



MYOTA

X

THE STRESS MANAGEMENT

SOCIETY



For further information, please contact

judy@stress.org.uk

This Stress Awareness Month, we're partnering up with gut health company myota to talk about the role of gut health in managing stress.

Researchers at myota are currently looking for adults aged 18-50 years old to participate in a clinical trial exploring the link between daily fibre intake and stress.

What's involved?

- Two visits to the study clinic located in **central London**
- Health assessments, including cholesterol, gut health & inflammation biomarkers
- Take a powered fibre supplement everyday **12 weeks**
- Receive **£150** at the end of the study

By taking part, you'll be helping researchers understand how gut health can support mental wellbeing and contributing to cutting-edge science on the gut-brain connection!

COMPLETE THE ENQUIRIES FORM

More than a gut feeling: stress and the gut microbiome

Stress is now a common part of daily life. In the UK, around 74% of adults report feeling overwhelmed to the point that they struggle to cope (1). While stress is often thought of as something that exists only in the mind, research increasingly shows that it involves the whole body. One of the most important systems involved in how we experience and respond to stress is the gut.

What is the gut microbiome?

The human body is home to trillions of microorganisms. In fact, your body carries more microbial cells than human cells, with large communities living on the skin, in the mouth, and throughout the digestive system. The gut contains the largest and most complex of these communities. It is estimated to host around 100 trillion microorganisms, including bacteria, fungi, viruses, and other microbes. Collectively, this ecosystem weighs around 1 to 1.5 kilograms, which is comparable to the weight of the brain (2,3).

You may come across the terms gut microbiota and gut microbiome. The former refers specifically to the microorganisms themselves, while the latter includes both the microbes and their genetic material. In practice, these terms are often used interchangeably. For simplicity, we refer to this entire system as the gut microbiome.

Far from being harmful, many of these microbes play essential roles in human health. They are involved in digestion, immune function, and increasingly, in processes that influence how we think and feel.

What is the gut-brain axis?

The gut and brain are closely connected through a network known as the gut-brain axis. This system allows constant communication between the two via the vagus nerve, hormones, immune signalling, and chemical messengers that travel through the bloodstream (4). This connection helps explain why emotional experiences often have physical effects. Feelings such as anxiety can lead to digestive discomfort, while stressful situations may trigger symptoms like bloating, stomach pain, or changes in bowel habits.

The gut microbiome plays a central role in this relationship. Research shows that it is involved in several aspects of brain function, including how we process stress (4), regulate mood, and even interact socially (5). It has also been linked to sleep quality, focus, and cognitive health as we age (6). Importantly, this communication works in both directions. Stress can alter the gut environment, and changes in the gut microbiome can influence how we respond to stress.

Early research in animal models helped establish this connection. In some studies, transferring gut microbes from stressed animals into otherwise calm animals led to increased anxiety-like behaviours (7). When the process was reversed, stress-related responses improved (8). While human research is still developing, these findings highlight the powerful role that the gut microbiome may play in shaping emotional resilience.

How does what we eat affect stress?

Diet is one of the most direct ways to influence the gut microbiome. Unlike many aspects of our biology, the gut microbiome is highly responsive. Changes in diet and lifestyle can begin to alter microbial activity within a short period of time. This means that everyday choices can have a meaningful impact on how the gut–brain axis functions.

Certain dietary patterns have been associated with improved stress resilience. Diets rich in plant-based foods, fibre, and fermented products have been linked to lower levels of perceived stress compared to more processed, low-fibre diets (9-11). This is partly because gut microbes rely on components of our diet to function. When they break down specific fibres, they produce compounds that help regulate inflammation, support the gut lining, and send signals to the brain. These processes are closely linked to how the body manages stress.

Dietary fats also play a role, particularly omega-3 fatty acids, which support brain structure and help regulate inflammatory pathways involved in the stress response (12). Overall, this research highlights an important point. Food is not just a source of energy. It provides signals that can influence how the body responds to stress.

6 practical steps to support the gut–brain axis?

Supporting your stress response does not require a complete lifestyle overhaul. The most effective changes are often small, consistent, and sustainable.

