L-Tryptophan

url: https://medlineplus.gov/druginfo/natural/326.html  
  
  
L-Tryptophan  
What is it?  
L-Tryptophan is an essential amino acid that is necessary for making proteins. It is naturally found in red meat, poultry, eggs, and dairy.   
  
L-tryptophan is important for many organs in the body. L-tryptophan is not made by the body and must be consumed from the diet. After absorbing L-tryptophan from food, the body converts some of it to 5-HTP and then to serotonin. Serotonin is a hormone that transmits signals between nerve cells. Changes in serotonin levels in the brain can affect mood.  
  
People use L-tryptophan for severe PMS symptoms, depression, insomnia, and many other conditions, but there is no good scientific evidence to support any of these uses.  
  
  
  
How effective is it?  
Natural Medicines Comprehensive Database rates effectiveness based on scientific evidence according to the following scale: Effective, Likely Effective, Possibly Effective, Possibly Ineffective, Likely Ineffective, Ineffective, and Insufficient Evidence to Rate.The effectiveness ratings for L-TRYPTOPHAN are as follows:Possibly ineffective for...  
Depression. Taking L-tryptophan by mouth doesn't seem to be beneficial in patients with depression. Also, it may increase the risk of side effects of some medications.   
  
  
There is interest in using L-tryptophan for a number of other purposes, but there isn't enough reliable information to say whether it might be helpful.  
  
  
Is it safe?  
When taken by mouth: L-tryptophan occurs naturally in many foods, and is consumed as part of the diet. L-tryptophan supplements are possibly safe when taken for up to 3 weeks. L-tryptophan can cause some side effects such as drowsiness, stomach pain, vomiting, diarrhea, headache, blurry vision, and others.   
  
In 1989, L-tryptophan was linked to cases of a neurological condition called eosinophilia-myalgia syndrome (EMS). But these cases might be due to contamination. About 95% of all EMS cases have been traced to L-tryptophan produced by a single manufacturer in Japan.   
  
There isn't enough reliable information to know if L-tryptophan is safe when taken for more than 3 weeks.  
  
  
Special precautions & warnings:  
Pregnancy: It is possibly unsafe to take L-tryptophan in amounts greater than those found in foods during pregnancy. It might harm the unborn child.   
Breast-feeding: There isn't enough reliable information to know if L-tryptophan is safe to use when breast-feeding. Stay on the safe side and stick to food amounts.   
  
  
  
Are there interactions with medications?  
MajorDo not take this combination.Sedative medications (CNS depressants)L-tryptophan might cause sleepiness and slowed breathing. Some medications, called sedatives, can also cause sleepiness and slowed breathing. Taking L-tryptophan with sedative medications might cause breathing problems and/or too much sleepiness.ModerateBe cautious with this combination.Serotonergic drugsL-tryptophan might increase a brain chemical called serotonin. Some medications also have this effect. Taking L-tryptophan along with these medications might increase serotonin too much. This might cause serious side effects including heart problems, seizures, and vomiting.  
  
  
Are there interactions with herbs and supplements?  
Herbs and supplements with sedative propertiesL-tryptophan might cause sleepiness and slowed breathing. Taking it along with other supplements with similar effects might cause too much sleepiness and/or slowed breathing in some people. Examples of supplements with this effect include hops, kava, melatonin, and valerian.Herbs and supplements with serotonergic propertiesL-tryptophan increases a brain chemical called serotonin. Taking it along with other supplements that have this effect might cause serious side effects, including heart problems, seizures, and vomiting. Examples of supplements with this effect include 5-HTP, black seed, SAMe, and St. John's wort.  
  
  
Are there interactions with foods?  
There are no known interactions with foods.  
  
  
How is it typically used?  
L-tryptophan supplements have most often been used by adults in doses of 60 mg by mouth daily for 16 weeks. Speak with a healthcare provider to find out what dose might be best for a specific condition.   
  
Keep in mind that some dietary supplement products might not list L-tryptophan separately on the label. Instead, it might be listed under niacin. Niacin is measured in niacin equivalents (NE). 60 mg of L-tryptophan is the same as 1 mg NE.   
  
