



Advancing a Brain-Healthy Paradigm: Integrative Therapies for Neurowellness

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Abstract

The human brain has a remarkable capacity for change and adaptation, known as neuroplasticity. This dynamic feature enables the brain to modify its neural pathways in response to experiences, learning, emotional signals, and even injury, thereby facilitating continuous cognitive, emotional, and behavioural development throughout the lifespan. But in today's society, a rise in mental health issues, chronic stress, digital overstimulation, and lifestyle-driven disruptions in neurochemical balance is progressively testing this inherent flexibility. These elements cause rising rates of anxiety, depression, burnout, and cognitive fatigue. Emerging as an essential and proactive paradigm for advancing brain health against this background is the notion of neurowellness. Emphasizing the development of the best neurological function by means of integrative, evidence-based treatments that fit the brain's natural ability for repair and regulation, neurowellness is. This approach promotes proactive and restorative techniques that improve mental clarity, emotional stability, and resilience rather than only concentrating on symptom control. This essay examines several evidence-based treatments that promote neurowellness by encouraging the rewiring and rebalancing of brain networks. The capacity of techniques, including Emotional Freedom Techniques (EFT), mindfulness and meditation, aerobic and strength-based physical exercise; musical and creative engagement, strategic rest practices like napping and NSDR, and novel skill acquisition to produce both structural and functional neural changes is explored. Inspired by current neuroscience and clinical psychology, this debate presents a multidimensional, holistic model for brain care, one that not only minimizes malfunction but also actively encourages emotional resiliency, cognitive flexibility, and neural harmony in an always evolving environment.

Keywords: Neuroplasticity; neurowellness; integrative therapies; emotional freedom technique; meditation; brain rewiring; emotional regulation; music therapy; cognitive resilience

Introduction: Toward a Brain-Healthy Paradigm

The human nervous system is continuously exposed to cognitive demands and sensory inputs in today's hectic, hyperconnected world, which can disrupt its normal rhythm and regulation. Key contributors to mental health problems, including anxiety, melancholy, burnout, and cognitive fatigue, are increasingly acknowledged to be elements such as chronic stress, insufficient sleep, digital overexposure, and sedentary lifestyles [1,2]. In addition to changing neurochemical equilibrium, these lifestyle-induced stresses also affect the operation of important brain areas, including the prefrontal cortex, amygdala, and hippocampus, which are linked to emotional control, memory, and executive function [3]. Against this scene, neurowellness has come out as a holistic and preventive approach to mental well-being. Neurowellness encourages the application of complementary therapies, including mindfulness, exercise, nutrition, cognitive

training, and emotional control techniques, that support the brain's natural neuroplasticity and help to develop resiliency and regeneration (Figure 1) [4]. These therapies seek not just to stop cognitive decline but also to maximize mental clarity, emotional balance, and neurological performance spanning the whole lifetime. Mindfulness-based techniques, for instance, have been shown to improve functional connectivity in brain networks and lessen the structural effects of long-term stress [5]. Regular physical activity has also been linked to higher levels of brain-derived neurotrophic factor (BDNF), a crucial molecule in synaptic plasticity and brain health [6]. Neurowellness offers a proactive and sustainable model for negotiating the psychological demands of contemporary life by using science-backed approaches to restore equilibrium and promote cognitive renewal. Figure 1 presents the interrelationship of chronic stress, lack of sleep, poor diet, and screen addiction leading to amygdala overactivity, reduced prefrontal control, and hippocampal shrinkage [4].

