bioteen™
Teen Health

RELAXIFY

PRODUCT OVERVIEW

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During the teenage years, the brain enters into its final phase of development. At this point, the limbic or emotional system is still in charge while the prefrontal cortex catches up. For this reason, teen's may be more emotional and may experience more anxiety. If this anxiety is allowed to spiral out of control, it can contribute to toxic stress which can change the landscape of their long term mental health. Protecting your teen's long term health is one of our top priorities and that is why we have developed Bioteen Relaxify , formulated with ingredients that have been proven to promote relaxation and reduce neuronal overstimulation. Everything a teenager needs to stay cool and calm.

How does Relaxify do this? Let's explore...

Activates the parasympathetic nervous system

The nervous system is divided into a variety of 'parts', with each being responsible for different responses in the human body. Many of us are aware of the 'fight or flight' response of the sympathetic nervous system, but not many know of its counterpart, the parasympathetic nervous system. This is the system which restores the body to a state of rest. While both responses are necessary for different activities, when your teen is facing a stressful situation, to prevent them from feeling overwhelmed, we want to stimulate the relaxation pathways regularly (1).

The main component of the parasympathetic nervous system is known as the vagus nerve. It oversees a number of bodily functions, including digestion, heart rate, immune response and mood. It is the connection between the brain (central nervous system) and the gut (enteric nervous system) and is the main nerve to facilitate the 'gut-brain' axis. When the vagus nerve, and subsequently the parasympathetic nervous system is activated, we are better able to regulate stress responses and thus mitigate mood and anxiety symptoms (1).

One of the ways that your diet can influence the communication between the gut and the brain (via the vagus nerve) is through the neurotransmitter GABA (or gamma aminobutyric acid) because there are a number of GABA receptors on the nerve cells in the gut.

Neurotransmitters are chemical signalling molecules that allow brain cells to communicate with each other which is vital for all the brain's functions, including the ability to concentrate and learn. The types of neurotransmitters created can affect how a person feels and behaves.
For example:

- Excitatory neurotransmitters excite the neuron, cursing it to fire it's message
- Inhibitory neurotransmitters inhibit/ relax the neuron, preventing it from firing

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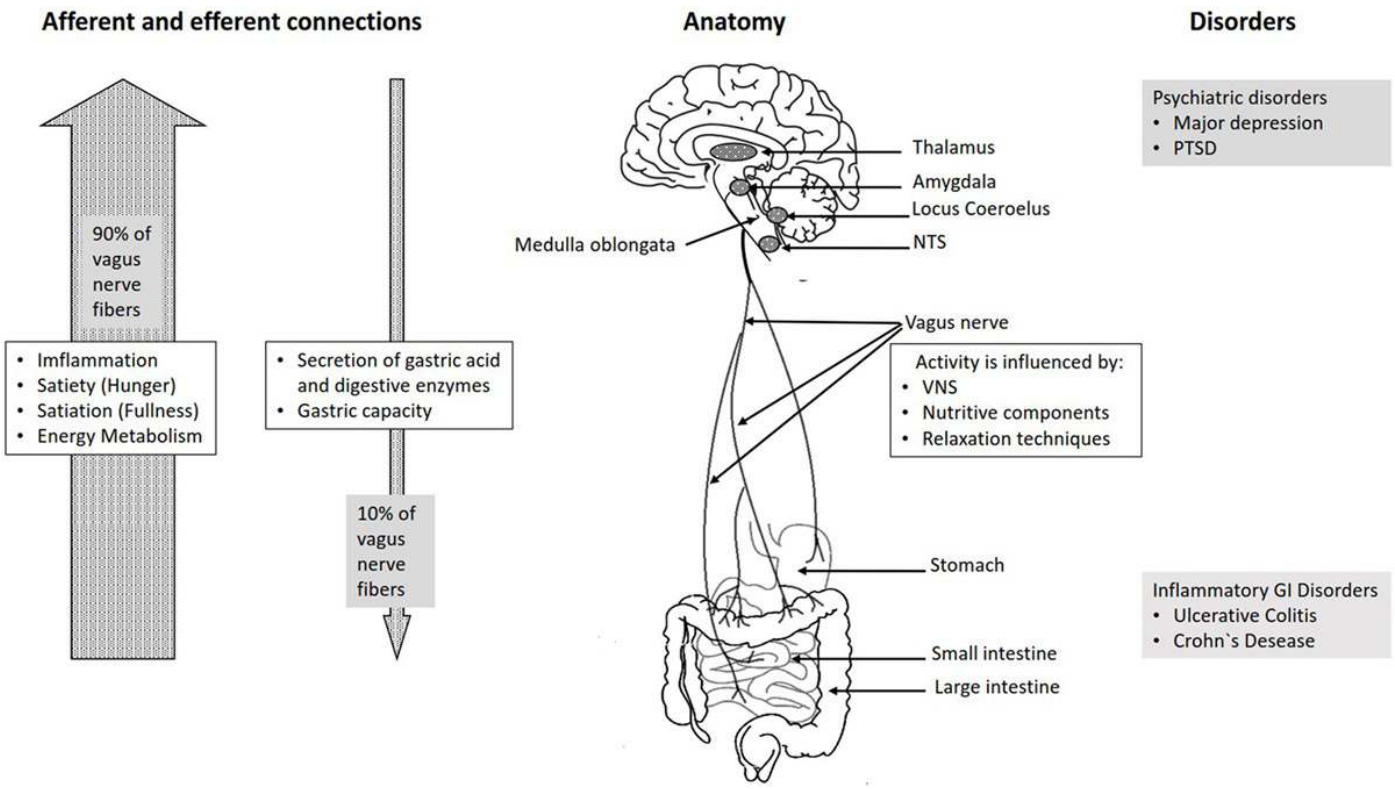
Interestingly, while GABA is the main inhibitory neurotransmitter in the body accounting for about 40% of the inhibitory processing in the brain (2), in the gut it acts as an excitatory neurotransmitter, helping to activate the vagus nerve (3). To assist with this process, Relaxify contains GABA and a precursor to GABA, theanine (in the form of Suntheanine®). Suntheanine® is able to cross the blood brain barrier and in that way is also able to influence the GABA level in the brain exerting a relaxing effect through its inhibitory actions and also through its effects on brain wave activity.



