

# Glutamine, L-

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L-Glutamine (PDF Version - 36 K) This monograph is intended to serve as a guide to industry for the preparation of Product Licence Applications (PLA) and labels for natural health product market authorization. It is not intended to be a comprehensive review of the medicinal ingredient. Notes Text in parentheses is additional optional information which can be included on the PLA and product label at the applicant's discretion. The solidus (/) indicates that the terms and/or statements are synonymous. Either term or statement may be selected by the applicant. Date July 31, 2018 Proper name(s), Common name(s), Source material(s) Table 1. Proper name(s), Common name(s), Source material(s) Proper name(s) Common name(s) Source material(s) Common name(s) (S)-2,5-Diamino-5-oxopentanoic acid L-Glutamine Glutamine L-Glutamine L-Glutamine L-Glutamine ethyl ester References: Proper names: O'Neil et al. 2013, NIH 2007, USP 30 2007; Common names: O'Neil et al. 2013, NIH 2007, USP 30 2007; Source materials: USP 30 2007. Route of Administration Oral Dosage Form(s) This monograph excludes foods or food-like dosage forms as indicated in the Compendium of Monographs Guidance Document. Acceptable dosage forms for the age category listed in this monograph and specified route of administration are indicated in the Compendium of Monographs Guidance Document. Note Liquids and solutions are not permitted due to lack of stability of the finished product (Fürst et al. 1997). Use(s) or Purpose(s) Helps restore plasma glutamine levels depleted after periods of physical stress (e.g. prolonged exhaustive exercise) (Krzykowski et al. 2001; Bowtell et al. 1999; Castell and Newsholme 1997). Helps support immune system health after periods of physical stress (Shils et al. 2006; Newsholme 2001; Griffiths 1999). Helps support digestive system health after periods of physical stress (Shils et al. 2006, Newsholme et al. 2003; IOM 2002). Helps to assist in muscle cell repair after exercise (Newsholme et al. 2003; IOM 2002). The following combined use(s) or purpose(s) is/are also acceptable: Helps restore plasma glutamine levels depleted after periods of physical stress (e.g. prolonged exhaustive exercise) and assist in muscle cell repair after exercise (Newsholme et al. 2003; IOM 2002; Krzykowski et al. 2001; Bowtell et al. 1999; Castell and Newsholme 1997). Dose(s) Subpopulation(s) Adults 18 years and older Quantity(ies) 5-9 grams of L-Glutamine, per day (Bowtell et al. 1999; Castell and Newsholme 1997) Direction(s) for use No statement required. Duration(s) of Use No statement required. Risk Information Caution(s) and warning(s) Consult a health care practitioner/health care provider/health care professional/doctor/physician prior to use if you are pregnant or breastfeeding. Contraindication(s) No statement required. Known adverse reaction(s) No statement required. Non-medicinal ingredients Must be chosen from the current Natural Health Products Ingredients Database (NHPID) and must meet the limitations outlined in the database. Storage conditions No statement required. Specifications The finished product specifications must be established in accordance with the requirements described in the Natural and Non-prescription Health Products Directorate (NNHPD) Quality of Natural Health Products Guide. The medicinal ingredient must comply with the specifications outlined in the NHPID. References Cited Bowtell JL, Gelly K, Jackman ML, Patel A, Simeoni M, Rennie MJ. Effect of oral glutamine on whole body carbohydrate storage during recovery from exhaustive exercise. *Journal of Applied Physiology* 1999;86(6):1770-7. Castell LM, Newsholme EA. The effects of oral glutamine supplementation on athletes after prolonged, exhaustive exercise. *Nutrition* 1997;13(7-8):738-42. Fürst P, Pogan K, Stehle P. Glutamine dipeptides in clinical nutrition. *Nutrition* 1997;13(78):731-737. Goldman L, Ausiello D, editors. Cecil Textbook of Medicine, Volume 1, 22 nd edition. Philadelphia (PA): Saunders; 2004. Griffiths RD. Glutamine: establishing clinical indications. *Current Opinion in Clinical Nutrition and Metabolic Care* 1999;2(2):177-82. IOM 2002: Institute of Medicine. Food and Nutrition Board. Dietary Reference Intakes for Energy, Carbohydrate, Fiber, Fat, Fatty Acids, Cholesterol, Protein, and Amino Acids. Washington (DC): National Academy Press; 2002. Krzykowski K, Petersen EW, Ostrowski K, Link-Amster H, Boza J, Halkjaer-Kristensen J, Pedersen BK. Effect of glutamine and protein supplementation on exercise-induced decreases in salivary IgA. *Journal of Applied Physiology* 2001;91(2):832-8. Newsholme P. Why is L-glutamine metabolism important to cells of the immune system in health, postinjury, surgery or infection? *Journal of Nutrition* 2001;131(9 Suppl):2515S-22S; discussion 2523S-2524S. Newsholme P, Procopio J, Lima MM, Pithon-Curi TC, Curi R. Glutamine and glutamate-their central role in cell metabolism and function. *Cell Biochemistry and Function* 2003;21(1):1-9. NIH 2007: National Institutes of Health. ChemIDplus advanced. Bethesda (MD): Specialized Information Services,