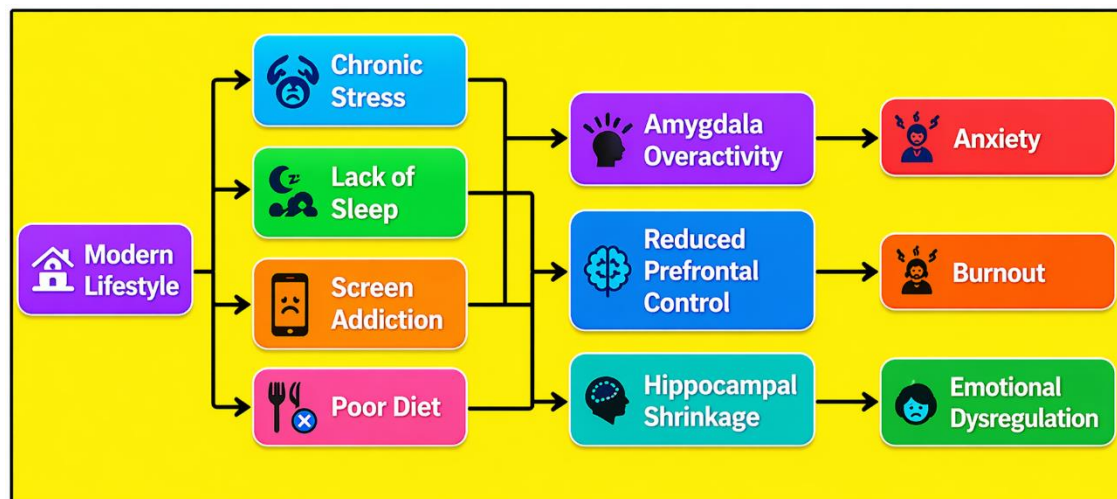


Figure 1: Impact of Modern Lifestyle on Brain Health [4].

The Science of Rewiring: Neuroplasticity-The Brain's Superpower

Neuroplasticity is the inherent ability of the brain to change its architecture and performance in response to internal and external stimuli, including learning, experience, behavior, and environmental changes. Adaptation, memory consolidation, and behavioral flexibility are all made possible by this dynamic capability, which allows fresh synaptic connections to form and outdated or ineffective ones to be eliminated (Figure 2) [7]. Neuroplasticity is not limited to early developmental stages; it continues throughout the lifespan, so it is a cornerstone for lifelong learning, emotional regulation, and recovery from neurological trauma. This amazing flexibility provides the scientific basis for a spectrum of therapies aimed at rearranging aberrant nerve connections and strengthening better cognitive-emotional circuits. Techniques including neurofeedback, cognitive-behavioural therapy (CBT), sensory integration therapy, and mindfulness-based stress reduction have been found to alter attentional focus, control emotional reactions, and reset sensory-motor systems, therefore encouraging functional brain reorganisation [8]. These treatments access the brain's ability for self-directed neuroplasticity, hence enabling people to transcend patterns linked with worry, sadness, PTSD, or chronic pain and move towards greater psychological resiliency

and mental well-being. Intentionally activating neural circuits through focused activities and rich surroundings can help one to use neuroplasticity as a healing and developmental tool, therefore creating fresh channels for personal change and recovery [9]. The science of neuroplasticity reveals one of the most transforming facts in contemporary neuroscience: the brain is not fixed; rather, it is always changing. Neuroplasticity is the brain's capacity to rearrange itself in response to experience, knowledge, action, and environmental change by developing new nerve connections. Neurowellness rests on this adaptability, which provides hope for recuperation, development, and optimization over a lifetime. Neuroplasticity enables people to rewire malfunctioning circuits and fortify those that support resilience, clarity, and emotional control, whether by acquiring a new ability, healing from trauma, or changing a negative thought pattern. Mindfulness, cognitive restructuring, motion-based exercises, and creative involvement all draw on this inherent brain capacity (Figure 2) [7]. A conceptual model comparing the "Unwired" and "Rewired" brain illustrates the functional shifts facilitated by neuroplastic interventions. By embracing neuroplasticity as a daily practice, individuals can shift from an "unwired" state marked by disconnection, rigidity, and stress - toward a "rewired" brain capable of adaptation, emotional balance, and cognitive strength. This is the core promise of neurowellness (Figure 3, Table 1).

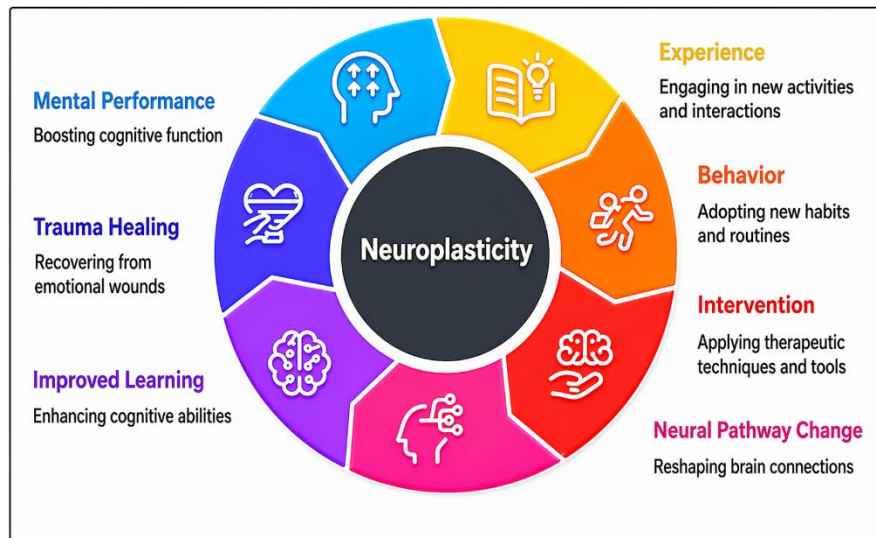


Figure 2: The Neuroplasticity Cycle [7].

