14° CONGRESSO NAZIONALE SINut

SINut Società Italiana di Nutraceutica

12-14 settembre 2024

Bologna

Nutraceutica a supporto delle funzioni cognitive

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Dottore in Scienze della Nutrizione Umana

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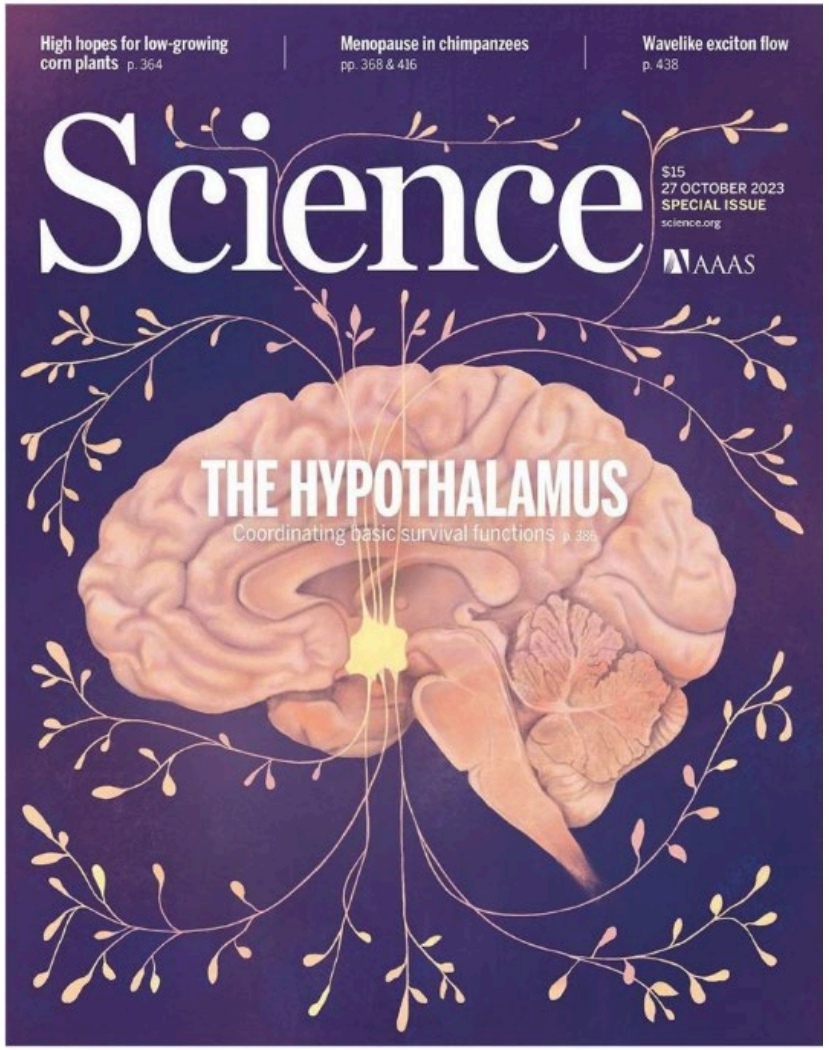
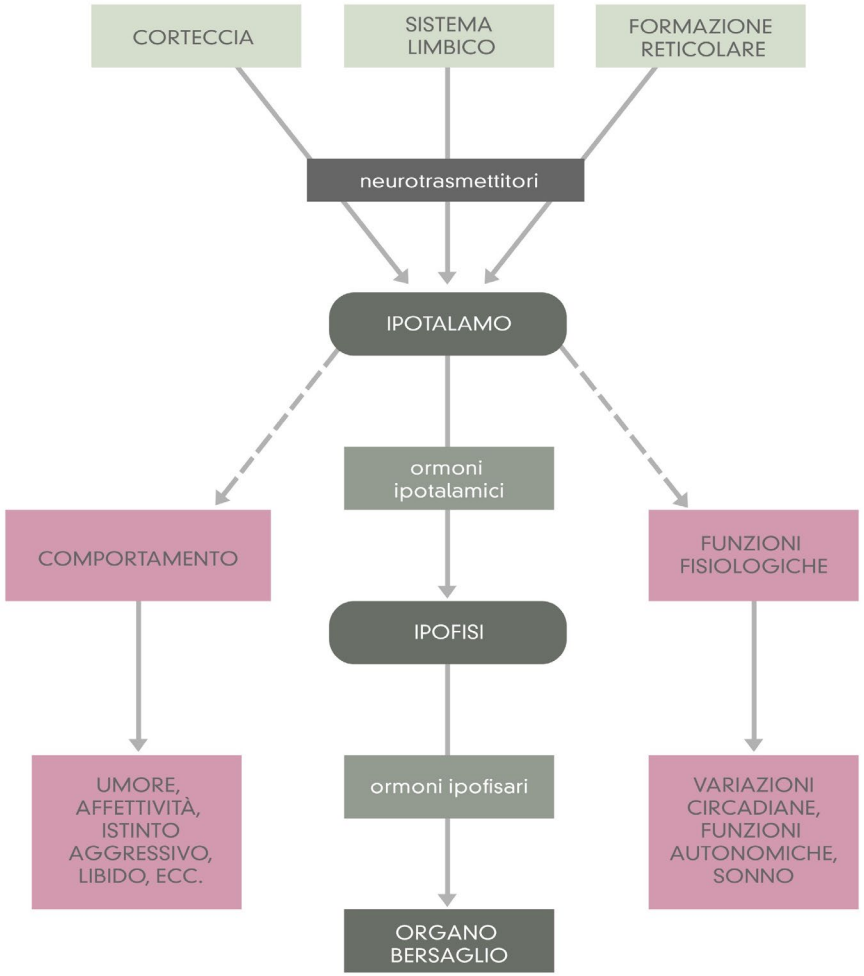
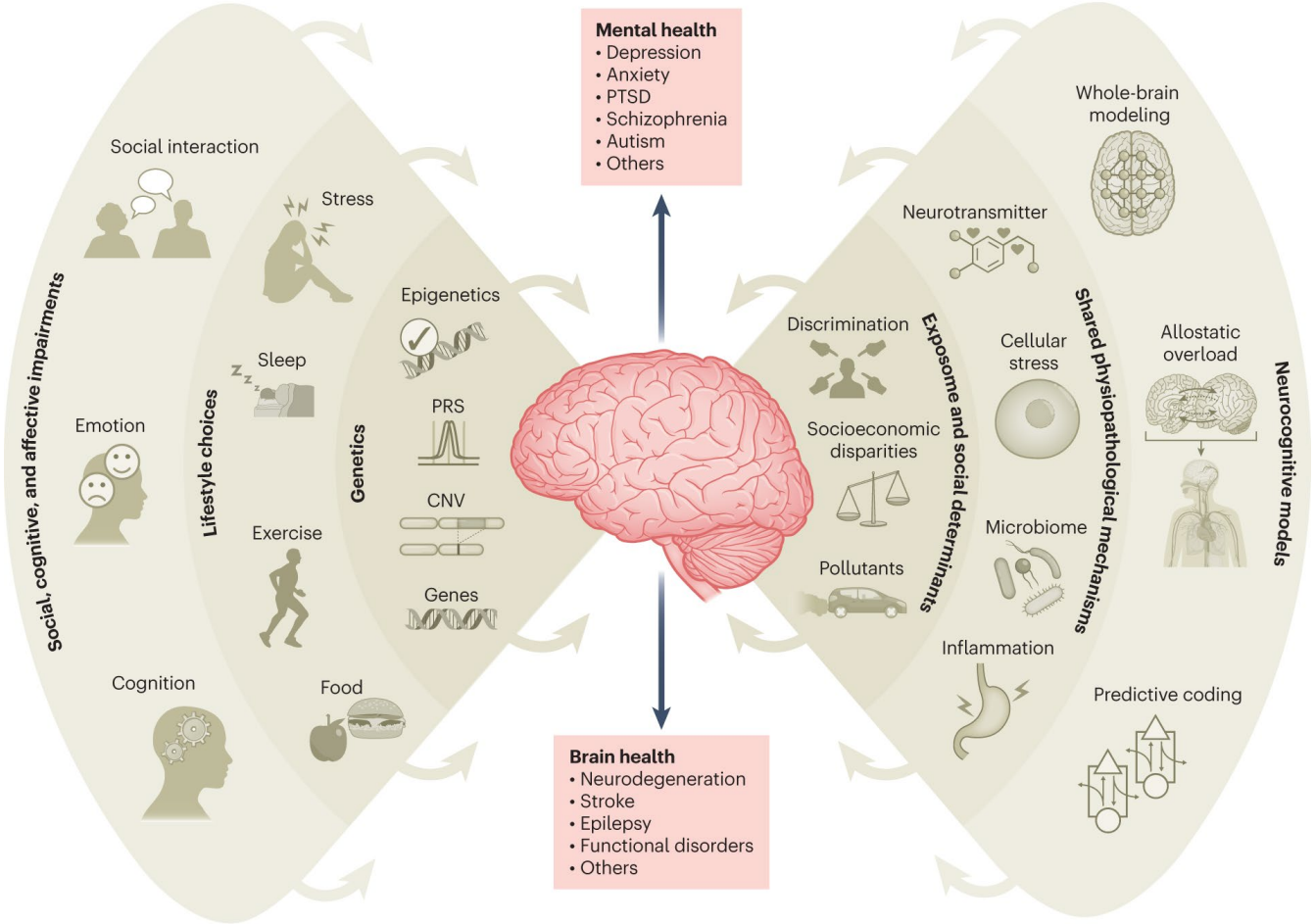
Nutraceutical Sport Consultant

Solgar Italia Multinutrient





Social Brain Health & Wellbeing



nature mental health

•Published: 10 July 2023

Time to synergize mental health with brain health

•Agustin Ibanez & Eduardo R. Zimmer

Nature Mental Health **volume 1**, pages441–443 (2023)

