



Accurate Clinic

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Accurate Education

Integrative Medicine

Central Sensitization

Nutraceuticals for Central Sensitization

Central sensitization (CS) is when your nervous system becomes more sensitive to stimulation, especially pain but also to heat, cold or stress. It magnifies the sense of pain and makes it last longer. CS is common in many chronic pain conditions including neck or low back pain, arthritis (OA), nerve pain, fibromyalgia and migraines. It is a consequence of systemic inflammation and oxidative stress, the conditions that drive chronic pain. Reducing these processes is the ultimate goal of the anti-inflammatory diet as well as the recommended lifestyle changes for chronic pain. Use of these supplements may help reduce pain sensitivity now and in the future.

How These Supplements Work

Most of these compounds work by reducing inflammation and/or oxidation, protecting nerves from damage or calming overactive nerves. They are recommended to supplement a broader pain management plan which that includes exercise, an anti-inflammatory diet, stress management and mindful activities (e.g. meditation, prayer).

Safety

- Always talk to your healthcare provider before starting any supplement as they may interact with other medicines
- Buy supplements from reputable brands to ensure quality.
- These compounds are generally safe and well tolerated but they may cause nausea or mild stomach upset.

Supplements for Central Sensitization

Alpha-Lipoic Acid (ALA)

- **What it is:** An antioxidant found in foods like spinach and broccoli.
- **How it works:** May help protect nerves and reduce inflammation.
- **Dosing:** 600 mg per day.
- **Evidence:** Shown to help with diabetic nerve pain, but not effective for all types of nerve pain or fibromyalgia.

Acetyl-L-Carnitine (ALC)

- **What it is:** A nutrient that helps with energy production in cells.
- **How it works:** May support nerve health and reduce pain signals.
- **Dosing:** 500–1000 mg twice daily.
- **Evidence:** May help with diabetic nerve pain, but not recommended for chemotherapy-related nerve pain.

Curcumin (from Turmeric)

- **What it is:** The active ingredient in turmeric spice.
- **How it works:** Powerful anti-inflammatory and may calm overactive nerve cells.
- **Dosing:** 500–1000 mg per day (look for enhanced-absorption “bioavailable” forms).
- **Evidence:** May help with pain in osteoarthritis and possibly fibromyalgia, but more research is needed.

Omega-3 Fatty Acids (Fish Oil)

- **What it is:** Healthy fats found in fish and some plants.
- **How it works:** Reduces inflammation in the body and nervous system.
- **Dosing:** 1–3 grams per day of EPA/DHA.
- **Evidence:** helps with osteoarthritis, migraine, headaches, peripheral neuropathy

N-Acetylcysteine (NAC)

- **What it is:** An antioxidant supplement.
- **How it works:** May reduce inflammation and protect nerve cells.
- **Dosing:** 600–1200 mg per day.
- **Evidence:** Early research suggests possible benefit for nerve pain

Boswellia (Indian Frankincense)

- **What it is:** An herbal extract from the *Boswellia serrata* tree.
- **How it works:** Blocks inflammation and helps protect joint cartilage.
- **Dosing:** 100–300 mg twice daily (standardized extract).
- **Evidence:** Strong for reducing pain & stiffness in OA; benefits seen within 5–7 days, lasting up to 3 months.

Palmitoylethanolamide (PEA)

- **What it is:** A fatty compound found in foods like egg yolks and peanuts.
- **How it works:** May reduce inflammation and calm overactive nerve cells.
- **Dosing:** 300–600 mg twice daily.
- **Evidence:** Studies support benefit for nerve pain and fibromyalgia

Other Foods or Supplements

1. **Green Tea.** especially Matcha Green Tea (rich in anti-oxidants)
2. **Unsweetened Cocoa Powder** (rich in anti-oxidants)
3. **Vitamin D:** (potent anti-inflammatory benefits)
4. **Magnesium:** (regulates nerve receptors and neurotransmitter activity)
5. **Polyphenols** (plant-based compounds like *resveratrol* reduce inflammation)

Low-Dose Naltrexone (LDN) - Prescription Only

- **What it is:** A medication used at low doses (1.5–4.5 mg/day) for fibromyalgia
- **Evidence:** May be used with opioids to reduce opioid-induced hyperalgesia (OIH) and CS

Supplements by Medical Condition

Fibromyalgia

- **Supplements with likely benefit:** Curcumin, low-dose naltrexone (LDN), palmitoylethanolamide (PEA), omega-3 fatty acids.
- **Evidence level:** Moderate for LDN and curcumin; limited for PEA and omega-3s.

Diabetic Nerve Pain (Diabetic Peripheral Neuropathy)

- **Supplements with likely benefit:** Alpha-lipoic acid (ALA), acetyl-L-carnitine (ALC), vitamin D.
- **Evidence level:** Good for ALA and ALC; moderate for vitamin D.

Osteoarthritis

- **Supplements with likely benefit:** Curcumin, omega-3 fatty acids.
- **Evidence level:** Strong for Boswellia and omega-3s (reduces pain, stiffness, Moderate for curcumin)

Chemotherapy-Induced Nerve Pain

- **Supplements with possible benefit:** Limited evidence for N-acetylcysteine (NAC), magnesium, and vitamin E.
- **Evidence level:** Early research; not enough data for strong recommendations.

Complex Regional Pain Syndrome (CRPS)

- **Supplements with possible benefit:** Vitamin C (early use may help prevent CRPS after injury).
- **Evidence level:** Early research; more studies needed.

Chronic Back Pain

- **Supplements with possible benefit:** Curcumin, omega-3 fatty acids, magnesium.
- **Evidence level:** Limited; more research needed.