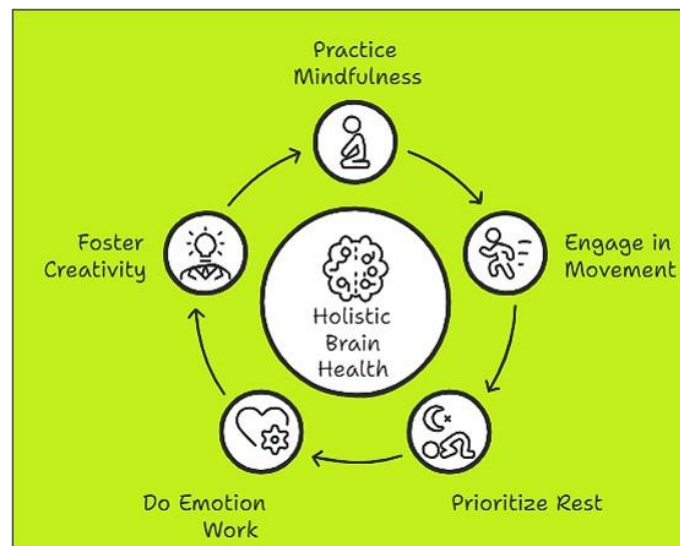


Figure 3: The core promise of Neurowellness [9].

Table 1: Comparison of neural patterns in “Unwired” versus “Rewired” brain states following Neurowellness Intervention.

Domain	“Unwired” Brain	“Rewired” Brain
Synaptic Density	Sparse or dysfunctional connections due to chronic stress, trauma, or disuse [10]	Strengthened and refined pathways through consistent cognitive-emotional training [7]
Emotional Regulation Circuits	Hyperactivity in the amygdala; low prefrontal control; emotional reactivity [11]	Balanced limbic-prefrontal activity; improved emotional resilience and self-regulation [5]
Default Mode Network (DMN)	Overactive DMN linked with rumination, anxiety, and disconnection [12]	Regulated DMN with improved present-moment awareness and mental clarity [34]
Neurotransmitter Balance	Dysregulated dopamine, serotonin, and cortisol levels [13]	Stabilized neurochemical activity, supporting mood, motivation, and stress recovery [4]
Autonomic Tone	Elevated sympathetic dominance (fight-or-flight) [10]	Restored parasympathetic tone (rest-and-digest), promoting calm and cognitive control [16]

Core Integrative Therapies Supporting Neurowellness

A number of evidence-based, integrative therapies underlie neurowellness by activating and improving the brain’s neuroplastic potential. These modalities support mental clarity, emotional

control, and cognitive flexibility across neural, physiological, and psychological spheres. Including focused attention and open-monitoring meditation, mindfulness-based interventions have been proven to raise prefrontal activation, improve attentional

control, and reduce amygdala hyperactivity, hence supporting emotional control and present-moment awareness [5]. Additionally, improving cognitive resilience [12], regular mindfulness practice strengthens the default mode network (DMN) regulation, hence lowering rumination. Movement-based therapies, including yoga, tai chi, and aerobic exercise, stimulate brain-derived neurotrophic factor (BDNF), promote neurogenesis, and enhance executive function and mood regulation [14,15]. These exercises have been connected with better results in anxiety and sadness [16] since they reinforce neural connections, especially in the hippocampus and prefrontal cortex. Techniques of breathwork, including deliberate diaphragmatic breathing and alternating nostril breathing, affect vagal tone, lessen sympathetic nervous system overactivity, and help to support autonomic balance, so lowering stress and increasing cognitive clarity [17,18].