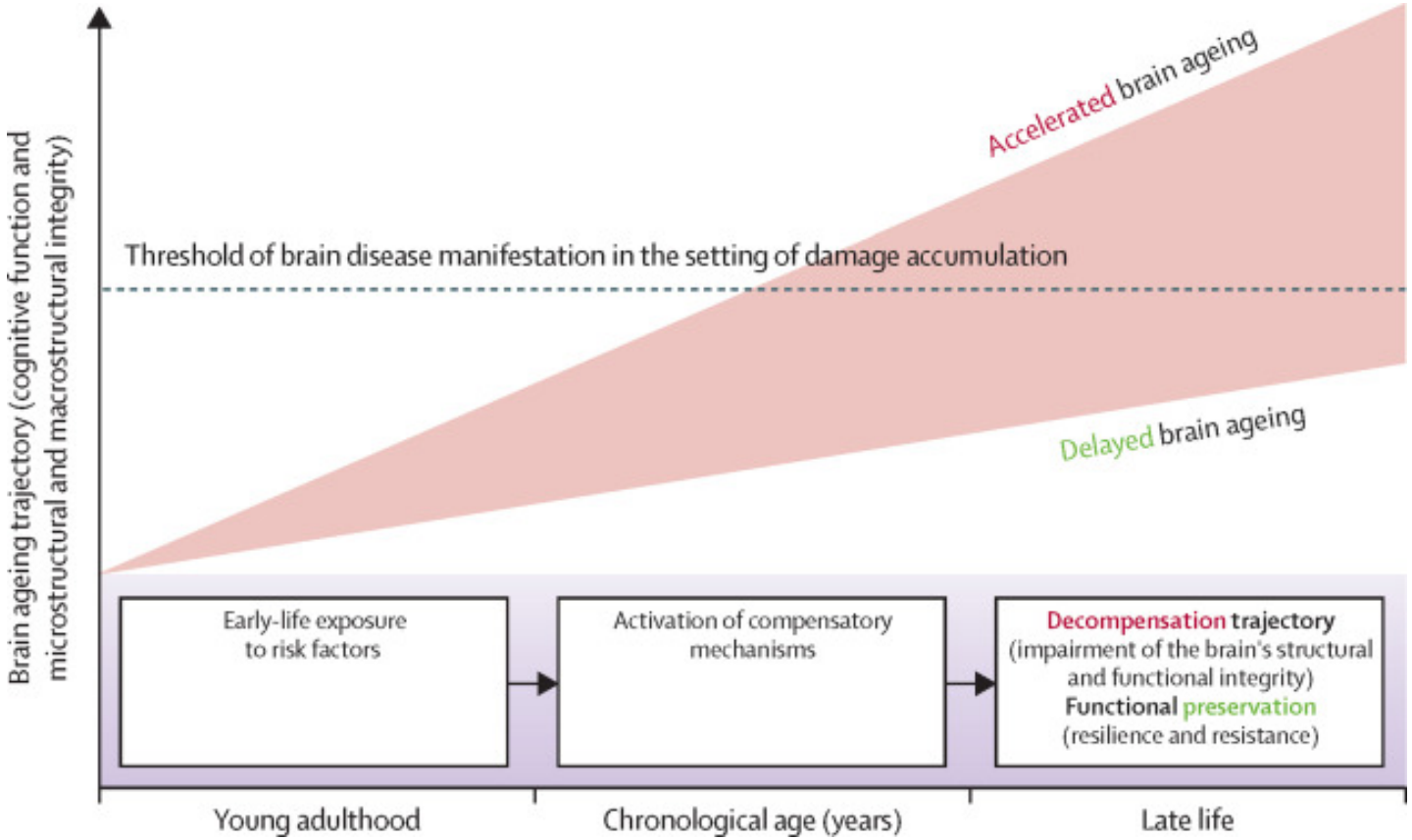
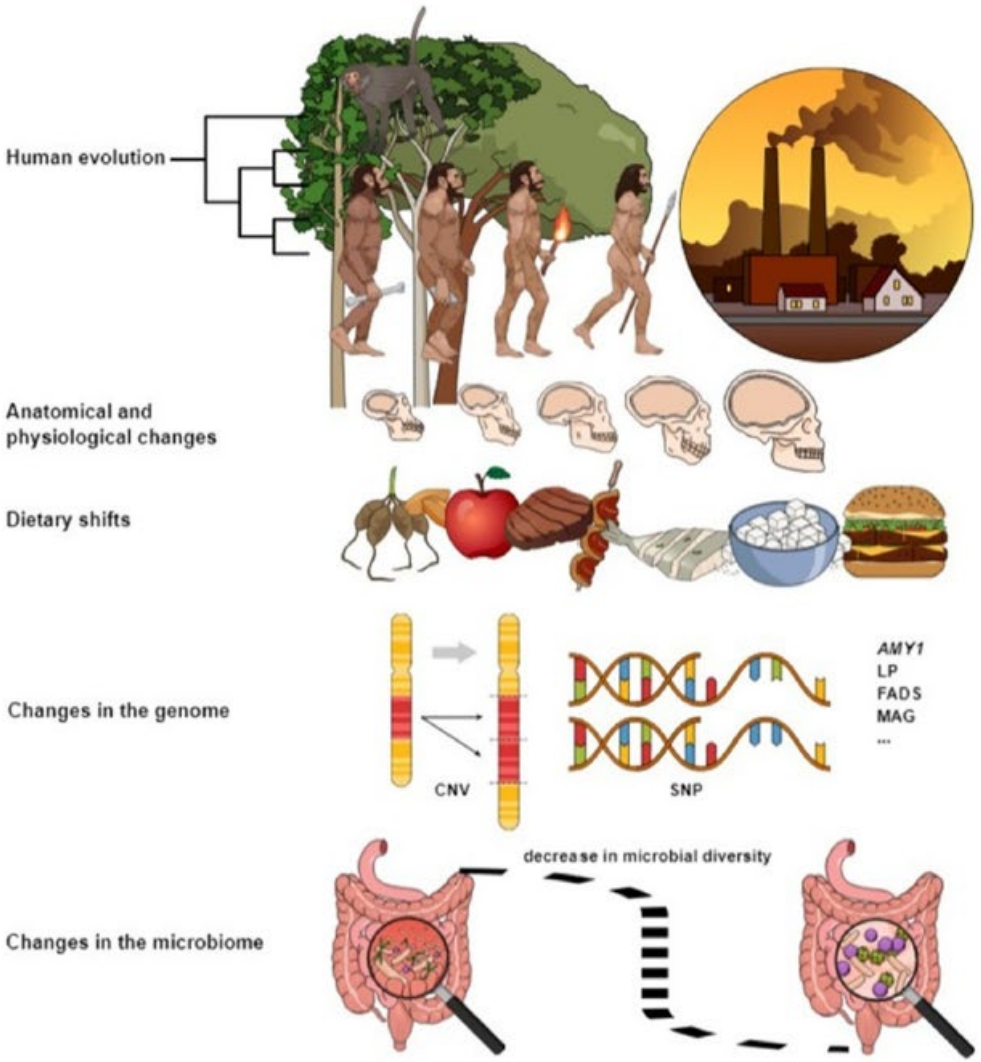


Figure 1: Trajectories of accelerated versus delayed brain ageing Accelerated brain ageing due to accumulation of damage and absence or failure of compensatory mechanisms results in impaired brain function and structural integrity. When this impairment surpasses a certain threshold, it can manifest as reduced cognitive function or neurological disease.

THE LANCET
Healthy Longevity
doi: 10.1016/S2666-7568(23)00051-X.

Brain & Food



"We are what, when, and how we eat": the evolution of human dietary habits mirrors the evolution of humans themselves. Key developments in human history, such as the advent of stone tool technology, the shift to a meat-based diet, control of fire, advancements in cooking and fermentation techniques, and the domestication of plants and animals, have significantly influenced human anatomical, physiological, social, cognitive, and behavioral changes. Advancements in scientific methods, such as the analysis of microfossils like starch granules, plant-derived phytoliths, and coprolites, have yielded unprecedented insights into past diets. Nonetheless, the isolation of ancient food matrices remains analytically challenging. Future technological breakthroughs and a more comprehensive integration of paleogenomics, paleoproteomics, paleoglycomics, and paleometabolomics will enable a more nuanced understanding of early human ancestors' diets, which holds the potential to guide contemporary dietary recommendations and tackle modern health challenges, with far-reaching implications for human well-being, and ecological impact on the planet.

FIGURE 1. Pictorial diagram showing the major steps in human evolution, anatomical and physiological changes, dietary shifts, and changes in the human genome and microbiome.

doi: 10.1016/j.advnut.2024.100280.

14°
CONGRESSO NAZIONALE SINut

SINut
Società Italiana di Nutraceutica

12-14 settembre 2024
Bologna

Association between Mediterranean diet and dementia and Alzheimer disease: a systematic review with meta-analysis

Open access | Published: 22 March 2024
Volume 36, article number 77, (2024) Cite this article

Background

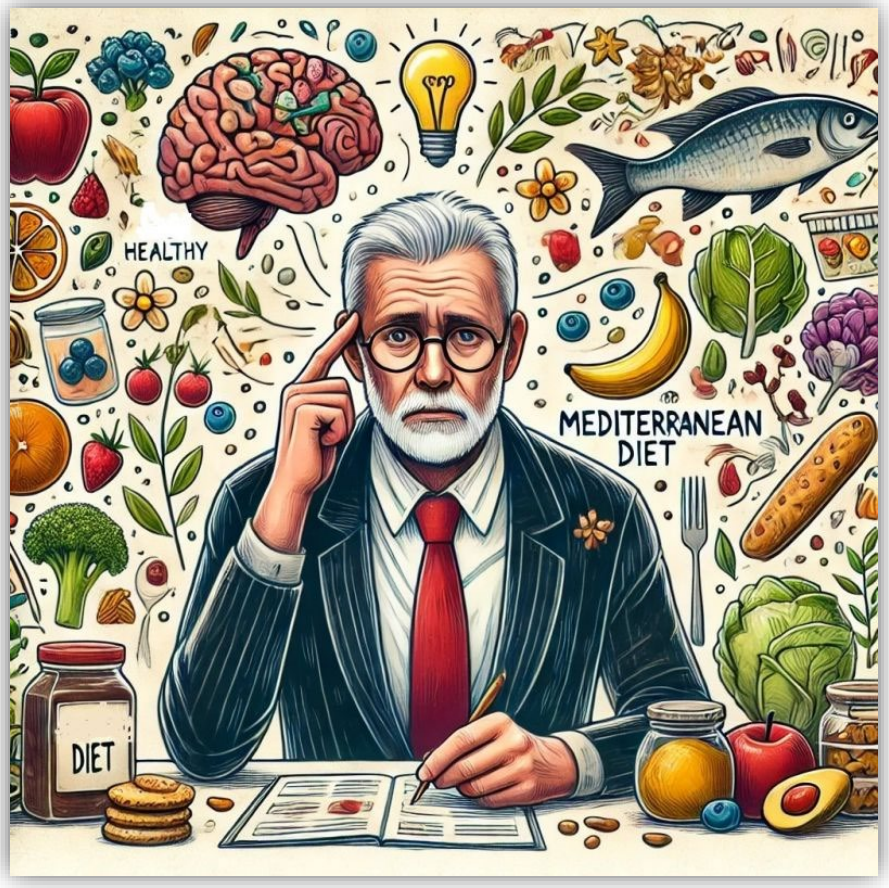
Dementia affects 5–8% of the population aged over 65 years (~50 million worldwide). Several factors are associated with increased risk, including diet. The Mediterranean diet (MedDiet) has shown potential protective effects against several chronic diseases.

