

ALL IN ONE DAY SEMINAR, CLINICAL EVIDENCE BASED PRACTICE OF CHIROPRACTIC: ETHICS & LAW, BASIC SCIENCE (NUTRITION), & ADVANCED CHIROPRACTIC ADJUSTIVE TECHNIQUE.

Presented by
Mark Cymerint D.C.

California Approval Numbers:
CA-D-26-06-05038 Advanced Adjustive Technique
CA-D-26-06-05037 Basic Science (Nutrition)
CA-D-26-06-05039 Ethics & Law

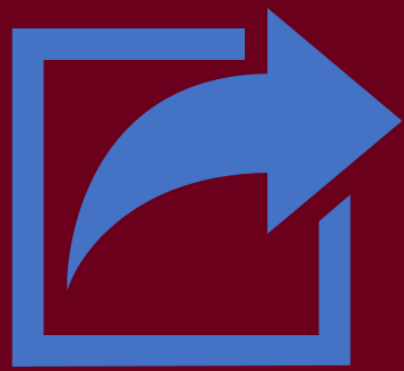


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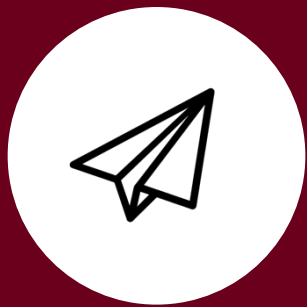
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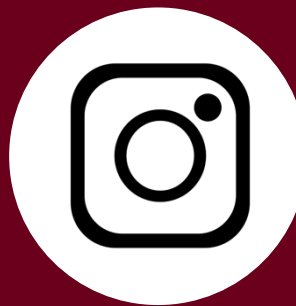
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II. BASIC SCIENCE (NUTRITION)

A. INFLAMMATION

- a) Natural inflammation reduction treatment options, including nutritional supplements and special dietary recommendations for an anti-inflammatory protocol, including legal hemp for anti-inflammatory management.
- b) Literature review

B. DIGESTION

- a) Green Alkaline foods for fiber and digestion
- b) Colon Health
- c) Minerals and Collagen Protein

D. AMINO ACIDS

- a) Definitions
- b) Amino acids for cardiovascular health
- c) Nitric oxide production



INFLAMMATION: WHAT IS IT?

Natural inflammation reduction treatment options, including nutritional supplements and special dietary recommendations for an anti-inflammatory protocol.



1. What is an inflammation?. *Institute for Quality and Efficiency in Health Care (IQWiG)*. 2015. Available at: <https://www.ncbi.nlm.nih.gov/pubmedhealth/PMH0072482/>. Accessed October 12, 2016

CAUSES OF INFLAMMATION

Possible Causes of Inflammation:

- Pathogens (germs) like bacteria, viruses
- External injuries (i.e. Sports, Occupational, or Trauma)
- Chemicals found in OTC or prescription medications, environmental and product exposure
- Any disease, disorder, condition ending in “-itis.”
(Bronchitis, Bursitis, Cystitis, Dermatitis, etc.)



SIGNS OF INFLAMMATION

There are five symptoms that may be signs of an acute inflammation:

- Redness
- Heat
- Swelling
- Pain
- Loss of function

Examples of a loss of function include not being able to move an inflamed joint properly, having a worse sense of smell during a cold, or finding it more difficult to breathe when you have bronchitis.

Inflammations don't always cause all five symptoms, and, in some cases, occur "silently" or asymptotically.



INFLAMMATION & AUTOIMMUNE DISEASE

Autoimmune Disease: A condition in which the body's immune system mistakes its own healthy tissues as foreign and attacks them.

- Rheumatoid arthritis | Inflammation of joints
 - common in hands/fingers, wrists/ankles, elbows/knees, feet/toes
- Psoriasis | Inflammation of skin
 - common in elbows, knees, scalp
- Crohn's/ ulcerative colitis | Inflammation of bowel
 - commonly felt in back, hips/glutes, & thighs too



REFERENCES

- Maple C, McLaren M, Bancroft A, Ho M, Belch JJF. Dietary supplementation with omega 3 and omega 6 fatty acids reduces induced white blood cell aggregation in healthy volunteers. *Prostaglandins, Leukotrienes and Essential Fatty Acids (PLEFA)*. 1998;58:365-368.
- Calder PC. Omega-3 polyunsaturated fatty acids and inflammatory processes: nutrition or pharmacology? *British Journal of Clinical Pharmacology*. 2013;75:645-662.
- Tilg H. Cruciferous vegetables: prototypic anti-inflammatory food components. *Clinical Phytoscience*. 2015;1:1-6.
- Kocabas H, Kocabas V, Buyukbas S, Salli A, Ugurlu H. Relationship of Cellular Oxidant and Antioxidant Status with Disease Activity in Patients with Rheumatoid Arthritis. *Turkish Journal of Rheumatology*. 2010;25:141-146.
- Al-Okbi SY. Nutraceuticals of anti-inflammatory activity as complementary therapy for rheumatoid arthritis. *Toxicology and Industrial Health*. 2014;30:738-749.
- Disease-modifying potential of Cinnamon extract in inflammation and arthritis. *Australian Journal of Herbal Medicine*. 2014;26:36.



NATURAL INFLAMMATION REDUCTION TREATMENT OPTIONS

RESEARCH: CANNABIDIOL,
CANNABINOL, & CANNABIGEROL FOR
ANTI-INFLAMMATORY PROTOCOL



Natural inflammation reduction treatment options, including nutritional supplements and special dietary recommendations for an anti-inflammatory protocol, including legal hemp for anti-inflammatory management.

CBD: ANTI-INFLAMMATORY NUTRITIONAL OPTION

Cannabidiol: A Non-psychoactive cannabinoid

- *Analgesic*
- *Anti-inflammatory*
- *Neuroprotective*

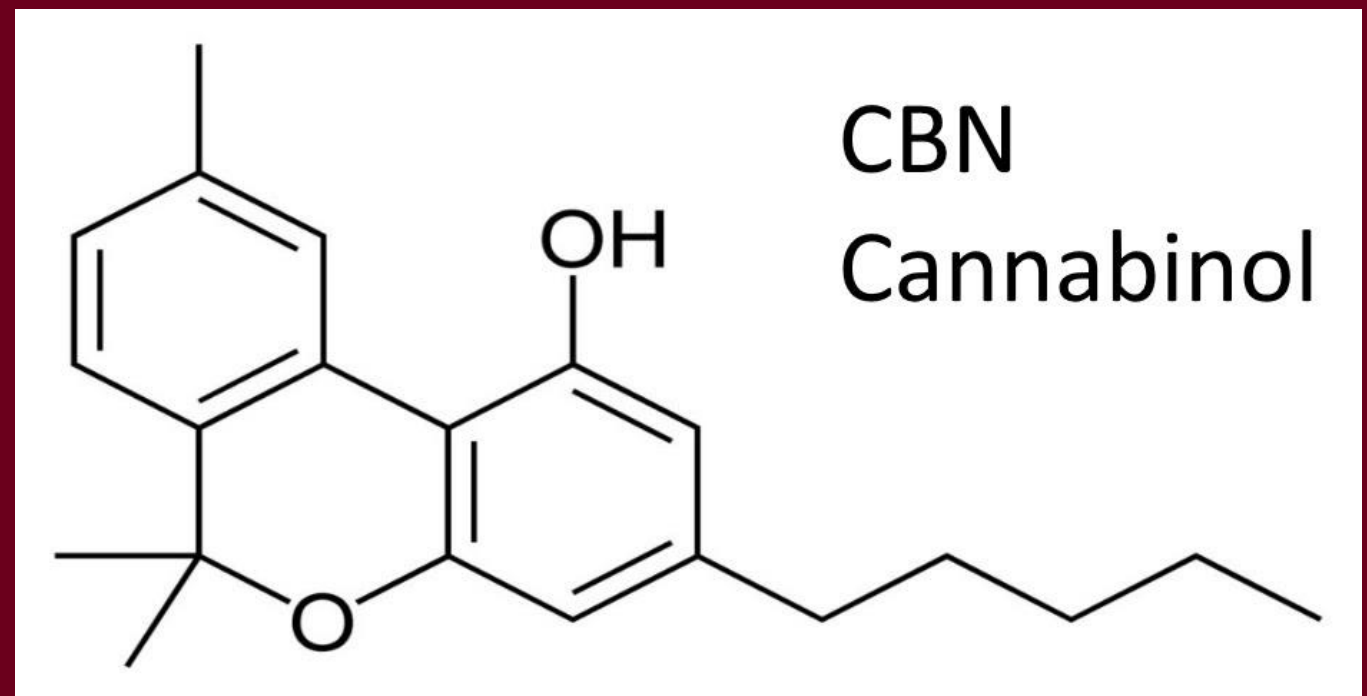


Natural inflammation reduction treatment options, including nutritional supplements and special dietary recommendations for an anti-inflammatory protocol, including legal hemp for anti-inflammatory management.

CBN: ANTI-INFLAMMATORY NUTRITIONAL OPTION

Cannabinol: A Non-psychoactive cannabinoid

- Sedative
- Anti-inflammatory

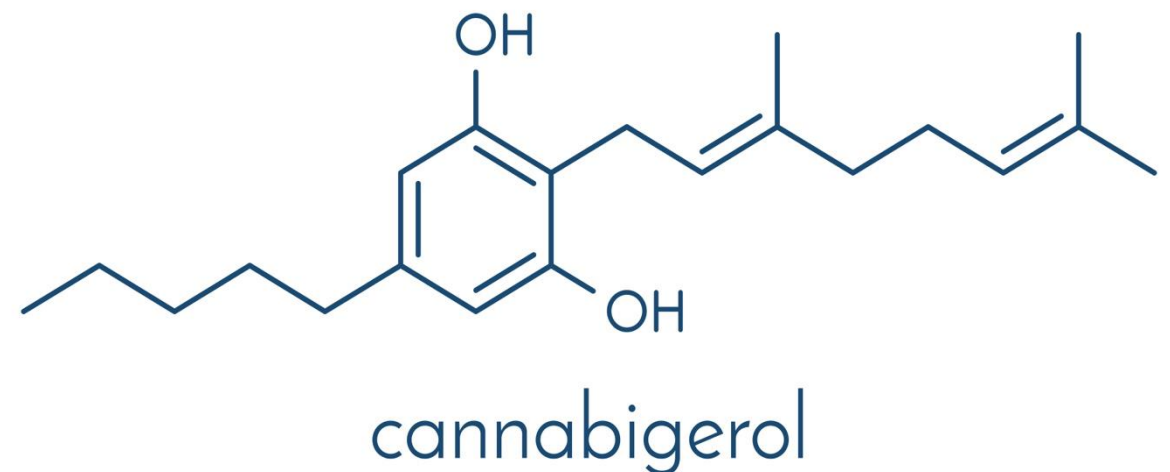


Natural inflammation reduction treatment options, including nutritional supplements and special dietary recommendations for an anti-inflammatory protocol, including legal hemp for anti-inflammatory management.

CBG: AN ANTI-INFLAMMATORY NUTRITIONAL OPTION

Cannabigerol: A Non-psychoactive cannabinoid

- Anti-inflammatory
- Analgesic
- Effective for:
 - Psoriasis
 - Neuropsychiatric Disorders (ADHD, PTSD)
 - Inflammatory Bowel Disease

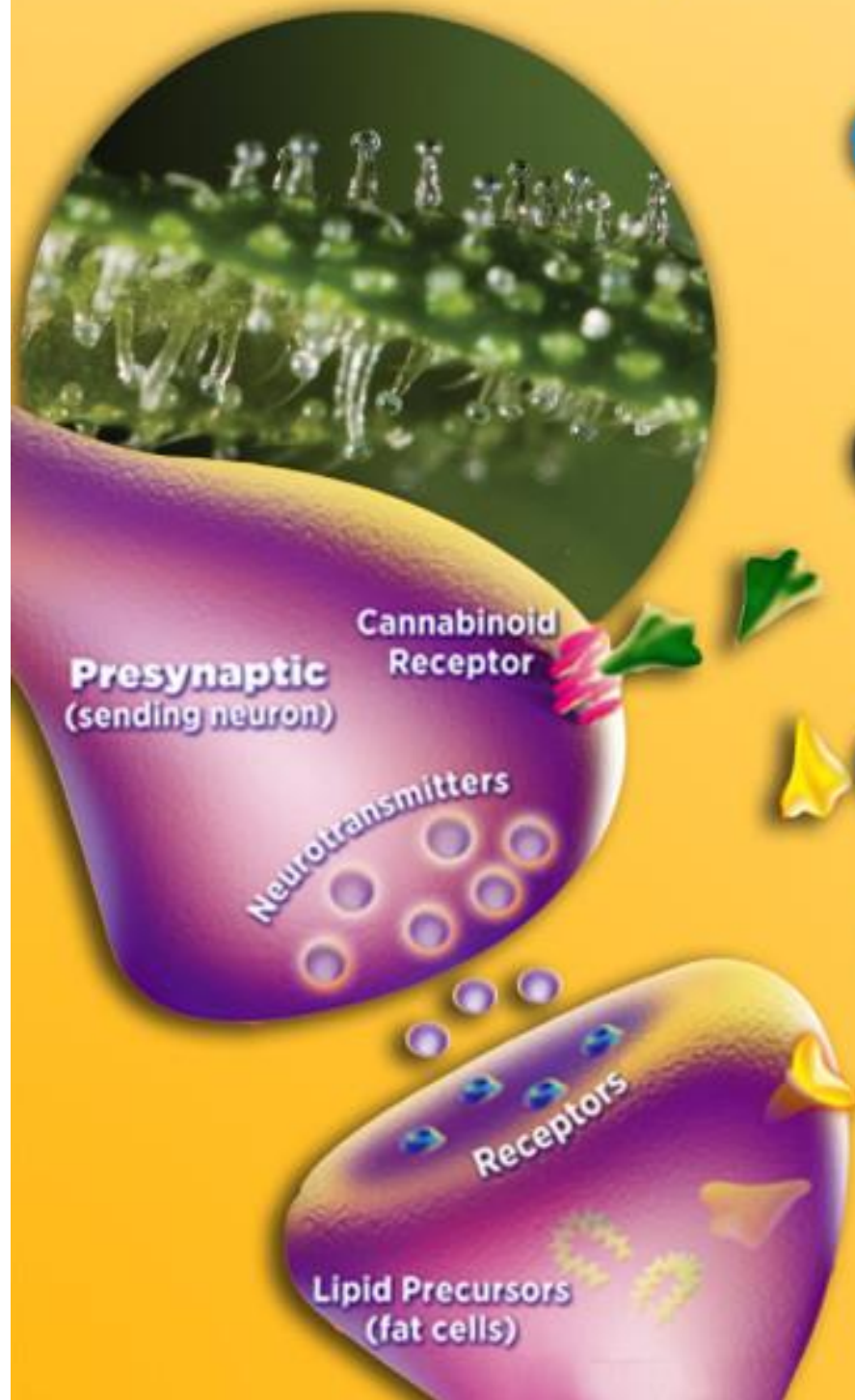


The Human Endocannabinoid System

THC and CBN are known to "fit" like lock and key into network of existing receptors. The Endocannabinoid System exists to receive cannabinoids produced inside the body called "Anandamide" and "2-Arachidonyl-glycerol". Stimulating the ECS with plant-based cannabinoids restores balance and helps maintain symptoms.

CB1 receptors are concentrated in the brain and central nervous system but also sparsely populates other parts of the human body.

Receptors are found on cell surfaces



Tetrahydrocannabinol



Cannabidiol

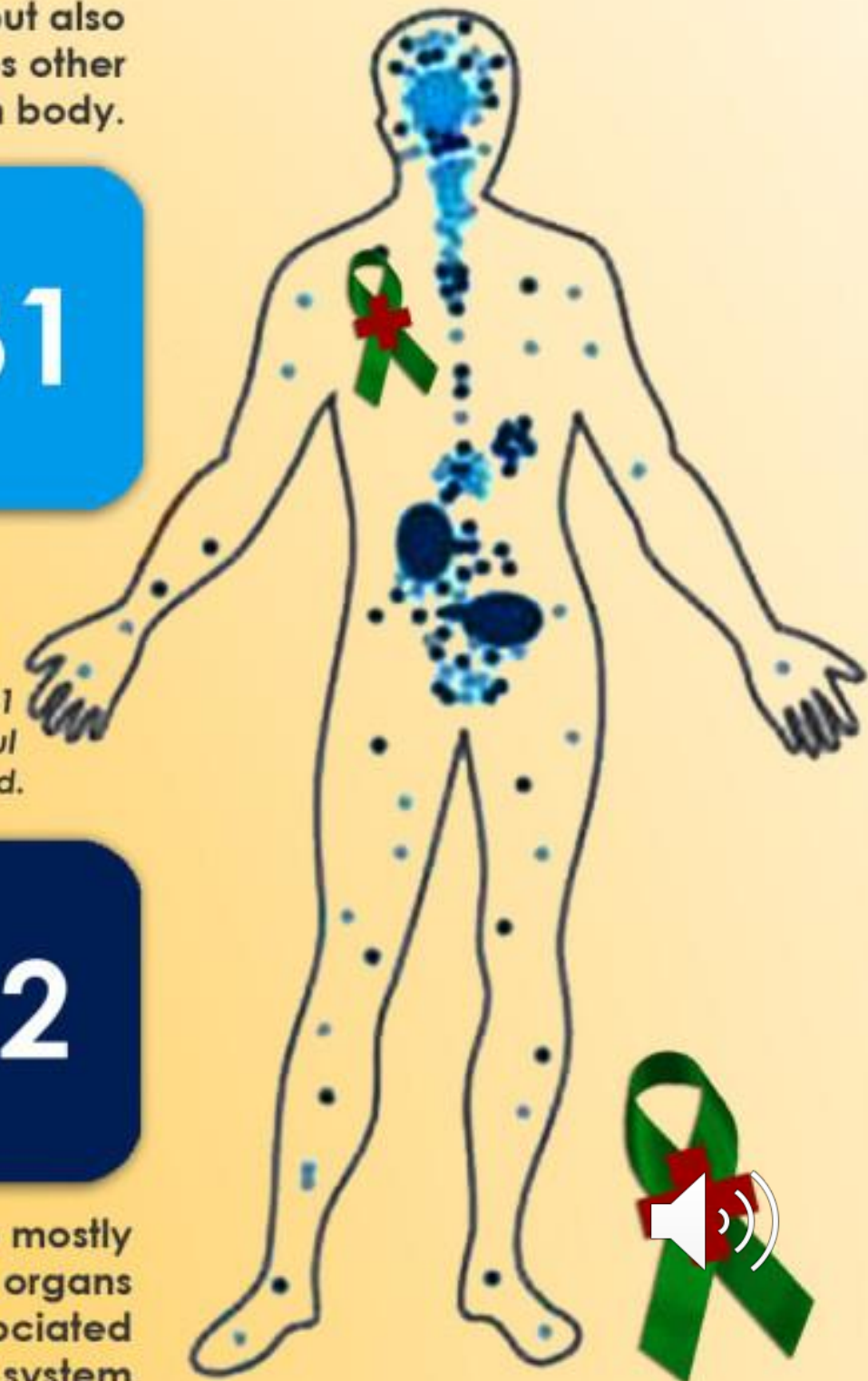
CBD does not directly "fit" CB1 or CB2 receptors but has powerful indirect effects still being studied.



Cannabinol



CB2 receptors are mostly in the peripheral organs especially cells associated with the immune system.



www.the-human-solution.org

WHAT SHOULD I LOOK FOR WHEN CONSIDERING CBD AS A THERAPEUTIC OPTION?



- Consider extraction methods:
 - Alcohol/Solvent Extraction
 - CO2 Extraction

- Be cautious of products with:
 - Flavors, sugars, unpronounceable ingredients



ALCOHOL SOLVENT EXTRACTION (WORST METHOD)

Ethanol, low-grade alcohol & butane (most-commonly used)

Chlorophyll extracted together with cannabinoids & terpenes (leaves dark color and bitter flavor)

Additional post processing required to remove the chlorophyll reducing potency of the oil

Destroys plant waxes



SUPERCritical CO2 EXTRACTION

Most superior & expensive CBD extraction method

The pressure and temperature of carbon dioxide (CO₂) is manipulated over time to reach supercritical phase

CO₂ passed through high-quality hemp

CO₂ extracts oils without denaturing the phytocannabinoids, terpenes & flavonoids



HOW MUCH CBD FOR INFLAMMATION MANAGEMENT?



- Start low dosage, go slow and increase as needed for symptomatic relief
- Start with recommended dosage
 - Assess how you feel after one week





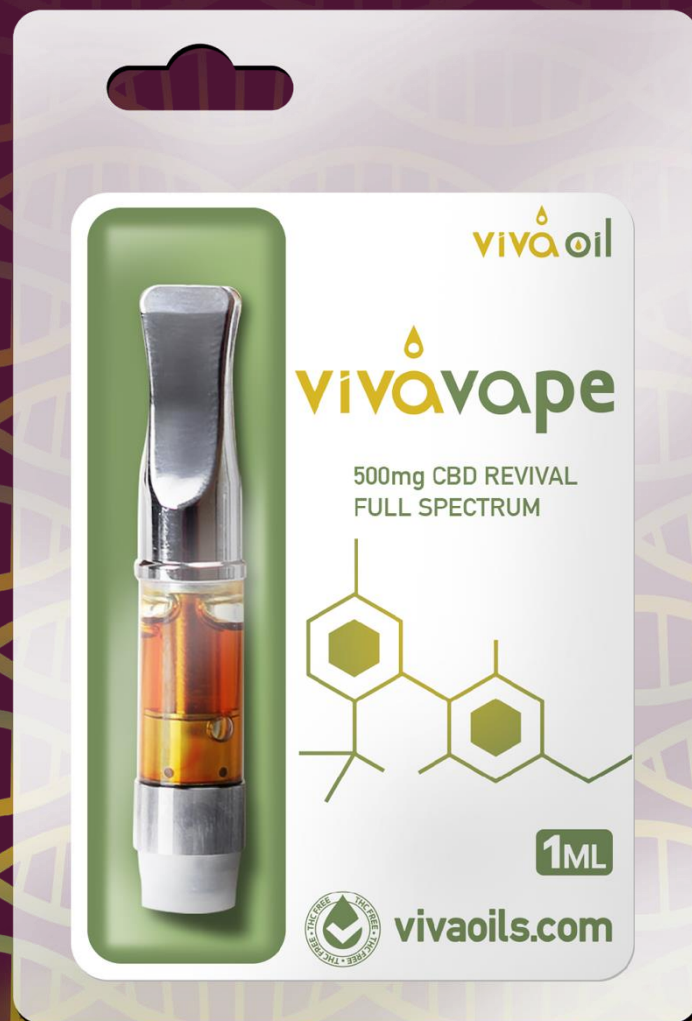
CBD SAFETY PROFILE

- CBD Does not alter HR, BP, or body temperature
- No negative influence on food intake, gastrointestinal transit, psychomotor or psychological functions



Iffland, K., & Grotenhermen, F. (2017). An update on safety and side effects of cannabidiol: A review of clinical data and relevant animal studies. *Cannabis and Cannabinoid Research*, 2(1), 139-154. doi:10.1089/can.2016.0034

DIFFERENT OPTIONS OF DELIVERY & BIOAVAILABILITY FOR INFLAMMATION MANAGEMENT



Oral ~ 6% bioavailability (gel capsules)

- Undergoes extensive hepatic first-pass metabolism
- Slow working & requires higher serving sizes

Inhalation ~ 31% bioavailability (vaporizing)

- Avoids extensive hepatic first-pass metabolism
- More instantaneous
- Requires lower serving sizes
- Not recommended for people with asthma, SOB, respiratory issues



DIFFERENT OPTIONS OF DELIVERY & BIOAVAILABILITY FOR INFLAMMATION MANAGEMENT

- Oromucosal 30% bioavailability~
(CBD Oil with dropper recommendations on bottle)
- Avoids extensive hepatic first-pass metabolism
- Rapid absorption (useful for symptoms requiring rapid relief)
- Drops under tongue
Hold under the tongue 60-90 seconds



DIFFERENT OPTIONS OF DELIVERY & BIOAVAILABILITY FOR INFLAMMATION MANAGEMENT

▪ Topical administration

30% bioavailability

Most Popular
with
Chiropractors!

- HIGH ABSORPTION RATE

- Avoids first-pass metabolism

-- Used for:

- Inflammation / pain

--- Types:

- Salve
- Rollerball
- Recovery stick



WHAT CONCENTRATION OF CBD SHOULD BE CONSIDERED FOR INFLAMMATION MANAGEMENT?

500mg, 600mg, 750mg, 1000mg:

- Used by those trying to target a specific health concern

2500mg:

- For those who have experience with CBD
- Severe pain / accident
- Terminal illness pain



CLINICAL PRACTICE GUIDELINES FOR CANNABIS AND CANNABINOID-BASED MEDICINES IN THE MANAGEMENT OF CHRONIC PAIN AND CO-OCCURRING CONDITIONS



Date & Journal: Cannabis & Cannabinoid Research. 2024 Apr

Background: One in five individuals live with chronic pain globally, which often co-occurs with sleep problems, anxiety, depression, and substance use disorders. Although these conditions are commonly managed with cannabinoid-based medicines (CBM), health care providers report lack of information on the risks, benefits, and appropriate use of CBM for therapeutic purposes.

Aims: We present these clinical practice guidelines to help clinicians and patients navigate appropriate CBM use in the management of chronic pain and co-occurring conditions.

Results: From our literature search, 70 articles met inclusion criteria and were utilized in guideline development, including 19 systematic reviews and 51 original research studies. Research typically demonstrates moderate benefit of CBM in chronic pain management. There is also evidence for efficacy of CBM in the management of comorbidities, including sleep problems, anxiety, appetite suppression, and for managing symptoms in some chronic conditions associated with pain including HIV, multiple sclerosis, fibromyalgia, and arthritis.

Conclusions: All patients considering CBM should be educated on risks and adverse events. Patients and clinicians should work collaboratively to identify appropriate dosing, titration, and administration routes for each individual.

Bell AD, MacCallum C, Margolese S, Walsh Z, Wright P, Daeninck PJ, Mandarino E, Lacasse G, Kaur Deol J, de Freitas L, St Pierre M, Belle-Isle L, Gagnon M, Bevan S, Sanchez T, Arlt S, Monahan-Ellison M, O'Hara J, Boivin M, Costiniuk C. Clinical Practice Gu

DIVERSITY OF MOLECULAR TARGETS AND SIGNALING PATHWAYS FOR CBD

Date & Journal: Pharmacology Research Perspectives . 2020 Dec

Abstract

Cannabidiol (CBD) is the second most abundant component of the Cannabis plant and is known to have effects distinct from Δ^9 -tetrahydrocannabinol (THC). Many studies that examined the behavioral effects of CBD concluded that it lacks the psychotomimetic effects attributed to THC. However, CBD was shown to have a broad spectrum of effects on several conditions such as anxiety, inflammation, neuropathic pain, and epilepsy. It is currently thought that CBD engages different targets and hence CBD's effects are thought to be due to multiple molecular mechanisms of action. A well-accepted set of targets include GPCRs and ion channels, with the serotonin 5-HT_{1A} receptor and the transient receptor potential cation channel TRPV1 channel being the two main targets. CBD has also been thought to target G protein-coupled receptors (GPCRs) such as cannabinoid and opioid receptors. Other studies have suggested a role for additional GPCRs and ion channels as targets of CBD. Currently, the clinical efficacy of CBD is not completely understood. Evidence derived from randomized clinical trials, in vitro and in vivo models and real-world observations support the use of CBD as a drug treatment option for anxiety, neuropathy, and many other conditions. Hence an understanding of the current status of the field as it relates to the targets for CBD is of great interest so, in this review, we include findings from recent studies that highlight these main targets.

de Almeida DL, Devi LA. Diversity of molecular targets and signaling pathways for CBD. Pharmacol Res Perspect. 2020 Dec;8(6):e00682. doi: 10.1002/prp2.682. PMID: 33169541; PMCID: PMC7652785.



CANNABIS COMPOUNDS EXHIBIT ANTI-INFLAMMATORY ACTIVITY IN VITRO IN COVID-19-RELATED INFLAMMATION IN LUNG EPITHELIAL CELLS AND PRO-INFLAMMATORY ACTIVITY IN MACROPHAGES

Date & Journal: Scientific Report. 2021 Jan 14.

Abstract

Cannabis sativa is widely used for medical purposes and has anti-inflammatory activity. This study intended to examine the anti-inflammatory activity of cannabis on immune response markers associated with coronavirus disease 2019 (COVID-19) inflammation. An extract fraction from C. sativa Arbel strain (F_{CBD}) substantially reduced (dose dependently) interleukin (IL)-6 and -8 levels in an alveolar epithelial (A549) cell line. F_{CBD} contained cannabidiol (CBD), cannabigerol (CBG) and tetrahydrocannabivarin (THCV), and multiple terpenes. Treatments with F_{CBD} and a F_{CBD} formulation using phytocannabinoid standards ($F_{CBD:std}$) reduced IL-6, IL-8, C-C Motif Chemokine Ligands (CCLs) 2 and 7, and angiotensin I converting enzyme 2 (ACE2) expression in the A549 cell line. Treatment with F_{CBD} induced macrophage (differentiated KG1 cell line) polarization and phagocytosis in vitro, and increased CD36 and type II receptor for the Fc region of IgG (FcγRII) expression. F_{CBD} treatment also substantially increased IL-6 and IL-8 expression in macrophages. $F_{CBD:std}$, while maintaining anti-inflammatory activity in alveolar epithelial cells, led to reduced phagocytosis and pro-inflammatory IL secretion in macrophages in comparison to F_{CBD} . The phytocannabinoid formulation may show superior activity versus the cannabis-derived fraction for reduction of lung inflammation, yet there is a need of caution proposing cannabis as treatment for COVID-19.



Anil SM, Shalev N, Vinayaka AC, Nadarajan S, Namdar D, Belausov E, Shoval I, Mani KA, Mechrez G, Koltai H. Cannabis compounds exhibit anti-inflammatory activity in vitro in COVID-19-related inflammation in lung epithelial cells and pro-inflammatory activi

ADDITIONAL REFERENCES:

CANNABIDIOL (CBD) Pre-Review Report Agenda Item 5.2 Geneva, 6-10 November 2017. Expert Committee on Drug Dependence Thirty-ninth Meeting. http://www.who.int/medicines/access/controlled-substances/5.2_CBD.pdf. Accessed October 7, 2018

Carroon, J., & Phillips, J. A. (2018). A cross-sectional study of cannabidiol users. *Cannabis and Cannabinoid Research*, 3(1), 152-161. doi:10.1089/can.2018.000

De Gregoria, D., McLaughlin R. J., Posa, L., Ochoa-Sanches, R., Enns, J., Lopez-Canul, M., et al. (2018). Cannabidiol modulates serotonergic transmission and prevents allodynia and anxiety-like behavior in a model of neuropathic pain. *Pain*. Published Ahead of Print. doi:10.1097/j.pain.0000000000001386

Dustin Solak. Introduction to the Endocannabinoid System - NORML - Working to Reform Marijuana Laws. <http://norml.org/library/item/introduction-to-the-endocannabinoid-system>. Accessed September 19, 2018.

Fine, P. G. F., & Rosenfeld, M. J. (2013). The Endocannabinoid System, Cannabinoids, and Pain. *Rambam Maimonides Medical Journal*, 4(4), 1-15.

Hammel, D. C., Zhang, L. P., Ma, F., Abshire, S. M., McIlwrath, S. L., Stinchcomb, A. L., et al. (2016). Transdermal cannabidiol reduces inflammation and pain-related behaviours in a rat model of arthritis. *European Journal of Pain*, 16(11), 1248-1257. doi:10.1038/nm.2235



ADDITIONAL REFERENCES:

Iffland, K., & Grotenhermen, F. (2017). An update on safety and side effects of cannabidiol: A review of clinical data and relevant animal studies. *Cannabis and Cannabinoid Research*, 2(1), 139-154. doi:10.1089/can.2016.0034

Lucas, C. J., Galettis, P., & Schneider, J. (2018). The Pharmacokinetics and the Pharmacodynamics of Cannabinoids. *British Journal of Clinical Pharmacology*. doi:10.1111/bcp.13710

Philpott, H. T., O'Brien, M & McDougall, J. J. (2017). Attenuation of early phase inflammation by cannabidiol prevents pain and nerve damage in rat osteoarthritis. *Pain*, 158(12), 2442-2451

Russo, E. B. (2008). Cannabinoids in the management of difficult to treat pain. *Therapeutics and Clinical Risk Management*, 4(1), 245-259.

Linares, I. M. P., Guimaraes, F. S., Eckeli, A., Crippa, A. C. S., Zuardi, A. W., Souza, J. D. S., et al. (2018). No acute effects of cannabidiol on the sleep-wake cycle of healthy subjects: a randomized, double-blind, placebo-controlled, crossover study. *Frontiers in Pharmacology*, 9(315), 1-8. doi:10.3389/fphar.2018.00315

Mandolini, G. M., Lazzaretti, M., Pigoni, A., Oldani, L., Delvecchio, G., & Brambilla, P. (2018). Pharmacological properties of cannabidiol in the treatment of psychiatric disorders: a critical overview. *Epidemiology and Psychiatric Sciences*, 27, 327-335. doi:10.1017/S2045796018000239

BASIC SCIENCE (NUTRITION)

NUTRITIONAL SUPPLEMENTS AND SPECIAL DIETARY RECOMMENDATIONS FOR AN ANTI-INFLAMMATORY PROTOCOL.

