

Exercise and Quality of Life

Egzersiz ve Yaşam Kalitesi

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Quality of Life is the totality of features and characteristics of the varying environments and changing conditions/circumstances that bear on the ability to satisfy the human needs for actualization at four levels of awareness: Physical, Emotional, Mental and Spiritual. 'Exercise' is defined as any bodily activity enhancing or maintaining physical fitness and overall health. The aim of this review article was to assess whether exercise improves quality of life.

Key words: Exercise; physical activity; quality of life.

Yaşam kalitesi, fiziksel, duygusal, zihinsel ve ruhsal olmak üzere dört farklılık seviyesini gerçekleştirmek için insanın ihtiyaçlarını karşılayabilme becerisiyle ilgili olan değişen çevre ve durumların özelliklerinin bütünüdür. Egzersiz, fiziksel zindeliği ve genel sağlığı artırıcı ya da koruyucu bedensel aktivite şeklinde tanımlanmaktadır. Bu derlemenin amacı "egzersizin yaşam kalitesini geliştirip gelişmediğini değerlendirmektir.

Anahtar sözcükler: Egzersiz; fiziksel aktivite; yaşam kalitesi.

Living in the 21st century, it is truly remarkable that so many people understand the values of being fit. Even the average person, who does not exercise, understands the value of physical activity in promoting his/her physical well-being. This of course does not explain the fact that currently over 300 million people are obese and this number is expected to be double by 2025.^[1] Whereas the exerciser can understand the physical changes in his/her body (e.g. heart beats per minute), it is hard to describe in numbers other aspects of life that have also changed and that may be far more important. We may refer to this phenomenon as "Quality of Life" (QOL) changes, and ultimately these changes may be more critical to exercising than the physical changes themselves.

Exercise is defined as any bodily activity that enhances or maintains physical fitness and overall health. 'Quality of Life' is the totality of features and characteristics of the varying environments and changing conditions/circumstances that bear on the ability to satisfy the human needs for actualization at four levels of awareness: Physical, Emotional, Mental and Spiritual.

One important question that needs to be answered is "Can Exercise and Quality of Life work in unison?", or even better, "Can Exercise lead to Quality of Life?". In this article we assess whether 'Exercise' has truly any impact on the four levels of awareness that are prerequisites in order to achieve, maintain and enhance "Quality of Life".

MATERIALS AND METHODS

This is a review article that is based on a research performed on several medical databases. The Medical Subject Heading (MeSH) terms "Exercise", "Physical Activity" and "Quality of Life" were used and retrieved over 5700 articles. This article is based on data presented in several of these papers that examined the ability of Exercise to improve Quality of Life.

RESULTS

Exercise and Physical Awareness. Exercise (by definition) helps people to achieve, maintain and enhance their physical awareness.^[2-5]

Exercise and Emotional Awareness. Research has

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shown important factors on behavioural change in relation to physical activity.^[6] The Theory of Planned Behaviour, the Social Cognitive Theory, the Trans-Theoretical Model and the Motivation, the Self-Efficacy and the Readiness to Change of each individual stand out as central concepts regarding the influence of exercise on the emotional awareness of a person.

There are numerous studies that evaluate the influence of exercise on the emotional status of a patient. Exercise seems to ameliorate psychological impairments such as mood and cognitive performance^[7,9] and reduces symptoms of clinical depression in middle-aged men and women.^[10,11] It is interesting that only ten weeks of combined strength training and aerobic exercise can significantly increase the positive and decrease the negative mood,^[10,11] while participation in 12 weeks of high or low intensity strength training can improve overall physical fitness and mood in older adults.^[12]

Physical activity appears to be a good adjunctive treatment in the long term management of patients suffering from major depressive disorder^[13] and seems to determinate improvement in depressive aspects not frequently responsive to the drug treatment.^[13] Based on recent studies on humans and animals, even moderate voluntary physical exercise has a beneficial effect on brain health and more specifically: on the psychological status, on the psychological well-being and on promoting the effects of antidepressants and anxiolytics.^[14]

The mechanisms by which exercise achieves these effects on the level of Emotional Awareness probably depend on the fact that brain has finite metabolic resources and brain-processing is a competitive activity. As a result, during exercise the extensive neural activation required in order to run motor patterns, to assimilate sensory inputs and to coordinate autonomic regulation, results in a concomitant transient decrease of neural activity in brain structures, such as the prefrontal cortex, that are not pertinent to performing the exercise but are highly associated with emotional disorders.^[15]

