

The Impact Analysis of Music Therapy in Chronic Brain Diseases: A Review Article

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Abstract— The human neurological system has been greatly influence by the effect of music therapy, mantra therapy, Raga therapy and instrumental sound. We can easily analyses this effect with proper source of signal to generate audible frequencies. Which later will relax central nervous system, mind and body This process follows classification of these signals with respect to the class of frequencies, analyzing the impact of these signal energies on the neurotransmission, which in turn helps to get positive results in chronic mental diseases, disorders like scrizophenia, parkinsons, Alzimers etc. This paper throws light on effect of music therapy to produce signal positive vibrations on human body brain and nervous System.

Index Terms— Vedic chanting, Signal energy, neurotransmission

INTRODUCTION

Music therapy (MT) is an internationally recognized treatment strategy in Naturopathy Medicine and used to treat various diseases . In this context, the music therapist uses music and all of its facets such as physical, emotional, mental, social, aesthetic, and spiritual supports for helping clients to modify their psycho physical domains, such as cognitive functioning, emotional development, social skills, and quality of life, by using music experiences instrument playing, singing, and listening to achieve treatment goals. MT is also used in some medical hospitals, cancer centers, schools, alcohol and drug recovery programs, psychiatric hospitals. The most commonly used MT modes incorporate: clinical therapy, psychotherapy, biomusicology, musical acoustics, music theory, psychoacoustics, embodied music cognition, aesthetics of music, sensory integration, and comparative musicology.

I. WHAT IS MUSIC THERAPY?

Sound healing therapy uses aspects of music to improve physical and emotional health and well-being. The person being treated partakes in the experience with a trained practitioner. Music therapy may involve:

- ✓ listening to music
- ✓ singing along to music
- ✓ moving to the beat of the music
- ✓ meditating
- ✓ playing an instrument

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Healing with sound is believed to date back to ancient Greece, when music was used in an attempt to cure mental disorders. Throughout history, music has been used to boost morale in military troops, help people work faster and more productively, and even ward off evil spirits by chanting.

II. TYPES OF MUSIC THERAPY

There are a few different types of music therapy, each with different benefits, though not all have been supported through research.

A. Guided meditation

Guided meditation is a form of sound healing in which you meditate to voiced instruction, either in a session or class, or using a video or app. Meditation can involve chanting or repeating mantras or prayers or practising music. It has been found that meditation offers a number of health benefits, including:

- Stress reduction
- Decreased anxiety & depression
- Improved memory
- Reduced blood pressure
- Pain reduction
- Lower Cholesterol
- Decreased risk of heart disease & stroke

B. Neurologic music therapy

Music therapy can reduce stress and promote relaxation. It's been shown to be more effective along with prescription drugs in reducing anxiety levels before surgery. A study published in 2017 found that a 30-minute music therapy session combined with traditional care after spinal surgery reduced pain up to 60 percent.

Music therapy is administered by a credentialed provider who assesses the individual's needs. Treatment involves creating, listening, singing, or moving to music. It's used for physical rehab, pain management, and brain injuries.

C. Tuning fork therapy

Tuning fork therapy uses calibrated metal tuning forks to apply specific vibrations to different parts of the body. This can help release tension and energy, and promote emotional balance. It supposedly works similarly to acupuncture, using sound frequencies for point stimulation instead of needles. There is some research suggesting that tuning fork therapy may help relieve muscle and bone pain.

D. Brainwave entertainment

Also known as binaural beats, this method stimulates the brain into a specific state using pulsing sound to encourage your brain waves to align to the frequency of the beat. It's supposed to help induce enhanced focus, entranced state, relaxation, and sleep. Though more research is needed, there's some evidence Trusted Source that audible brainwave entertainment reduces anxiety, pain, and symptoms

of premenstrual syndrome, as well as improves behavioral problems in children.

III. FUNCTION OF BRAINWAVE ENTERTAINMENT THERAPY

Out of all above types of music therapy we throws some light on one of effective type I.e Brainwave Entertainment. Advanced Brainwave Entertainment combined with Ambient Music, Nature Sounds, Other Audio. Different states of mind are associated with specific brainwave frequencies that would be inaudible if played directly. These frequencies can be induced in the brain indirectly by playing two different audible tones into each ear, which after being processed by the brain, are perceived as an inaudible beat matching the target brainwave frequency. As you listen, your own brainwaves fall into step with this inaudible beat, and after a few minutes synchronize with the target brainwave frequency. BrainWave's binaural tones are an effective therapy. The relaxation, sleep and meditation programs also help to reduce the neural hyperactivity that is believed to be the underlying cause of all diseases associated with mind such as schizophrenia, Parkinsons, behavioural disorders etc.

