

ABSTRACTS

EFFECT OF EXERCISE TYPE, LENGTH AND INTENSITY ON THE BDNF AND SUBSEQUENTLY ON DEPRESSION AND BEHAVIOUR

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Exercise is considered an effective treatment for depression, anxiety and many other mental and health conditions. It has been observed that individuals who regularly engage in physical activity experience fewer anxiety symptoms and a boost of their joy feelings. While the effects of exercise and physical activity on cognitive functioning are well established, the neural mechanisms underlying their impact on emotional processing remain relatively elusive.

Whereby exercise has been shown to increase the release of extracellular vesicles in into the circulation associated with neurotrophic signalling that promotes both central and peripheral neuronal development and cerebral cortical cell migration (Yoon et al. 2021).

Cutting-edge studies have shown that the volumes of several amygdala sub regions were lower in patients suffering from major depressive disorders than healthy control subjects (Kim et al. 2021). The authors suggest that amygdala sub region volumes may be considered valid structural biomarkers for depression. However, on-going research shows that neurofeedback and biofeedback targeting the amygdala and frontal cortices have had some success in treating depression; nonetheless, the level of evidence is considered level 2/5, or "possibly efficacious," due to low levels of replication in most studies (Melnikov 2021).

Importantly, both moderate and high-intensity interval training has been shown to significantly reduce stress, anxiety and depression in healthy adults that were placed in confinement secondary to the Covid-19 pandemic (Borrega-Mouquinho et al. 2021).

The pathophysiology of depression includes neural alterations in the brain (Castren & Rantamaki 2010). These later are associated with biochemical changes in growth factors such as vascular endothelial growth factor (VEGF), insulin-like growth factor-1 (IGF-1) and brain-derived neurotrophic factor (BDNF). BDNF is involved in crucial and a variety of aspects of neuronal functioning (Kovalchuk et al. 2002, McAllister 2000) including differentiation, axonal growth, neuronal survival, and synaptic plasticity (Huang et al. 2008; Markham 2014). Alterations in BDNF could lead to psychiatric disorders (Markham 2014). Its level was reduced in clinically depressed patients without medication (Phillips 2017).

The aim of Professor Monèm Jemni's talk is to precisely shed some light on the effect of different types, length and intensity of exercise on BDNF and subsequently on depression and behaviour.

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LIFESTYLE FACTORS AND MENTAL HEALTH

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The role of lifestyle factors is increasingly recognised to play an important role in positively modifying medical and psychiatric diseases and their associated morbidity and mortality.

Such lifestyle factors include, consumption of healthy food (example being Mediterranean diet and food that facilitates greater diversity of healthy gut biome) physical activity, cessation of smoking, avoidance of alcohol and illicit substances.

Additional lifestyle factors for healthy living include, optimal sleep, safe and peaceful environment, de-stressing and enjoyable activities, social connections/support and healthy mental activities.