Evaluation of heart rate variability and cardiac autonomic control on exposure to Indian music and slow music yoga asana before sleep at night.

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Declaration of interest

- I have nothing to declare
Declaration of Interest

I have nothing to declare.
Conclusions

Exposure to the Indian raga with slow music yoga asana reduced sympathetic activity and/or increased vagal modulation with reduced anxiety levels and subjective assessment of perceived feeling showed positive changes (1).

- Indian yoga- **Savasana** with Indian classic raga- **Bhairavi, Bhopali** and **Flute slow music** may support to reduce heart rate and increase HRV, control blood pressure along with modern medicine in patients and may reduce major cardiovascular adverse events in pre and post cardiac surgical interventions.
• Previous research has shown that music can reduce anxiety in patients with heart disease.\textsuperscript{2} However, studies on the effects of music on the heart in patients and healthy individuals have produced inconsistent results, partly because they did not state what style of music was used.

• The body’s heart rate changes as a normal response to being in “fight or flight” or “rest and digest” mode. These states are regulated by the sympathetic and parasympathetic nervous systems respectively and together comprise the autonomic nervous system. High heart rate variability shows that the heart is able to adapt to these changes. Conversely, low heart rate variability indicates a less adaptive autonomic nervous system.
• Objectives: The present study aimed to evaluate the effects of heart rate variability (HRV) on exposure to Indian raga with slow music with that of two control groups of pop music and no music or silence in a sample of healthy subjects.

• Autonomic functioning, anxiety level and subjective feeling were assessed in 149 healthy subjects both male and female [group mean age ± standard deviation (SD), 25.68 ± 5.74] during three sessions.

• The three sessions were the musical session intervention with the Indian raga and slow music yoga asana before sleep at night, pop music with steady beats and "no music session." Assessments were made before (5 min), during (10 min), and after (5 min) in each of the three states on 3 separate days.
Methods

• At each session, heart rate variability was measured for five minutes before the music or silence started, for ten minutes during the music/silence and five minutes after it had stopped.

• In addition, anxiety levels were assessed before and after each session using [method ... Goldberg Anxiety Scale (GS-A)]. The level of positive feeling was subjectively measured after each session using a visual analogue scale.
Video- Indian Raga Bhopali with Savasana Yoga before Sleep.
Video – Indian Flute Music and Savasana yoga before Sleep at Night
Meditation Music before Sleep
Results

• During the Indian raga, there was a significant decrease in the low frequency (LF) power ($P < 0.01$) and increase in the high frequency (HF) power ($P < 0.002$) in the frequency domain analysis of the HRV spectrum.

• There was also a significant decrease in the mean heart rate (HR) ($P < 0.03$) in the time domain analysis of HRV. Both frequency and time domain measures are indicative of parasympathetic activity.

• The anxiety level significantly ($P < 0.004$) decreased post the Indian raga session and significantly ($P < 0.04$) increased post the pop session. The subjective assessment of perceived feeling using the visual analog scale (VAS) comparing Indian raga with pop and silence sessions showed a significant difference of feeling positive ($P < 0.005$).
Heart Rate Variability, Low Frequency, High Frequency and LF/HF Ratio (% changes) comparison between Indian Raga and Pop Music and Silence
Anxiety Score (Goldberg Anxiety Scale: GS-A) Comparison

Pre Anxiety Score:
- Indian RAGA: 6
- Pop Music: 5
- Silence: 5

Post Anxiety Score:
- Indian RAGA: 2
- Pop Music: 6
- Silence: 5
Discussion

• Low heart rate variability is associated with a 32–45% higher risk of a first cardiovascular event. Following a cardiovascular event, people with low heart rate variability have a raised risk of subsequent events and death.

• Failure of the autonomic nervous system to adapt may trigger inflammation, which is linked to cardiovascular disease. Another possibility is that people with low heart rate variability already have subclinical cardiovascular disease.
• The average age of participants was 26 years. The researchers found that heart rate variability increased during the yoga music, decreased during the pop music, and [Did not significant change] during the silence.

• Anxiety levels fell significantly after the yoga music, rose significantly post the pop music, and did not changed after the no music session. Participants felt significantly more positive after the yoga music than they did after the pop music.
Holistic therapies such as music cannot replace evidence-based drugs and interventions and should only be used as an add-on.

Science may have not always agreed but Indians have long believed in the power of various therapies other than medicines as a mode of treatment for ailments. This is a small study and more research is needed on the cardiovascular effects of music interventions offered by a trained music therapist. But listening to soothing music before bedtime is a cheap and easy to implement therapy that donot cause harm.”
References and notes

1. The abstract “Evaluation of heart rate variability and cardiac autonomic control on exposure to Indian music and slow music yoga asana before sleep at night” will be presented during:

- The press conference The ZZZs of heart health: the art of good sleeping on Sunday 26 August at 13:00 CEST.
- Poster Session 5: Cardiovascular rehabilitation on Monday 27 August at 14:00 to 18:00 CEST in the Poster Area.


4. Heart rate variability was measured using the frequency domain and time domain methods, which are described in detail here: Heart rate variability. Standards of measurement, physiological interpretation, and clinical use. Task Force of the European Society of Cardiology and the North American Society of Pacing and Electrophysiology. *Eur Heart J*. 1996;17:354–381.
Key messages

• Impact on clinical practice

Indian yoga- Savasana with Indian classic raga- Bhairavi, Bhopali and Flute slow music may support to reduce heart rate and increase HRV, control blood pressure along with modern medicine in patients and may reduce major cardiovascular adverse events in pre and post cardiac surgical interventions.

• Impact for man on the street

Good sleep is mandatory to maintain autonomic nervous system of body which can control heart rate, blood pressure and blood sugar. Slow music yoga asana at bed time before sleep may prevent cardiovascular disorders and related complications.
THANK YOU!