

bioteen™

Teen Health



L-GLUTAMINE PLUS

PRODUCT OVERVIEW

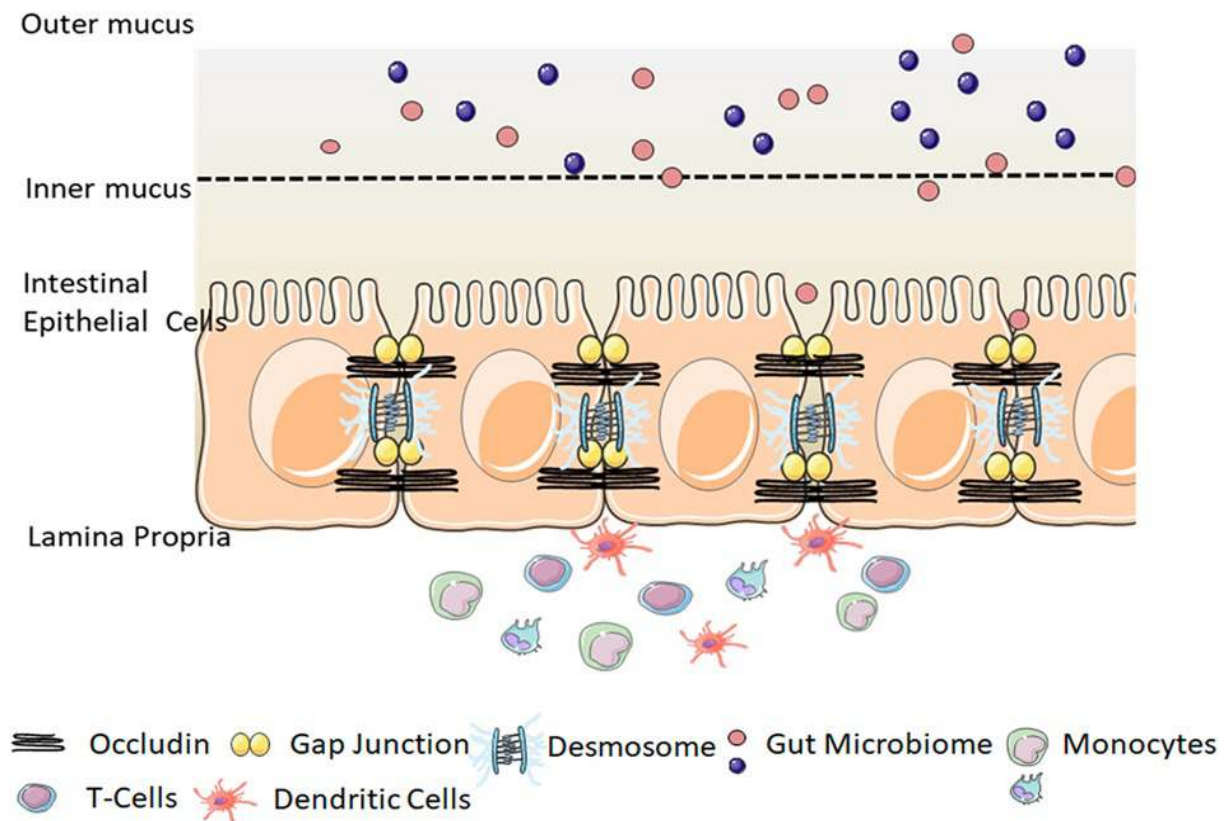


L-GLUTAMINE PLUS

We recognize that the health benefits of having a healthy gut are far reaching, that's why we developed Bioteen's L-Glutamine Plus. It has been expertly formulated to optimize the integrity of your physical gut lining using high quality, gut healing ingredients like L-Glutamine, L-Glycine and Fibersol®-2.

Firstly, why is the physical gut barrier so important?

Every single day there are thousands of microorganisms and nutrient compounds that bombard your teen's gastrointestinal tract. Your body goes to great lengths to protect you from pathogens, regulate the absorption of nutrients and connect the gut microbiota to the immune system (amongst others). In most people, the gut barrier has the ability to facilitate most of these functions and so having a healthy barrier is the first step towards protecting the body. The gut barrier is made up of a physical barrier (which consists of the microbiome, mucus and epithelial cells) as well as the GALT or gut associated lymphoid tissue (which houses immune cells). Having a healthy physical barrier means fewer pathogens will make their way into your body (meaning you'll get sick less often) and as an added bonus a healthy physical barrier has knock on systemic health benefits (1).



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Fibersol®-2 feeds your microbiome

As we mentioned, the physical gut barrier is made up of three layers, the microbiome, mucus layer and the epithelial cells. The microbiota that live in your microbiome are the first point of contact for pathogens that have entered into your digestive tract from the outside world. There is a balance of good and bad microbes that live here and the key to increasing this protective layer is to have more good (like *lactobacillus* and *bifidobacterium*) than bad. When this happens, the good guys out-compete the bad ones making sure that they can't colonize the gut. If the bad bacteria are allowed to colonize the gut (aka dysbiosis) then they may cause damage to the physical barrier, allowing pathogens to make their way into your bloodstream stream. One way to keep this layer healthy is to eat a diet rich in prebiotic fibers and supplement with prebiotics, like Fibersol®-2.