RESEARCH: TURMERIC,
CURCUMIN, GINGER,
BLACK PEPPER, SAFFRON, &
BROMELAIN



CURCUMIN, CURCUMINOIDS, & TURMERIC RESEARCH



CURCUMINOIDS



MOLECULAR INSIGHTS INTO ANTI-INFLAMMATORY ACTIVITIES OF SELECTED INDIAN HERBS

Date & Journal: Journal of Ayurveda Integrative Medicine, 2025 Mar-Apr.

Abstract

Inflammation is a universal response of mammalian tissue to harm, comprising reactions to injuries, pathogens, and foreign particles. Chronic inflammation, often present in allergies and autoimmune disorders, poses significant risks, potentially leading to conditions such as rheumatoid arthritis, Alzheimer's disease, asthma, and inflammatory bowel disease. It can also be a common precursor to cancer. However, Contemporary therapies like NSAIDs and corticosteroids often provide incomplete relief from chronic inflammation and carry significant side effects, underscoring the need for exploring traditional and plant-based medicines for new, effective treatments. As such, there is a growing demand for natural bioactive substances for health maintenance and disease risk reduction. Traditional and plant-based medicines, long-used in managing inflammation and other disorders, hold promise for the discovery of bioactive lead compounds and subsequent drug development for treating inflammatory disorders. This review encompasses an extensive study of the anti-inflammatory potential of selected traditional Indian herbal medicines and the associated pharmacological mechanisms of action. The inflammatory process often entails the activation of transcription factors, induction of various signaling cascades, gene expression, activation of inflammatory enzymes, and release of pro-inflammatory cytokines in inflammatory or immune cells. Detailed exploration of active components in traditional herbal medicines such as the Neem (*Azadirachta indica*), Salai guggul (*Boswellia serrata*), Green tea (*Camellia sinensis*), **Saffron** (*Crocus sativus*), **Turmeric** (*Curcuma longa*), Mangosteen (*Garcinia mangostana*), Indian mulberry (*Morinda citrifolia*), **Black cumin** (*Nigella sativa*), Ashwagandha (*Withania somnifera*), and **Ginger** (*Zingiber officinale*) reveals their potential anti-inflammatory properties. The in-depth study of these plants provides insight into their potential applications in managing inflammatory disorders. Further research and development are necessary to substantiate these findings and translate them into clinically effective therapeutics.



THE GOLDEN SPICE CURCUMIN IN CANCER: A PERSPECTIVE ON FINALIZED CLINICAL TRIALS DURING THE LAST 10 YEARS

Date & Journal: J Cancer Res Ther . Jan-Mar 2022.

Abstract

Curcumin, the key bioactive phytochemical present in turmeric (*Curcuma longa* L.), is the most studied natural compound in cancer. Preclinical studies (in vitro and in vitro) and clinical trials have demonstrated curcumin's effectiveness as an anti-inflammatory agent. The existing evidence supports that curcumin inhibits the proliferation of many types of cancer cells and can play an important role in cancer therapy. This study analyses the existing evidence in the literature on finalized clinical trials (2010-2020) related to the effect of curcumin and turmeric-derived products that focused on different types of cancers, such as chronic myeloid leukemia, multiple myeloma, prostate, colorectal and pancreatic cancer as well as cancer therapy-related complications, including oral mucositis and radiation dermatitis. Original English language articles and clinical trials published between 2010 and 2020 were searched using mainstream scholarly databases, such as PubMed, ScienceDirect, Google Scholar, and ClinicalTrials.gov. The keywords, such as "curcumin," "turmeric," "cancer," "anti-inflammatory," and "clinical trials," were used in various combinations. A total of 21 clinical trials were selected, reviewed, and included in this study. Sixteen out of 21 clinical trials were associated with the effectiveness of curcumin or turmeric on various types of cancer, and the other five clinical trials were related to the evaluation of the efficacy of curcumin or turmeric in relieving the side effects of cancer chemotherapy and radiotherapy. The emerging data from the clinical trials confirm that curcumin has the potential for cancer prevention and intervention. However, it is not yet clear whether long-term curcumin supplementation has similar benefits.



[Karaboga Arslan AK, Uzunhisarcıklı E, Yerer MB, Bishayee A. The golden spice curcumin in cancer: A perspective on finalized clinical trials during the last 10 years. J Cancer Res Ther. 2022 Jan-Mar;18\(1\):19-26. doi: 10.4103/jcrt.JCRT_1017_20. PMID: 353817](#)

CURCUMIN SUPPLEMENTATION IMPROVES OXIDATIVE STRESS AND INFLAMMATION BIOMARKERS IN PATIENTS UNDERGOING HEMODIALYSIS: A SECONDARY ANALYSIS OF A RANDOMIZED CONTROLLED TRIAL

Date & Journal: International Journal of Urology & Nephrology . 2022 Mar 26.

Abstract

Background and objectives: Recent studies have shed light on the potential role of curcumin in mitigating inflammation in patients with chronic kidney disease (CKD). This study aimed to evaluate the effects of curcumin supplementation on plasma levels of markers of inflammation and oxidative stress in patients with CKD undergoing hemodialysis (HD).

Results: After 12 weeks of supplementation with curcumin, the TNF- α plasma levels were significantly reduced [from 15.0 (8.23-73.3) to 6.17 (1.11-55.0) pg/mL, $p = 0.01$].

Conclusion: 12 weeks of treatment with curcumin in HD patients resulted in a reduction in the biomarker of inflammation (TNF- α), confirming our previous hypothesis that curcumin has an anti-inflammatory effect.



Alvarenga L, Cardozo LFMF, Da Cruz BO, Paiva BR, Fouque D, Mafra D. Curcumin supplementation improves oxidative stress and inflammation biomarkers in patients undergoing hemodialysis: a secondary analysis of a randomized controlled trial. Int Urol Nephrol

BENEFICIAL EFFECTS ON ABDOMINAL BLOATING WITH AN INNOVATIVE FOOD-GRADE FORMULATION OF *CURCUMA LONGA* AND *BOSWELLIA SERRATA* EXTRACTS IN SUBJECTS WITH IRRITABLE BOWEL SYNDROME AND SMALL BOWEL DYSBIOSIS

Date & Journal: Nutrients . 2022 Jan 18.

Abstract

Bloating is a symptom frequently reported by subjects with irritable bowel syndrome (IBS) and small bowel dysbiosis, and Low FODMAP's diet (LFD) has been used to treat them. Extracts of *Curcuma longa* and *Boswellia serrata* share anti-inflammatory and antimicrobial effects that could be useful in the management of these clinical conditions. The aim of this study was to evaluate the efficacy of curcumin and boswellia extracts (as Curcumin Boswellia Phytosome, CBP) and LFD on the relief of abdominal bloating in IBS subjects with small bowel dysbiosis, in comparison to LFD alone, in a 30-day supplementation, randomized trial. IBS participants were randomized to either the intervention (500 mg bid of CBP and LFD) or control arm (LFD). Small bowel dysbiosis has been defined by an increase of urinary indican with normal urinary skatole. A total of 67 subjects were recruited. The intervention group (33 subjects) showed a significant decrease ($p < 0.0001$) of bloating, abdominal pain, and indican values at the end of the study, when compared to the control group (34 subjects). Moreover, the subjects of the intervention group showed a significantly better ($p < 0.0001$) global assessment of efficacy (GAE) as compared to controls. In conclusion, in subjects with IBS and small bowel dysbiosis, abdominal bloating can be successfully reduced with a supplementation with CBP and LFD.



[Giacosa A, Riva A, Petrangolini G, Allegrini P, Fazia T, Bernardinelli L, Peroni G, Rondanelli M. Beneficial Effects on Abdominal Bloating with an Innovative Food-Grade Formulation of Curcuma longa and Boswellia serrata Extracts in Subjects with Irritable](#)

THE IMPACT OF CURCUMIN AND ITS MODIFIED FORMULATIONS ON ALZHEIMER'S DISEASE.

Date & Journal: J Cell Physiol. 2019 Mar 7

Alzheimer's disease (AD) is a major health problem worldwide, with no effective treatment approach. Curcumin is the main ingredient of turmeric traditionally used in Asian medicine. Several experimental studies have indicated the protective effect of curcumin and its novel formulations in AD. Curcumin has antioxidant, anti-inflammatory and neurotrophic activities, proposing a strong potential to prevent neurodegenerative diseases. However, there are no sufficient clinical trials to confirm curcumin use in AD patients. Low bioavailability following oral administration of curcumin limits its usage in human. The present study was designed to gather the effects of curcumin and its modified formulations in human and experimental models of AD.



PIPERINE (BLACK PEPPER) RESEARCH



THE EFFECT OF TURMERIC AND BLACK PEPPER POWDER INCORPORATED IN BREAKFAST ON POSTPRANDIAL GLYCEMIA, APPETITE, PALATABILITY, AND GASTROINTESTINAL WELL-BEING IN NORMAL-WEIGHT ADULTS

Date & Journal: Food Sci Nutr. 2024 Jan 16

Abstract

Culinary herbs and spices are primarily known as flavor enhancers, research suggests that black pepper (*Piper nigrum*) and turmeric (*Curcuma longa*) have now been proven to prevent many non-communicable chronic diseases such as diabetes. Bioactive components of black pepper and turmeric ameliorate glucose metabolism and appetite regulation. The present research was designed to investigate the impact of turmeric and black pepper on blood glycemia, gastrointestinal well-being, appetite, and palatability. In a randomized crossover study, four iso-caloric experimental meals each having 50 g of available carbohydrates were subjected to healthy human participants ($N = 20$). Turmeric and black pepper were incorporated in the breakfast meal, 1 g black pepper (BP), 1 g turmeric (TR), and combination of the (BP + TR) was added in the breakfast. Standard questionnaires were used to evaluate palatability, subjective appetite, and gastrointestinal well-being. Blood glycemia, subjective gastrointestinal well-being, and appetite were measured at 0, 30, 60, 120, and 180 min. Experimental meals BP and BP + TR resulted in lower blood glycemia ($p < .05$) significantly compared to control meal. A decrease in perceived eating ability and hunger, and an increase in satiety after BP + TR and BP meal was observed. No significant changes were observed after consuming test meals on gastrointestinal well-being. Compared to control and BP + TR meals, BP and TR meals had considerably lower palatability. Results showed that compared to the control intake of starchy meals supplemented with black pepper and turmeric reduced postprandial glycemia, hunger, and perceived eating ability without affecting gastrointestinal well-being.



EFFECT OF A FIXED COMBINATION OF CURCUMIN, ARTEMISIA, BROMELAIN, AND BLACK PEPPER ORAL ADMINISTRATION ON OPTICAL COHERENCE TOMOGRAPHY ANGIOGRAPHY INDICES IN PATIENTS WITH DIABETIC MACULAR EDEMA

Date & Journal: Nutrients . 2022 Apr 6.

Abstract

Background: To investigate the effects of a fixed combination of Curcumin (200 mg), Artemisia (80 mg), Bromelain (80 mg), and Black pepper (2 mg) on vascular parameters in mild to moderate diabetic macular edema (DME).

Results: A significant improvement of BCVA and CRT reduction was recorded at 6 months follow-up in the dietary complementary supplementation group compared to control (respectively $p = 0.028$ and $p = 0.0003$). VD of the total capillary plexus, microaneurysms count, glycaemia and HbA1c did not vary over the follow-up period between groups. Within the Intravit[®] group, poor responders tended to show a larger FAZ area, more microaneurysms, and a lower VD in the DCP compared to the good responders group ($p \leq 0.0001$).

Conclusions: A fixed combination of Curcumin, Artemisia, Bromelain, and Black pepper oral administration may have a positive impact on central retinal thickness, visual acuity, and VD of the DCP in compensated type 2 diabetic patients with mild DME.



Chiosi F, Rinaldi M, Campagna G, Manzi G, De Angelis V, Calabrò F, D'Andrea L, Tranfa F, Costagliola C. Effect of a Fixed Combination of Curcumin, Artemisia, Bromelain, and Black Pepper Oral Administration on Optical Coherence Tomography Angiography Indic

PIPERINE, AN ALKALOID OF BLACK PEPPER SEEDS CAN EFFECTIVELY INHIBIT THE ANTIVIRAL ENZYMES OF DENGUE AND EBOLA VIRUSES, AN IN SILICO MOLECULAR DOCKING STUDY



Virusdisease . 2020 Sep

Abstract: Ebola and Dengue are the critical diseases caused by RNA viruses, especially in the tropical parts of the globe, including Asia and Africa, and no prominent therapeutic options are available so far. Here, an effort was made to evaluate the efficacy of black pepper (*Piper nigrum* L.) alkaloid Piperine as a potential drug through computational docking simulation. Eight structurally essential proteins of Dengue and Ebola virus were selected as in silico docking targets for Piperine. Absorption, Distribution, Metabolism, and Excretion profile showed that Piperine was safe and possessed significant drug-like properties. Molecular dynamic simulation and binding free energy calculation showed that Piperine could inhibit Methyltransferase (PDB id 1L9K) of Dengue and VP35 Interferon Inhibitory Domain (PDB id 3FKE) of Ebola virus in comparison with the commercial antiviral Ribavirin. Furthermore, statistical analysis based on multivariate and clustering approaches revealed that Piperine had more affinity towards viral proteins than that of Ribavirin.



Nag A, Chowdhury RR. Piperine, an alkaloid of black pepper seeds can effectively inhibit the antiviral enzymes of Dengue and Ebola viruses, an in silico molecular docking study. *Virusdisease*. 2020 Sep;31(3):308-315. doi: 10.1007/s13337-020-00619-6. Epub 2020 Aug 5. PMID: 32904842; PMCID: PMC7458978.

HERBAL FORMULATION "TURMERIC EXTRACT, BLACK PEPPER, AND GINGER" VERSUS NAPROXEN FOR CHRONIC KNEE OSTEOARTHRITIS: A RANDOMIZED, DOUBLE-BLIND, CONTROLLED CLINICAL TRIAL

DATE & JOURNAL: PHYTOTHERAPY RESEARCH . 2020 AUG.

Abstract: Osteoarthritis is the most common articular disease that can lead to chronic pain and severe disability. Curcumin-an effective ingredient in turmeric with anti inflammatory property-plays an important role in protecting the joints against destructive factors. Gingerols and piperine, are the effective ingredients of ginger and black pepper, which may potentially enhance and sustain the effect of curcumin in this direction. To determine the effect of cosupplementation with turmeric extract, black pepper, and ginger on prostaglandin E2 (PGE2) in patients with chronic knee osteoarthritis, compared with Naproxen. Sixty patients with two different levels of knee osteoarthritis (Grade 2 and 3) were studied. Individuals were randomly assigned to receive daily turmeric extract, ginger, and black pepper together or Naproxen capsule for 4 weeks. PGE2 was evaluated by ELISA method. 24-hr recall was also assessed. All of participants completed the study. PGE2 decreased significantly in both groups ($p < .001$), but there was no significant differences between groups. The results of this study indicated that intake of the selected herbs twice a day for 4 weeks may improve the PGE2 levels in patients with chronic knee osteoarthritis similar to Naproxen drug.



Heidari-Beni M, Moravejolahkami AR, Gorgian P, Askari G, Tarrahi MJ, Bahreini-Esfahani N. Herbal formulation "turmeric extract, black pepper, and ginger" versus Naproxen for chronic knee osteoarthritis: A randomized, double-blind, controlled clinical trial

RESEARCH ON GINGER



GINGER POTENCY ON THE PREVENTION AND TREATMENT OF BREAST CANCER

Date & Journal: Breast Dis. 2023

Abstract

Background: Cancer is a type of disease caused by the uncontrolled growth of abnormal cells that can destroy body tissues. The use of traditional medicine naturally uses plants from ginger with the maceration method. The ginger plant is a herbaceous flowering plant with the Zingiberaceacea group.

Methods: This study uses the literature review method by reviewing 50 articles from journals and databases.

Results: A review of several articles, namely ginger has bioactive components such as gingerol. Ginger is used as a treatment in complementary therapies using plants. Ginger is a strategy with many benefits and functions as a nutritional complement to the body. This benefit has shown the effect of anti-inflammatory, antioxidant, and anticancer against nausea and vomiting due to chemotherapy in breast cancer.

Conclusion: Anticancer in ginger is shown by polyphenols associated with anti-metastatic, anti-proliferative, antiangiogenic, anti-inflammatory, cell cycle arrest, apoptosis, and autophagy. Therefore, consuming ginger regularly affects natural herbal therapy with the prevention and treatment of breast cancer and serves as a prevention against the effects of chemotherapy.



GINGER EXTRACT HAS ANTI-LEUKEMIA AND ANTI-DRUG RESISTANT EFFECTS ON MALIGNANT CELLS

Date & Journal: J Cancer Res Clin Oncol . 2019 Aug.

Abstract

Purpose: Based on the poor prognosis of drug resistance in pediatric acute lymphoblastic leukemia (ALL) and adverse effects of chemotherapy, this study was aimed to evaluate the effect of several herbal extracts on leukemic cells.

Results: The IC_{50} s for cinnamon, ginger and green tea extracts on ALL cell lines were 300 μ g/ml, 167 μ g/ml and 70 μ g/ml, respectively. Surprisingly, the methotrexate (MTX)-resistant sub-line showed more sensitivity to ginger. Combined treatment with ginger and MTX showed synergistic effects on CCRF-CEM, Nalm-6 and ALL primary cells. It was shown that ginger does not impair the high expression levels of ABCA2 or ABCA3 transporter genes in the ALL malignant cells, suggesting other molecular pathways involved in its anticancer potential.

Conclusion: To the best of our knowledge, this is the first study that reveals the antileukemic effect of ginger extract on both, pediatric ALL cell lines and primary cells.



Rahimi Babasheikhali S, Rahgozar S, Mohammadi M. Ginger extract has anti-leukemia and anti-drug resistant effects on malignant cells. J Cancer Res Clin Oncol. 2019 Aug;145(8):1987-1998. doi: 10.1007/s00432-019-02949-5. Epub 2019 Jun 18. PMID: 31214760.

BLACK GINGER EXTRACT INCREASES PHYSICAL FITNESS PERFORMANCE AND MUSCULAR ENDURANCE BY IMPROVING INFLAMMATION AND ENERGY METABOLISM.

Published: Heliyon . 2016 May 24

We previously reported that polymethoxyflavones (PMFs) in black ginger (*Kaempferia parviflora*) extract (KPE) increased energy production by activating AMP-activated protein kinase (AMPK) in C2C12 myoblasts. We herein evaluated the effects of KPE on physical fitness performance and muscular endurance in mice. Male mice were orally administered KPE for 4 weeks, and then forced swimming test, open-field test, inclined plane test, and wire hanging test were performed. KPE significantly increased the swimming time, motility after swimming, and grip strength. IL-6 and TNF- α mRNA expression levels were decreased in the soleus muscle, whereas peroxisome proliferator-activated receptor γ coactivator (PGC)-1 α and glycogen synthase mRNA expression levels, mitochondrial number, and glycogen content were increased. These results were in agreement with those obtained for KPE and PMFs in C2C12. Therefore, the activation of AMPK by PMFs may be one of the mechanisms by which KPE improves physical fitness performance and muscular endurance.



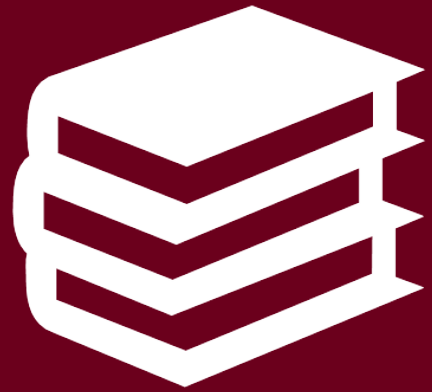
ACUTE EFFECTS OF GINGER EXTRACT ON BIOCHEMICAL AND FUNCTIONAL SYMPTOMS OF DELAYED ONSET MUSCLE SORENESS.

Published: Med J Islam Repub Iran . 2015 Sep 12.

BACKGROUND: Inflammation and pain induced by delayed onset muscle soreness (DOMS) as a result of eccentric exercise (EE) or unaccustomed activity cause some difficulties in exercise for athletes. The purpose of this study was to survey the effect of ginger extract on biochemical and functional symptom of delayed onset muscle soreness.

CONCLUSION: The finding of this study suggests that 2 grams of ginger may have anti-inflammation and analgesic effect on DOMS





SAFFRON, BROMELAIN, & EDTA RESEARCH



BROMELAIN: A REVIEW OF ITS MECHANISMS, PHARMACOLOGICAL EFFECTS AND POTENTIAL APPLICATIONS

Date & Journal: Food Funct 2023 Sep 19

Abstract

The utilization of plant-derived supplements for disease prevention and treatment has long been recognized because of their remarkable potential. *Ananas comosus*, commonly known as pineapple, produces a group of enzymes called bromelain, which contains sulfhydryl moieties. Recent studies have shown that bromelain exhibits a wide range of activities, including anti-inflammatory, anti-diabetic, anti-cancer, and anti-rheumatic properties. These properties make bromelain a promising drug candidate for the treatment of various diseases. The anti-inflammatory activity of bromelain has been shown to be useful in treating inflammatory conditions such as osteoarthritis, rheumatoid arthritis, and asthma, whereas the anti-cancer activity of bromelain is *via* induction of apoptosis, inhibition of angiogenesis, and enhancement of the body's immune response. The anti-diabetic property of bromelain is owing to the improvement in glucose metabolism and reduction in insulin resistance. The therapeutic potential of bromelain has been investigated in numerous preclinical and clinical studies and a number of patents have been granted to date. Various formulations and delivery systems are being developed in order to improve the efficacy and safety of this molecule, including the microencapsulated form to treat oral inflammatory conditions and liposomal formulations to treat cancer. The development of novel drug delivery systems and formulations has further ameliorated the therapeutic potential of bromelain by improving its bioavailability and stability, while reducing the side effects. This review intends to discuss various properties and therapeutic applications of bromelain, along with its possible mechanism of action in treating various diseases. Recent patents and clinical trials concerning bromelain have also been covered.



EFFECTS OF SAFFRON SUPPLEMENTATION ON IMPROVING SLEEP QUALITY: A META-ANALYSIS OF RANDOMIZED CONTROLLED TRIALS

Date & Journal: Sleep Med. 2022 April.

Abstract

Objective: To compare the efficacy of different dosage regimens of saffron supplementation on improving sleep quality among healthy adults, patients with insomnia or type 2 diabetes and patients under Methadone maintenance treatment (MMT).

Results: The pooling of the effect sizes showed that saffron group achieve a notable treatment effect on PSQI (MD: -2.14; 95% CI: -2.86 to -1.42; $P < 0.01$), ISI (MD: -2.63; 95% CI: -3.70 to -1.55; $P < 0.01$) and RSQ (MD: 7.05; 95% CI: 1.48 to 12.62; $P = 0.01$) compared with placebo group.

Conclusion: Saffron supplementation as a treatment for improving sleep quality have promising clinical application as its great improvement on all efficacy outcomes and no serious adverse events occurred as the dose was increased. The dose of 100 mg saffron supplementation per day was proved to achieve excellent and more stable curative effect on improving sleep quality in our subgroup analysis. However, further investigation is necessary to confirm the efficacy and long-term safety of different doses of saffron for insomnia.



Lian J, Zhong Y, Li H, Yang S, Wang J, Li X, Zhou X, Chen G. Effects of saffron supplementation on improving sleep quality: a meta-analysis of randomized controlled trials. Sleep Med. 2022 Apr;92:24-33. doi: 10.1016/j.sleep.2022.03.001. Epub 2022 Mar 6. P

THE MECHANISMS OF SAFFRON (CROCUS SATIVUS') ON THE INFLAMMATORY PATHWAYS OF DIABETES MELLITUS: A SYSTEMATIC REVIEW

Date & Journal: Diabetes Metab Syndr . 2022 Jan.

Abstract

Background: Diabetes is one of the major medical problems, which can lead to damage to cells or organs in various parts of the body. Saffron as herbal medicine has contained several active ingredients, including safranal, flavonoids, crocetin, and crocin, which are effective in modulating oxidative stress and inflammation, which can play the main role in reducing the effects of diabetes. However, so far, the effect of saffron on diabetes inflammation has not been evaluated in the form of systematic review studies. The purpose of this systematic study was to evaluate the evidence obtained from in-vitro, animal, and clinical trials studies on the effects of saffron on inflammation in diabetes.

Results: In the end, only 20 of the 596 articles met the criteria for analysis. Of the 20 articles, 3 were in-vitro studies, 13 were animal studies, and 4 were human studies.

Conclusion: The findings of this systematic study (Except for two studies) suggest that saffron supplementation with potential anti-inflammatory properties may reduce the expression of the inflammatory pathway and the production of inflammatory products in diabetes.



THE COMBINATION OF BROMELAIN AND CURCUMIN AS AN IMMUNE-BOOSTING NUTRACEUTICAL IN THE PREVENTION OF SEVERE COVID-19

Date & Journal: Metabol Open . 2020 Dec.

Abstract

The coronavirus disease 2019 (COVID-19) pandemic is still ongoing, while no treatment has been proven effective. COVID-19 pathophysiology involves the activation of three main pathways: the inflammatory, the coagulation and the bradykinin cascades. Here, we highlight for the first time the joint potential therapeutic role of bromelain and curcumin, two well-known nutraceuticals, in the prevention of severe COVID-19. Bromelain (a cysteine protease isolated from the pineapple stem) and curcumin (a natural phenol found in turmeric) exert important immunomodulatory actions interfering in the crucial steps of COVID-19 pathophysiology. Their anti-inflammatory properties include inhibition of transcription factors and subsequent downregulation of proinflammatory mediators. They also present fibrinolytic and anticoagulant properties. Additionally, bromelain inhibits cyclooxygenase and modulates prostaglandins and thromboxane, affecting both inflammation and coagulation, and also hydrolyzes bradykinin. Interestingly, curcumin has been shown in *silico* studies to prevent entry of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) into cells as well as viral replication, while a recent experimental study has demonstrated that bromelain may also inhibit viral entry into cells. Notably, bromelain substantially increases the absorption of curcumin after oral administration. To the best of our knowledge, this is the first report highlighting the significance of bromelain and, most importantly, the potential preventive value of the synergistic effects of bromelain and curcumin against severe COVID-19.

Kritis P, Karampela I, Kokoris S, Dalamaga M. The combination of bromelain and curcumin as an immune-boosting nutraceutical in the prevention of severe COVID-19. Metabol Open. 2020 Dec;8:100066. doi: 10.1016/j.metop.2020.100066. Epub 2020 Nov 13. PMID: 33205039; PMCID: PMC7661945.



BROMELAIN: A REVIEW ON ITS POTENTIAL AS A THERAPY FOR THE MANAGEMENT OF COVID-19



Niger J Physiol Sci . 2020 Jun 30

Abstract

Coronavirus Disease 2019 is a wide-spreading severe viral disease caused by the Severe Acute Respiratory Syndrome Coronavirus-2 (SARS-COV-2) virus that needs to be urgently eradicated. SARS-COV-2 has infected millions of people worldwide and results in more than three hundred thousand deaths. Several repurposed drugs have failed to successfully eradicate the infection. Multiorgan failure caused by pronounced inflammation and systemic coagulation accounts for severe complications and death associated with diseases. Bromelain appears to be a potential candidate that may be used to inhibit or prevent the symptoms of the diseases. Its anti-inflammatory and anticoagulatory properties make it a potential agent that may slow the progression of the disease. In this review, we highlighted the beneficial effects of bromelain based on both experimental and clinical evidence that make bromelain a good candidate for the treatment of symptoms of CoVID-19 infection.



Owoyele BV, Bakare AO, Ologe MO. Bromelain: A Review on its Potential as a Therapy for the Management of Covid-19. Niger J Physiol Sci. 2020 Jun 30;35(1):10-19. PMID: 33084621.

Nutritional option that I use in my practice for Rehabilitation of Injuries & Inflammation Management



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Servings per container:
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Serving Size: 3 capsules

Ingredient	Amount Per Serving
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95% Standardized Curcuminoid	200mg*
Black Pepper Fruit Extract (Piperine)	10mg*

A proprietary blend of the following natural ingredients: Organic ginger root extract; saffron powder; bromelain. Other ingredients: Vegetable cellulose capsule; EDTA. Made with 72% organic ingredients. Daily value not established.

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II. BASIC SCIENCE (NUTRITION)

A. INFLAMMATION

- a) Natural inflammation reduction treatment options, including nutritional supplements and special dietary recommendations for an anti-inflammatory protocol, including legal hemp for anti-inflammatory management.
- b) Literature review

B. DIGESTION

- a) Green Alkaline foods for fiber and digestion
- b) Colon Health
- c) Minerals and Collagen Protein

D. AMINO ACIDS

- a) Definitions
- b) Amino acids for cardiovascular health
- c) Nitric oxide production



ALKALINE GREENS FOR FIBER AND DIGESTION

- Acid interferes with digestion as food stagnates and rots, lowering the pH of the body.
- A 16oz bottle of soda has a pH= 2. Very acidic. To bring the pH back up to our normal 7.3, we would have to dilute the soda with about 10 gallons of water.
- The blood must maintain a pH = 7.3-7.45. (Guyton) The body begins to sweep the extra acids into the tissues (muscles & joints). (lactic acid)
- Acidification will actually precipitate acids out of solution, in the form of crystals, salts, and stones (i.e. kidney & gall stones).



DIETARY FACTORS AND COGNITIVE FUNCTION: WITH A FOCUS ON SUBJECTIVE COGNITIVE DECLINE

Date & Journal: Current Nutrition Reports. 2025 Apr 26

Abstract

Purpose of the review: Age-related cognitive decline is an important global challenge. Substantial evidence suggests that diet may prevent or delay cognitive aging. This narrative review examines recent literature on how dietary factors influence cognitive function, with a focus on subjective cognitive decline (SCD).

Recent findings: Higher intakes of flavonoids, carotenoids, and plant-based protein were associated with lower odds of SCD. Berries, citrus fruits and juices, carotenoid-rich and green leafy vegetables, and beans/legumes were among the foods with the strongest inverse associations with SCD. Healthy dietary patterns, such as the Mediterranean and MIND diet, may be beneficial for maintaining subjective cognitive function. Healthy choice of diet may play a role in lowering the risk of late-life SCD.



Yeh TS, Blacker D, Willett WC. Dietary Factors and Cognitive Function: with a Focus on Subjective Cognitive Decline. Curr Nutr Rep. 2025 Apr 26.

ASHWAGANDHA'S MULTIFACETED EFFECTS ON HUMAN HEALTH: IMPACT ON VASCULAR ENDOTHELIUM, INFLAMMATION, LIPID METABOLISM, AND CARDIOVASCULAR OUTCOMES - A REVIEW.

Date & Journal: Nutrients. 2024 Jul 31

Abstract

Withania somnifera, commonly known as Ashwagandha, has been popular for many years. Numerous studies have shown that the extract of this plant, due to its wealth of active substances, can induce anti-inflammatory, neuroprotective, immunomodulatory, hepatoprotective, cardioprotective, anti-diabetic, adaptogenic, anti-arthritic, anti-stress, and antimicrobial effects. This review examines the impact of Ashwagandha extract on the vascular endothelium, inflammation, lipid metabolism, and cardiovascular outcomes. Studies have shown that Ashwagandha extracts exhibit an anti-angiogenic effect by inhibiting vascular endothelial growth factor (VEGF)-induced capillary sprouting and formation by lowering the mean density of microvessels. Furthermore, the results of numerous studies highlight the anti-inflammatory role of Ashwagandha extract, as the action of this plant causes a decrease in the expression of pro-inflammatory cytokines. Interestingly, withanolides, present in Ashwagandha root, have shown the ability to inhibit the differentiation of preadipocytes into adipocytes. Research results have also proved that *W. somnifera* demonstrates cardioprotective effects due to its antioxidant properties and reduces ischemia/reperfusion-induced apoptosis. It seems that this plant can be successfully used as a potential treatment for several conditions, mainly those with increased inflammation. More research is needed to elucidate the exact mechanisms by which the substances contained in *W. somnifera* extracts can act in the human body.



THE BENEFITS OF ASHWAGANDHA (WITHANIA SOMNIFERA) SUPPLEMENTS ON BRAIN FUNCTION AND SPORTS PERFORMANCE

Date & Journal: Frontiers in Nutrition, 2024.

Abstract

Ashwagandha or *Withania somnifera* is an herbal plant belonging to the Solanaceae family. Because of its wide range of phytochemicals, ashwagandha root extract has been used in numerous research studies, either alone or in conjunction with other natural plants, for various biomedical applications, which include its anti-microbial, anti-inflammatory, anti-stress, anti-tumor, cardioprotective, and neuroprotective properties. Additionally, it improves endothelial function, lowers reactive oxygen species, controls apoptosis, and improves mitochondrial function. These properties make it a useful treatment for a variety of conditions, including age-related symptoms, anxiety, neurodegenerative diseases, diabetes, stress, arthritis, fatigue, and cognitive/memory impairment. Despite the numerous benefits of ashwagandha supplementation, there have been just four meta-analyses on the herb's effectiveness in treating anxiety, neurobehavioral disorders, impotence, and infertility. Moreover, no reviews exist that examine how ashwagandha affects antioxidant response and physical sports performance. Consequently, the goal of this study was to analyze the scientific literature regarding the effects of ashwagandha consumption on antioxidant response and athletic performance.



NUTRITIONAL AND PHYTOCHEMICAL COMPOSITION AND ASSOCIATED HEALTH BENEFITS OF OAT (AVENA SATIVA) GRAINS AND OAT-BASED FERMENTED FOOD PRODUCTS

Date & Journal: Scientific World Journal; 2023.

