Bio-Musicology (Music Therapy) : A New Era of Naturopathy

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Music as therapy is both ancient and young; its roots deep and its branches ever growing. The development of music therapy as a naturopathy has been in process since the power of music as a mode of expression was first experienced. This power lies in its inherent nature and its congruence with human feelings, emotions, and states of being.

Feeling anxious? Does high blood pressure sap your energy? Listen to low-pitch melodious songs and if you are feeling depressed, listen to high-pitch pop songs. Music acts as a melodious medicine and you will breathe easy soon. As we know this is the era of chemicals and we are living with them. Chemicals responsible for creating various types of serious diseases or disorder, to cure them we are again using chemicals in form of drugs. There is no debut that drugs have the ability to cure disease and disorders but on the other side it is also a well-established fact that each drug has some short of side effects and sometime side effects are converted in to serious problems. It is an established fact that brain is controlling entire metabolism, gene activation, biochemistry, haematology, physiology etc. of the body through different mechanisms and if any mechanism disturbed by any agents it reflects in form of disease or disorder. So anything which is capable to influence the brain also influences the entire metabolism and physiology of body. No debut this can be done by sound vibrations in form of music.

The Pleasant sounds can be defined as combination of both natural sounds, cultural and historic sounds. Because the acoustical environment is made up of many sounds the wellbeing of acoustical environment depends on interactions between the amplitudes and frequencies of all the sounds. Acoustical environment, as a stimulus has different properties on livings specially humans. Music induces mood change in either a depressive or a vigour direction. No one can deny the fact that we feel cool and calm when a bird sang or a mammal or amphibian vocalized or air blows in a forest. We observed that the natural sounds have their impact on the physiology of living by altering the levels of biochemical and haematological parameters.

I have also completed a project to analyse the impact of music therapy on albino rats and humans and I observed that the specific pleasant sounds in form of music affect the physiology of rat and human by altering the levels of biochemical and haematological parameters such as significant decrease in serum total cholesterol, non-significant decrease in triglycerides, non-significant decrease in VLDL and LDL, significant increase in HDL in most Research on the effects of music and music therapy in healthcare has grown rapidly during the past 20 years and has included a variety of outcome measures in a wide range of specialty areas including medical care, geriatric care, and rehabilitation. It is important, however, to make a clear distinction between music interventions administered by medical or healthcare professionals (music medicine) and those implemented by trained music therapists (music therapy). A substantive set of data indicates that music therapy interventions are more effective than music medicine interventions for improving physiological as well psychological outcomes in medical patients. This difference might be attributed to the fact that music therapists individualize their interventions to meet patients' specific needs, more actively engage the patients in the music making, make use of the therapeutic relationship established with the patient to meet clinical goals and

employ a systematic therapeutic process that includes assessment, treatment, and evaluation. As defined by Dileo 1999, interventions are categorized as 'music medicine' when passive listening to pre-recorded music is offered by medical personnel. In contrast, music therapy requires the implementation of a music intervention by a trained music therapist, the presence of a therapeutic process, and the use of personally tailored music experiences.

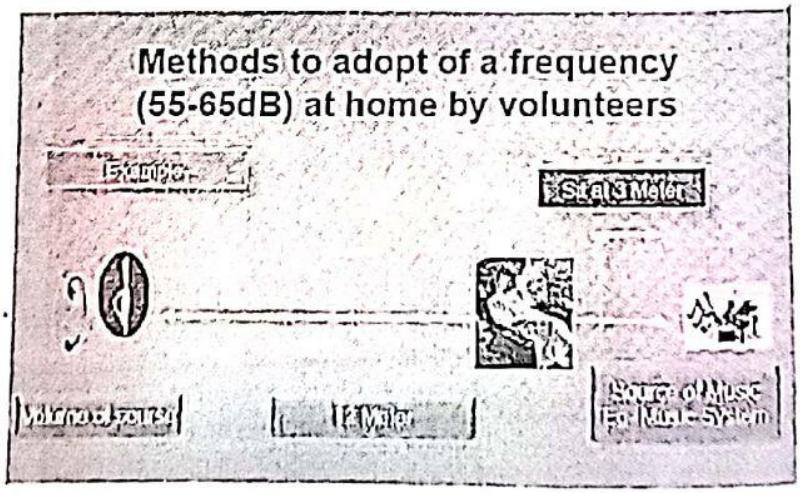
Material Methods-

Selection of Music (Test compound) - Music is selected on the basis of their property Three sets of pre-recorded Indian classical (Specific Indian ragas) and natural environmental sound are selected on the basis of trial and error methods. They are given to the experimental animals for a period of 90 days. The results were analyzed and after that the similar sound treatment are given to volunteers for a period of 90 days. The biochemical analysis of blood samples are carried at 30days, 60days and 90 days interval. The blood samples of volunteers are collected by a physician hire for the purpose, whereas the blood of albino rats was taken in lab from treated and control groups.

