trail A test (ms)	All studies	1	0.30 (−0.74 to 1.34)	0.57	N/A	N/A	Stough et al. (2001)
Digit span forward (digits)	All studies	4	0.80(−1.11 to 2.71)	0.41	97.0	<0.001	Barbhaiya et al. (2008), Raghav et al. (2006), Roodenrys et al. (2002), Stough et al. (2001)
Digit span backward (digits)	All studies	4	−0.02 (−0.62 to 0.58)	0.96	99.7	<0.001	Barbhaiya et al. (2008), Raghav et al. (2006), Roodenrys et al. (2002), Stough et al. (2001)
	Subgroup[c]	2	0.10 (−0.683 to 0.89)	0.80	99.6	<0.001	Barbhaiya et al. (2008), Raghav et al. (2006)
Digit vigilance (ms)	All studies	2	−22 (−63 to 20)	0.30	98.3	<0.001	Peth-Nui et al. (2012), Stough et al. (2008)
Digit vigilance (%accuracy)	All studies	2	12.1 (−12.5 to 36.7)	0.34	99.7	<0.001	Peth-Nui et al. (2012), Stough et al. (2008)

100 mg of Bacopa monnieri extract daily (50 mg twice a day) for 12 weeks increased cognitive performance in children with ADHD.

Journal of Ethnopharmacology, 151(1), 528–535.

The daily recommended dosage of brahmi extract standardized to 20% bacosides A and B is 100–200 mg in divided doses for children and 200–400 mg in divided doses for adults

Brahmi (Bacopa monnieri) as functional food ingredient in food processing industry. J. Pharmacogn. Phytochem. 2018, 7, 189–194

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Bacopa Extracts						
Author	Intervention	*n*	Male (%)	Study Design	Population	Outcome Measures
Sharma et al. (1987)	BS x 3 Tblsp p/d *(BM: 1050mg p/d)* PL x 3 Tblsp p/d	40 20 (B) 20 (P)	N/A	3-months OL, PC	6-8 yrs Healthy	WISC Maze; Raven's Colored Progressive Matrices; Bender Gestalt Test for Children
Negi et al. (2000)	MP x 1 Cap 2/d *(BM: 100mg p/d)* PL x 1 Cap 2/d	36 19 (B) 17 (P)	84.2	3-months R, DB, PC	6-12 yrs ADHD Diagnosed	Memory Scale test
CDRI Lucknow (2001)	SBME x 2 Caps p/d *(BM: 100mg p/d)* PL x 2 Caps p/d	40 20 (B) 20 (P)	75	3-months R, DB, PC	6-12 yrs ADHD Diagnosed	Memory Scale test; McCarney Rating Scale
Dave et al. (2008)	BMi x 1 Cap p/d *(BM: 225mg p/d)* No control group	28 28 (B)	46.4	4-months OL	4-18 yrs I.Q. 70-90	Memory Scale Test
Dave et al. (2014)	BMi x 1 Cap p/d *(BM: 225mg p/d)* No control group	31 31 (B)	90.3	6-months OL	6-12 yrs ADHD Diagnosed	ADHD Symptom Subtest Scores

A systematic review of the Ayurvedic medicinal herb Bacopa monnieri in child and adolescent populations.
doi:10.1016/j.ctim.2016.09.002

