

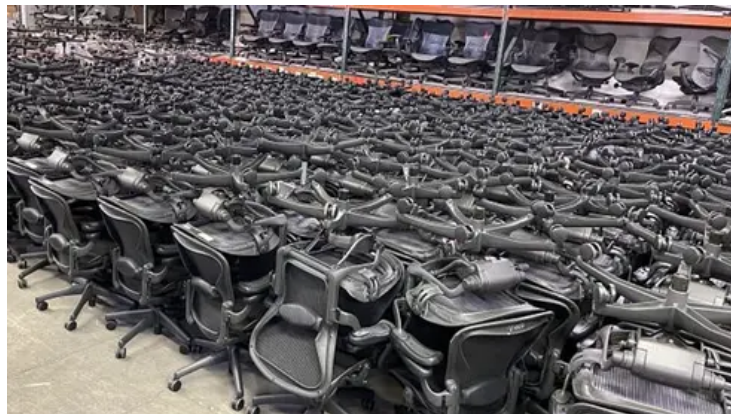
Mental Health: Just A Gut Reaction?

Ruchira Dabas

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When we talk of mental health, all eyes instinctively turn upwards - to the brain - seated atop our body. But did you know, that we also have a 'second brain' that resides in the much lower reaches of our body - that is, in the gut - and exerts as powerful an impact on our mental health? Evidently, whoever coined the phrase "gut instinct" was onto something.

Oddly enough, for over a century, scientists have suspected that the state of our mind and the state of our gut are closely related. However, it is only recently that the workings of this gut-brain nexus and in particular, the role of gut bacteria in cementing this relationship, have become increasingly clear. These new findings, quite literally, have the potential to turn orthodox medicine on its head!

Microbiota-Gut-Brain Nexus

Just like the brain, the gastrointestinal tract (or gut) houses a complex network of nerves - as plentiful as those in the spinal cord - and is the only organ with its own independent nervous system. The gut also houses a population of more than a 1,000 species of beneficial micro-organisms (collectively referred to as gut microbiota) that can influence our brain chemistry and psychological well-being. These little friends not only govern the immune defenses in the gut but also produce neuro-chemicals (such as GABA, serotonin and dopamine) identical to the

ones the brain uses to regulate mood and behavior. Gut microbiota is the "official spokesperson" of the gut and plays a key role in the communication that happens between the gut and the brain.

For instance, neuroscientists have discovered that certain gut-residing bacteria can increase GABA receptors in the brain which helps address anxiety and insomnia, just as popping sleeping pills would, but without the negative side-effects. Interestingly, 90% of the serotonin in the body is produced by gut bacteria and only 10% in the brain. Serotonin is responsible for regulating mood and research shows that people with depression often have lower than normal levels of serotonin which is the reason why serotonin enhancing drugs are routinely prescribed for depression.

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The Psychotropic Properties of Probiotics

With gut bacteria so crucial a determinant of psychological well-being, the pursuit for ways to regulate gut bacteria through different means - such as diet and beneficial bacteria (probiotics) - has been ongoing. As long back as 1910, the British Journal of Psychiatry published a study on how probiotics can be used effectively to treat depression. Sadly, this topic lay forgotten for the next 100 years till it was resurrected in 2011 when a seminal paper published in the British Journal of Nutrition proved, beyond doubt, that a one-month course of probiotics could significantly decrease anxiety and depression in human subjects.

Paradigm Shift: From Top-Down to Bottom-Up

Consequently, in what heralds a significant departure from the conventional 'top-down' approach to treating mental illness, a 'bottom-up' thinking is rapidly gaining ground. All conventional treatments for mental illness based on a 'top-down' approach (be it drug therapy or cognitive behavioral therapy) work on the assumption that if person's brain chemistry or dysfunctional thinking pattern is somehow fixed, he/she will automatically feel fine.

In contrast, the bottom-up approach relies on using alternative methodologies (such as diet therapy or administering probiotics) to regulate gut microbiota as a means to treat psychiatric disorders. Would it not be a tantalizing prospect if instead of treating depression with serotonin-enhancing drugs (to which the body becomes progressively resistant over time), doctors prescribed probiotics as a new form of psychobiotics? However, till such time that an alternative treatment protocol emerges, there are ways in which we can tip the microbial balance in our favor - First, since probiotics play a crucial role in moderating the bacterial environment, fermented foods (such as kefir, kombucha) should be included in our diet, and; Second, it is key that we curtail not only our use of antibiotics but also foods contaminated by antibiotics, that can disrupt this delicate balance. Did you know that according to the U.S. Food & Drug Administration (FDA), approximately 80 percent of all antibiotics in the US are fed to farm animals and end up in our gut when we consume animal products (whether as milk or meat)? Some food for thought.

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Ruchira Dabas

The author is a certified plant-based nutritionist from Cornell University. She is a former Wall Street analyst and KPMG partner, now dedicated to disease reversal through food as a Director with SHARAN Health & Wellness.

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