Vascular & Anti-inflammatory Nutritional & Herbal Updates ALL Chiropractors Should Know

Simon Agger, D.C.

August 15, 2026

Speaker Disclosure

Simon Agger D.C. is a licensed Chiropractic Physician, and presents Clinical innovations that have not been endorsed by the FDA to licensed healthcare practitioners. He does not claim to cure any known diseases. Cases discussed are his patient experiences over the last 28 years in practice. None of this lecture is a substitute for proper medical advice. Please consult with your personal licensed physician outside of this event - even if it turns out to be me!!

Speaker Disclosure, cont.

- Full time private practice, 1998-present: Portland, OR
- Adjunct faculty, University of Western States ‘Human Nutrition & Function

  Medicine’ Masters of Science Program: 2014 – 2019.
- Affiliate faculty, UWS Chiropractic Program: 2005 - present.
- Faculty, Integrative Medical Nutrition, Rocky Vista University Osteopathic Medicine program, CO & UT Campuses 2023- 2025
- Speaker, Standard Process & MediHerb US/AUS: 2015-present
- Consultant SP & MediHerb US/AUS, 2019-present
- Researcher, Nutritional Innovation Center, Kannapolis, NC, 2021 – present
- Attending Physician, Oregon Ballet Theatre: 2005 - present

Accelerate ***YOUR*** patients healing….

- Good joint motion is a prerequisite for healthy cartilage.

  Primary modalities: chiropractic adjustments & targeted exercises are very helpful in reducing inflamed joints.

  Low level laser therapy (LLLT) and botanicals/nutrients/dietary changes have helped many of my patients recover their joint health by focusing on reducing inflammation.

- Ultrasound Therapy, Shockwave Therapy, Massage Therapy can help to integrate structurally.
- Diet, nutrition & herbal therapy will accelerate your patients healing..

Boswellia & curcumin

- How can we improve absorption?
- Can we combine them?
- What are the challenges?
- What time frames do we treat for? (90-120 days)
- Sonntakke 2007 study kicked this all off for BS resins.
- Improved bioavail curcumin 2023 AZ research
- Paired formulas improving cognition clinically (several practitioners)

Boswellia & celery seed extract 2025 study

- This has shed some more light on one of my most utilized botanical supports, Boswellic resins & Celery seed extracts which I have used for over 25 years.

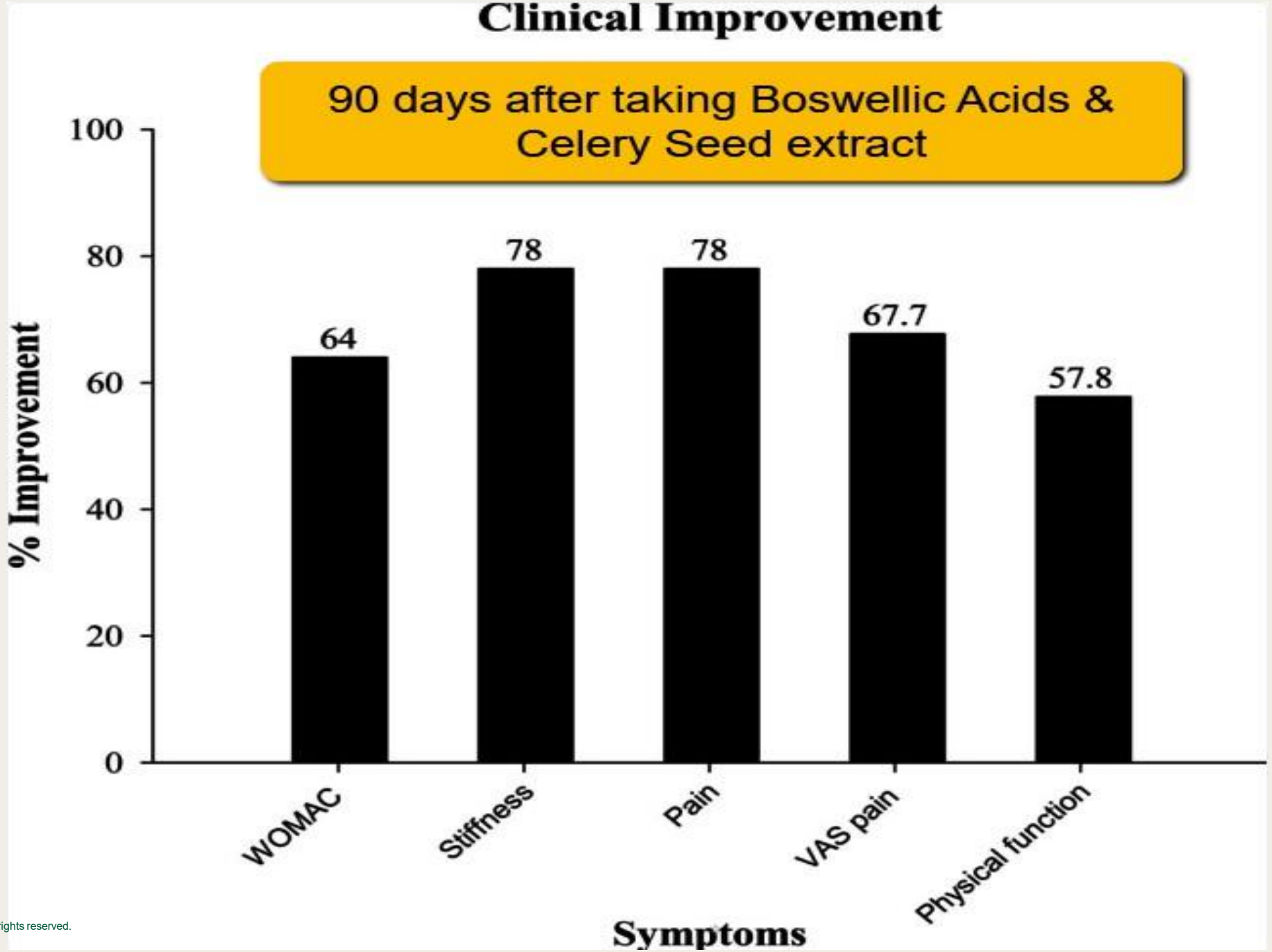
  The 2025 study in question took **62 adults - with knee pain & stiffness** w/ a **mean age of 55** (S.D.+/-6yrs).

  As we would expect, the Pain came down on a **Visual Analog Scale (VAS) from @6/10 to 2/10 in just 90 days**.

- There was no other intervention.

  Post 90 day x-rays were compared, with some showing increased medial joint space.

  We'd always hypothesized that BA's were cartilage protective; that they inhibited some matrix-metallo-proteases (MMP's), small proteins that can digest cartilage, and This maybe contributed to the pain continuing to stay away when discontinued.



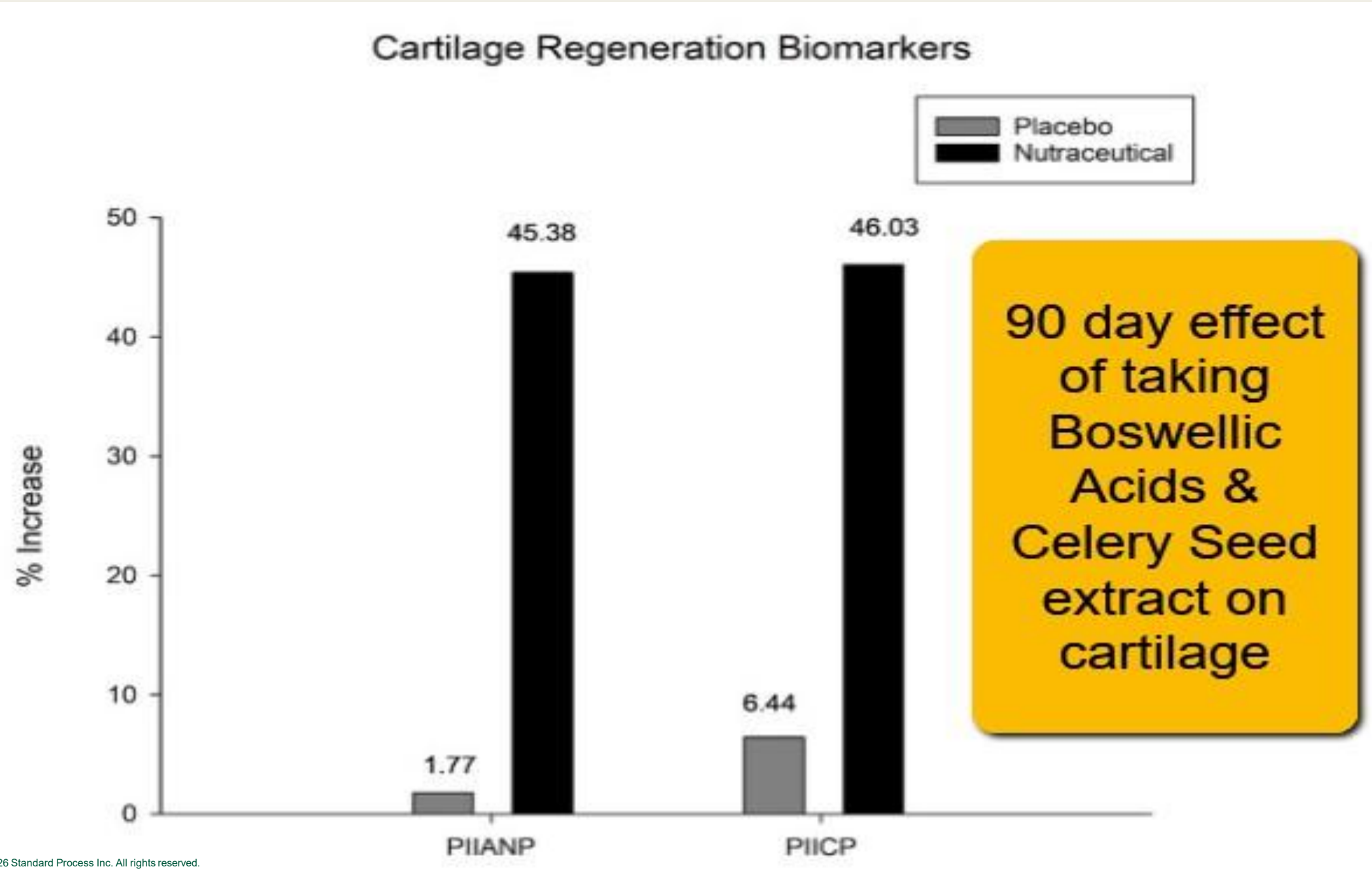
This study sheds some light on Boswellia/celery seed extract Collagen effects….

