

The effect of music on mental and physical performance

Authors' Contribution:

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A - Study Design
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Abstract: *Desirable sound of music has a wide range of psychological and physiological beneficial health effect among diverse population in different conditions. Research for example showed when music is selected according to its motivational qualities, the positive impact on performance (e.g., increased endurance) and psychological states (e.g., enhanced affect) are even greater, which has important implications for exercise adherence in male and female participants. On the other hand, healing sounds have always been considered in the past an important aid in medical practice, and nowadays, medicine has confirmed the efficacy of music therapy in clinical setting and in aging population. It seems healing harmony as a source of inspiration in science is an effective approach to improve quality of life in different individuals. Hence, music intervention as an easily, inexpensive, noninvasive approach to improve public health is notably recommended*

Keywords: Music, healing harmony, public health.

INTRODUCTION

Music is fundamental to human social life around the world, and there is a growing understanding that music can be an important influence on health and well-being [1]. Historically from ancient era to modern time, it has been shown that desirable sound of music has a wide range of psychological and physiological beneficial health effects among diverse population in different conditions [2,3] as it specifically is one of activities that involves using the whole brain that is intrinsic to all cultures and has surprising benefits not only for learning strategy, improving memory and focusing attention, but also for physical coordination and performance [4,5]. In tis regards, research showed that music has consistent and measurable effects on the physiological and psychological states in exercised male and female participants. When music is selected according to its motivational qualities, the positive impact on performance (e.g., increased endurance) and psychological states (e.g., enhanced affect) are even greater, which has important implications for exercise adherence [6]. On the other hand, healing sounds have always been considered in the past an important aid in medical practice, and nowadays, medicine has confirmed the efficacy of music therapy in many diseases [7]. For instance, it has been indicated that music can be an effective nursing intervention in stressful

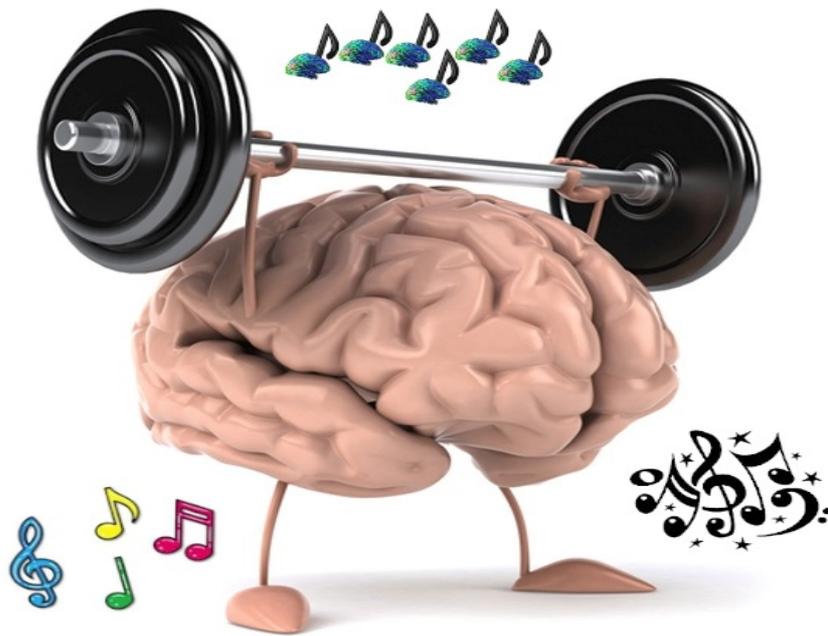


Figure 1. A shamanic of music effects on brain and body performance.

situations for decreasing anxiety, blood pressure, heart rate, myocardial oxygen consumption and changes in plasma stress hormone levels in clinical setting at patients with cardiovascular disease and mental or spiritual problems [8, 9]. Further, music is applied as an active therapy in the care of persons suffering from rheumatism; its empiric success as a remedy in rehabilitative and palliative therapy is recognized too [10]. Combination music with exercise also has increased bone health also [11]. Moreover, studies have shown that music can improve function and alleviate symptoms in Parkinson's disease, Alzheimer's disease and other forms of dementia in part at elderly people [12]. Therefore, it seems healing harmony as a source of inspiration in science is an effective approach to improve quality of life in different individual (Figure 1).