1. Consume prebiotic fibre daily

Prebiotic fibres selectively feed our beneficial gut bacteria. When these fibres are broken down in our large intestine, they produce compounds called SCFAs that help regulate inflammation and communicate with the brain.

Foods to include regularly:

- Onions, garlic, leeks, and asparagus
- Oats, barley, and wholegrains
- Beans, lentils, and chickpeas
- Slightly unripe bananas

Adding one or two of these foods into your daily routine can help support beneficial microbes over time.

2. Eat a variety of colourful plant foods

Different plant foods provide different nutrients and bioactive compounds that support the gut microbiome. Aim to include a range of colours across your meals:

- Greens such as broccoli and spinach
- Reds and purples such as berries and red cabbage
- Orange and yellow foods such as carrots and peppers

Diversity across the week is more important than large quantities of any one food.

3. Add fermented foods in small amounts

Fermented foods can introduce live microorganisms that may support gut health.

Simple options include:

- Yogurt or kefir
- Sauerkraut or kimchi
- Miso paste
- Some cheese, like Swiss, provolone, aged cheddar, Gouda, Edam, Gruyère, Parmesan

Start with small portions and increase gradually depending on tolerance.

4. Include Omega-3 rich foods twice a week

Omega-3 fats support brain health and help regulate processes involved in the stress response.

Aim for two sources of omega-3 rich fatty acids each week:

- Oily fish such as salmon or sardines
- Walnuts
- Chia seeds and flaxseeds

Aim to include these foods a few times per week.

5. Maintain regular, balanced eating patterns

Irregular eating habits and diets low in fibre can disrupt the gut microbiome. Where possible:

- Eat at consistent times
- Build meals around whole or minimally processed foods
- Avoid long gaps between meals

Consistency helps support a stable gut environment.

6. Combine nutrition with restorative habits

Diet is one part of the picture. Lifestyle habits also play an important role in the stress response. Consider incorporating:

- Gentle daily movement that you enjoy (13)
- Mindful eating - don't eat at your desk
- Spending time in nature, sometimes referred to as forest bathing, has been linked to improvements in stress-related measures such as cortisol and blood pressure (14,15).

Key takeaway

Stress is a part of modern life, but how we respond to it is not fixed. The gut–brain axis provides a pathway through which daily habits, particularly those related to diet, can influence our resilience to stress. Small, consistent actions can begin to shift this system over time. Rather than aiming for perfection, focus on simple changes that can be maintained. Over time, these choices can contribute to a more balanced and resilient response to stress.

