

## Neurotransmitter Support\*

# 5-HTP 200 mg + Glycine, Taurine & Inositol

## Description

This formulation is designed to provide neurotransmitter support in the brain. 5-hydroxytryptophan, also known as 5-HTP, is the immediate precursor to the neurotransmitter serotonin, which influences mood, sleep and appetite.<sup>1-9,11</sup> Through its ability to pass the blood-brain-barrier,<sup>1,13</sup> 5-HTP can help to support healthy serotonin levels. Glycine is an amino acid with neurotransmitter function in the central nervous system (CNS), where it exerts (along with GABA) a calming effect, and supports cognition and memory function.\*

## Features & Benefits

- 5-HTP is the intermediate precursor in the natural synthesis of serotonin, a neurotransmitter that helps to regulate mood, appetite, and sleep/wake cycles.\*
- 5-HTP readily crosses the blood-brain barrier.\*
- Glycine is known to bind to the NMDA receptor, where it exerts inhibitory and neuroprotective effects.\*
- Glycine has been shown to support memory and cognition.\*

## Suggested Usage

As a dietary supplement, take 1 or more Vcap® at bed time; may take up to 4 per day in divided doses or as directed by a qualified health care practitioner. If GI discomfort is experienced, take less, take with a meal or discontinue use.

## Allergen Checklist

Contains no sugar, salt, wheat, gluten, soy, milk, egg, shellfish or preservatives.



## Technical Summary

In dietary supplement form, 5-HTP is derived from seeds of the African plant *Griffonia simplicifolia*. 5-HTP has been successfully used in clinical trials for over 30 years: the primary areas of research involved persons with mild to moderate emotional mood disturbances,<sup>4,5,24,25,26,27,28,29,30,31</sup> difficulty sleeping,<sup>10,11,32,33</sup> those desiring weight management,<sup>7-9,34</sup> and subjects experiencing occasional headaches.<sup>35,36,37,38,39,40</sup> Especially with regard to mood alterations, positive results with oral 5-HTP preparations have been reported by the majority of investigators (please see ref. 27 for the most recent meta-analysis).\* Research in other areas, such as its efficacy for weight or pain management, also appears promising.\*

Clinical research suggests that oral Glycine administration may support episodic memory as well as attention span.<sup>16</sup> The antioxidative function of Taurine may promote healthy brain function.\*

## Mechanisms of Action

5-HTP primarily acts by increasing serotonin levels within the CNS; once 5-HTP levels rise, it is converted into serotonin. Serotonin in turn –when released into the synaptic clefts– affects mood, appetite, pain sensations, and through its conversion into melatonin, promotes sleep.<sup>1-11,42,43</sup> Additionally, concentrations of other neurotransmitters, such as dopamine, norepinephrine, and beta-endorphin, may be influenced by the oral administration of 5-HTP.<sup>1</sup> Emerging science suggests that 5-HTP might also influence leptin levels,<sup>44</sup> which would explain its observed effects on appetite.<sup>45</sup> Of note is the fact that serotonin itself cannot to pass the blood-brain-barrier, whereas tryptophan (Trp) and 5-HTP are able to cross it.<sup>1,13,32,46</sup> However, only about 3% of dietary Trp may be transported into the CNS,<sup>47</sup> while pharmacokinetic studies found that the oral bioavailability of 5-HTP in humans is approximately 70%.<sup>41,42\*</sup> Preliminary research suggests that Glycine binds to the NMDA receptor, where it exerts inhibitory and neuroprotective effects, explaining its beneficial effect on mental performance in humans.\* Preclinical research suggests that Taurine interacts with Glycine in the CNS, promoting neurotransmitter balance and brain function.<sup>48,49,50\*</sup>

