



Accurate Clinic

2401 Veterans Memorial Blvd. Suite 16
Kenner, LA 70062 - 4799
Phone: 504.472.6130 Fax: 504.472.6128

www.AccurateClinic.com

Accurate Education

Micronutrient Synergies for Pain

The conditions that maintain and drive chronic pain and lead to worsening of severity over time are Systemic Inflammation, Neuro-inflammation and Oxidative Stress. In turn, these conditions give rise to Central Sensitization, a condition in which pain becomes magnified over time. To fully manage chronic pain one must address these conditions, including the use of diet and supplements.

Diet quality impacts systemic inflammation. Research shows that the Standard American Diet (SAD), characterized by high intake of processed foods, saturated fats, refined carbohydrates, and added sugar, worsens inflammation and increases pain perception in patients with chronic pain. This has led to contemporary dietary recommendations for the Anti-Inflammatory Diet (AID).

The immune system regulates inflammation in acute and chronic pain via the release of inflammatory cytokines, small proteins that promote or reduce inflammation. The SAD diet, along with excessive fat tissues in overweight and obese individuals, leads to increased production of pro-inflammatory cytokines (e.g. interleukin-6 (IL-6), tumor necrosis factor alpha (TNF- α), and C-reactive protein (CRP)). These cytokines promote systemic inflammation and lead to the sensitization of pain pathways (Central Sensitization). For example, elevated levels of CRP and IL-6 have been shown in individuals with chronic pain, demonstrating shared pro-inflammatory pathways that contribute to pain generation and chronicity.

Treating chronic pain is a major clinical challenge, with standard drug therapies (e.g., NSAIDs, opioids) often limited by side effects, inadequate effectiveness, and long-term safety concerns. Worse, these therapies do nothing to reduce Systemic Inflammation, Oxidative Stress, or Central Sensitization, and may in fact even contribute to them. Nutraceuticals such as quercetin, curcumin, resveratrol, omega-3 fatty acids, and vitamin C, with their anti-inflammatory, antioxidant, and analgesic properties, target and suppress these processes by reducing cytokine production and combating oxidative stress.

Considering the mechanisms of actions of these compounds, combining these agents is rational and supported by emerging clinical and preclinical evidence. For example, polyphenol combinations (curcumin, resveratrol, quercetin, EGCG) and omega-3s have demonstrated synergistic pain relief, improved function, and reduced inflammation in osteoarthritis and rheumatoid arthritis trials. Vitamin C enhances the antioxidant and anti-inflammatory effects of quercetin and other flavonoids, with research supporting synergy. These combinations are associated with improved pain scores, physical function, and quality of life compared to single agents. Most trials establishing benefits used treatment durations of 8–12 weeks for pain and inflammation endpoints.

Evidence-Based Micronutrient Dosing Regimen

- **Omega-3 fatty acids:** 1–2 g EPA/DHA daily
- **Curcumin:** 500–600 mg 2–3 times daily
- **EGCG (Green tea)** 300–800 mg/day (supplements); 2–3 cups/day green tea (Matcha preferred)
- **Resveratrol:** 100–150 mg daily
- **Quercetin:** 500 mg daily.
- **Vitamin C:** 500–1000 mg daily, for synergy with flavonoids such as quercetin.

Omega-3 fatty acids (EPA and DHA): are the most powerful nutraceutical anti-inflammatory agents and are found in cold water, fatty fish, including salmon, tuna, sardines, mackerel, and oysters.

Curcumin, found in turmeric, is the most powerful plant-based anti-inflammatory compound with strong evidence that it may offer up to 30% reduced pain and improved joint function in arthritis.

- **Dietary:** With poor absorption (<1%) and rapid metabolism, dietary intake is inadequate to gain benefits.
- **Dosing:** 500 mg/day, increasing up to 1,500 mg/day.
- **Suggested Supplements:** Liposomal and Nanoparticle-based products offer superior absorption: Thorne Meriva and Life Extension Super Bio-Curcumin

EGCG is one of the most powerful dietary antioxidants with good evidence for reducing systemic inflammation and oxidative stress.

- **Food Sources:** Green tea and matcha green tea (100–150 mg/100 mL), Black tea, white tea, and oolong tea also contain significant EGCG, (though generally less than green tea); unsweetened cocoa powder, carob powder and blackberries are also excellent sources.
- **Dosing:** 300–800 mg/day (supplements); 2–3 cups green tea; Take on an empty stomach
- **Suggested Supplements:** Use liposomal EGCG

Resveratrol has moderate evidence for reducing pain in arthritis, and may help nerve pain.

- **Food Sources:** Red grapes/ wine, blueberries only provide up to 1-2 mg per serving, inadequate for full benefit
- **Bioavailability:** Low (~1–5%) due to rapid gut/liver metabolism
- **Dosing:** 100–500 mg/day
- **Suggested Supplements:** Liposomal formulations: Thorne Lipo Trans-resveratrol

Quercetin may reduce joint pain and stiffness in rheumatoid arthritis and may help in sciatica, peripheral neuropathy, MS and stroke by protecting nerves from oxidative damage,

- **Food Sources:** Red onions (25 mg/100 g), kale (20mg/100 gm; Consume with dietary fats (e.g., olive oil, nuts) to enhance absorption. Foods with Vitamin C may enhance quercetin
- **Dosing:** 500 mg/day, increasing up to 1,000 mg/day.
- **Suggested Supplements:** Liposomal formulations; Thorne *Vitamin C with Quercetin*

Safety Considerations

These supplements are generally well tolerated, with adverse event rates similar to or lower than placebo. Monitor for bleeding risk interactions with omega-3s and curcumin with anticoagulants or antiplatelet agents.



Phytonutrients for Pain
(By Compound)



Curcumin



Green Tea



Omega-3



Resveratrol



Vitamin C



Nutraceuticals
Comparisons