

COULD GUT BACTERIA HOLD THE KEY TO SEIZURE CONTROL?

Living on and within us, is an unseen world of micro-organisms; bacteria, fungi, viruses and other classes of microscopic life. Each one of us carries our own unique mix, influenced by our birthing process, the food we eat, the environment around us, exposure to antibiotics, exposure to disease, our genetics and many other influences.

Our microbiota is essential to our health, a vital 'organ' on par with our liver and there is growing appreciation it plays an important part in brain health, with emerging evidence pointing to involvement with various psychiatric and psychological conditions such as depression, autism, stroke, Parkinson's disease and Alzheimer's disease. However, recently published research has now brought this fascinating microbial dimension to the attention of the epilepsy world.

One study found that the microbiota of infants with refractory epilepsy differed dramatically from that of healthy controls; noting a higher dominance of microorganisms known to be harmful alongside a decrease in those considered beneficial. However, when they re-examined the profiles after only one week on a ketogenic diet, they noted a significant improvement towards the microbial profile seen in healthy infants¹.

Another recent study used a mouse model of epilepsy to investigate whether gut bacteria could play a role in the anti-seizure effects of the ketogenic diet. They found that mice fed the diet had substantial changes in their gut bacteria after about four days and experienced fewer seizures compared with mice fed a non-ketogenic diet. When they then examined the effect of the ketogenic diet on sterile mice (ie raised in a sterile environment or treated with antibiotics to kill their microbiota), they found that the diet no longer protected them from seizures. When they studied the bacterial colonies in the mice on ketogenic diet, they found that two species were particularly elevated.

If they transplanted these bacteria into the bowels of the sterile mice on ketogenic diet, the anti-seizure effect could be restored. Remarkably they also reported that they could convey seizure protection to mice on a standard diet simply by inoculating their bowels with a combination of these bacteria; with neither working if given alone².

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Many more studies in animals, followed by trials in humans will be required before condition specific probiotics or faecal transplants are evidenced as an effective treatment strategy for a range of conditions. In the meantime, as the power of this unseen world becomes more evident, we realise how valuable and relevant our diet and lifestyle are to influence this. We jokingly talk about 'eating for two' during pregnancy but the reality is that we are all 'eating for billions' throughout our entire life.

For a background summary of probiotics and prebiotics please refer to <https://www.healthline.com/nutrition/probiotics-and-prebiotics>

REFERENCES:

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