

Apart from the established pharmacological treatments in schizophrenia, aerobic exercise has a profound impact on the plasticity of the brain of both rodents and humans such as inducing the proliferation and differentiation of neural progenitor cells of the hippocampus in mice and rats. Aerobic exercise enhances BDNF and leads to a better performance in hippocampus related memory tasks, eventually by increasing neurogenesis and synaptic plasticity related proteins in the hippocampus. In healthy humans, regular aerobic exercise increases hippocampal volume and seems to diminish processes of ageing like brain atrophy and cognitive decline.

Several meta-analyses demonstrate the beneficial effect of exercise on function, positive as well as negative symptoms and brain structure in multi-episode schizophrenia. New studies are under way providing insight in the intensity and duration of aerobic exercise training required for improvement in cognition and everyday functioning in patients with schizophrenia.

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## IMPACT OF MAJOR SOCIAL FACTORS ON PSYCHIATRIC AND PHYSICAL MORBIDITY

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A reliable relation between the features of social environment on the one side and mental health or illness on the other is shown by the research of the last century. Nevertheless it is not yet completely clear how this relation works. Length and quality of life are influenced by four modifiable health factors: health behaviour, clinical care, social and economic factors and physical environment. Although the first two aspects are most discussed, the other two factors constitute the social determinants of health and seem to be more important than health behaviour and clinical care.

Healthy living is based on the last two factors, which affect mental und physical health directly. Concerning the way of influence further investigations are necessary. Severe mental illnesses and physical multimorbidity have also a negative impact on social factors. This multidirectional way may be mediated or also changed as an independent factor by concepts like network, social isolation and especially loneliness.

Loneliness is defined as a subjective feeling of the absence of social networks or a companion.

In literature on the one hand especially long term loneliness communicates with worse physical and mental health and also negative health behaviour, on the other hand it is triggered by bad social factors and also generates them through withdrawal and long term stress. Loneliness is connected with physical illnesses as cardiovascular problems, high blood pressure, hypercholesterolemia, lack of sleep, changes in the immune system, lower general health status and higher mortality. Lonely people's mental health is at risk in higher rates of psychosis, depression, suicide and Alzheimer's disease. Negative health behaviour causes alcohol abuse, smoking, obesity, low physical activity and low capacity of self-regulation. These results are aggravated by the evidence indicating, that social environment and loneliness may modify gene expression through epigenetic processes, which then manifest as psychological consequences. On average one third of European population is feeling lonely at least some time.

**Conclusion:** all policies in public health have to include the perspective of fighting loneliness and improving social environment. Good public health and long life expectancy are only achievable, if health and social policies and budgets are seen as connected. Some countries are already doing this with great success today.

### References:

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