Programs use composite Binaural Tones and multiple stages that stimulate multiple brainwave frequencies to create combination experiences, such as a Power Nap or Dreamy Sleep or brain relaxation..

When the brain hears two different sounds of similar frequencies in each ear, it combines the two tones to create an entirely new one. Considered to be an "audio hallucination," binaural processing is a phenomenon where the brain becomes confused. The brain takes both tones that are received through headphones to produce a completely unique third sound. Although there are some people who consider this manipulation somewhat controversial, others take advantage of the opportunity to trick the mind into being focused, sleepy, energetic or meditative.

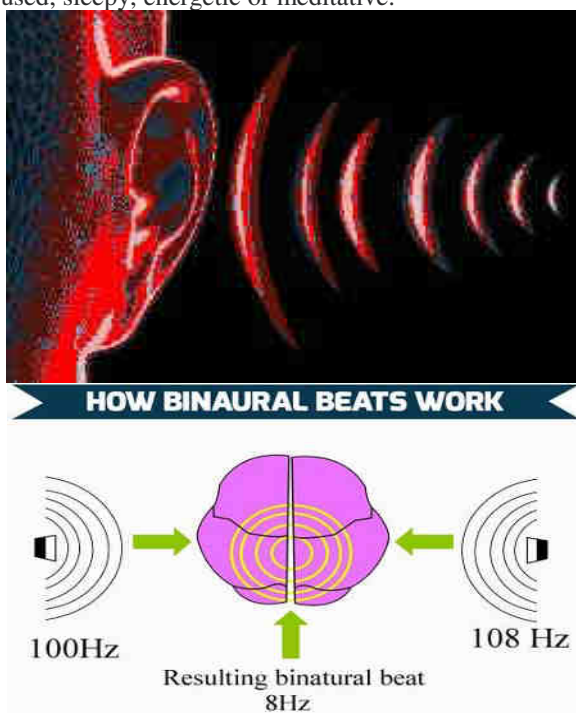


Fig Function of brainwave entertainment therapy and its effect

For example, if two sounds are played into the ears, one would be at 100 hertz and the other at 108 hertz. Then, a binaural beat of 8 hertz is created, which the brain waves will match. Therefore, an increase in brain waves of 8 hertz takes place. These are called binaural beats, which take place in the superior olivary nucleus, the site of contralateral integration of auditory input. This created auditory beat is more of a theoretical tone, rather than a normal sound that you hear on a daily basis.

Since the brain isn't used to hearing tones that are so similar to one another with such a high rate of intensity, it cannot comprehend them like it would a typical sound. The binaural beat is conveyed in the brain, and then neurotransmitters are used to initiate changes in brainwave activity. The third sound that is created is comprehended by each individual differently, and one person can hear a different sound based on when the binaural beats occur.

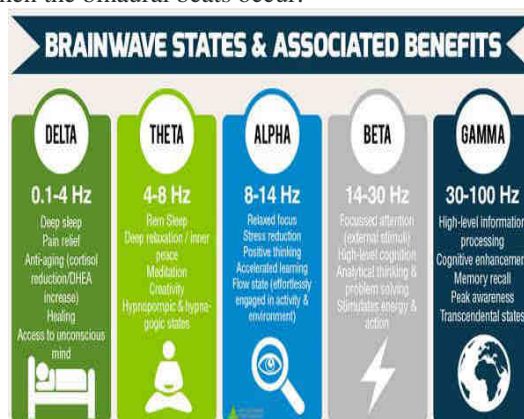


Fig. Classification of categories according to frequencies

IV. BEAT FREQUENCY CALCULATION

The beat frequency is equal to the absolute value of the difference in frequency of the two waves. Arising from simple interference, the applications of beats are extremely far ranging.

$$F_b = |F_2 - F_1|$$

Where,

F_b-Beat frequency

F₁-Frequency of first wave

F₂-Frequency of second wave

CONCLUSION

We conclude the scientific studies into the changes in the music therapy related to brainwave entertainment activity that occur while listening to music. A brainwave entertainment concept concentrates insights into the effects of music on the brain. This capacity is being investigated in various contexts. Starting with a healthy population, studies also seek to determine the impact of music in such conditions as disorders of consciousness, psychiatric diseases, and chronic conditions, as well as to further explore the role of music for rehabilitation purposes. The studies shall be extended to various other control parameters of experiments such as age, gender, cultural background and intensity of its application treating to various diseases.

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