Increasing relaxing alpha waves in the brain

The brain produces electrical impulses that help the neurons communicate behaviours, emotions and thoughts with one another. There are four types of brain waves with alpha waves being closely related to feelings of relaxation with an effortless level of alertness, without feeling drowsy and beta waves being related to highly stressful situations or when there is a difficult mental problem to solve (4).

Relaxify contains both L-Theanine in the form of Suntheanine® as well as Palatinose™, which, when consumed together, amplify the production of alpha brain waves (and thus feelings of relaxation) while simultaneously reducing beta waves.

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Regulation of relaxing and feel good neurotransmitters

As we've learned, Suntheanine® increases the levels of GABA in the brain, which acts as an inhibitory neurotransmitter helping to keep you feeling as cool as a cucumber. Another nutrient related to GABA and its receptors, is taurine. Taurine is structurally similar to GABA (as well as glycine, which is also an inhibitory neurotransmitter) and because it looks similar to these compounds, it is also able to activate these receptors in the brain meaning that it will cause the same response as GABA, which is to inhibit/relax the neuron, preventing it from firing which leads to a more relaxed state (5).

Feeling relaxed is only the half of it, Bioteen Relaxify also contains myo inositol, which acts as a precursor to secondary messengers that are involved in both the serotonin and dopamine systems which are typically described as your happy or feel good neurotransmitters (6).

Reducing neuronal overstimulation

Last, but not least, we have also included ingredients that have the ability to prevent your neurons from being overstimulated and in doing this help you to relax. One of the ways that neurons are stimulated is through the activation of NMDA (or N-methyl D-aspartate) receptors by a molecule called glutamate. In order to downregulate this pathway we need to either displace glutamate or inhibit NMDA receptor activity. To do this, we have included L-theanine (as Suntheanine®) which is structurally similar to glutamate (2), thus displacing it, preventing it from binding to and exciting the neuron as well as magnesium and zinc, which have both been found to inhibit NMDA receptor activity (7).

The bottom line

In order to promote calm, Bioteen's Relaxify has targeted a number of pathways that have been clinically proven to relax the mind, even at times of stress. It is the perfect addition to any teen's daily regime to help minimise their natural reaction to daily stressors.

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