  
  
  
  
Other names  
L-Triptofano, L-Trypt, L-2-amino-3-(indole-3-yl) propionic acid, L-Tryptophane, Tryptophan.  
  
  
Methodology  
  
 To learn more about how this article was written, please see the Natural Medicines Comprehensive Database methodology.   
   
  
  
References  
Sarris J, Ravindran A, Yatham LN, et al. Clinician guidelines for the treatment of psychiatric disorders with nutraceuticals and phytoceuticals: The World Federation of Societies of Biological Psychiatry (WFSBP) and Canadian Network for Mood and Anxiety Treatments (CANMAT) Taskforce. World J Biol Psychiatry. 2022;23:424-455. View abstract.  
Mart nez-Rodr guez A, Rubio-Arias J , Ramos-Campo DJ, Reche-Garc a C, Leyva-Vela B, Nadal-Nicol s Y. Psychological and Sleep Effects of Tryptophan and Magnesium-Enriched Mediterranean Diet in Women with Fibromyalgia. Int J Environ Res Public Health. 2020;17:2227. View abstract.  
Razeghi Jahromi S, Togha M, Ghorbani Z, et al. The association between dietary tryptophan intake and migraine. Neurol Sci. 2019;40:2349-55. View abstract.  
Ullrich SS, Fitzgerald PCE, Giesbertz P, Steinert RE, Horowitz M, Feinle-Bisset C. Effects of intragastric administration of tryptophan on the blood glucose response to a nutrient drink and energy intake, in lean and obese men. Nutrients 2018;10. pii: E463. View abstract.  
Oshima S, Shiiya S, Nakamura Y. Serum uric acid-lowering effects of combined glycine and tryptophan treatments in subjects with mild hyperuricemia: a randomized, double-blind, placebo-controlled, crossover study. Nutrients 2019;11. pii: E564. View abstract.  
Cynober L, Bier DM, Kadowaki M, Morris SM Jr, Elango R, Smriga M. Proposals for upper limits of safe intake for arginine and tryptophan in young adults and an upper limit of safe intake for leucine in the elderly. J Nutr 2016;146:2652S-2654S. View abstract.  
Wang D, Li W, Xiao Y, et al. Tryptophan for the sleeping disorder and mental symptom of new-type drug dependence: a randomized, double-blind, placebo-controlled trial. Medicine (Baltimore) 2016;95:e4135. View abstract.  
Sainio EL, Pulkki K, Young SN. L-tryptophan: biochemical, nutritional and pharmacological aspects. Amino Acids 1996;10:21-47. View abstract.  
Javierre C, Segura R, Ventura JL, Su rez A, Ros s JM. L-tryptophan supplementation can decrease fatigue perception during an aerobic exercise with supramaximal intercalated anaerobic bouts in young healthy men. Int J Neurosci. 2010 May;120:319-27. View abstract.  
Hiratsuka C, Sano M, Fukuwatari T, Shibata K. Time-dependent effects of L-tryptophan administration on urinary excretion of L-tryptophan metabolites. J Nutr Sci Vitaminol (Tokyo). 2014;60:255-60. View abstract.  
Hiratsuka C, Fukuwatari T, Sano M, Saito K, Sasaki S, Shibata K. Supplementing healthy women with up to 5.0 g/d of L-tryptophan has no adverse effects. J Nutr. 2013 Jun;143:859-66. View abstract.  
Rondanelli M, Opizzi A, Faliva M, et al. Effects of a diet integration with an oily emulsion of DHA-phospholipids containing melatonin and tryptophan in elderly patients suffering from mild cognitive impairment. Nutr.Neurosci 2012;15:46-54.View abstract.  
 Celinski, K., Konturek, S. J., Konturek, P. C., Brzozowski, T., Cichoz-Lach, H., Slomka, M., Malgorzata, P., Bielanski, W., and Reiter, R. J. Melatonin or L-tryptophan accelerates healing of gastroduodenal ulcers in patients treated with omeprazole. J.Pineal Res. 2011;50:389-394. View abstract.  