Abstract

Oats (*Avena sativa* L.) are a popular functional cereal grain due to their numerous health benefits. This review article summarized the information on the chemical composition and phytonutrients of oats grown in different countries. It also reviewed recently developed fermented oat products to highlight their potential for human health. Oats have an interesting nutritional profile that includes high-quality protein, unsaturated fats, soluble fiber, polyphenolic compounds, and micronutrients. Oat grain has a unique protein composition, with globulins serving as the primary storage protein, in contrast to other cereals, where prolamins are the main storage proteins. Oats have the highest fat content of any cereal, with low saturated fatty acids and high essential unsaturated fatty acid content, which can help reduce the risk of cardiovascular diseases. Oats are a good source of soluble dietary fiber, particularly β -glucan, which has outstanding functional properties and is extremely important in human nutrition. β -Glucan has been shown to lower blood cholesterol and glucose absorption in the intestine, thereby preventing diseases such as cardiovascular injury, dyslipidemia, hypertension, inflammatory state, and type 2 diabetes. Oats also contain high concentration of antioxidant compounds. Avenanthramides, which are unique to oats, are powerful antioxidants with high antioxidative activity in humans. Recognizing the nutritional benefits of oats, oat-based fermented food products are gaining popularity as functional foods with high probiotic potential.



MACA ROOTS: A POTENTIAL THERAPEUTIC IN THE MANAGEMENT OF METABOLIC DISORDERS THROUGH THE MODULATION OF METABOLIC BIOCHEMICAL MARKERS IN RATS FED HIGH-FAT HIGH-CARBOHYDRATE DIET

Date & Journal: Journal of Ethnopharmacology. 2024 Mar

Abstract

Ethnopharmacological relevance: Maca root (*Lepidium meyenii* Walp.) is a Peruvian plant of the Brassicaceae family. Maca roots are popular food supplements used to treat a variety of ailments described traditionally as enhancing metabolic and health conditions.

Aim of the study: Metabolic syndrome (MetS) has been the real scourge globally, affecting more than one-fourth of the global population. MetS causes the development of multi-organ illnesses, including altered blood cholesterol and sugar levels, oxidative stress, and hypertension. This study evaluated maca root total methanolic extract (MTE) as a potential nutraceutical to manage the complications of MetS.

Results: One month of MTE supplementation in HFCD-fed rats remarkably decreased the elevation of blood glucose and lipids, improved liver function and insulin resistance, additionally it successfully restored the state of inflammatory and oxidative stress. The extract was standardized to contain total phenolics equal to 24.45 ± 0.96 μg Gallic acid/mg extract.

Conclusions: Our findings suggest that MTE improves MetS by reducing hyperglycemia, hyperlipidemia, inflammation, and oxidative stress. While also improving beta cell secretory functions, implying that MTE could be used as a balancing drug in the prevention and treatment of metabolic abnormalities linked to type 2 diabetes.



GUT MICROBIOTA-DERIVED INOSINE FROM DIETARY BARLEY LEAF SUPPLEMENTATION ATTENUATES COLITIS THROUGH PPAR γ SIGNALING ACTIVATION

Date & Journal: Microbiome . 2021 Apr 5.

Abstract

Background: Ulcerative colitis is a type of chronic inflammatory bowel disease closely associated with gut microbiota dysbiosis and intestinal homeostasis dysregulation. Barley leaf (BL) has a long history of use in Traditional Chinese Medicine with potential health-promoting effects on intestinal functions. However, its mechanism of action is not yet clear. Here, we explore the potential modulating roles of gut microbial metabolites of BL to protect against colitis and elucidate the underlying molecular mechanisms.

Results: Using 16S rRNA gene-based microbiota analysis, we first found that dietary supplementation of BL ameliorated dextran sulfate sodium (DSS)-induced gut microbiota dysbiosis. The mechanisms by which BL protected against DSS-induced colitis were resulted from improved intestinal mucosal barrier functions via the activation of peroxisome proliferator-activated receptor (PPAR) γ signaling. In addition, metabolomic profiling analysis showed that the gut microbiota modulated BL-induced metabolic reprogramming in the colonic tissues particularly by the enhancement of glycolysis process. Notably, dietary BL supplementation resulted in the enrichment of microbiota-derived purine metabolite inosine, which could activate PPAR γ signaling in human colon epithelial cells. Furthermore, exogenous treatment of inosine reproduced similar protective effects as BL to protect against DSS-induced colitis through improving adenosine 2A receptor (A_{2A}R)/PPAR γ -dependent mucosal barrier functions.

Conclusions: Overall, our findings suggest that the gut microbiota-inosine-A_{2A}R/PPAR γ axis plays an important role in the maintenance of intestinal homeostasis, which may represent a novel approach for colitis prevention via manipulation of the gut microbial purine metabolite.



OAT FIBER SUPPLEMENTATION ALLEVIATES INTESTINAL INFLAMMATION AND AMELIORATES INTESTINAL MUCOSAL BARRIER VIA ACTING ON GUT MICROBIOTA-DERIVED METABOLITES IN LDLR^{-/-} MICE

Date & Journal: Nutrition . 2022 Mar.

Abstract

Objective: Gut microbiota-derived metabolites are involved in intestinal inflammation, which can affect the development of atherosclerotic plaques. Previous studies have shown that oat fiber can delay the progression of atherosclerosis via improving lipid metabolism. The aim of this study was to evaluate how oat fiber acted on gut microbiota-derived metabolites, inhibited intestinal inflammation, and protected the intestinal mucosal barrier.

Results: Pathologically, oat fiber reversed the increment of the atherosclerotic lesion and ameliorated intestinal mucosal barrier in LDLR^{-/-} mice. Oat fiber regulated the levels of gut microbiota-derived metabolites along with a decrease in isobutyrylcarnitine, valerylcarnitine, 1-methylguanosine, and 2-methylguanosine, and an increase in l-tyrosine and niacinamide. Notably, oat fiber blocked the TLR4 signal pathway and decreased the expression of nuclear factor-κB p65 in both the aorta and gut tissues. Also, oat fiber raised the expression of tight junction proteins including ZO-1 and occludin.

Conclusion: Taken together, the present study revealed that oat fiber feeding effectively attenuated the development of atherosclerosis, at least partly via affecting gut microbiota-derived metabolites, inhibiting the intestinal inflammatory response, and maintaining the integrity of the intestinal mucosal barrier.



[Gao H, Song RJ, Jiang H, Zhang W, Han SF. Oat fiber supplementation alleviates intestinal inflammation and ameliorates intestinal mucosal barrier via acting on gut microbiota-derived metabolites in LDLR^{-/-} mice. Nutrition. 2022 Mar;95:111558. doi: 10.1016](#)

ALGAE SUPPLEMENTATION FOR EXERCISE PERFORMANCE: CURRENT PERSPECTIVES AND FUTURE DIRECTIONS FOR SPIRULINA AND CHLORELLA

Date & Journal: Front Nutr . 2022 Mar 7.

Abstract

Nutritional clinical trials have reported algae such as spirulina and chlorella to have the capability to improve cardiovascular risk factors, anemia, immune function, and arterial stiffness. With positive results being reported in clinical trials, researchers are investigating the potential for algae as an ergogenic aid for athletes. Initial studies found spirulina and chlorella supplementation to increase peak oxygen uptake and time to exhaustion, with the mechanistic focus on the antioxidant capabilities of both algae. However, a number of oxidative stress biomarkers reported in these studies are now considered to lack robustness and have consequently provided equivocal results. Considering the nutrient complexity and density of these commonly found edible algae, there is a need for research to widen the scope of investigation. Most recently algae supplementation has demonstrated ergogenic potential during submaximal and repeated sprint cycling, yet a confirmed primary mechanism behind these improvements is still unclear. In this paper we discuss current algae supplementation studies and purported effects on performance, critically examine the antioxidant and ergogenic differing perspectives, and outline future directions.

[Gurney T, Spendiff O. Algae Supplementation for Exercise Performance: Current Perspectives and Future Directions for Spirulina and Chlorella. Front Nutr. 2022 Mar 7;9:865741. doi: 10.3389/fnut.2022.865741. PMID: 35321288; PMCID: PMC8937016.](#)



MACA COULD IMPROVE ENDURANCE CAPACITY POSSIBLY BY INCREASING MITOCHONDRIAL BIOGENESIS PATHWAYS AND ANTIOXIDANT RESPONSE IN EXERCISED RATS

Date & Journal: J Food Biochem . 2022 Mar 29

Abstract

The objective of this study was to shed light on the effect of a novel (*Lepidium peruvianum*) Maca blend on anti-fatigue capacities in exercised rats. Twenty-eight male albino rats were allocated into four groups (n = 7) at random: (i) Control (vehicle), (ii) Maca: (40 mg/kg/BW), (iii) WL-FST: weight-loaded forced swimming test group, and (iv) WL-FST + Maca group.) Maca supplementation increased swimming time to exhaustion ($p < .01$), while decreasing serum lactate and liver glycogen concentrations. Maca addition resulted in lower levels of serum, liver, and muscle MDA ($p < .05$). Muscle GPx activity increased in both Maca groups ($p < .001$). Moreover, NF- κ B levels were less in the WL-FST + Maca compared to the WL-FST group ($p < .001$). Nrf1, Nrf2, PGC-1 α , SIRT1, and TFAM levels were augmented in the WL-FST + Maca compared to the WL-FST ($p < .05$). Consequently, our Maca blend increased endurance capacity and prevented exercise-induced oxidative stress and lactic acid buildup.

PRACTICAL APPLICATIONS: Maca (the brassica species *Lepidium peruvianum*) has been consumed in Peru for centuries to enhance mood, libido, and energy. Although the positive effects of this plant on energy metabolism are accredited, the underlying molecular mechanisms of these effects have not been sufficiently elucidated. The current study's findings suggest that this innovative, exclusive maca powder blend can boost endurance while preventing oxidative stress and lactic acid buildup during acute exercise. The mechanism of this efficacy is thought to be caused by maca's regulatory properties on energy metabolism signaling receptors and strong antioxidant scavenging effects on the free radicals that are produced by prolonged exhaustive exercise periods.



MATCHA TEA POWDER'S ANTIDEPRESSANT-LIKE EFFECT THROUGH THE ACTIVATION OF THE DOPAMINERGIC SYSTEM IN MICE IS DEPENDENT ON SOCIAL ISOLATION STRESS

Date & Journal: Nutrients. 2023 Jan 22

Abstract

Matcha tea powder is believed to have various physiological benefits; however, its detailed mechanism of action has been poorly understood. Here, we investigated whether the mental state of mice, due to social isolation stress, affects the antidepressant-like effect of Matcha tea powder by using the tail suspension test. Oral administration of Matcha tea powder reduced the duration of immobility in the stress-susceptible C57BL/6J strain, but not in BALB/c strain. In C57BL/6J mice, SCH23390, a dopamine D1 receptor blocker, prevented Matcha tea powder from exerting its antidepressant-like effect. Matcha tea powder also increased the number of c-Fos-positive cells in the prefrontal cortex (PFC) region and the nucleus accumbens (NAc) region in C57BL/6J mice, but not in BALB/c mice. In contrast, Matcha tea powder did not change the number of c-Fos-positive cells in the ventral tegmental area (VTA) region. Notably, C57BL/6J mice with a shorter immobility time had a higher number of c-Fos-positive cells in the PFC, NAc, and VTA regions. However, no such correlation was observed in the stress-tolerant BALB/c mice. These results suggest that Matcha tea powder exerts an antidepressant-like effect through the activation of the dopaminergic system including the PFC-NAc-VTA circuit and that mental states are important factors affecting the physiological benefits of Matcha tea powder.



[Kurauchi Y, Ohta Y, Matsuda K, Sanematsu W, Devkota HP, Seki T, Katsuki H. Matcha Tea Powder's Antidepressant-like Effect through the Activation of the Dopaminergic System in Mice Is Dependent on Social Isolation Stress. Nutrients. 2023 Jan 22;15\(3\):581.](#)

EFFECTS OF MATCHA GREEN TEA POWDER ON COGNITIVE FUNCTIONS OF COMMUNITY-DWELLING ELDERLY INDIVIDUALS

Date & Journal: Nutrients . 2020 Nov 26.

Abstract

Matcha Green Tea Powder contains a variety of active ingredients beneficial to health, such as tea catechins, lutein and vitamin K. It is also known that these ingredients confer benefits upon cognitive functions of elderly people. Therefore, we aimed to investigate the relationship between a daily supplementation of Matcha and the change in cognitive functions of community-dwelling elderly people. A randomized, double-blind, placebo-controlled 12-week trial was performed. Sixty-one participants were recruited and randomly assigned to receive test drink containing 3g powder from fresh Matcha or placebo powder per day. Changes in cognitive function were assessed utilizing a psychometric test battery. Daily food intake was assessed by a Brief-type Self-administered Diet History Questionnaire (BDHQ). In the gender-specific analysis, a significant cognitive enhancement was observed in the Montreal Cognitive Assessment (MoCA) score in the active group of women. In dietary analysis, we found a significant inverse correlation between consumption of vitamin K in daily diet, excluding test drinks, and change in MoCA. The present study suggests that daily supplementation of Matcha Green Tea Powder has protective effects against cognitive decline in community-dwelling elderly women.

[Sakurai K, Shen C, Ezaki Y, Inamura N, Fukushima Y, Masuoka N, Hisatsune T. Effects of Matcha Green Tea Powder on Cognitive Functions of Community-Dwelling Elderly Individuals. Nutrients. 2020 Nov 26;12\(12\):3639. doi: 10.3390/nu12123639. PMID: 33256220; P](#)



MATCHA GREEN TEA ALLEVIATES NON-ALCOHOLIC FATTY LIVER DISEASE IN HIGH-FAT DIET-INDUCED OBESE MICE BY REGULATING LIPID METABOLISM AND INFLAMMATORY RESPONSES

Date & Journal: Nutrients . 2021 Jun 6.

Abstract

Lately, matcha green tea has gained popularity as a beverage and food additive. It has proved to be effective in preventing obesity and related metabolic syndromes. However, the underlying mechanisms of its control effects against non-alcoholic fatty liver disease (NAFLD) are complicated and remain elusive. In the present study, we performed an in vivo experiment using male C57BL/6 mice fed with a high-fat diet and simultaneously treated with matcha for six weeks. Serum biochemical parameters, histological changes, lipid accumulation, inflammatory cytokines, and relevant indicators were examined. Dietary supplementation of matcha effectively prevented excessive accumulation of visceral and hepatic lipid, elevated blood glucose, dyslipidemia, abnormal liver function, and steatosis hepatitis. RNA sequencing analyses of differentially expressed genes in liver samples indicated that matcha treatment decreased the activity of lipid droplet-associated proteins and increased the activity of cytochrome P450 enzymes, suggesting improved metabolic capacity and liver function. The current study provided evidence for new dietary strategies based on matcha supplementation to ameliorate lipotoxicity-induced obesity and NAFLD.



Zhou J, Yu Y, Ding L, Xu P, Wang Y. Matcha Green Tea Alleviates Non-Alcoholic Fatty Liver Disease in High-Fat Diet-Induced Obese Mice by Regulating Lipid Metabolism and Inflammatory Responses. Nutrients. 2021 Jun 6;13(6):1950. doi: 10.3390/nu13061950. PMID

EFFICACY OF WITHANIA SOMNIFERA (ASHWAGANDHA) SUPPLEMENTATION ON ADULT'S COGNITION AND MOOD

Date & Journal: Journal Ayurveda Integrative Medicine. 2021 Nov 25.

Abstract

The present study examined the effects of a proprietary Ashwagandha (*Withania somnifera*) root and leaf extract (NooGandha® Specnova LLC, USA) supplement for improving cognitive abilities, cortisol levels, and self-reported mood, stress, food cravings, and anxiety with adults who have perceived stress. Healthy adults ($n = 43$ women and $n = 17$ men; mean age = 34.41 years) who reported experiencing perceived stress were randomized to the following groups: Ashwagandha (400 mg/d), Ashwagandha (225 mg/d), and placebo for 30 days. The following outcomes were assessed at Day 0, Day 15, and Day 30: saliva cortisol levels, cognitive performance (i.e., CNS vital signs), and the self-reported measures of Trait Anxiety Inventory, Depression Anxiety Stress Scale, Perceived Stress Scale, and Food Cravings Questionnaire-15. For the self-report assessments, significant main effects for time were evidenced for anxiety, depression, perceived stress, and food cravings, p 's < 0.01 . The main effect for group and the interactions were non-significant. For the CNS vital signs, significant differences were observed in cognitive flexibility, visual memory, reaction time, psychomotor speed, and executive functioning, p 's < 0.05 , with the Ashwagandha groups often outperforming the placebo group. Both Ashwagandha groups had reductions in cortisol levels over time, with significant reductions evidenced for the Ashwagandha 225 mg/d group from Day 0 to Day 15 to Day 30. The placebo group had a non-significant increase in cortisol levels from Day 0 to Day 15-30. No adverse events were reported. In conclusion, Ashwagandha supplementation may improve the physiological, cognitive, and psychological effects of stress.



NOPAL FIBER (OPUNTIA FICUS-INDICA) IMPROVES SYMPTOMS IN IRRITABLE BOWEL SYNDROME IN THE SHORT TERM: A RANDOMIZED CONTROLLED TRIAL

Date & Journal: Neurogastroenterol Motil . 2021 Feb.

Abstract

Background: Clinical guidelines provide limited and conflicting recommendations regarding dietary fiber supplementation in irritable bowel syndrome (IBS). Nopal (*Opuntia ficus-indica*) is a cactus plant fiber containing both insoluble and soluble fibers that may have therapeutic potential in IBS. Our aim was to evaluate the dose-response effect of extracted nopal fiber powder on symptoms in IBS.

Methods: We performed a 4-arm, double-blind, parallel, randomized controlled trial in 60 patients fulfilling Rome IV criteria for IBS. Patients were randomized and blindly allocated to receive either nopal fiber (10, 20, or 30 g/day) or placebo (30 g/day dextrose) for one week and to keep their usual diet. Symptom severity (Global Symptom Question, IBS-SSS, Gastrointestinal Symptom Rating Scale), stool frequency and consistency (Bristol Stool Form Scale), breath hydrogen response, and stool short-chain fatty acids (SCFA) were measured at baseline and follow-up.

Conclusions and inferences: Nopal fiber supplementation at doses of 20 and 30 g/day was associated with short-term improvement in IBS symptoms, warranting a fully powered clinical trial of longer duration with symptomatic, physiological, and microbiological endpoints.



[Remes-Troche JM,Taboada-Liceaga H, Gill S,Amieva-Balmori M, Rossi M, Hernández-Ramírez G, García-Mazcorro JF,Whelan K. Nopal fiber \(*Opuntia ficus-indica*\) improves symptoms in irritable bowel syndrome in the short term: a randomized controlled trial. Ne](#)

A RANDOMIZED CLINICAL TRIAL OF THE EFFECTS OF LEAFY GREEN VEGETABLES AND INORGANIC NITRATE ON BLOOD PRESSURE

Date & Journal: American Journal of Clinical Nutrition, 2020.

Background: A diet rich in fruits and vegetables is associated with lowering of blood pressure (BP), but the nutrient(s) responsible for these effects remain unclear. Research suggests that inorganic nitrate present in leafy green vegetables is converted into NO in vivo to improve cardiovascular function.

Conclusions: A 5-wk dietary supplementation with leafy green vegetables or pills containing the same amount of inorganic nitrate does not decrease ambulatory SBP in subjects with elevated BP. This trial was registered at clinicaltrials.gov as NCT02916615.



Sundqvist ML, Larsen FJ, Carlström M, et al. A randomized clinical trial of the effects of leafy green vegetables and inorganic nitrate on blood pressure. Am J Clin Nutr. 2020;111(4):749-756. doi:10.1093/ajcn/nqaa024

IMPACT OF A PROBIOTIC PRODUCT ON BOWEL HABITS AND MICROBIAL PROFILE IN PARTICIPANTS WITH FUNCTIONAL CONSTIPATION: A RANDOMIZED CONTROLLED TRIAL

Date & Journal: J Dig Dis . 2019 Sept. 20.

Abstract

Objective: To investigate the clinical efficacy of a multi-strain probiotic product on bowel habits and microbial profile in participants with functional constipation.

Conclusions: No significant differences were observed in symptomology, with both groups showing a more than 20% improvement. However, the probiotic helped modulate bowel function earlier than the placebo, with a corresponding shift to a more fibrolytic microbiota.



Martoni CJ, Evans M, Chow CT, Chan LS, Leyer G. Impact of a probiotic product on bowel habits and microbial profile in participants with functional constipation: A randomized controlled trial. J Dig Dis. 2019;20(9):435-446. doi:10.1111/1751-2980.12797

THE CHEMICAL COMPOSITION AND NUTRITIONAL VALUE OF CHIA SEEDS-CURRENT STATE OF KNOWLEDGE

Date & Journal: Nutrients . 2019 May 31

Abstract

Chia (*Salvia hispanica*) is an annual herbaceous plant, the seeds of which were consumed already thousands of years ago. Current research results indicate a high nutritive value for chia seeds and confirm their extensive health-promoting properties. Research indicates that components of chia seeds are ascribed a beneficial effect on the improvement of the blood lipid profile, through their hypotensive, hypoglycaemic, antimicrobial and immunostimulatory effects. This article provides a review of the most important information concerning the potential application of chia seeds in food production. The chemical composition of chia seeds is presented and the effect of their consumption on human health is discussed. Technological properties of chia seeds are shown and current legal regulations concerning their potential use in the food industry are presented.



Kulczyński B, Kobus-Cisowska J, Taczanowski M, Kmiecik D, Gramza-Michałowska A. The Chemical Composition and Nutritional Value of Chia Seeds-Current State of Knowledge. *Nutrients*. 2019; 11(6):1242. Published 2019 May 31. doi:10.3390/nu11061242

Nutritional option that I use in my practice for Nutrition, Digestion & Inflammation Management



Scan with your



Supplement Facts

Suggested Dosage: Up to 4 capsules per day or as recommended by your healthcare provider. **Servings per container:** 30 **Serving Size:** 4 capsules

A proprietary blend of 3080 mg of the following natural ingredients:

Organic Wheat Grass, Organic Barley Grass, Organic Oat Grass, Organic Spinach, Organic Alfalfa, Organic Spirulina, Organic Chlorella, Organic Nopal, Organic Maca, Organic Rose Hips, Organic Chia, Organic Fenugreek, Organic Gota Kola, Organic Hemp, Organic Mesquite Powder, Organic Sacha Inchi Seed Powder, Organic Flax Seed Powder, Organic Kale, Organic Green Tea (Matcha), Organic Eleuthero Root, Organic Reishi, Organic Holy Basil, Organic Ashwaganda, Organic Astragalus, Organic Licorice, Organic Ginger, Organic Kelp, Organic Orange Peel, Organic Dulse, Organic Beet Root, Organic Lemon Peel, Organic Dandelion Root.

Made with 88% Organic Ingredients.
Other ingredients: Vegetable capsule.

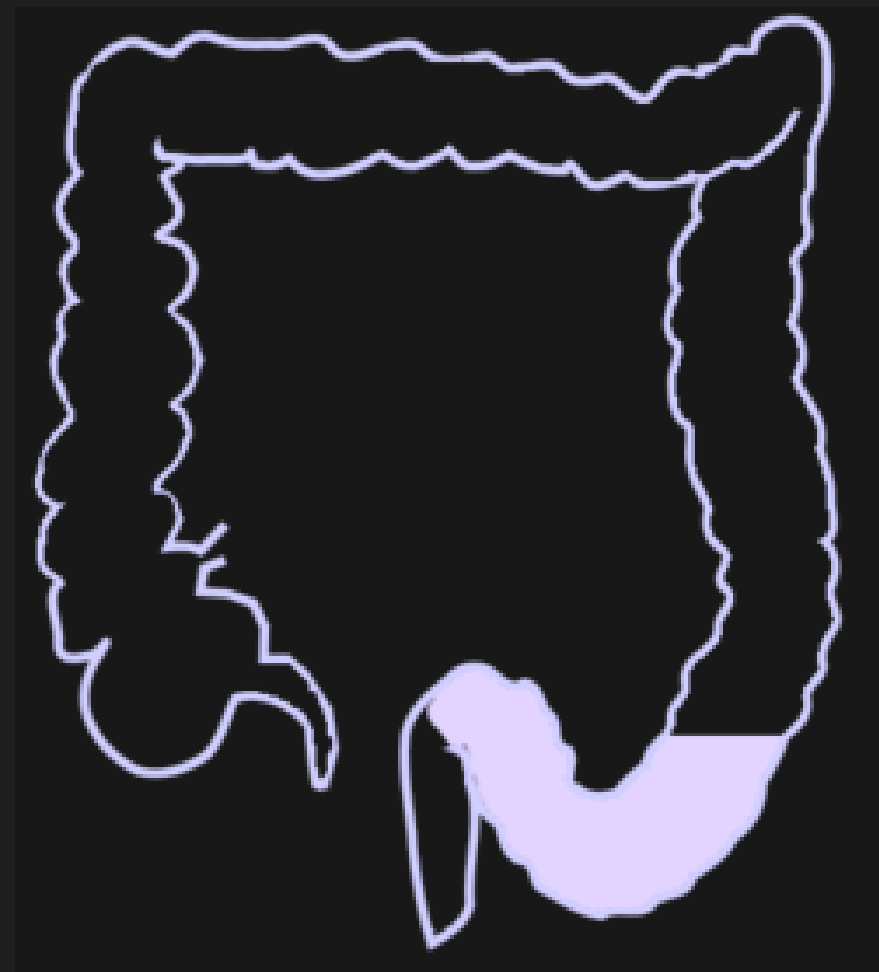
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COLON HEALTH



COLON CLEANSING:

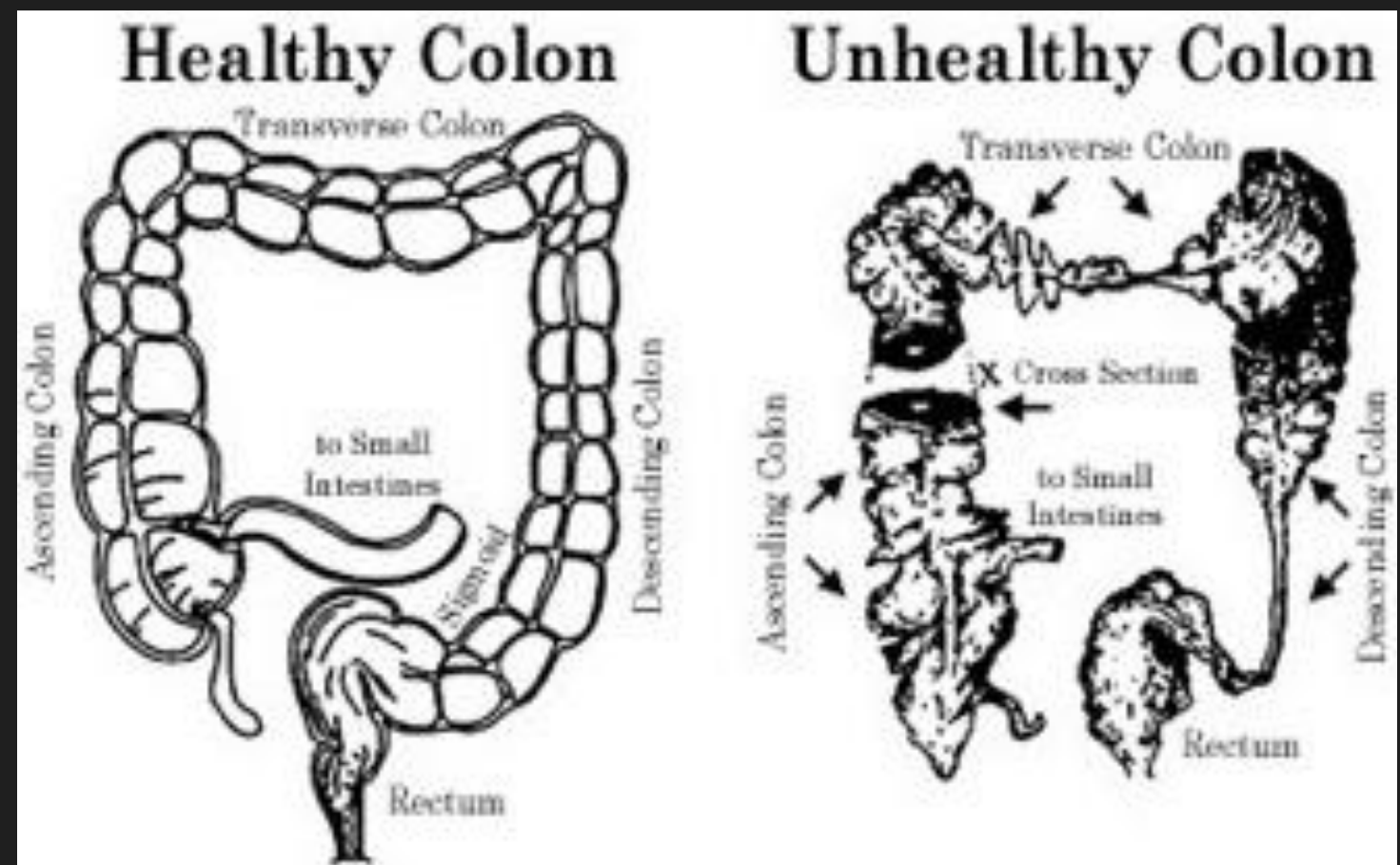
WHY THE NEED?

- *We kill our friendly bacteria from an acidic diet.*
- *Acidification of the body decreases enzyme production.*
- *Mucoid plaque from rotting food in the intestinal lining halts peristalsis.*



TRANSIT TIME = 3 MEALS ONLY

- Transit time: We're only supposed to store three meals before a meal comes out (Jensen), but most Americans store nine, twelve, or even more.
- This increased transit time is irritating to the intestinal lining. We absorb less and less nutrients as we lose more and more water & minerals.



FLAXSEED BIOACTIVE COMPOUNDS AND COLORECTAL CANCER PREVENTION

Date & Journal: Curr Oncol Rep . 2018 Jun 5.

Abstract

Purpose of review: Flaxseed and its bioactive components have been associated with a decreased risk of colorectal cancer incidence and progression. This review aims to summarize recent research regarding the role of flaxseed and each of its major dietary bioactive components in reducing colorectal cancer.

Recent findings: In both human and animal model experiments, flaxseed consumption had beneficial effects on colon physiology associated with reduction in colorectal cancer risk or occurrence. Considered separately, each of flaxseed's major bioactive components, including fiber, alpha-linolenic acid, lignans, and other phytochemicals, is also associated with decreased risk of colonic neoplasms and regulation of cell growth through several potential mechanisms. Collectively, experimental data suggests that consumption of flaxseed and/or its bioactive components may reduce colorectal cancer risk by a variety of mechanisms. Future studies should focus on the mechanisms by which whole flaxseed can prevent colorectal cancer.



DeLuca JAA, Garcia-Villatoro EL, Allred CD. Flaxseed Bioactive Compounds and Colorectal Cancer Prevention. Curr Oncol Rep. 2018;20(8):59. Published 2018 Jun 5. doi:10.1007/s11912-018-0704-z

THE COLON REVISITED OR THE KEY TO WELLNESS, HEALTH AND DISEASE!

Date & Journal: Med Hypotheses. 2017 Oct.

Abstract:

The hypothesis being advanced in this paper is that there is a new medical paradigm emerging from the biomedical research carried out in this century, mainly due to the explosion of the so called "omics" and associated techniques. The main idea is that there is a common pathway from wellbeing and health to chronic **disease** ("chronopathy") and even to death, which comprises following steps: 1) unhealthy diet, sedentary life style, permanent exposition to xenobiotics & all kinds of noxious stimuli; 2) intestinal dysbiosis; 3) alteration of the intestinal mucus layer (especially the **colon**); 4) disruption of the endothelial tight junctions; 5) metabolic endotoxemia+bacterial translocation; 6) inflammation; 7) exacerbation of the enteric nervous system (ENS) & consequent maladaptation/malfunctioning of the **colon**; 8) epigenetic manifestations; 9) "chronopathy" and premature death. In order to maintain a good health or to improve or even reverse chronic diseases in a person, the main outcome to look for is a homeostatic balance of the intestinal microbiota (eubiosis), most of which is located in the **colon**.

... Bacteria do not rely on other living beings for their existence, while the latter depend completely on the former. Humans are no exemption, and new evidence emerges each day about the pivotal role of intestinal microbiota in human health, **disease** and, in general, in its wellbeing. The following facts about intestinal microbiota are nowadays generally accepted: there are about 10 times more bacteria in the gut than human cells in every human being; the microbioma is about 100150 times bigger than the human genome, and there is a clear link between intestinal microbiota and many of the most common chronic diseases, from obesity and diabetes to depression and Parkinson **disease** and different kinds of cancer.

The main implication of this theory is that ... we ought to be more conscious of our intestinal microbiota, take care of it and monitor it permanently. Thus, as part of our good life habits (healthy eating, physical exercise), we should probably undergo periodic seasons of fasting and **colon** cleansing, as it was common in older times.



DIVERTICULITIS: AN UPDATE

FROM THE AGE OLD PARADIGM



◆ Current Problems in Surgery . 2020 Oct

Abstract: For a disease process that affects so many, we continue to struggle to define optimal care for patients with diverticular disease. Part of this stems from the fact that diverticular disease requires different treatment strategies across the natural history- acute, chronic and recurrent.

