

# bioteen™

Teen Health



## MULTIVITAMIN+

PRODUCT OVERVIEW

**MULTIVITAMIN+**

Humans need more than 40 different nutrients every day to be healthy. We get the majority of our nutrients from food, but occasionally there are some gaps in our intake. A multivitamin supplement is one of the ways that you can help make up for this shortfall.

We take these gaps in a teen's diet very seriously and that's why we created Bioteen's Multivitamin +, an all-in-one solution that doesn't just provide a host of bioavailable vitamins and minerals (including electrolytes) but also additional prebiotic fiber in the form of Fibersol-2® and antioxidant support in the form of glycine. Essentially, this is a great combination of nutrients that work synergistically to make up for any shortfalls in the diet. Unfortunately, teens don't always meet their nutrient targets through diet alone and if their needs are not met for a prolonged period of time, then deficiencies and related symptoms and diseases may start to become apparent. When you hit your nutrient targets, you can expect the following:

### **Great energy levels**

It's very important to know the difference between energy containing nutrients (like carbs, protein, and fats) and non-energy containing nutrients like vitamins and minerals. The former literally gives us energy, but the latter are needed for the body to effectively access that energy. Many vitamins and minerals act as cofactors and are nutrients that are needed for certain reactions to take place in the body. If these nutrients are deficient in the diet, then those reactions can't take place and you'll end up with symptoms like low energy levels. For example, almost every B-vitamin is involved as a cofactor, in at least one if not several steps of the energy-production system within the cell (1). Vitamin C also acts as a cofactor for the molecule carnitine, which is needed for the oxidation of fatty acids and magnesium is a cofactor in the production of ATP (or adenosine triphosphate), which is literally an energy storage molecule (1).

To make sure we have covered all the bases, we have also included hydrating electrolytes, sodium, and potassium in our Bioteen Multivitamin +. Because one of the first signs of dehydration is fatigue. So, if we can effectively fight off dehydration, energy levels rise.

### **Good gut health**

It is becoming increasingly apparent that good gut health has far reaching benefits. That's why we have opted to include the prebiotic fiber, Fibersol-2® in our Multivitamin +. Prebiotic fibers bypass digestion and absorption in your small intestines and make their way to the colon where they do two main things to improve your gut health. Firstly, they have the ability to 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.

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In addition to prebiotic fiber, we have also included glycine in the mix. Glycine is one of the building blocks that strengthens and reinforces a substance called collagen and collagen is one of the main components of the extracellular matrix that makes up the physical barriers of the innate immune system, like your skin and mucosal membranes in your gut. If you don't have enough glycine in your diet, the collagen won't be able to renew and regenerate fast enough leaving your body exposed to attack by pathogens (3).

## **A supported immune system**

Our Teen Vitamin Premix is a blend of 12 highly bioavailable vitamins, consisting of fat-soluble vitamins A and D3 as well as water soluble B-complex and vitamin C. All these vitamins are considered to be essential, because our bodies are unable to produce them and so we need to get them from our diet in order to be healthy.

Vitamins (and their metabolites) function as cofactors, hormones, and antioxidants all of which play a role in the immune response. Various vitamins are involved at every level of the immune system. For example:

- They contribute to the integrity of the physical barriers of the innate immune system
- Assist with innate and adaptive immune cell proliferation, differentiation, function and movement
- Protect cells from oxidative stress by acting as antioxidants
- Act as antimicrobials to discourage microbial growth
- Regulate inflammation

There is significant overlap between various micronutrients and these processes which indicates the importance of using multiple nutrients (including vitamins) to support the proper functioning of the immune system (4).

## **Proper growth and development**

As we know, teens are in the final stages of growth and development and so it is really important for them to have the nutrients that they need to allow all of that to go as smoothly as possible. Various vitamins (from our Teen Vitamin Premix) and minerals (in the form of Albion® minerals) are involved in energy production, macronutrient metabolism, bone formation, production of red blood cells and even the maintenance of healthy skin and eyes. We have made it our mission to ensure that every vitamin and mineral included in this mix is highly bioavailable, meaning that it is readily absorbed and used by the body because what is the use of a supplement if the body is unable to access it?

## The bottom line

Ideally, we'd all love for teens to be eating a healthy and well balanced diet where they can get all the vitamins, minerals and fiber that their growing bodies need to reach optimal health. Unfortunately, the truth is that many teens are not reaching their nutrient targets and as a result may suffer from nutrient deficiencies which may affect their current and future health and wellbeing. Including Bioteen's Multivitamin + can help to fill these nutrient gaps and make sure that teens can be teens without any hassle.

## References

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