

# L-Tryptophan 500 - 1000 mg

## Description

L-Tryptophan is an essential amino acid; therefore, it is not synthesized by the body and must be obtained from the diet.<sup>1,9</sup> In the brain, tryptophan is converted into the neurotransmitter serotonin,<sup>1-3,11,12</sup> which influences feelings of well-being, calmness, personal security, relaxation, confidence and concentration.<sup>1,4,5,7,11,14</sup> Serotonin is also involved in maintenance of a healthy appetite.<sup>1,11</sup> Some serotonin is converted in the pineal gland to melatonin, which helps to regulate sleep patterns.<sup>1,11</sup>

## Features & Benefits

- Supports positive mood.<sup>1,4,5,7,11,14</sup>
- Supports healthy appetite.<sup>1,11</sup>
- Supports restful sleep and supports healthy sleep patterns.<sup>1,11,24</sup>
- Supports relaxed mood.<sup>1,4,5,7,11,14</sup>
- Some evidence suggests that tryptophan may support ability to concentrate.<sup>14-17</sup>

## Suggested Usage

As a dietary supplement, take 1-2 Vcaps® daily, preferably on an empty stomach at bedtime. For intensive use, take up to 6 Vcaps® daily, in divided doses, as directed by a qualified health care practitioner.

As a dietary supplement, take 1 tablet 1 to 3 times daily preferably on an empty stomach at bedtime, or as directed by a qualified health care practitioner.

## Allergen Checklist

Vcaps®: Contains no sugar, salt, yeast, wheat, gluten, soy, milk, egg, shellfish or preservatives. Vegetarian/Vegan Product.

Tablet version: Contains no sugar, salt, yeast, wheat, gluten, soy, milk, egg, shellfish or preservatives. Vegetarian/Vegan Product.

## Cautions/Interactions

Although no reports have been published, it is possible that Trp, when taken in combination with antidepressant drugs such as Selective Serotonin Reuptake Inhibitors (SSRIs), Serotonin-Norepinephrine Reuptake Inhibitors (SNRIs), or MAO inhibitors as well as other serotonergic drugs (e.g. dextromethorphan, meperidine and triptans) may contribute to a condition known as serotonin syndrome; this syndrome is characterized by agitation, confusion, delirium, tachycardia, diaphoresis, and blood pressure fluctuations.<sup>18,19,25</sup> Additionally, Trp may increase the therapeutic and adverse effects of products that increase serotonin levels, such as 5-HTP, S-adenosylmethionine (SAME), and St. John's wort.<sup>18-20</sup> Theoretically, Trp supplements may also interact with CNS depressants.<sup>21</sup> There is to note that individuals with a history of kidney or liver conditions or those with a history of eosinophilia should use this product only under the direction of a qualified healthcare practitioner.<sup>22</sup> This product is not recommended for pregnant or lactating women.<sup>23</sup> At high doses, this product may cause fatigue and drowsiness.<sup>26</sup>

## Technical Summary

L-tryptophan (tryptophan; Trp) is a large aromatic (neutral) amino acid essential to human health. Trp is the metabolic precursor of serotonin (a neurotransmitter), melatonin (a neurohormone), and niacin (vitamin B3). As a component of dietary protein, Trp is the least abundant amino acid in the diet.<sup>27</sup> Notable food sources include chocolate, oats, bananas, dried dates, milk, and cottage cheese; the best sources are turkey, lamb, beef, tuna, or peanuts, which provide approximately 300mg Trp in 3oz. serving.<sup>28</sup> Relative to other amino acids, only small amounts of Trp are needed to have a therapeutic effect; an increase in dietary Trp increases the amount transported across the blood–brain barrier. Increase in the other amino acids transported by the same carrier reduces the transport of Trp.<sup>29</sup> As dietary supplement, Trp has been available since the 50s and has since then been used by thousands of Americans to promote well being.<sup>30</sup> Clinical studies have found oral supplementation with various doses of Trp may promote positive mood and mental outlook,<sup>1,4,5,7,11,14,31</sup> support restful sleep patterns, and possibly healthy appetite.<sup>1,11</sup> Emerging research also suggests that oral Trp may support ability to concentrate.<sup>14-17</sup>

## Mechanisms Of Action

In the central nervous system (CNS), Trp primarily acts by increasing the synthesis of serotonin. Serotonin in turn –when released into the synaptic clefts– affects mood, appetite, pain sensations, and through its conversion into melatonin, promotes sleep.<sup>1-11</sup> Additionally, concentrations of other neurotransmitters, such as dopamine, norepinephrine, and beta-endorphin, may be influenced by the oral administration of Trp.<sup>1</sup> There is to note that serotonin itself cannot to pass the blood-brain-barrier, while Trp is able to cross it.<sup>32</sup> Hence, in order to increase CNS serotonin levels, the body depends heavily on the availability of Trp.<sup>33</sup> After passing the blood-brain barrier, tryptophan (Trp) is converted to serotonin in a 2-step process (see figure 1): while the first step requires the presence of NADH (a niacin-based coenzyme), the second step requires assistance from pyridoxine.<sup>34</sup> Research has demonstrated that the activity of *L-amino acid decarboxylase* is the rate-limiting enzyme in serotonin synthesis.<sup>32</sup>