Creative therapies viz. music, visual arts, dance, and others

boost dopaminergic activity and activate many brain regions, including the sensorimotor cortex, prefrontal cortex, and limbic system, hence helping emotional processing and neuroplastic adaptation (Figure 4) [19,20]. Encouraging insula activation and assisting people to develop embodied awareness - which is critical for emotional integration and trauma recovery—somatic awareness techniques include body scans, progressive muscle relaxation, and interoceptive training [21]. Restorative techniques including sleep hygiene, Non-Sleep Deep Rest (NSDR) procedures, and nature immersion also help to improve memory consolidation, lower cortisol levels, and restore prefrontal-limbic equilibrium [22-24]. Synergistically used, these treatments turn on several but related brain pathways, therefore establishing a self-reinforcing cycle of neuroadaptation that improves general brain function. Together, they enable people to negotiate life with more resilience, mental agility, and emotional consistency.

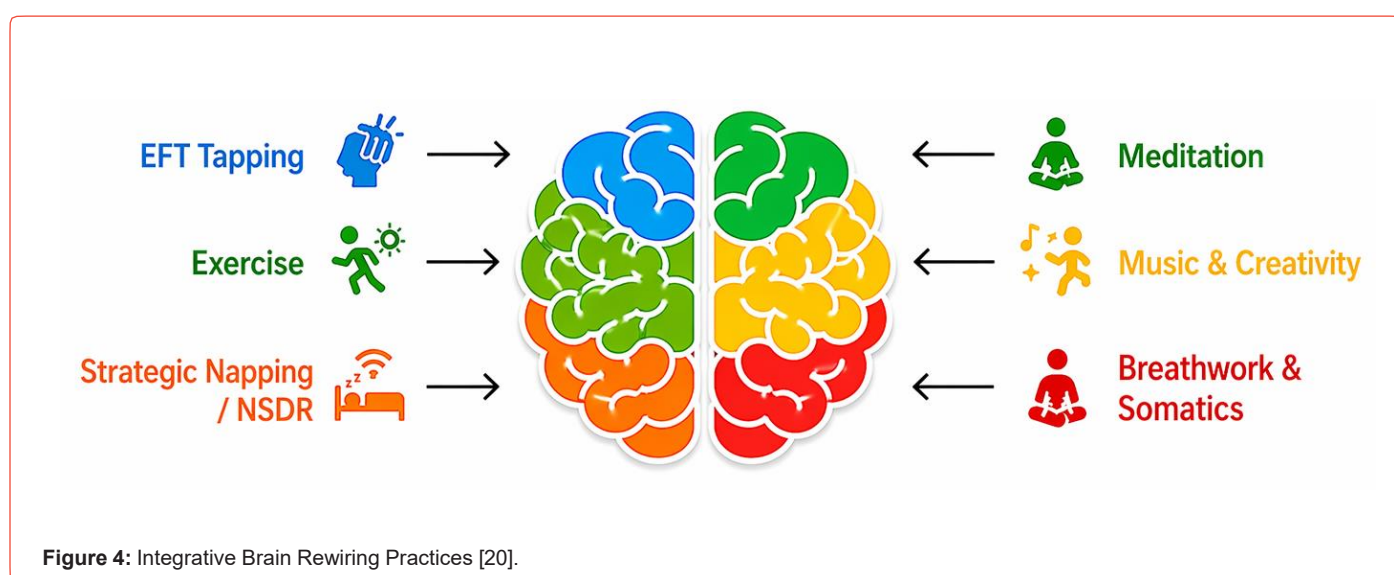


Figure 4: Integrative Brain Rewiring Practices [20].

Emotional Freedom Techniques (EFT)

Incorporating cognitive restructuring and exposure approaches, emotional freedom techniques (EFT) is an integrative mind-body intervention that mixes acupuncture-based tapping on certain meridian points. Based on modern psychological ideas and traditional Chinese medicine, EFT seeks to ease emotional suffering, trauma-related symptoms, and physiological arousal by simultaneously treating somatic and cognitive components of experience [25]. Neuroscientific and psychophysiological studies provide evidence for the efficacy of EFT in moderating the autonomic nervous system and fostering emotional control. Studies have shown that EFT can lower hyperarousal of the amygdala, the brain area connected to fear and threat detection, hence calming the stress response. EFT has been found in regulated studies to greatly reduce cortisol levels, therefore pointing towards a notable decrease in stress-related hormonal activity [26]. EEG and fMRI data further imply that EFT boosts activity in brain areas in charge of emotional processing and executive control, therefore helping with the reshaping of aberrant neural patterns and so supporting long-lasting neuropsychological change [25]. Combining somatic stimulation with cognitive strategies, EFT helps stored emotional memories in a secure and controlled way, therefore facilitating

their reprocessing and resolution. Along with triggering long-term neuronal recalibration consistent with theories of neuroplasticity and trauma-informed treatment, this dual-action strategy helps to alleviate anxiety, PTSD, or depression symptoms right away.