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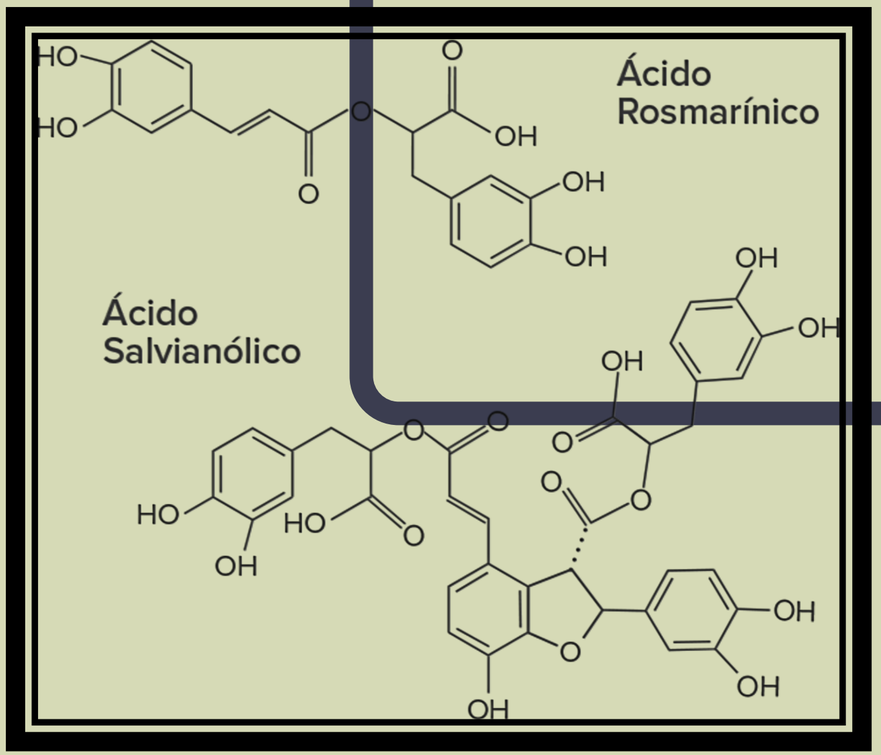
Mentha spicata - NEUMENTHIX®



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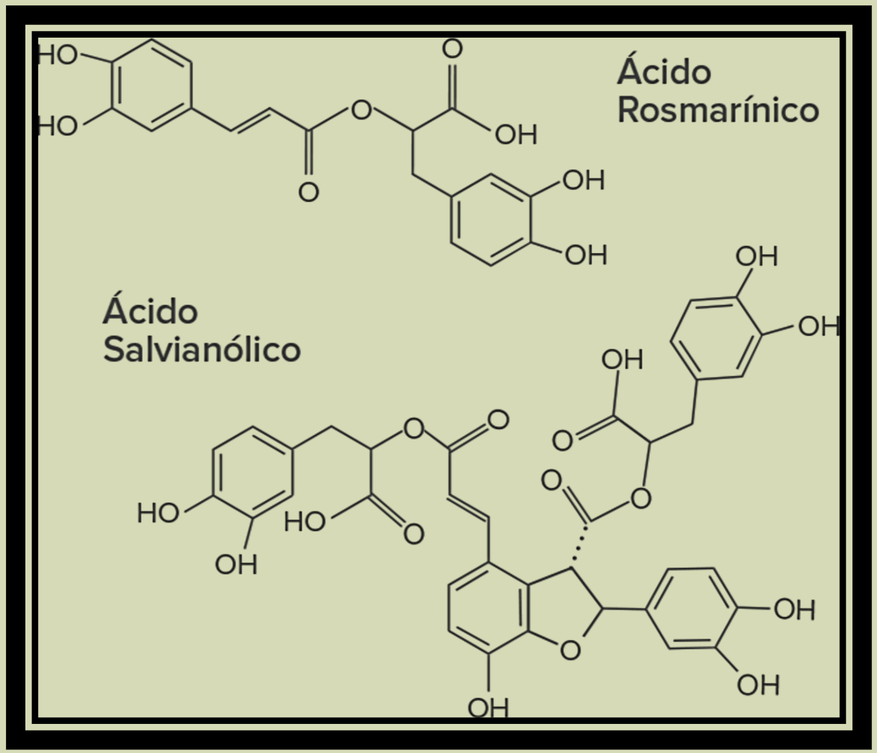

