

Why the Blood-Brain Barrier is So Important

The brain is precious and indispensable. So it has special protection to shield it from any potentially harmful substances circulating in the blood -- the **blood-brain barrier (BBB)**. The BBB is semi-permeable -- it allows some substances to get through while preventing others from crossing over into the environment of the brain.

The BBB's function is similar to the way the intestinal/gut barrier acts as the "great wall" between inner and outer -- the gut is the screening portal of entry from the outside world into the body. The BBB is even more selective.

For example, the BBB is very effective in keeping bacterial agents in the blood and body. These bacterial agents are screened out by the BBB and not allowed to cross into the brain's "inner sanctum", making infections of the brain very rare.

The semi-permeable BBB can become **too permeable = hyper-permeable or 'leaky'**; It may then allow harmful substances to pass through into the brain. Often where the gut/intestinal barrier becomes leaky, the BBB also becomes too permeable. Leaky gut often leads to leaky brain. (And leaky brain can also lead to excess permeability in the brain.) We now know that it is always necessary to treat leaky gut and leaky blood-brain barrier together to achieve the best therapeutic results.

Testing for leaky BBB: how and why the **GABA challenge** works

GABA is a neurotransmitter synthesized in the brain. It is responsible for calming or inhibiting over-activity. Some people can't make enough GABA, and so can lose the ability to calm down. Although some companies sell GABA supplements, **the GABA molecule in the supplement is too large to pass through an intact blood-brain barrier**. The fact that this supplement sells so well indicates the lack of integrity in the satisfied consumer's blood-brain barrier. **Only if the BBB is leaky will GABA work.**

"When the doorkeeper of the brain (the BBB) is properly deciding who gets to go in and who should be kept out, GABA should be kept out. A healthy blood brain barrier should not allow GABA to cross into the environment of the brain."

We can observe for the effects of GABA slipping through a leaky BBB -- we would expect to see a calming effect - feeling more calm, relaxed or sleepy than normal. This is the basis for the GABA challenge. Take sufficient GABA. **If you become more relaxed within a 2-hour time period**, we can assume the GABA has crossed the BBB and created an inhibitory/calming effect. This suggests a leaky blood brain barrier.

So the integrity of the BBB may answer the question as to why some people take GABA and it has a calming effect, while the same GABA does not have any effect on others. Some people have leaky brains and some people don't. And now you can find out for yourself.

Leaky BBB and autoimmunity

Besides allowing in foreign bacteria, a leaky brain is also more likely to be an inflamed brain: it is more vulnerable to insult by the over-active immune reactions that we see in many autoimmune conditions. For this reason, autoimmune people often have "fog brain",

poor memory and concentration problems, and low stress tolerance leading to anxiety, insomnia, nervous tension, etc. When the immune system propels them toward "fight or flight", they find it difficult to "rest and digest", so there are sleep and digestive difficulties as well.

To restore BBB integrity, first make sure your diet is strictly gluten-free. Other foods, such as dairy or eggs may also be also provoking the immune system. See <http://alternativethyroidtherapy.com/leaky-gut-food-sensitivities/> for more information about elimination diets and food sensitivity testing.

Balancing blood sugar, supporting adrenal health and liver detoxification (especially via the methylation pathway) and eliminating any chronic infections will help quench inflammation, the saboteur of brain health.

Thanks to http://www.williamsportacupuncture.com/user/files/GABA_Challenge.pdf and <http://www.myvits.com/product.aspx?id=2054> and *Why Do I Still Have Thyroid Symptoms When My Lab Tests Are Normal?* by Datis Kharrazian.