

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.

Positive role of healthy lifestyle that include, dietary measures such as fasting and exercise has been recognised and recommended by physicians from the ancient times, through the middle ages to the early 20th century. Indeed, used as therapeutic tool to treat medical and psychiatric disorders.

In recent years there has been resurgence of focus on diet and exercise as important and additional therapeutic tools in management of both medical and psychiatric disorders.

The scientific basis, explaining the benefits of healthy diet and physical activity are beginning to be unravelled. Possible mechanism that may explain, how benefits are gained from good diet (including fasting) and physical activities include, their anti-inflammatory effects, thus benefiting the immune system. Fasting can also trigger autophagy, a mechanism which helps to remove toxic proteins that have been linked with development of neurodegenerative disorders.

A diet that facilitates healthy and varied gut biome leads to positive benefits for the immune system, better sleep, weight control and general improvement in physical and mental health.

Increased physical activity has been shown to benefit many psychiatric disorders including anxiety and depression. Amongst mechanisms suggested include, increase in BDNF, better circulation and increased energy, possibly related to improvement in mitochondrial health.

Exercise has also been shown to improve sleep, reduce stress, have beneficial effects on the immune system, metabolic status and general physical and mental health.

However, more research is needed to not only better understand, how diet and exercise helps physical and mental health, but also how best to use diet and exercise as additional therapeutic tools for improving physical and mental health.

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DISABILITY AND QUALITY OF LIFE

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Complex disability affects several body systems and it is often associated with intellectual disability and behavioral disorders.

For all these reasons its care is challenging. Moreover, within this complexity, identifying useful indicators for understanding the patients' health status seems crucial. In recent years, as highlighted the literature, an important indicator to plan and evaluate the effectiveness of individualized interventions is the Quality of Life (QoL). Furthermore the literature showed that the QoL' outcomes are closely connected to the quality of the relationship between patients and their caregivers. The quality of the relationship is considered a key factor that can have an effect on several outcomes including the QoL. To date, few studies have been conducted in patients characterized by multiple complex disabilities. The main aims of this study, were to assess the QoL outcomes of 31 residential patients with severe and multiple disabilities related to severe or profound ID, recruited to the "Istituto Serafico" of Assisi and to explore the link between the relationship quality and QoL outcomes. All indicators, QoL outcomes and relationship quality, have been evaluated through interviews with professional caregivers who take care of individual patients. The evidence that will be presented highlights the importance of taking into account of these indicators to plan and evaluate individualized care interventions also in complex disabilities

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ACCESS TO CARE: AVAILABILITY AND AFFORDABILITY OF ANTISEIZURES MEDICATIONS

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Neurological disorders affect about one billion people worldwide and represent a leading cause of disability and death (Feigin et al. 2020). Many people with neurological disorders have a limited access to appropriate care and treatment with large disparities between country income levels and socio-economic