Meditation and Mindfulness Practices

Neuroscience studies have progressively confirmed meditative techniques like mindfulness, concentrated attention, and loving-kindness meditation for their transforming influence on brain structure and activity. Neuroimaging studies employing electroencephalography (EEG) and functional MRI (fMRI) have repeatedly demonstrated that regular meditation improves neuronal plasticity, especially in areas related to attention, memory, and emotional regulation [5]. The increase in grey matter density in the hippocampus, which is critical for learning and memory, and the prefrontal cortex, the executive center of the brain responsible for decision-making, planning, and self-regulation [27], is among the most striking results. These structural changes coincide with enhancements in meta-awareness, cognitive flexibility, and attentional control capacities essential for emotional resiliency and mental clarity. Moreover, meditation helps to lessen activity in the limbic system, particularly the amygdala, an area thought to

be involved in fear, worry, and emotional reactivity. Among regular meditators, the observed increases in emotional stability and stress reduction [28] are thought to result from this suppression of limbic activity. Repeated exposure to meditative states helps people develop a sustained calm awareness, a condition distinguished by non-reactivity and present-moment concentration that supports long-term mental well-being and neurocognitive health.

Physical Exercise

Aerobic and strength-based physical activity increases brain-derived neurotrophic factor (BDNF), supports neurogenesis, and improves mood regulation (Figure 5) [14]. Particularly in the hippocampus, a region vital for learning, memory, and emotional regulation, BDNF serves as a “fertilizer” for the brain to improve neuronal communication and encourage the development of new

brain cells. Consistent physical activity also helps to improve structural and functional aspects in several important brain areas. Studies have indicated that exercise boosts prefrontal cortex efficiency and increases hippocampal volume, therefore encouraging executive function, mood control, and cognitive resiliency (Hillman et al., 2008). These advantages are especially important in the setting of aging and chronic stress, both of which are connected with neural atrophy and cognitive decline. Maintaining grey matter volume and boosting vascular health, exercise seems to counteract these effects and so sustain neuroplasticity across the lifespan. Besides cognitive improvement, physical activity helps to stabilize mood and operate as an antidepressant by controlling neurotransmitters, including endorphins, serotonin, and dopamine, therefore supporting its use as a non-pharmacological treatment for mental health (Erickson et al., 2011).

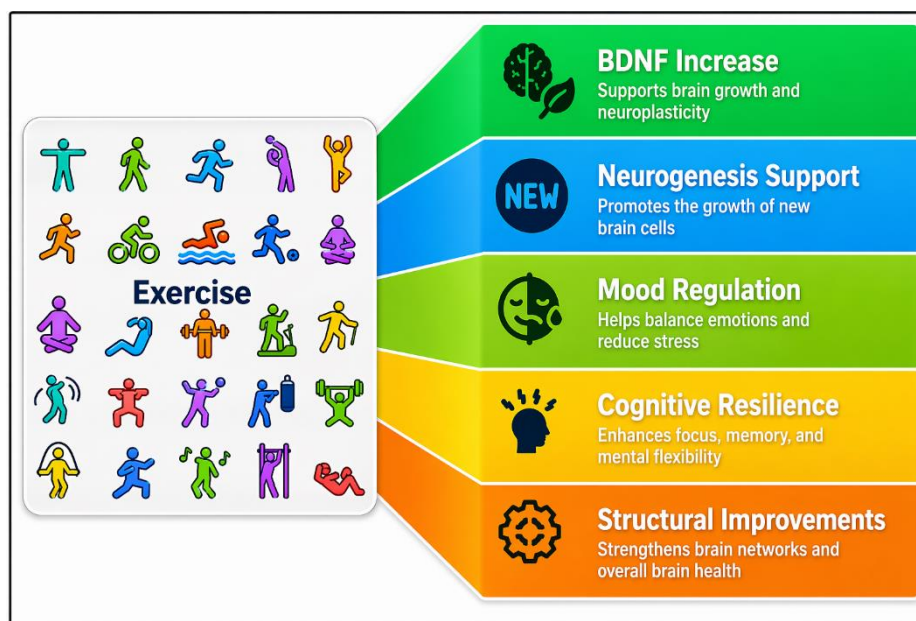


Figure 5: Cognitive Benefits of Physical Activity [14].

