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Health

Health: Overview

Health as a concept has evolved significantly over time, and various definitions reflect different perspectives and priorities in public health, medicine, and society. In its 1948 constitution, the World Health Organization defined health as,

"A state of complete physical, mental, and social well-being and not merely the absence of disease or infirmity."

Health was traditionally defined as living, disease-free; however, the WHO definition more closely matches modern definitions of wellbeing.

Although 'health' and 'wellbeing' are sometimes used interchangeably, wellbeing means more than just being disease-free and physically healthy. Positive aspects include mental health, stress management, diet, and fitness. You may even define wellbeing as living a good life, meeting personal needs and maintaining fulfilling relationships.

Various cultures may define and perceive health and wellbeing differently. Understanding that health can be viewed through social or cultural lenses allows for a more nuanced approach to promoting well-being, preventing disease, and facilitating behaviour change.

The Neuroscience and Health and Wellbeing

Whether the environment and our upbringing (nurture) or genetics (nature) have a more significant influence on our health, behaviour, personalities, and abilities is at the heart of the nature vs nurture controversy. Nature's defenders contend that our DNA predetermines our traits, while nurture proponents contend that experiences and our surroundings have a greater impact.

More recently, there has been a shift in opinion towards a more comprehensive viewpoint that recognises the intricate interplay between nature *and* nurture during human development and the current state of health.

The Biopsychosocial Model of Health

George Engel first proposed the idea of the biopsychosocial model in 1977. The model considers biological determinants of health and psychological and social factors.

- **Biological:** genes, hormones, life stage, illness or disease.
- **Psychological:** thoughts, feelings, and actions, including ideas about fear and avoidance, psychological discomfort, present coping mechanisms, and attribution)
- **Social:** socio-economic, socio-environmental, and cultural aspects, such as family dynamics, work-related concerns, and economic benefits.

The Bottom-Up Outside-In Top-Down Framework for Brain Health

A useful framework proposed by Dr Sarah McKay to conceptualise how biology, culture and psychology interact with the brain is the Bottom-Up, Outside-In, Top-Down model. Inspired by the biopsychosocial model it puts the brain 'in the middle'.

- **Bottom-Up:** biological or physiological determinants of brain health and include genes, hormones, the immune system, nutrition, exercise, and other lifestyle choices.
- **Outside-In:** social and environmental factors, stress, life events, education, current circumstances, and family background. Our brain perceives what happens 'outside' via our senses, what we see, hear, smell, touch and taste.
- **Top-Down:** thoughts, emotions, mindset, expectations, mindset and belief systems.

Not only do these many elements regulate the brain's development, performance and health, but each element interacts with and influences others in dynamic ways.

Neural Nudges Seven Tips for Brain Health

Sleep: A good night's sleep every night should be a priority, not a luxury.

Sleep is overlooked, underappreciated, and the number-one fundamental bedrock of good health. Sleep deprivation (even a few hours a night) or irregular sleep patterns impact mood, memory and learning and lead to chronic disease, and potentially reduce life expectancy.

The past decade of neuroscience research has revealed two vital roles for sleep and brain health.

- The glymphatic system is crucial for brain health; activated during sleep, it purges metabolites accumulated during the day.
- Distinctive neural activity patterns characterise sleep stages, which are essential for memory consolidation.

Not only do we under-sleep, but we also under-consume natural light during the day and over-consume artificial light at night, leaving our natural circadian rhythms, hormones, and immune systems dysregulated. Natural daylight exposure strengthens circadian rhythms.

Move: The best exercise for your brain is physical exercise.

Daily exercise increases blood flow to the brain. Exercise triggers the release of myokines (muscle hormones) that upregulate brain-derived neurotrophic factor (BDNF). BDNF promotes neuronal growth and survival, reduces inflammation, and supports the formation of long-term memories.

Exercise reduces the risk of dementia (and other chronic lifestyle diseases), acts as an anti-depressant, and regulates mood.

Our brains evolved to support bodies that move through, make sense of, and respond to the natural world. A simple walk outdoors gets you away from digital devices and into nature. Evolutionary neurobiologists suggest that because the brain evolved primarily to control movement, it's inevitable that inactivity leads to reduced brain function over time.

A study of 1.2 million people in the USA between 2011-2015 found people who exercised had about 40% better mental health than people who didn't exercise.

Nourish: A healthy brain requires a healthy, well-nourished body.

Research points towards a Mediterranean-based diet of mostly plants (vegetables, fruit and legumes), fish, some meat, olive oil and nuts as optimal nourishment for brain health. Wine drunk socially, and coffee in moderation prevent cognitive decline, and memory loss and protect against dementia. (Plus, the little pleasures in life are important too!)

Research consistently supports the eating patterns' positive effects on cardiovascular, brain, and mental health. The diet's relatively low environmental footprint makes it a sustainable lifestyle model. Its adaptability to various regions with culturally appropriate variations makes it a promising dietary choice for improved human and planetary health.

Calm: Seek Tranquillity Amidst Chaos

Not all stress is bad, but excess or chronic stress, especially life events that are out of our control, can alter brain health and seriously impact long-term mental health and resilience.How we think about stress has a considerable effect on our bodies. In her TED talk, Make Stress Your Friend, health psychologist Kelly McGonigal explains how the belief that stress is harmful makes it unhealthy, not the stressor itself. To de-stress, find your place or moment of calm. Do something pleasurable — read, hang with friends, practice mindfulness, walk, or nap. The most pleasure is to be found in doing something you're reasonably good at, which also poses some challenges.

Connect: The Social Fabric of Our Being

We are born as social animals and have a fundamental need for human warmth and connection.