- Specifically the **increase in biomarkers of pro-collagen peptides**.

  PIICP is the C-terminal pro-peptide of type II procollagen, **a precursor to type II collagen**, a major component of cartilage - **increased 46% over placebo in 90 days**.

  Procollagen 2 N-Terminal Peptide (PIIANP) is a biomarker used to assess **type II collagen synthesis** – this **increased 45% over placebo over 90 days.**

  2025 Jan 28;42(2):249–269. doi: 10.1007/s11095-025-03818-2



How does this inform us clinically?

- Boswellic acid and Celery seed extracts represent a **safe & effective anti-inflammatory intervention**, without the side effects of NSAID's.

  300mg/day of BA's & 250mg celery seed BID with meals are common doses.

  They complement many of the integrative therapies such as chiropractic adjustments, exercise therapy, Low level laser, diet and rest - that we already utilize to manage & reduce inflammation without drugs or surgery.

Fenumat technology for Superior absorption

- In this technology, hydrophobic and water-insoluble molecules and their nano structures such as liposomes, micelles, and emulsions are trapped within the fenugreek seed mucilage hydrogel scaffold.
- Upon dehydration, the hydrogel can be converted to water-soluble powder.
- Once ingested, it can rehydrate in the gastrointestinal tract to form a mucoadhesive hydrogel and further into a solution, leading to better absorption and bioavailability.

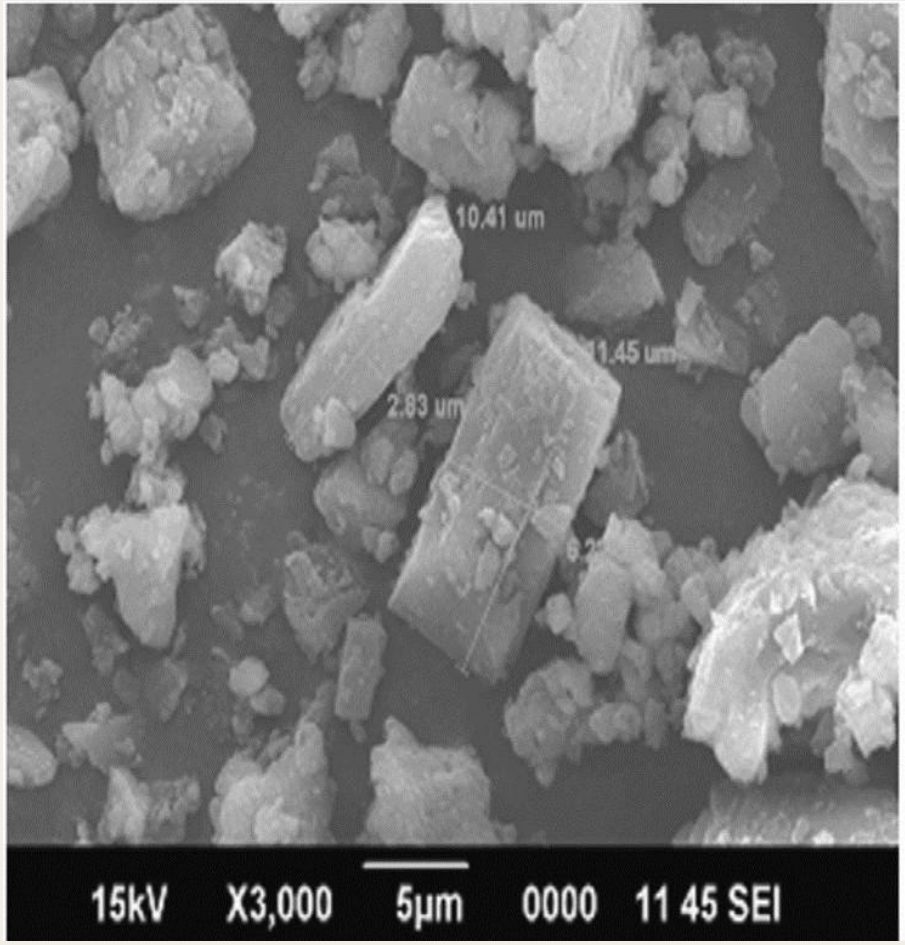
Turmeric Fenumat Technology

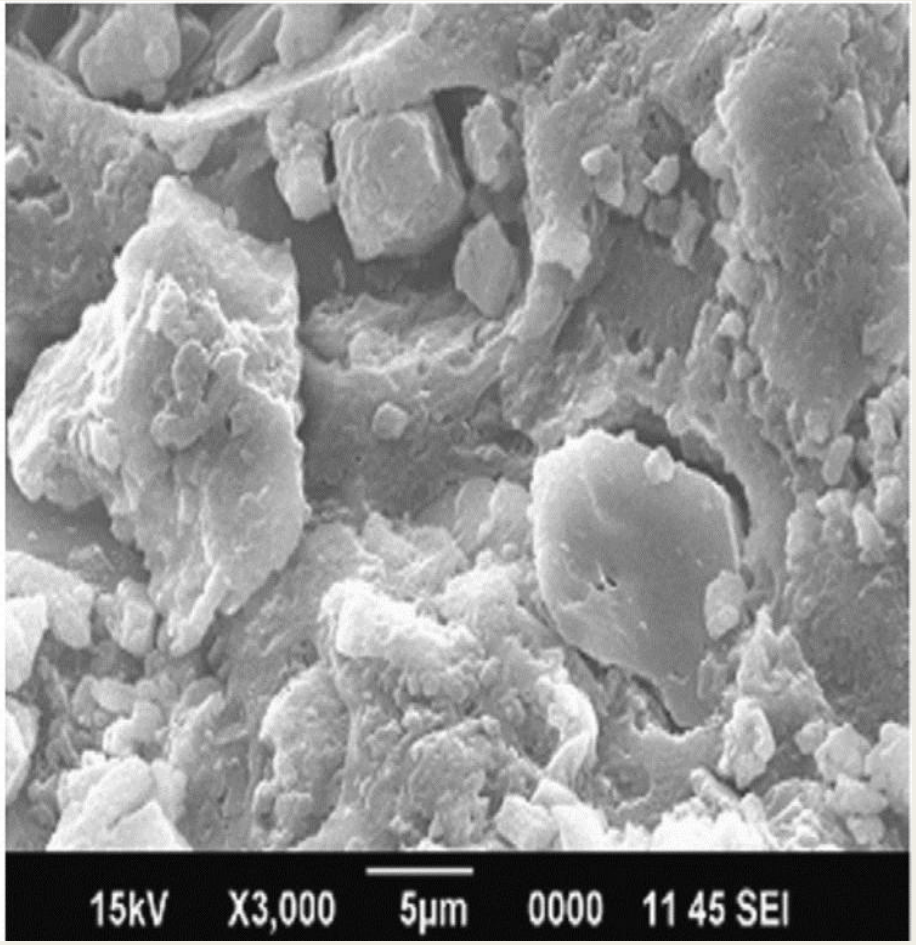
- It has been shown to possess:
- Enhanced bioavailability of free (unconjugated) curcuminoids,
- Improved blood–brain-barrier (BBB) permeability,
- Improved brain bioavailability,
- Improved neuroprotective effects compared to unformulated standard curcumin complex with 95% purity (USC)

(Krishnakumar et al., 2015; Kumar et al., 2016; Khanna et al., 2020).