Diverticular disease was rarely described in the literature prior to the 1900's. In the late 1960's and early 1970's, Painter and Burkitt popularized the theory that diverticulosis is a disease of Western civilization based on the observation that diverticulosis was rare in rural Africa but common in economically developed countries. Previous surgical guidelines focused on early operative intervention to avoid potential complicated episodes of recurrent complicated diverticulitis (e.g., with free perforation) that might necessitate emergent surgery and stoma formation. More recent data has challenged prior concerns about decreasing effectiveness of medical management with repeat episodes and the notion that the natural history of diverticulitis is progressive. It has also permitted more accurate grading of the severity of disease and permitted less invasive management options to attempt conversion of urgent operations into the elective setting or even avoid an operation altogether. The role of diet in preventing diverticular disease has long been debated. A high fiber diet appears to decrease the likelihood of symptomatic diverticulitis. The myth of avoid eating nuts, corn, popcorn, and seeds to prevent episodes of diverticulitis has been debunked with modern data. Overall, the recommendations for "diverticulitis diets" mirror those made for overall healthy lifestyle – high fiber, with a focus on whole grains, fruits and vegetables.

DIVERTICULITIS: AN UPDATE

FROM THE AGE OLD PARADIGM

...CONTINUED

◆ Current Problems in Surgery . 2020 Oct

Diverticulosis is one of the most common incidental findings on colonoscopy and the eighth most common outpatient diagnosis in the United States. Over 50% of people over the age of 60 and over 60% of people over age 80 have colonic diverticula. Of those with diverticulosis, the lifetime risk of developing diverticulitis is estimated at 10–25%, although more recent studies estimate a 5% rate of progression to diverticulitis.

Diverticulitis accounts for an estimated 371,000 emergency department visits and 200,000 inpatient admissions per year with annual cost of 2.1–2.6 billion dollars per year in the United States. The estimated total medical expenditure (inpatient and outpatient) for diverticulosis and diverticulitis in 2015 was over 5.4 billion dollars. The incidence of diverticulitis is increasing.



MINERALS & COLLAGEN RESEARCH



FUNCTIONS OF MINERALS

Structural:
bones, teeth,
ligaments

Solutes and
electrolytes
in the blood

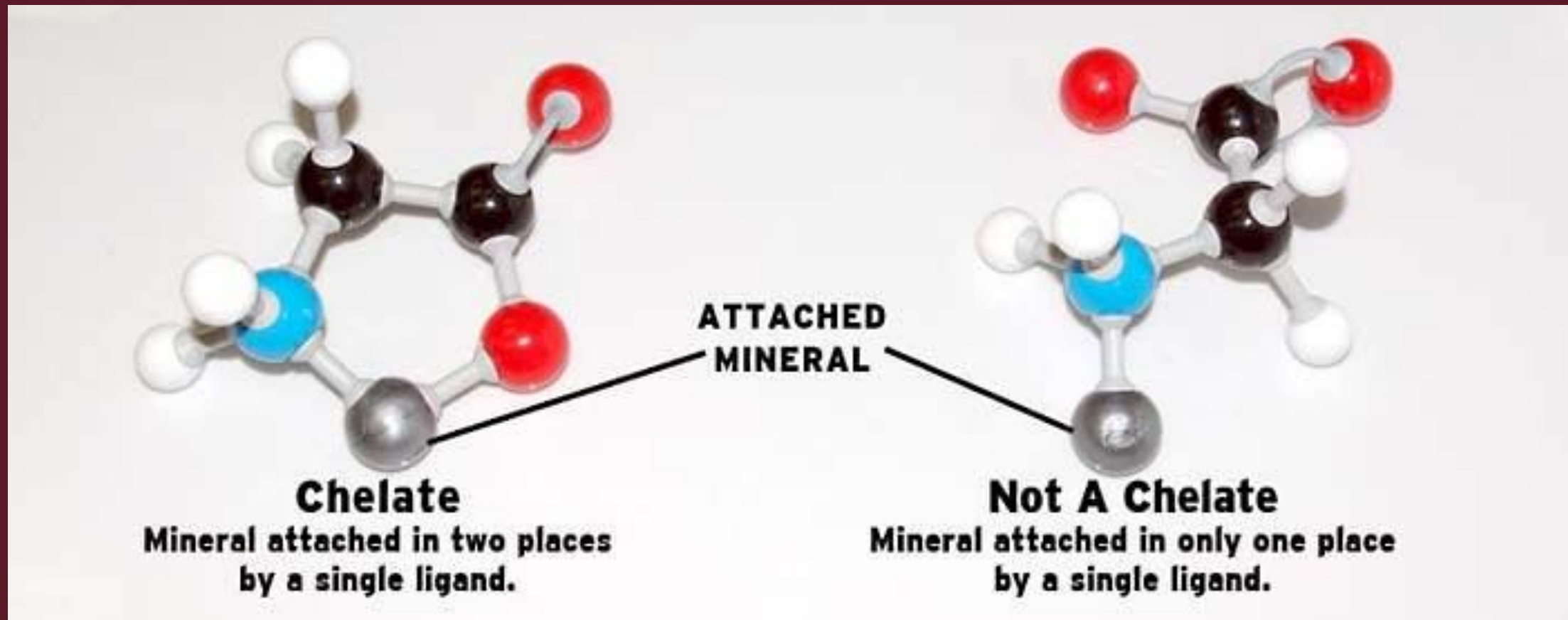
Nerve
transmission

Muscle action

Enzyme
actions



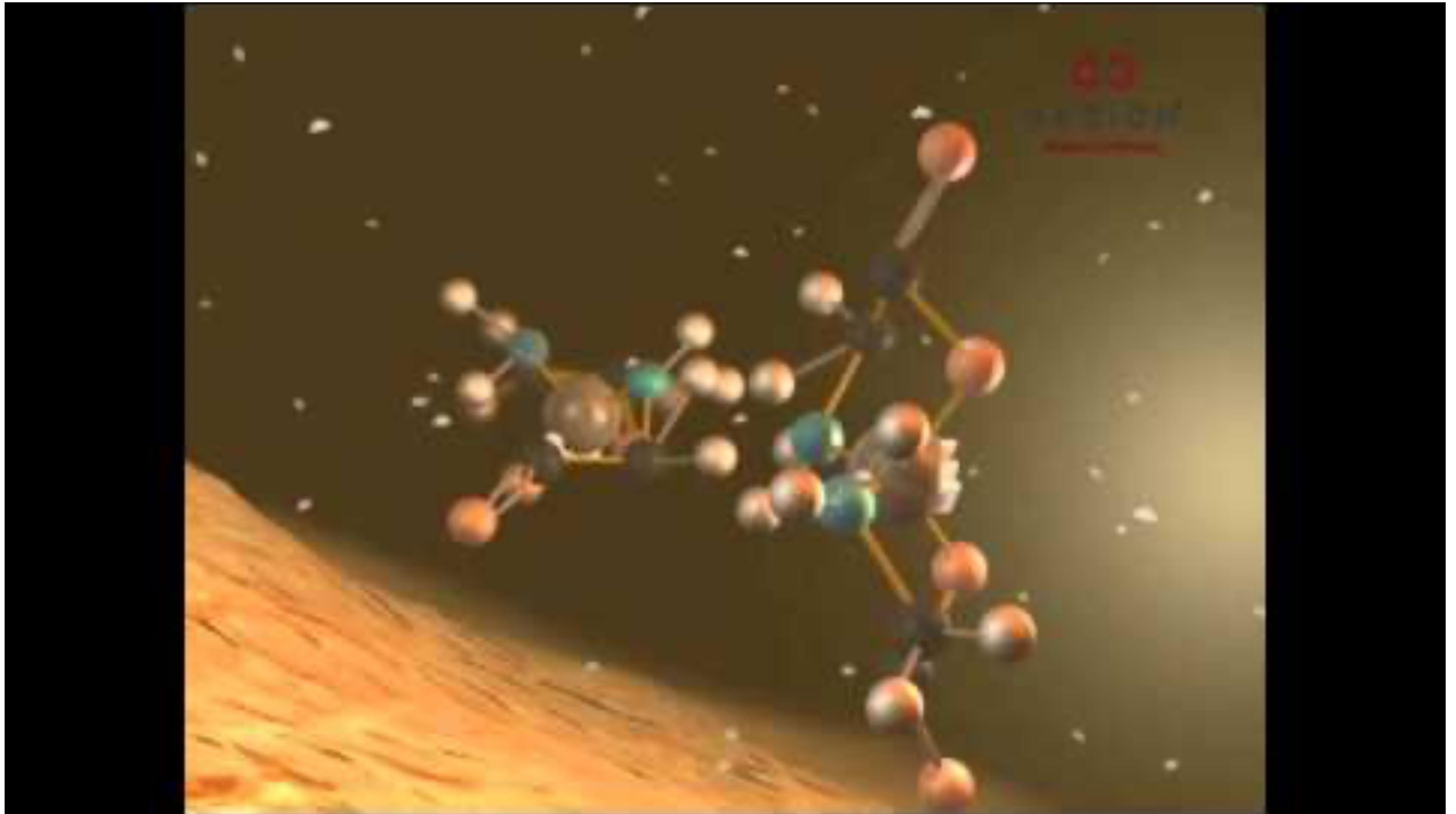
BEST TYPE OF MINERAL SUPPLEMENTS



- CHELATED = a mineral is bound or stuck to certain carrier molecules or amino acid which result increased absorption
 - Chelation can include minerals, vitamins, or enzymes. Minerals in food may be bound with organic molecules already in a chelated state.
 - Albion Labs - TRAACS – "The Real Amino Acid Chelate System"
 - Chelation Therapy = treatment for removing heavy metals from the blood. The toxic metals are bound to a therapeutic amino acid ligand called EDTA.



ALBION AMINO ACID CHELATE ABSORPTION



A SHORT VIDEO

IS THERE A MULTIDISCIPLINARY ROLE FOR 5-METHYLTETRAHYDROFOLATE? THE OBSTETRIC EVIDENCE IN PERSPECTIVE



Date & Journal: **European Review for Medical and Pharmacological Sciences**. 2024 Jul.

Abstract

5-methyltetrahydrofolate (5-MTHF), or its synthetic precursor, folic acid, is traditionally used as a supplement for improving fertility and for the prevention of embryonal neural tube defects. However, in the last decade, starting from the effectiveness of this preventive treatment in the gynecological setting, the use of 5-MTHF was extended to other medical and pathological areas. Thus, there might be a rationale for the use of 5-MTHF for purposes other than the protection of the growing embryo linked to the possible effect of MTHFR variants in different pathological conditions. A narrative review was conducted to provide an overview of the available evidence on the use of 5-MTHF in the obstetric field and to critically discuss the available data regarding the use of 5-MTHF across other different therapeutic areas. Results showed that the use of 5-MTHF in pregnancy presents some advantages if compared with folic acid, such as immediate action, the non-necessity of metabolic activation, and the immediate bioavailability of the mother and fetus. Otherwise, the role of 5-MTHF in the management of cardiovascular risk is still debated due to the multiple confounding factors that characterize this patient setting. A link between folate deficiency in pregnancy and postpartum depression has been proposed, as well as between folate levels and the onset of depression. In conclusion, evidence from the literature supports the additional role of 5-MTHF as a pleiotropic drug with a transversal effect in different therapeutic contexts. With regard to the prevention of cardiovascular disorders, available evidence is not conclusive.

Rubini M, Di Minno G, Ferrazzi E. Is there a multidisciplinary role for 5-methyltetrahydrofolate? The obstetric evidence in perspective. Eur Rev Med Pharmacol Sci. 2024 Jul.

THE SYNERGISTIC EFFECTS OF FOUR MEDICINAL PLANT SEEDS AND CHELATED MINERALS ON THE GROWTH, IMMUNITY, AND ANTIOXIDANT CAPACITY OF RAINBOW TROUT

Date & Journal: Fish & Shellfish Immunology. 2023 Aug.

Abstract

Trace minerals are essential for the normal functioning of all living organisms. In addition, the positive effects of several medicinal plants have been demonstrated in aquaculture. In the present study, we aimed to investigate the effects of a mixture of medicinal plants and test the synergistic effects of medicinal plants and chelated minerals on fish growth and immunity. Thus, in the present experiment we evaluated the combined effects of a commercial chelated mineral source (BonzaFish®) and a mixture of 4 medicinal plants including caraway (*Carum carvi*), green cumin (*Cuminum cyminum*), dill (*Anethum graveolens*), and anise (*Pimpinella anisum*). Rainbow trout (*Oncorhynchus mykiss*) fingerlings (n = 225) were fed with five formulated diets, including a control diet (basal diet), Bonza (basal diet + 1 g/kg BonzaFish®), Z-5 (basal diet + 1 g/kg BonzaFish® + 5 g/kg mixture of plant seeds), Z-10 (basal diet + 1 g/kg BonzaFish® + 10 g/kg mixture of plant seeds), Z-20 (basal diet + 1 g/kg BonzaFish® + 20 g/kg mixture of plant seeds) for 6 weeks. In diets including BonzaFish®, 50% of the inorganic mineral premix was replaced by BonzaFish®. Results revealed that fish receiving the Z-20 diet showed the best performance in terms of growth parameters, followed by the Bonza treatment ($P < 0.05$). The highest protease activity was found in Z-5 and Z-10. RBCs were highest in Z-5, while the highest WBCs and hemoglobin were found in the Bonza treatment followed by Z-20. Stress biomarkers were lowest in the Z-20 treatment. Results showed that Z-20 could elicit the most robust immunological responses of lysozyme activity, ACH50, total Ig, C3, and C4. In conclusion, chelated minerals could be successfully used to replace 50% of mineral premix with no negative impacts on fish growth and together with four medicinal plants, could enhance rainbow trout overall growth performance and immunity.



SELENIUM CONCENTRATION IS ASSOCIATED WITH OCCURRENCE AND DIAGNOSIS OF THREE CARDIOVASCULAR DISEASES: A SYSTEMATIC REVIEW AND META-ANALYSIS

Date & Journal: J Trace Elem Med Biol . 2022 Mar.

Abstract

Background: Selenium (Se) is a vital trace element playing its biological functions through selenoprotein, which has been implicated in various physiological and pathological processes. A growing number of studies indicate that low Se increases the risk of cardiovascular diseases (CVDs). This meta-analysis aimed to compare and analyze differences in Se levels between patients with heart failure (HF), myocardial infarction (MI), coronary heart disease (CHD), and healthy people. This will provide ideas with the potential to improve clinical intervention and prevention of CVDs.

Results: A total of 49 eligible studies (including 61 cohorts) were obtained. Results of the meta-analysis showed that there was a significant difference in Se levels between HF, MI, CHD patients and healthy people. Analysis of the correlation between Se level and publication year showed that SMD of Se levels in HF and controls was positively correlated with time. Se level was found to be a good diagnostic marker of MI (AUC = 0.7107, P = 0.0167, Sensitivity = 77.27 %, Specificity = 72.73 %).

Conclusions: This meta-analysis shows that Se levels in patients with HF, MI, and CHD are generally lower compared with healthy controls. However, due to the small number of included studies, further studies are needed to confirm the present results.



[Yang L, Qi M, Du X, Xia Z, Fu G, Chen X, Liu Q, Sun N, Shi C, Zhang R. Selenium concentration is associated with occurrence and diagnosis of three cardiovascular diseases:A systematic review and meta-analysis. J Trace Elem Med Biol. 2022 Mar;70:126908. d](#)

ASSOCIATION OF SELENIUM, ZINC AND COPPER CONCENTRATIONS DURING PREGNANCY WITH BIRTH WEIGHT: A SYSTEMATIC REVIEW AND META-ANALYSIS

Date & Journal: J Trace Elem Med Biol . 2022 Jan

Abstract

Background: Normal fetal growth is associated with maternal nutrition. Trace elements play important roles in fetus growth. This review aims to provide a summary of the literature evaluating the relation between selenium, zinc and copper levels during pregnancy with birth weight.

Result: Significant differences were found between pooled standardized mean differences (SMD) of umbilical cord blood copper levels in small-for-gestational age birth weight (SGA) and appropriate-for-gestational age birth weight (AGA) (SMD: 0.34 $\mu\text{g/L}$, 95 % CI: 0.13 to 0.56). There was a significant pooled correlation between umbilical cord blood selenium concentrations and birth weight (r : 0.08, 95 % CI: 0.01 to 0.16). A significant pooled correlation was found between umbilical cord blood zinc concentrations and birth weight (r : 0.09, 95 % CI: 0.04 to 0.15), with significant heterogeneity (I^2 % = 0.63). There was significant positive association between maternal blood zinc concentrations and birth weight.

Conclusion: Findings showed the association of trace elements including selenium, zinc and copper during pregnancy with birth weight. There was significant correlation between umbilical cord and maternal blood selenium and zinc levels with birth weight. The umbilical cord blood copper levels in SGA birth weight was higher than copper levels in AGA birth weight.

Atazadegan MA, Heidari-Beni M, Riahi R, Kelishadi R. Association of selenium, zinc and copper concentrations during pregnancy with birth weight: A systematic review and meta-analysis. J Trace Elem Med Biol. 2022 Jan;69:126903. doi: 10.1016/j.jtemb.2021.12



DO MULTIVITAMIN/MINERAL DIETARY SUPPLEMENTS FOR YOUNG CHILDREN FILL CRITICAL NUTRIENT GAPS?

Date & Journal: J Acad Nutr Diet . 2022 Mar.

Abstract

●**Background:** Nearly a third of young US children take multivitamin/mineral (MVM) dietary supplements, yet it is unclear how formulations compare with requirements.

●**Objective:** Describe the number and amounts of micronutrients contained in MVMs for young children and compare suggested amounts on product labels to micronutrient requirements.

●**Results:** The 288 MVMs contained a mean of 10.1 ± 2.27 vitamins and 4.59 ± 2.27 minerals. The most common were, in rank order, vitamins C, A, D, E, B₆, B₁₂; zinc, biotin, pantothenic acid, iodine, and folic acid. For micronutrients denoted by the DGA 2015 and DGA 2020 of public health concern, 56% of the 281 products containing vitamin D, 4% of the 144 with calcium, and none of the 60 containing potassium provided at least half of the DV. The upper tolerable intake level was exceeded by 49% of 197 products with folic acid, 17% of 283 with vitamin A, and 14% of 264 with zinc. Most MVMs contained many of 16 other vitamins and minerals identified in national surveys as already abundant in children's diets.

●**Conclusions:** A reexamination of the amounts and types of micronutrients in MVMs might consider formulations that better fill critical gaps in intakes and avoid excess.



IMPACT OF MAGNESIUM ON BONE HEALTH IN OLDER ADULTS: A SYSTEMATIC REVIEW AND META-ANALYSIS

Date & Journal: Bone . 2022 Jan.

Abstract

●**Background:** Magnesium plays a key role in bone health and may, therefore, represent an interesting nutrient for the prevention of bone loss and osteoporosis. The aim of this systematic review and meta-analysis was to investigate the impact of magnesium intake from any source on bone mineral density (BMD), bone mineral content (BMC), bone turnover markers, and fracture risk in older adults.

●**Results:** Once 787 records were screened, six cohort studies, one case-control study and five cross-sectional studies were included. Qualitative evaluation demonstrated a positive trend between higher magnesium intake and higher hip and femoral neck BMD. Meta-analysis of four studies showed a significant positive association between magnesium intake and hip BMD (pooled beta: 0.03, 95% CI: 0.01-0.06, $p < 0.05$).

●**Conclusions:** This systematic review indicates that a higher magnesium intake may support an increase in hip and femoral neck BMD. Due to limited research no associations with BMD at other sites or fractures were found. There is a need for properly designed cohort studies to determine the association between magnesium intake and bone health in older adults. Next, large and long-term randomized controlled trials in older adults are needed to determine whether an increase in magnesium (supplementation) intake can improve bone health. The combination of several bone nutrients (calcium, vitamin D, protein, magnesium and potentially more) may be needed for the most optimal effect on bone health and to delay or prevent the development of osteoporosis.

Groenendijk I, van Delft M, Versloot P, van Loon LJC, de Groot LCPGM. Impact of magnesium on bone health in older adults: A systematic review and meta-analysis. Bone. 2022 Jan;154:116233. doi: 10.1016/j.bone.2021.116233. Epub 2021 Oct 16. PMID: 34666201.



Nutritional option that I use in my practice for muscle cramping & bone loss prevention



Scan with your
smartphone!



CHELATED MINERALS

ALL-NATURAL AID TO HELP
PREVENT BONE LOSS
& MUSCLE CRAMPING



"A dietary supplement"

Supplement Facts

Suggested Dosage: Up to 3 capsules per day or as recommended by your healthcare provider.

Servings per container: 30
Serving Size: 3 capsules

Ingredient	Amount Per Serving	% Daily Value
Calcium Bisglycinate Chelate TRAACS®	600mg	60%
Magnesium Bisglycinate Chelate TRAACS®	500mg	125%
Potassium Glycinate complex TRAACS®	300mg	6%
Calci-K® (Calcium Potassium Phosphate Citrate) TRAACS®	50mg	1%
Ferrochel® (Ferrous Bisglycinate Chelate) TRAACS®	5mg	2%
Vitamin D3 (Cholecalciferol)	400 IU	100%
Sodium (as bicarbonate)	100 mg	4%
Zinc Bisglycinate Chelate TRAACS®	15mg	136%

A proprietary blend of 500 mg of the following natural ingredients: Raspberry Leaf extract 4:1; Corydalis; Organic Wild Yam; Cramp Bark; Organic Ginger root. Bioavailable naturally occurring minerals: Calcium; Magnesium; Potassium; Manganese; Copper; Iron; Zinc; Vitamins A, C, & E; Vitamin B complex. Other Ingredients: Glucose; Silicon dioxide; Vegetable capsule. Made with organic ingredients when possible.

Distributed by:
Organicc's Absolutely Pure, LLC
Laguna Hills, CA. 92653
(949) 707-5785
USP Inc. Facility Code 20181

Lot:

Exp:

Manufactured by PHS Oxnard CA



WHAT IS COLLAGEN PROTEIN?

- Largest Protein in our body. 70% of our total protein.
- Collagen Protein make up heart, lungs, blood vessels, discs, muscle, bone, internal organs.
- Ptosis = loss of collagen, droopy organs and skin.
Caused by hormonal changes, drugs, alcohol, processed foods, white sugar, hydrogenated oils, fluoridated water, dehydration, stress, and trauma.

Collagen is concentrated in the **extracellular matrix (ECM)**, a network that supports the cells of every single tissue in your body.



By dry weight, collagen makes up:



90% of the sclera
(white part of
your eye)



80% of
tendons



70-80% of
the skin



60% of
cartilage



30% of
bones



1-10% of
muscle mass

COLLAGEN TYPES USED IN NUTRITIONAL PRODUCTS FOR PAIN MANAGEMENT & INFLAMMATION REDUCTION

SEVERAL DIFFERENT TYPES OF PROTEIN HAVE BEEN IDENTIFIED, BUT MOST OF THE COLLAGEN IN THE BODY IS TYPE I, II, OR III.

TYPE I – Most Common. In the bones, teeth, ligaments, & tendons.

Also present in skin and is responsible for the skin's elasticity & strength.
Loss of Type I Collagen results in wrinkles & aged appearance.

Source: Hides of Organic Grass Fed Cows

TYPE II – Found in the cartilage.

Source: Feet of GMO Fed Chickens or Hooves of GMO Fed Cows

TYPE III - Most prevalent in skin, blood vessels, and internal organs.

Source: Feet of Caged, GMO Fed Chickens



WHY HYDROLYZED COLLAGEN TYPE I ?

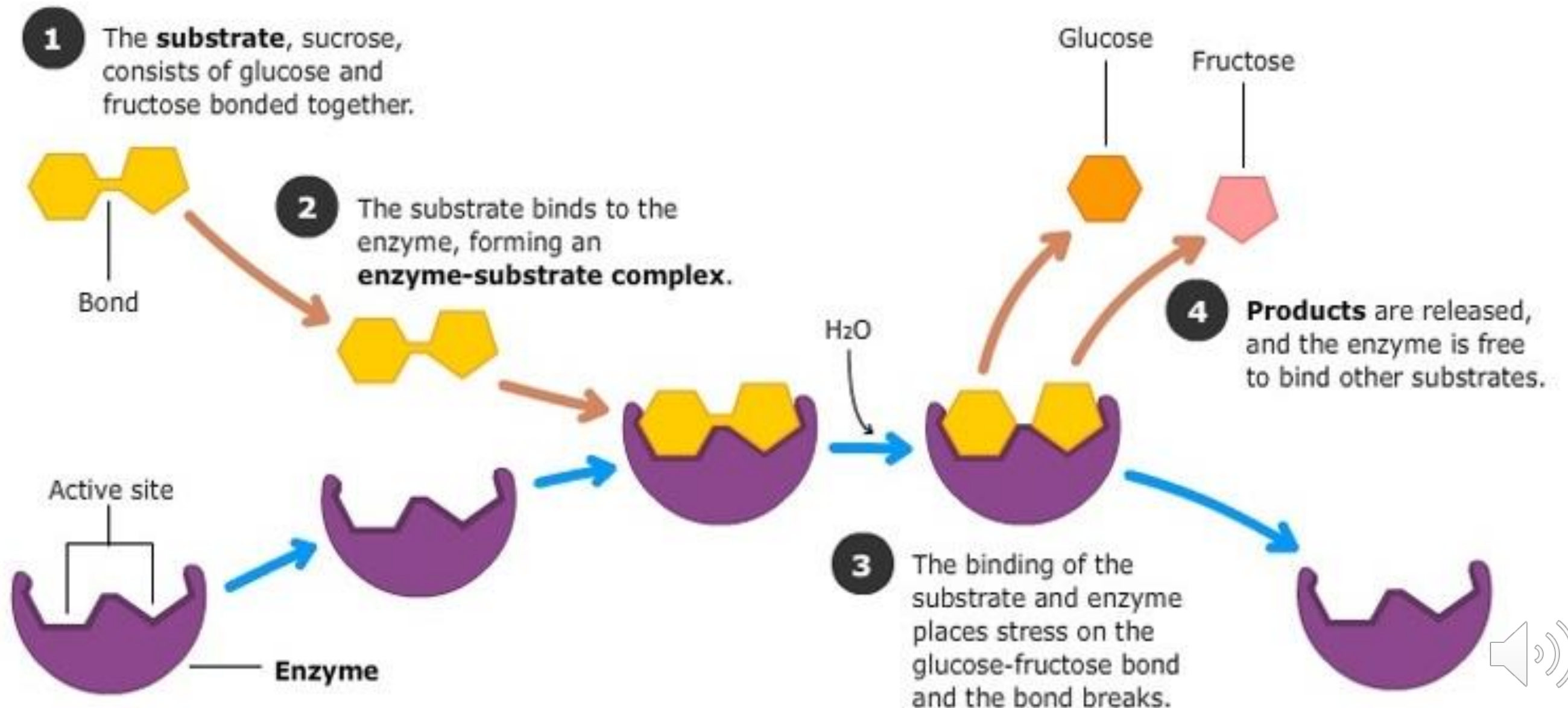
- The body can't absorb collagen in whole form.
- This protein must be broken down during the digestive process before it can be absorbed.
- To increase bioavailability, we use *Hydrolyzed* collagen
 - Collagens long amino acid chain is broken down into peptides
 - Resulting in a much easier absorption process in the GI tract.
 - Capsules are better for this digestion process than powder due to the lack of clumping.



PROCESS OF ENZYMATIC HYDROLYSIS

Definition: Catalytic decomposition of a chemical compound by reaction with water.

In supplements it is used for the breakdown of proteins into amino acids by the addition of the enzyme protease.



HYDROLYZED COLLAGEN TYPE I

Results of Clinical Studies Suggest:

- Increase of lean muscle, muscle tone, skin tone, joint rebuilding, stronger arteries, increased energy, and organ rebuilding.

Long Term Improvements Suggest:

- Reduction in: Osteoporosis, high blood pressure, arthritis, weak bladder, obesity, chronic fatigue, and autoimmune diseases.



Nutritional option that I use in my practice for rehabilitation of injuries, and muscle & tissue strengthening.



Scan with your smartphone!



TYPE-1 COLLAGEN PROTEIN

ALL-NATURAL AID FOR STRENGTHENING HAIR, SKIN, NAILS, MUSCLES & JOINTS



Supplement Facts

Suggested Dosage: Up to 6 capsules per day or as recommend by your healthcare provider.

Servings per container: 30
Serving Size: 6 capsules

Ingredient	Amount Per Serving	% Daily Value
Type 1 Hydrolyzed Collagen Kosher (Bovine)	3000 mg	120%
Vitamin C (Ascorbic Acid)	200 mg	333%

A proprietary blend of 320 mg of the following natural ingredients: Glucosamine sulfate; Horsetail herb; Citrus Bioflavonoids. Made with organic ingredients when possible.

Other ingredients: Vegetable capsule.

Distributed by:
Organicc's Absolutely Pure, LLC
Laguna Hills, CA. 92653
(949) 707-5785
USP Inc. Facility Code 20181

Lot:
Exp:
Manufactured by PHS Oxnard CA



KIPERIN DOUBLE-HYDROLYZED COLLAGEN AS A POTENTIAL ANTI-TUMOR AGENT: EFFECTS ON HCT116 COLON CARCINOMA CELLS AND OXIDATIVE STRESS MODULATION

Date & Journal: Current Issues in Molecular Biology. 2025 May 15

Abstract

Double-hydrolyzed collagen, a key structural protein, has gained increasing attention for its role in cancer progression and its potential therapeutic applications. This study aims to investigate the effects of double-hydrolyzed collagen (Type I and III peptides) on HCT116 colon carcinoma cells and CCD-18Co fibroblasts as a normal control. Cells were treated with 0.5 µg/mL, 1 µg/mL, and 1.5 µg/mL of collagen peptide solution. HCT116 and CCD-18Co cells were cultured under standard conditions and treated with 1 µg/mL collagen. Cell viability (MTT assay), migration (scratch assay), oxidative stress (TAS/TOS kits), TNF-α expression (qRT-PCR), and tumor marker levels (CA19-9, CEA, CA72-4, and CYFRA 21-1; CLIA) were evaluated. Cell viability, proliferation, migration, oxidative stress, and tumor marker levels were assessed. Statistical analyses were performed to determine significance. Double-hydrolyzed collagen treatment significantly increased CCD-18Co fibroblast proliferation ($p = 0.0143$), while HCT116 cancer cell numbers significantly decreased ($p = 0.0045$). Migration of HCT116 cells was markedly reduced ($p < 0.0001$), whereas no significant effect was observed in CCD-18Co fibroblasts ($p = 0.559$). Oxidative stress analysis showed decreased total oxidative status (TOS) and increased total antioxidant status (TAS) in HCT116 cells ($p = 0.0075$ and $p = 0.0095$, respectively), with no significant changes in normal fibroblasts. Among tumor markers, CA19-9 levels were significantly reduced in HCT116 cells ($p = 0.013$), while CEA, CA72-4, and CYFRA 21-1 remained unchanged. TNF-α gene expression analysis confirmed the absence of inflammatory or adverse effects in normal fibroblasts. These findings suggest that double-hydrolyzed collagen selectively inhibits colon cancer cell proliferation and migration, modulates oxidative stress, and reduces CA19-9 levels while promoting fibroblast growth. The differential effects between cancerous and normal cells highlight collagen's potential as a complementary therapeutic approach for colorectal cancer. Further research is needed to elucidate the underlying mechanisms and assess its clinical applicability. Double-hydrolyzed collagen appears to be a safe and beneficial dietary component with promising biological effects and therapeutic potential.



COLLAGEN STUDY ADVANCES FOR PHOTOAGING SKIN

Date & Journal: Photodermatology, Photoimmunology, & Photomedicine, 2024.

Abstract

Background: Collagen dominates the skin's extracellular matrix (ECM). Type I collagen comprises 80%-90% of the skin's collagen, followed by type III (8%-12%) and type V (5%). Reactive oxygen species, matrix metalloproteinases, and collagen degradation all increase during photoaging, which disrupts the ECM's dynamic balance and lowers the amount of total collagen in the body. In recent years, domestic and foreign researchers have conducted multidimensional and multifaceted studies on collagen and skin photoaging. Collagen and the peptides that are derivatives of it are currently being used more and more in biomedicine and medical esthetics.

Objective: Offering new suggestions for both the avoidance and remedy of photoaging.

Result: Both internal and external aging are inevitable, and as the main component of extracellular matrix, collagen plays a variety of functions in maintaining skin structure and fighting skin aging, and its role in photoaging is undeniable. Ultraviolet radiation can induce increased fragmentation and degradation of cutaneous collagen, while conversely, supplementation with collagen can effectively counteract photodamage-induced skin impairment.

Conclusion: Collagen and its derived peptides are indispensable in photoaging skin, holding promising prospects for applications in skin aging.



ORAL COLLAGEN SUPPLEMENTATION: A SYSTEMATIC REVIEW OF DERMATOLOGICAL APPLICATIONS

Date & Journal: J Drugs Dermatol .2019 Jan 1.

Abstract

The use of nutraceuticals such as collagen for skincare has been rising, but regulations are lacking on quality, absorption, and efficacy. To address this knowledge gap, clinical studies regarding the potential effects of collagen-based dietary supplements on skin are being completed. The objective of this article is to review the literature and assess available randomized-controlled trials using collagen supplementation for treatment efficacy regarding skin quality, anti-aging benefits, and potential application in medical dermatology.