Having supportive friends, family, and social connections helps you live longer, happier and healthier. Socialising reduces the harmful effects of stress and requires many complex cognitive functions such as thinking, feeling, sensing, reasoning and intuition. Loneliness and social isolation have comparable impacts on health and survival as smoking.

Learn more about relationships here.

Challenge: Keeping the Brain Agile

An active mind is a resilient one. Intellectual engagement and the pursuit of novel experiences build a 'cognitive reserve,' bolstering the brain's adaptability.

Environmental enrichment involves enhancing an animal's living space with stimuli that promote the animal's physical, social, and cognitive health, leading to improved brain health and potentially slowing down ageing-related cognitive decline. For humans, this translates into lifestyle factors that stimulate brain activity, such as engaging in social activities, continuous learning, physical exercise, and exposure to novel experiences.

Choose mentally challenging activities that you can practice regularly, that are reasonably complex and that take you out of your cognitive comfort zone. Try activities that combine mental, social and physical challenges.

Believe: Pursuing Purpose and Passion

Purpose in life is about finding meaning and setting goals, which is essential as it contributes to mental health, resilience, and well-being, particularly as we age.

A strong sense of purpose has been shown to protect against Alzheimer's Disease (AD) and cognitive decline. It correlates with improved mental health, stronger social ties, less stress, and greater socio-economic opportunities, aiding healthy ageing.

Instead of seeking out your 'life purpose', explore your strengths.

- The PERMA model by psychologist Martin Seligman outlines five elements—Positive Emotion, Engagement, Relationships, Meaning, and Accomplishment—that foster well-being.
- Additionally, the Values in Action (VIA) Strengths Survey by Seligman and Christopher Peterson helps individuals identify and use their character strengths across six virtues to promote personal growth and life satisfaction.

This strengths-based approach encourages a positive perspective on personal development.

Ultimately, meaning in life often arises from contributing to something larger than oneself, as epitomised by the simple criteria: "Is it awesome? And does it help?"

Relevance to Coaching Practice

Health, well-being, and behaviour change are inextricably intertwined, particularly regarding brain and mind health. For example, prioritising physical fitness can benefit cognitive performance and mental well-being. Likewise, a healthy mind can increase one's drive, resiliency, and potential for long-term transformation.

On the flip side, altering your habits can dramatically affect your health and happiness. Brain function can be enhanced, and the risk of neurodegenerative illnesses reduced by, among other things, adopting healthy behaviours such as exercising regularly, getting enough sleep, and eating a balanced diet.

Overall brain and mental health can benefit from a virtuous cycle wherein improved health and well-being encourage and support the adoption of healthier lifestyle habits.

Health: Summary

Cultivating brain health is an intricate dance of ensuring restorative sleep, engaging in physical activity, mindful eating, finding serenity, fostering social ties, challenging the intellect, and pursuing what ignites our passion.

Neuroscience not only validates these strategies but also empowers us to embrace them with the knowledge that they are foundational to a healthy life.

The Neuro Nudges team wish you and you healthy, happy high-performing brain all the best.

Recommended Resources

Books

- Arden, J. (2023). Rewire Your Brain 2.0: Five Healthy Factors to a Better Life. Jossey Bass.
- Attia, P. (2023). Outlive: The Science & Art of Longevity Vermilion.

- Chatterjee, R (2019). Feel Better in 5. Penguin.
- McGonigal, K. (2019). The Joy of Movement: How exercise helps us find happiness, hope, connection, and courage. Penguin.
- Suzuki, W. (2015). Healthy Brain, Happy Life: A Personal Program to Activate Your Brain and Do Everything Better. Harper Collins.
- Walker, M. (2017). Why We Sleep. Penguin.

Podcasts & Videos

- Huberman Lab. (2021). Master your sleep and be more alert while you're awake. [Audio podcast].
- McGonigal, K. (2013). How to make stress your friend. [Video]. TED Conferences.
- McKay, S. (Host). (2019). Staying Younger for Longer: Brain. ABC Catalyst. [Television broadcast]. ABC iView.
- Netflix. (2023). Blue Zones: How to live to 100. [Documentary series]
- Suzuki, W. (2018). Brain-changing benefits of exercise. [Video]. TED Conferences.
- Wolpert, D. (2011). The real reason for brains. [Video]. TED Conferences.

Other Resources

- Blue Zones Website
- Deakin University Food and Mood Centre Website
- Independent nutrition advice with no conflicts of opinion.
- McKay, S.M,. (2016). Seven habits of highly healthy high-performing brains.

Academic Articles

- Chekroud et al. (2018). Association between physical exercise and mental health in 1·2 million individuals in the USA between 2011 and 2015: a cross-sectional study. *The Lancet Psychiatry,* 5, 739–746.
- Guasch-Ferré & Willett. (2021). The Mediterranean diet and health: A comprehensive overview. *Journal of Internal Medicine,* 290(3), 549-566.
- Jessen et al. (2015). The glymphatic system: A beginner's guide. *Neurochemical Research*, 40(12), 2583–2599.
- Michel Poulain, Anne Herm and Gianni Pes. The Blue Zones: areas of exceptional longevity around the world. *Vienna Yearbook of Population Research* 2013 (Vol. 11), pp. 87–108
- Raichlen & Alexander (2017). Adaptive Capacity: An Evolutionary Neuroscience Model Linking Exercise, Cognition, and Brain Health. *Trends in Neurosciences,* 2017.
- Rivera & Huberman. (2020). Neuroscience: A Chromatic Retinal Circuit Encodes Sunrise and Sunset for the Brain. *Current Biology*, 30, R302–R328.

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