Name of Student

Name of Professor

Name of Class

Day Month Year

How Music effect brain?

**Reybrouck, Mark, Peter Vuust, and Elvira Brattico. "Music and Brain Plasticity: How Sounds Trigger Neurogenerative Adaptations." *Neuroplasticity-Insights of Neural Reorganization*. IntechOpen, 2018.**

In this article, Reybrouck has pointed towards some main points that spotlighted a light on effects that music casts on human brain and its activities. The author has described how music triggers plastic changes in brain. Neuroplasticity is the process in which brain makes new connections that are healthy for the human body. He has represented a detailed description of neuroplasticity by focusing on three major areas, such as ontogenetically scale that is used in the development of music, neuroplasticity as a result of an interaction that exists between sound and short survey of therapeutic applications that are carried out in clinics. Also, the author has highlighted a fact that there could be seen an impact on both structural as well as function level, that author has supported with the help of recent findings from science networks. In neuroplasticity, brain forgets the previous setting and wiring as new neural connections are formed and learns good habits and keep on adding these things in his personality, so by keeping this fact in mind, it won't be wrong to say that music cast positive effects on brain. Researches have proved that medial region of brain seems more synchronized when an individual would be listening music as compared to other person who would not be listening music, and these changes become permanent in some people such as the musicians. There are many pieces of evidence that musicians have different way of listening music while on the other hand non-musicians observes music in some other ways, and this is because of the difference in the functioning of brain.

**Yang, Mi, et al. "The effects of music intervention on functional connectivity strength of the brain in schizophrenia." *Neural plasticity* 2018 (2018).**

Yang has mentioned some of the basic things in this study that he has observed about the effectiveness of music of treating various neural disorders. Schizophrenia is one of the primary behavioral abnormalities that are attached to cognition. Music intervention has been seen casting positive effects on patients who are suffering from schizophrenia. Studies have proved that there is a healthy effect on the networking of brain and circuits that are being supported by certain types of music that help in the functioning of magnetic resonance. In one of the research, patients were assigned with musical and non-musical interventions (MYSZ, UMTSZ) for almost a month. They also investigated functional connectivity strength, and seed-based functionality approaches were given attention too in this regard. Findings in this study proved that there is a positive impact on the modulation on the functional connectivity of brain because of the music intervention.

**Raglio, Alfredo, et al. "Effects of music and music therapy on mood in neurological patients." *World journal of Psychiatry* 5.1 (2015): 68.**

In this article, Raglio has discussed about depression syndrome and mood disorder, and according to the reports, there are almost 20-50% patients who were suffering with brain and stress issues because of this syndrome. These things used to be under-diagnose or under-treated in most of the clinics. These issues affect life quality and increases mortality risks. The author is highlighting the fact that despite the pieces of evidence of positive impacts of music therapy on brain and other assistance of musical interventions in neurological disorders, no article specifically reviews daily living, moods, emotions, and depression, etc. Reglio has mentioned in this article, effects of music and musical intervention for treating the neurological disorders. Various studies and researches support the point that MT and other musical forms of music have a healthy effect on mood, life quality, and depressive syndrome. Selected studies are based on a few approaches of rehabilitative and rational music therapy and in simple words it is concerned with music intervention. Author in this study has also mentioned positive effects of music on brain functioning by claiming that dementia could be reduced to a significant level if music therapy is included in treatments. Dementia is the mental illness in which individuals face some issues with their memory, but researches have proved that there is a positive association of music with memory improvement.

**Nayar, Usha S., ed. *Child and adolescent mental health*. SAGE Publications India, 2012.**

Author Nayar in this book has mentioned that there is a difference between childhood and adulthood and many scholars have reached the point where they have made a clear difference between both these stages of life. At these two stages, a person used to have different capacities. Adults, adolescents, and children are not homogeneous. Development of children is going to be primarily affected by the conditions in which they live such as socioeconomic status, mental health, and family support. This book helps people for having an understanding of the difference that exists between childhood and adulthood. One of the main issues that have been highlighted by the author in this book is that while focusing on the physical needs of children people usually forget to pay attention towards the mental growth that becomes a significant challenge when they grow up and compete with other participants. Time when children are exposed to such a competitive world they fall a victim of depression and anxiety, and in such cases, it has been seen that music therapy plays a vital role in treating depression of children. In this book, Nayar has also described experiments that are being performed for checking how music affects the brain functioning of students and how it reduces their academic stress.

