



AccurateClinic.com



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Mitochondrial Dysfunction

Accurate Education

Nutraceuticals: Alpha Lipoic Acid (ALA)

Alpha Lipoic Acid (ALA) is a compound produced by plants, animals, and humans. It has a dual role in the body as an antioxidant and a cofactor for various enzymes. ALA is synthesized by the body so it is not a vitamin, but the quantities produced by the body are often not enough to fulfill the energy requirement of cells. Dietary intake may remain insufficient in which case supplemental ALA may be important.

There is good evidence for ALA's benefit in the treatment of diabetic peripheral neuropathy and other forms of neuropathic pain. It may also play a role in the management of Mitochondrial Dysfunction and Oxidative Stress, the driving forces in pain processing leading to Central Sensitization and increased pain.

RECOMMENDED DOSING

Diabetic Peripheral Neuropathy (DPN):

Maintenance/Oral Therapy:

- **Standard dose: 600 mg once daily** (most evidence-based dose)
- **Alternative:** 600 mg twice daily for more severe neuropathy
- **Higher doses** (1800 mg/day) can increase side effects but provide no additional benefit
- **Duration:** Minimum 3-5 weeks for symptom improvement; 3-6 months for optimal benefit; long-term use (years) is safe and may prevent progression of the DPN.

Other Neuropathic Pain:

- **600 mg once daily** (standard dose)
- **600 mg twice daily** for severe pain
- **Duration:** 8-12 weeks minimum

Multiple Sclerosis:

- **1200 mg daily** has been studied in MS and it appears to be generally safe. However, there is insufficient evidence to support its use as adjunct therapy for the treatment of MS.

Oxidative Stress / General Health:

- **300-600 mg** daily

Timing and Administration:

- **Take on empty stomach:** 30-60 minutes before meals for optimal absorption
Food reduces ALA bioavailability by approximately 30%
If GI upset occurs, one can take with small amount of food
- **Morning dosing** preferred for once-daily regimen
- **Divide doses** if taking >600 mg/day (e.g., 600 mg twice a day)

Formulation:

- **R-lipoic acid (R-ALA):** More bioavailable and active than racemic (R/S) mixture
- **Racemic ALA (R/S mixture):** Most commonly studied; less expensive
- **Stabilized R-ALA:** Sodium R-lipoate or R-ALA with stabilizers (R-ALA is unstable)

—> **Recommendation:** Either R-ALA or racemic ALA acceptable; R-ALA may allow lower doses

SYNERGIES WITH OTHER NUTRACEUTICALS

ALA works synergistically with several other supplements:

1. **Acetyl-L-Carnitine:**

- Complementary mechanisms for neuropathic pain
- Both improve mitochondrial function and nerve health

2. **B-Vitamins (especially B1, B6, B12):**

- Synergistic for nerve health and neuropathic pain
- B1 (thiamine) particularly important with long-term ALA use

3. **Omega-3 Fatty Acids:**

- Complementary anti-inflammatory and neuroprotective effects
- Both reduce oxidative stress

4. **Coenzyme Q10 (CoQ10):**

- ALA regenerates CoQ10; provides synergistic antioxidant effects
- Both support mitochondrial function

5. **N-Acetylcysteine (NAC):**

- Complementary antioxidant mechanisms
- Both boost glutathione levels

6. **Curcumin:**

- Additive anti-inflammatory and antioxidant effects
- Both reduce neuroinflammation

7. **Vitamin E:**

- ALA regenerates vitamin E; enhances its antioxidant capacity

8. **Benfotiamine (fat-soluble Thiamine):**

- Synergistic for diabetic neuropathy
- Both reduce harmful inflammatory compounds and oxidative stress

SYNERGY COMBINATIONS

Mitochondrial Dysfunction Synergy:

A common evidence-based combination for mitochondrial dysfunction:

- **Alpha-Lipoic Acid:** 600 mg/day
- **CoQ10:** 300-600 mg/day
- **L-Carnitine or Acetyl-L-Carnitine:** 1000-2000 mg/day
- **Riboflavin:** 400 mg/day
- **Magnesium:** 400-600 mg/day

SAFETY AND ADVERSE EFFECTS

ALA has an excellent safety profile with minimal, generally mild, G.I. side effects.

Review Alpha-Lipoic Acid on www.AccurateClinic.com for more extensive information:



ALA - Patient Guide



Alpha Lipoic Acid



ALA Pain Processing