Aims

This systematic review with meta-analysis aim was to assess the association between adherence to the MedDiet and the risk of dementia in the elderly.

Conclusions

Adherence to MedDiet could be an effective non-pharmacological measure to reduce the burden of dementia, even among elderly.



Exp Gerontol. 2020 Dec:142:111117. doi: 10.1016/j.exger.2020.111117. Epub 2020 Oct 17.

Dietary patterns, cognitive function, and structural neuroimaging measures of brain aging

Janie Corley [1], Simon R Cox [2], Adele M Taylor [3], Maria Valdés Hernandez [4], Susana Muñoz Maniega [5], Lucia Ballerini [6], Stewart Wiseman [7], Rozanna Meijboom [8], Ellen V Backhouse [9], Mark E Bastin [10], Joanna M Wardlaw [11], Ian J Deary [12]

Affiliations + expand

PMID: 33075462 DOI: 10.1016/j.exger.2020.111117

Objective: To examine the cross-sectional associations between dietary patterns and cognitive and neuroimaging indices of brain health concurrently in the same sample of healthy older adults.

Conclusions: These observational findings suggest that adherence to a Mediterranean-style diet is associated with better cognitive functioning, but not better brain structural integrity, in older adults.

Association between the mediterranean diet and cognitive health among healthy adults: A systematic review and meta-analysis

Jialei Fu[1] Li-Juan Tan[1] Jung Eun Lee[2] Sangah Shin[1*]

[1] Department of Food and Nutrition, Chung-Ang University, Seoul, South Korea
[2] Department of Food and Nutrition, College of Human Ecology, Seoul National University, Seoul, South Korea

Conclusion: Adherence to the MeDi diet may reduce the risk of MCI and AD. However, other associations with cognitive outcomes (global cognition, working memory, and episodic memory) remain open to interpretation. Overall, the MeDi diet is recommended to prevent or delay cognitive disorders and improve cognitive function. Further, long-term RCTs are warranted to strengthen the evidence.

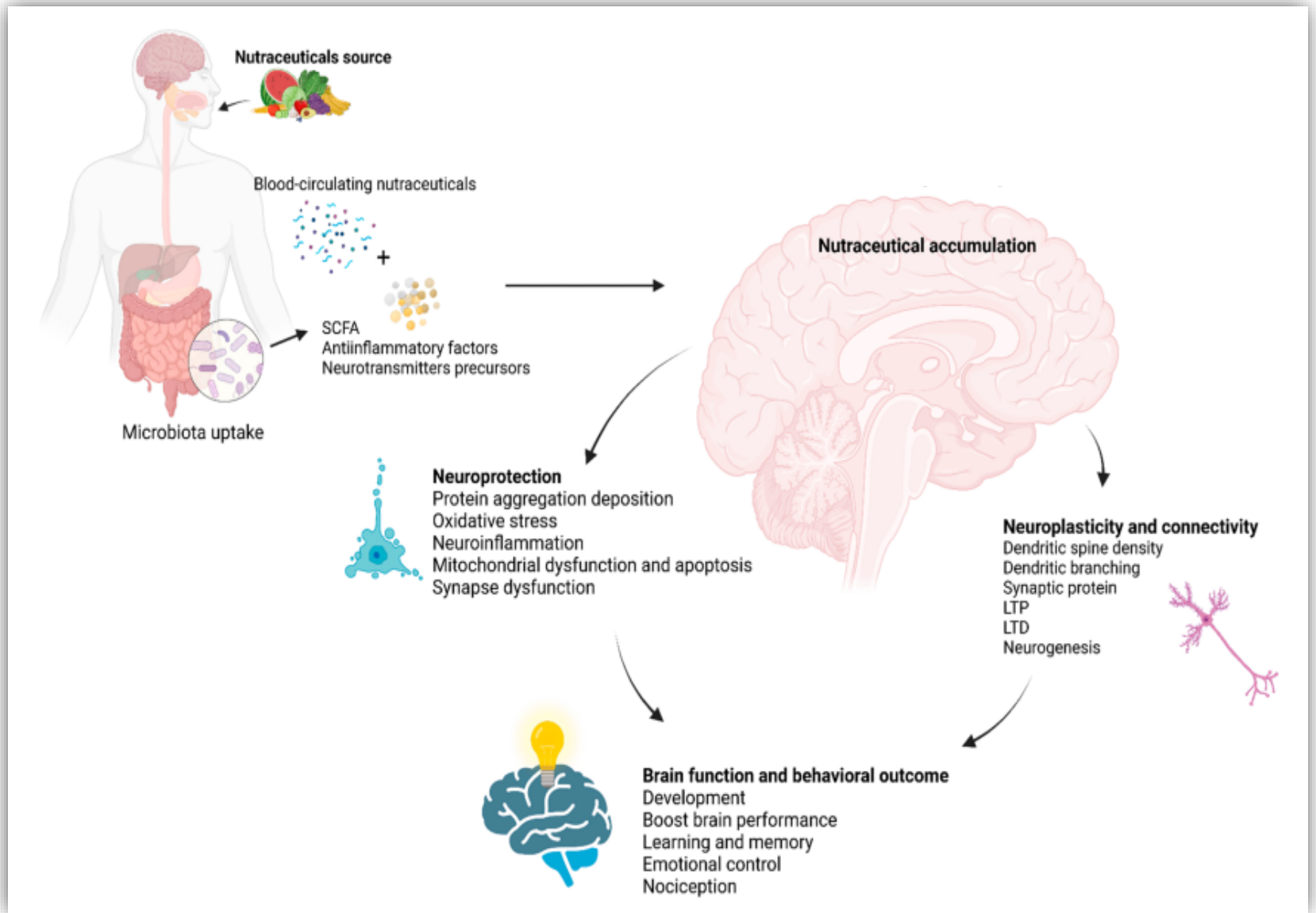


Figure 1. Schematic representation of nutraceutical-mediated preventive and therapeutic activity against neurological disorders. Nutraceuticals impact neuroplasticity, synaptic plasticity, and neuroprotective processes, modifying the morphology and function of neurons and glial cells, allowing optimal brain function and a tuned behavioral outcome.

doi:10.1016/j.exger.2020.111117

COcoa Supplement and Multivitamin Outcomes Study

The COSMOS study consisted of three parts: an experiment called COSMOS-clinic, involving 573 participants; COSMOS-Mind, a study involving annual telephone-based cognitive assessments for three years (2158 participants); and COSMOS-Web, involving annual computer-based cognitive assessments for three years (2472 participants).

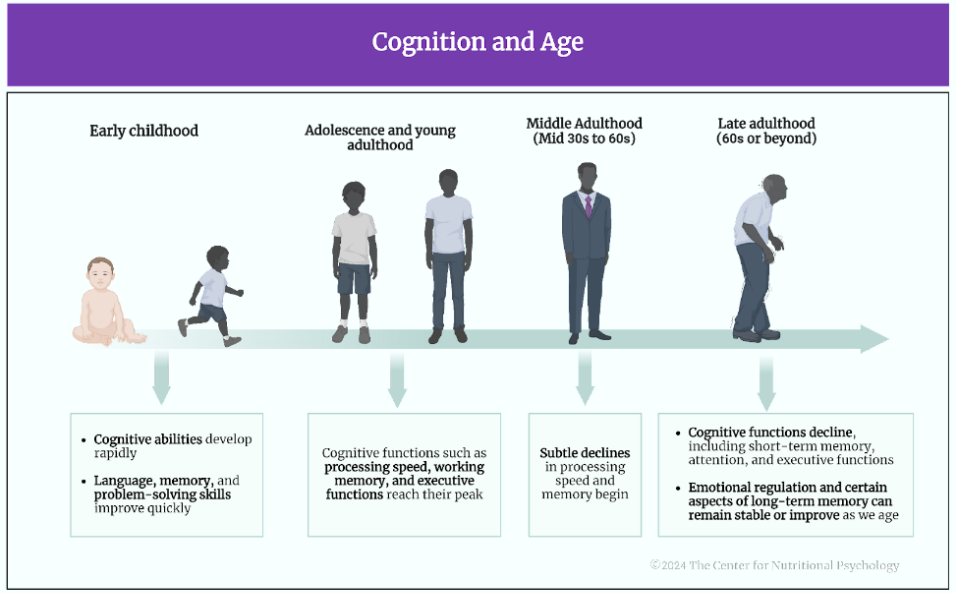


Figure 1. Cognition and age

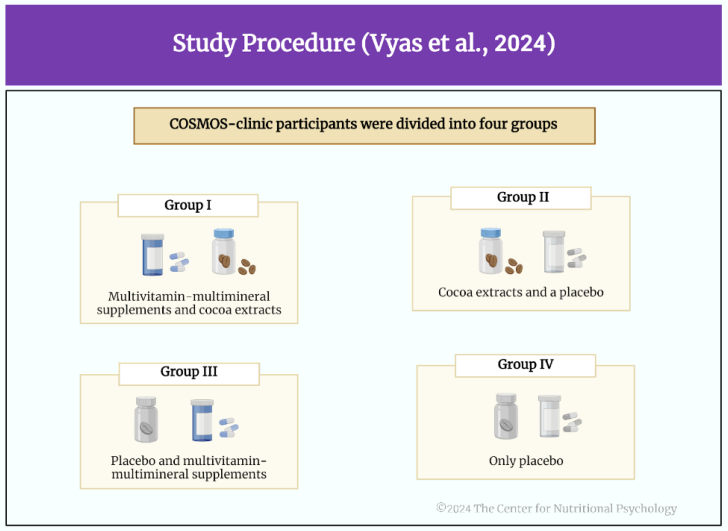


Figure 3. Study Procedure (Vyas et al., 2024)