Bioavailable Turmeric

Curcumin-impregnated Soluble Fenugreek Fibre Microgranulate (CGM)





- SEM photograph of (A) curcumin; and (B) curcumin-impregnated soluble fibre microgranulate containing 60% (w/w) fibre

- Krishnakumar IM, Abhilash R, Kumar D et al. An enhanced bioavailable formulation of curcumin using fenugreek-derived soluble dietary fibre *J Funct Foods* 2012; 4(1): 348-357

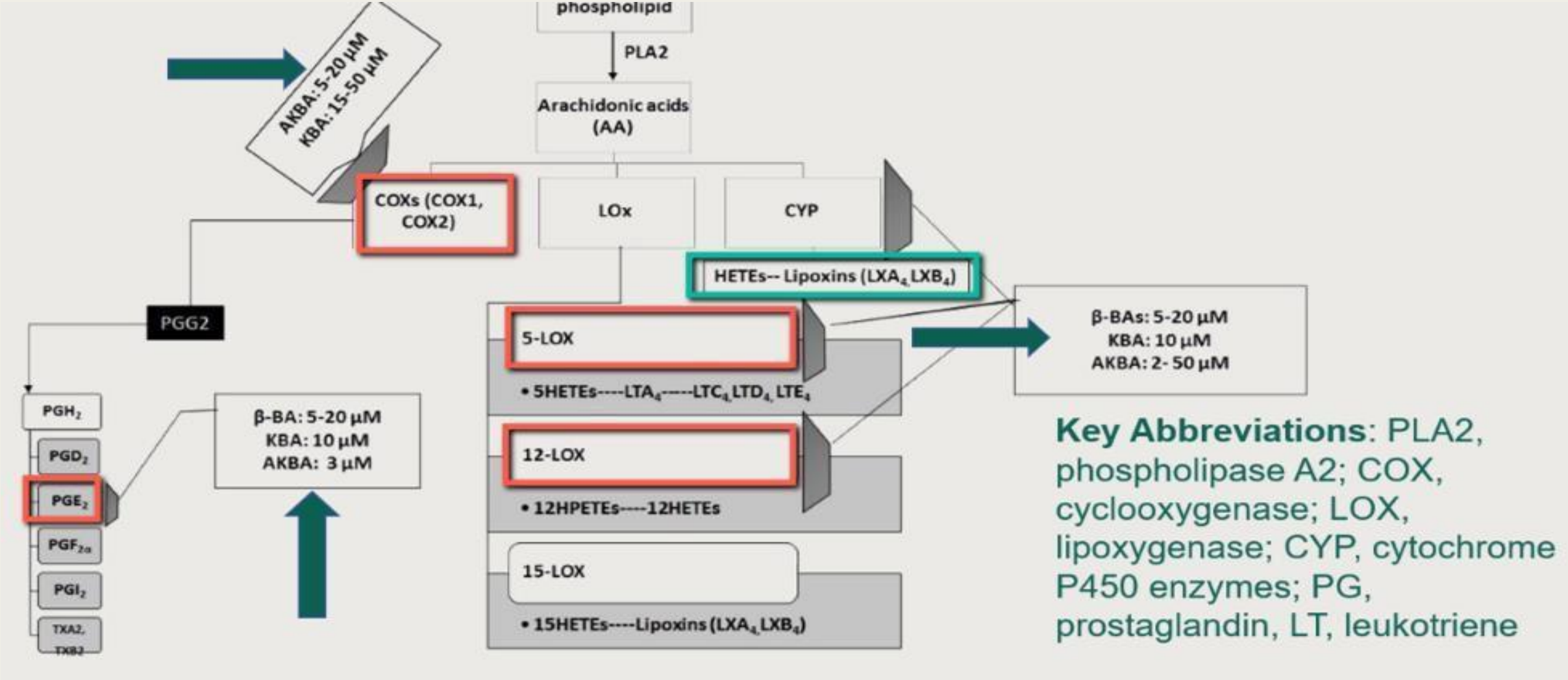
Bioavailable Turmeric

CGM Bioavailability Study

- Randomized, double blind, crossover single dose study (n=50): curcuminoid galactomannosides (CGM) compared to ‘straight' curcuminoids
- CGM **45.6** times bioavailability uplift, at a dose of 1000 mg, (400mg curcuminoids/600mg Fenugreek seed extract base)
- CGM **24.8** times uplift at a dose of 250 mg
- In terms of **free** curcuminoids, **it demonstrated a 74% increase in free curcuminoids to the blood plasma**.
- Curcumin conjugates in plasma were considerably less than free (unconjugated) curcuminoids suggesting the CGM formulation ***inhibits or avoids initial liver metabolism***.

Kumar D, Jacob D, Subash PS et al. Enhanced bioavailability and relative distribution of free (unconjugated) curcuminoids following the oral administration of a food-grade formulation with fenugreek dietary fibre: A randomised double-blind crossover study J Funct Foods 2016; 22: 578-587

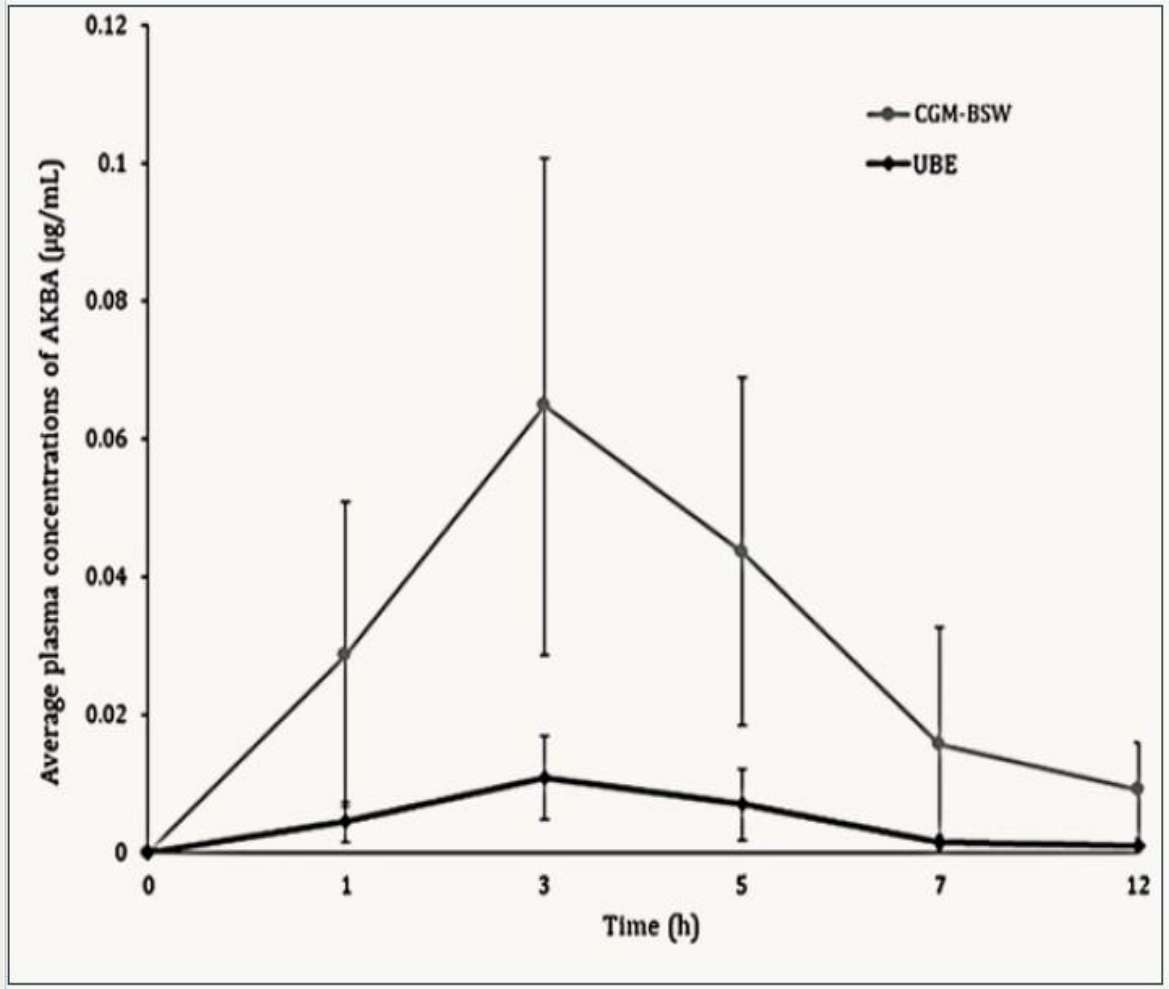
Boswellia Serrata



Sharma, https://doi.org/10.1016/j.hermed.2019.100313 Review article on Boswellia.
Sharma, T, Jana, S 'Boswellic Acids…Precious gifts to humankind' Journal of Herbal Medicine, Volume 20, April 2020 100313

What's New?

A Natural Approach to Superior Lipophilic Delivery of BWA's



AKBA: 3-Acetyl-11-keto-β-boswellic acid

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

Enhanced absorption of curcuminoids and 3-Acetyl-11-keto-β-boswellic acid from fenugreek galactomannan hydrogel beadlets: A natural approach to the co-delivery of lipophilic phytonutrients

Maliakkal Balakrishnan Abhilash [a], Dinesh Kumar [a], Ayswaria Deepti [b,c], Aswathi Nair [b,c],

The results of our double-blinded 4-way crossover, 4-sequence study (n = 14) demonstrated that a single dose of 250 mg of these beadlets enhanced the absorption of unconjugated curcuminoids (24.8-fold) and AKBA (6.9-fold) compared to their unformulated counterparts.

Timeline up to now…..