Sound of specific Indian ragas and Recording of natural habitat are given at 55-65 db (controlled by sound meter) to albino rat for two hours (9-10 AM and 3-4 PM) daily by speakers attached to the wall of their cage for 30,60,90 days through, where as human volunteers are allowed to listened specific sounds through head phones at their home (for the same time period as to rats) after training them in workshops organized in dept' on Sundays and holidays.

Control groups of both rats and humans are also assigned to listening to taped "white noise" ("White noise" or "synthetic silence" is an attempt to block out environmental noise. In this case it was a pre nature sounds such as sea sounds, which themselves were rhythmic) through headphones, or to a control group.

Collection of Blood Samples-The blood from rats collected in the early morning hours (7-9 AM) in lab on the scheduled date. The blood samples were obtained with the help of 2.0 ml disposable syringe from the tail albino rats, whereas the blood samples of human were collected by a physician hired for the purpose. The various biochemical parameters of rats were analyzed with the help of a standard kit methods in dept lab, while human blood test are conducted in authorize labs of a respective city



What is Sound ?

- ***Noise***, which is often referred to as unwanted sound, is typically, characterized by the intensity, frequency, periodicity (continuous or intermittent) and duration of sound. Unwanted sound to some may be considered wanted sound by others, as in the case of loud music (Talbott, 1995)
- ***Sound Pollution***, which is often referred to as greater than normal frequency.

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- Music Therapy, which is often referred to Rhythmic desired sound of specific frequency and pressure of choice at specific type & time.

Relation between msuci therpay and sicence (Bio-Musicology) -

- As per Scientfic theories-All behavioral are the result of some biochemical or Neuro-endocrine reactions
- As per music therapy- There are many music which affeact our behaviour by makeing us Cool & Cam, Relax, Exited etc.
- If we feel relax or cool and clam-
- Scientific expanation-There is release of feel-good hormone (Endrophin) in brain which makes us cool and calm, relax.
- It mean music trigers the release of endrophin which make us relax.

How music works-

Entrainment theory

- suggests that oscillations produced by music are
- received by the **human energy field** and
- various **physiological systems entrain** with or
- **match** the hertz (oscillation) of the music

Metaphysical theory - suggests

- that music is **divine in nature.**

DCS theory (Prposed by Dr. Dinesh C. Sharma) suggests

- **Sound vibrations** affeact the physiology of humans by stimulating their neuro-endocrine system.

Observations -

Effect of sound on biochemistry (Findings of my research work)-

Parameters	Rat (In lab)			Humans (Volunteers)		
	Sound "A"	Sound "B"	Sound "C"	Sound "A"	Sound "B"	Sound "C"
Adrenalin	↑ S	↓ S	↑S	↑ NS	↓NS	↑NS
Cortisol	↓ S	↓NS	↓S	↓ S	↓ NS	↓ S
Endorphin	↑ HS	↓ NS	↑ NS	↑ NS	↓ S	↑ NS
Testosterone	↑Male S ↓Female	↑ Male NS ↓Female	↑Male S ↓ Female	↑ Male NS ↓Female	↑ Male NS ↓Female	↑ Male S ↓Female
Progesterone	↓ S	↓ NS	↓ S	↓ NS	↓ NS	↓ NS
TG	↓ NS	↓ NS	↓ S	↓ NS	↓ NS	↓ NS
CHO	↓ S	↓ S	↓ S	↓ S	↓ NS	↓ S
LDL	↓ NS	↓ NS	↓ S	↓ S	↓ NS	↓ S
HDL	↑ S	↑ S	↑ NS	↑ HS	↑ S	↑ NS
Delivery time	↓ S	↓ S	↓ S	X	X	X
Group activity	↑ S	↑ NS	↑ S	X	X	X

NS = non significant HS = Highly significant ↓ = Decrease
S = significant ↑ = Increase

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Discussion

Now it's is clear from the findings of music therapy research going around the world music have the power to affect the physiology of livings. Music therapy is very useful in the treatment of infant, old age and pregnant, when physicians are normally avoided to prescribe a drug except case of emergency. It is also very useful to control anxiety and BP in Preoperative and postoperative conditions. The limitation of music therapy is that it can be used only to cure disorders not diseases it cannot use in case of emergency. In my research I observed the Significant ($P < 0.001$ to $P <$ decrease in serum total cholesterol level in both human. In most cases Non Significant decrease triglycerides has been observed except in sound "C" where significant decrease observed. Lipid bo proteins are called lipoproteins. Lipoproteins are found in plasma and their function is to transp lipids. Lipoprotein includes VLDL, LDL and HDL. In the present study VLDL and LDL are decrease Non-significantly except in case of sound "C". The HDL significantly increased in most cases. T decrease of serum triglycerides, cholesterol are directly correlated with decrease of LDL and VLDL The decreases of various lipids are indicative of good health and support the view that sound can be used as a drug to control various lipid parameters. I also observed the increase the adrenalin level both rat and human, whereas cortisol level fond to be decreased.

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