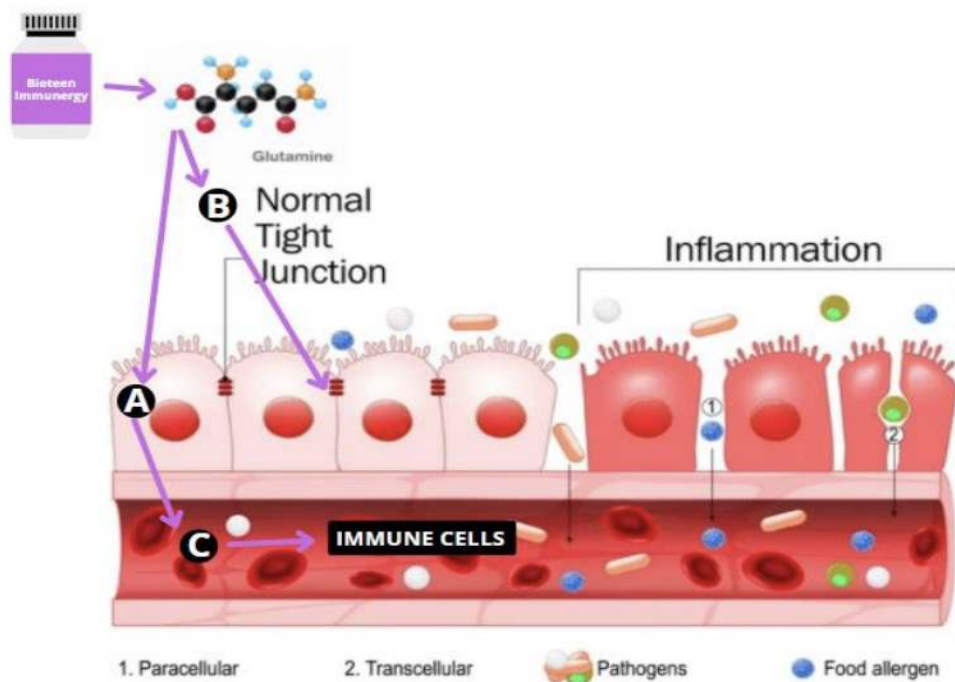
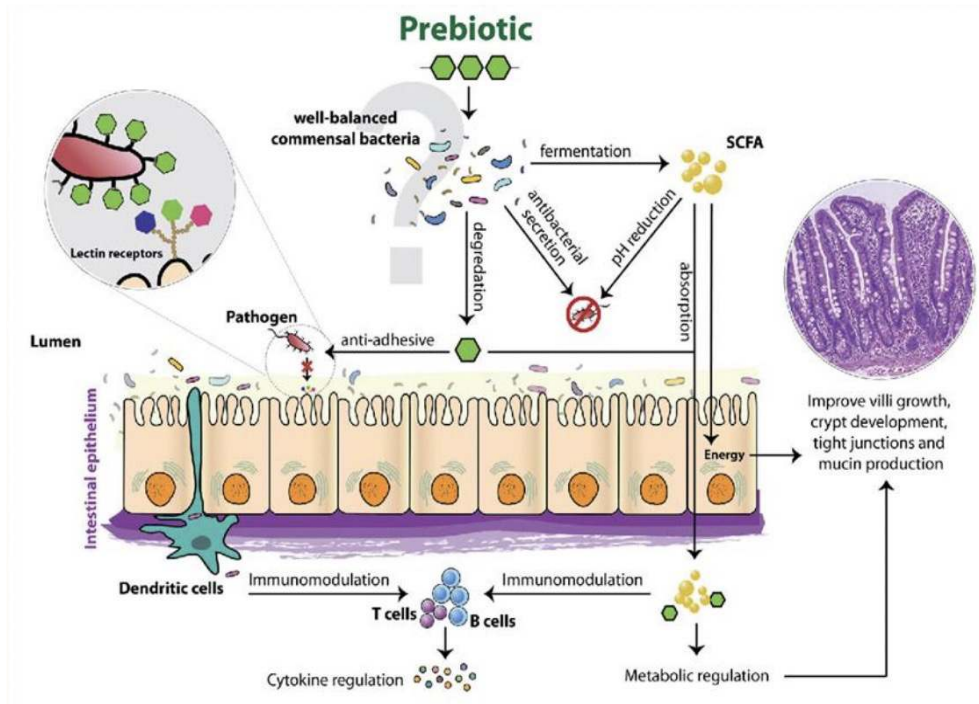
Prebiotics ferment to form beneficial short chain fatty acids (SCFA)