- **Joseph et al. (2024)** reported a full-spectrum bioavailability enhanced boswellia extract for both the volatile and non-volatile bioactives (hereinafter referred to as “F-BSE”) (**Joseph et al., 2024**).
- **Abhilash et al. (2021)** reported that curcuminoids can be co-formulated with boswellia extract as a single water-soluble powder with improved bioavailability for both curcuminoids and boswellic acids (hereinafter referred to as “C-BSE”) (**Abhilash et al., 2021**).
- Thus, the present randomized, placebo-controlled comparative study investigated the effects of F-BSE and C-BSE at a dosage of 400 mg/day on healthy volunteers suffering from moderate spondylitis issues characterized with pain and stiffness (**n = 105**).
- 2 Materials and methods

Dose

Placebo: 400 mg/day

F-BSE: 400 mg/day (16.9% boswellic acids, 9.3% AKBA

C-BSE: 400 mg/day (16.2% boswellic acids, 9.5% AKBA, 34.3% curcuminoids

Time points

Visit 1, Visit 2 (Day 1) , Visit 3 (Day 14) , Visit 4 (Day 28)

Statistical methods

2 × 3 RM ANOVA, One-Way ANOVA, Paired t-test, independent t- test

Primary outcome measure

BASDAI- Bath Ankylosing Spondylitis Disease Activity Index, NDI- Neck Disability Index

Secondary Outcome measures

IL1-β, NLRP3

- The present randomized, double-blind, placebo-controlled, three-arm, parallel group comparative study evaluated the relative efficacy of bioavailability enhanced formulations of the full-spectrum extract of *Boswellia serrata* oleo gum-resin (F-BSE) and its co-delivery system with curcumin (C-BSE) **in alleviating the pain/stiffness issues associated with mild-to-moderate spondylitis.**
- A relatively low dosage of **400 mg/day once daily** was used, and the symptoms were monitored for a short duration of **14–28 days**.
- Both F-BSE and C-BSE **significantly reduced total and subscores of BASDAI**, indicating **alleviation of pain and stiffness by day 14**.
- Further assessment using the NDI revealed a **reduction in neck pain and an improvement in mobility-related impairments** among **participants with high baseline neck pain scores**.
- The observed improvement continued to progress to day 28.
- C-BSE demonstrated a more pronounced effect than F-BSE.

Hand OA & Boswellia/Curcumin extracts

- A recent Belgian multicenter, double-blind trial of **standardized Curcuma longa (turmeric) and Boswellia serrata extracts** is noteworthy:
- Over **3 months**, the combination **achieved a statistically significant reduction in pain versus placebo** and was **generally well tolerated**.
- The double blind, randomised controlled trial included **162 adults** with symptomatic hand OA (**mean age, 63.1 years; 76.5% women**) who reported hand pain on **≥ 50% of days in the prior month** and ≥ 48 hours before baseline, with pain ranging from 40 to 80 mm on a 100-mm visual analogue scale (VAS) in at least one hand over the last 24 hours. **The primary outcome was the mean change in finger pain on both hands during the past 24 hours on the VAS over 3 months**.

- At 3 months, patients who received the plant extracts had a **greater mean VAS pain reduction of 24.7 mm compared with 16.2 mm in those who received placebo** (difference, -8.5 mm; P = 0.03);
- **Similar benefit was observed at month 1** (difference, -7.0 mm; P = 0.04).
- Patients receiving the plant extracts vs placebo also showed **significant improvements in the patient global assessment** (difference, -9.6 mm; P = 0.01) **and quality of life** score (P = 0.01) at month 3. The **mean age of participants was 63.1 years.** 76.5% were women
- There were no significant differences vs placebo for the number of painful/swollen joints, functional score, grip strength and analgesic consumption.

- The number of adverse effects did not differ significantly between the two groups, and most of them were unrelated to the use of plant extracts.
- [one patient taking the herbal combination developed acute hepatitis, judged as “probably related” (no further details provided)].
- The **trial intervention was two tablets/day** of a product containing Curcuma longa (**turmeric) standardised dry extract: 237 mg, providing 200 mg curcumin** and **Boswellia serrata oleoresin: 51 mg, standardised to 65% boswellic acids** and vitamin D3 (cholecalciferol): 3.6 µg (144 IU).
- Higher doses of these herbs might well achieve a better result.
- For more information see: **https://www.medscape.com/.../combination-plant-extracts...**

  and **https://pubmed.ncbi.nlm.nih.gov/40554037/**

Significance of hand OA study

- Although the effect of CBTIL on pain is significant, it remains moderate, with an **effect size of −0.3 at month 3 compared to the placebo**.[12]
- However, **this effect is higher than that of oral NSAIDs and glucocorticoids, two drugs that induce severe adverse effects in the long term**. A recent network meta-analysis highlighted that the effect size of oral NSAIDs on HOA pain was −0.1 compared to placebo.[13]
- **CBTIL effect size was even higher than intra-articular hyaluronate, intra-articular glucocorticoids, hydroxychloroquine, and topical NSAIDs' effect sizes, which were not superior to placebo**[13]
- The CBTIL effect size was lower in HOA than in knee OA.[10]

- Remarkably, **the effect was already significant after one month**, suggesting a fast action of CBTIL.
- The mechanism of action of these extracts can explain these effects.
- Curcumin inhibits cyclooxygenase-2 and prostaglandin E2 in a concentration and time-dependent manner.[14]
- *In vivo* studies have shown that curcumin produces an analgesic effect by antagonizing transient receptor potential vanilloid 1, a receptor that plays a crucial role in nociception.[15]
- **Analgesic activity has also been previously reported for Boswellia and boswellic acids**, including **inhibition of lipoxygenases**.[16]
- [Note: NSAID's, including aspirin, do not touch LOX enzymes]

- CBTIL failed to improve joint function.
- Indeed, **no significant effect of CBTIL on FIHOA or grip strength was observed compared to placebo, even a trend of strength increase was observed in the CBTIL group, but the difference did not reach significance.**
- ***[So adjust your patients' hand joints!]***
- Another critical finding is CBTIL's **excellent tolerance**.
- **No more adverse effects have been observed in CBTIL than in the placebo**, which can be **advantageous for the long-term management of patients with chronic conditions like OA.**

What’s new with Gotu Kola leaf extracts?

Gotu Kola [Centella Asiatica]

- **Key constituents**: Triterpene saponins (asiaicoside, madecassoside) and their aglycones (asiatic & madecassic acid).
- **ACTIONS**: Tissue [collagen] healing promoter, vulnerary, anti-inflammatory, adaptogenic, nervine tonic, anti-fibrotic.
- **Key indications**:
- To promote Collagen healing, prevent Adhesions; Varicose veins, venous insufficiency, hemorrhoids, thrombophlebitis.
- Burns, cellulitis, diabetic neuropathy, ulcer, disc prolapse, fractures, scleroderma, post surgery/injury.

Gotu Kola (*Centella asiatica*) Leaf extract

- Established Pharmacology:
- The triterpenes asiaticoside and madecassoside **improve microcirculation and venous tone, helping reduce venous hypertension and local tissue hypoxia**—central drivers of ulcer chronicity.
- The herb concurrently **promotes healing through enhanced fibroblast activity, collagen synthesis, and extracellular matrix repair, accelerating granulation and re-epithelialisation**.
- Its **anti-inflammatory effects temper chronic wound inflammation**, while modulation of transforming growth factor beta (TGF-β) and vascular endothelial growth factor (VEGF) **signalling supports angiogenesis and tissue remodelling.**

Group 1 (Control): education, exercise, diet and lifestyle changes. Same management plan was used in all groups;
Group 2 Pine bark extract (PBE) 50 mg/day;
Group 3 PBE 100 mg/day;
Group 4 Aspirin 100 mg/day;
Group 5 Aspirin 100 mg/day and PBE 100 mg/day;
Group 6 PBE 100 mg/day plus Gotu Kola triterpenoids 100 mg/day.

Belcaro G, Dugall M, Hosoi M et al. Pycnogenol® and Centella Asiatica for asymptomatic atherosclerosis progression. Int Angiol. 2014 Feb; 33(1): 20-26. PMID: 24452082

Gotu Kola/OPC's Slow plaque progression

- Research points towards a stabilizing influence on fibrous caps of atherosclerosis.
  DOI: **10.23736/S0026-4725.19.0505**1**-5**
- **Gotu Kola 300-450mg/day**
- **OPC's 100-150/day**
- Trial performed over 4 years.
- Safe and effective. Less hospitalizations & vascular events requiring surgery, (<4% vs. >12% of controls). All subjects had >50% stenosing carotid plaques on Ultrasound).
- Plaque progression was 5.3% in supplement groups. Was >20% in non supplemented groups (incl. aspirin).
- Supplements are safer than aspirin.

U.S. Preventive Services
TASK FORCE

USPSTF Bulletin

Task Force Issues Draft Recommendation Statement on Aspirin Use to Prevent Cardiovascular Disease

People 40 to 59 should decide with their clinician whether to start taking aspirin; people 60 or older should not start taking aspirin

WASHINGTON, D.C. – October 12, 2021 – The U.S. Preventive Services Task Force (Task Force) today posted a draft recommendation statement on aspirin use to prevent heart disease and stroke, also known as cardiovascular disease (CVD). People ages 40 to 59 who are at higher risk for CVD and do not have a history of CVD should decide with their clinician whether to start taking aspirin. **This is a C grade.** People age 60 or older should not start taking aspirin for heart disease and stroke prevention. **This is a D grade.**

Grades in this recommendation:

C: The recommendation depends on the patient's situation.

D: Not recommended.

Learn more here

Gotu Kola [Centella Asiatica] & microcirculation

- 100 DM pts with neuropathy 12 months, 60mg BID.
- 50 pts over 6 months vs placebo
- In conclusion, the decrease in capillary filtration and edema is associated with symptomatic improvement.
- The action on edema is beneficial for the evolution of neuropathy.
- The effects of TTFCA on flux, RAS, and edema are important in early stages of microangiopathy to avoid progression to clinical stages.

