BLOATING AND BAD MOODS ARE IMAGINED AS BEING ON DIFFERENT PLANES. ONE IS BODY, THE OTHER, MIND. BUT THE LINE IS BEING BLURRED AS SCIENCE REVEALS CORRELATIONS BETWEEN PHYSICAL AND MENTAL HEALTH.

Gut Feel

Increasingly, conversion of emotional issues into physical symptoms is being recognized within integrative medicine, as mysterious conditions such as irritable bowel syndrome (IBS), fibromyalgia and chronic fatigue syndrome (CFS) seem to improve with treatments – including stress reduction. For instance, comorbidity of IBS and borderline personality disorder (BPD) is alarmingly high, while it also tends to favour sufferers with a high susceptibility to overwhelm under stress.

The common thread tends to be the enteric nervous system, which contains as many neurotransmitters as the brain, research shows, suggesting links between pronounced body sensations and mental events.

Sally Joseph, a clinical nutritionist and author of new book *Love Your Gut – A Complete Guide to Gut Health and Achieving Optimal Health & Vitality Through Food*, says the gut is where wellbeing begins.

"Over 90 per cent of serotonin receptors are contained within your gut. Given it's the happy hormone and influences everything from your mood and behavior, to your sleep and appetite, a deficiency in serotonin can contribute to depression, anxiety, mood

PHOTOGRAPHY: THINKSTOCK

swings, sugar cravings and sleep disturbances," says Joseph, who has used the strategies she discovered to overcome several chronic illnesses and to treat myriad illnesses.

Julia Ross' book *The Mood Cure* prescribes ingestible amino acids – the constituents of protein and precursors to neurotransmitters – to correct emotional problems.

"Your brain relies on protein – the only food source of amino acids – to make all of its mood-enhancing chemicals," Ross says.

Ross says that L-tryptophan (the precursor to serotonin) can be an effective treatment for depression. Other amino acid supplements such as L-tyrosine and GABA (gamma amino butyric acid) can also be effective.

Increasingly, integrative practitioners in gastroenterology and psychiatry are recognising the gut's potential to ameliorate conditions ordinarily imagined as brain-based.

Chronic fatigue syndrome (CFS), for instance, has been linked to unbalanced gut bacteria. According to research at the University of Toronto, low levels of Lactobacillus and Bifidobacteria in the gut could contribute to CFS symptoms.

It supports research linking CFS, to the nervous system. Since gut bacteria communicates with the nervous system via the body's vagal nerves, the mood connection makes sense. The same bacteria also converse with the immune system.

This growing body of positive findings means that some conditions previously considered incurable may be eased by taking probiotics.

Gut bacteria may also improve general brain function, research suggests. In a UCLA study, women aged 18 to 55 who ate yoghurt containing probiotics twice a day for a month exhibited decreased activity in two brain regions that control central processing of emotion and sensation. They also showed greater connectivity between a region known as the 'periaqueductal grey' (PAG) and areas of the prefrontal cortex associated with cognition, while those who skipped the probiotic showed greater connectivity in a different area.

Even certain symptoms of autism are now being linked to disturbances in gut bacteria. "There's good evidence that gut bacteria can upset behaviour, and that appears to be the case with autism," says the University of Melbourne's Professor Joel Bornstein.

"The kind of mutations we're talking about would change the response of the gut and the brain to even normal microbiome," says Prof. Bornstein. "You wouldn't need a particular bacteria to cause autism. What you have now is the gut and the brain responding differently to something that would have been there anyway."

LINKED IN

HOWEVER BLATANT THE CONNECTION BETWEEN BELLY AND BRAIN, THE LINK CAN BE HARD TO SPOT. WE'VE DONE THE DETECTIVE WORK.

STRESS AND ANXIETY EXACERBATE IRRITABLE BOWEL

WHO SAYS: Dr Malcolm Clark, Melbourne GP and author of *Doctor in the House*, says that stress plays a major role in irritable bowel syndrome, both in triggering and worsening symptoms, including bloating, abdominal cramps, flatulence and loose, frequent bowel motions or constipation.