Music and Creative Engagement

Engagement in creative activities such as music, visual arts, dance, or novel learning experiences activates a wide array of neural networks across the sensory, motor, emotional, and executive domains of the brain. These practices stimulate multisensory integration, requiring the coordination of auditory, visual, and kinesthetic inputs, which enhances overall neural connectivity and cognitive flexibility [19]. Creative expression not only facilitates emotional processing and self-regulation but also promotes a state of flow - a highly focused mental state associated with optimal cognitive performance and well-being.

Neuroimaging studies have shown that participation in music and the arts activates the dopaminergic reward pathways, particularly in regions like the ventral striatum and prefrontal cortex, which are involved in motivation, learning, and emotional reinforcement [29]. These activities also stimulate plastic changes in the brain, enhancing both structural and functional neuroadaptation, especially in areas governing memory, language, and sensorimotor coordination [20]. For instance, musical training

has been associated with increased corpus callosum thickness, greater grey matter density in auditory and motor regions, and improved executive functioning across age groups. Importantly, creative practices offer neurocognitive benefits throughout the lifespan, supporting healthy brain aging and mitigating cognitive decline. In older adults, engaging in art or music-based interventions has been linked to enhanced mood, improved working memory, and reduced stress biomarkers, underlining their potential as non-invasive, neurotherapeutic tools for lifelong brain health. Studies have demonstrated that grown-up adults who engage in music, painting, or novel learning exhibit better memory retention, improved working memory, slower cognitive aging, and lower levels of depression and anxiety. Creative techniques are therefore being included in therapeutic and preventive systems for mental health, dementia care, trauma recovery, and education interventions. Basically, creative engagement promotes neuroplasticity, emotional expression, and mental agility, therefore supporting lifelong brain health through a non-invasive, pleasurable, and highly integrative means [30].

Strategic Napping and Rest

Short, organized naps usually lasting 10 to 30 minutes are proven to greatly improve emotional control, memory consolidation, and neuronal efficiency. Particularly in non-REM sleep stages, the brain restarts and reorganizes newly obtained information during these brief rest breaks, therefore supporting declarative and procedural memory processing. Especially in those who are having sleep deficits or high cognitive demands, napping helps maintain brain volume and cognitive function, lowers weariness, and stabilizes mood. Emerging technologies like Non-Sleep Deep Rest (NSDR), a phrase made famous by neuroscientist Andrew Huberman,

complement conventional naps; they are guided relaxation methods that simulate the recuperative benefits of sleep without total unconsciousness. Under NSDR are techniques like Yoga Nidra, progressive muscle relaxation, or profound guided breathing. Reducing sympathetic overdrive and boosting parasympathetic tone, these strategies help the autonomic nervous system rebalance and result in greater stress resilience, attention span, and cognitive reset [23]. Especially in hectic and overstimulated settings, short naps and NSDR combined help to preserve neurocognitive health, sharpen concentration and emotional clarity, and guard against burnout (Figure 6) [22].

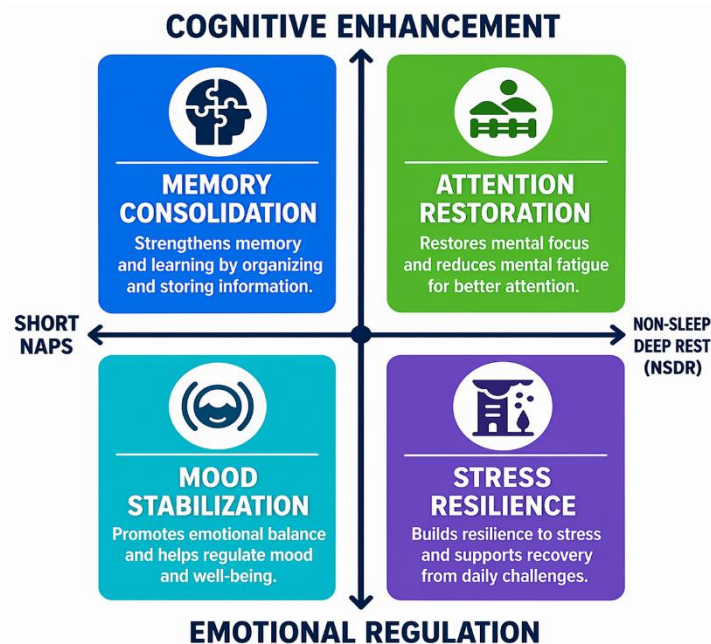


Figure 6: Strategic Napping for Neurocognitive Enhancement [22].