Gotu Kola – Antioxidant and Mitoprotective

Gotu Kola demonstrates a range of neuroprotective, anti-inflammatory, and cognitive benefits due primarily to its antioxidant and mitoprotective actions[1]

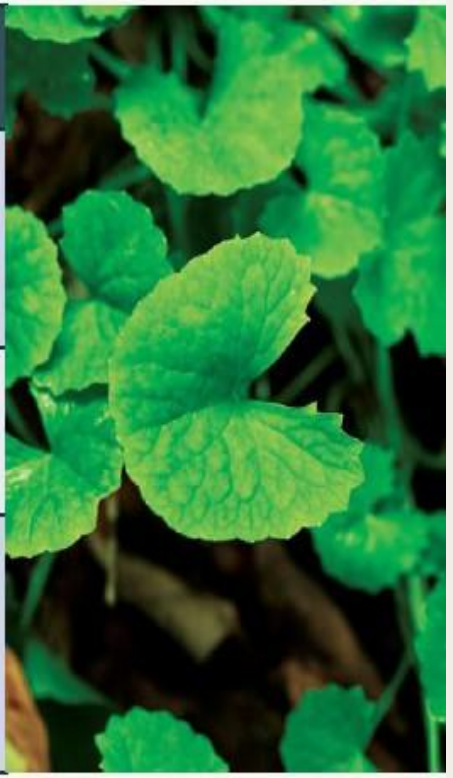
Therapeutic Constituents:

- Triterpene saponins:
  - asiaticoside and madecassoside[2,3]
    - aglycones asiatic acid and madecassic acid[2]
- Readily cross the BBB[2]

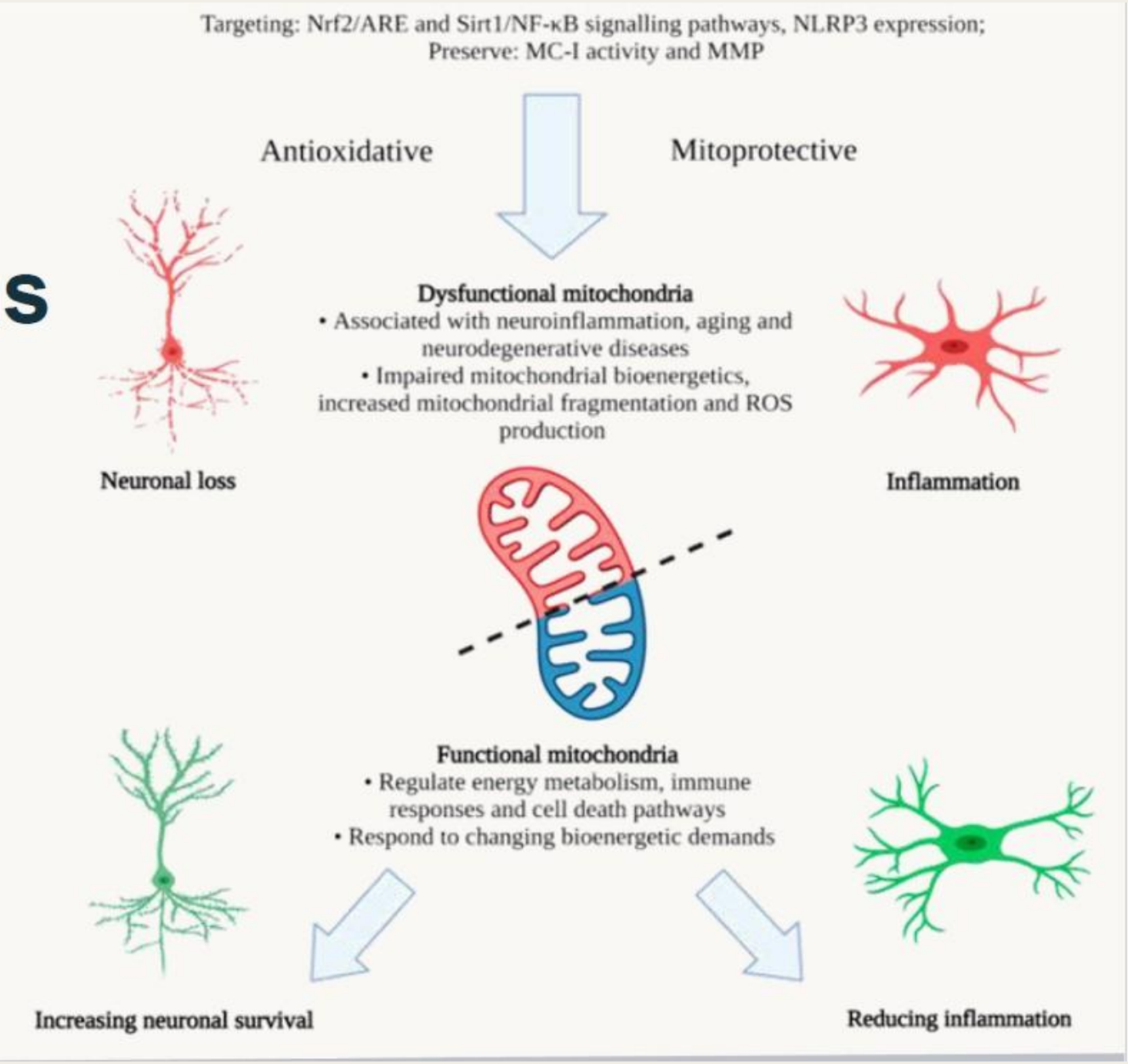
Action	Results
AD Cognitive Benefits: Improvement in Learning and Memory	• Associated with a reduction in amyloid-β deposition, TNF-α, IL-6[4] • Improved hippocampal mitochondrial function[4] • Increased expression of Nrf2[4]
Memory Performance *(in vivo)*	• Increases in synaptic density and expression of Nrf2[4] • Increase in hippocampal BDNF signalling[5]

Gotu Kola Modulates NI

Action	Results
Neuroinflammation model *(in vivo, in vitro)*	• Inhibited acetylcholinesterase activity[1] • Regulates SIRT1/NF-κB signaling pathway[2]
Cognitive Performance Changes *(in vivo)*	• Increased BDNF in prefrontal cortex[3]
Inhibits Neuronal Apoptosis *(in vitro)*	• Restoring and maintaining mitochondrial membrane potential[2] • Attenuating NO production in microglia[4]



Antioxidant and Mitoprotective Actions of Gotu Kola



Wong JH et al. Mitoprotective Effects of Centella asiatica (L.) Urb.: Anti-Inflammatory and Neuroprotective Opportunities in Neurodegenerative Disease. Front Pharmacol. 2021; 12: 687935. doi: 10.3389/fphar.2021.687935

Gotu Kola: Venus & Microvascular Health

- A pilot registry study found that treatment with an oral gotu kola extract (Centella asiatica) **significantly improved the closure and healing rates of chronic venous leg ulcers** when used in addition to best management treatment.
- The study included **160 patients with venous ulcers and chronic venous insufficiency (CVI).**
- **One group received 675 mg/day of oral gotu kola extract (standardised to 35% total triterpenes)** along with best management (BM) practices (compression, elevation, wound cleaning), while a control group received only BM.
- The results demonstrated a **significant improvement in the herbal group**:

Gotu Kola Study – significant results

- • **Ulcer Closure Rate**: 96.2% of ulcers in the gotu kola group achieved complete closure after 90 days, compared to 83.7% in the control group.
- • **Faster Healing: after just one month, 65% of ulcers in the gotu kola group were completely healed, versus only 18.75% in the control group**.
- • **Reduced Ulcer Area**: the average ulcer area in the gotu kola group decreased dramatically (from 2.34 cm^2 to 0.33 cm^2), a significantly greater reduction than that observed in the control group (from 2.4 cm^2 to 1.61 cm^2).
- • **Improved Microcirculation**: the herbal group showed enhanced microcirculatory parameters, including improved skin resting flux and transcutaneous oxygen/carbon dioxide partial pressures, **indicating better blood flow and tissue oxygenation**.

Gotu Kola Extracts

- Gotu kola remains the leading herb for tissue repair and microvascular support
- This recent trial further vindicates its clinical value.
- Notably, the dose used was high, but still realistic and achievable in practice.
- The benefits observed in this venous ulcer study are well explained by its established pharmacology.

Gotu Kola & Boswellia: Spinal disc study 2022

- BACKGROUND: The aim of this registry study was to investigate the potential of a new food-grade formulation of the association of *Boswellia serrata* and *Centella asiatica* extracts (*Boswellia*/*Centella* Phytosome, [BCP]) in combination with standard management (SM) **to produce a faster re-expansion of the intervertebral disks in symptomatic subjects with "flattened" disks in the lower spine, due to wrong posture and compression after repeated trauma.**

- METHODS: The study was designed as a **3-6 months pilot registry**. **Three groups** of subjects were comparable for characteristics and symptoms at baseline: SM+BCP; SM; SM+glucosamine.

- DOI: 10.23736/S0031- 0808.20.04028-8)

- Key words: Spinal cord compression; Intervertebral disc; Osteoarthritis; Ultrasonography; *Boswellia*; *Centella*

Methods – 3 Groups over 3-6 months

- **Group 1: Standard Management (SM)**

- Weight control, (**all had BMI <26**)
- **Spine elongation exercises (espalier, 5 min twice daily**),
- **Avoiding sitting for more than 1 hour** (with 5 minutes walking/standing breaks),
- Positional changes, more rigid mattress,
- Diet **reducing** calories**, salt (NaCl) and sugars**,
- **Adequate hydration and vitamins**, *[specific vitamins not mentioned in study]*
- **Walking at least 20 minutes daily**, adequate shock-absorbing shoes,
- Postural chairs

- **Group 2**: SM + (**Boswellia/Gotu kola**/phytosome extract), BCP
- BCP preparation was in a Lecithin base 500mg, with Boswellic acids & Gotu Kola extracts, subjects took 2 tablets/day.

