Research Article

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Physical Therapy: Anti-Depression and Happiness Initiation as A New Medico-Social Hypothesis

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Abstract

*Physical therapy has benefits rather than direct medical benefits relating to rehabilitation of organs with certain injuries. The main objective of this study is to explore our hypothesis, that states "**physical therapy: anti-depressant and happiness initiation as n new medico-social hypothesis**".*

From a medical point of view, physical rehabilitation highly concerns with the organs to be improved functionally. This may work on different levels including neuroscience. What we have found is that physical rehabilitation works on cellular level and interferes with cellular machinery process such as upregulation of heat shock protein 70 (HSP70), and downregulation of some proteins such as inducible nitric oxide synthase (iNOS). These processes are likely to work as antidepressant and initiate happiness. These findings are derived from various animal experimental models of diabetes and Parkinson disease.

From a social context, physical training is usually carried out in groups, a matter that makes exercise enjoyable. Taken together, physical therapy or training should be encouraged to satisfy high levels of happiness and to combat depression.

Keywords: Physical Therapy, Depression, Happiness, Cellular Machinery Process, HSP70, iNOS

Introduction

Physical activity (PA) therapies have been identified as a promising treatment option for depressed people [1]. Exercise is defined as PA that is planned, systematic, and repetitive with the primary goal of improving or maintaining physical fitness [2]. PA is defined as any bodily movement produced by skeletal muscles that results in energy expenditure. For best physical and mental health advantages, international PA guidelines recommend 150 minutes of moderate or 75 minutes of vigorous activity PA each week [3]. Indeed, PA has been established as a protective factor against incident depression and anxiety in pre-pandemic times [4, 5]. During the pandemic, however, lower levels of PA were detected in the general population in several countries [6, 7].

In 2030, according to the World Health Organization (WHO), diabetes will be the seventh major cause of death. T2DM relates to a number of risk factors, the most common of which include rapid weight gain, a high BMI, a lack of physical exercise, sedentary lifestyles, and a high frequency of high fat intake [8]. In addition, a few studies have found depression to be a risk factor for T2DM development [9, 10]. The link between depression and the start of DM has previously been studied, although the results have been mixed. Some studies have identified a link between depression and an increased incidence of T2DM, whereas others have found no link. People with depression have a 41 percent higher chance of acquiring DM and a 32 percent higher risk of developing T2DM than those without depression, according to one study [11]. The actual mechanisms underlying this association, however, remain unknown and require further exploration.

One of the most frequent psychiatric diseases is depression. A dysphoric state of mind, loss of curiosity and joy, worsened hunger and lethargy, and alterations in vitality levels are all symptoms of depression. As a result, decreased self-care behaviors, such as adherence to prescribed medicine and correct diet, as well as a lack of physical activity, are usually linked to depression [12]. The general prevalence of present bothersome side effects was reported to be 8.7% in a 38-state survey in the United States, with a 15.7 percent lifetime diagnosis of depression as evaluated by a specialist or healthcare service provider [13, 14].

Depression has been linked to an increased risk of diseases connected with aging. It appears to be a common psychological reaction to pandemic outbreaks that include mandatory quarantines and lockdowns. As a result, depression is a major global health burden with therapeutic management concerns now more than ever. Physical exercise is gaining traction as a non-pharmacological treatment for depressive disorders, according to clinical evidence. Although it may help to reduce systemic inflammation linked to depression, the mechanisms underlying the positive effects of physical activity on emotional behavior are still unknown. According to current research, the signaling mediators of systemic adaptations to physical activity may involve a fast release of extracellular vesicles into the circulation. These biological entities are now well-established intercellular communicators, with important roles in physiological and pathological activities such as brain cell–cell communication. We also looked at new evidence linking depression to altered extracellular vesicle surfaces and cargo signatures (such as microRNAs and proteins), which could be used as biomarkers for diagnosis, disease classification, and therapeutic management. . As a result, we hypothesized that physical exercise-related circulating extracellular vesicles contribute to its antidepressant effects, primarily through inflammatory modulation, based on the clinical data presented in this study [15].

We have published a paper that summarized the outcomes of our studies on the health impacts of exercise during the previous ten years. Under physiological and pathologic situations such as diabetes, Parkinson's disease, osteoporosis, and others, physical exercise has been demonstrated to have considerable effects. Upregulation of some mediators in some pathways, such as HSP70, VEGF, and P16; and downregulation of other mediators in other pathways, such as iNOS, P53, and estrogen receptor, were demonstrated to be molecular consequences of physical activity. These cellular differences contribute to improved health. Physical activity enhances bone health by boosting calcium levels and bone mineral density, according to studies on osteoporosis. Physical activity, when combined, enhances the health of numerous body systems and organs, as well as aids in the prevention and treatment of diseases [16].

Conclusions

This study showed that physical exercise can work as antidepressant and happiness initiation that can be shown through good mood and adherence to therapies. Furthermore, improvement brain functions are associated with physical exercise.

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