National Library of Medicine, National Institutes of Health, US Department of Health & Human Services. [Accessed 2018 June 5]. Available from: <http://chem.sis.nlm.nih.gov/chemidplus> O'Neil MJ, Smith A, Heckelman PE, Budavari S, editors. The Merck Index: An Encyclopedia of Chemicals, Drugs, and Biologicals, 15 th edition. Whitehouse Station (NJ): Merck & Co., Inc; 2013. Shils ME, Olson JA, Shike M, Ross AC, editors. Modern Nutrition in Health and Disease, 10 th edition. Philadelphia (PA): Lippincott Williams and Wilkins; 2006. USP 30 2007: United States Pharmacopeia and the National Formulary (USP 30 - NF 25). Rockville (MD): United States Pharmacopeial Convention, Inc.; 2007. References Reviewed Antonio J, Street C. Glutamine: a potentially useful supplement for athletes. Canadian Journal of Applied Physiology 1999;24(1):1-14. Castell L. Glutamine supplementation in vitro and in vivo, in exercise and in immunodepression. Sports Medicine 2003;33(5):323-345. Elia M, Lunn P. The use of glutamine in the treatment of gastrointestinal disorders in man. Nutrition 1997;13(7-8):743-747. Garlick PJ. Assessment of the safety of glutamine and other amino acids. Journal of Nutrition 2001;131(9 Suppl):2556S-2561S. Keast D, Arstein D, Harper W, Fry RW, Morton AR. Depression of plasma glutamine concentration after exercise stress and its possible influence on the immune system. The Medical Journal of Australia 1995;162(1):15-18. Lacey JM, Wilmore DW. Is glutamine a conditionally essential amino acid? Nutrition Review 1990;48(8):297-309. Neu J, Shenoy V, Chakrabarti R. Glutamine nutrition and metabolism: where do we go from here? The FASEB Journal: Official Publication of the Federation of American Societies for Experimental Biology 1996;10(8):829-837 Noyer CM, Simon D, Borczuk A, Brandt LJ, Lee MJ, Nehra V. A double-blind placebocontrolled pilot study of glutamine therapy for abnormal intestinal permeability in patients with AIDS. American Journal of Gastroenterology 1998;93(6):972-975. Oppong KN, Al-Mardini H, Thick M, Record CO. Oral glutamine challenge in cirrhotics pre- and post-liver transplantation: a psychometric and analyzed EEG study. Hepatology 1997;26(4):870-876. PDR Health. Glutamine Information Sheet. [Accessed 2008-01-31]. Available from: <http://www.pdrhealth.com> Peeters MA, Salabelle A, Attal N, Rethore MO, Mircher C, Laplane D, Lejeune J. Excessive glutamine sensitivity in Alzheimer's disease and Down syndrome lymphocytes. Journal of the Neurological Sciences 1995;133(1-2):31-41. Peng X, Yan H, You Z, Wang P, Wang S. Glutamine granule-supplemented enteral nutrition maintains immunological function in severely burned patients. Burns : Journal of the International Society for Burn Injuries 2006;32(5):589-593. Peng X, Yan H, You Z, Wang P, Wang S. Clinical and protein metabolic efficacy of glutamine granules-supplemented enteral nutrition in severely burned patients. Burns: Journal of the International Society for Burn Injuries 2005;31(3):342-346. Scolapio JS, McGreevy K, Tennyson GS, Burnett OL. Effect of glutamine in short-bowel syndrome. Clinical Nutrition 2001;20(4):319-323. Shabert JK, Winslow C, Lacey JM, Wilmore DW. Glutamine-antioxidant supplementation increases body cell mass in AIDS patients with weight loss: a randomized, double-blind controlled trial. Nutrition 1999;15(11-12):860-864. Walsh NP, Blannin AK, Robson PJ, Gleeson M. Glutamine, exercise and immune function. Links and possible mechanisms. Sports Medecine 1998;26(3):177-191. Yoshida S, Matsui M, Shirouzu Y, Fujita H, Yamana H, Shirouzu K. Effects of glutamine supplements and radiochemotherapy on systemic immune and gut barrier function in patients with advanced esophageal cancer. Annals of Surgery 1998;227(4):485-491. Report a problem on this page Date modified: 2019-03-01

## **MEDICINAL INGREDIENT(S)**

Must be chosen from the current Natural Health Products Ingredients Database (NHPID) and must meet the limitations outlined in the database.

## **DOSAGE FORM(S)**

Acceptable dosage forms for the age category listed in this monograph and specified route of administration are indicated in the Compendium of Monographs Guidance Document. Note Liquids and solutions are not permitted due to lack of stability of the finished product (Fårst et al. 1997).

## **RISK INFORMATION**

Caution(s) and warning(s) Consult a health care practitioner/health care provider/health care professional/doctor/physician prior to use if you are pregnant or breastfeeding. Contraindication(s) No statement required. Known adverse reaction(s) No statement required.

## NON-MEDICINAL INGREDIENTS

Must be chosen from the current Natural Health Products Ingredients Database (NHPID) and must meet the limitations outlined in the database.

## STORAGE CONDITION(S)

No statement required.

## SPECIFICATIONS

The finished product specifications must be established in accordance with the requirements described in the Natural and Non-prescription Health Products Directorate (NNHPD) Quality of Natural Health Products Guide. The medicinal ingredient must comply with the specifications outlined in the NHPID.

Proper name(s)	Common name(s)	Source material(s)
Common name(s)		
(S)-2,5-Diamino-5-oxopentanoic acidL-Glutamic acidL-Glutamine	L-GlutamineL-Glutamine	L-GlutamineL-Glutamine ethyl ester