- **Group 3**: SM & **Glucosamine**:
- 900mg Glucosamine/day.[2 doses of 450mg/day]

Measurements

- Spinal X-rays
- Spinal measurements
- Ultrasound echogenicity disk measurement
- Signs & Symptoms (VAS)
- Rescue medication use
- Lost days of work
- Blood markers [CRP, ESR, kidney & hepatic markers]

Standard Exercises Sager disc study

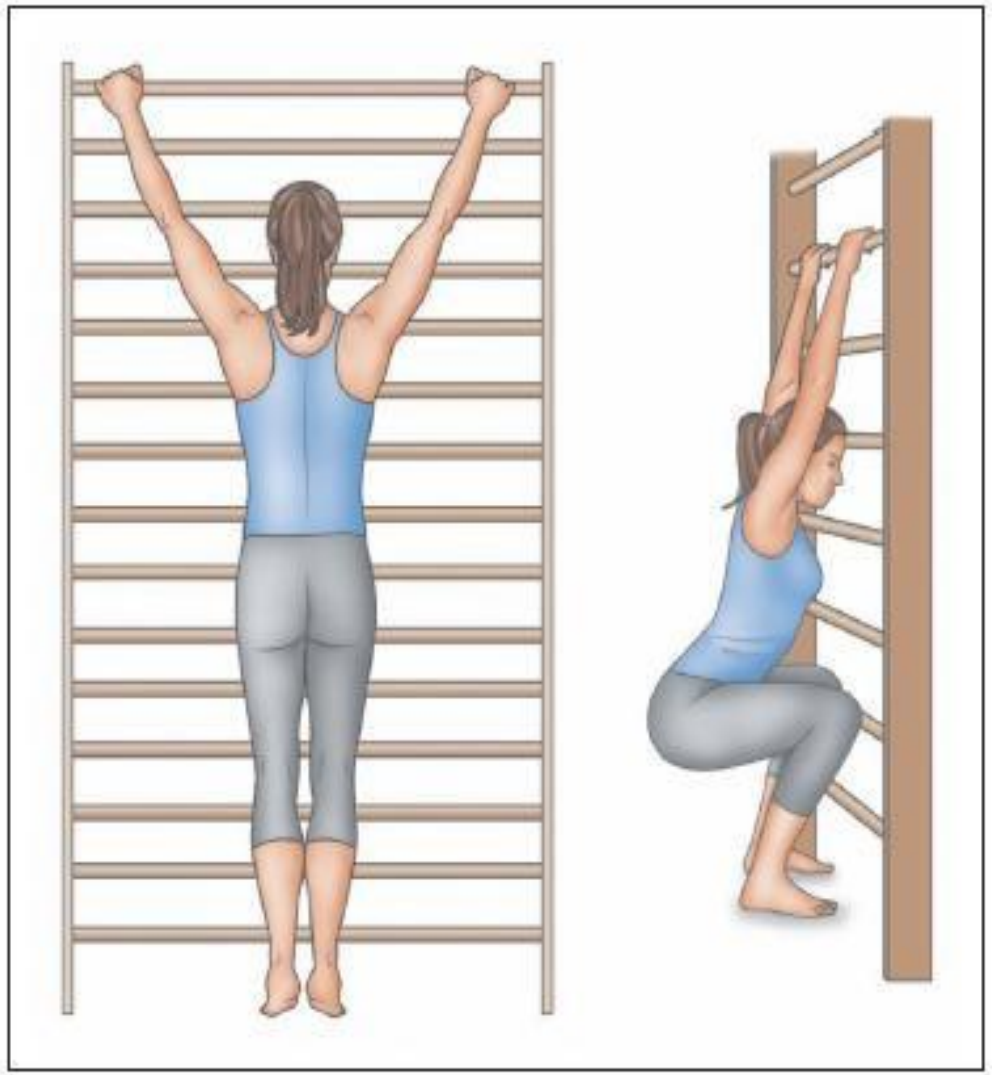


Figure 1.—Examples of extension of the spine which leads to recovery of disks morphology and to an elongation of the spinal length. Even a minimal amount of exercise (on a simple espalier) may improve signs/symptoms of compression in few days if not other problems are present.

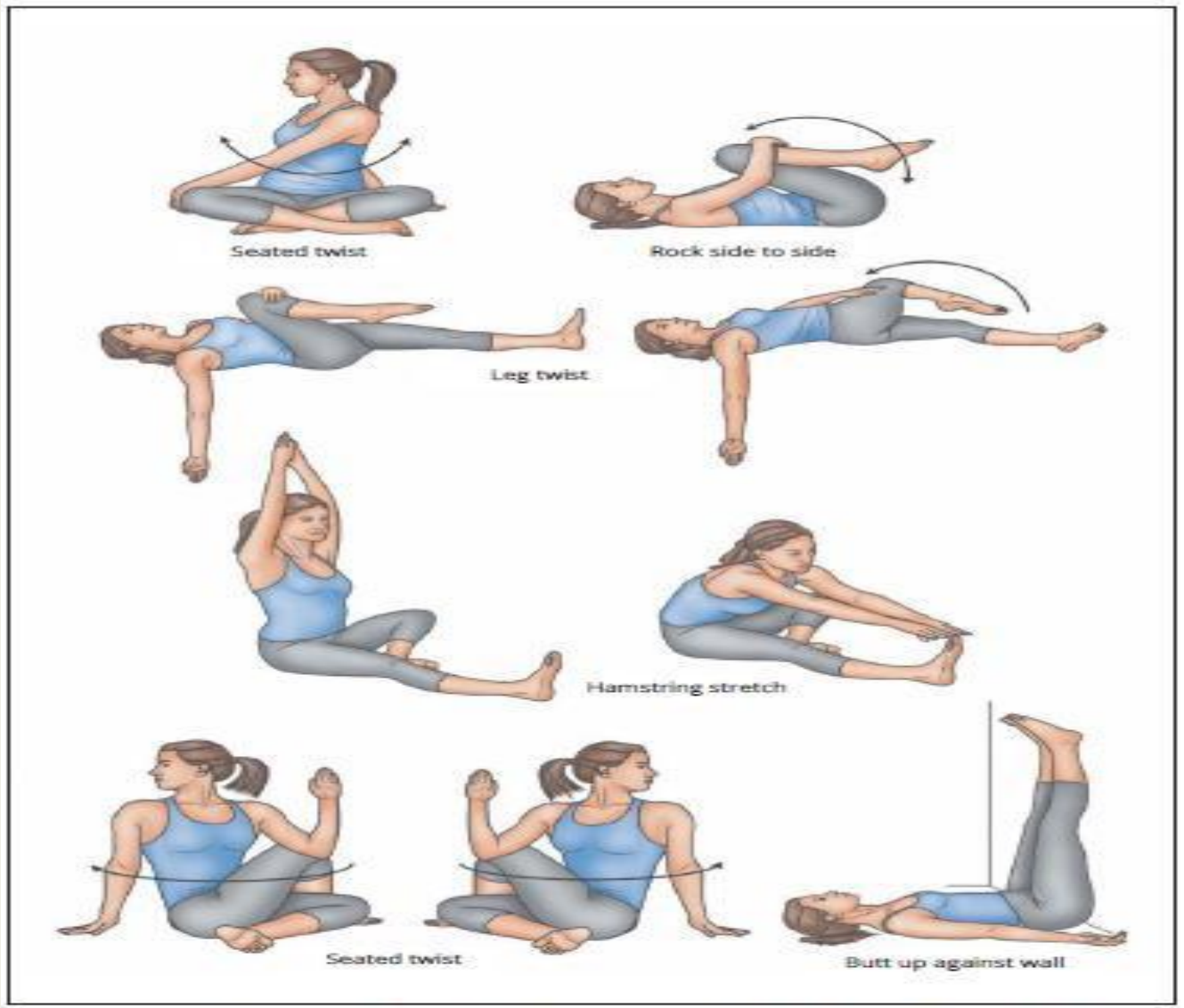


Figure 3.—The second set of exercises included poses for flexibility, back pain and disk mobilization.
Exercise plan 2 was followed by all subjects after one month of spinal extensions, without forced positions, at home, at least 4 times/week.

RESULTS:

- **No side effects** were observed.
- Target measurements **at 3 and 6 months**, **height increased in the BCP group** *vs*. the other two groups.
- **The total spine length improved in the BCP group** (P<0.05); in particular **at 6 months the increase was doubled with BCP**.
- SM was effective in producing elongation **but the association with BCP made spinal elongation faster, more effective, with a better expansion of the intervertebral disks.**
- Ultrasound measurements, **BCP was able to significantly ameliorate the posterior disk space** (P<0.05) and **decreased disk density more than the other groups of the study.** *[decreased density via US = more hydration]*
- **Signs/symptoms and mobility were improved with BCP** (P<0.05), while rescue medications decreased.
- **The loss of working days was reduced with all managements** (**significantly more in BCP group** than in the other two).

CONCLUSIONS:

- The relative effects on spinal elongation, disk space, signs/symptoms of **BCP appeared to double the efficacy of SM**, improving symptoms associated to a very good tolerability of BCP.

- In this registry study for the first time, the potential role of BCP, a new food-grade formulation of the association of highly standardized *Boswellia serrata* and *Centella asiatica* extracts, was **demonstrated as a faster re-expansion of the intervertebral disks in symptomatic subjects with "flattened" disks in the lower spine, due to wrong posture and compression after repeated trauma**.