Breathwork and Somatic Practices

Breath regulation and somatic awareness techniques, including yoga, tai chi, qi gong, and holotropic breathwork, have been much investigated for their capacity to modulate autonomic nervous system (ANS) function, particularly by restoring balance between sympathetic (fight-or-flight) and parasympathetic (rest-and-digest) activity. Using intentional breath control, rhythmic movement, and directed interoception, these mind-body therapies help to lower sympathetic arousal, raise vagal tone, and produce a state of physiological coherence across the brain-heart-body axis [17]. Mechanically, slow and deliberate breathing activates the vagus nerve, which boosts parasympathetic activity and lowers levels of stress hormones like cortisol and adrenaline. Neuroimaging and electrophysiological investigations have demonstrated that these techniques foster neural synchrony, especially between the prefrontal cortex, insula, anterior cingulate cortex, and brainstem autonomic centers, therefore supporting emotional control, cognitive clarity, and interoceptive awareness. Furthermore, breath-centered somatic techniques have shown advantages in several clinical as well as non-clinical populations, including those with worry, PTSD, sadness, and cardiovascular dysregulation. These approaches provide easy, low-risk, non-pharmacological treatments for improving both mental and physiological resilience

by recalibrating autonomic tone and fostering homeostasis equilibrium [16].

Synergistic Effects and Lifestyle Integration

Each neuroadaptive modality alone be it movement, mindfulness, creative expression, or emotional processing, adds uniquely to particular facets of brain health, including memory, attention, emotional regulation, or stress resilience. Their actual transformational power, meanwhile, is found in their synergistic integration. These behaviors promote a whole state of neurowellness by activating various neural networks across the prefrontal cortex, limbic system, motor-sensory cortices, and default mode network when intentionally incorporated into everyday routines. Providing protective effects against mood disorders, cognitive deterioration, and burnout, this integrative lifestyle approach encourages cognitive flexibility, psychological equilibrium, and long-term neural plasticity. For instance, a regimen combining physical movement (e.g., yoga or walking) with mindfulness techniques, artistic engagement, and emotional self-questioning helps to improve cross-domain brain-body connection and supports good behavioral loops. Moreover, habit stacking, the process of linking new health-promoting habits to already established ones, can help to promote behavioral consistency and neural reinforcement, hence increasing

the durability of such alterations. Together with maintaining digital hygiene (limiting overstimulation from displays and media) and engaging in nature immersion (exposure to green or blue areas), studies have proven that lowering cortical hyperactivity, decreasing stress markers, and restoring attentional capacity further enhance the advantages of neurowellness techniques. In essence, the brain re-wires itself adaptively via this intentional synthesis of mind-body-environmental approaches, hence fostering resilience, clarity, and general well-being across the lifetime [31].

Applications Across Lifespan and Settings

Offering scalable, flexible, and inclusive models of brain care are integrative neuro wellness techniques, which comprise mindfulness practices, movement-based treatments, creative engagement, breathwork, and cognitive reframing. Customizing these strategies to fit a range of contexts - including clinical, academic, corporate, and community settings - makes them very flexible instruments for mental and neurologic well-being. In clinical settings, neurowellness treatments assist patients with neuropsychiatric problems, chronic stress, PTSD, and neurodegenerative diseases by improving emotional regulation and restoring autonomic equilibrium; these treatments include trauma-informed care, cognitive rehabilitation, and mind-body therapies. In educational environments, kids and teenagers [32] have been shown to benefit from academic performance, executive function, and emotional

literacy from approaches including mindfulness training, creative learning, and attention control strategies. Corporate wellness initiatives increasingly incorporate neurowellness models to combat burnout, enhance concentration, and foster resilience in high-demand situations. Often in resource-limited or marginalised communities, these approaches are applied to treat public mental health, social-emotional development, and intergenerational healing in community-based initiatives. Integrative neuro-wellbeing approaches change the centre from symptom management to long-lasting mental optimization and self-empowerment by treating the brain not only as a cognitive organ but also as a vibrant interface of emotion, behaviour, and social interaction. In an age of rising mental health needs and systemic stress, this makes them particularly pertinent [32].