ANTIOXIDANTE
ANTIINFLAMATÓRIA
NEUROPROTETORA
INIBIÇÃO DA ACETILCOLINESTERASE

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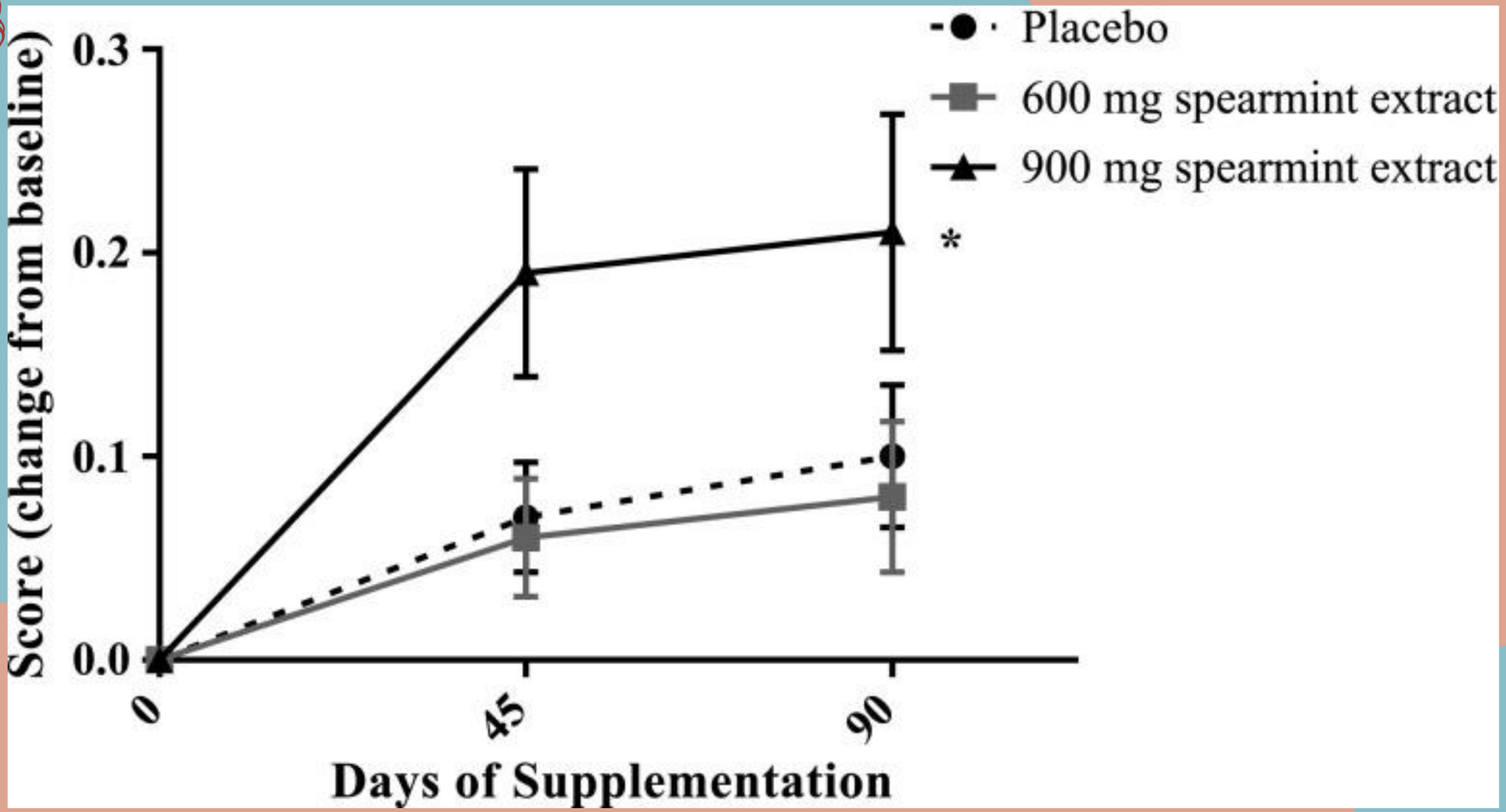
Nutr Res. 2019 Apr;64:24-38. doi: 10.1016/j.nutres.2018.11.012. Epub 2018 Dec 7.



Quality of working memory scores after 90 days of spearmint supplementation

J Altern Complement Med. 2018 Jan 1; 24(1): 37–47.

