
L-TRYPTOPHAN Fact Sheet [G]

Bottom Line:

L-tryptophan is an amino acid that is eventually converted to serotonin. The evidence base to support using L-tryptophan in depression is extremely limited, but more and more patients are turning to it, especially in combination “serotonin boost” products being marketed today. We recommend sticking to the serotonergic agents we know to be safe and effective: SSRIs and SNRIs.

FDA Indications:

None.

Off-Label Uses:

Depression; premenstrual dysphoric disorder (PMDD); smoking cessation.

Dosage Forms:

Capsules: 500 mg.

Dosage Guidance:

For depression, doses as low as 300 mg/day in combination with antidepressants have been used. For other uses, dose is typically 500–1000 mg BID or 500 mg TID. PMDD dosing studied is 6 g/day.

Monitoring: No routine monitoring recommended unless clinical picture warrants.

Cost: \$\$

Side Effects:

- Most common: Abdominal pain, nausea, vomiting, diarrhea, flatulence, headache.
- Serious but rare: Over 1,500 reports of eosinophilia-myalgia syndrome (EMS) and 37 deaths were reported in the US, leading to it being pulled from the market in 1990; nearly all cases were tied to contaminated batches out of Japan. Symptoms of EMS include eosinophilia, fatigue, myalgia, neuropathy, rash, and inflammation. There have been no reported recurrences of these reactions since that outbreak.
- Pregnancy/breastfeeding: Not enough data to recommend.

Mechanism, Pharmacokinetics, and Drug Interactions:

- Essential amino acid found in plant and animal proteins. Absorbed from dietary protein sources and converted to 5-hydroxytryptophan (5-HTP) and then to serotonin (5-hydroxytryptamine).
- Metabolized by non-CYP450 liver pathway; $t_{1/2}$: 3–4 hours.
- Combining with serotonergic antidepressants may increase risk of serotonin syndrome. Avoid use with MAOIs.

Clinical Pearls:

- Best efficacy in PMDD and smoking cessation. Evidence for use in depression is limited but suggestive.
- L-tryptophan has also been studied in ADHD, anxiety, depression, fibromyalgia, insomnia, and migraines, but there is insufficient evidence to support these uses.
- While both L-tryptophan and 5-HTP can cross the blood-brain barrier, L-tryptophan more readily does so.
- Combination formulations are sold as “serotonin boosters” and include amino acids (tryptophan, 5-HTP, SAMe), vitamins (B6, B9, B12, C, D), minerals (magnesium, zinc), and herbs (theanine, curcumin, garcinia, rhodiola). These formulations all have extremely limited evidence to support efficacy in depression.

Fun Fact:

Especially around Thanksgiving, many will talk about “turkey coma” as a result of ingesting too much tryptophan contained in turkey. Actually, the drowsiness is more likely due to all the carbs eaten with the turkey. Turkey has no more tryptophan than other meats.