Exercise and Mental Awareness. There are numerous studies that evaluate the influence of exercise on the mental status of an individual. In animal models, physical activity enhances memory and learning, promotes neurogenesis and protects the nervous system from injury and neurodegenerative disease.^[16] Voluntary exercise induces plasticity and reduces oxidative stress after traumatic brain injury in rats. These actions have as a result a significant improvement in cognitive functions.^[17] In clinical studies, exercise increases brain volume in areas implicated in executive processing, improves cognition in children with cerebral palsy and enhances skills in school children with reading difficulty.^[16] Exercise also seems to ameliorate impairments in patients' cognitive characteristics.^[7,9] Neurotrophins (endogenous proteins that support brain plasticity) are probably the mediators

of the beneficial effects of exercise on the brain.^[16]

One might expect that exercise would paradoxically increase the risk of dementia by allowing people to live longer.^[18] Nevertheless, in the Canadian Study of Health and Aging that included 8403 people, it was found that the net effect of exercise should be to improve cognition at the population level, even with more people living longer.^[18] In a 'intent-to-treat- analysis of a randomized control trial that examined 170 adults with subjective memory impairment, a six-month program of physical activity provided a modest improvement in cognition over an 18-month follow-up period.^[19] Even moderate voluntary physical exercise has a beneficial effect on the mental health and more specifically it improves cognitive function and decreases the risks of Alzheimer's disease and dementia.^[14] The mechanisms that are involved in these procedures are probably two: The 'up-active pathway' that is associated with enhancements of several neurotransmitters systems afferent to hippocampus (including norepinephrine, serotonin acetylcholine and gamma-aminobutyric acid) and the 'down-active pathway' that is mainly concerned with up-regulation of the brain-derived neurotrophic factor and the neurogenesis.^[14]

Certain types of physical activity, including light and moderate exercise, appear to be beneficial to mental function in individuals with type 2 Diabetes Mellitus. Having diabetes, particularly when less well controlled, is associated with lower cognitive function scores, and physical activity participation may prevent some of the potential decline in cognition.^[20]

Exercise and Spiritual Awareness. Although it may seem strange, there are several inter-connections between Spirituality and Exercising, even though it is quite difficult to quantify changes in a person's spirituality. In fact, it seems that religion may be successfully combined with exercising programs. The 'Faithfully Fit Forever' program for instance is a holistic health improvement program that embraces the interconnection between mind, body, and spirit. The program includes 30 to 40 minutes of exercise, health education time, and devotional time promoting spiritual and emotional health.^[21] Yanek et al.^[22] tested the impact on cardiovascular risk profiles of African-American women aged 40 years and older after one year of participation in one of three church-based nutrition and physical activity strategies. Women that attended the intervention program achieved clinically important improvements in cardiovascular disease risk profiles one year after program initiation. The authors concluded that church-based interventions can significantly benefit the cardiovascular health of African-American women.

After all these it seems that exercise may indeed be combined with spirituality. The question is whether exercise can truly enhance spirituality. Lefin and Simon^[23] reported back in 1973 that elderly people that attended a kinesiotherapy program improved their intellectual and

spiritual status. In another study,^[24] patients suffering from cardiac diseases attended a 2.5-day program that included: exercise, proper nutrition, yoga, meditation and prayer. Seventy-eight per cent of the participants reported increased spirituality after the retreat. Changes in spirituality were positively associated with increased well-being meaning in life, increased confidence in handling problems and decreased tendency to become angry. In a similar study, Jorna et al.,^[25] evaluated 19 women that completed an 8-week intervention program and compared their results with those of another 30 women that participated in a non-health related 8-week program. Physical activity was higher in the intervention group, and spiritual health also significantly improved among intervention participants.

DISCUSSION

Exercise seems to individually enhance the Physical, Emotional, Mental and Spiritual awareness of each person. In order someone to achieve Quality of Life all these levels of awareness need to be able to work in unison. International literature supports the theory that all four levels of awareness work together and furthermore Exercise enhances them all, hence achieving and maintaining Quality of Life.

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