- **Glucosamine** has been used in several arthrosis-link conditions but **there is no real evidence of a specific activity onto the disk structure** and onto the elongation of the spine in these patients, **as confirmed in our registry.**

Gotu Kola Summary

- **Does your patient have…?**
- Hypertension?
- Arteriosclerosis?
- High levels of oxidative stress? (metabolic syndrome, work environments/sun exposure/high stress/diet/smoking/emotional worry/Sympathetic dominance)
- Family history of stroke, emboli and/or heart attack?
- Disc injuries/loss of disc hydration/low back Pain?

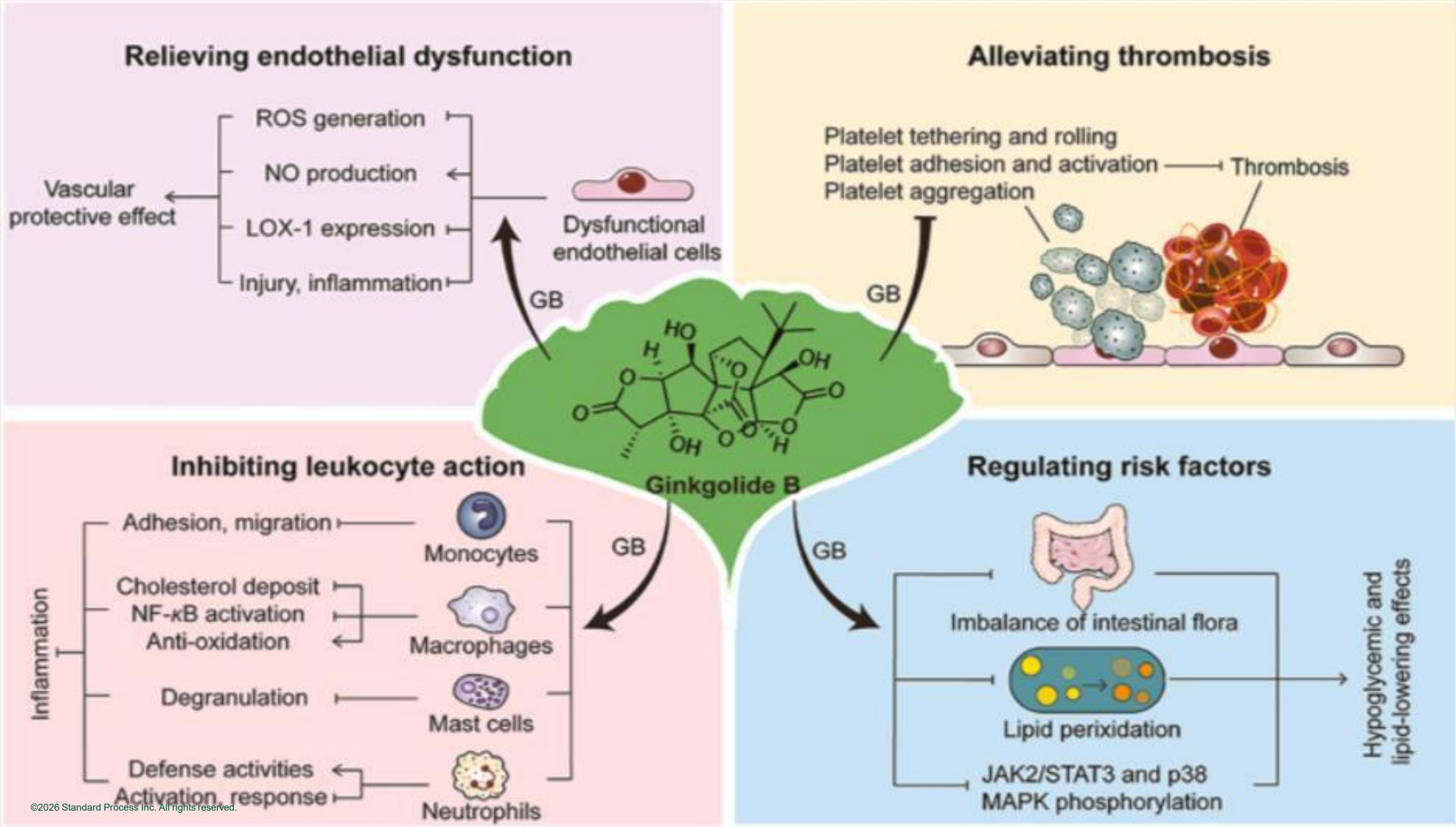
Therapeutic grade extract of Gotu Kola and Grape Seed should be in their overall clinical support.

Use higher dosages for injured collagen repair

Also, a potent anti-inflammatory; esp. protective in neurodegenerative pts. Along with boswellic acids, Bioavailable curcumin & bupleurum & quality fish oils.

Ginkgo

- Anti-oxidant
- Anti-platelet activating factor (anti-PAF) activity.
- Tissue perfusion enhancing
- Circulatory stimulant
- Cognition enhancing
- Neuroprotective
- Anti-inflammatory
- Inhibits human prothrombin (in-vitro)
- Many in-vivo murine studies



Vertigo with Vascular origins

- Ginkgo biloba is **one of the most extensively studied herbal medicines in modern clinical research,** with hundreds of randomized controlled trials (RCTs) across conditions such as **cognitive decline, stroke recovery, tinnitus, peripheral arterial disease, anxiety and age-related vascular complaints.**
- Following on from Ginkgo's proven effects on circulatory physiology, particularly effects on endothelial function, blood flow regulation and microvascular perfusion.
- Rather than acting as a simple symptomatic agent, **Ginkgo extract can be framed as a modulator of microcirculatory dynamics**.
- **Dizziness and vertigo**, especially when etiology is mixed or unclear, **frequently have a vascular or microvascular component**, which makes the therapeutic use of Ginkgo biologically plausible.

EFFICACY OF EGB 761® AND BETAHISTINE IN TREATMENT OF DIZZINESS/VERTIGO: A RANDOMIZED DOUBLE-BLIND CONTROLLED TRIAL

Jianbunjongkit N, Nattarangsi W, Teeravanittrakul P

OBJECTIVES

To compare the efficacy and safety of Gingko biloba extract EGb® with betahistine in patients with dizziness/vertigo of uknown etiology

METHODS

Randomized, double-blind, controlled trial of 86 patients > 20 years old with dizziness/vertigo for > 1 month without specific etiology. Patients randomized to EGb 761® (120 mg/day) or betahistine (36 mg/day) with matched placebos for 12 weeks

RESULTS

Dizziness Handicap Index (DHI) Over time

	Week 0	Week 2	Week 6	Week 12	
EGb 761®	6.5±1.6	3.8±1.7	3.4±1.8	2.1±1.2	<0.01
Betahistine	6.4±1.0	3.6±2.8	3.1±2.1	2.2±1.9	<0.01

Significant improvement overtime in DHI and 11-point box scale

No significant difference in EGb 761® or Betahistine at any time point

Both treatments well tolerated, only mild gastrointestinal upset noted

EGb 761® and betahistine demonstrated comparable efficacy and good safety in treating dizziness or vertigo of unclear etiology. Clinical improvement was most evident within the first two weeks of therapy

CANADIAN SOCIETY OF OTOLARYNGOLOGY - HEAD & NECK SURGERY
JOURNAL OF THE CANADIAN SOCIETY OF OTO-HNS

A 2026 trial directly compared:

- **standardized Ginkgo extract (120 mg/day)** with
- Beta-histine (36 mg/day, best known under the proprietary name Serc)
- **86 adults with dizziness or vertigo of unclear cause**. It was randomised, double blind and placebo-matched, a methodologically sound design for a largely subjective symptom complex.
- Over **12 weeks, both groups improved significantly** on validated measures (the 11-Point Box Scale and the Dizziness Handicap Inventory).
- Beta-histine showed a faster early response at week 2, with a large short-term effect size, but **by week 12 there was no meaningful difference between the two treatments**.
- **Both interventions were effective**, and neither demonstrated clear superiority at the study endpoint.

This finding aligns with earlier research…..

- A larger European multicenter RCT (n=160) in 2014
- using 240 mg/day of Ginkgo extract also found it comparable to betahistine over 12 weeks.
- With 27 adverse events in 19 patients, Ginkgo showed better tolerability than beta-histine with 39 adverse events in 31 patients.
- Across multiple trials and pooled analyses, **Ginkgo extract has shown consistent benefit in vertigo syndromes, particularly where vascular regulation may be relevant.**
- The newer study is notable for demonstrating similar long-term outcomes at a lower Ginkgo dose, suggesting clinical activity even at 120 mg/day (about 6 g of the starting dried leaf).