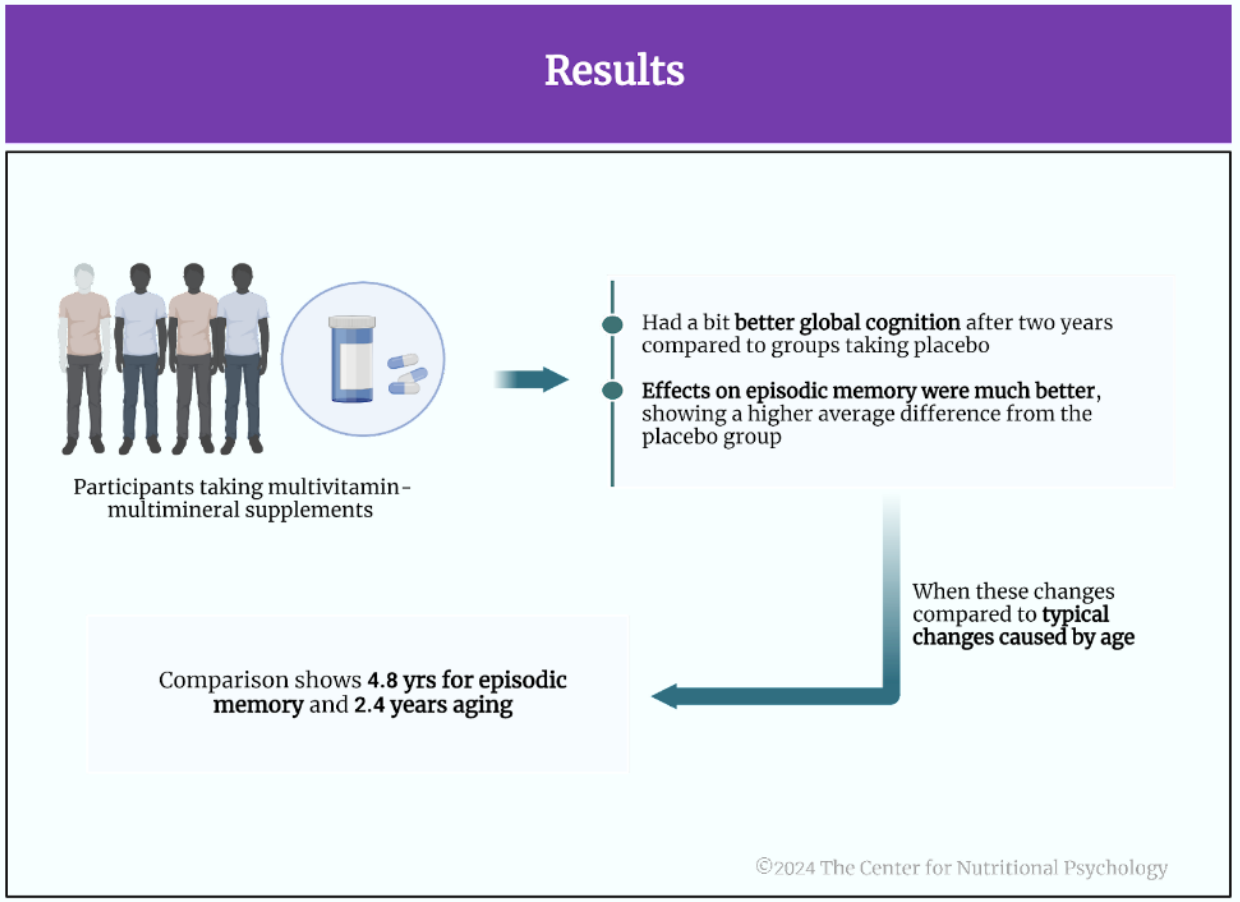
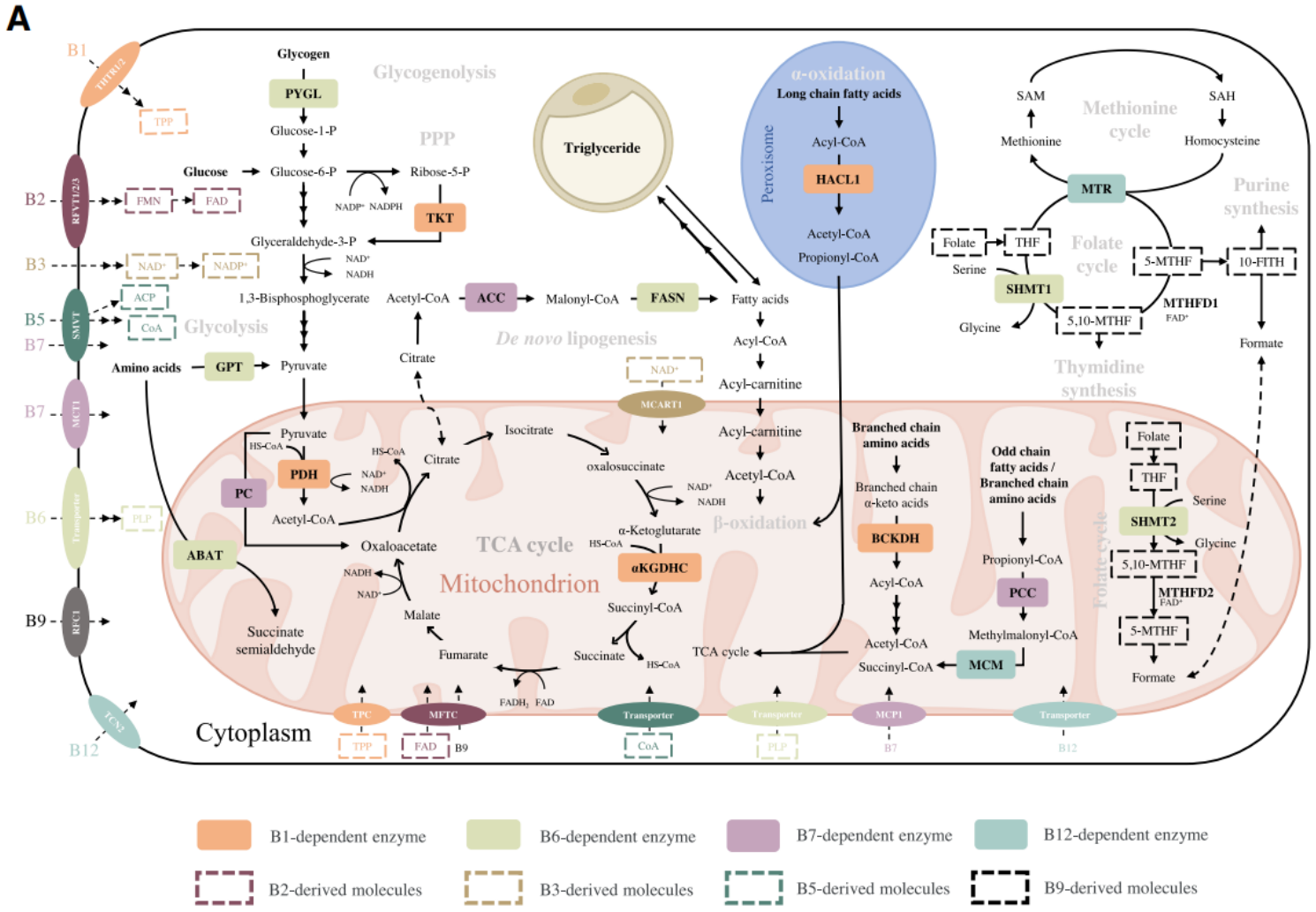


Figure 4. Results

What to look for in multivitamins



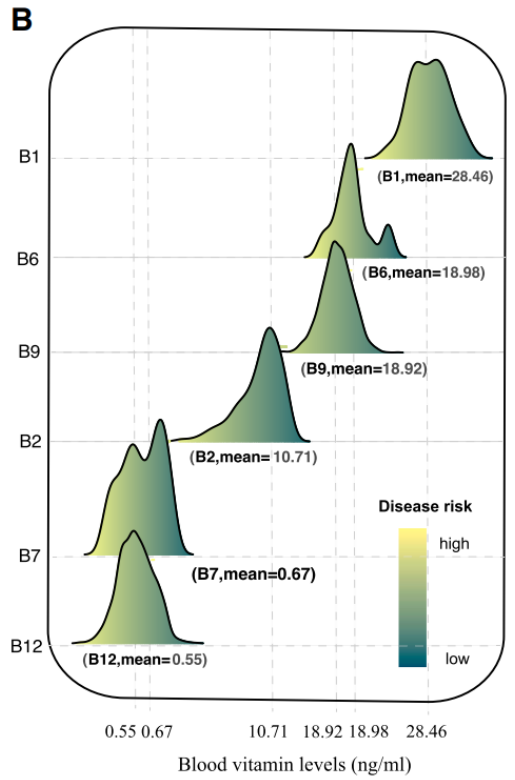


Figure 1. Importance of B group vitamins to health and diseases (A) Representative enzymes or pathways for each B vitamin.
(B) Ridgeline plot showing inter-individual differences in B vitamins in the circulation (with mean circulating levels of each B vitamin indicated on the x axis) and associated disease risks in cases of deficiency.