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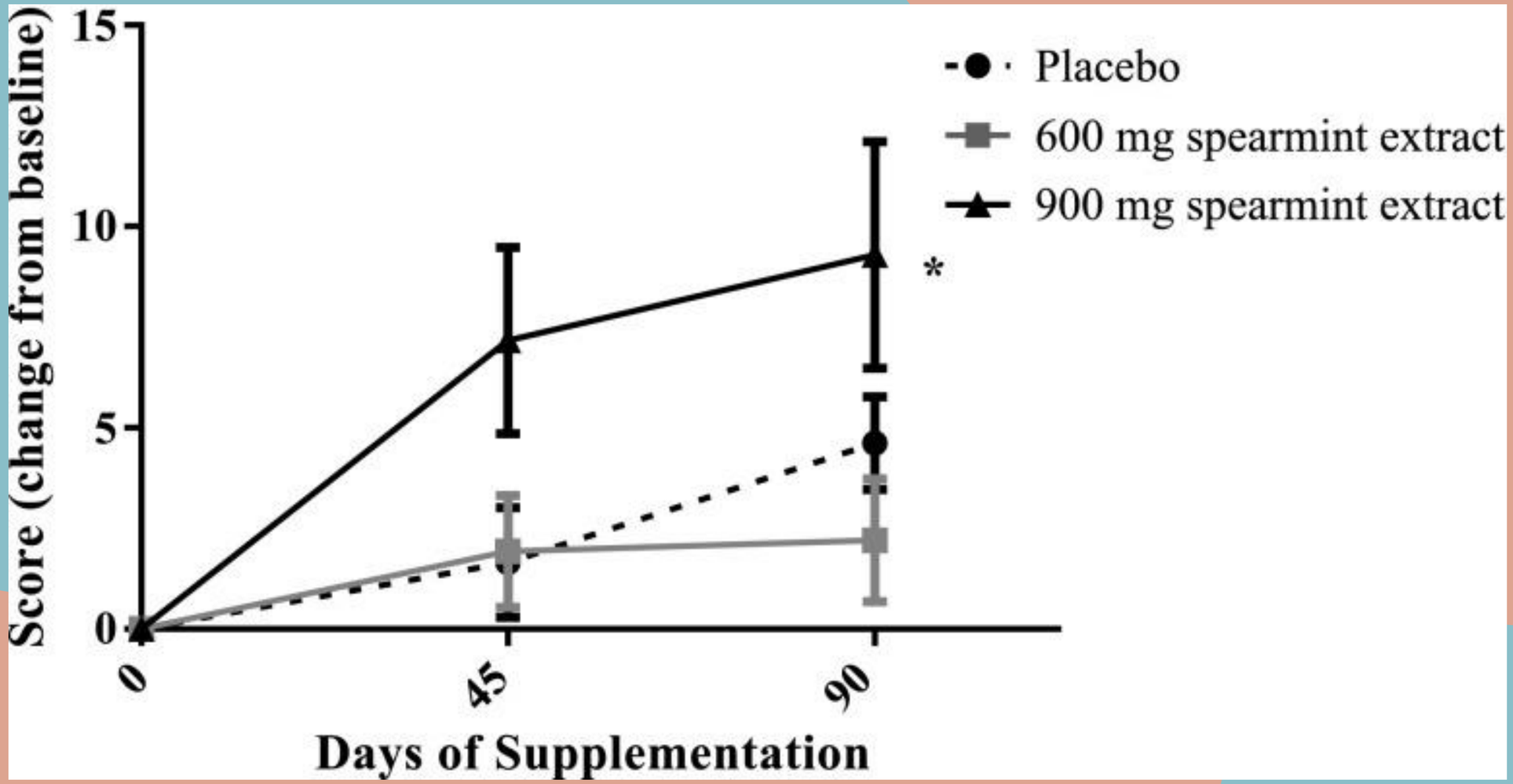

Memória espacial

J Altern Complement Med. 2018 Jan 1; 24(1): 37–47.

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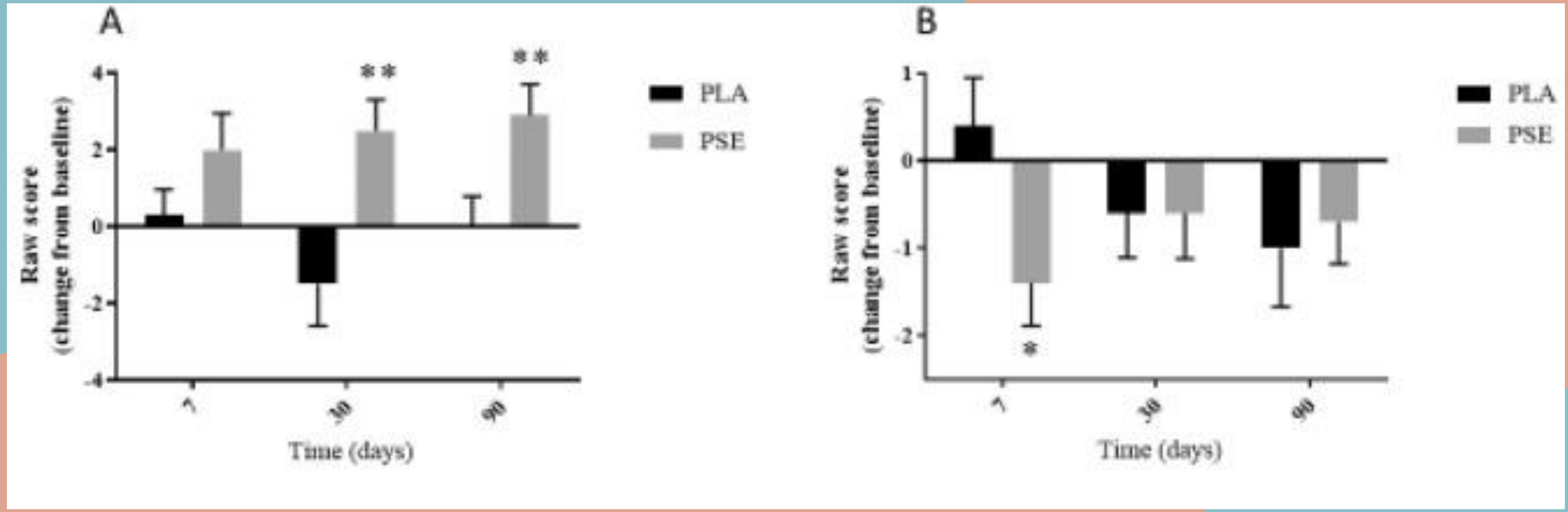
ATENÇÃO SUSTENTADA

ATENÇÃO COMPLEXA



Nutr Res. 2019 Apr;64:24-38. doi: 10.1016/j.nutres.2018.11.012. Epub 2018 Dec 7.

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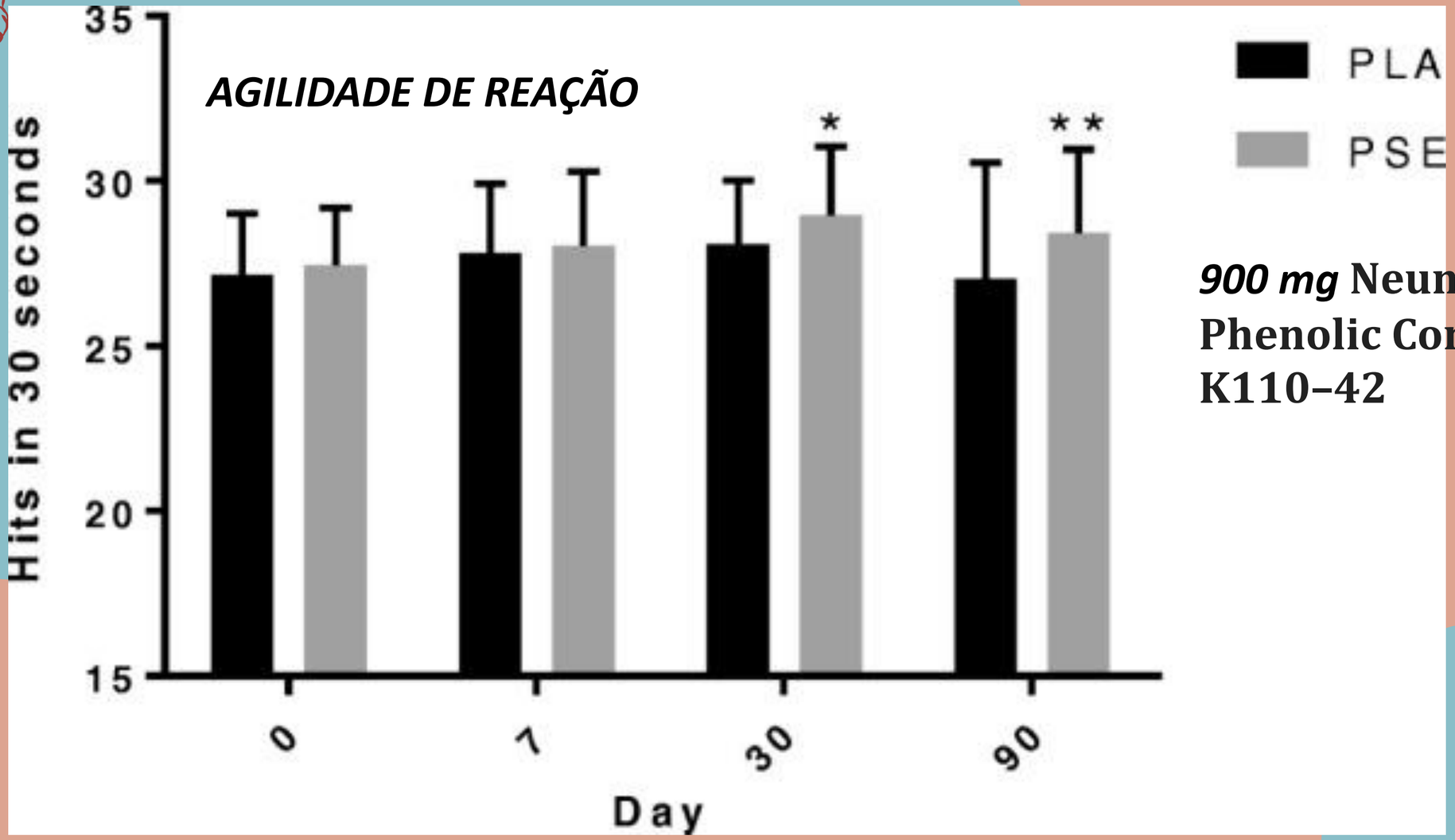