Findings: Eleven studies with a total of 805 patients were included for review. Eight studies used collagen hydrolysate, 2.5g/d to 10g/d, for 8 to 24 weeks, for the treatment of pressure ulcers, xerosis, skin aging, and cellulite. Two studies used collagen tripeptide, 3g/d for 4 to 12 weeks, with notable improvement in skin elasticity and hydration. Lastly, one study using collagen dipeptide suggested anti-aging efficacy is proportionate to collagen dipeptide content.

Conclusions and Relevance: Preliminary results are promising for the short and long-term use of oral collagen supplements for wound healing and skin aging. Oral collagen supplements also increase skin elasticity, hydration, and dermal collagen density. Collagen supplementation is generally safe with no reported adverse events. Further studies are needed to elucidate medical use in skin barrier diseases such as atopic dermatitis and to determine optimal dosing regimens.

Choi FD, Sung CT, Juhasz ML, Mesinkovsk NA. Oral Collagen Supplementation: A Systematic Review of Dermatological Applications. J Drugs Dermatol. 2019 Jan 1;18(1):9-16. PMID: 30681787.



AN OVERVIEW OF THE BENEFICIAL EFFECTS OF HYDROLYSED COLLAGEN INTAKE ON JOINT AND BONE HEALTH AND ON SKIN AGEING

Date & Journal: Nutr Hosp . 2015 Jul 18.

Abstract

Introduction: Hydrolysate Collagen (HC) consists of small peptides with a molecular weight lower than 5.000 Dalton units (Da), produced from gelatinization and subsequent enzymatic hydrolysis of native collagen which is found in rich collagenic animal tissues. There is much evidence about the HC ingestion positive effect over degenerative joint and bones diseases.

Objective: The aim of this article is to review the present scientific studies about HC and to evaluate the HC ingestion therapeutical effects on some collagenic tissues as cartilage, bones and skin.

Results: Up to date, there are more than 60 scientific studies (in vitro, in vivo, clinics and on bioavailability) about HC ingestion efficacy on reducing collagen damage and loss consequences as joint pain and erosion (osteoarthritis), bone density loss (osteoporosis) and skin ageing.

Conclusions: Preclinical studies show that HC stimulates collagenic tissue regeneration by increasing not only collagen synthesis but minor components (glycosaminoglycans and hyaluronic acid) synthesis as well. Clinical studies show that HC continual ingestion helps to reduce and prevent joint pain, bone density loss and skin ageing. These results as well as its high level of tolerance and safety make HC ingestion attractive for a long-term use in bone and joint degenerative diseases and in fight against skin ageing.



Figueres Juher T, Basés Pérez E. REVISIÓN DE LOS EFECTOS BENEFICIOSOS DE LA INGESTA DE COLÁGENO HIDROLIZADO SOBRE LA SALUD OSTEOARTICULAR Y EL ENVEJECIMIENTO DÉRMICO [An overview of the beneficial effects of hydrolysed collagen intake on joint and bone health and on skin ageing]. Nutr Hosp. 2015 Jul 18;32 Suppl 1:62-6. Spanish. doi: 10.3305/nh.2015.32.sup1.9482. PMID: 26267777.

A COLLAGEN SUPPLEMENT IMPROVES SKIN HYDRATION, ELASTICITY, ROUGHNESS, AND DENSITY: RESULTS OF A RANDOMIZED, PLACEBO-CONTROLLED, BLIND STUDY

Date & Journal: Nutrients . 2019 Oct 17.

Abstract

The purpose of this randomized, placebo-controlled, blind study was to investigate the effects of the drinkable nutraceutical ELASTEN® (QUIRIS Healthcare, Gütersloh, Germany) on skin aging and skin health. Drinking ampoules provides a blend of 2.5 g of collagen peptides, acerola fruit extract, vitamin C, zinc, biotin, and a native vitamin E complex. This controlled interventional trial was performed on 72 healthy women aged 35 years or older. They received either the food supplement ($n = 36$) or a placebo ($n = 36$) for twelve weeks. A skin assessment was carried out and based on objective validated methods, including corneometry (skin hydration), cutometry (elasticity), the use of silicon skin replicas with optical 3D phase-shift rapid in-vivo measurements (PRIMOS) (roughness), and skin sonography (density). The verum group was followed for an additional four weeks (without intake of the test product) to evaluate the sustainability of the changes induced by the intake of the test product. The test product significantly improved skin hydration, elasticity, roughness, and density. The differences between the verum group and the placebo group were statistically significant for all test parameters. These positive effects were substantially retained during the follow-up. The measured effects were fully consistent with the subjective assessments of the study participants. The nutraceutical was well tolerated.

Bolke L, Schlippe G, Gerß J, Voss W. A Collagen Supplement Improves Skin Hydration, Elasticity, Roughness, and Density: Results of a Randomized, Placebo-Controlled, Blind Study. Nutrients. 2019 Oct 17;11(10):2494. doi: 10.3390/nu11102494. PMID: 31627309; PMCID: PMC6835901.



ORAL COLLAGEN SUPPLEMENTATION FOR SKIN AGING: A FAD OR THE FUTURE?

Date & Journal: J Cosmet Dermatol . 2020 Apr.

Abstract

In recent years, oral collagen supplements have become a popular and trendy treatment in the world of skin health. It has been widely marketed to consumers for purported benefits in wrinkle reduction, skin-rejuvenation, skin-aging reversal, and skin plumping. However, there are currently limited data available in the literature and much regarding its possible effects on the skin has yet to be fully elucidated and understood. Here, we summarize some of the prominent studies in the literature and offer an evaluation of oral collagen supplementation for skin health.

[Jhawar N, Wang JV, Saedi N. Oral collagen supplementation for skin aging: A fad or the future? J Cosmet Dermatol. 2020 Apr;19\(4\):910-912. doi: 10.1111/jocd.13096. Epub 2019 Aug 14. PMID: 31411379.](#)



Topical Collagen Research



HYALURONIC ACID-CROSS-LINKED FILLER STIMULATES COLLAGEN TYPE I AND ELASTIC FIBER SYNTHESIS IN SKIN THROUGH THE TGF- β /SMAD SIGNALING PATHWAY IN A NUDE MOUSE MODEL.

Date & Journal: J Plast Reconstr Aesthet Surg. 2019 Apr 11

Compared to pure hyaluronic acid filler, cross-linked hyaluronic acid (HAc) exhibits superior biocompatibility and longevity as a dermal filler. We previously developed composite HAc-hydroxyapatite (HAp) fillers. Herein, we systematically compared the protein-level increase and gene expression between HAc-micro-HAp and HAc-nano-HAp in mice and determined the mechanisms underlying the biological responses to HAc and HAp. Five-week-old female BALB/c-nude mice were classified into five groups: normal skin, Radiesse, Restylane, HAc-nano-HAp, and HAc-micro-HAp. Fillers (200 μ l) were injected to evenly fill the back of mice. Skin biopsies were performed to investigate collagen and elastic fiber synthesis after filler injections. Western blot analysis, real-time polymerase chain reaction analysis, and immunohistochemistry were performed to investigate protein and gene expression changes.

Fan Y, Choi TH, Chung JH, Jeon YK, Kim S. Hyaluronic acid-cross-linked filler stimulates collagen type I and elastic fiber synthesis in skin through the TGF- β /Smad signaling pathway in a nude mouse model. J Plast Reconstr Aesthet Surg. 2019 Aug;72(8):1355-1362. doi: 10.1016/j.bjps.2019.03.032. Epub 2019 Apr 11. PMID: 31036501.



II. BASIC SCIENCE (NUTRITION)

A. INFLAMMATION

- a) Natural inflammation reduction treatment options, including nutritional supplements and special dietary recommendations for an anti-inflammatory protocol, including legal hemp for anti-inflammatory management.
- b) Literature review

B. DIGESTION

- a) Green Alkaline foods for fiber and digestion
- b) Colon Health
- c) Minerals and Collagen Protein

C. AMINO ACIDS

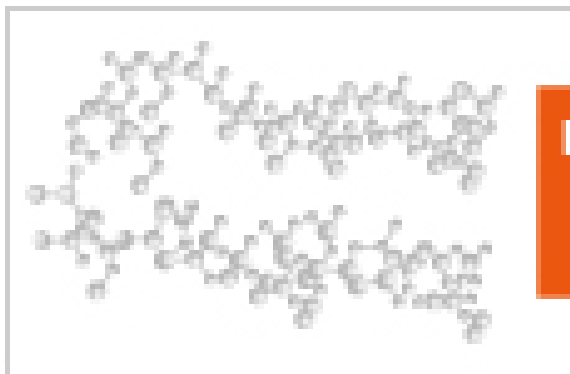
- a) Definitions
- b) Amino acids for cardiovascular health
- c) Nitric oxide production



WHAT IS AN AMINO ACID?

- Building blocks of protein
- Basis of all life, essential to all metabolic processes

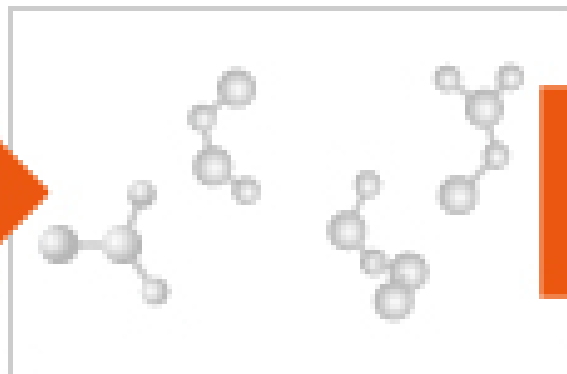
Proteins



Digested in the
stomach or
duodenum

Made up of several tens to several tens of thousands of amino acids. Takes 3 to 4 hours to absorb in the body.

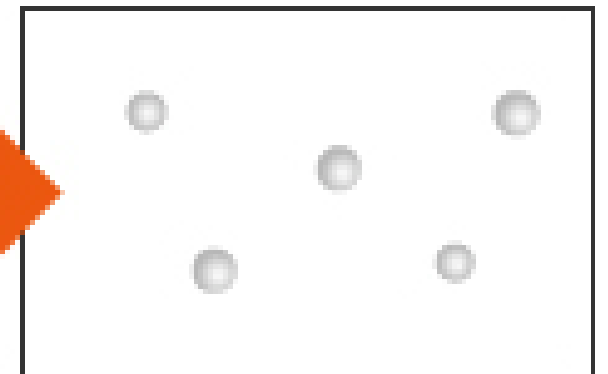
Peptides



Digested in the
small intestine

Chains of several to several thousand amino acids. Requires digestive enzymes to be digested.

Amino Acids



Smallest constituent of protein and does not need to be further digested. Rapidly absorbed in about 30 minutes and easy on the body.



BRANCHED-CHAIN AMINO ACIDS SUPPLEMENTATION AND POST-EXERCISE RECOVERY: AN OVERVIEW OF SYSTEMATIC REVIEWS

Date & Journal: Journal of American Nutrition Association. 2024 May-Jun.

Abstract

Objective: This overview of systematic reviews (OoSRs) aimed, firstly, to systematically review, summarize, and appraise the findings of published systematic reviews with or without meta-analyses that investigate the effects of branched-chain amino acids (BCAA) on post-exercise recovery of muscle damage biomarkers, muscle soreness, and muscle performance. The secondary objective was to re-analyze and standardize the results of meta-analyses using the random-effects Hartung-Knapp-Sidik-Jonkman (HKSJ) method.

Results: Eleven systematic reviews (seven with meta-analyses) of individual studies were included. Evidence suggests BCAA ingestion attenuates creatine kinase (CK) levels (medium effects) and muscle soreness (small effects) immediately post-exercise and accelerates their recovery process, with trivial-to-large effects for CK levels and small-to-large effects for muscle soreness. BCAA supplementation has no effect on lactate dehydrogenase, myoglobin, and muscle performance recovery. The re-analyses with HKSJ method using the original data reported a slight change in results significance, concluding the same evidence as the original results. The major flaws found in the analyzed reviews were the absence of justification for excluding studies, and the lack of provision of sources of funding for primary studies and sources of conflict of interest and/or funding description.

Conclusions: BCAA supplementation is an effective method to reduce post-exercise muscle damage biomarkers, particularly CK levels, and muscle soreness, with no effect on muscle performance. Future systematic reviews with/without meta-analyses, with greater methodological rigor, are needed.



INTERNATIONAL SOCIETY OF SPORTS NUTRITION POSITION

STAND: EFFECTS OF ESSENTIAL AMINO ACID

SUPPLEMENTATION ON EXERCISE AND PERFORMANCE

Date & Journal: Journal of the International Society of Sports Nutrition; 2023 Dec.

Abstract

Position Statement: The International Society of Sports Nutrition (ISSN) presents this position based on a critical examination of literature surrounding the effects of essential amino acid (EAA) supplementation on skeletal muscle maintenance and performance. This position stand is intended to provide a scientific foundation to athletes, dietitians, trainers, and other practitioners as to the benefits of supplemental EAA in both healthy and resistant (aging/clinical) populations. EAAs are crucial components of protein intake in humans, as the body cannot synthesize them. The daily recommended intake (DRI) for protein was established to prevent deficiencies due to inadequate EAA consumption. The following conclusions represent the official position of the Society: 1. Initial studies on EAAs' effects on skeletal muscle highlight their primary role in stimulating muscle protein synthesis (MPS) and turnover. Protein turnover is critical for replacing degraded or damaged muscle proteins, laying the metabolic foundation for enhanced functional performance. Consequently, research has shifted to examine the effects of EAA supplementation - with and without the benefits of exercise - on skeletal muscle maintenance and performance. 2. Supplementation with free-form EAAs leads to a quick rise in peripheral EAA concentrations, which in turn stimulates MPS. 3. The safe upper limit of EAA intake (amount), without inborn metabolic disease, can easily accommodate additional supplementation. 4. At rest, stimulation of MPS occurs at relatively small dosages (1.5-3.0 g) and seems to plateau at around 15-18 g. 5. The MPS stimulation by EAAs does not require non-essential amino acids. 6. Free-form EAA ingestion stimulates MPS more than an equivalent amount of intact protein. 7. Repeated EAA-induced MPS stimulation throughout the day does not diminish the anabolic effect of meal intake. 8. Although direct comparisons of various formulas have yet to be investigated, aging requires a greater proportion of leucine to overcome the reduced muscle sensitivity known as "anabolic resistance." 9. Without exercise, EAA supplementation can enhance functional outcomes in anabolic-resistant populations. 10. EAA requirements rise in the face of caloric deficits. During caloric deficit, it's essential to meet whole-body EAA requirements to preserve anabolic sensitivity in skeletal muscle.



THE EFFECT OF BRANCHED-CHAIN AMINO ACID SUPPLEMENTATION ON CANCER TREATMENT



Date & Journal: Nutritional Health. 2023 Dec

Abstract

Background: Anticancer therapies are associated with significant adverse side effects and few treatments that alleviate symptoms exist. Branched-chain amino acids (BCAAs) have been investigated as an intervention for reducing anticancer therapy side effects, although a review of the literature results has yet to be published.

Aim: The current review summarizes evidence surrounding this topic and suggests both support and caution in using BCAAs as a treatment for patients receiving anticancer therapies.

Methods: In this review, two literature searches were completed. Google Scholar, PubMed, EBSCOhost, and Cochrane databases were searched using the terms "branched-chain amino acids and cancer" and "BCAA and cancer."

Results: Two bodies of evidence emerged: One supporting beneficial effects and the other showing adverse outcomes of BCAA supplementation in patients with cancer. Evidence of benefit was a decrease in malnourishment and unintentional weight loss during and after chemotherapy. Potential harms included the idea cancer cells may utilize BCAAs as a source of energy for growth.

Conclusions: Supplementation of BCAAs in individuals with cancer should be implemented cautiously. Those who are severely malnourished due to anticancer therapy may benefit the most. BCAA supplementation may also be provided once cancer has been destroyed from the individual's body to aid with recovery.

INTERNATIONAL REGULATIONS ON AMINO ACID USE IN FOODS AND SUPPLEMENTS AND RECOMMENDATIONS TO CONTROL THEIR SAFETY BASED ON PURITY AND QUALITY

Date & Journal: J Nutr . 2020 Oct 1

Abstract

We examined international regulatory developments related to the use of proteinogenic amino acids in human nutrition and concluded that the current risk-assessment practices tend to focus exclusively on setting maximum daily limits. In this brief review we argue that controlling the standards of purity and ingredient quality are the key safety issues that should be considered during risk assessment. Moreover, if maximum intake limits on amino acids are implemented, they should be defined using a well-established rationale for the health risks associated with high intakes. This would avoid setting limits that are so low that they render the dietary supplements ineffective and which, therefore, could mislead the consumer. We further suggest that there should be greater regional concordance in how the use of amino acids as ingredients is regulated and use the capacity of industry to oversee pre-competitive issues, such as standards of purity and scientific research on the safety of generic ingredients. Our arguments are based on clinical safety scientific research and oversights of amino acid purity standards conducted in the last decade by the not-for-profit international association, the International Council on Amino Acid Science.



[Smriga M. International Regulations on Amino Acid Use in Foods and Supplements and Recommendations to Control Their Safety Based on Purity and Quality. J Nutr. 2020 Oct 1;150\(Suppl 1\):2602S-2605S. doi: 10.1093/jn/nxaa093. PMID: 33000158.](#)

THE RENAL SAFETY OF L-CARNITINE, L-ARGININE, AND GLUTAMINE IN ATHLETES AND BODYBUILDERS

Date & Journal: J Ren Nutr . 2019 May

Abstract

One of the major concerns about taking amino acid supplements is their potential adverse effects on the kidney as a major organ involved in the metabolism and excretion of exogenous substances. The aim of this study is to review available data about renal safety of the most prominent amino acid supplements including L-arginine, glutamine and also L-carnitine as well as creatine (as amino acid derivatives) in athletes and bodybuilders. The literature was searched by keywords such as "L-carnitine", "L-arginine", "glutamine", and "kidney injury" in databases such as Scopus, Medline, Embase, and ISI Web of Knowledge. Articles published from 1950 to December 2017 were included. Among 3171, 5740, and 1608 records after primary search in the relevant databases, 8, 7, and 5 studies have been finally included, respectively, for L-carnitine, L-arginine, and glutamine in this review. Arginine appears to have both beneficial and detrimental effects on kidney function. However, adverse effects are unlikely to occur with the routine doses (from 3 to >100 g/day). The risks and benefits of L-carnitine on the athletes' and bodybuilders' kidney have not been evaluated yet. However, L-carnitine up to 6000 mg/day is generally considered to be a safe supplement at least in healthy adults. Both short-term (20-30 g within a few hours) and long-term (0.1 g/kg four times daily for 2 weeks) glutamine supplementation in healthy athletes were associated with no significant adverse effects, but it can cause glomerulosclerosis and serum creatinine level elevation in the setting of diabetic nephropathy. Creatine supplementation (ranged from 5 to 30 g/day) also appears to have no detrimental effects on kidney function of individuals without underlying renal diseases. More clinical data are warranted to determine the optimal daily dose and intake duration of common supplemental amino acids associated with the lowest renal adverse effects in sportsmen and sports women.



AMINO ACIDS IN INTESTINAL PHYSIOLOGY AND HEALTH

◆ Adv Exp Med Biol . 2020

Abstract:

Dietary protein digestion is an efficient process resulting in the absorption of amino acids by epithelial cells, mainly in the jejunum. Some amino acids are extensively metabolized in enterocytes supporting their high energy demand and/or production of bioactive metabolites such as glutathione or nitric oxide. In contrast, other amino acids are mainly used as building blocks for the intense protein synthesis associated with the rapid epithelium renewal and mucin production. Several amino acids have been shown to support the intestinal barrier function and the intestinal endocrine function. In addition, amino acids are metabolized by the gut microbiota that use them for their own protein synthesis and in catabolic pathways releasing in the intestinal lumen numerous metabolites such as ammonia, hydrogen sulfide, branched-chain amino acids, polyamines, phenolic and indolic compounds. Some of them (e.g. hydrogen sulfide) disrupts epithelial energy metabolism and may participate in mucosal inflammation when present in excess, while others (e.g. indole derivatives) prevent gut barrier dysfunction or regulate enteroendocrine functions. Lastly, some recent data suggest that dietary amino acids might regulate the composition of the gut microbiota, but the relevance for the intestinal health remains to be determined. In summary, amino acid utilization by epithelial cells or by intestinal bacteria appears to play a pivotal regulator role for intestinal homeostasis. Thus, adequate dietary supply of amino acids represents a key determinant of gut health and functions.



Beaumont M, Blachier F. Amino Acids in Intestinal Physiology and Health. Adv Exp Med Biol. 2020;1265:1-20. doi: 10.1007/978-3-030-45328-2_1. PMID: 32761567.

FUNCTIONAL NITRIC OXIDE NUTRITION TO COMBAT CARDIOVASCULAR DISEASE

◆ Curr Atheroscler Rep . 2018 Mar 17

Purpose: To reveal the mechanisms of nitric oxide (NO) production in humans and how lifestyle, drug therapy, and hygienic practices can decrease NO production. Furthermore, to show how functional nitric oxide nutrition can overcome these limitations to restore endogenous NO production and combat cardiovascular disease.

Findings: Research over the past decade has revealed that inorganic nitrate and nitrite found naturally in green leafy vegetables and other vegetables such as beets can provide the human body with a source of bioactive nitric oxide. NO is one of the most important molecules produced within the cardiovascular system that maintains normal blood pressure and prevents inflammation, immune dysfunction, and oxidative stress, hallmarks of cardiovascular disease. This pathway is dependent upon the amount of inorganic nitrate and nitrite in the foods we eat, the presence of oral nitrate-reducing bacteria, and sufficient stomach acid production. The concept of food being medicine and medicine being food has lost its place in the practice and implementation of modern medicine over the past century. Certain dietary patterns and specific foods are known to confer very significant protective effects for many human diseases, including cardiovascular disease, the number one killer of men and women in the developed world. However, identification of single or multiple bioactive molecules that are responsible for these effects has escaped scientists and nutritionists for many years. This review will highlight the biochemical, physiological, and epidemiological basis for functional nitric oxide nutrition that can be safely and effectively utilized in patients.



Bryan NS. Functional Nitric Oxide Nutrition to Combat Cardiovascular Disease. Curr Atheroscler Rep. 2018;20(5):21. Published 2018 Mar 17. doi:10.1007/s11883-018-0723-0

Nutritional option that I use in my practice for cardiovascular health & nitric oxide production



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ALL-NATURAL INGREDIENTS
HELPING TO AID IN ENERGY,
CARDIO, & BRAIN HEALTH



Supplement Facts

Suggested Dosage: Up to 4 capsules per day or as recommended by your healthcare provider.

Servings per container: 30
Serving Size: 4 capsules

Ingredient	Amount Per Serving	% Daily Value
Vitamin C (Ascorbic Acid)	100mg	167%
Vitamin B1 Thiamine	20 mg	1333%
Vitamin B2 Riboflavin	40 mg	1765%
Vitamin B3 Niacinimide	65 mg	325%
Pantothenic Acid	10 mg	100%
Vitamin B6 Pyridoxine HCL	20 mg	1000%
Folic Acid	400 mcg	100%

A proprietary blend of 3955 mg total of the following ingredients: L-Arginine; L-Taurine, L-Lysine, L-Glutamine; L-Leucine; L-Isoleucine; L-Valine; Green tea leaf extract (Camelia sinensis); Organic American Ginseng (Panax ginseng); Organic Maca Root Powder (Lipidium Meyenii); L-Phenylalanine; N-Acetyl Tyrosine; L-Phenylethylamine; Caffeine from Coffee Bean (natural source) 150mg. Made with organic ingredients when possible. Other ingredients: Vegetable capsule.

Distributed by:
Organicc's Absolutely Pure, LLC
Laguna Hills, CA. 92653
(949) 707-5785
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ALL-NATURAL INGREDIENTS
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CARDIO, & BRAIN HEALTH



120
VEGGIE
CAPSULES



"A dietary supplement"

Supplement Facts

Suggested Dosage: Up to 4 capsules
per day or as recommended by your
healthcare provider.

Servings per container: 30
Serving Size: 4 capsules

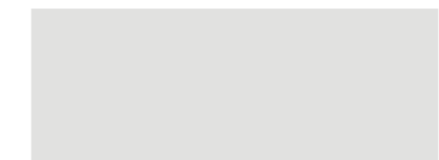
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Vitamin B2 Riboflavin	40 mg	1765%
Vitamin B3 Niacinimide	65 mg	325%
Pantothenic Acid	10 mg	100%
Vitamin B6 Pyridoxine HCL	20 mg	1000%
Folic Acid	400 mcg	100%

A proprietary blend of 2225 mg total of the following ingredients: L-Arginine; L-Taurine, L-Lysine, L-Glutamine; L-Leucine; L-Isoleucine; L-Valine; Korean Ginseng (Panax ginseng); Eleutherococcus Senticosus; Maca Root extract; L-Phenylalanine; L-Tyrosine; Phenylethylamine. Made with organic ingredients when possible.
Other ingredients: HPMC vegetable capsule.

Distributed by:
Organiccs Absolutely Pure, LLC
Laguna Hills, CA. 92653
(949) 707-5785
USP Inc. Facility Code 20181

Lot:

Exp:



Manufactured by PHS Oxnard CA

II. BASIC SCIENCE (NUTRITION)

D. IMMUNE SYSTEM RESEARCH

- a) Recent studies from the NIH/PubMed
- b) Nutritional options
- c) Objective nutritional questionnaire

E. WATER

- a) Molecular hydrogen, constipation, ionization
- b) Filtration and nutritional benefits
- c) Water pH & safety

F. EVIDENCE BASED DIET RELATED RESEARCH

- a) Intermittent Fasting
- b) Ketogenic Diet
- c) Plant Based Nutrition



IMMUNOMODULATORY NATURAL PRODUCTS IN CANCER

ORGANOID-IMMUNE CO-CULTURES: BRIDGING THE RESEARCH

GAP FOR PRECISION IMMUNOTHERAPY

Date & Journal: International Journal of Molecular Science. 2025 Jul 26.

Abstract

Natural products demonstrate potent immunomodulatory properties through checkpoint modulation, macrophage polarization, and T cell/natural killer (NK) cell activation. While cancer organoid-immune co-culture platforms enable physiologically relevant modeling of tumor-immune interactions, systematic investigation of natural product immunomodulation in these systems remains entirely unexplored. We conducted a comprehensive literature analysis examining natural products tested in cancer organoids, immunomodulatory mechanisms from traditional models, technical advances in organoid-immune co-cultures, and standardization requirements for clinical translation. Our analysis reveals a critical research gap: no published studies have investigated natural product-mediated immunomodulation using organoid-immune co-culture systems. Even though compounds like curcumin, resveratrol, and medicinal mushroom polysaccharides show extensive immunomodulatory effects in two-dimensional (2D) cultures, and organoid technology achieves high clinical correlation for drug response prediction, all existing organoid studies focus exclusively on direct cytotoxicity. Technical challenges include compound stability, limited matrix penetration requiring substantially higher concentrations than 2D cultures, and maintaining functional immune populations in three-dimensional (3D) systems. The convergence of validated organoid-immune co-culture platforms, FDA regulatory support through the Modernization Act 2.0, and extensive natural product knowledge creates unprecedented opportunities. Priority research directions include systematic screening of immunomodulatory natural products in organoid-immune co-cultures, development of 3D-optimized delivery systems, and clinical validation trials. Success requires moving beyond cytotoxicity-focused studies to investigate immunomodulatory mechanisms in physiologically relevant 3D systems, potentially unlocking new precision cancer immunotherapy approaches.



INHERITED STRUCTURE PROPERTIES OF LARCH ARABINOGALACTAN AFFECTED VIA THE TEMPO/NaBr/NaOCl OXIDATIVE SYSTEM

Date & Journal: Polymers (Basel). 2024 May 22

Abstract

Arabinogalactan (AG), extracted from larch wood, is a β -1,3-galactan backbone and β -1,6-galactan side chains with attached α -1-arabinofuranosyl and β -1-arabinopyranosyl residues. Although the structural characteristics of arabinogalactan II type have already been studied, its functionalization using 2,2,6,6-tetramethylpiperidin-1-oxyl (TEMPO) oxidation remains a promising avenue. In this study, the oxidation of AG, a neutral polysaccharide, was carried out using the TEMPO/NaBr/NaOCl system, resulting in polyuronides with improved functional properties. The oxidation of AG was controlled by analyzing portions of the reaction mixture using spectrophotometric and titration methods. To determine the effect of the TEMPO/NaBr/NaOCl system, air-dried samples of native and oxidized AG were studied by Fourier-transform infrared (FTIR) and nuclear magnetic resonance (NMR) spectroscopy, as well as by gel permeation chromatography. Compounds that model free (1,1-diphenyl-2-picrylhydrazyl (DPPH)) and hydroxyl radicals (iron(II) sulfate, hydrogen peroxide, and salicylic acid) were used to study the antioxidant properties. It was found that, in oxidized forms of AG, the content of carboxyl groups increases by 0.61 mmol compared to native AG. The transformation of oxidized AG into the H^+ form using a strong acid cation exchanger leads to an increase in the number of active carboxyl groups to 0.76 mmol. Using FTIR spectroscopy, characteristic absorption bands (1742, 1639, and 1403 cm^{-1}) were established, indicating the occurrence of oxidative processes with a subsequent reduction in the carboxyl group. The functionality of AG was also confirmed by gel permeation chromatography (GPC), which is reflected in an increase in molecular weights (up to $15,700\text{ g/mol}$). A study of the antioxidant properties of the oxidized and protonated forms of AG show that the obtained antioxidant activity (AOA) values are generally characteristic of polyuronic acids. Therefore, the TEMPO oxidation of AG and other neutral polysaccharides can be considered a promising approach for obtaining compounds with the necessary controlled characteristics.



RESEARCH PROGRESS ON STRUCTURES, ACTIVITIES, AND BIOSYNTHESIS OF BLAZEISPIROL COMPOUNDS FROM AGARICUS BLAZEI

Date & Journal: Zhongguo Zhong Yao Za Zhi. 2024 Mar

Abstract

Agaricus blazei is a rare medicinal and edible fungus with a crispy taste and delicious flavor. Both fruiting body and mycelium are rich in polysaccharides, sterols, terpenoids, peptides, lipids, polyphenols, and other active ingredients, which have strong pharmacological activities such as anti-tumor, lipid-lowering, glucose-lowering, immunomodulation, optimization of intestinal flora, and anti-oxidation. Therefore, it is a kind of fungal resource with a great prospect of edible and medicinal development. Among the reported chemical components of *A. blazei*, blazeispirol is a series of sterol compounds unique to *A. blazei*, which has a spiral structure and is different from classical steroids. It is an important active ingredient found in the mycelium of *A. blazei* and has significant hepatoprotective activity. It can be used as a phylogenetic and chemotaxonomic marker of *A. blazei* strains and is considered an excellent lead compound for drug development. According to the skeleton structure characteristics, the 17 discovered blazeispirol compounds can be divided into two types: blazeispirane and problazeispirane. In order to further explore the resource of blazeispirol compounds of *A. blazei*, the discovery, isolation, structure, biological activity, and biosynthetic pathways of blazeispirol compounds of *A. blazei* were systematically reviewed. Besides, the metabolic regulation strategies related to the fermentation synthesis of blazeispirol A by *A. blazei* were discussed. This review could provide a reference for the efficient synthesis and development of blazeispirol compounds, the research and development of related drugs and functional foods, and the quality improvement of *A. blazei* and other medicinal and edible fungi resources and derivatives.



ANDROGRAPHIS PANICULATA AND ANDROGRAPHOLIDE - A SNAPSHOT ON RECENT ADVANCES IN NANO DRUG DELIVERY SYSTEMS AGAINST CANCER

Date & Journal: Curr Drug Deliv. 2024



Abstract

Cancer is one of the deadliest illnesses of the 21st century. Chemotherapy and radiation therapies both have considerable side effects. Antitumor antibiotics are one of them. Coughs, common colds, fevers, laryngitis, and infectious disorders have all been treated with *Andrographis paniculata* for centuries. Extracts of *Andrographis* effectively treat various ailments, as well as cancer. The most active molecule in *Andrographis paniculata* is andrographolide a, diterpene, and lactone. *Andrographis paniculata* and its derivatives have long been used to treat various ailments. Anti-inflammatory and cancerfighting characteristics have been observed in Andrographolide. Andrographolide, a diterpene lactone separated from *Andrographis paniculata*, has also been shown to have important criticalessential biological protective properties. It has also been suggested that it could be used to treat major human diseases like-rheumatoid like rheumatoid, colitis, and Parkinsons disease. This summary aims to highlight Andrographolide as a promising cancer treatment option. Several databases were searched for andrographolides cytotoxic/anti-cancer effects in pre-clinical and clinical research to serve this purpose. Several studies have shown that Andrographolide is helpful in cancer medication, as detailed in this review.

ADVANCES IN RESEARCH ON THE ANTI-TUMOR MECHANISM OF ASTRAGALUS POLYSACCHARIDES

Date & Journal: Frontiers in Oncology, 2024.

Abstract

The dry root of the soybean plant *Astragalus membranaceus* (Fisch) Bge. var. *mongholicus* (Bge) Hsiao or *A. membranaceus* (Fisch) Bge, Astragali Radix (AR) has a long medicinal history. *Astragalus* polysaccharide (APS), the natural macromolecule that exhibits immune regulatory, anti-inflammatory, anti-tumor, and other pharmacological activities, is an important active ingredient extracted from AR. Recently, APS has been increasingly used in cancer therapy owing to its anti-tumor ability as it prevents the progression of prostate, liver, cervical, ovarian, and non-small-cell lung cancer by suppressing tumor cell growth and invasion and enhancing apoptosis. In addition, APS enhances the sensitivity of tumors to antineoplastic agents and improves the body's immunity. This macromolecule has prospects for broad application in tumor therapy through various pathways. In this article, we present the latest progress in the research on the anti-tumor effects of APS and its underlying mechanisms, aiming to provide novel theoretical support and reference for its use in cancer therapy.