CellPress OPEN ACCESS

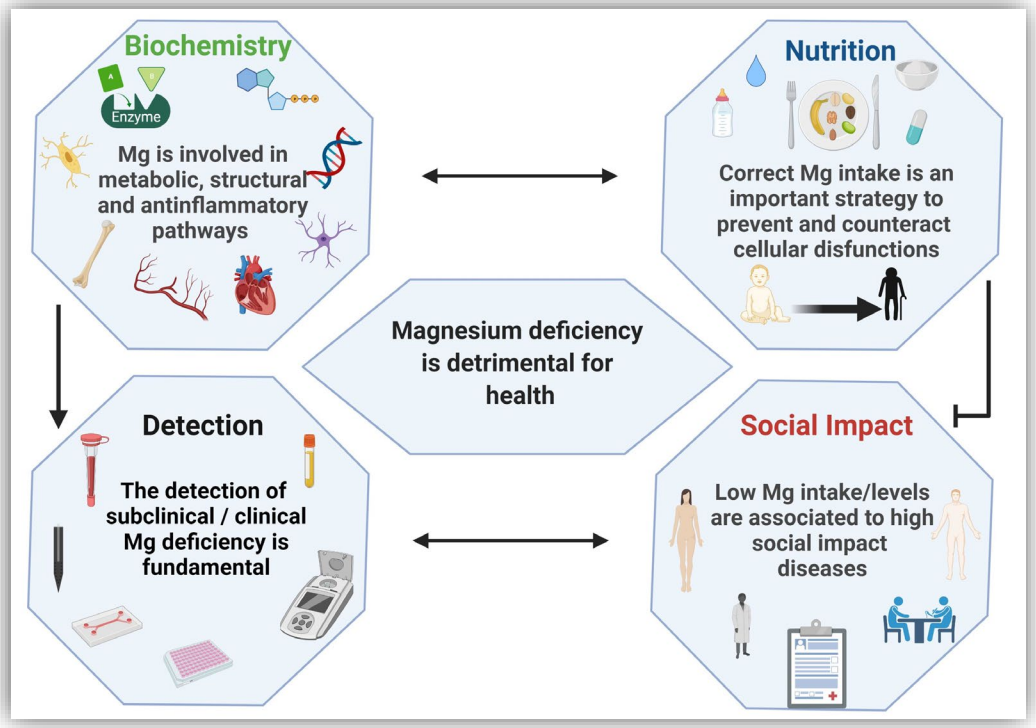
Minireview
Navigating the B vitamins: Dietary diversity, microbial synthesis, and human health

Mg

ing cognition, vitality, sensory perception, and psychological well-being. Notably, skeletal muscle functions as a pivotal nexus within this intricate framework. Any perturbation in its functionality can manifest as compromised physical performance and an elevated susceptibility to frailty. Magnesium is an essential mineral that plays a central role in approximately 800 biochemical reactions within the human body. Its distinctive physical and chemical attributes render it an indispensable stabilizing factor in the orchestration of diverse cellular reactions and organelle functions, thereby rendering it irreplaceable in processes directly impacting muscle health. This narrative review of-

Souza, A.C.R.; Vasconcelos, A.R.; Dias, D.D.; Komoni, G.; Name, J.J. The Integral Role of Magnesium in Muscle Integrity and Aging: A Comprehensive Review. *Nutrients* **2023**, *15*, 5127. https://doi.org/10.3390/nu15245127

American Heart Association.

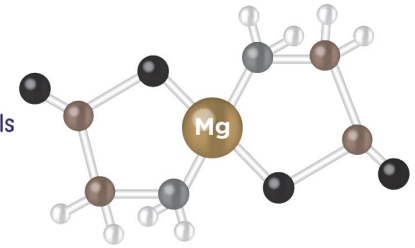


IPOMAGNESEMIA INDOTTA DA FARMACI (1)

Farmaci	Meccanismo / Effetto
Aminoglicosidi (*es. Gentamicina, Tobramicina*)	Aumentano l'escrezione renale di magnesio, Iperaldosteronismo secondario.
Medicazioni Antimicrobiche (*Pentamidina*)	Aumentano l'escrezione renale di magnesio.
Medicazioni Antivirali (*Foscarnet*)	Nefrotossicità, Aumentano l'escrezione renale di magnesio.
Agonisti beta adrenergici (*es. Fenoterolo, Salbutamolo, Teofillina*)	Aumentano l'escrezione renale di magnesio, Anormalità metaboliche.
Bifosfonati (*Pamidronato*)	Compromissione renale, Escrezione di magnesio.
Agenti chemioterapici (*es. Cisplatino, Amsacrina*)	Nefrotossicità, Aumentano l'escrezione renale di magnesio. Il cisplatino si accumula nella corteccia renale.
Immunosoppressori (*Ciclosporina, Sirolimus*)	Escrezione renale di magnesio 2-3 volte superiore alla norma.
Diuretici dell'ansa, uso prolungato (*es. Furosemide*)	Aumentano l'escrezione renale di magnesio, Iperaldosteronismo secondario.
Anticorpi monoclonali (*es. Cetuximab, Panitumumab*)	Blocco dei recettori EGFR nel nefrone e compromissione del trasporto attivo del magnesio (perdita di magnesio).
Antifungini polienici (*Amfotericina B*)	Nefrotossicità.
Inibitori della pompa protonica	Blocco dell'assorbimento attivo del magnesio tramite recettori TRPM 6/7 (transient receptor potential melastatin-6 and -7).
Diuretici tiazidici, uso prolungato (*es. Idroclorotiazide*)	Aumentano l'escrezione renale di magnesio.

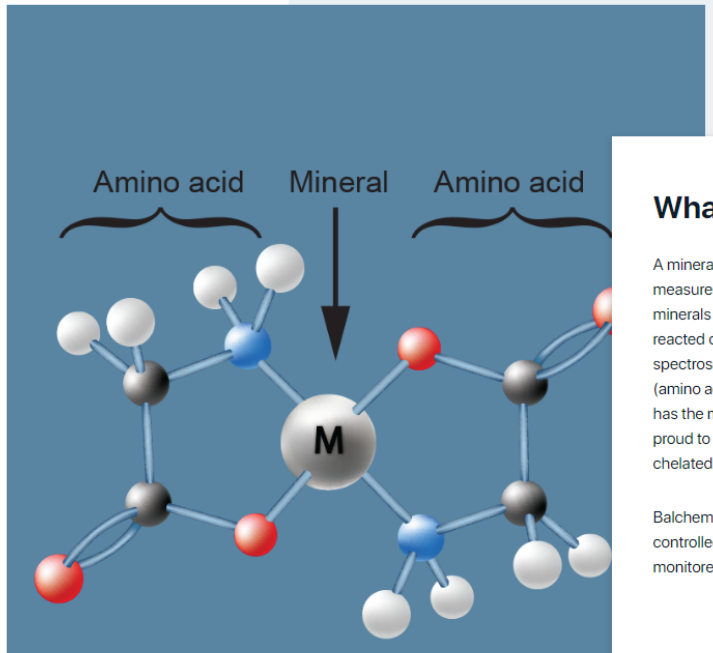
Fiorentini, Diana et al. "Magnesium: Biochemistry, Nutrition, Detection, and Social Impact of Diseases Linked to Its Deficiency." Nutrients vol. 13,4 1136. 30 Mar. 2021, doi:10.3390/nu13041136

AlbionMinerals



Mineral Chelation

The term chelate (pronounced key-late) is derived from the Greek word *chele ("χηλή ")* meaning "claw-like", and describes the structure of a certain mineral form in which a mineral molecule is held at more than one point of attachment and a ring structure is formed.



What is a Fully Reacted Chelate?

A mineral amino acid chelate is "fully reacted" depending on the measurement of bonds between the ligand and the mineral. Albion® minerals are unique in that we verify that our mineral products are fully reacted chelates through Fast-Fourier Transforming Infrared (FT-IR) spectroscopy. This technology identifies the bonds between the ligand (amino acid) and mineral. Balchem® can guarantee each batch of minerals has the molecular structure indicating that chelation has occurred. We are proud to bring you and your consumers the proven clinical benefits of a true chelated mineral.

Balchem creates proven, fully reacted mineral chelates under tightly controlled conditions, specific manufacturing processes, and carefully monitored state-of-the-art facilities.

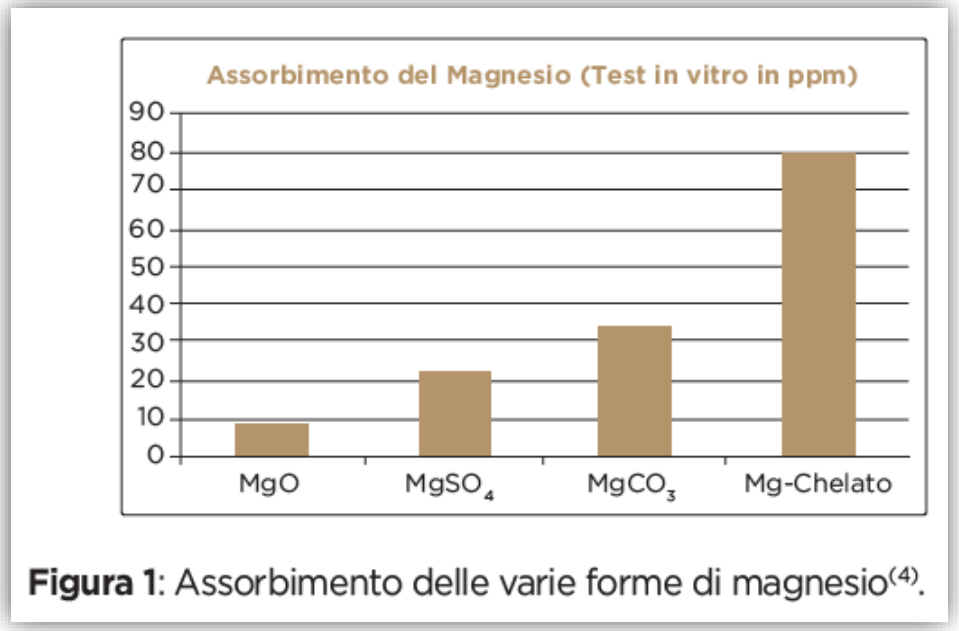


Figura 1: Assorbimento delle varie forme di magnesio[4].

Cuciureanu MD, Vink R. Magnesium and stress. In: Vink R, Nechifor M, eds. *Magnesium in the Central Nervous System*. University of Adelaide Press; 2011. Accessed February 22, 2024.