**Dalla Bella, Simone. "Music and movement: Towards a translational approach." *Neurophysiologie Clinique* 48.6 (2018): 377-386.**

In this discussion, Dalla is spotting a light on the positive effects of music on the rhythmic abilities of people. There has been seen a large number of rhythmic abilities in the general population. People can extract some of the beats of music and can successfully align their movement with those beats. Fundamental research has been done for achieving the aim of transitional approach that is being informed by the theory. In this study, Parkinson's disease has been used as an example that gives evidence of positive effects on walking. From this study, it has been seen that patients with spread rhythmic abilities are likely to have more benefits from this cueing. Also, mobile technology can be used for optimizing cueing of the rhythmic auditory. It has been seen that there is a similar kind of approach that is being used by the researchers for studying music rhythm and movement that would help in the remediation of cognition, speech functioning and speech in patient populations mostly in children that have neurodevelopmental disorders. There has been found a successful relationship in the music-based intervention and different level of rhythmic abilities of individuals. Experts have shown a direct relation in curing Parkinson's diseases as it could be seen that there exist a direct relation in the amount of the dopamine that is the release from brain under the influence of certain type of music.

**Bigliassi, Marcelo. "Use the brain: complementary methods to analyze the effects of motivational music." *Frontiers in human neuroscience* 9 (2015): 508.**

This article spots a light on music-related interventions that are being used in the field of sports and exercise for checking the effects of fatigue and related symptoms. Studies have shown that there is a close relation between music and brain activity, especially on psychological responses and the workout that individuals do. There have been done many researches for showing the impact of music on emotions and whether it motivates an individual or not. Purpose of this article highlights the use of complementary techniques that are being used by the researchers for exploring effects of music along with its applications in sport and exercise researches that are going to be taken in the near future. The most important part of this work is that exercises during moderate to high level of physical activity usually focus on the overall message that is being given in the music. There has been seen cue in the internal sensory part of the brain that provides attentional force and focuses on associating internal processes such as fluctuating heart rate and muscle discomfort. Another major aspect that has been highlighted in this study is that brain processes music in different ways during exercise and this is because of the effects of fatigue that could be seen clearly after doing exercise. It has been claimed that there could be felt more pleasurable effects of exercise under the influence of a certain type of music. Brain processes music differently and it has the power to cast effects on responses along with evoking long term memories.

**Misuraca, Raffaella, Silvana Miceli, and Ursina Teuscher. "Three effective ways to nurture our brain." *European Psychologist* (2017).**

Misuraca, in this article, has torched a light on the fact that there are some essential activities that cast positive effects on our brain as well as cognition and one of these activities is music. Many researches have been done that shows a close association and positive relation that exist between music aptitude and functioning of cognition. There are many pieces of evidence that show, music creates a positive effect on mood and high spirit that ultimately leads to better and improved performance. This article provides an overview of the major empirical findings on domain. Author has mentioned many individuals who could be suggested things that would bring an effective change for making informed decisions, such as policymakers and educators who help various professions. Author has also mentioned that there could be seen healthy effects of music on the recovery of many degenerative diseases such as Alzheimer.

**Särkämö, Teppo, et al. "Music, brain, and rehabilitation: emerging therapeutic applications and potential neural mechanisms." *Frontiers in human neuroscience* 10 (2016): 103.**

Sarkamo in this academic piece is pointing towards a very important factor that is music and emphasized on the fact that music is one of the main sources of enjoyment and not only it freshens our mood but also is equally important for learning new things. With the advancement of time and neuroimaging, many types of research have been done that supports the point that with listening, playing, thinking and feeling music, brain functioning becomes enhance. There have been given pieces of evidence in this piece of literature that there occur some changes in the structure and function of the brain with musical expertise and training. In this study, the author is presenting a view that during the last few decades, music has been implemented as a therapeutic tool that is being extensively used in the rehabilitation of patients who are facing neurological issues. Author of this article claim that training that is supported by music by using different musical instruments, would help in improving the recovery of motor arm movement after a stroke. There has been mentioned an experiment on the individuals who were with a damaged medial temporal lobe damage, and also it involves search upon the claim whether there is any music that casts improvewment on the episodic memory or not.

