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INTERNATIONAL JOURNAL OF ADVANCED RESEARCH (IJAR)

Article DOI:10.21474/IJAR01/11139
DOI URL: <http://dx.doi.org/10.21474/IJAR01/11139>



RESEARCH ARTICLE

MUSIC AND HEALTH - A REVIEW ARTICLE ON THERAPEUTIC APPLICATION OF MUSIC

Dr. Kalpana Chetia and Rumanchita Gogoi

Manuscript Info

Manuscript History

Received: 07 April 2020
Final Accepted: 10 May 2020
Published: June 2020

Key words:-

Music, Health, Dementia, Aphasia,
Stroke

Abstract

Music is the scientific combination of physics, mathematics and arts. It has a universal language. It is not confined to a particular race, caste, community and linguistic region. Its language is like the music of winds or rains or of flowing water or waves of the seas and oceans. It is same everywhere. Music is the language of human heart like " lub dub, lub dub ". Music can cause many effects in human mind as well as nature. Music can control the emotional status of a person. It has been utilized to treat some human illnesses to give a better life.

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Introduction:-

Music is the scientific combination of physics, mathematics and arts. It has a universal language. Its language is like the music of winds or rains or of flowing water or waves of the seas and oceans. It is same everywhere. Music is the language of human heart like " lub dub lub dub" Music can cause many effects in human mind as well as nature. Music can control the emotional state of a person. It can cause a person to smile or cry, he or she becomes frightened listening to music or becomes relaxed. Music can cause changes in the environment and nature. It can cause even trees to grow faster , flowers to bloom and to gives fruits and seeds earlier and healthier. Human beings are also a part of nature and so music can definitely effects human mind to interact with self as well as environment. Newborn baby's cry is a music which gives happiness to parents and relatives . This first cry opens up its contracted lung alveoli and becomes able to breathe thereafter. The cry is universal. It is same for rich or poor, black or white . So cry is a universal music which is able to create emotional changes in other's mind . Winds blow with music, water flows with music and fire burns with music but cause different types of emotional reactions in human mind. Music is the language of all natural phenomenon.

Music and Health :

since time immemorial several studies have been going on at different places of the world to correlate music with health with some positive results. In several countries many organisations have been formed to develop integrity between the two entities . The Institute of Music and Neurologic function is one such organisation in US to conduct research into and applying music therapy. It is located in Mount Vernon, New York . Lack of sleep, tiredness , anxiety , depression, restless ness, stress and strain, lack of exercise , sedentary life style are the causes of many human illnesses which can be relieved by music therapy . There are various other causes of human diseases like infection, accident and trauma, tumour, pollution and allergy , hereditary and poisoning by physical agent or mental abuse or harassment . There are some diseases which can be improved by musics like some neurological diseases, hypertension , some heart diseases and some psychiatric illnesses.

Corresponding Author:- Dr. Kalpana Chetia

Human Brain And Music:

Neuro scientist Kiminobu Sugaya and world renowned violinist Ayako Yonetani are known for their studies on effect of music on human brain . They have explored that music impacts brain function and human behaviour including by reducing stress , pain and symptoms of depression as well as improving cognitive and motor skills, spatial temporal learning and neurogenesis. Sugaya and Yonetani are involved in teaching how people with Alzheimer's and Parkinson's disease also respond positively to music.

1. There are various areas in the brain . The different areas which respond to music are frontal lobe, temporal lobe, Broca's area, Wernicke's area, occipital lobe , cerebellum, nucleus accumbens, amygdala, hippocampus, hypothalamus , corpus callosum and putamen.
2. Frontal lobe - as per study by Sugaya the functions of frontal lobe can be enhanced by music . It is the most important part of human brain.
3. Temporal lobe - what we hear are processed in the temporal lobes. We use the language centre to appreciate music , which spans both sides of the brain , though language and words are interpreted in the left hemisphere while music and sounds are interpreted in the right hemisphere.
4. Broca's area - we use this part of the brain to express music. Yonetani says playing an instrument may improve the ability to communicate better.
5. Wernicke's area - this area is important for comprehensive activities of written and spoken language. We use this part of brain to analyse and enjoy music.
6. Occipital lobe - this area processes what we see. Professional musicians use the occipital cortex when they listen to music . But lay persons like us use the temporal lobe - the auditory and language centre to listen the music .
7. Cerebellum - this area coordinates movements and stores physical memory . It has been observed that an Alzheimer's patient even if he doesn't recognise his wife , could still play the piano if he learned it when he was young because playing has become a muscle memory. Those memories in the cerebellum never fade out.
8. Nucleus accumbens - from this area neurotransmitter dopamine is released and this area plays a big role in addiction . Music can produce addiction like addictive drugs as the same part of the brain is used for music addiction and drug addiction . Music increases dopamine in the nucleus accumbens similar to cocaine.
9. Amygdala - this area is important for processing and triggering emotions. Music can control fear, make someone ready to fight and increase pleasure.
10. Hippocampus - this area produces and retrieves memories , regulates emotional responses and helps navigate. This part is affected in Alzheimer's disease leading to concussion and memory loss . Music can increase neurogenesis in the hippocampus , allowing production of new neurons and improving memory.
11. Hypothalamus - this area is important for maintenance of the body's status quo , links the endocrine and nervous system , produces and releases essential hormones and chemicals that regulate thirst, appetite, sleep, mood, heart rate , body temperature, metabolism, growth and sex drive . If Mozart is played there is reduction of heart rate and blood pressure : Sugaya says.
12. Corpus callosum - this part is important for communication between right and left cerebral hemispheres. This allows coordination of body movements as well as complex thoughts that require logic and intuition. As musicians need coordination movement of both right and left hand side this allows pianists to translate notes on a sheet to the keys their fingers hit to produce music.
13. Putamen - this area is important for processing rhythm and regulating body movement and coordination . Music can increase dopamine in this area and increases the response to rhythm, Yonetani says. By doing this music temporarily stops the symptoms of Parkinson's disease . Rhythmic music has been used to help Parkinson's patients function such as getting up and down and even walking because Parkinson's patients need assistance in moving but unfortunately the pathology comes back on stoppage of music.