"Sufferers often report the return of their rotten symptoms when they are under increased stress at work or at home," he says. "Depressed or anxious people seem to suffer from this problem more often than the rest, suggesting these may also be causes."

LAB WORK: Scientists are still struggling to get to the bottom of how IBS works.

"That's another million dollar question," says Dr Clark. "We know the nerves are irritated and stress plays a major role in the syndrome."

"The nerve messages to the muscle walls are garbled and confused. The muscles are stimulated, but in a disorganised way and the bowel doesn't work properly. Sometimes the nerves send very strong impulses causing the cramping spasms typical of irritable bowel."

CALL TO ACTION: Practise yoga and eat plenty of fibre-rich foods

"Avoid stressful situations, or try to learn to deal with them in a more positive way," says Dr Clark. "The illness itself is certainly stressful, which can only make symptoms worse. Understanding this cycle can help to dampen symptoms."

Increase your intake of fibre and reduce fatty foods and alcohol; both can exacerbate the problem by slowing the passage of food from the stomach.

"Fibre seems to aid the passage of food through the gut, as well as bulking up and softening the stools," says Dr Clark.

WESTERN FOOD IS BRAIN POISON

WHO SAYS: Hydrotherapist and inner cleansing practitioner Andrea Bentancor says the modern Western diet invites various physical and mental complaints.

"We have seen the quality of our food supply gradually fall victim to genetically modified organisms and excessive hormone, pesticide and antibiotic use. These are some of the factors that have led to a subtle yet damaging shift in the quality and quantity of nutrients that we ingest on a day to day basis."

"Consequently, cases of digestive disorders and mental disorders, like depression, ADHD and emotional instability have continued to rise."

LAB WORK: "The digestive system is often misunderstood as simply a 'processing factory' for the foods we eat," says Bentancor. "While absorbing and digesting food is one of its main roles, perhaps the most overlooked fact is that the digestive system is responsible for producing around 90 per cent of the neurotransmitter serotonin, the body's own 'feel good' chemical."

"An unhappy digestive system will not produce the sufficient amounts of serotonin required by our brains each day, potentially leading to stress, anxiety and depression."

CALL TO ACTION: Try a colonic.

"By using colonic hydrotherapy as a means to detoxify the bowels, we are able to restore balance within the digestive system, without the use of chemicals or pharmaceutical drugs," says Bentancor. "We often find that by cleansing the colon naturally, and reintroducing specific nutrients such as probiotics, fish oils and prebiotic fibre, the gut is able to help itself, and once again begin to produce the necessary chemicals that our brains crave so much these days."

"We constantly see vast improvements in mood, energy and vitality simply by addressing these fundamental issues relating to the gut."

CHRONIC FATIGUE MAY THRIVE ON BAD BACTERIA

WHO SAYS: Researchers at the Department of Nutritional Sciences at the University of Toronto concluded that low levels of Lactobacillus and Bifidobacteria – two types of probiotic bacteria found in the gut and as live cultures in yoghurt - could contribute to symptoms of chronic fatigue syndrome (CFS).

LAB WORK: CFS has long thought to have a connection to the nervous system, and it's known that that gut bacteria communicates with the nervous system by way of the vagal nerves, and thus has an influence on our mood. The same bacteria also communicates with our immune system, the majority of which, you guessed it, resides in the gut.

"Research shows that patients with CFS and other so-called functional somatic disorders have alterations in the intestinal microbial flora," says researcher Dr A Venket Rao. "Emerging studies have suggested that pathogenic and non-pathogenic gut bacteria might influence mood-related symptoms and even behaviour in animals and humans."

CALL TO ACTION: Boosting probiotic intake, with supplements or good quality yoghurt, may help to reduce some CFS symptoms.

"We found a significant rise in both Lactobacillus and Bifidobacteria in those taking the Lactobacillus casei strain Shirota (LcS), and there was also a significant decrease in anxiety symptoms among those taking the probiotic vs controls," said Dr Rao. "These results lend further support to the presence of a gut-brain interface, one that may be mediated by microbes that reside or pass through the intestinal tract."