**Wang, Da, Shuai Liu, and Xi Wang. "Study on the Impact of Different Music Education on Emotional Regulation of Adolescents Based on EEG Signals." *Educational Sciences: Theory & Practice* 18.5 (2018).**

Wang in this article is supporting the idea that there are various positive effects of music on the functioning of brain and the right choice of music also helps in reducing the stress level of people as there could be seen the intervention of music in the brain circuits cast healthy effects. In this discussion, Wang has proposed many clinical pieces of evidence that support that idea that tension is relieved and adjustment used to be done accordingly by taking help of music. Also, there has been raised a few questions that though there are various pieces of evidence regarding music intervention but still there is no in-depth analysis for pointing towards the difference that helps in the regulation of multiple effects on characteristics of human psychology. In this study, an investigation is being made by using EEG method with clinical trials for exploring the role of different rhythms of music and mode of music on the psychological regulation. The variance of brainwaves of the subject has been monitored along with the synchronic characteristics of the brainwaves that exist in various regions of brain and this study has proved that there are different regulation that differs with characteristics of brain functioning.

**Huotilainen, Minna, and Mari Tervaniemi. "Planning music‐based amelioration and training in infancy and childhood based on neural evidence." *Annals of the New York Academy of Sciences* 1423.1 (2018): 146-154.**

Huotilainen has presented a discussion, highlighting the fact that the development of the auditory system with music-based amelioration and training has pieces of evidence since long. Recent studies and researches in the field of neurology got many pieces of evidence that support usage of music in this manner. In this study, there has been presented many pieces of evidence that if there would be music-related activities then there would be seen positive changes in structure of the brain and positive impacts are being casted on overall functioning of the brain that assists the daily life auditory cognitive processes. In this study, there has been investigated various effects by comparing music-based training. There have been highlighted few errors that exist therein music-based training and potential of this training on neutral and other behavioral levels in both infants and children. The author has also highlighted positive effects of music on brain, cognitive and neural development especially it helps individual who may have any issues with hearing along with other deficits that would affect the overall auditory process. There could be seen some future improvements as well with regards to auditory issues that would be placed on music-based training and observing their results on cognition.

**Mofredj, A., et al. "Music therapy, a review of the potential therapeutic benefits for the critically ill." *Journal of critical care*35 (2016): 195-199.**

In this article, Mofredj is spotting a light on positive aspects of music as it has been seen that researches that are being carried in intensive care units used to be filled with stressful patients, especially in the case of mechanical ventilation that produces anxiety in patients. There is obvious evidence that anxiety imposes negative impacts on the recovery rate of patients and also cast drastic effects on the overall well-being of patients; in such conditions, music used to be suggested as a tool for lowering the stress. Not only in this particular case but also this suggestion is being implemented in almost all the areas of medicines for assisting critically ill patients. There has been witnessed another debate that is stress response and decreased level of anxiety in mechanical ventilation that induce feeling of relaxation even without suggesting medicines to patients. Researchers found that this reduced level response of stress helps in lowering the cardiac workload. This lower stress response also reduces the consumption of oxygen that would ultimately make ventilation effective. Music has been helping patients in acquiring quality sleep, and there is a reduction in pain of patients as well. Recovery becomes speedy with music.

**Sutoo, Den'etsu, and Kayo Akiyama. "Music improves dopaminergic neurotransmission: demonstration based on the effect of music on blood pressure regulation." *Brain research*1016.2 (2004): 255-262.**

In this article, the author claims that there are positive effects of music on the functioning of brain, but the mechanism is not clear that modifies brain function. Various researches have been carried out that showed a decrease in the blood pressure of many patients. The author also highlights the fact that there is an increase in the amount of calcium which increases the production of brain dopamine (DA) through the system of (CaM). In SHR, this increased amount of dopamine reduces blood pressure. There is a special kind of music called Mozart's music that has been viewed as the most effective type of music for reducing the systolic blood pressure, but the effect vanished when the pathway is inhibited. There could be found other useful changes in the functioning of brain that occur because of the process of dopaminergic neurotransmission. Music has been proved effective in curing various diseases such as DA dysfunction.

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