Different Types Of Music:

There are various types of musics like rock n' roll, jazz, hip-hop and classical . Individual variation is there to the type of response to the different musics . It depends upon personal background Yonetani says . As per Mozart affect classical music increases brain activity and made its listeners smarter. In recent studies Sugaya and Yonetani found that people with dementia respond better to the music they grew up listening to " if you play someone's favourite music , different parts of the brain light up" , Sugaya explains "that means memories associated with Music are emotional memories , which never fade up even in Alzheimer's patients. "

Health Benefits Of Music

1. Overall wellbeing can be achieved by listening to music . It helps to regulate emotions, create happiness and relaxation in day to day life.
2. Reduction of mental stress - to reduce stress and anxiety relaxing music is to be heard . This has been by experimental studies in healthy people undergoing medical procedure (eg. Surgery , dental , colonoscopy etc.)
3. Lessening of anxiety - It has been observed that cancer patients listening to music combined with standard cancer therapy reduces anxiety in comparison to one receiving standard care without musical support.
4. Improvement of physical exercise - it has been observed by various studies that music can enhance aerobic exercise . It can boost up mental and physical stimulation and increase overall performance probably due to the release of activating neurotransmitters in the brain
5. Improvement of memory - Research has shown that the repetitive elements of rhythm and melody help our brains and patterns that enhance memory. In a study conducted among stroke survivors , listening to music helped them experience more verbal memory , less confusion and better focussed attention.
6. 6.Reduction of pain - studies have showed that music helps in alliviating pain if it is listened before after and during surgery and gives overall satisfaction in comparison to non listener group.
7. Provide comfort - music therapy has been used to help enhance communication , coping and expression of feelings such as fear, loneliness and anger in patients who have a serious illness and who are in end of life care.
8. Improvement of cognition - people with Alzheimer's disease can recall seemingly lost memories and even help to maintain some mental abilities if listened to music .
9. Improvement of children with autism spectrum disorders - studies of children with autism spectrum disorders who received Music therapy showed improvement in social response , communication skills and attention skills.
10. Soothes premature babies - Live music and lullabies may impact vital signs , improve feeding behaviours and sucking patterns in premature infants and may increase periods of quiet alert status.

Medical Diseases That Can Be Cured By Music Therapy

1. Autism
 - 2.Heart Disease
 3. Stroke
 4. Dementia
 5. Aphasia.
1. Autism - an article written by Thenille Braun Janzen and Michael H. Thait concluded that music can help autistic patients hone their motor and attention skills as well as healthy neurodevelopment and socio-communication and interaction skills . Music therapy also resulted in positive improvement in selective attention , speech production , language processing and acquisition in autistic patterns.
 2. Heart disease - according to 2013 Cochrane review listening to music may improve heart rate , respiratory rate and blood pressure in those with Coronary heart disease.
 3. Stroke - music is useful in the recovery of motor skills . Music helps in the alliviation of anxiousness and depression . Patients with music therapy become able to regulate their emotions better and showed increased communications in various studies.
 4. Dementia - Dr Hanne Mette Ridder a musical therapy expert from Denmark studied the importance of the roles of musical therapists and care givers on the mental well-being of patients suffering from dementia . Music therapy has been proven to be beneficial use to older adults all over world
 5. Aphasia - aphasia can be improved by the use of music therapy.

Conclusion:-

Music has got tremendous roles in the overall improvement physical and mental health. It can be used in the rehabilitation program to improve the life style of patients with various neurological disorders like stroke, Parkinson's disease and Alzheimer's disease. Many psychological diseases also can be treated with the help of music therapy .Music also helps in retention of memories in patients suffering from dementia . Music helps to improve concentration ability and helps to lead a smarter life. The use of musical interaction has been proven as a key factor in many countries for the improvement of overall health of older adults.

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