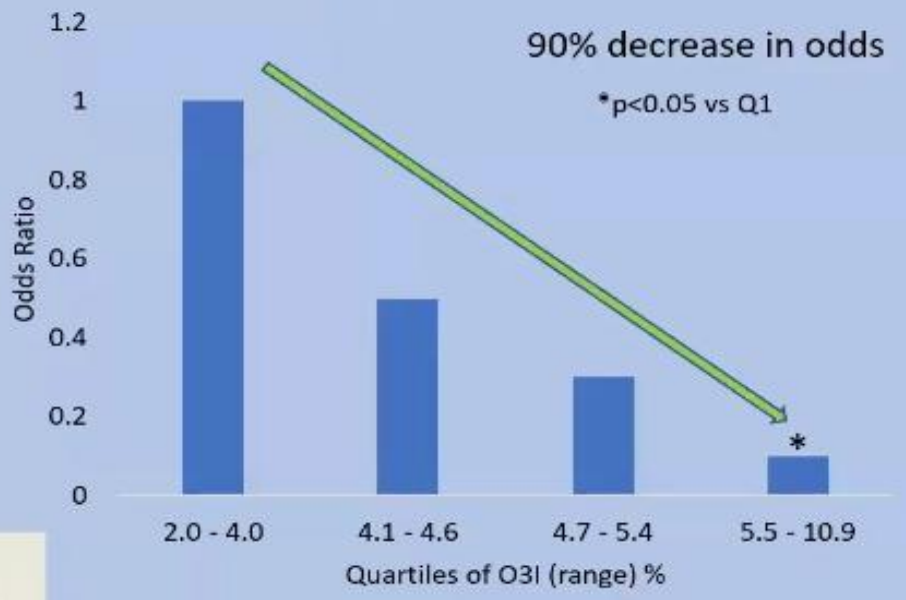
Ginkgo take home:

- Betahistine may act more quickly, **but Ginkgo appears to exert equal benefit over time.**
- For clinicians, **this positions Ginkgo extract as a legitimate therapeutic option in dizziness and vertigo, particularly where an altered microcirculatory rationale is compelling**.
- For more information see: **https://pubmed.ncbi.nlm.nih.gov/41487075/**

Two Studies that Inspired the Creation of the Omega-3 Index

RISK FOR PRIMARY CARDIAC ARREST AND RED BLOOD CELL EPA+DHA LEVEL

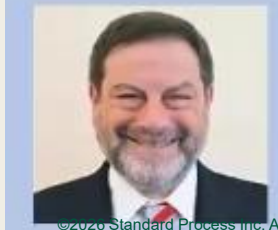
Cross Sectional



Adapted from Siscovick et al. *JAMA* 1995;274:1363-1367.

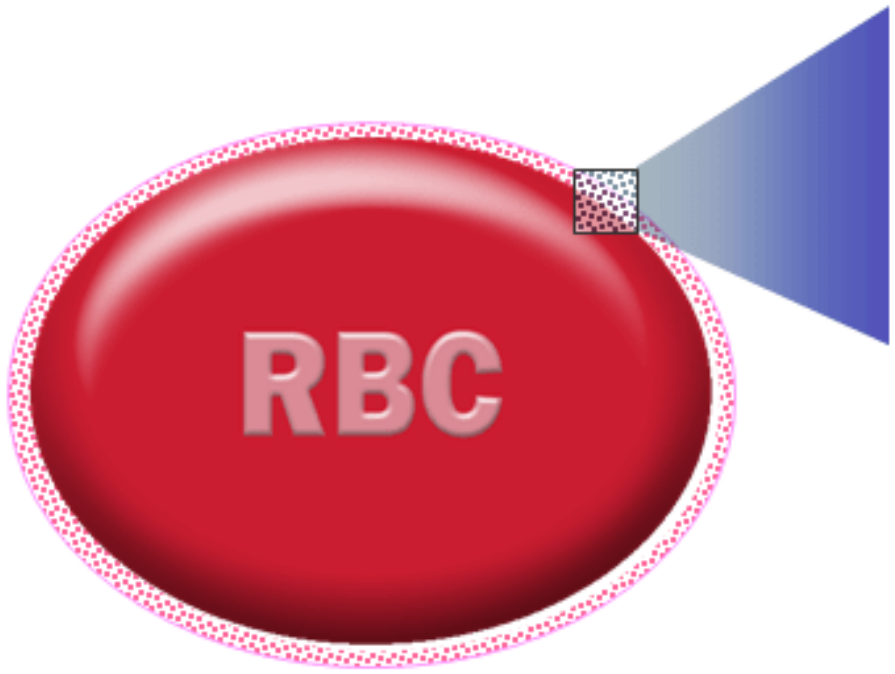
Prospective

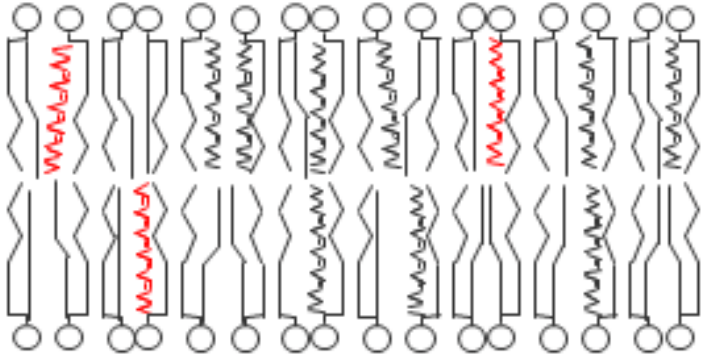
Adapted from Albert et al. *N Engl J Med* 2002:346:1113-1118.



Omega-3 Index

A measure of the amount of EPA+DHA in red blood cell membrane phospholipids expressed as the percent of total fatty acids





There are 64 fatty acids in this model membrane, 3 of which are EPA or DHA

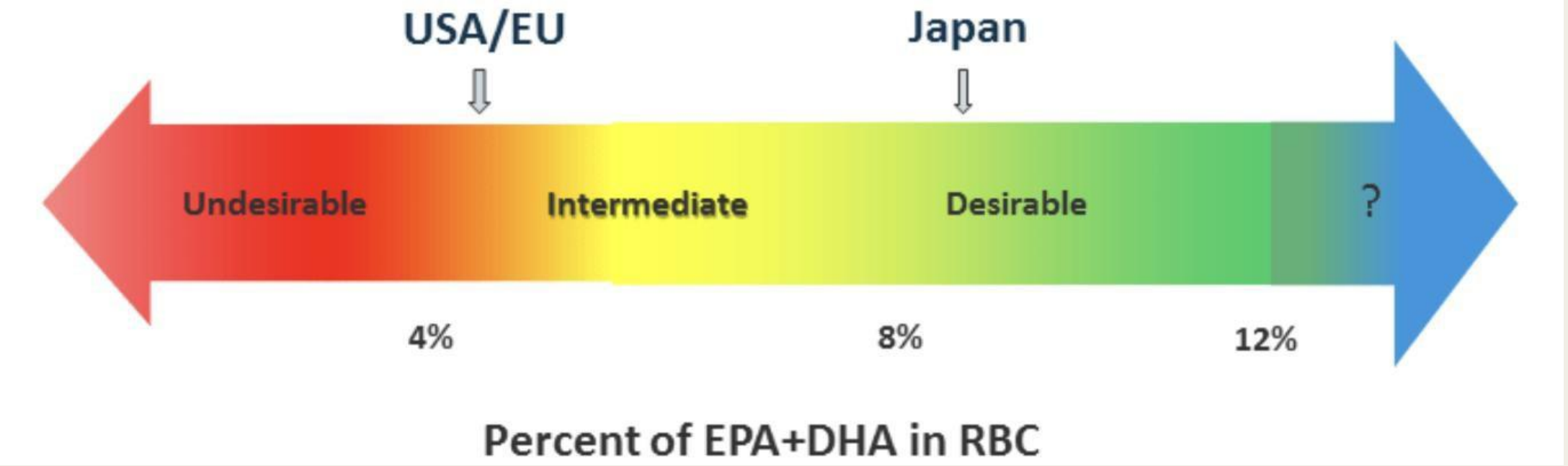
3/64 = 4.6%

Omega-3 Index = 4.6%

Harris WS and von Schacky C. *Prev Med* 2004;39:212-220.

Omega-3 Index

- The Omega-3 Index Tests **measure the amount of EPA and DHA in the RBC membranes in your blood**.
- Many studies show **8% -12% is the optimal level of omega-3.**
- Most people globally have an Omega-3 Index below 8%.
- The **average American has an Omega-3 Index of around 5%.**



Blood Omega-3 is Inversely Related to Risk of Early-Onset Dementia, Clinical Nutrition, February, 2026

- The prospective study followed 217,122 adults aged 40–64 for an average of 8.3 years and identified 325 cases of early-onset dementia, defined as diagnosis before age 65.
- **Researchers found that individuals with higher plasma omega-3 levels had a substantially reduced risk of developing early-onset dementia** compared with those who had the lowest levels.
- Participants in the highest omega-3 quintiles experienced approximately a **35–40% lower risk**, even after adjusting for genetic risk (APOE-ε4), lifestyle factors, and cardiometabolic health variables

- “This is the **first large-scale study to show that objectively measured omega-3 status is linked to lower risk of dementia** diagnosed before age 65,” **-** Aleix Sala-Vila, PhD, lead author of the study.
- “Most prior research has focused on older populations. **Our findings strongly suggest that omega-3 intake earlier in midlife may play a meaningful role in brain health decades before dementia typically appears.”**
- Notably, the protective association was observed not only for DHA—the most abundant omega-3 fatty acid in the brain—**but was even stronger for non-DHA omega-**3 fatty acids, highlighting the **potential importance of considering the full spectrum of omega-3s rather than focusing on DHA alone**.

Get your & your patients omega levels checked!

- “These results reinforce the value of using blood biomarkers rather than self-reported diet when studying nutrition and brain health,” said Nathan L. Tintle, PhD, co-author of the study.
- “Because omega-3 levels can be **safely and effectively increased through diet and supplementation**, this represents a plausible, low-cost strategy that could help reduce the burden of early-onset dementia.”
- The researchers also found **no evidence that the association differed by APOE-ε4 genotype**, **suggesting that higher omega-3 status may be beneficial regardless of genetic risk**.
- Based on established conversion equations, **omega-3 levels associated with the greatest risk reduction corresponded to an Omega-3 Index of approximately 8%**—a level achievable through regular consumption of fatty fish and/or omega-3 supplements.

Thank You!

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