



L-GLUTAMINE

WHAT IS GLUTAMINE?

Glutamine is a naturally occurring amino acid that is **required by every muscle in the body** and is the most abundant amino acid in our bodies. Glutamine is considered to be a conditionally essential amino acid, which means that under certain conditions your body cannot produce enough so it **must be provided through the diet**, similar to the other nine essential amino acids (e.g. BCAA's). During times of stress, such as illness, surgery or other physical trauma as well as heavy training and intense exercise, release rates of Glutamine dramatically increase, often leaving our bodies depleted for lengthy times, depending on the intensity and duration of the workout. Depleted levels in the human body decreases **strength, stamina, recovery, and immune system** function. Glutamine is one of the **most important** building blocks in forming the proteins that maintain cellular health and tissue repair and is found in varying amounts in most meat and fish as well as eggs, dairy, whey protein and some vegetables.

GLUTAMINE IS REQUIRED BY EVERY MUSCLE IN THE BODY

HOW DO I TAKE GLUTAMINE?

Optimal dosage for Glutamine will vary for each individual depending on lifestyle, training habits and any injuries etc. Industry standards for Glutamine is 5g daily. There is evidence to show no ill effect with dosages up to 14g daily in healthy adults and so this is considered the Observed Safe Level (OSL). Whilst glutamine does appear to have a number of benefits, there is little research in relation to the effects of glutamine in large doses for a long period of time. We advise that you stick to the recommended serving size or seek guidance from your doctor or Accredited Sports Dietitian.

PLANT BASED

BENEFITS OF TAKING GLUTAMINE?

Muscle Repair and Maintenance - Glutamine is a hugely popular supplement among bodybuilders and athletes who train intensely. The reason for this is because intense exercise can rapidly deplete the amount of glutamine in the muscles which is a factor in muscle catabolism (the body breaking muscles down to use for energy). Athletes supplement with glutamine because it quickly replaces glutamine that has been depleted. This, in turn, helps to speed recovery after a workout as well as prevent you from losing muscle.

Gut Health - Glutamine is the preferred fuel source of our gastrointestinal cells that are responsible for maintaining its structure and reducing gut mucosal atrophy which, is a physical change of the intestinal cells. Specifically, glutamine assists with maintaining healthy levels of Intestinal permeability (or mucosal structure), which refers to how easily substances (like water, electrolytes and waste products) can pass through the walls of our intestines into our bloodstream and other areas of the body.

Assist Immunity - Glutamine plays a vital role in maintaining a healthy immune system and recovery. Our immune system defences can be reduced with chronic high intensity training depleting our levels of glutamine and making us more susceptible to illness such as the common cold and other respiratory tract infections.

Assist with Weight Loss - Research suggests that L-glutamine supports weight loss through several mechanisms. First, some studies indicate that Glutamine supplements alter the composition of your gut microbiome, which is the community of beneficial bacteria in your digestive tract. The gut microbiome plays a central role in many aspects of health, including weight management. What's more, glutamine may protect against inflammation, which is linked to many chronic conditions, including obesity. Finally some studies have shown that Glutamine can increase and maintain healthy levels of human growth hormone, which is an important hormone linked to weight loss among other positive uses in the body.

Plant Based - Our Carnitine is obtained through a chemical synthesis that is not extracted from meat. Therefore Tuff Supps Carnitine is suitable for vegetarians and vegans as well as anyone looking for a superior supplement sourced from plants.

NUTRITIONAL INFORMATION

	PER 5G SERVE	PER 100G
ENERGY	20kj	400kj
	4.8 Cal	95 Cal
PROTEIN (Glutamine)	5g	100g
FAT (TOTAL)	0.0g	0.0g
- SATURATED	0.0g	0.0g
CARBOHYDRATES	0.0g	0.0g
- SUGARS	0.0g	0.0g
SODIUM	0mg	0mg

Product Disclaimer: Formulated Supplementary Sports Food. Not suitable for children under 15 years of age or pregnant women. Should only be used under medical or dietetic supervision. This product is not a sole source of nutrition and should be consumed in conjunction with a nutritious diet and appropriate physical training or exercise program.