INSOMNIA CAUSES WEIGHT GAIN

WHO SAYS: Cornell University research publication *Sleep for Success* led by

INFLAMMATORY STATEMENT

Eating inflammatory foods can cause bloating, breakouts and conditions such as irritable bowel.

"Your digestive system forms the foundation of your health," says naturopath Sarah Luck. "When you don't eat well or don't fully recover from a tummy bug, unhealthy bacteria can overcolonise your digestive system, causing bloating, wind and inflammation." According to Luck, other issues that compromise your belly health and good bacteria levels, include excess alcohol intake, use of drugs like antibiotics, painkillers and the contraceptive pill, eating lots of processed foods and being constantly stressed (which compromises healthy digestive function).

"If I were to give you one word to sum up the underlying cause of the majority of health problems and chronic disease states we see today, it would be 'inflammation'," says Joseph.

"No matter how simple or complex the presenting health condition, the common denominator with each and every patient I have treated, is the function of their digestive system, or lack of."

psychologist James Mass found that if people don't switch their mind off and get enough sleep it could lead to significant weight gain.

"You might think that spending more time in bed makes you lazy, but not spending enough time in bed can also make you fat," he said

LAB WORK: "Lack of sleep lowers leptin levels in the brain and raises ghrelin levels in the stomach," says Dr Mass. "These hormones are responsible for appetite regulation. So when you're sleep deprived, you're more likely to overeat craving carbs, sugars and junk food."

Research at Columbia University found that people who slept as little as five hours a night had a 50 per cent higher risk of becoming obese.

People who slept for just four hours on a single night consumed an average of 330 additional calories compared to after a restful sleep.

Lack of sleep can also cause the body's production of growth hormones to plummet, potentially reducing muscle mass, increasing fat tissue and weakening the immune system. Too little sleep can also increase insulin production and contribute to type 2 diabetes.

CALL TO ACTION: Prioritise getting seven to eight hours' sleep. Go to bed at a routine time every night, use your bed for sleep and sex only (no work!), don't drink alcohol near bedtime and practice a relaxation technique to help you unwind.

BALANCE BEAM

RESTORE BACTERIAL BALANCE

» USE PROBIOTICS: "Some strains of probiotics such as Lactobacillus plantarum and Bifidobacteria infantis, may help reduce abdominal pain, flatulence and belly distension," says CK Yao, a research dietitian at Monash University. Probiotics can also promote anti-inflammatory effects by interacting with the gut immune system. "This may help to reduce hyper-sensitivity reactions of the gut that can manifest as abdominal pain or bloating," Yao says. Taking probiotics may worsen digestive symptoms such as bloating in some people, so always start with a small dose of probiotics.

» BEWARE SENSITIVITIES: Eating foods to which you're sensitive to, can cause inflammatory reactions in your digestive system and body. Eliminating suspect foods for weeks and reintroducing them is a sound way to test for reactions. Aside from common culprits such as gluten and dairy, lesser known problematic foods include vet salicylates and amines. Higher levels of natural chemicals that may be problematic generally correlate with flavour intensity – more is more.

» CENSOR CARBOHYDRATES. "Certain molecules called FODMAPS, found in food such as excess fructose from some fruits and lactose, in some dairy foods, can be poorly absorbed by some people in the small intestine and digestive tract and feed the bacteria there," says Dr Sue Shepherd, an Australian dietitian and Senior Lecturer at La Trobe University Department of Dietetics and Human Nutrition. "The bacteria can then digest or ferment these molecules, triggering symptoms of Irritable Bowel Syndrome, including abdominal bloating and pain, nausea and excess wind," points out Shepherd, who was involved in the development of the low FODMAP diet in 1999. "To avoid FODMAPS, which include foods like baked beans, onion, garlic, leeks, asparagus, cauliflower and fruits such as apples, peaches and pears, it is best to consult with an accredited practising dietitian," Shepherd says.