THE POTENTIAL USE OF VITAMIN D3 AND PHYTOCHEMICALS FOR THEIR ANTI-AGEING EFFECTS

Date & Journal: International Journal of Molecular Sciences, 2024.

Abstract

Unlike other vitamins, vitamin D3 is synthesised in skin cells in the body. Vitamin D3 has been known as a bone-related hormone. Recently, however, it has been considered as an immune vitamin. Vitamin D3 deficiency influences the onset of a variety of diseases. Vitamin D3 regulates the production of proinflammatory cytokines such as tumour necrosis factor- α (TNF- α) through binding to vitamin D receptors (VDRs) in immune cells. Since blood levels of vitamin D3 (25-OH-D3) were low in coronavirus disease 2019 (COVID-19) patients, there has been growing interest in the importance of vitamin D3 to maintaining a healthy condition. On the other hand, phytochemicals are compounds derived from plants with over 7000 varieties and have various biological activities. They mainly have health-promoting effects and are classified as terpenoids, carotenoids, flavonoids, etc. Flavonoids are known as the anti-inflammatory compounds that control TNF- α production. Chronic inflammation is induced by the continuous production of TNF- α and is the fundamental cause of diseases like obesity, dyslipidaemia, diabetes, heart and brain diseases, autoimmune diseases, Alzheimer's disease, and cancer. In addition, the ageing process is induced by chronic inflammation. This review explains the cooperative effects of vitamin D3 and phytochemicals in the suppression of inflammatory responses, how it balances the natural immune response, and its link to anti-ageing effects. In addition, vitamin D3 and phytochemicals synergistically contribute to anti-ageing by working with ageing-related genes. Furthermore, prevention of ageing processes induced by the chronic inflammation requires the maintenance of healthy gut microbiota, which is related to daily dietary habits. In this regard, supplementation of vitamin D3 and phytochemicals plays an important role. Recently, the association of the prevention of the non-disease condition called "ME-BYO" with the maintenance of a healthy condition has been an attractive regimen, and the anti-ageing effect discussed here is important for a healthy and long life.



VITAMIN D: A MASTER EXAMPLE OF NUTRIGENOMICS

Date & Journal: Redox Biology. 2023 Jun.

Abstract

Nutrigenomics attempts to characterize and integrate the relation between dietary molecules and gene expression on a genome-wide level. One of the biologically active nutritional compounds is vitamin D₃, which activates via its metabolite 1 α ,25-dihydroxyvitamin D₃ (1,25(OH)₂D₃) the nuclear receptor VDR (vitamin D receptor). Vitamin D₃ can be synthesized endogenously in our skin, but since we spend long times indoors and often live at higher latitudes where for many winter months UV-B radiation is too low, it became a true vitamin. The ligand-inducible transcription factor VDR is expressed in the majority of human tissues and cell types, where it modulates the epigenome at thousands of genomic sites. In a tissue-specific fashion this results in the up- and downregulation of primary vitamin D target genes, some of which are involved in attenuating oxidative stress. Vitamin D affects a wide range of physiological functions including the control of metabolism, bone formation and immunity. In this review, we will discuss how the epigenome- and transcriptome-wide effects of 1,25(OH)₂D₃ and its receptor VDR serve as a master example in nutrigenomics. In this context, we will outline the basis of a mechanistic understanding for personalized nutrition with vitamin D₃.





GUIDELINES FOR PREVENTING AND TREATING VITAMIN D DEFICIENCY: A 2023 UPDATE IN POLAND

Date & Journal: Nutrients. 2023 Jan 30

Abstract

Introduction: All epidemiological studies suggest that vitamin D deficiency is prevalent among the Polish general population. Since vitamin D deficiency was shown to be among the risk factors for many diseases and for all-cause mortality, concern about this problem led us to update the previous Polish recommendations.

Methods: After reviewing the epidemiological evidence, case-control studies and randomized control trials (RCTs), a Polish multidisciplinary group formulated questions on the recommendations for prophylaxis and treatment of vitamin D deficiency both for the general population and for the risk groups of patients. The scientific evidence of pleiotropic effects of vitamin D as well as the results of panelists' voting were reviewed and discussed. Thirty-four authors representing different areas of expertise prepared position statements. The consensus group, representing eight Polish/international medical societies and eight national specialist consultants, prepared the final Polish recommendations.

Results: Based on networking discussions, the ranges of total serum 25-hydroxyvitamin D concentration indicating vitamin D deficiency, suboptimal status, and optimal concentration were confirmed. Practical guidelines for cholecalciferol (vitamin D₃) as the first choice for prophylaxis and treatment of vitamin D deficiency were developed. Calcifediol dosing as the second choice for preventing and treating vitamin D deficiency was introduced.

Conclusions: Improving the vitamin D status of the general population and treatment of risk groups of patients must be again announced as healthcare policy to reduce a risk of spectrum of diseases. This paper offers consensus statements on prophylaxis and treatment strategies for vitamin D deficiency in Poland.

ZINC IN CANCER THERAPY REVISITED

Date & Journal: Isr Med Assoc J . 2022 Apr

Abstract

Zinc is a trace element, which is abundant in nature. It is also an essential and important micronutrient found in many foods. It has a role in multiple bodily processes including wound healing and boosting of the immune system. This review shows evidence of zinc deficiency in cancer patients of all types, a deficiency that correlates with disease severity and negatively correlates with survival rates. Lower zinc levels led to more severe and advanced disease symptoms and to lower survival rates. Zinc is a nanoparticle and acts as a photosensitizer in photodynamic therapy in various combinations with other substances. It also shows incredible cytotoxicity and tumor suppressive ability in studies conducted both in vitro and in vivo as well as in studies conducted in humans. This result is shown in all types of cancer tested. Zinc shows incredible toxicity toward cancer cells without showing any side effects toward healthy cells. It is recommended that zinc be added to cancer treatment regimens to alleviate zinc deficiency in cancer patients and perhaps to treat cancer as a whole. 

Gelbard A. Zinc in Cancer Therapy Revisited. Isr Med Assoc J. 2022 Apr;24(4):258-262. PMID: 35415986.

HOST AND VIRAL ZINC-FINGER PROTEINS IN COVID-19

Date & Journal: Int J Mol Sci . 2022 Mar 28.

Abstract

An unprecedented effort to tackle the ongoing COVID-19 pandemic has characterized the activity of the global scientific community over the last two years. Hundreds of published studies have focused on the comprehension of the immune response to the virus and on the definition of the functional role of SARS-CoV-2 proteins. Proteins containing zinc fingers, both belonging to SARS-CoV-2 or to the host, play critical roles in COVID-19 participating in antiviral defenses and regulation of viral life cycle. Differentially expressed zinc finger proteins and their distinct activities could thus be important in determining the severity of the disease and represent important targets for drug development. Therefore, we here review the mechanisms of action of host and viral zinc finger proteins in COVID-19 as a contribution to the comprehension of the disease and also highlight strategies for therapeutic developments.

Esposito S, D'Abrosca G, Antolak A, Pedone PV, Isernia C, Malgieri G. Host and Viral Zinc-Finger Proteins in COVID-19. Int J Mol Sci. 2022 Mar 28;23(7):3711. doi: 10.3390/ijms23073711. PMID: 35409070; PMCID: PMC8998646.



OLIVE LEAF EXTRACT SUPPLEMENTATION COMBINED WITH CALORIE-RESTRICTED DIET ON REDUCING BODY WEIGHT AND FAT MASS IN OBESE WOMEN: RESULT OF A RANDOMIZED CONTROL TRIAL

Date & Journal: Clinical Nutritional Research . 2021 Oct 31.

Abstract

The present trial aims to evaluate a supplementation of the olive leaf extract (OLE) in adjunct with a weight loss diet on anthropometric indices, glycemic indices, lipid profile, as well as the level of adipokines, and free fatty acid in obese women. We carried out an 8-week randomized, placebo-controlled, double-blind, parallel-group, clinical trial. The participants were randomly stratified according to age and they were assigned to one of the two study groups: Standard weight loss diet (estimated daily energy requirements minus 500 kcal) + OLE supplementation (n = 35) in intervention group or Standard weight loss diet (estimated daily energy requirements minus 500 kcal) + placebo (n = 35) in placebo group. The study groups were homogeneous regarding the baseline age, height, weight, body mass index (BMI), waist circumferences, married status, and physical activity levels ($p > 0.05$). The results of analysis of covariance presented significant decreases in BMI, fat mass, and body weight in the OLE group compared to those in the placebo group ($p < 0.05$). At the end of the study, the serum levels of fasting blood sugar, insulin, low-density lipoprotein cholesterol, total cholesterol, leptin, fatty free acid, and homeostasis model assessment-insulin resistance significantly decreased, and serum levels of high-density lipoprotein cholesterol and adiponectin elevated in the intervention group ($p < 0.05$). Based on results it seems that the addition of OLE to a hypocaloric diet for 8-week compared with a hypocaloric diet alone may be more effective in modifying obesity and metabolic risk factors.



OLIVE LEAF EXTRACT SUPPLEMENTATION IMPROVES THE VASCULAR AND METABOLIC ALTERATIONS ASSOCIATED WITH AGING IN WISTAR RATS

Date & Journal: Sci Rep . 2021 Apr 14.

Abstract

Olive leaves are rich in bioactive substances which exert anti-inflammatory, antioxidant, insulin-sensitizing and antihypertensive effects. The aim of this study was to analyze the possible beneficial effects of an olive leaf extract (OLE) rich in secoiridoids and phenolic compounds on the aging-induced metabolic and vascular alterations. Three experimental groups of rats were used: 3-month-old rats, 24-month-old rats and 24-month-old rats supplemented 21 days with OLE (100 mg/kg). Administration of OLE to aged rats decreased the weight of adrenal glands and prevented the aging-induced loss of body weight and muscle mass. In the serum, OLE reduced the circulating levels of LDL-cholesterol and IL-6 and increased the concentrations of leptin and adiponectin. In the liver OLE attenuated the decreased gene expression of SOD-1, GSR, GCK and GSK-3 β and reduced the aging-induced overexpression of NOX-4, Alox-5, iNOS and TNF- α . In aorta segments, OLE prevented endothelial dysfunction and vascular insulin resistance and improved vasoconstriction in response to KCl and NA. Improvement in vascular function was associated with the attenuation of the alterations in the gene expression of COX-2, IL-6, GPx, NOX-1 and IL-10. In conclusion, OLE exerts anti-inflammatory and antioxidant effects in aged rats and attenuates the alterations in vascular function associated with aging.



SELENIUM AND AUTOIMMUNE DISEASES: A REVIEW ARTICLE

◆ Curr Rheumatol Rev . 2019

Abstract

Background: Selenium is an essential trace element with fundamental effects on human biology. Trace elements deficiency is not an uncommon finding in autoimmune diseases. This deficiency may be a consequence of autoimmune diseases or may contribute to their etiology. With regard to evidence showing the association between selenium deficiency and generation of reactive oxygen species and subsequent inflammation, reviewing the role of selenium in collagen vascular diseases could help researchers to devise strategies for managing these diseases.

Objective: The present study aimed to evaluate the role of selenium and autoimmune rheumatic diseases.

Study eligibility criteria: All the studies on the use of selenium without any limitations in terms of the preparation method, administration route, or formulation process were included in the study. The exclusion criteria were: 1) Articles published in languages other than English, 2) Administration of chemical and hormonal drugs rather than selenium, 3) Investigation of the effects of selenium on the autoimmune problems in animal models, and 4) Insufficiency of the presented data or poor description of the applied methods. Furthermore, review articles, meta-analyses, expert opinions, editorial letters, case reports, consensus statements, and qualitative studies were excluded from the study.



Sahebari M, Rezaieyazdi Z, Khodashahi M. Selenium and Autoimmune Diseases:A Review Article. Curr Rheumatol Rev. 2019;15(2):123-134. doi:10.2174/1573397114666181016112342

DOES LARCH ARABINOGALACTAN ENHANCE IMMUNE FUNCTION? A REVIEW OF MECHANISTIC AND CLINICAL TRIALS

◆ Nutr Metab (Lond). 2016 April.

Abstract

The common cold is a viral infection with important economic burdens in Western countries. The research and development of nutritional solutions to reduce the incidence and severity of colds today is a major focus of interest, and larch arabinogalactan seems to be a promising supportive agent. Arabinogalactan has been consumed by humans for thousands of years and is found in a variety of common vegetables as well as in medicinal herbs. The major commercial sources of this long, densely branched, high-molecular-weight polysaccharide are North American larch trees. The aim of this article is to review the immunomodulatory effects of larch arabinogalactan derived from *Larix laricina* and *Larix occidentalis* (North American *Larix* species) and more specifically its role in the resistance to common cold infections. In cell and animal models, larch arabinogalactan is capable of enhancing natural killer cells and macrophages as well as the secretion of pro-inflammatory cytokines. In humans a clinical study demonstrated that larch arabinogalactan increased the body's potential to defend against common cold infection. Larch arabinogalactan decreased the incidence of cold episodes by 23 %. Improvements of serum antigen-specific IgG and IgE response to *Streptococcus pneumoniae* and tetanus vaccination suggesting a B cell dependent mechanism have been reported in vaccination studies with larch arabinogalactan, while the absence of response following influenza vaccination suggests the involvement of a T cell dependent mechanism. These observations suggest a role for larch arabinogalactan in the improvement of cold infections, although the mode of action remains to be further explored.



EFFECT OF MUSHROOM AGARICUS BLAZEI ON IMMUNE RESPONSE AND DEVELOPMENT OF EXPERIMENTAL CEREBRAL MALARIA



Malar J. 2015 Aug 11.

Background: Cerebral malaria (CM) is debilitating and sometimes fatal. Disease severity has been associated with poor treatment access, therapeutic complexity and drug resistance and, thus, alternative therapies are increasingly necessary. In this study, the effect of the administration of *Agaricus blazei*, a mushroom of Brazilian origin in a model of CM caused by *Plasmodium berghei*, strain ANKA, was investigated in mice.

Results: Mice treated with *A. blazei* aqueous extract or fraction C, that shows antioxidant activity, displayed lower parasitaemia, increased survival, reduced weight loss and protection against the development of CM. The administration of *A. blazei* resulted in reduced levels of TNF, IL-1 β and IL-6 production when compared to untreated *P. berghei*-infected mice. *Agaricus blazei* (aqueous extract or fraction C) treated infected mice displayed reduction of brain lesions. Although chloroquine treatment reduced parasitaemia, there was increased production of proinflammatory cytokines and damage in the CNS not observed with *A. blazei* treatment. Moreover, the in vitro pretreatment of infected erythrocytes followed by in vivo infection resulted in lower parasitaemia, increased survival, and little evidence of clinical signs of disease.

Conclusions: This study strongly suggests that the administration of *A. blazei* (aqueous extract or fraction C) was effective in improving the consequences of CM in mice and may provide novel therapeutic strategies.



THE EFFECT OF OLIVE LEAF EXTRACT ON UPPER RESPIRATORY ILLNESS IN HIGH SCHOOL ATHLETES: A RANDOMIZED CONTROL TRIAL

◆ Nutrients. 2019 Feb 9.

Abstract

Upper respiratory illness (URI) has a major impact on both training and competition in an athletic setting. High school athletes are a sub-category who have reported higher illness rates than professional and sub-elite high school athletes of the same sport. Olive leaf extract (OLE) is an over-the-counter supplement that contains polyphenols, notably oleuropein and hydroxytyrosol, that have antiviral, antibacterial, anti-inflammatory and antioxidant properties that may reduce URI rates. Thirty-two high school students who play sport for the elite team at their school were recruited to a randomised controlled trial and allocated to a daily placebo or OLE (extent equivalent to 20 g of olive leaf, containing 100 mg oleuropein) supplementation for nine weeks during their competitive season. Twice weekly measures of wellbeing, training load and respiratory illness (sporting upper respiratory illness (SUPPRESS) questionnaire) were recorded at trainings, meetings or games. There was no significant difference in illness incidence (odds ratio (OR): 1.02 (95% confidence interval (CI) 0.21-4.44)), but there was a significant 28% reduction in sick days (OR: 0.72 (95% CI 0.56-0.93) p-value = 0.02) when supplemented with OLE. The dietary intakes of the athletes were sub-optimal with regard to immune support. OLE supplementation over a season did not significantly reduce URI incidence, but did decrease duration in high school athletes, potentially aiding return to play.



VITAMIN C AND SARS CORONAVIRUS

◆ J Antimicrob Chemother. 2003 Dec.

Sir,

Recently, a new coronavirus was identified as the cause of the severe acute respiratory syndrome (SARS).¹ In the absence of a specific treatment for SARS, the possibility that vitamin C may show non-specific effects on severe viral respiratory tract infections should be considered. There are numerous reports indicating that vitamin C may affect the immune system,^{2,3} for example the function of phagocytes, transformation of T lymphocytes and production of interferon. In particular, vitamin C increased the resistance of chick embryo tracheal organ cultures to infection caused by an avian coronavirus.⁴ Studies in animals found that vitamin C modifies susceptibility to various bacterial and viral infections,³ for example protecting broiler chicks against an avian coronavirus.⁵ Placebo-controlled trials have shown quite consistently that the duration and severity of common cold episodes are reduced in the vitamin C groups,³ indicating that viral respiratory infections in humans are affected by vitamin C levels. There is also evidence indicating that vitamin C may affect pneumonia.³ In particular, three controlled trials with human subjects reported a significantly lower incidence of pneumonia in vitamin C-supplemented groups,⁶ suggesting that vitamin C may affect susceptibility to lower respiratory tract infections under certain conditions. The possibility that vitamin C affects severe viral respiratory tract infections would seem to warrant further study, especially in light of the recent SARS epidemic.



[Hemilä H. Vitamin C and SARS coronavirus. J Antimicrob Chemother. 2003;52\(6\):1049-1050.
doi:10.1093/jac/dkh002](#)

VITAMIN C AND IMMUNE FUNCTION

Published: *Nutrients*. Nov. 2017

Abstract

Vitamin C is an essential micronutrient for humans, with pleiotropic functions related to its ability to donate electrons. It is a potent antioxidant and a cofactor for a family of biosynthetic and gene regulatory enzymes. Vitamin C contributes to immune defense by supporting various cellular functions of both the innate and adaptive immune system. Vitamin C supports epithelial barrier function against pathogens and promotes the oxidant scavenging activity of the skin, thereby potentially protecting against environmental oxidative stress. Vitamin C accumulates in phagocytic cells, such as neutrophils, and can enhance chemotaxis, phagocytosis, generation of reactive oxygen species, and ultimately microbial killing. It is also needed for apoptosis and clearance of the spent neutrophils from sites of infection by macrophages, thereby decreasing necrosis/NETosis and potential tissue damage. The role of vitamin C in lymphocytes is less clear, but it has been shown to enhance differentiation and proliferation of B- and T-cells, likely due to its gene regulating effects. Vitamin C deficiency results in impaired immunity and higher susceptibility to infections. In turn, infections significantly impact on vitamin C levels due to enhanced inflammation and metabolic requirements. Furthermore, supplementation with vitamin C appears to be able to both prevent and treat respiratory and systemic infections. Prophylactic prevention of infection requires dietary vitamin C intakes that provide at least adequate, if not saturating plasma levels (i.e., 100-200 mg/day), which optimize cell and tissue levels. In contrast, treatment of established infections requires significantly higher (gram) doses of the vitamin to compensate for the increased inflammatory response and metabolic demand.



Carr AC, Maggini S. Vitamin C and Immune Function. *Nutrients*. 2017;9(11):1211. Published 2017 Nov 3. doi:10.3390/nu9111211

ZINC AND IMMUNITY: AN ESSENTIAL INTERRELATION

Published: Arch Biochem Biophys . 2016 Dec.

Abstract

The significance of the essential trace element zinc for immune function has been known for several decades. Zinc deficiency affects immune cells, resulting in altered host defense, increased risk of inflammation, and even death. The micronutrient zinc is important for maintenance and development of immune cells of both the innate and adaptive immune system. A disrupted zinc homeostasis affects these cells, leading to impaired formation, activation, and maturation of lymphocytes, disturbed intercellular communication via cytokines, and weakened innate host defense via phagocytosis and oxidative burst. This review outlines the connection between zinc and immunity by giving a survey on the major roles of zinc in immune cell function, and their potential consequences in vivo.



[Maares M, Haase H. Zinc and immunity: An essential interrelation. Arch Biochem Biophys. 2016;611:58-65. doi:10.1016/j.abb.2016.03.022](#)

ZINC AS A GATEKEEPER OF IMMUNE FUNCTION

Published: *Nutrients* . 2017 Nov 25

Abstract

After the discovery of zinc deficiency in the 1960s, it soon became clear that zinc is essential for the function of the immune system. Zinc ions are involved in regulating intracellular signaling pathways in innate and adaptive immune cells. Zinc homeostasis is largely controlled via the expression and action of zinc "importers" (ZIP 1-14), zinc "exporters" (ZnT 1-10), and zinc-binding proteins. Anti-inflammatory and anti-oxidant properties of zinc have long been documented, however, underlying mechanisms are still not entirely clear. Here, we report molecular mechanisms underlying the development of a pro-inflammatory phenotype during zinc deficiency. Furthermore, we describe links between altered zinc homeostasis and disease development. Consequently, the benefits of zinc supplementation for a malfunctioning immune system become clear. This article will focus on underlying mechanisms responsible for the regulation of cellular signaling by alterations in zinc homeostasis. Effects of fast zinc flux, intermediate "zinc waves", and late homeostatic zinc signals will be discriminated. Description of zinc homeostasis-related effects on the activation of key signaling molecules, as well as on epigenetic modifications, are included to emphasize the role of zinc as a gatekeeper of immune function.



Wessels I, Maywald M, Rink L. Zinc as a Gatekeeper of Immune Function. *Nutrients*. 2017;9(12):1286. Published 2017 Nov 25. doi:10.3390/nu9121286

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ALL-NATURAL AID FOR
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"A dietary supplement"



Supplement Facts

Suggested Dosage: Up to 3 capsules per day or as recommended by your healthcare provider.

Servings per container: 30
Serving Size: 3 capsules

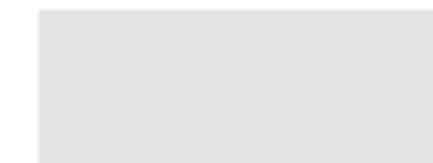
Ingredient	Amount Per Serving	% Daily Value
Vitamin B6 (as pyridoxine HCL)	50 mg	2941%
Vitamin D3 (as cholecalciferol)	5000 IU	1250%
Vitamin C (as ascorbyl palmitate)	300 mg	333%
Magnesium BisGlycinate Chelate TRAACS®	500 mg (90 mg elemental)	21%
Selenium Glycinate TRAACS®	200 mcg	1110%
Zinc Bisglycinate Chelate TRAACS®	26 mg	236%

A proprietary blend of 900 mg the following natural ingredients: Organic olive leaf powder, Organic maitake mushroom powder, Shiitake mushroom powder, Reishi mushroom powder, Agaricus blazei mushroom powder, Organic ginger root powder, Organic licorice root powder, Andrographis powder, Arabinogalactan powder, Ashwagandha powder, and Astragalus powder. Other ingredients: Silicon dioxide, Magnesium stearate, vegetable capsule. Made with organic ingredients when possible.

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RESEARCH & DEVELOPMENT



ALLEVIATION OF SHOULDER INJURY RELATED TO VACCINE ADMINISTRATION (SIRVA) PAIN AND DISABILITY FOLLOWING COVID-19 VACCINE WITH CHIROPRACTIC BIOPHYSICS® (CBP®) METHODS: A CASE REPORT AND LONG-TERM FOLLOW-UP WITH GLOBAL IMPLICATIONS

Date & Journal: J Phys Ther Sci. 2023 Dec

Abstract

[Purpose] To present the dramatic improvement in posture, radiographic parameters and the alleviation of neck and severe shoulder pain related to shoulder injury associated with vaccine administration (SIRVA) after a COVID-19 injection with a shoulder mobility and posture rehabilitation program.

[Results] At 4-months, the patient reported no neck or shoulder pain. There was a 60% decrease in neck disability. The forward head decreased 34 mm, thoracic hyperkyphosis decreased 13°, and T1-T12 forward lean decreased 73 mm, among other radiographic parameters. Re-assessment after 26-months showed maintenance of the treatment induced posture/x-ray corrections and shoulder pain relief.

[Conclusion] This case demonstrates immediate and long-term improvement in a patient suffering from COVID-19 vaccine SIRVA, concomitant with neck pain and disability as well as significant radiographic postural/spinal deformity. These conditions all improved and were maintained at a 2 year follow-up without further treatment.



REDUCTION OF THORACO-LUMBAR KYPHOSIS RESULTS IN THE ALLEVIATION OF LOW BACK PAIN IN AN ADOLESCENT BASKETBALL PLAYER: A CHIROPRACTIC BIOPHYSICS® (CBP®) CASE REPORT



Date & Journal: Journal of Physical Therapy Science; 2023 Dec.

Abstract

[Purpose] To present the case of a significant reduction in thoraco-lumbar deformity and alleviation of chronic low back pain in an otherwise healthy and active adolescent male basketball player.

[Results] There was a 12° improvement in the thoraco-lumbar deformity corresponding with the alleviation of chronic low back pains and near complete reduction in disability after 36 treatments over a 4-month period.

[Conclusion] This case adds to the growing literature showing the efficacy of the non-surgical spinal rehabilitative methods of Chiropractic Biophysics in improving spine alignment and relieving spinal pain syndromes. This case also demonstrates the importance of the routine screening for spine alignment via radiography in leading to proper biomechanical diagnosis and treatment.

TREATMENT OF COVID-19 PATIENTS WITH QUERCETIN: A PROSPECTIVE, SINGLE CENTER, RANDOMIZED, CONTROLLED TRIAL

Date & Journal: Turk J Biol . 2021 Aug 30.

Abstract

Scientific research continues on new preventive and therapeutic strategies against severe acute respiratory syndrome Coronavirus-2 (SARS-CoV-2). So far, there is no proven curative treatment, and a valid alternative therapeutic approach needs to be developed. This study is designed to evaluate the effect of quercetin in COVID-19 treatment. This was a single-centre, prospective randomized controlled cohort study. Routine care versus QCB (quercetin, vitamin C, bromelain) supplementation was compared between 429 patients with at least one chronic disease and moderate-to-severe respiratory symptoms. Demographic features, signs, laboratory results and drug administration data of patients were recorded. The endpoint was that QCB supplementation was continued throughout the follow-up period from study baseline to discharge, intubation, or death. The most common complaints at the time of hospital admission were fatigue (62.4%), cough (61.1%), anorexia (57%), thirst (53.7%), respiratory distress (51%) and chills (48.3%). The decrease in CRP and ferritin levels was higher in the QCB group (all Ps were < 0.05). In the QCB group, the increase in platelet and lymphocyte counts was higher (all Ps were < 0.05). QCB did not reduce the risk of events during follow-up. Adjustments for statistically significant parameters, including the lung stage, use of favipiravir and presence of comorbidity did not change the results. While there was no difference between the groups in terms of event frequency, the QCB group had more advanced pulmonary findings. QCB supplement is shown to have a positive effect on laboratory recovery. While there was no difference between the groups in terms of event frequency, QCB supplement group had more advanced pulmonary findings, and QCB supplement is shown to have a positive effect on laboratory recovery/results. Therefore, we conclude that further studies involving different doses and plasma level measurements are required to reveal the dose/response relationship and bioavailability of QCB for a better understanding of the role of QCB in the treatment of SARS CoV-2.



POTENTIAL OF NATURAL PRODUCTS IN THE TREATMENT OF MYOCARDIAL INFARCTION: FOCUS ON MOLECULAR MECHANISMS

Date & Journal: Crit Rev Food Sci Nutr . 2022 Jan 3.

Abstract

Although conventional drugs are widely used in the prevention and treatment of cardiovascular disease (CVD), they are being used less frequently due to concerns about possible side effects over the long term. There has been a renewed research interest in medicinal plant products, and their role in protecting the cardiovascular system and treating CVD, which are now being considered as potential alternatives to modern drugs. The most important mechanism causing damage to the myocardium after heart attack and reperfusion, is increased levels of free radicals and oxidative stress. Therefore, treatment approaches often focus on reducing free radicals or enhancing antioxidant defense mechanism. It has been previously reported that bioactive natural products can protect the heart muscle in myocardial infarction (MI). Since these compounds are readily available in fruits and vegetables, they could prevent the risk of MI if they are consumed daily. Although the benefits of a healthy diet are well known, many scientific studies have focused on whether pure natural compounds can prevent and treat MI. In this review we summarize the effects of curcumin, resveratrol, quercetin, berberine, and tanshinone on MI and CVD, and focus on their proposed molecular mechanisms of action.



Objective Nutritional / Metabolic Questionnaire

Name: _____ Date: _____

<u>Do you Eat:</u>	
Do you eat 5 or more servings of vegetables in a day?	Yes or No
Do you eat 4 or more servings of fruit in a day?	Yes or No
Do you drink more than 1 sugar sweetened beverage (sodas energy drinks, sweetened tea) in a day?	Yes or No
Do you drink more than 2 cups of coffee in a day?	Yes or No
Do you eat more than 3 servings candy, cookies, cakes, sweetened rolls in a week?	Yes or No
Do you eat bread all 7 days of the week?	Yes or No
Do you eat whole grain bread & pasta?	Yes or No
Do you eat more than 2 servings a day of packaged snack foods i.e.-potato chips, crackers, corn chips, Cheetos etc. daily?	Yes or No
Do you eat more than 2 packaged entrees and side dishes daily?	Yes or No
Do you purchase/eat regular store bought meat (not grass-fed)?	Yes or No
Do you purchase/eat farm raised fish (not wild caught)?	Yes or No
Do you eat almonds, walnuts, cashews, pistachio, macadamia, pecans more than 2 times a week?	Yes or No
Do you eat chia, flaxseed, or hempseed more than 5 times week?	Yes or No
Total Yes's :	

<u>Cooking</u>	
What oils do you cook with? ☐ olive oil ☐ coconut oil ☐ grass-fed butter ☐ corn oil ☐ sunflower oil ☐ vegetable oil	
Do you eat Yogurt?	Yes or No
Do you consume cheese or milk products?	Yes or No



Objective Nutritional / Metabolic Questionnaire

Do you cook at home more than 5 times in a week?

Yes or No

Total Yes's :

Do you feel?

Do you have muscle cramping?

Yes or No

Do you have restless leg syndrome?

Yes or No

Are you nervous or have anxiety?

Yes or No

Do you get headaches often?

Yes or No

Are you constipated frequently?

Yes or No

Do you suffer from osteoporosis or osteopenia?

Yes or No

Do you suffer from chronic pain?

Yes or No

Have you been diagnosed with an autoimmune disease?

Yes or No

Do you have muscle stiffness or pain?

Yes or No

Total Number of Yes':

Exercise

Do you exercise?

Yes or No

Do you exercise 5 days a week?

Yes or No

What types of exercises ?

Are you more of a couch potato?

Yes or No

Do you ever get sore from exercising?

Yes or No

Total Number of Yes':

Immune

Do you get a cold or the flue each season?

Yes or No

Do you believe that you have a strong immune system?

Yes or No

Do you have more than 1 bowl movement in a day?

Yes or No

Do you have allergies ?

Yes or No

Objective Nutritional / Metabolic Questionnaire

Do you get a sore throat and/or stuffy/runny nose more than once a month?	Yes or No
Do you eat dairy products – ice cream?	Yes or No
Do you eat sugar foods? i.e. candy/cakes	Yes or No
Would you like to strength your immune response?	Yes or No
Total Number of Yes':	

Cardio-Metabolic Health

Are you currently diagnosed with ?	
Cholesterol Problems?	Yes or No
High Blood Pressure	Yes or No
Diabetes ?	Yes or No
Pre-diabetes ?	Yes or No
Metabolic Syndrome?	Yes or No
Any other diagnosis please list below:	

Do you take medications for:	
Cholesterol	Yes or No
High Blood Pressure	Yes or No
Diabetes / Pre-diabetes?	Yes or No
Total Yes's :	
Please list all medications:	

Are you under the care of a physician for these conditions?
If yes, who is your physician currently managing these conditions?(Name, Address, Phone #)

Objective Nutritional / Metabolic Questionnaire

How important is it to you function at your optimum 100% health? On a scale of 1-10 (10 being ready to change today) _____

How ready are to change? On a scale of 1-10 (10 being ready to change today) _____

- _____ Your Diet
- _____ Supplementation
- _____ Consistent Chiropractic Care
- _____ Exercise

For Practitioner Use Only:

Note- Yes = 1 point No= 0 points (ex. 5 yes' = 5 points)

	Totals:	Supplement Recommendations
Do you eat?		> 5 Greens- If yes is the primary answer this shows that the diet may be a very acidic diet. To counter balance the acidity, we recommend the Greens product which is an alkaline superfood which will help improve digestion, immunity, inflammation, energy, and aiding in weight loss. Turmeric- With the increased amount of processed foods and sugary foods the body is undergoing an overwhelming amount of inflammation which could lead to pain, chronic disease, or autoimmune disease. Turmeric helps the body fight inflammation with the curcuminoids, ginger, curcumin, bromelain, and saffron. Turmeric will also help if the patient has any current pain or chronic conditions by supporting the body with an anti- inflammatory product.
Cooking		> 2 & corn oil & vegetable oil are chosen With the increase in saturated fats, eating out, and the need for energy the patient is a great candidate for the Ultra Amino Energy. Why? This supplement is full of amino acids specifically L-arginine which is a vasodilator. This is why it is great for our cardiovascular system. It is also full of B- vitamins that will supply the patients with energy & no crash. Educate patient on cooking methods to incorporate more healthy fats. Also, great to improve brain function.