Prebiotic foods (or supplements, like Fibersol®-2), bypass digestion and absorption in your small intestines and make their way to the colon where they do two main things. Firstly, they physically prevent pathogens from binding to the lining of the gut by tricking the pathogens into thinking that they are gut cells. When this happens, the pathogen binds to the prebiotic instead of the gut cell and is then flushed from the system. And secondly, they are fermented and essentially 'feed' the good microbiota. The end-products of this fermentation process are called short chain fatty acids (SCFA) which strengthen the epithelial layer by increasing the secretion of mucus, acting as an energy source for epithelial cells and maintaining tight junction proteins (2). A thicker mucus layer blocks pathogens, well fed epithelial cells are able to proliferate and function at capacity and well maintained tight junctions seal the epithelial cells together and reinforce the physical barrier. SCFAs also influence the intestinal immune cells of the GALT (or gut associated lymphoid tissue) and act as mediators between your gut bacteria and your immune system. The signals that they produce are able to modulate your immune response helping to maintain the anti/pro-inflammatory balance (3). In short, you want plenty of SCFAs due to the multiple beneficial effects that they have on the gut and the body as a whole.

L-Glutamine to the rescue!

Another nutrient that also helps to feed the epithelial cells and maintain tight junctions is the conditionally essential amino acid, L-Glutamine. Under stressful or disease circumstances, the demand for conditionally essential nutrients may exceed supply. If this happens, it can have a negative impact on the gut barrier because epithelial cells have a quick turnover rate (of 4-5 days) and in order for this to happen, glutamine is needed. In fact, up to 30% of all the glutamine in your body is used by epithelial cells (4).

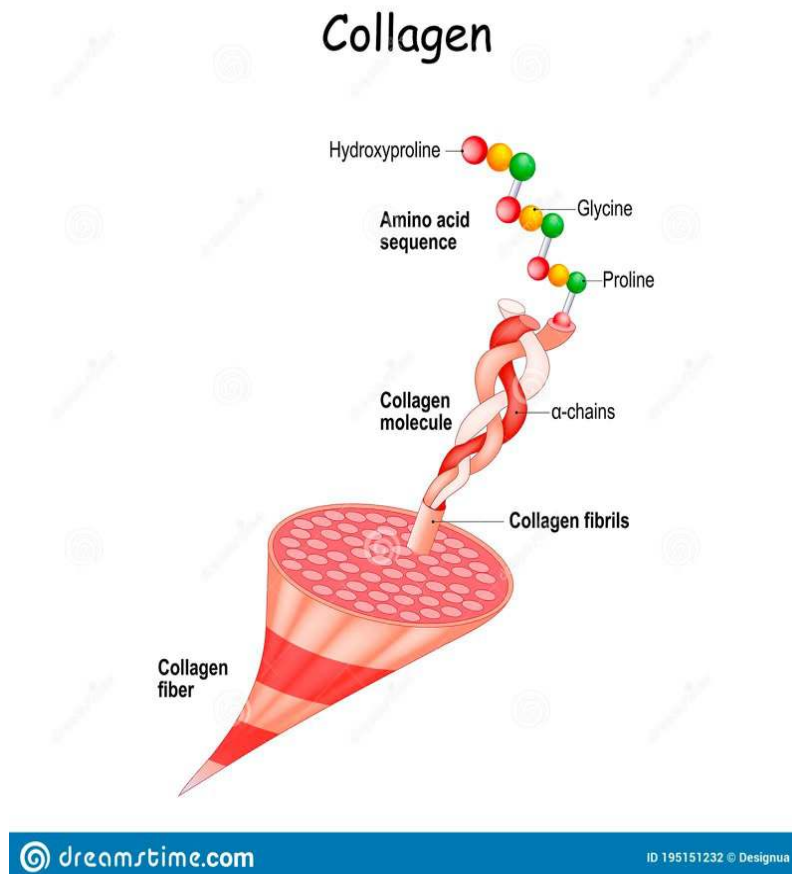
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Strengthen the extracellular matrix

The extracellular matrix forms structural support for the intestinal epithelial cells and is also needed for normal epithelial cell survival, nutrient uptake, and metabolism. This means that maintaining a healthy extracellular matrix is one of the keys to healthy epithelial cells and thus a healthy and strong physical barrier. One of the main components of the extracellular matrix is collagen and one of the building blocks of collagen is L-Glycine. If you don't have enough L-Glycine in your diet, then the collagen won't be able to regenerate fast enough which can compromise the extracellular matrix (5).



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The bottom line

The first step to maintaining gut health is to make sure that the physical barrier is well maintained. This means making sure that the microbiome is healthy and happy, the mucus layer is thick enough, the epithelial cells are well fed and tightly bound together by tight junctions and the extracellular matrix is strong. While that may sound like a mouthful, at Bioteen we've made it simple. All you need to do is use Bioteen's L-Glutamine Plus which contains Fibersol®-2, L-Glutamine and L-Glycine. All the nutraceuticals you need to repair your physical gut barrier.

References

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