Korner E, Bertha G, Flooh E, et al. Sleep-inducing effect of L-tryptophane. Eur Neurol 1986;25 Suppl 2:75-81. View abstract.  
Carr L, Ruther E, Berg PA, Lehnert H. Eosinophilia-myalgia syndrome in Germany: an epidemiologic review. Mayo Clin Proc 1994;69:620-5. View abstract.  
Mayeno AN, Gleich GJ. The eosinophilia-myalgia syndrome: lessons from Germany. Mayo Clin Proc 1994;69:702-4. View abstract.  
Shapiro S. Epidemiologic studies of the association of L-tryptophan with the eosinophilia-myalgia syndrome: a critique. J Rheumatol Suppl 1996;46:44-58. View abstract.  
Horwitz RI, Daniels SR. Bias or biology: evaluating the epidemiologic studies of L-tryptophan and the eosinophilia-myalgia syndrome. J Rheumatol Suppl 1996;46:60-72. View abstract.  
Kilbourne EM, Philen RM, Kamb ML, Falk H. Tryptophan produced by Showa Denko and epidemic eosinophilia-myalgia syndrome. J Rheumatol Suppl 1996;46:81-8. View abstract.  
van Praag HM. Management of depression with serotonin precursors. Biol Psychiatry 1981;16:291-310.. View abstract.  
Walinder J, Skott A, Carlsson A, et al. Potentiation of the antidepressant action of clomipramine by tryptophan. Arch Gen Psychiatry 1976;33:1384-89.. View abstract.  
Murphy FC, Smith KA, Cowen PJ, et al. The effects of tryptophan depletion on cognitive and affective processing in healthy volunteers. Psychopharmacology (Berl) 2002;163:42-53.. View abstract.  
Bell C, Abrams J, Nutt D. Tryptophan depletion and its implications for psychiatry. Br J Psychiatry 2001;178:399-405.. View abstract.  
Shaw K, Turner J, Del Mar C. Tryptophan and 5-hydroxytryptophan for depression. Cochrane Database Syst Rev 2002;:CD003198. View abstract.  
Simat TJ, Kleeberg KK, Muller B, Sierts A. Synthesis, formation, and occurrence of contaminants in biotechnologically manufactured L-tryptophan. Adv Exp Med Biol 1999;467:469-80.. View abstract.  
Klein R, Berg PA. A comparative study on antibodies to nucleoli and 5-hydroxytryptamine in patients with fibromyalgia syndrome and tryptophan-induced eosinophilia-myalgia syndrome. Clin Investig 1994;72:541-9.. View abstract.  
Priori R, Conti F, Luan FL, et al. Chronic fatigue: a peculiar evolution of eosinophilia myalgia syndrome following treatment with L-tryptophan in four Italian adolescents. Eur J Pediatr 1994;153:344-6.. View abstract.  
Greenberg AS, Takagi H, Hill RH, et al. Delayed onset of skin fibrosis after the ingestion of eosinophilia-myalgia syndrome-associated L-tryptophan. J Am Acad Dermatol 1996;35:264-6. View abstract.  
Singhal AB, Caviness VS, Begleiter AF, et al. Cerebral vasoconstriction and stroke after use of serotonergic drugs. Neurology 2002;58:130-3. View abstract.  
Bohme A, Wolter M, Hoelzer D. L-tryptophan-related eosinophilia-myalgia syndrome possibly associated with a chronic B-lymphocytic leukemia. Ann Hematol 1998;77:235-8.  
Philen RM, Hill RH, Flanders WD, et al. Tryptophan contaminants associated with eosinophilia-myalgia syndrome. Am J Epidemiol 1993;138:154-9. View abstract.  
Sullivan EA, Kamb ML, Jones JL, et al. The natural history of eosinophilia-myalgia syndrome in a tryptophan-exposed cohort in South Carolina. Arch Intern Med 1996;156:973-9. View abstract.  
Hatch DL, Goldman LR. Reduced severity of eosinophilia-myalgia syndrome associated with consumption of vitamin-containing supplements before illness. Arch Intern Med 1993;153: 2368-73. View abstract.  
Shapiro S. L-tryptophan and eosinophilia-myalgia syndrome. Lancet 1994;344:817-9.View abstract.  
Hudson JI, Pope HG, Daniels SR, Horwitz RI. Eosinophilia-myalgia syndrome or fibromyalgia with eosinophilia? JAMA 1993;269:3108-9. View abstract.  