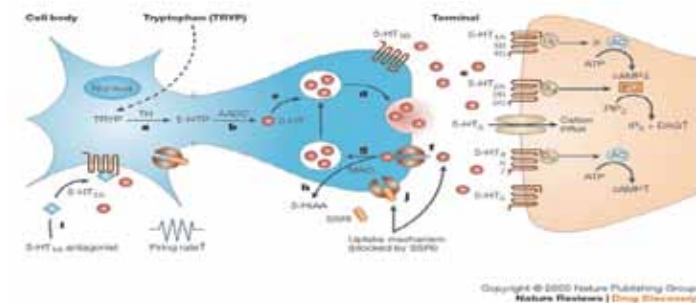
# Clinical Applications

As a dietary supplement, 5-HTP has primarily been advocated to promote positive mood and lift emotional outlook, assist with restful sleeping pattern, as well as to support a normal appetite and healthy 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 for occasional tension headaches, improving sleep quality, cognitive performance,<sup>51,52</sup> occasional nervousness with agitation,<sup>2,28,53,54,55</sup> and diet adherence,<sup>7-9,34</sup> as well as for assisting with already healthy blood sugar levels.<sup>7</sup> The majority of clinical research studies employed doses between 50mg - 300mg taken two to three times daily. In the case of dysregulated sleep, a one-time dose ranging from 200mg to 600mg has been employed. While no significant adverse effects were noted in clinical trials, mild digestive distress, such as nausea with and without emesis has been reported after the ingestion of one-time doses of 150mg,<sup>56</sup> 200mg,<sup>57</sup> and 300mg<sup>9</sup> oral 5-HTP in a small percentage of the subjects. Since the symptoms were transitory in nature and only recognized in a few instances during the gradual build-up of increasing steady state levels of 5-HTP, the importance of a slow initiation of therapeutic dosing should be emphasized.<sup>42</sup>\*

Due to the observed benefits of glycine and taurine on brain function, persons experiencing stress-related, temporary reductions in mental and memory capacity are likely to benefit from this formula; although its clinical efficacy has yet to be confirmed in clinical trials.\*

## FIGURE 1 | 5HTP Role in Vitamin D metabolism.

Figure 1 Vitamin D Metabolism  
 (Deeb KK, Trump DL, Johnson CS. Vitamin D signalling pathways .....Nat Rev Cancer. 2007 Sep;7(9):684-700.)



# Complementary Products

Consider taking this product in combination with Protocol for Life Balance® L-Carnitine, Ultra Omega-3 and Co-Enzyme B-Complex.

Supplement Facts		P0108
Serving Size 1 Vcap®		
		Amount Per Serving
Niacin (as Niacinamide) (Vitamin B3)		20 mg
Vitamin B6 (from Pyridoxine HCl)		2 mg
<b>5-HTP (5-hydroxytryptophan) (Seed) (Griffonia simplicifolia)</b>		<b>200 mg</b>
Glycine		100 mg
Taurine		100 mg
Inositol		100 mg
Other Ingredients: Cellulose (capsule), Ascorbyl Palmitate and Silica.		

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

**Suggested Usage:** As a dietary supplement, take 1 or more Vcap® at bed time; may take up to 4 per day in divided doses or as directed by a qualified health care practitioner. Can also be taken at other times of day. If GI discomfort occurs, lower the dose, take with a meal or discontinue use.

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

# Cautions/ Interactions

Although no reports have been published, it is possible that 5-Hydroxytryptophan, 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.<sup>1,4,17,20</sup> This syndrome is characterized by agitation, confusion, delirium, tachycardia, diaphoresis, and blood pressure fluctuations.<sup>17-20</sup> In addition, 5-HTP could increase the therapeutic effects and risk for adverse events when consumed concomitantly with certain nutraceuticals, such as L-tryptophan, S-adenosylmethionine (SAME), and St. John's wort.<sup>18-20</sup> Hence, these products should be combined only under close medical supervision.

Individuals with a history of cardiac conditions should only use this product under the direction of a qualified healthcare practitioner. Not recommended for pregnant or lactating women.

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



Protocol For Life Balance™

Manufactured by NHG, Bloomingdale, IL 60108 Made in the U.S.A.

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