## Clinical Applications

As a dietary supplement, Trp has been primarily advocated to support a positive mood and lift emotional outlook, assist with restful sleeping pattern, as well as to support a normal appetite and desirable body weight when combined with a healthy diet and exercise. Based on the currently available research, the oral application of 5-HTP may also be of value to promote cognitive function,<sup>16</sup> and immune health.<sup>3</sup> The majority of clinical research studies employed doses between 500mg - 3000mg taken in divided doses.

## Complementary Products

Omega-3, Adrenal Cortisol Support™ or MetaboEnergetics™.

## Label: Supplement Facts

Serving Size: 2 Vcaps®  
Or 1 tablet

	Amount Per Serving	% Daily Value
L-Tryptophan (2-amino-3-indolylpropanoic acid)	1.0 g (1,000 mg)	*

\* Daily Value not established.

**Vcaps®** - Other Ingredients: Cellulose (capsule), Cellulose and Stearic Acid (vegetable source). Contains no sugar, salt, yeast, wheat, gluten, soy, milk, egg, shellfish or preservatives. Vegetarian/Vegan Product. Vcaps® is a registered trademark of Capsugel. This bottle contains an Ageless® oxygen absorbing packet to ensure freshness. Do not eat packet.

**Tablets** - Other Ingredients: Cellulose, Stearic Acid (vegetable source), Croscarmellose Sodium, Magnesium Stearate (vegetable source), Silica and Vegetable Coating. Contains no sugar, salt, yeast, wheat, gluten, soy, milk, egg, shellfish or preservatives. Vegetarian/Vegan Product.

**Suggested Usage (Vcaps):** As a dietary supplement, take 1-2 Vcaps® daily, preferably on an empty stomach at bedtime. For intensive use, take up to 6 Vcaps® daily, in divided doses, as directed by a qualified health care practitioner.

**Suggested Usage (tablets):** As a dietary supplement, take 1 tablet 1 to 3 times daily preferably on an empty stomach at bedtime, or as directed by a qualified health care practitioner.

**Formulated by doctors and clinical scientists exclusively for licensed healthcare practitioners. Manufactured in an A-rated Good Manufacturing (GMP) Certified facility.**

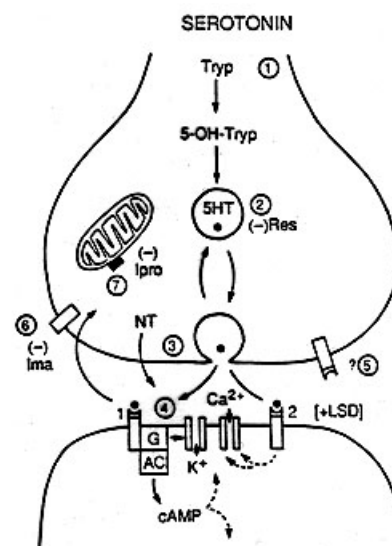
Caution: If you are pregnant/lactating or currently taking any antidepressant medications, please consult your healthcare practitioner prior to use.

Warning - Keep out of reach of children. Pregnant/lactating women, those taking anti-depressant medications (such as SSRI's or MAOI's), or those with liver disorders, consult a health care professional before using this product. May cause drowsiness.

**FIGURE 1** | Tryptophan to Serotonin conversion and biological action.

(<http://www.psych.ndsu.nodak.edu/mccourt/Psy486/Biochemistry%20and%20Neuropharmacology/5-HT%20synapses.JPG> accessed 03/29/2010)

(1) tryptophan is transformed to 5-HTP (catalyzed by tryptophan hydroxylase) to 5-hydroxytryptamine (5HT, or serotonin) (catalyzed by 5-hydroxytryptophan decarboxylase); (2) transport and storage (blocked by reserpine, Res); (3) release of 5HT by exocytosis; corelease with a neuropeptide, e.g. neurotensin, NT; (4) binding to a 5HT<sub>1</sub> postsynaptic receptor (coupled to G protein and cAMP), or to a 5HT<sub>2</sub> receptor (LSD is an agonist/antagonist); (5) possible binding to presynaptic receptors; (6) reuptake terminates 5HT action (blocked by tricyclic antidepressant drugs such as imipramine, Ima); (7) degraded by MAO.



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