References

1. Mental Health Foundation: Stressed nation: 74% of UK 'overwhelmed or unable to cope' at some point in the past year.
<https://www.mentalhealth.org.uk/about-us/news/survey-stressed-nation-UK-overwhelmed-unable-to-cope>
2. Bäckhed F, Ley RE, Sonnenburg JL, Peterson DA, Gordon JI. Host-bacterial mutualism in the human intestine. *Science*. 2005 Mar 25;307(5717):1915-20. doi: 10.1126/science.1104816. PMID: 15790844.
3. O'Hara AM, Shanahan F. The gut flora as a forgotten organ. *EMBO Rep*. 2006 Jul;7(7):688-93. doi: 10.1038/sj.embor.7400731. PMID: 16819463; PMCID: PMC1500832.
4. Cryan JF, O'Riordan KJ, Cowan CSM, Sandhu KV, Bastiaanssen TFS, Boehme M, Codagnone MG, Cusotto S, Fulling C, Golubeva AV, Guzzetta KE, Jaggar M, Long-Smith CM, Lyte JM, Martin JA, Molinero-Perez A, Moloney G, Morelli E, Morillas E, O'Connor R, Cruz-Pereira JS, Peterson VL, Rea K, Ritz NL, Sherwin E, Spichak S, Teichman EM, van de Wouw M, Ventura-Silva AP, Wallace-Fitzsimons SE, Hyland N, Clarke G, Dinan TG. The Microbiota-Gut-Brain Axis. *Physiol Rev*. 2019 Oct 1;99(4):1877-2013. doi: 10.1152/physrev.00018.2018. PMID: 31460832.
5. Sherwin E, Bordenstein SR, Quinn JL, Dinan TG, Cryan JF. Microbiota and the social brain. *Science*. 2019 Nov 1;366(6465):eaar2016. doi: 10.1126/science.aar2016. PMID: 31672864.
6. Li Y, Hao Y, Fan F, Zhang B. The Role of Microbiome in Insomnia, Circadian Disturbance and Depression. *Front Psychiatry*. 2018 Dec 5;9:669. doi: 10.3389/fpsy.2018.00669. PMID: 30568608; PMCID: PMC6290721.
7. Li N, Wang Q, Wang Y, Sun A, Lin Y, Jin Y, Li X. Fecal microbiota transplantation from chronic unpredictable mild stress mice donors affects anxiety-like and depression-like behavior in recipient mice via the gut microbiota-inflammation-brain axis. *Stress*. 2019 Sep;22(5):592-602. doi: 10.1080/10253890.2019.1617267. Epub 2019 May 24. PMID: 31124390.
8. Langgartner, D., Vaihinger, C. A., Haffner-Luntzer, M., Kunze, J. F., Weiss, A. L. J., Foertsch, S., ... & Reber, S. O. (2018). The role of the intestinal microbiome in chronic psychosocial stress-induced pathologies in male mice. *Frontiers in behavioral neuroscience*, 12, 252.
9. Foster, J. A., Rinaman, L., & Cryan, J. F. (2017). Stress & the gut-brain axis: regulation by the microbiome. *Neurobiology of stress*, 7, 124-136.
10. Berding, K., Bastiaanssen, T.F.S., Moloney, G.M. et al. Feed your microbes to deal with stress: a psychobiotic diet impacts microbial stability and perceived stress in a healthy adult population. *Mol Psychiatry* 28, 601–610 (2023). <https://doi.org/10.1038/s41380-022-01817-y>
11. Dalile B, Vervliet B, Bergonzelli G, Verbeke K, Van Oudenhove L. Colon-delivered short-chain fatty acids attenuate the cortisol response to psychosocial stress in healthy men: a randomized, placebo-controlled trial. *Neuropsychopharmacology*. 2020 Dec;45(13):2257-2266. doi: 10.1038/s41386-020-0732-x. Epub 2020 Jun 10. PMID: 32521538; PMCID: PMC7784980.
12. Zinkow, A., Grodzicki, W., Czerwińska, M., & Dziendzikowska, K. (2024). Molecular mechanisms linking omega-3 fatty acids and the gut-brain axis. *Molecules*, 30(1), 71.
13. Varghese S, Rao S, Khattak A, Zamir F, Chauri A. Physical Exercise and the Gut Microbiome: A Bidirectional Relationship Influencing Health and Performance. *Nutrients*. 2024 Oct 28;16(21):3663. doi: 10.3390/nu16213663. PMID: 39519496; PMCID: PMC11547208.
14. Antonelli, M., Barbieri, G. & Donelli, D. Effects of forest bathing (shinrin-yoku) on levels of cortisol as a stress biomarker: a systematic review and meta-analysis. *Int J Biometeorol* 63, 1117–1134 (2019). <https://doi.org/10.1007/s00484-019-01717-x>
15. Ideno, Y., Hayashi, K., Abe, Y. et al. Blood pressure-lowering effect of Shinrin-yoku (Forest bathing): a systematic review and meta-analysis. *BMC Complement Altern Med* 17, 409 (2017). <https://doi.org/10.1186/s12906-017-1912-z>

We provide a range of services across the UK and internationally. We are always happy to discuss how we can support you.

We look forward to supporting your wellbeing journey.

Find Us Here:

Suite S, Quay West
Salamander Quay
Harefield, Middlesex
UB6 9NZ

Call Us On:

Switchboard: +44
(0) 203 142 8659

Email Us On:

info@stress.org.uk

Visit Us On:

www.stress.org.uk
www.wellbeing.work

We have supported many organisations, including:

