

Music Can Heal the Brain and the Heart

The Rhythm of Music and the Rhythm of Life

You have seen people in tears in concerts, lost in time hearing the music they love or moving their bodies as if possessed. It is all about rhythm, isn't it?!! Similarly, our body lives on rhythms. Our heart beats in rhythms; you can see that on the ECG (electrocardiography). Scientists even discovered that the conductive properties of every heart cell can change in response to music. Similarly, the brain activity is also rhythmic; you can see that on EEG (electroencephalography). Not just listening, singing also contributes to health, according to studies.

Music's strength is to seamlessly combine various subtle advantages into one captivating and holistic healing approach. Music stands unparalleled in human expression, encompassing melody, rhythm, emotion, and social connection. Therapies leveraging these qualities are rewarding, motivating, accessible, cost-effective, and side effects-free. Music's allure fosters sustained therapy engagement, enhancing the likelihood of lasting benefits over weeks and months.



"For multiple reasons, music should be part of every physician's toolkit."

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Music and the Brain

Through case studies, scientists worldwide have started realizing the potential of music on brain disorders. For example, in stroke patients, music improves memory and attention; with research, the effect of music on cognitive and motor functions and mental states is becoming increasingly apparent. Active music making, encompassing singing, movement, and synchronization to a beat, holds promise in restoring skills such as speech and motor functions. Now, scientists are able to tailor music therapies for each disorder, targeting specific brain injuries or dysfunctions.

Music contributes to the plasticity of the brain. In simple terms, plasticity is the ability of the brain to adapt and change to situations like an external stimulus; it helps to mold the functions of the brain in cases of conditions that hamper the brain function; contrary to common belief, the brain is not as rigid an organ that does not change after a certain age. Several simultaneous aspects of music contribute to brain plasticity, like listening, watching, feeling, moving, coordinating, remembering, and expecting musical elements. As a result, strong emotions may be evoked, like joy, happiness, and bittersweet sadness, or even overwhelming bodily reactions like tears in the eyes or shivers down the spine. Therefore, several brain regions are simultaneously involved, making music a strong stimulus for plasticity.

Subcortical brain regions are involved in music-listening and music-making activities. Primary and secondary regions in the cerebral cortex are activated during the perception of sensory information, be it auditory, visual, or somatosensory. Music also stimulates multisensory and motor integration regions in the frontal, parietal, and temporo-occipital brain regions. The frontal lobe is involved in planning, empathy, and attention. Parietal and temporo-occipital brain regions merge auditory, visual, and somatosensory inputs, creating a unified sensory impression and shaping the essence of the typical musical experience. The cerebellum engages in rhythm processing and synchronous tapping with external pacemakers like metronomes. The emotional network, spanning frontal lobes, cingulate gyrus, amygdala, hippocampus, and midbrain, influences emotional music perception and motivates engagement in musical activities. **The brain's dynamic organization evolves in response to environmental stimuli like music. Musical**



Neural plasticity, also known as neuroplasticity or brain plasticity, is the ability of the nervous system to change its activity in response to intrinsic or extrinsic stimuli by reorganizing its structure, functions, or connections.

activity has proven to be a powerful stimulus for brain adaptation, or brain plasticity.

Here are the conclusions of music's effects on the brain: Is a strong stimulus for neuroplastic changes; has a positive impact on both white and grey matter of the brain, as well as cortical and subcortical structure;

Makes rehabilitation and restorative neuro therapies more enjoyable; improves motor functions in stroke; improves speech in stroke patients; enhances the brain recovery process and Improves cognitive performance.

Music and the Heart

The heart is an organ that works with rhythmic beats; like music, arrhythmia can hamper the heart's function; the fact is not just metaphorical, music indeed affects the heart.

Research shows that mental stress changes the recovery period of heart cells after each heartbeat, called the action potential duration. Acute and chronic stress reduces the action potential of the heart's cells. Music changes heart rate, breathing, and blood pressure and alters the heart rate variability, indicators of cardiac and mental health. Loud music produces vascular constriction and increases blood pressure; slow and melodious music is found to do otherwise.

According to a study, music can reduce pain and anxiety associated with blood pressure and respiratory rate reductions. Besides, music also affects the amplitudes in ECG. A study showed a significant reduction in systolic blood pressure (by 8.73 mmHg) and heart rate (by 6.42 beats/minute) with music therapy compared to no-music therapy. However, there was no impact on diastolic blood pressure. Therefore, music therapy can be considered an add-on therapy in blood pressure management.

Communal Impact of Music

Music has a communal impact when people hear music in a large gathering. People listening to the same music tend to synchronize their movements, breathing, and heart rhythms. Some of this heartbeat coherence is due

to breathing together. Still, partial coherence remains higher between the heartbeats of people vocalizing long notes together, over the baseline or breathing together (singing with the singer), even after removing the effect of respiration.

Indian Music or Western Music?

Both Indian and Western music have “notes” in common. However, the emphasis is on harmony and polyphonics in Western music. In Indian music, the emphasis is on melody, rhythm, monophonic with drones, and temporal constraints. Indian music has a more substantial emotional impact and, therefore, an impact on health. Studies have shown that Indian Raagas increased alpha activity on EEG and improve attention scores. According to studies, Jaz and Carnatic music significantly improve brain function during mental tasks vs. hard rock music.

Conclusion

- * Music is a significant aspect of every culture.
- * However, music transcends all barriers of language, nationality, and culture.
- * The reason could be its impact on every aspect of the brain — sensory, motor, emotional and interconnections.
- * Music is also an effective add-on treatment for brain and heart conditions.
- * It is also helpful in treating psychological conditions like anxiety and depression.
- * Therefore, music can be incorporated as part of day-to-day clinical practice.