Objective Nutritional / Metabolic Questionnaire

Do you feel	>1	Minerals Chelated- This formula uses chelated minerals with Albion and TRACCS (The Real Amino Acid Chelate System) a highly bioavailable and absorptive form of the minerals. This supplement is formulated with ferrous gluconate (iron) to aid with hemoglobin formation, an oxygen carrier, muscle function, and brain function. This supplement has magnesium which helps prevent muscle aches and spasms, helps increase energy, calms nerves and anxiety, aids digestion by relieving constipation, important in heart health, and helps prevent migraine headaches. These minerals are also essential in building & maintaining strong bones. Turmeric- Turmeric helps the body fight inflammation which is the underlying root of a lot of diseases. Patients who suffer from chronic pain, autoimmune disease, and muscle stiffness/pain may benefit from this supplement by adding in an anti-inflammatory product like our Turmeric product.
Exercise	>2	Turmeric- With turmeric being an anti-inflammatory supplement, it can be great for post work out inflammation and recovery/ soreness . Type One Collagen- Working out helps strengthen our muscles, tendons, and ligaments. Type One Collagen Protein is important for growth and maintenance of tendons and ligaments. It also helps with joint health and improves our muscle mass. Ultra Amino Energy- Aminos are a great aid for the cardiovascular system. By adding these into your daily supplement regiment it can be a great aid in improving stamina during a working out and provide you sustained energy throughout the day without any crash or added sugars! Minerals - Helps with cramping during and after exercise. Great for bone health to keep bones strong!
Immune	< 2	Mega Immune- This is a daily immune product that helps maintain the integrity of the immune system by a synergistic blend of ingredients. This product is a great immune support supplement to keep the immune system strong all year long.

Objective Nutritional / Metabolic Questionnaire

Cardio-Metabolic Health	> 2	ALL (Greens, Minerals, Turmeric, Type 1 Collagen Protein, & Ultra Amino Energy) SUPPLEMENTS TO SUPPORT THE BODY & CURRENT DISEASES.
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Dr. Mark Cymerint D.C. Recommendations:

For Patient: _____

Supplement Recommendations:

- ☐ Total Turmeric - _____
- ☐ Chelated Minerals - _____
- ☐ Type-1 Collagen - _____
- ☐ Ultra Amino Energy - _____
- ☐ Ultra Amino Energy (Caffeine Free) - _____
- ☐ Alkaline Greens - _____
- ☐ Mega Immune - _____

Exercise Recommendations:

Dietary Recommendations:

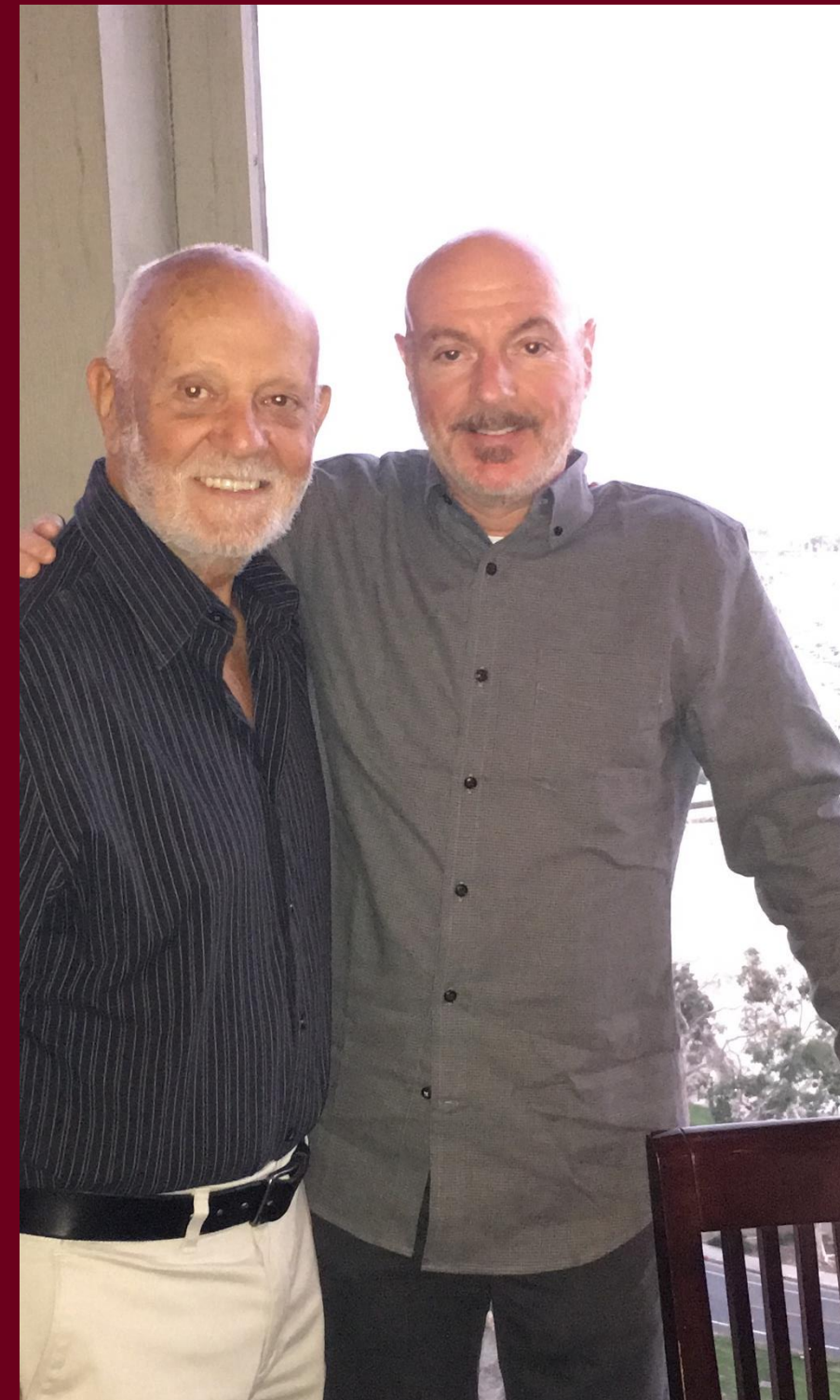
CASE REPORT



CHIROPRACTIC PATIENT JAN. 2016

- COMORBIDITIES –
HEIGHT: 5'8"
WEIGHT: 225LBS (OBESITY)
MEDS: 5 DIFFERENT CARDIOVASCULAR MEDS.
LIFESTYLE: SEDENTARY
DIET: POOR
MENTAL HEALTH: DEPRESSION

CASE REPORT



CHIROPRACTIC PATIENT DEC. 2016

- COMORBIDITIES –

HEIGHT: 5'8"

WEIGHT: 153LBS (WNL)

MEDS: REPLACED BY 6 DIETARY SUPPLEMENTS
DAILY

LIFESTYLE: ACTIVE (WALKS 3-4 MILES PER DAY)

DIET: VERY GOOD. REDUCED SUGAR, DAIRY, CARBS.

MENTAL HEALTH: STABLE AND HEALTHY

ADDITIONAL IMMUNE SYSTEM RESEARCH 2020



PLATELET-TO-LYMPHOCYTE RATIO IS ASSOCIATED WITH PROGNOSIS IN PATIENTS WITH CORONAVIRUS DISEASE-19

Published: J Med Virol . 2020 Sep

Abstract

Since December 2019, novel coronavirus infected pneumonia emerged in Wuhan city and rapidly spread throughout China. In severe novel coronavirus pneumonia cases, the number of platelets, their dynamic changes during the treatment, platelet-to-lymphocyte ratio (PLR) were a concern. We sought to describe the platelet feature of these cases. Single-center case series of the 30 hospitalized patients with confirmed coronavirus disease (COVID)-19 in Huizhou municipal central hospital from January 2020 to February 2020 were retrospectively analyzed. Demographic, clinical, blood routine results, other laboratory results, and treatment data were collected and analyzed. Outcomes of severe patients and nonsevere patients were compared. Univariate analysis showed that: age, platelet peaks, and PLR at peak platelet were the influencing factors in severe patients, multivariate analysis showed that the PLR value at peak platelet during treatment was an independent influencing factor in severe patients. The average hospitalization day of patients with platelet peaks during treatment was longer than those without platelet peaks ($P < .05$). The average age of patients with platelet peaks during treatment was older than those without platelet peaks ($P < .05$). The patients with significantly elevated platelets during treatment had longer average hospitalization days. And the higher PLR of patients during treatment had longer average hospitalization days. Single-center case series of the 30 hospitalized patients with confirmed COVID-19 in Huizhou Municipal Central Hospital, presumed that the number of platelets and their dynamic changes during the treatment may have a suggestion on the severity and prognosis of the disease. The patient with markedly elevated platelets and longer average hospitalization days may be related to the cytokine storm. The PLR of patients means the degree of cytokine storm, which might provide a new indicator in the monitoring in patients with COVID-19.



[Qu R, Ling Y, Zhang YH, et al. Platelet-to-lymphocyte ratio is associated with prognosis in patients with coronavirus disease-19 \[published online ahead of print, 2020 Mar 17\]. J Med Virol. 2020;10.1002/jmv.25767. doi:10.1002/jmv.25767](#)

GUIDE TO THE FORENSIC PATHOLOGY PRACTICE ON DEATH CASES RELATED TO CORONA VIRUS DISEASE 2019 (COVID-19)

Published Review: Fa Yi Xue Za Zhi . 2020 Feb

Abstract

Autopsy is of great significance to the elucidation of the pathological changes, pathogeneses and causes of death of corona virus disease 2019 (COVID-19) and can provide theoretical basis for more scientific and accurate prevention and control of the outbreak. Based on related laws and regulations, such as the Law of the People's Republic of China on Prevention and Control of Infectious Diseases, the clinical manifestations and epidemiological characteristics of COVID-19, and the related guidelines on the prevention and control of the outbreak, combined with the practical work of forensic pathology examination, the Guide to the Forensic Pathology Practice on Death Cases Related to Corona Virus Disease 2019 (COVID-19) (Trial Draft) has been developed. This guide includes information on the background investigation of the cases, autopsy room requirements, personal prevention and protections, external examinations, autopsy, auxiliary examinations, and so on. This guide can be used as a reference by forensic and pathological examination institutions, as well as examination staff.

Mao DM, Zhou N, Zheng D, et al. Guide to the Forensic Pathology Practice on Death Cases Related to Corona Virus Disease 2019 (COVID-19) (Trial Draft. Fa Yi Xue Za Zhi. 2020;36(1):6-5. doi:10.12116/j.issn.1004-5619.2020.01.003



REVIEW AND PROSPECT OF PATHOLOGICAL FEATURES OF CORONA VIRUS DISEASE

Published Review: Fa Yi Xue Za Zhi . 2020 Feb

Abstract

Since 2003, coronavirus has caused multiple major public health events that resulted in global epidemics, such as severe acute respiratory syndrome (SARS) , Middle East respiratory syndrome (MERS) and corona virus disease 2019 (COVID-19) . Especially since COVID-19 outbreak in Wuhan, Hubei, in December 2019, coronavirus has had a significant impact on people's health and lives. But so far, the pathological diagnosis of COVID-19 has been relatively deficient : it is still confined to the pathological findings of punctured organs, and the majority of medical workers have poor awareness of its pathological characteristics. The COVID-19, as same as SARS and MERS, is caused by coronaviruses and can cause viral pneumonia. They have certain similarities. This article comprehensively reviews the pathological features observed in the autopsies of the aforementioned three diseases, in order to provide reference to the analysis of pathological changes of COVID-19.



Wang HJ, Du SH, Yue X, Chen CX. Review and Prospect of Pathological Features of Corona Virus Disease. Fa Yi Xue Za Zhi. 2020;36(1):16-20. doi:10.12116/j.issn.1004-5619.2020.01.004

PUTATIVE ROLES OF VITAMIN D IN MODULATING IMMUNE RESPONSE AND IMMUNOPATHOLOGY ASSOCIATED WITH COVID-19



Virus Res . 2021 Jan 15

Abstract

The first incidence of COVID-19 was reported in the Wuhan city of Hubei province in China in late December 2019. Because of failure in timely closing of borders of the affected region, COVID-19 spread across like a wildfire through air travel initiating a pandemic. It is a serious lower respiratory track viral infection caused by highly contagious, severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2). Coronavirus including COVID-19 causing SARS-CoV-2 causes zoonotic diseases and thought to be originated from bats. Since its first incidence, the virus has spread all across the world, causing serious human casualties, economic losses, and disrupting global supply chains. As with SARS-CoV, COVID-19 causing SARS-CoV-2 follows a similar path of airborne infection but is less lethal and more infectious than SARS and MERS. This review focusses on the pathogenesis of SARS-CoV-2, especially on the dysfunctional immune responses following a cytokine storm in severely affected persons. The mode of entry of SARS-CoV-2 is via the angiotensin converting enzyme 2 (ACE-2) receptors present on the epithelial lining of lungs, gastrointestinal tract, and mucus membranes. Older persons with weaker immune systems and associated co-morbidities are more vulnerable to have dysfunctional immune responses, as most of them concomitantly have severe hypovitaminosis D- consequently, causing severe damage to key organs of the body including lungs and the cardiovascular system. A vast majority of persons who were entered to intensive care units and died were found to have had severe vitamin D deficiency; thus, this area must be investigated seriously. In addition, this article assesses the role of vitamin D in reducing the risk of COVID-19. Vitamin D is a key regulator of the renin-angiotensin system that is exploited by SARS-CoV-2 for entry into the host cells. Further, vitamin D modulates multiple mechanisms of the immune system to contain the virus that includes dampening the entry and replication of SARS-CoV-2, reduces concentration of pro-inflammatory cytokines and increases levels of anti-inflammatory cytokines, enhances the production of natural antimicrobial peptide and activates defensive cells such as macrophages that could destroy SARS-CoV-2. Thus, this article provides the urgency of needed evidences through large population based randomized controlled trials and ecological studies to evaluate the potential role of vitamin D in COVID-19.



THREE NOVEL PREVENTION, DIAGNOSTIC, AND TREATMENT OPTIONS FOR COVID-19 URGENTLY NECESSITATING CONTROLLED RANDOMIZED TRIALS



Med Hypotheses . 2020 Oct

Abstract:

Purpose: Asymptomatic or minimally symptomatic infection with COVID-19 can result in silent transmission to large numbers of individuals, resulting in expansion of the pandemic with a global increase in morbidity and mortality. New ways of screening the general population for COVID-19 are urgently needed along with novel effective prevention and treatment strategies.

Hypothesis: A hypothetical three-part prevention, diagnostic, and treatment approach based on an up-to-date scientific literature review for COVID-19 is proposed. Regarding diagnosis, a validated screening questionnaire and digital app for COVID-19 could help identify individuals who are at risk of transmitting the disease, as well as those at highest risk for poor clinical outcomes. Global implementation and online tracking of vital signs and scored questionnaires that are statistically validated would help health authorities properly allocate essential health care resources to test and isolate those at highest risk for transmission and poor outcomes. Second, regarding prevention, no validated protocols except for physical distancing, hand washing, and isolation exist, and recently ivermectin has been published to have anti-viral properties against COVID-19. A randomized trial of ivermectin, and/or nutraceuticals that have been published to support immune function including glutathione, vitamin C, zinc, and immunomodulatory supplements (3,6 Beta glucan) could be beneficial in preventing transmission or lessening symptomatology but requires statistical validation. Third, concerning treatment, COVID-19 induced inflammation and "cytokine storm syndrome" with hemophagocytic lymphohistiocytosis (HLH)/Macrophage Activation Syndrome (MAS) have resulted in extreme morbidity and mortality in those with certain comorbidities, secondary to "acute respiratory distress syndrome" (ARDS) and multiorgan dysfunction with disseminated intravascular coagulation (DIC). Deficiency in red blood cell, serum and alveolar glutathione has been published in the medical literature for ARDS, as well as viral and bacterial pneumonias, resulting from increased levels of free radical/oxidative stress.

Conclusion and implications: A three-part prevention, diagnostic, and treatment plan is proposed for addressing the severe complications of COVID-19. Digital monitoring of symptoms to clinically diagnose early exposure and response to treatment; prevention with ivermectin as well as nutritional therapies that support a healthy immune response; treatment with anti-inflammatory therapies that block NF- κ B and activate Nrf2 pathways, as well as novel therapies that address COVID-19 pneumonia and ARDS with DIC including anticoagulation and/or novel respiratory therapies with or without acetazolamide and sildenafil. These three broad-based interventions urgently need to be subjected to randomized, controlled trials.



RETEST POSITIVE FOR SARS-COV-2 RNA OF "RECOVERED" PATIENTS WITH COVID-19: PERSISTENCE, SAMPLING ISSUES, OR RE-INFECTION?

◆ J Med Virol . 2020 Nov.

Abstract

"Retest Positive" for severe acute respiratory syndrome-related coronavirus-2 (SARS-CoV-2) from "recovered" coronavirus disease-19 (COVID-19) has been reported and raised several important questions for this novel coronavirus and COVID-19 disease. In this commentary, we discussed several questions: (a) Can SARS-CoV-2 re-infect the individuals who recovered from COVID-19? This question is also associated with other questions: whether or not SARS-CoV-2 infection induces protective reaction or neutralized antibody? Will SARS-CoV-2 vaccines work? (b) Why could some recovered patients with COVID-19 be re-tested positive for SARS-CoV-2 RNA? (c) Are some recovered patients COVID-19 with re-testing positive for SARS-CoV-2 RNA infectious? and (d) How should the COVID-19 patients with retest positive for SARS-CoV-2 be managed?



A NEW POSITIVE SARS-COV-2 TEST MONTHS AFTER SEVERE COVID-19 ILLNESS: REINFECTION OR INTERMITTENT VIRAL SHEDDING?



BMJ Case Rep . 2021 Feb 4.

Abstract

We present a case of a patient who had a history of severe coronavirus disease (COVID-19) 4 months prior to this current presentation and, after a long asymptomatic period, subsequently tested positive for severe acute respiratory syndrome coronavirus-2 (SARS-CoV-2) by a RNA PCR assay, after several interval negative SARS-CoV-2 RNA tests. We present this potential case of SARS-CoV-2 reinfection in order to incite discussion around differentiating persistent infection with intermittent viral shedding and reinfection, as well as to discuss evolving knowledge and approaches to the clinical management, follow-up molecular testing and treatment of COVID-19 reinfection.



CYTOKINE STORM INDUCED BY SARS-COV-2 INFECTION: THE SPECTRUM OF ITS NEUROLOGICAL MANIFESTATIONS

◆ Cytokine . 2021 Feb

Abstract

The new coronavirus disease 2019 (COVID-19), caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), can trigger a hyperinflammatory state characterized by elevated cytokine levels known as hypercytokinemia or cytokine storm, observed most often in severe patients. Though COVID-19 is known to be a primarily respiratory disease, neurological complications affecting both the central and peripheral nervous systems have also been reported. This review discusses potential routes of SARS-CoV-2 neuroinvasion and pathogenesis, summarizes reported neurological sequelae of COVID-19, and examines how aberrant cytokine levels may precipitate these complications. Clarification of the pathogenic mechanisms of SARS-CoV-2 is needed to encourage prompt diagnosis and optimized care. In particular, identifying the presence of cytokine storm in patients with neurological COVID-19 manifestations will facilitate avenues for treatment. Future investigations into aberrant cytokine levels in COVID-19 patients with neurological symptoms as well as the efficacy of cytokine storm-targeting treatments will be critical in elucidating the pathogenic mechanisms and effective treatments of COVID-19.



A NETWORK-BASED ANALYSIS REVEALS THE MECHANISM UNDERLYING VITAMIN D IN SUPPRESSING CYTOKINE STORM AND VIRUS IN SARS-COV-2 INFECTION



Front Immunol . 2020 Dec 9

Abstract

Background: SARS-CoV-2 causes ongoing pandemic coronavirus disease of 2019 (COVID-19), infects the cells of the lower respiratory tract that leads to a cytokine storm in a significant number of patients resulting in severe pneumonia, shortness of breathing, respiratory and organ failure. Extensive studies suggested the role of Vitamin D in suppressing cytokine storm in COVID-19 and reducing viral infection; however, the precise molecular mechanism is not clearly known. In this work, bioinformatics and systems biology approaches were used to understand SARS-CoV-2 induced cytokine pathways and the potential mechanism of Vitamin D in suppressing cytokine storm and enhancing antiviral response.

Conclusion: This comprehensive study identified the pathways associated with cytokine storm in SARS-CoV-2 infection. The proposed underlying mechanism of Vitamin D could be promising in suppressing the cytokine storm and inducing a robust antiviral response in severe COVID-19 patients. The finding in this study urgently needs further experimental validations for the suitability of Vitamin D in combination with IFN- α to control severe COVID-19.



II. BASIC SCIENCE (NUTRITION)

D. IMMUNE SYSTEM RESEARCH

- a) Recent studies from the NIH/PubMed
- b) Nutritional options
- c) Objective nutritional questionnaire

E. WATER

- a) Molecular hydrogen, constipation, ionization
- b) Filtration and nutritional benefits
- c) Water pH & safety

F. EVIDENCE BASED DIET RELATED RESEARCH

- a) Intermittent Fasting
- b) Ketogenic Diet
- c) Plant Based Nutrition



MOLECULAR HYDROGEN

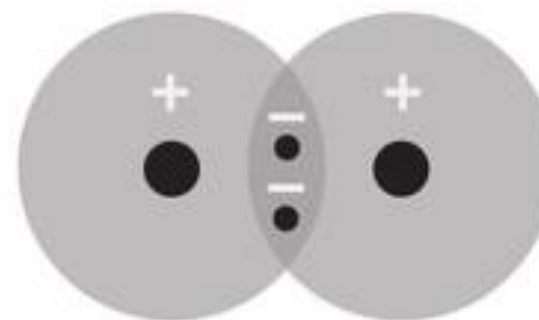
- The chemical formula H₂:
 - Composed of (2) bonded hydrogen atoms
 - The smallest molecule in existence
 - Its size enables molecular hydrogen to be dispersed readily in the body & cross through the blood/brain barrier.



Hydrogen



Hydrogen



Hydrogen Molecule (H₂)

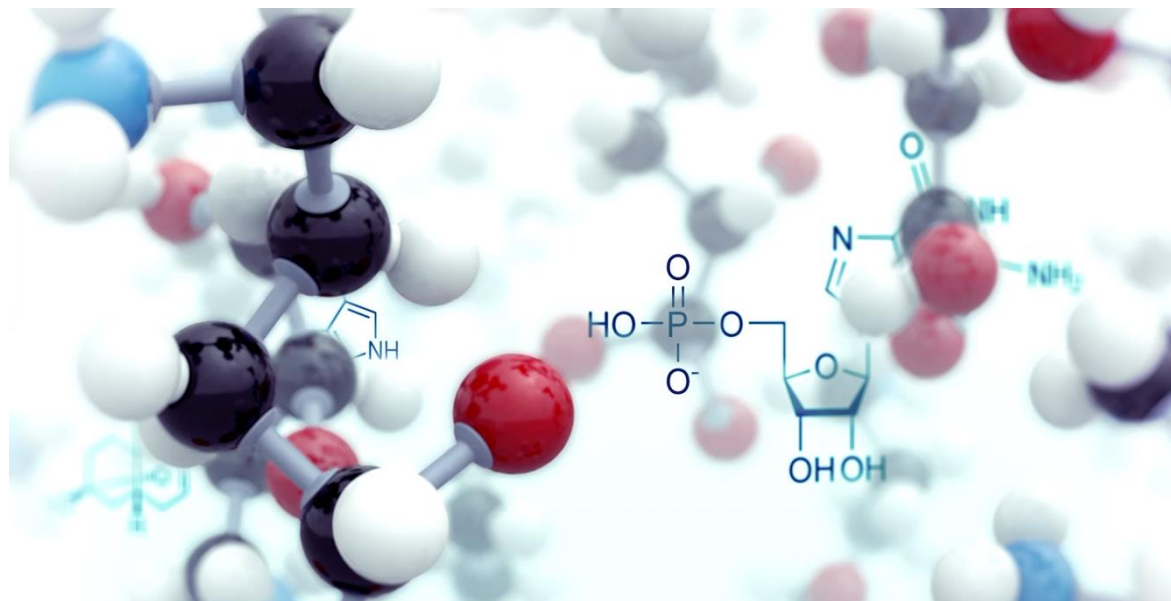


MOLECULAR HYDROGEN

- The smallest element and lightest molecule in the universe
- Contains two (2) protons and two (2) electrons, thus making it neutrally-charged.
- It can affect our bodies at a cellular level. With antioxidant and cytoprotective properties, molecular hydrogen is capable of entering the energy-generating mitochondria of our cells, and mopping up any unwanted free radicals, therefore boosting our overall well-being.
- Hydrogen-rich ionized alkaline water has a negative *ORP* (*Oxidation Reduction Potential*) to counter the positive ORP of our degenerating cells and oxidization of our bodies as we become older.



MOLECULAR HYDROGEN BENEFITS



- Reduced inflammation
- Pain relief
 - Pain relief in joints
- Decelerated aging process
- Decreased muscle fatigue



The effect of hydrogen-rich water consumption on premenstrual symptoms and quality of life: a randomized controlled trial

Date & Journal: BMC Womens Health. 2024 Mar 26

Abstract

Background: Premenstrual syndrome (PMS) consists of psychiatric or somatic symptoms negatively affecting the daily life. PMS treatment can involve the use of complementary-alternative approaches. Hydrogen-rich water (HRW) has antioxidant and anti-inflammatory properties that may treat PMS. This study aimed to investigate the effect of drinking HRW on the severity of premenstrual symptoms and the quality of life of women who suffer from PMS.

Results: The intervention group had significantly lower mean scores than the control group in both the first and second follow-ups on the PMSS. In the first follow-up, the intervention group had significantly higher mean scores in the Physical Health and Psychological domains of the WHOQOL-BREF compared to the control group. Group × time interaction was significant for PMSS. Group × time interaction was insignificant for WHOQOL- BREF.

Conclusions: The consumption of HRW reduces the severity of premenstrual symptoms and improves individuals' quality of life in physical and psychological domains.



Hydrogen-Rich Alkaline Water Supplementation Restores a Healthy State and Redox Balance in H₂O₂-Treated Mice

Date & Journal: Integrative Journal of Molecular Science. 2024 Jun 19.

Abstract

Water is a major requirement for our bodies, and alkaline water has induced an antioxidant response in a model of natural aging. A series of recent reports have shown that aging is related to reduced water intake. Hydrogen-rich water has been suggested to exert a general antioxidant effect in relation to both improving lifestyle and preventing a series of diseases. Here, we wanted to investigate the effect of the daily intake of hydrogen-rich alkaline water (HAW) in counteracting the redox imbalance induced in a model of H₂O₂-treated mice. Mice were treated with H₂O₂ for two weeks and either left untreated or supplied with HAW. The results show that HAW induced a reduction in the ROS plasmatic levels that was consistent with the increase in the circulating glutathione. At the same time, the reduction in plasmatic 8-hydroxy-2'-deoxyguanosine was associated with reduced DNA damage in the whole body. Further analysis of the spleen and bone marrow cells showed a reduced ROS content consistent with a significantly reduced mitochondrial membrane potential and superoxide accumulation and an increase in spontaneous proliferation. This study provides evidence for a clear preventive and curative effect of HAW in a condition of systemic toxic condition and redox imbalance.



Pilot study: Effects of drinking hydrogen-rich water on muscle fatigue caused by acute exercise in elite athletes

Date & Journal: Med Gas Res . 2012 Jul 12.

Background: Muscle contraction during short intervals of intense exercise causes oxidative stress, which can play a role in the development of overtraining symptoms, including increased fatigue, resulting in muscle microinjury or inflammation. Recently it has been said that hydrogen can function as antioxidant, so we investigated the effect of hydrogen-rich water (HW) on oxidative stress and muscle fatigue in response to acute exercise.

Methods: Ten male soccer players aged 20.9 ± 1.3 years old were subjected to exercise tests and blood sampling. Each subject was examined twice in a crossover double-blind manner; they were given either HW or placebo water (PW) for one week intervals. Subjects were requested to use a cycle ergometer at a 75 % maximal oxygen uptake (VO₂) for 30 min, followed by measurement of peak torque and muscle activity throughout 100 repetitions of maximal isokinetic knee extension. Oxidative stress markers and creatine kinase in the peripheral blood were sequentially measured.

Results: Although acute exercise resulted in an increase in blood lactate levels in the subjects given PW, oral intake of HW prevented an elevation of blood lactate during heavy exercise. Peak torque of PW significantly decreased during maximal isokinetic knee extension, suggesting muscle fatigue, but peak torque of HW didn't decrease at early phase. There was no significant change in blood oxidative injury markers (d-ROMs and BAP) or creatine kinase after exercise.

Conclusion: Adequate hydration with hydrogen-rich water pre-exercise reduced blood lactate levels and improved exercise-induced decline of muscle function. Although further studies to elucidate the exact mechanisms and the benefits are needed to be confirmed in larger series of studies, these preliminary results may suggest that HW may be suitable hydration for athletes.



Molecular hydrogen is protective against 6-hydroxydopamine-induced nigrostriatal degeneration in a rat model of Parkinson's disease

Neurosci Lett . 2009 Apr 3

Abstract

Molecular hydrogen serves as an antioxidant that reduces hydroxyl radicals, but not the other reactive oxygen and nitrogen species. In the past year, molecular hydrogen has been reported to prevent or ameliorate eight diseases in rodents and one in human associated with oxidative stress. In Parkinson's disease, mitochondrial dysfunction and the associated oxidative stress are major causes of dopaminergic cell loss in the substantia nigra. We examined effects of approximately 50%-saturated molecular hydrogen in drinking water before or after the stereotactic surgery on 6-hydroxydopamine-induced nigrostriatal degeneration in a rat model of Parkinson's disease. Methamphetamine-induced behavioral analysis showed that molecular hydrogen prevented both the development and progression of the nigrostriatal degeneration. Tyrosine hydroxylase staining of the substantia nigra and striatum also demonstrated that pre- and post-treatment with hydrogen prevented the dopaminergic cell loss. Our studies suggest that hydrogen water is likely able to retard the development and progression of Parkinson's disease.



WATER & CONSTIPATION

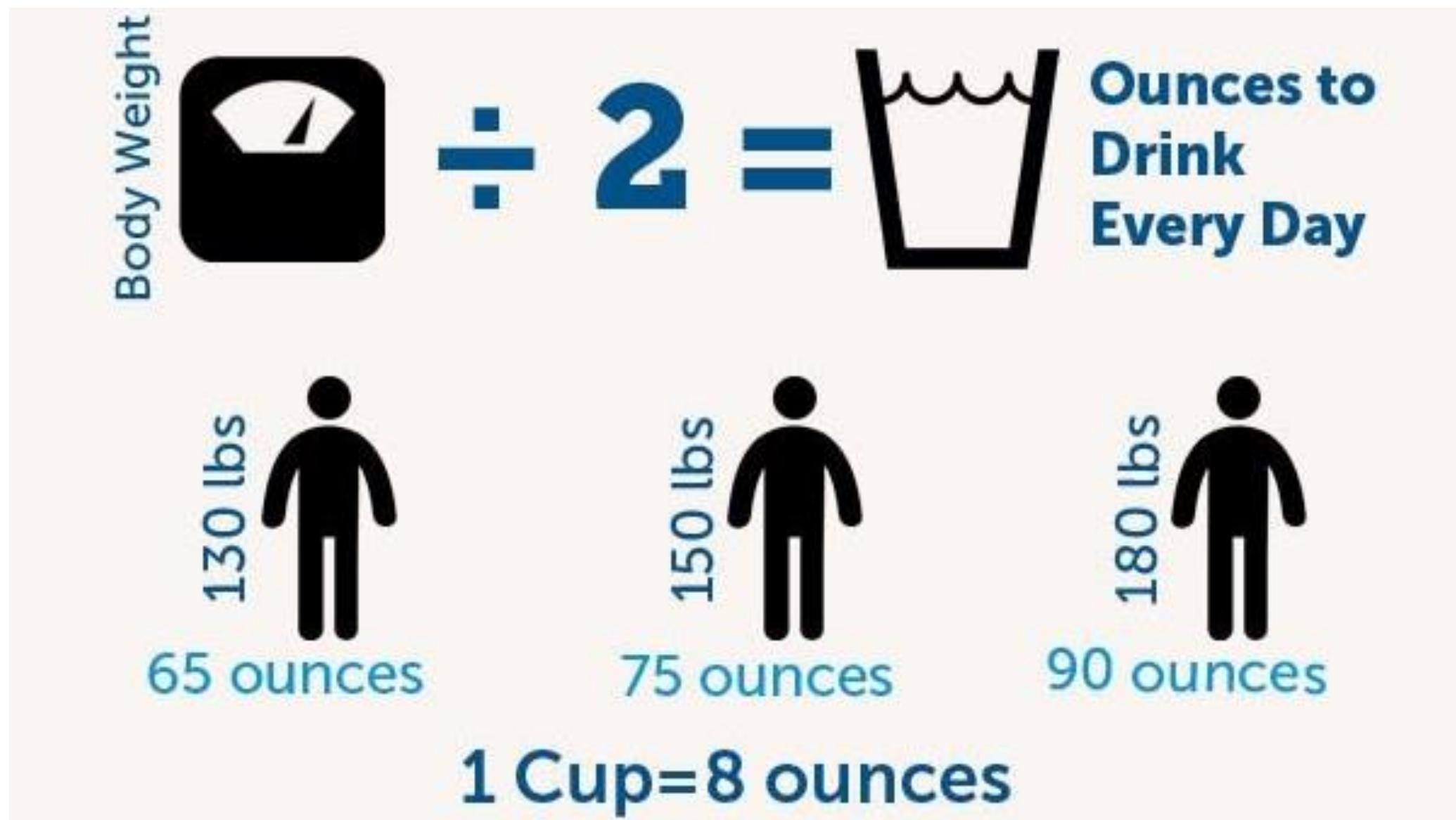
- Up to one half of all Americans have it.
- Drinking chlorinated water = Constipation
- Chlorine compounds in tap water kill the helpful good gut bacteria, leading to overgrowth of harmful bacteria, yeasts, or even parasites.