U. S. Food and Drug Administration, Center for Food Safety and Applied Nutrition, Office of Nutritional Products, Labeling, and Dietary Supplements. Information Paper on L-Tryptophan and 5-hydroxy-L-tryptophan, February 2001.  
Ghadirian AM, Murphy BE, Gendron MJ. Efficacy of light versus tryptophan therapy in seasonal affective disorder. J Affect Disord 1998;50:23-7. View abstract.  
Steinberg S, Annable L, Young SN, Liyanage N. A placebo-controlled study of the effects of L-tryptophan in patients with premenstrual dysphoria. Adv Exp Med Biol 1999;467:85-8. View abstract.  
Nardini M, De Stefano R, Iannuccelli M, et al. Treatment of depression with L-5-hydroxytryptophan combined with chlorimipramine, a double-blind study. Int J Clin Pharmacol Res 1983;3:239-50. View abstract.  
Food and Nutrition Board, Institute of Medicine. Dietary Reference Intakes for Thiamin, Riboflavin, Niacin, Vitamin B6, Folate, Vitamin B12, Pantothenic Acid, Biotin, and Choline . Washington, DC: National Academy Press, 2000. Available at: http://books.nap.edu/books/0309065542/html/.  
Hartmann E, Spinweber CL. Sleep induced by L-tryptophan. Effect of dosages within the normal dietary intake. J Nerv Ment Dis 1979;167:497-9. View abstract.  
Seltzer S, Dewart D, Pollack R, Jackson E. The effects of dietary tryptophan on chronic maxillofacial pain and experimental pain tolerance. J Psychiatr Res 1982-83;17:181-6. View abstract.  
Schmidt HS. L-tryptophan in the treatment of impaired respiration in sleep. Bull Eur Physiopathol Respir 1983;19:625-9. View abstract.  
Lieberman HR, Corkin S, Spring BJ. The effects of dietary neurotransmitter precursors on human behavior. Am J Clin Nutr 1985;42:366-70. View abstract.  
Devoe LD, Castillo RA, Searle NS. Maternal dietary substrates and human fetal biophysical activity. The effects of tryptophan and glucose on fetal breathing movements. Am J Obstet Gynecol 1986;155:135-9. View abstract.  
Messiha FS. Fluoxetine: adverse effects and drug-drug interactions. J Toxicol Clin Toxicol 1993;31:603-30. View abstract.  
Stockstill JW, McCall D Jr., Gross AJ. The effect of L-tryptophan supplementation and dietary instruction on chronic myofascial pain. J Am Dent Assoc 1989;118:457-60. View abstract.  
Etzel KR, Stockstill JW, Rugh JD. Tryptophan supplementation for nocturnal bruxism: report of negative results. J Craniomandib Disord 1991;5:115-20. View abstract.  
Bowen DJ, Spring B, Fox E. Tryptophan and high-carbohydrate diets as adjuncts to smoking cessation therapy. J Behav Med 1991;14:97-110. View abstract.  
Delgado PL, Price LH, Miller HL. Serotonin and the neurobiology of depression. Effects of tryptophan depletion in drug-free depressed patients. Arch Gen Psychiatr 1994;51:865-74. View abstract.  
van Hall G, Raaymakers JS, Saris WH. Ingestion of branched-chain amino acids and tryptophan during sustained exercise in man: failure to affect performance. J Physiol (Lond) 1995;486:789-94. View abstract.  
Sharma RP, Shapiro LE, Kamath SK. Acute dietary tryptophan depletion: effects on schizophrenic positive and negative symptoms. Neuropsychobiol 1997;35:5-10. View abstract.  
Smith KA, Fairburn CG, Cowen PJ. Symptomatic relapse in bulimia nervosa following acute tryptophan depletion. Arch Gen Psychiatr 1999;56:171-6. View abstract.  
Foster S, Tyler VE. Tyler's Honest Herbal: A Sensible Guide to the Use of Herbs and Related Remedies. 3rd ed., Binghamton, NY: Haworth Herbal Press, 1993.