

Keeping it simple amidst complexity: tips to improve your wellbeing.

The importance of vagal tone and HRV

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NOTE: This is the introduction to a series of modules exploring strategies to enhance well-being by effectively managing stress – and the science behind them. You can find the whole series here: [HETI Wellbeing Resource Corner | HETI Higher Education \(https://heti.edu.au/resources-and-links/heti-wellbeing-resource-corner\)](https://heti.edu.au/resources-and-links/heti-wellbeing-resource-corner)

Stress refers to our body's response to perceived threats or demands. It is triggered by a variety of factors, ranging from everyday challenges to significant life changes. Stress is often associated only with negative outcomes like distress and anxiety. While excessive stress can impact both physical and mental health, stress also plays a crucial role in driving change and can have many positive aspects.

Understanding how to harness these positive aspects of stress without tipping over into 'distress' is key to managing it effectively.

Our stress response involves several key brain regions. The amygdala signals immediate attention to threats, the hippocampus uses past experiences to inform our reactions while the prefrontal cortex assesses the situation and decides on a response. These areas collectively contribute to the 'fight-or-flight response', a survival mechanism that prepares our body to face or flee from danger. This response is crucial for our adaptation and survival.

Our autonomic nervous system has two components vital in managing our stress response: the sympathetic nervous system triggers the 'fight-or-flight response', while the parasympathetic system restores balance, the 'rest and digest response'. The role of vagus nerve and heart rate variability are important here and will be discussed in the next module.

Another critical aspect of stress management is the HPA axis (hypothalamic-pituitary-adrenal axis), which regulates release of cortisol, a key hormone in stress response. This is complemented by the sympathetic-immune system in managing stress, illustrating a complex network of reactions that go beyond the traditional understanding of stress responses.

There is growing interest in the gut-brain axis and the microbiome (often referred to as our "second brain"). This complex network impacts our mood and overall health, underscoring the importance of gut health in managing stress.

At the cellular level, chronic stress affects our chromosomes. Elizabeth Blackburn's Nobel Prize-winning research on telomeres (the protective caps that prevent chromosome deterioration) shows how prolonged stress accelerates telomere shortening, leading to premature cell aging and health issues.

Effective stress management not only improves our well-being but also enhances our physical health, resilience, capacity to work and study and our quality of life.

Resilience (the ability to recover from setbacks, adapt to change, and keep going in the face of adversity), is a skill that can be developed over time that is also integral to managing stress.

Strategies to build resilience include maintaining a positive outlook, setting realistic goals, and nurturing strong social connections.

Emotional intelligence (the ability to identify, understand, and manage our emotions) also plays a crucial role in handling stress effectively. It allows us to recognise stressors, understand our emotional reactions to them, and choose how we respond. Developing emotional intelligence can lead to more satisfying relationships and a greater ability to bounce back from adversity.

Later modules suggest simple strategies backed by research that can have profound effects on your mental and physical health, as well as enriching your work, study and relationships.

Some resources

TED talks

- How To Make Stress Your Friend: Kelly McGonigal https://www.ted.com/talks/kelly_mcgonigal_how_to_make_stress_your_friend
- Your Gut Microbiome - The Most Important Organ You've Never Heard of: Erika Angle TedxFargo <https://www.youtube.com/watch?v=B9RruLkAUm8>
- Brain Changer: Felice Jacka 2019 ISBN: 9781760556518:
- Madison A, Kiecolt-Glaser JK. Stress, depression, diet, and the gut microbiota: human-bacteria interactions at the core of psychoneuroimmunology and nutrition. *Curr Opin Behav Sci.* 2019 Aug;28:105-110. doi: <https://doi.org/10.1016/j.cobeha.2019.01.011> .
- Silva YP, Bernardi A, Frozza RL. The Role of Short-Chain Fatty Acids from Gut Microbiota in Gut-Brain Communication. *Front Endocrinol (Lausanne).* 2020 Jan 31;11:25.
- Sullivan R et al, Why do we love medicines so much? *EMBO reports* 2010, 11, 8, 572-578, DOI: <https://doi.org/10.1038/embor.2010.108>

Common measures available on internet

- <https://www.blackdoginstitute.org.au/docs/default-source/psychological-toolkit/k10.pdf?sfvrsn=4>
- <http://www2.psy.unsw.edu.au/Groups/Dass/>