HOW MUCH WATER SHOULD WE DRINK?

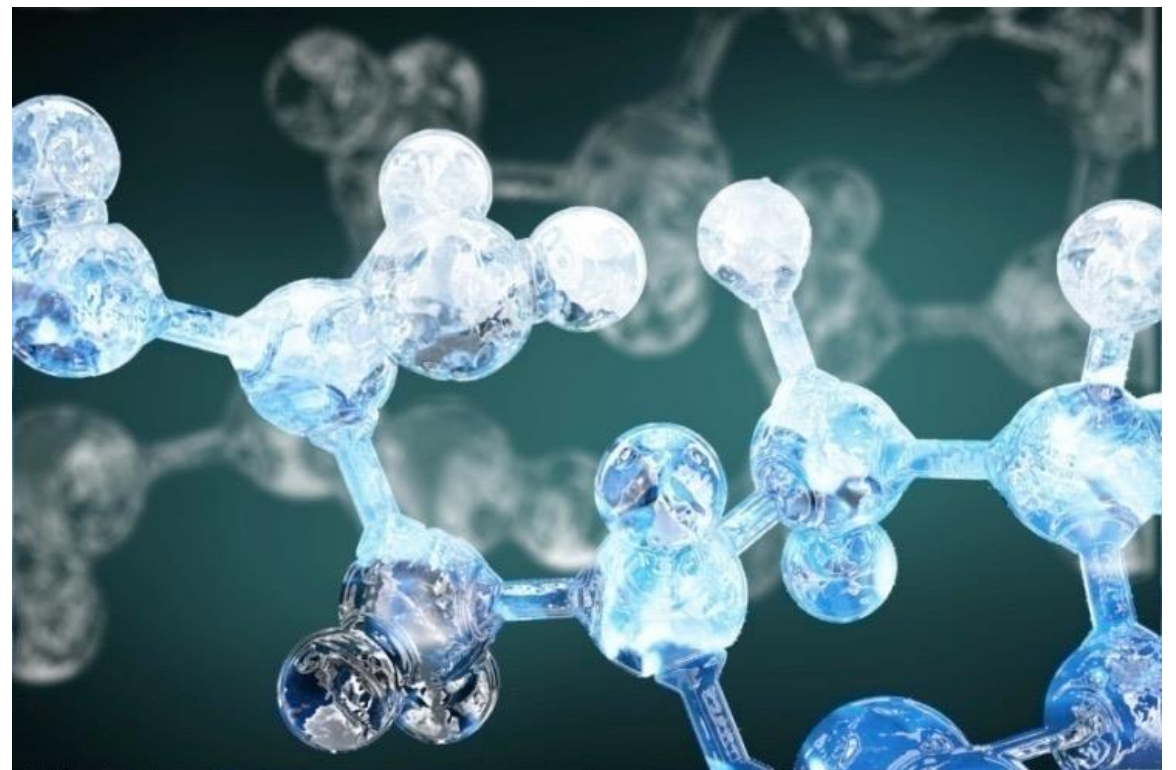
Half your body weight in oz. per day minimum!

Hydration usually takes about **8 weeks** to achieve if drinking the proper amount.



PH & IONIZATION

- **Filtration (Carbon Ceramic Fiber Filter)**
- **Being able to control the pH/acid/alkalinity**
- **Number of plates in the machine (9-13 preferred)**
- **Less molecules per cluster**
- **Self Cleaning**
- **No adding of minerals**
- **Lifetime Warranty**



UNHEALTHY WATER CONTINUED...



FILTERED WATER (WATER PITCHERS/ FAUCET ATTACHMENTS)

- Most of these devices lack premium filtration materials, and they do not add any health benefits like antioxidants, alkaline pH levels or molecular hydrogen to your water.
- Look at the packaging of these filter pitchers and you'll notice that they only remove a few contaminants and 2-3 heavy metals (some not including lead) – leaving consumers with a false sense of security.



REVERSE OSMOSIS WATER (R.O.)

- Water is intended to provide essential minerals (like calcium and magnesium) to protect your teeth and bones. By drinking water that is devoid of these minerals (like R.O.) your body will naturally pull these minerals from your teeth and bones, thus weakening them.
- The World Health Organization (WHO) made a statement about R.O. water: "long term RO consumption has a definite adverse influence on the animal and human organisms."



DID YOU KNOW?

- Vitamin C and Molecular Hydrogen can BOTH neutralize free radicals. However, studies show that Molecular Hydrogen provides greater protection than Vitamin C because ONLY Molecular Hydrogen can increase powerful antioxidant enzymes in the body.



HOW IT WORKS

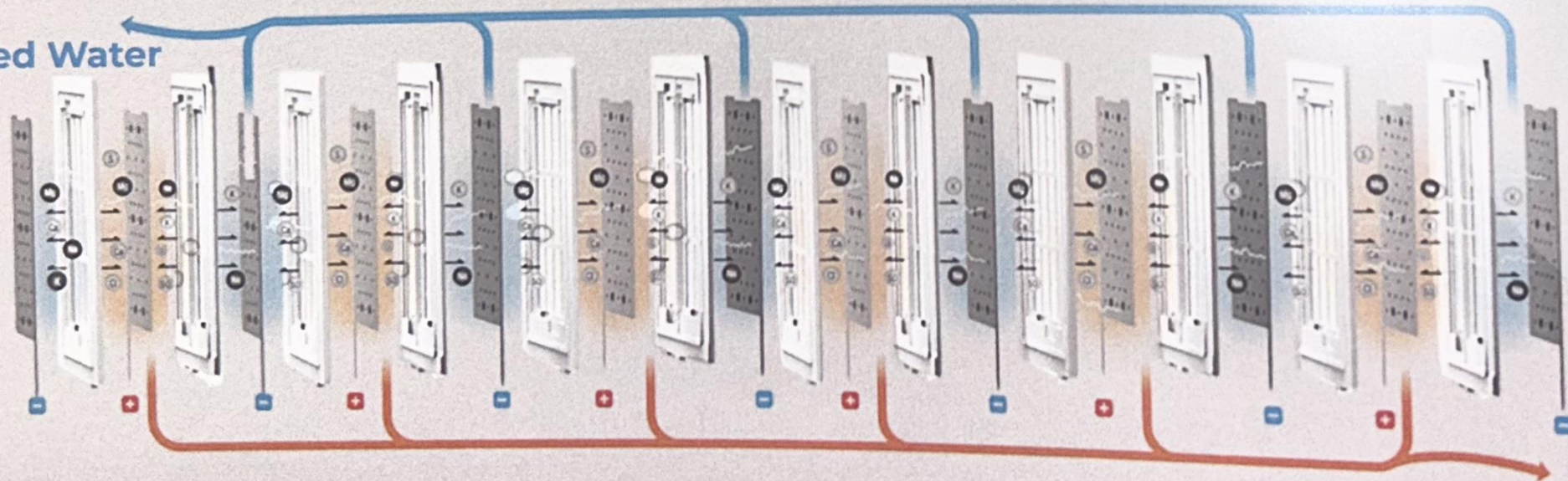
The secret is the water cell...

When your tap water enters the Tyent water ionizer, it runs through two filters and is filtered to 99% purity.

Next, it runs through our proprietary electrolysis process where "free" and available hydrogen gas (H_2 molecular hydrogen) is dissolved into the water. Then, the water molecules are split into two unique streams of water. One stream becomes acidic, which is great for your skin and hair. We call it Beauty Water!

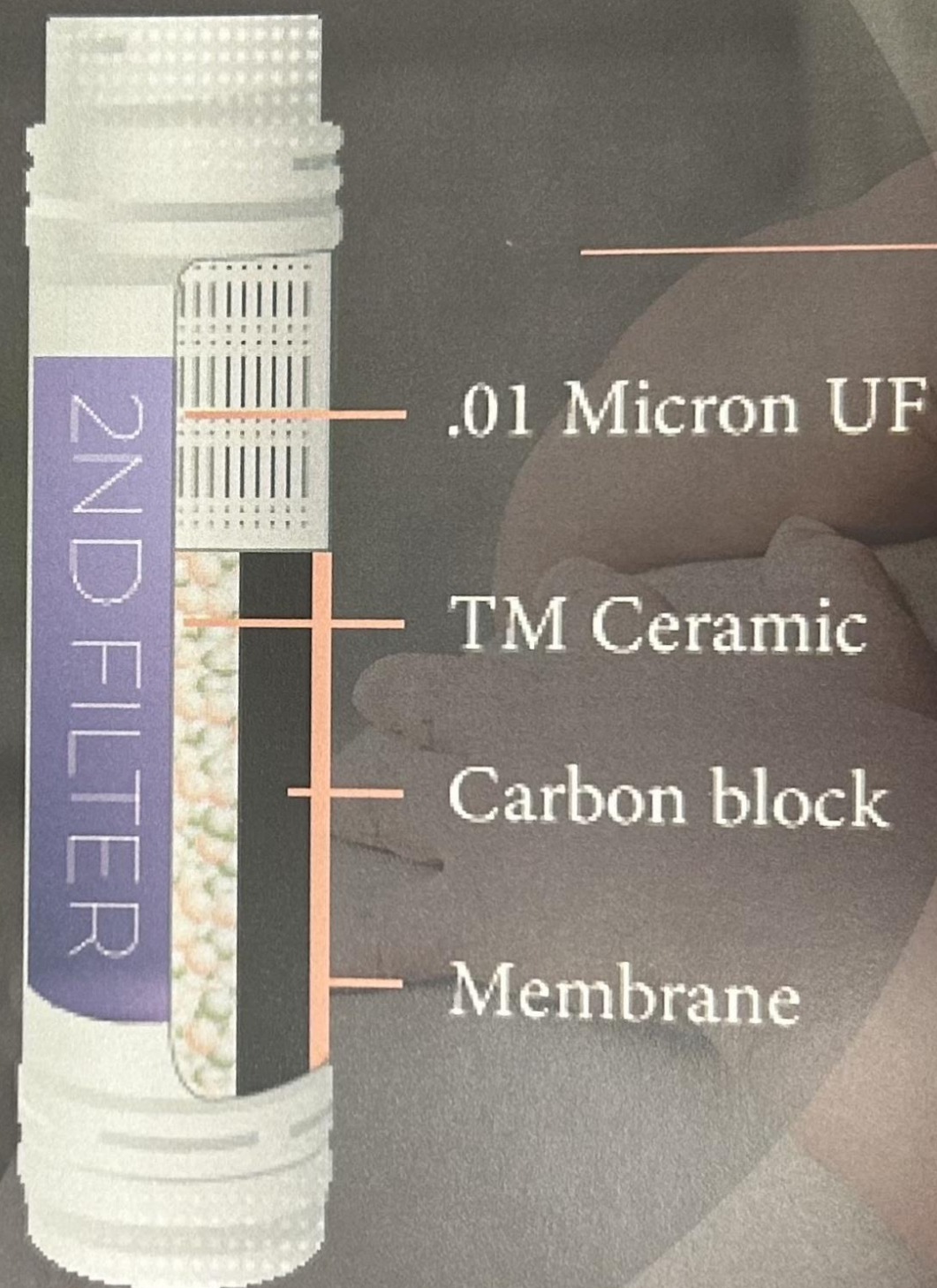
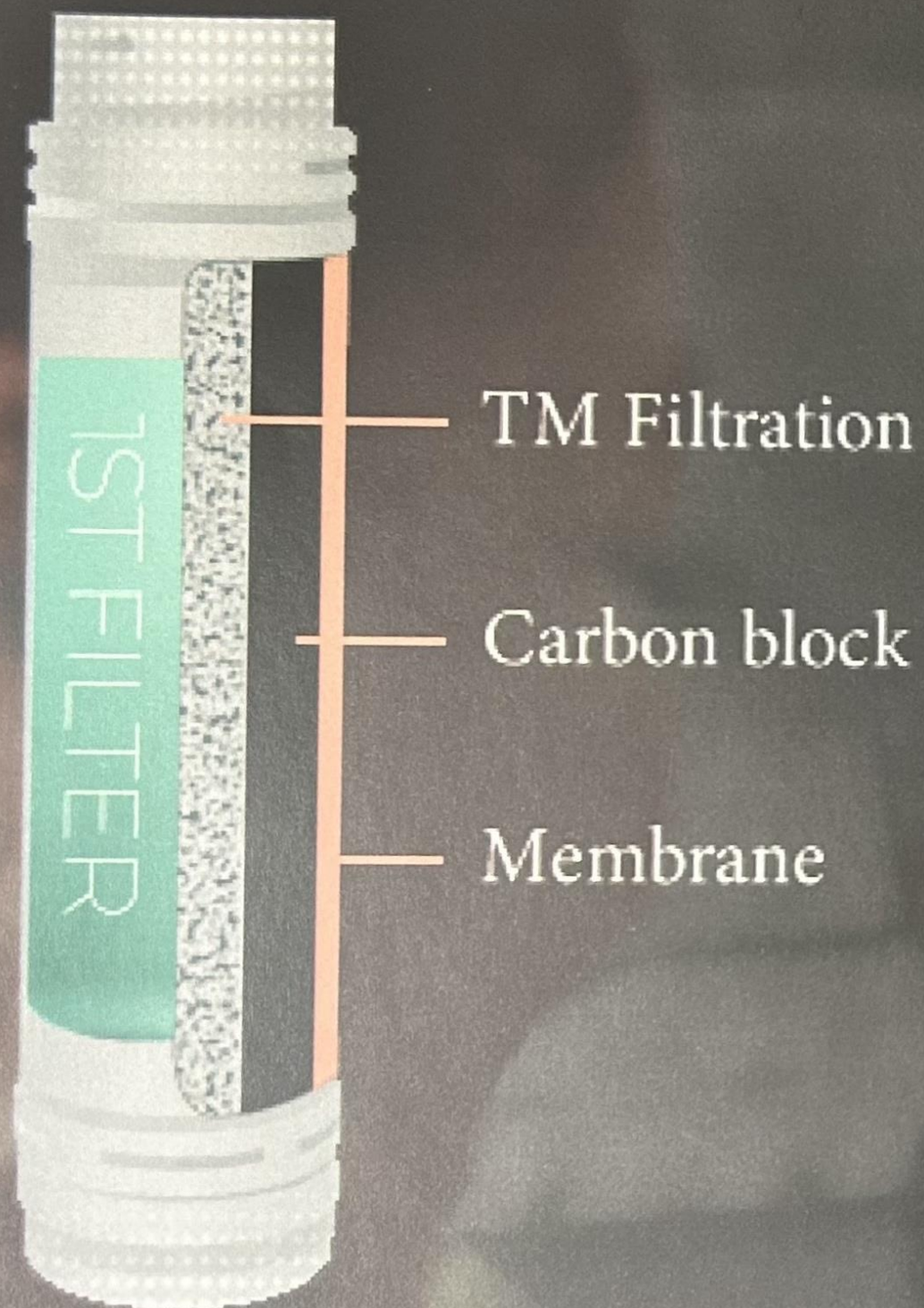
The other water stream becomes the perfect drinking water! It's alkaline, ultra-hydrating and filled with therapeutic antioxidants called molecular hydrogen.

Alkaline Ionized Water



Acid Ionized Water





DUAL FILTRATION

Removes over 99% of unhealthy contaminants...
To help take care of what matters most!

Tyent engineers designed the most advanced water filtration technology in the world. All Tyent units have two large state-of-the-art filters with Ultra .01 Micron Filtration technology. It's the same filtration found in some dialysis machines.

Tyent filters have been tested by an EPA certified lab and have been shown to reduce **MORE THAN 200 CONTAMINANTS** found in tap water by over 99%!



PH, IONIZATION & MOLECULAR HYDROGEN

With Molecular Hydrogen Boost



Auto fill Quantity Selector

3 Alkaline Levels & 3 Acidic Levels + Turbo Modes

Outstanding Electrolysis

Smartphone Touch Technology

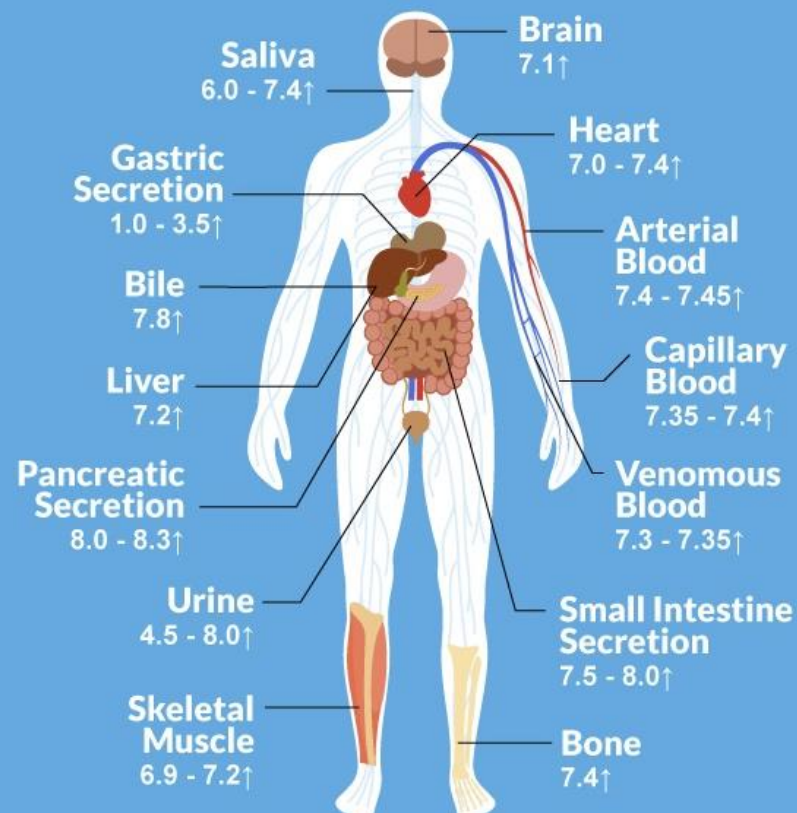
TM Ceramic & Carbon Block filtration



PH:ACIDIC WATER, SKIN & HAIR ARE BETWEEN 4.5 TO 5.5 PH

pH Values of the Human Body

Fluids in the human body function to provide digestion, lubrication, nutrient and oxygen transportation, and protection. To perform these functions, the acid levels must be varied to match the bodily function. Overall levels of acidity or alkalinity are measure on a pH scale and must be carefully controlled in each body fluid.



Benefits of Acidic Water:

- Natural astringent & skin cleanser
- Helps clear up bacteria that causes acne
- Soothes the itch & sting of insect bites, eczema & psoriasis
- Removes tooth plaque
- Improves plant growth



II. BASIC SCIENCE (NUTRITION)

D. IMMUNE SYSTEM RESEARCH

- a) Recent studies from the NIH/PubMed
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E. WATER

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F. EVIDENCE BASED DIET RELATED RESEARCH

- a) Intermittent Fasting
- b) Ketogenic Diet
- c) Plant Based Nutrition



NUTRITION DISCLAIMER

Just remember...

Nutrition is one of the hardest topics to cover, as guidelines are ever-changing and diets are open to different interpretation.



Evidence Based Diet Related Research: Fasting & Intermittent Fasting

Complete Alternate Day Fasting	Involves alternating fasting days (no energy-containing foods or beverages consumed) with eating days.
Time Restricted Feeding	No eating anything but water after dinner. No snacking in the evening. Eating can be resumed the following day any time before noon. Eating is permitted until after dinner.
Religious Fasting	Variety of fasting regimens undertaken for religious or spiritual purposes, ie. Yom Kippur (Judaism) 25.5hr fast - no food or water.
Ramadan Fasting	A fast from sunrise to sunset during the holy month of Ramadan; the most common dietary practice is to consume one large meal after sunset and one lighter meal before dawn. Thus, the feast and fast periods of Ramadan are approximately 12 hours in length
Other Religious Fasts	Members of the Church of Jesus Christ of Latter-Day Saints routinely abstain from food and drink for extended periods of time. Some Seventh-day Adventists consume their last of two daily meals in the afternoon, resulting in an extended nighttime fasting interval that may be biologically important



METABOLIC EFFECTS OF INTERMITTENT FASTING

Published: Annu. Rev. Nutr. 2017 Aug 21

The objective of this review is to provide an overview of intermittent fasting regimens, summarize the evidence on the health benefits of intermittent fasting, and discuss physiological mechanisms by which intermittent fasting might lead to improved health outcomes. A MEDLINE search was performed using PubMed and the terms "intermittent fasting," "fasting," "time-restricted feeding," and "food timing." Modified fasting regimens appear to promote weight loss and may improve metabolic health. Several lines of evidence also support the hypothesis that eating patterns that reduce or eliminate nighttime eating and prolong nightly fasting intervals may result in sustained improvements in human health. Intermittent fasting regimens are hypothesized to influence metabolic regulation via effects on (a) circadian biology, (b) the gut microbiome, and (c) modifiable lifestyle behaviors, such as sleep. If proven to be efficacious, these eating regimens offer promising nonpharmacological approaches to improving health at the population level, with multiple public health benefits.



IMPACT OF INTERMITTENT FASTING ON THE LIPID PROFILE:ASSESSMENT ASSOCIATED WITH DIET AND WEIGHT LOSS

Published: Clinical Nutrition ESPEN. April 2018

Intermittent fasting, whose proposed benefits include the improvement of lipid profile and the body weight loss, has gained considerable scientific and popular repercussion. This review aimed to consolidate studies that analyzed the lipid profile in humans before and after intermittent fasting period through a detailed review; and to propose the physiological mechanism, considering the diet and the body weight loss. Normocaloric and hypocaloric intermittent fasting may be a dietary method to aid in the improvement of the lipid profile in healthy, obese and dyslipidemic men and women by reducing total cholesterol, LDL, triglycerides and increasing HDL levels. However, the majority of studies that analyze the intermittent fasting impacts on the lipid profile and body weight loss are observational based on Ramadan fasting, which lacks large sample and detailed information about diet. Randomized clinical trials with a larger sample size are needed to evaluate the IF effects mainly in patients with dyslipidemia.



EVIDENCE BASED DIET RELATED RESEARCH: KETOGENIC DIET

A diet moderate in proteins (lean meats, fish) and high fats, low in carbohydrates. i.e. healthy fats avocado, nuts, and olive oil.

In absence of circulating blood sugar from food, we start breaking down stored fat into ketone bodies to generate energy.

Difficult to sustain over a long period of time.



HISTORY OF THE KETOGENIC DIET

Date & Journal: Epilepsia . 2008 Nov



Abstract

Fasting and other dietary regimens have been used to treat epilepsy since at least 500 BC. To mimic the metabolism of fasting, the ketogenic diet (KD) was introduced by modern physicians as a treatment for epilepsy in the 1920s. For two decades this therapy was widely used, but with the modern era of antiepileptic drug treatment its use declined dramatically. By the end of the twentieth century this therapy was available in only a small number of children's hospitals. Over the past 15 years, there has been an explosion in the use, and scientific interest in the KD. This review traces the history of one of the most effective treatments for childhood epilepsy.

INFLUENCE OF THE MEDITERRANEAN AND KETOGENIC DIETS ON COGNITIVE STATUS AND DECLINE: A NARRATIVE REVIEW



Abstract

Date & Journal: *Nutrients* . 2020 Apr 8.

Alzheimer's disease (AD) is the most common form of senile dementia, accounting for up to 70% of dementia cases. AD is a slowly progressive disease, which causes global mental deterioration by affecting various cognitive areas. A growing body of evidence has demonstrated that lifestyle habits and nutritional patterns could delay the natural course of the neurodegeneration process. There is no single dietary pattern unequivocally proven to prevent AD. Nevertheless, epidemiological data suggest that by adopting several dietary habits, especially if accompanied with a healthy lifestyle, the negative consequences of AD could potentially be delayed. Alongside with others, two specific eating patterns have been well investigated concerning their potential beneficial effect on cognitive status: the mediterranean diet (meddi) and the ketogenic diet (KD). Despite the different underlying mechanisms, both of them have demonstrated a fairly profitable role in reducing or delaying cognitive impairment. The aim of the present narrative review is to overview the existing research on the efficacy of meddi and KD against ad-related cognitive decline, focusing on the proposed protective mechanisms of action. Although the current knowledge on this complex topic does not allow us, at this point, to make exhaustive conclusions, this information could be of help in order to better characterize the possible role of meddi and KD as nonpharmacological therapies in the treatment of AD and, more generically, of neurodegenerative disorders.

THE KETOGENIC DIET AND SPORT: A POSSIBLE MARRIAGE?

Date & Journal: Exerc Sport Sci Rev. 2015 Jul

Abstract

The ketogenic diet (KD) is used widely as a weight loss strategy and, more rarely, as therapy for some diseases. In many sports, weight control is often necessary (boxing, weightlifting, wrestling, etc.), but the KD usually is not considered. Our hypothesis is that KD might be used to achieve fat loss without affecting strength/power performance negatively.



KETOGENIC DIET IN ALZHEIMER'S DISEASE

Date & Journal: Int J Mol Sci . 2019 Aug 9.

Abstract

At present, the prevalence of Alzheimer's disease, a devastating neurodegenerative disorder, is increasing. Although the mechanism of the underlying pathology is not fully uncovered, in the last years, there has been significant progress in its understanding. This includes: Progressive deposition of amyloid β -peptides in amyloid plaques and hyperphosphorylated tau protein in intracellular as neurofibrillary tangles; neuronal loss; and impaired glucose metabolism. Due to a lack of effective prevention and treatment strategy, emerging evidence suggests that dietary and metabolic interventions could potentially target these issues. The ketogenic diet is a very high-fat, low-carbohydrate diet, which has a fasting-like effect bringing the body into a state of ketosis. The presence of ketone bodies has a neuroprotective impact on aging brain cells. Moreover, their production may enhance mitochondrial function, reduce the expression of inflammatory and apoptotic mediators. Thus, it has gained interest as a potential therapy for neurodegenerative disorders like Alzheimer's disease. This review aims to examine the role of the ketogenic diet in Alzheimer's disease progression and to outline specific aspects of the nutritional profile providing a rationale for the implementation of dietary interventions as a therapeutic strategy for Alzheimer's disease.



EVIDENCE BASED DIET RELATED RESEARCH: PLANT BASED NUTRITION



- Focuses on vegetables, fruits, grains (especially whole grains), beans and peas, lentils, nuts, and seeds (rather than on meat, poultry, fish, eggs, and dairy foods). It is not necessarily meatless or vegan (plant-based burgers).
- Min. 70% of every plate ate is plant based.



A PLANT-BASED DIET, ATHEROGENESIS, AND CORONARY ARTERY DISEASE PREVENTION

Date & Journal: Perm J . Winter 2015.

Abstract

A plant-based diet is increasingly becoming recognized as a healthier alternative to a diet laden with meat. Atherosclerosis associated with high dietary intake of meat, fat, and carbohydrates remains the leading cause of mortality in the US. This condition results from progressive damage to the endothelial cells lining the vascular system, including the heart, leading to endothelial dysfunction. In addition to genetic factors associated with endothelial dysfunction, many dietary and other lifestyle factors, such as tobacco use, high meat and fat intake, and oxidative stress, are implicated in atherogenesis. Polyphenols derived from dietary plant intake have protective effects on vascular endothelial cells, possibly as antioxidants that prevent the oxidation of low-density lipoprotein. Recently, metabolites of L-carnitine, such as trimethylamine-N-oxide, that result from ingestion of red meat have been identified as a potential predictive marker of coronary artery disease (CAD).



Tuso P, Stoll SR, Li VW. A plant-based diet, atherogenesis, and coronary artery disease prevention. Perm J. 2015;19(1):62-67. doi:10.7812/TPP/14-036

PLANT-BASED DIETS: CONSIDERATIONS FOR ENVIRONMENTAL IMPACT, PROTEIN QUALITY, AND EXERCISE PERFORMANCE

Date & Journal: Nutrients . 2018 Dec 1.

Abstract

Plant-based diets provide well-established physical and environmental health benefits. These benefits stem in part from the degree of restriction of animal-derived foods. Historically, meat and other animal-derived proteins have been viewed as an integral component of athletes' diets, leading some to question the adequacy of vegetarian or vegan diets for supporting athletic performance. The purpose of this review is to examine the impact of plant-based diets on human physical health, environmental sustainability, and exercise performance capacity. Based on currently available literature, it is unlikely that plant-based diets provide advantages, but do not suffer from disadvantages, compared to omnivorous diets for strength, anaerobic, or aerobic exercise performance. However, plant-based diets typically reduce the risk of developing numerous chronic diseases over the lifespan and require fewer natural resources for production compared to meat-containing diets. As such, plant-based diets appear to be viable options for adequately supporting athletic performance while concurrently contributing to overall physical and environmental health. Given the sparse literature comparing omnivore, vegetarian, and vegan athletes, particularly at the elite level, further research is warranted to ascertain differences that might appear at the highest levels of training and athletic performance.



Lynch H, Johnston C, Wharton C. Plant-Based Diets: Considerations for Environmental Impact, Protein Quality, and Exercise Performance. Nutrients. 2018;10(12):1841. Published 2018 Dec 1. doi:10.3390/nu10121841

CARDIO-METABOLIC BENEFITS OF PLANT-BASED DIETS

Date & Journal: Nutrients . 2017 Aug 9.

Abstract

Cardio-metabolic disease, namely ischemic heart disease, stroke, obesity, and type 2 diabetes, represent substantial health and economic burdens. Almost one half of cardio-metabolic deaths in the U.S. might be prevented through proper nutrition. Plant-based (vegetarian and vegan) diets are an effective strategy for improving nutrient intake. At the same time, they are associated with decreased all-cause mortality and decreased risk of obesity, type 2 diabetes, and coronary heart disease. Evidence suggests that plant-based diets may reduce the risk of coronary heart disease events by an estimated 40% and the risk of cerebral vascular disease events by 29%. These diets also reduce the risk of developing metabolic syndrome and type 2 diabetes by about one half. Properly planned vegetarian diets are healthful, effective for weight and glycemic control, and provide metabolic and cardiovascular benefits, including reversing atherosclerosis and decreasing blood lipids and blood pressure. The use of plant-based diets as a means of prevention and treatment of cardio-metabolic disease should be promoted through dietary guidelines and recommendations.



Kahleova H, Levin S, Barnard N. Cardio-Metabolic Benefits of Plant-Based Diets. Nutrients. 2017;9(8):848. Published 2017 Aug 9. doi:10.3390/nu9080848

ASSOCIATION BETWEEN RED MEAT CONSUMPTION AND COLON CANCER: A SYSTEMATIC REVIEW OF EXPERIMENTAL RESULTS

Date & Journal: Exp Biol Med (Maywood) . 2017 Apr.

Abstract

A role for red and processed meat in the development of colorectal cancer has been proposed based largely on evidence from observational studies in humans, especially in those populations consuming a westernized diet. Determination of causation specifically by red or processed meat is contingent upon identification of plausible mechanisms that lead to colorectal cancer. We conducted a systematic review of the available evidence to determine the availability of plausible mechanistic data linking red and processed meat consumption to colorectal cancer risk. Forty studies using animal models or cell cultures met specified inclusion criteria, most of which were designed to examine the role of heme iron or heterocyclic amines in relation to colon carcinogenesis. Most studies used levels of meat or meat components well in excess of those found in human diets. Although many of the experiments used semi-purified diets designed to mimic the nutrient loads in current westernized diets, most did not include potential biologically active protective compounds present in whole foods. Because of these limitations in the existing literature, there is currently insufficient evidence to confirm a mechanistic link between the intake of red meat as part of a healthy dietary pattern and colorectal cancer risk. Impact statement Current recommendations to reduce colon cancer include the reduction or elimination of red or processed meats. These recommendations are based on data from epidemiological studies conducted among cultures where meat consumption is elevated and consumption of fruits, vegetables, and whole grains are reduced. This review evaluated experimental data exploring the putative mechanisms whereby red or processed meats may contribute to colon cancer. Most studies used levels of meat or meat-derived compounds that were in excess of those in human diets, even in cultures where meat intake is elevated. Experiments where protective dietary compounds were used to mitigate the extreme levels of meat and meat-derived compounds showed protection against colon cancer, with some essentially negating the impact of meat in the diet. It is essential that better-designed studies be conducted that use relevant concentrations of meat or meat-derived compounds in complex diets representative of the foods consumed by humans.



Thank you, Docs!

A brief evaluation survey will be emailed to you in the coming days.
Please fill out the evaluation ASAP & press “submit”.

Hope you enjoyed the seminar and I thank you for your continued support!
We really appreciate all of you!

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Podcast:

[DrMCOrganiccsHealthPodcast](https://www.drmc.organiccs.com/podcast)