Nutraceutica a Supporto :

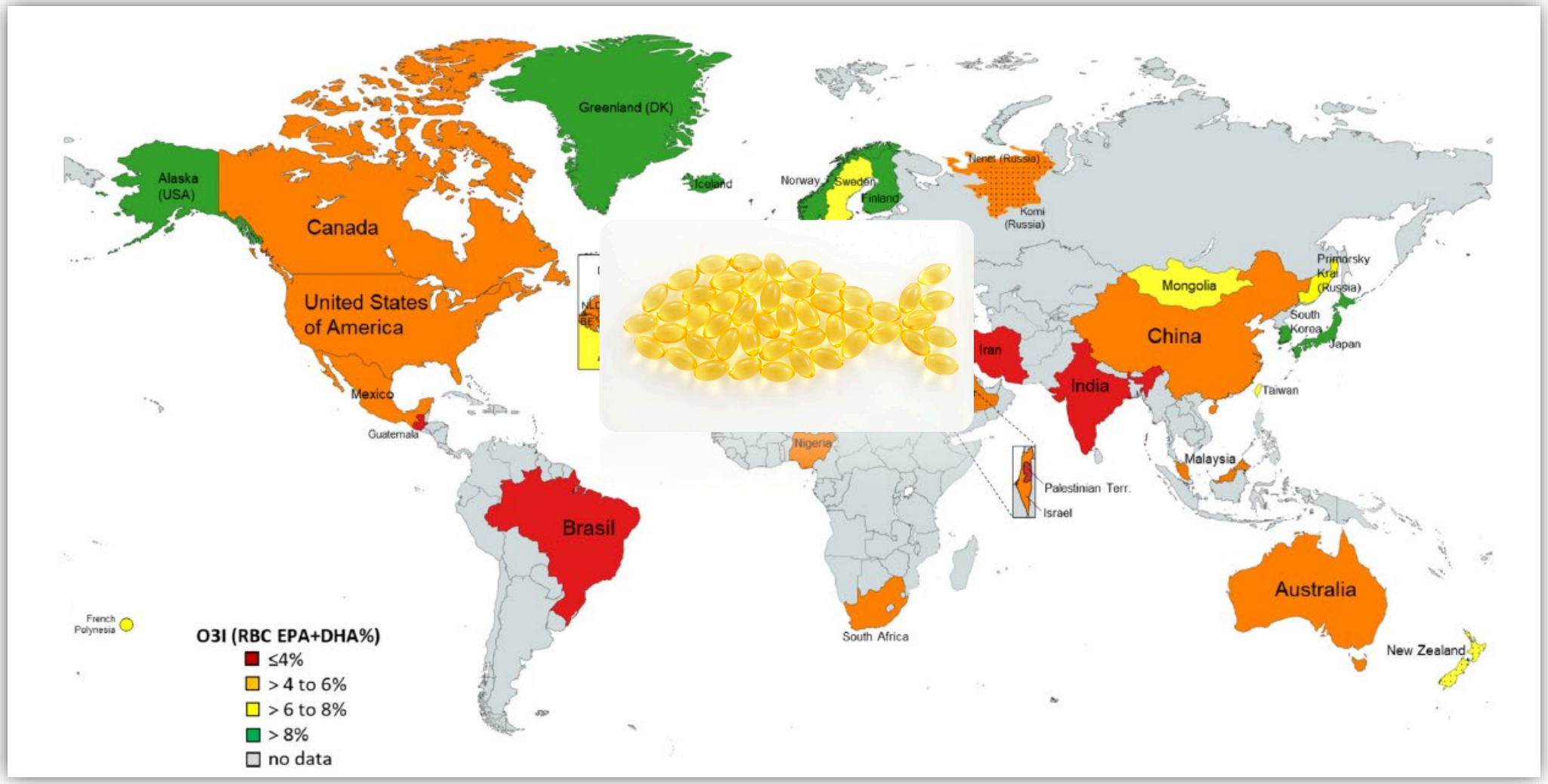
- Polinutriente
- Complesso B
- Magnesio Bisglicinato 400 mg/die

Albion™ Minerals

Review > Prog Lipid Res. 2024 Jun 13:95:101286. doi: 10.1016/j.plipres.2024.101286.
Online ahead of print.

Omega-3 world map: 2024 update

Jan Philipp Schuchardt [1], Philine Beinhorn [2], Xue Feng Hu [3], Hing Man Chan [3], Kaitlin Roke [4], Aldo Bernasconi [4], Andreas Hahn [2], Aleix Sala-Vila [5], Ken D Stark [6], William S Harris [7]



«L'indice O3I è un biomarcatore ampiamente accettato per lo stato in vivo degli acidi grassi omega-3 (n3), ma più di questo, è **un fattore di rischio documentato - e modificabile - per diverse malattie.»**

Nine Reasons Why You Need EPA+DHA Omega-3s

Omega-3s
Always a good idea™

EPA and DHA omega-3s are vital nutrients found in every cell of the body. The European Food Safety Authority (EFSA) recognizes the importance of EPA and DHA to support a variety of health benefits. Getting a health claim approved in the European Union (EU) is a rigorous process, but the science behind EPA and DHA omega-3s is so convincing that in the EU there are not one, but **nine approved health claims.**

1. DHA maternal intake contributes to the **normal development of the eye** of the **foetus and breastfed infants.**[1]

2. DHA maternal intake contributes to the **normal brain development** of the **foetus and breastfed infants.**[1]

3. DHA intake contributes to the **normal visual development of infants** up to 12 months of age.[2]

4. EPA and DHA contribute to the **normal function of the heart.**[3]

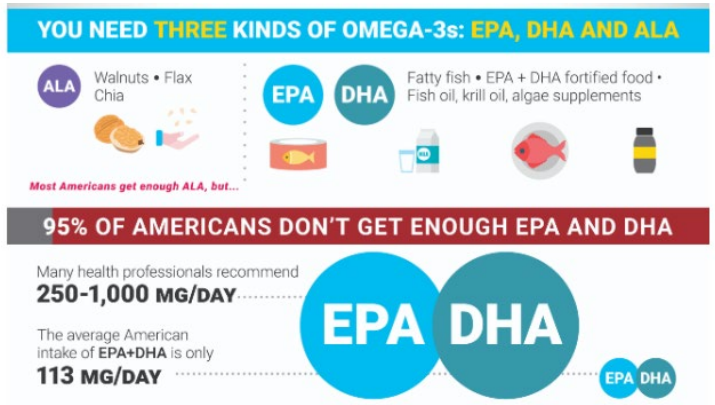
5/6. DHA and EPA[4] (and DHA alone)[5] contribute to the maintenance of **normal blood triglyceride levels.**

7. DHA and EPA contribute to the maintenance of **normal blood pressure.**[6]

8. DHA contributes to the maintenance of **normal brain function.**[7]

9. DHA contributes to the maintenance of **normal vision.**[7]

1. Beneficial effect is obtained with a daily intake of 200 mg of DHA in addition to the recommended daily intake for omega-3 fatty acids for adults, i.e. 250 mg DHA and EPA.
2. Beneficial effect is obtained with a daily intake of 100 mg of DHA.
3. Beneficial effect is obtained with a daily intake of 250 mg of EPA and DHA.
4. Beneficial effect is obtained with a daily intake of 2 g of EPA and DHA.
5. Beneficial effect is obtained with a daily intake of 2 g of DHA.
6. Beneficial effect is obtained with a daily intake of 3 g of EPA and DHA.
7. Beneficial effect is obtained with a daily intake of 250 mg of DHA.



GOED OMEGA-3
GLOBAL ORGANIZATION FOR EPA AND DHA OMEGA-3

GOED VOLUNTARY MONOGRAPH
Version 8.2 | Issue Date January 6, 2022

Heavy Metals

All heavy metals must be analyzed with methods validated for the matrix used.

Lead (Pb):	Less than 0.05 mg/kg
Cadmium (Cd):	Less than 0.1 mg/kg
Mercury (Hg):	Less than 0.1 mg/kg
In-organic Arsenic (As):	Less than 0.1 mg/kg

Oxidation

Peroxide value (PV). Maximum: 5 meq/kg; AOCS Official Method Cd 8b-90 / Ph.Eur. method 2.5.5 "Peroxide Value"

p-Anisidine value[1] *(pAV).* Maximum: 20; AOCS Official Method Cd 18-90 / Ph.Eur. method 2.5.36 "Anisidine Value"

TOTOX[1] Maximum: 26 (result of calculation; (2 x PV) + pAV)

Environmental Contaminants

PCBs, Dioxins, Furans and Dioxin-like PCBs [2]

All environmental contaminants must be analyzed with methods validated for the matrix used.

PCBs. Maximum: 0.09 mg/kg

Total PCBs should be expressed on a weight/ weight basis as a sum of all 209 congeners. Note that it is not necessary to report all 209 individual congeners to verify compliance.

PCDDs and PCDFs. Maximum 1.75 pg WHO-PCDD/F-TEQ/g

Short Report

Effects of omega-3 fatty acids on tobacco craving in cigarette smokers: A double-blind, randomized, placebo-controlled pilot study

Sharon Rabinovitz

Psychopharm

Journal of Psychopharmacology
2014, Vol. 28(8) 804–809

DOI: 10.1177/0269881114536477
jop.sagepub.com
SAGE

Abstract

Cigarette smoke induces oxidative stress with subsequent polyunsaturated fatty acids (PUFAs) peroxidation. Low concentrations of omega-3 PUFAs can affect neurotransmission, resulting in hypofunctioning of the mesocortical systems associated with reward and dependence mechanisms and thus may increase cigarette craving, hampering smoking cessation efforts. PUFA deficiency, in particular eicosapentaenoic acid (EPA; 20:5 n-3) and docosahexaenoic acid (DHA; 22:6 n-3), has also been linked to reduced psychological health and ability to cope with stress. Although stress is well linked to smoking urges and behavior, no research to date has examined the effects of PUFA supplementation on tobacco craving. In this double-blind, randomized, placebo-controlled pilot study, performed in regular cigarette smokers (n=48), administration of 2710 mg EPA/day and 2040 mg DHA/day for one month was accompanied by a significant decrease in reported daily smoking and in tobacco craving following cigarette cue exposure. Craving did not return to baseline values in the month that followed treatment discontinuation. This is the first study demonstrating that omega-3 PUFA supplementation reduces tobacco craving in regular smokers, compared to placebo treatment. Thus, omega-3 PUFAs may be of benefit in managing tobacco consumption. Further studies are needed on larger samples to explore the possible therapeutic implications for heavy cigarette smokers.

Keywords

Omega-3 fatty acids, eicosapentaenoic acid, docosahexaenoic acid, craving, smoking, tobacco

REVIEW Open Access

Dietary phytochemicals and neuro-inflammaging: from mechanistic insights to translational challenges

Sergio Davinelli[1*], Michael Maes[2,3], Graziamaria Corbi[1], Armando Zarrelli[4], Donald Craig Willcox[5,6] and Giovanni Scapagnini[1]

Abstract

An extensive literature describes the positive impact of dietary phytochemicals on overall health and longevity. Dietary phytochemicals include a large group of non-nutrients compounds from a wide range of plant-derived foods and chemical classes. Over the last decade, remarkable progress has been made to realize that oxidative and nitrosative stress (O&NS) and chronic, low-grade inflammation are major risk factors underlying brain aging. Accumulated data strongly suggest that phytochemicals from fruits, vegetables, herbs, and spices may exert relevant negative immunoregulatory, and/or anti-O&NS activities in the context of brain aging. Despite the translational gap between basic and clinical research, the current understanding of the molecular interactions between phytochemicals and immune-inflammatory and O&NS (IO&NS) pathways could help in designing effective nutritional strategies to delay brain aging and improve cognitive function. This review attempts to summarise recent evidence indicating that specific phytochemicals may act as positive modulators of IO&NS pathways by attenuating pro-inflammatory pathways associated with the age-related redox imbalance that occurs in brain aging. We will also discuss the need to initiate long-term nutrition intervention studies in healthy subjects. Hence, we will highlight crucial aspects that require further study to determine effective physiological concentrations and explore the real impact of dietary phytochemicals in preserving brain health before the onset of symptoms leading to cognitive decline and inflammatory neurodegeneration.

Keywords: Brain, Aging, Diet, Phytochemicals, Inflammation, Oxidative stress

"Il **resveratrolo**, un potente antiossidante presente in alcune piante come il **Polygonum cuspidatum**, è stato usato per secoli nella medicina tradizionale cinese e giapponese per trattare disturbi cardiovascolari e infiammatori. Il Polygonum cuspidatum, comunemente noto come 'Knotweed giapponese', è stato venerato nelle culture asiatiche per le sue proprietà curative e la sua capacità di proteggere il corpo dagli effetti dell'invecchiamento."

"Secondo un'antica leggenda giapponese, il **Knotweed** cresceva lungo i sentieri di montagna percorsi dai saggi eremiti. Si credeva che questi uomini, conosciuti per la loro longevità e saggezza, attribuissero la loro resistenza fisica e mentale alla pianta, che rafforzava il loro cuore e li proteggeva dagli effetti del tempo."

“La salute non si ottiene in un giorno, ma ogni singola scelta ci porta più vicini o più lontani dalla longevità. Il resveratrolo è una di quelle scelte quotidiane che può fare la differenza.” – **David Sinclair**, biologo e pioniere della ricerca sull'invecchiamento e le sostanze antiossidanti.

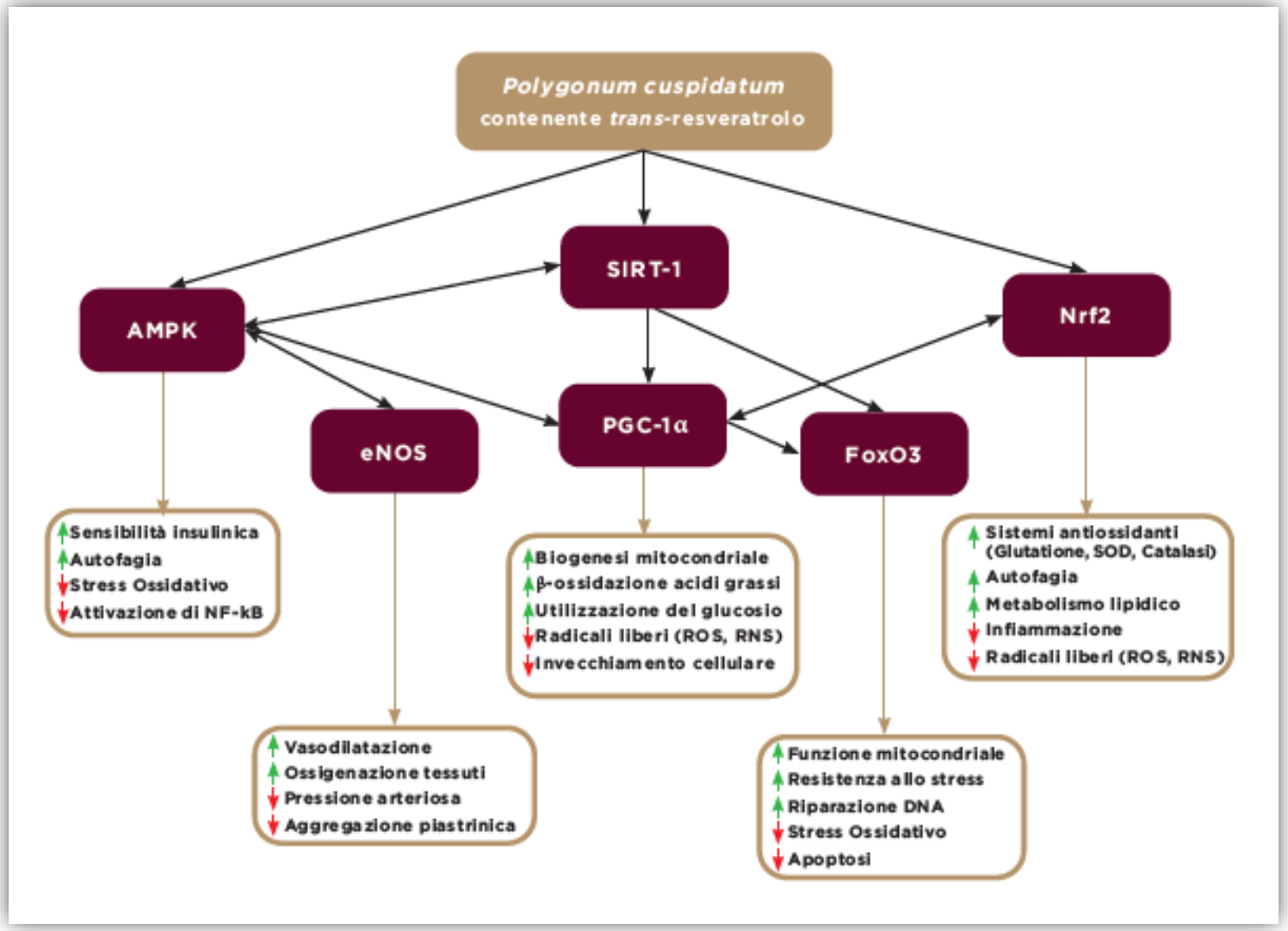


Figura 5. Effetti fisiologici e vie di segnale modulate dell'estratto di radice di *Polygonum cuspidatum* contenente *trans*-resveratrolo. Il Resveratrolo, Edra Editori.

Bacoma Monnieri

"**Brahmi** stimola l'intelletto, migliora la memoria e promuove la chiarezza mentale. Rafforza i nervi e migliora il vigore intellettuale, aiutando a mantenere una mente equilibrata e calma."
(*Charaka Samhita*, uno dei principali testi ayurvedici)

"Nella tradizione ayurvedica, si dice che 'Brahmi rafforza la mente e la memoria, dona chiarezza e calma, ed è il supporto essenziale per chi cerca la conoscenza e l'illuminazione'.»

Si dice che la pianta fosse usata dagli antichi studiosi per potenziare la loro mente e mantenere un equilibrio tra corpo e spirito, facilitando così la loro connessione con il divino."

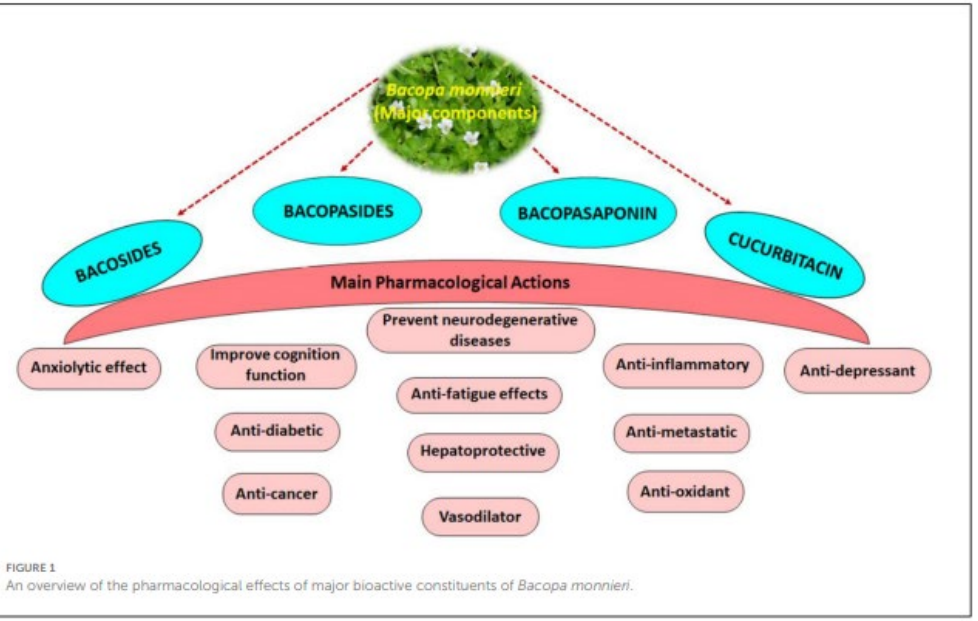


FIGURE 1
An overview of the pharmacological effects of major bioactive constituents of *Bacopa monnieri*.

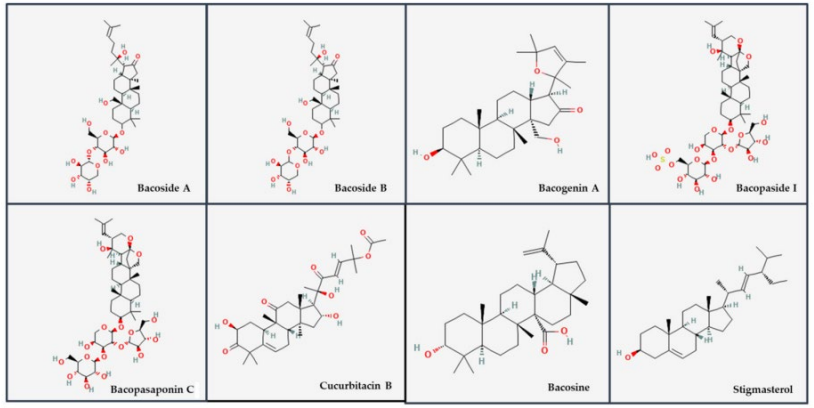


FIGURE 2
Representative structures of major phytoconstituents present in extracts of Bacopa monnieri. Structures were downloaded from PubChem (https://pubchem.ncbi.nlm.nih.gov) with their corresponding PubChem CIDs, Bacoside A (92043183), Bacoside B (121596009), Bacogenin A (101600046), Bacopaside I (21599442), Bacopasaponin C (21599443), Cucurbitacin B (5281316), Bacosine (71312547), and Stigmasterol (5280794).

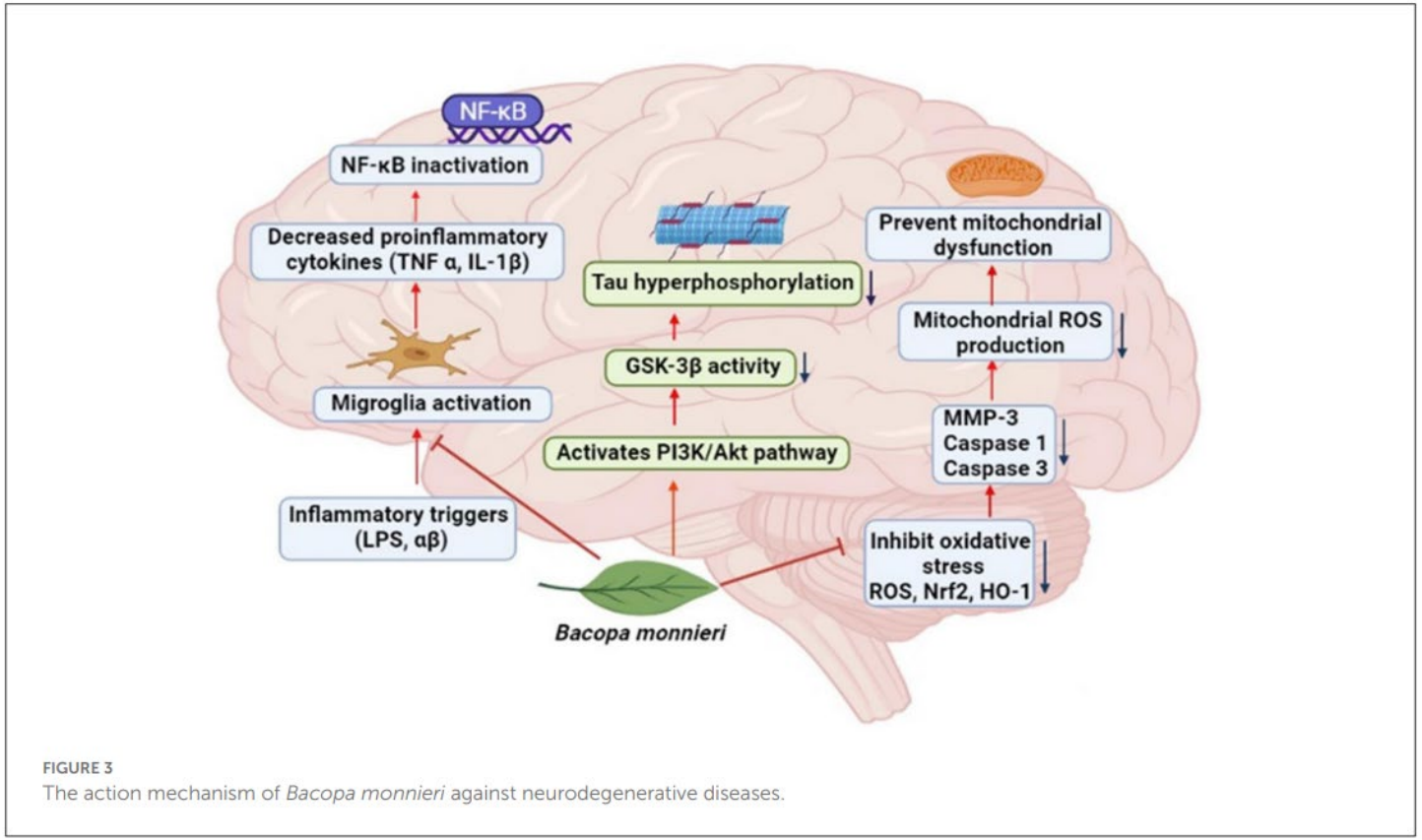
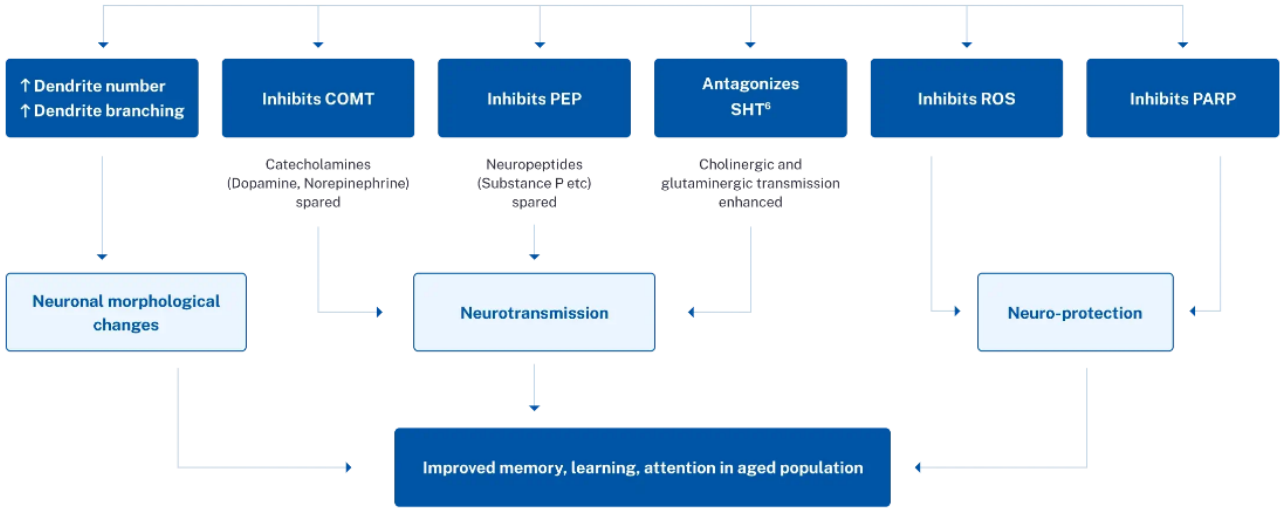
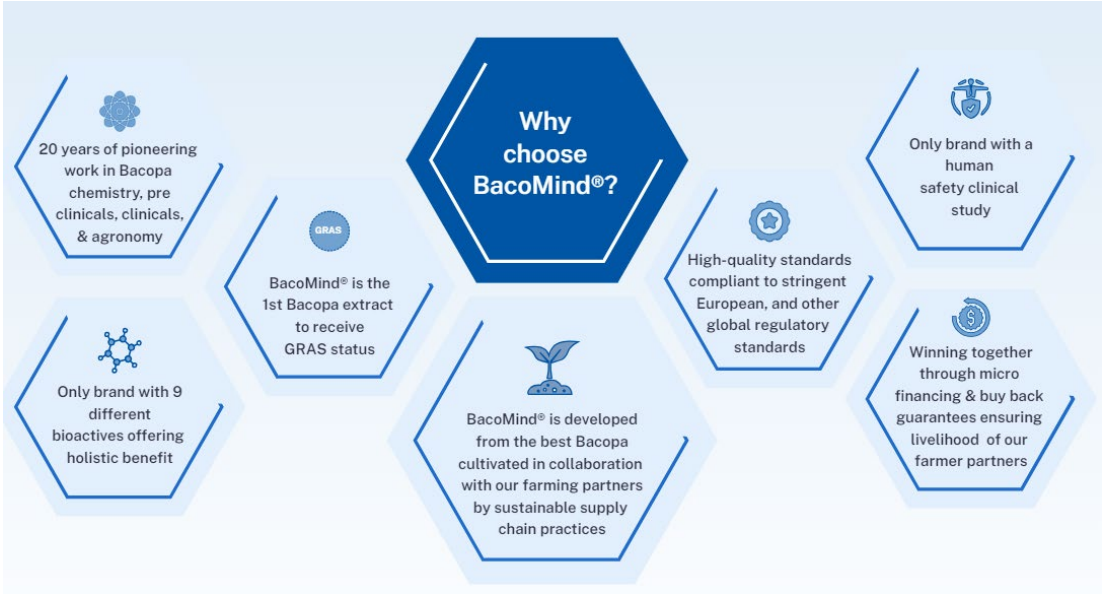


FIGURE 3
The action mechanism of *Bacopa monnieri* against neurodegenerative diseases.

frontiers
Frontiers in Nutrition
Volume 9 - 2022 | https://doi.org/10.3389/fnut.2022.972379

Bacomind® Unique mechanisms of action





Health Claims*

The human clinical study on BacoMind® allows for the following health claims:

USA | Canada | Austrailia | Brazil | ROW

- Helps to improve cognitive function and memory during aging
- Helps to improve acquisition and retention in healthy older people
- Helps to improve cognitive functions such as focus and verbal memory in the elderly
- Supports learning and memory, including information retention & recall, in children & adolescents
- Supports brain health
- Helps to support cognitive health and brain performance

BacoMind®
Usha et al., 2008 Children IEP clinical - Clinical
Pravina et al, Safety Clinical - Safety
Morgan and Stevens, 2010 Aus. clinical - Clinical
Kasture et al, Nootropic study - Pre-Clinical
Joshua et al, Invivo Safety - Pre-Clinical
Dethe et al., 2016 BacoMind - Pre-Clinical
Deb et al, Invitro Safety - Pre-Clinical
Dave et al., 2014 ADHD clinical - Clinical
Barbhaiya et al., 2008 Elderly AAMI clinical - Clinical

Nutraceutica Specifica:

- Epa 200mg – DHA 250mg
- Resveratrolo 100mg /die
- Bacopa Monnieri 300mg/die

GOED OMEGA-3
GLOBAL ORGANIZATION FOR EPA AND DHA OMEGA-3

BacoMind™

GRAZIE PER L'ATTENZIONE

Nutraceutica a supporto delle funzioni cognitive

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Dottore in Scienze della Nutrizione Umana
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