***900 mg* Neumentix™ Phenolic Complex K110–42**

J Int Soc Sports Nutr. 2018; 15: 58.

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SINERGIA NA ABORDAGEM

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PERFUSÃO SANGUÍNEA CEREBRAL / OXIGENAÇÃO

ATP MITOCONDRIAL

HIDRATAÇÃO
CORREÇÃO ANEMIA
**
ÁCIDO FÓLICO (NO)
NITRATO (NO)
CITRULINA (NO)
CACAU (FLAVONÓIS)

METABOLISMO DA GLICOSE
CORPOS CETÔNICOS - ENERGIA ADICIONAL

COQ 10 LIPOSSOMADA
ÁCIDO ALFA LIPÓICO
CARNITINA
COMPLEXO B
OXIGÊNIO

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NUTRIENTES PARA A SÍNTESE DE NEUROTRANSMISSORES

→ PHE / TYR , FOLATO, FERRO, B6, VIT C, COBRE

→ TRIP, FOLATO, B6

→ COLINA , B5

BDNF
(NEUROGÊNSE)

→ ATIVIDADE FÍSICA

→ DESAFIOS COGNITIVOS

→ CROCUS SATIVUS
(SAFFRIN / AFFRON)

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REDUZIR DEGRADAÇÃO DE ACETICOLINA
INIBIR AChe e BChe

→

BACOPA MONIERI
SALVIA OFICCINALIS
HUPERZIA SERRATA
MENTA SPICATA

MODULAR RECEPTOR NMDA (GLUTAMATO)

→

L-TEANINA
NAC
MAGNÉSIO

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ANTIOXIDANTES →

- CAROTENÓIDES
- TOCOFERÓIS
- VIT C
- COQ 10, ÁCIDO ALFA LIPÓICO
- CHÁ VERDE
- POLIFENÓIS

ANTIINFLAMATÓRIOS (NEUROINFLAMAÇÃO) →

- OMEGA 3
- CURCUMA
- CONTROLE GLICÊMICO DA DIETA
- RELAÇÃO W3 / W6 / GS

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SINAPTOGÊNSE /
COMPOSIÇÃO MEMBRANAS NEURONAIS

OMEGA 3
REDUÇÃO GS E W6
CITICOLINA
SAME

neuro
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SINERGIA NA PRESCRIÇÃO!!

POTENCIALIZAÇÃO DOS RESULTADOS!

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CONNAE23

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NEUROHACKING
OTIMIZANDO AS FUNÇÕES
COGNITIVAS
COM ALIMENTAÇÃO E
SUPLEMENTAÇÃO

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