Neurowellness and Ecological Resilience

Beyond improving personal mental health, the ideas of neurowellness have a critical role in developing ecological resilience by influencing ideas and actions that are more geared toward environmental sustainability. Integrative techniques, including mindfulness, nature immersion, breath-based control, and digital detox, encourage present-moment awareness, interoceptive clarity, and an increased feeling of interconnectedness with the natural world. This embodied awareness usually leads to a stronger feeling of environmental responsibility and stewardship (Figure 7) [24].

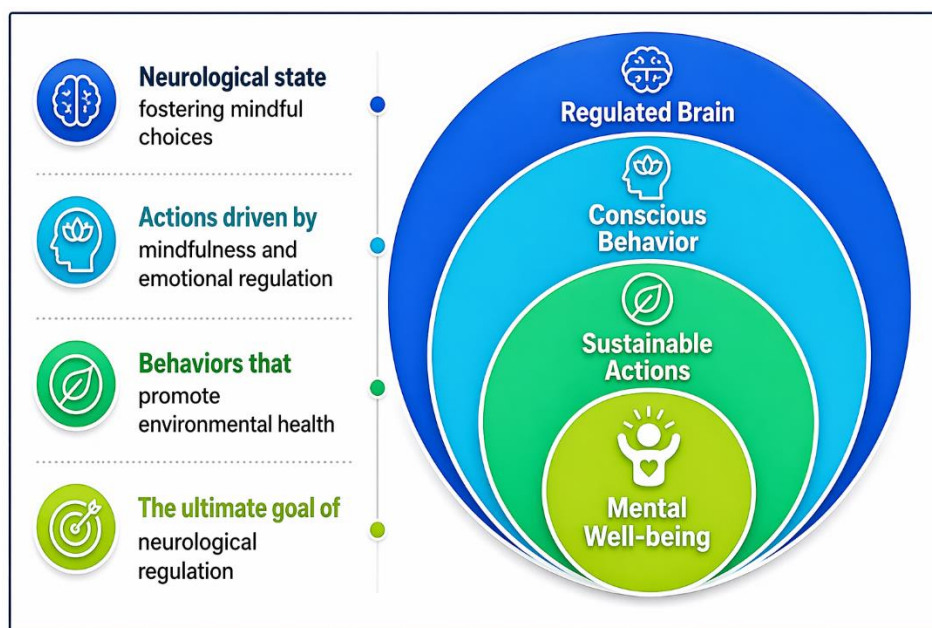


Figure 7: Brain Behaviour Planet Loop [24].

Studies show that people who regularly use mindfulness and self-regulation techniques show a stronger propensity for pro-environmental attitudes and actions, including minimalist living, resource conservation, sustainable consumption, and climate-conscious decision-making. These behaviors help one to live more thoughtfully and in accordance with values since they lower impulsiveness and psychological anguish. Furthermore, by supporting preventive and non-invasive means of well-being, neurowellness techniques can lower reliance on pharmaceutical

treatments, resource-intensive medical procedures, and energy-hungry medical infrastructure [33, 34]. A holistic neurowellness model that combines behavioural and mind-body interventions to counteract digital overexposure may enhance emotional regulation and resilience by modulating neuroplasticity in key brain regions. Aided with noninvasive modalities such as colour and light therapies, it holistically balances cognition, mood stability, and demand-reducing burnout [35,36].

Conclusion

Neurowellness is a scalable, preventive model for improving both personal and public cognitive health, as studies continue to support the efficacy of holistic interventions ranging from mindfulness and movement to creative participation and breathwork. Its cross-sectoral importance in clinical, educational, and organisational settings highlights its transformative potential for brain care. Leveraging the brain's inherent capacity for neuroplasticity, neurowellness is a deliberate, evidence-informed strategy to foster optimal brain function. Core pillars of mental resilience in a fast-paced, overstimulating world entail reconfiguring neuronal circuits to promote emotional balance, cognitive clarity, and behavioral flexibility. Based on both ancient knowledge and modern neuroscience, neurowellness combines holistic practices such as mindfulness, movement, breathwork, somatic awareness, creativity, and sleep hygiene, all of which help restore autonomic balance and boost executive function. Through participating in these activities, people may slowly move from states of neurological dysregulation often characterized by anxiety, impulsivity, or chronic stress, toward more coherent and strong mental conditions. This self-directed neuroadaptive process supports not just symptom alleviation but also long-term change in how one sees, reacts to, and negotiates life events. In essence, neurowellness offers a hopeful neurobiological foundation for improving mental health via integrated, evidence-based methods. Based on neuroplasticity, this method helps people move from neural dysregulation to conditions of cognitive clarity, emotional control, and behavioral flexibility.

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