References

1. Scientific American. <https://www.scientificamerican.com/article/how-music-can-literally-heal-the-heart/>; 2. Scientific American. <https://www.scientificamerican.com/article/music-can-heal-the-brain/>; 3. Altenmüller E, Schlaug G. Apollo's gift: new aspects of neurologic music therapy. *Prog Brain Res.* 2015;217:237-52.; 4. Schlaug G. Musicians and music making as a model for the study of brain plasticity. *Prog Brain Res.* 2015;217:37-55; 5. Stefan K, Lutz J. Music and the heart. *European Heart Journal.* 36(44):3043-3049. 6. Mir IA, Chowdhury M, Islam RM, Ling GY, Chowdhury AABM, Hasan ZM, Higashi Y. Relaxing music reduces blood pressure and heart rate among pre-hypertensive young adults: A randomized control trial. *J Clin Hypertens (Greenwich).* 2021 Feb;23(2):317-322. ; 7. Babel S, Baral S, Srivastava A. Impact of Listening to Indian Classical Music, or Rāgas, on the Electroencephalogram: A Meta-Analysis. *Cureus.* 2023 Nov 28;15(11):e49592.



Venue:

SDP Remedies & Research Centre premises, Parlada, Puttur

Date: 24-02-2024 to 26-02-2024 Time: 6.00 p.m

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Dr. Harikrishna Panaje

Director, SDP Remedies & Research Centre & Staff, Parlada, Puttur

Date: 24/02/2024, Saturday | Time: 6 PM

Lighting the lamp: **Dr. C.K Ballal**, MS, MSc, Neurosurgeon, KMC Mangalore

Carnatic Classical Music and Hindustani Music - JUGALBANDI

Vocal: **Vidwan Sandeep Narayan**, Chennai

Vocal: **Pandit Jayateerth Mevundi**, Bangalore



Date: 25/02/2024, Sunday | Time: 6.30 PM

Bharathanatyam

Anitha Guha's Bharathanjali Presents,

"Hare Rama Hare Krishna"

A Thematic Dance Production



Date: 26/02/2024, Monday | Time: 6.30 PM

Yakshagana "Indraprastha"

By Sri Hanumagiri Mela



Raaga for Niroga

Each Raaga has a different effect on the mind and body. The following table briefly explains use of Raaga in various diseases.

Raga	Disease use	Raga	Disease use
Ahir Bhairav	Indigestion, Rheumatoid Arthritis, Hypertension	Jaunpuri	Intestinal Gas, Diarrhea, Constipation
Asavari	To build confidence, low BP	Jajaiwanti	Rheumatoid Arthritis, Diarrhea Headache
Bageshri	Insomnia, diabetes and hypertension	Kafi	Sleep disorders
Basant Bahar	Gall Stones (Cholecystitis)	Kausi Kanada	Hypertension, Common Cold
Bhairavi	Rheumatoid Arthritis, Sinusitis; encourages detachment	Kedar	Headache, Common Cold, Cough, Asthma
Bhim palas	Anxiety, Hypertension	Khamaj	Sleep disorders
Chandrakauns	Anorexia - Heart Ailments	Madhuvanti	Piles or Hemorrhoids
Darbari	Sedative - Easing Tension	Malkauns	Intestinal Gas , Low BP
Darbari Kanada	Headache, Asthma	Marwa	Indigestion, Hyperacidity
Deepak	Indigestion, Anorexia Hyperacidity, Gall Stones (Cholecystitis)	Nat Bhairav	Indigestion, Rheumatoid Arthritis, Colitis
Gujari Todi	Cough	Puriya	Colitis, Anemia, Hypertension
Gunakali	Rheumatoid Arthritis, Constipation, Headache, Piles or Hemorrhoids	Puriya Dhanashri	Anemia
Hindol	Rheumatoid Arthritis, Backache, Hypertension	Ramkali	Colitis, Piles
Shree	Anorexia, Common Cold, Cough, Asthma	Shudh Sarang	Anorexia, Gall Stones Cholecystitis
Shyam Kalyan	Cough, Asthma	Sohani	Headache
Yaman	Rheumatoid Arthritis	Tilak Kamod, Hamsadhwani, Kalavati, Durga	Relaxation and Easing Tension, Pleasing effect on Nerves
Bihag	Sonorous sleep	Bhupal Todi	High Blood Pressure

References

- Sarkar J, Biswas U. Indian classical ragas to cure diseases. International Journal of Advanced Science and Research. 2015;1(1):9-13.
- Kauveri Hospital. <https://www.kauveryhospital.com/news-events/july-ragas-in-carnatic-music-and-their-health-benefits-2020>







Tulasi Kantakari

Cough, Cold, Running Nose, Asthama, Bronchitis

Dosage: 10ml thrice a day or as advised by the physician.

Packing: 100ml, 200ml



INGREDIENTS:
Each 10ml contains:

Tulasi(Ocinum sanctum) Leaf	250mg
Vasa(Adatoda vatica) Leaf	250mg
Pushkaramoola(Nula racumosa) Root	200mg
Kantakari(Solanum surattssus) Plant	150mg
Yastimadhu(Glycyrrhiza glabra) Stem	250mg
Shunti(Zingiber officinale) Root	100mg
Pippali(Piper longum) Fruit	100mg
Bharangi(Clerodendrum serratum) Root	100mg
Navasara	50mg
Tankana bhasma	25mg


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