The effect of music on psychological actions

Music enhances brain function in reading, writing, emotional intelligence, reasoning and memorizing in human [13]. Alworth and Buerkle [14] similarly regarding the potential benefits of music in animals suggested that providing music may be used as a means of improving the welfare of laboratory animals, such as through environmental enrichment, stress relief and behavioral modification.

Music improvised psychological health and well-being in wide range of perspectives [15]. Music listening for instance, has been suggested to beneficially impact on health via stress-reducing effects [16]. Stress may be the single most significant factor related to the increasing rate of suicide which is considered responsible for many physical and psychological problems [17]. According to this, Thomson et al. [18] have recommended the usage of music as a self-therapeutic resource and in the treatment of young people with psychopathology issues such as anxiety, and stress. Music therapy additionally, is accepted by people with depression and is associated with improvements in mood. Depression is equally highly prevalent disorder associated with reduced social functioning, impaired quality of life, and increased mortality

[19]. In a large study, researchers in partnership with the Northern Ireland Music Therapy Trust, found that children and young people who received music therapy had significantly improved self-esteem and significantly reduced depression compared with those who received treatment without music therapy [20]. Siedliecki and Good [21] investigation earlier in African American and Caucasian people aged 21-65 years with chronic non-malignant pain showed music groups had more power and less pain, depression and disability than the control group. In the same way, Chan et al. [22] elsewhere, in a longitudinal study in elderly have reported that depression levels reduced weekly in the music group compared with non-music group suggesting that music is a non-invasive, simple and inexpensive therapeutic method of improving life quality in community-dwelling older people. Music is an important resource for achieving psychological, cognitive, and social goals in the field of dementia also [23]. From this background, Särkämö et al. [24] have stated that regular musical leisure activities improved mood, orientation, and remote episodic memory and to a lesser extent, attention and executive function and general cognition in persons with mild/moderate dementia as a part of everyday care.

The effect of music on physiological actions

Listening to the ideal music causes the brain to release dopamine neurotransmitter hormone, a chemical messenger associated with motivation and reinforcement of behavior [25, 26] that improves physical performance by either delaying fatigue or increasing work capacity that often results in higher expected levels of endurance, power, productivity, or strength [27]. Rhythmic music literary is tracked consistently by several physiological variables in body [28]. The association between auditory stimulation and the level of the cardiac autonomic nervous system, for example, has received significant contributions in relation to musical stimuli [29]. In this respect, Trappe (2009) reported a greater reduction in heart rate (HR) and heart rate variability (HRV) in cardiac autonomic nerve activity for example was revealed with performing music. A recent meta-analysis in 2012 year equally has outlined that compared to those who did not receive music therapy, those who did receive music therapy had significantly greater decrease in systolic blood pressure (SBP), diastolic blood pressure (DBP) and HR leading to reduction in anxiety [30] as music promotes vasodilation though released endorphin-mediated substances in the endothelium [31]. More recently, Bradt, Dileo and Potvin [32] have shown that listening to music may have a beneficial effect on systolic blood pressure, heart rate, respiratory rate, quality of sleep and pain in persons with coronary heart disease (CHD) although they warned that their findings need to be interpreted with caution at this patient with high risk of bias. Lee et al. [33] at another study stated that single a 30-minute music can provide an effective method of reducing potentially harmful physiological responses arising from anxiety in mechanically ventilated patients in comfortable resting conditions. Mechanical ventilation often causes major distress and anxiety in patients that results the sensation of breathlessness, frequent suctioning, inability to talk, uncertainty regarding surroundings or condition, discomfort, isolation from others, and fear contribute to high levels of anxiety [34]. Entirely, scientists such as Kuhn in 2002 [35] demonstrated that a particular type of music can create a positive and profound emotional experience, which leads to secretion of immune-boosting hormones resulting in reduction in factors related to many illnesses.

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