Sound and vibrations have been used for centuries by humans to treat physical & mental ailments. Some of the most ancient tribal healing practices include the Yidaki by the Aboriginal healers. Yidaki - which later came to be known as didgeridoo - is a traditional man-made instrument in which one blows air in to produce low vibration. Many modern sound healing equipment emulate this effect and vibrations of the yidaki. The purpose of these devices that are designed to create low vibrations are similar to that of the yidaki - to use sound to encourage a calm state of mind to initiate recovery.

Vibroacoustic therapy (VAT) is a specialized treatment that has been designed by combining effects of music and low frequency sound vibration. Right at the onset it is important to establish that Vibroacoustics and its impact is different from music. Eha Rüütel in their paper 'The Psychophysiological Effects of Music and Vibroacoustic Stimulation' talks about the varying effects of music and Vibroacoustics. In this study individuals were exposed to music, vibroacoustics therapy (same music with pulsed low frequency sound) and silence. The observation indicated significant decreases in blood pressure, pulse rate, muscle oscillation frequency on exposure to all 3 however the real difference was in subjective feelings of health & comfort. The paper states “There is also some evidence that vibroacoustics may have a wider influence on feelings of health and comfort when compared with music alone.” (Rüütel, E. 2002(1):16-26)

The exploration of vibration to tap into one’s innate healing capacity has been talked about in the Upanishads as well. According to Swami Vishnu Devananda in Meditation & Mantras (Om Lotus, 1978) ‘Everything in the universe vibrates on specific wavelengths. These wavelengths can be manipulated. For example, when its pitch is created high enough, a violin note can shatter glass. The various mantras, although equally efficient, vibrate on different wavelengths’ (Goldman, A; Goldman J, Tantra of sound)
What exactly is VAT?

Vibroacoustic therapy is a deep tissue low-frequency sound massage using audio waves in the range of 30Hz-120 Hz that are being transmitted to the body by embedded transducers in the bed. VAT has been used as part of music therapy, physiotherapy and rehabilitation for over 3 decades. It should be noted though, that those with Pacemakers, very low blood pressure, a bleeding disorder, a recent surgery (unless medically approved) and those who have experienced a recent psychotic episode should refrain from VAT until a medical professional approves.

How does VAT work on the body?

During VAT there are pulse-electro-magnetic frequencies (PEMF) waves being sent into the body. This causes resonance (oscillation) in our body. Every object has its natural frequency and when the forcing function (in this case VAT) frequency matches the natural frequency of an object (e.g. thigh muscle), it will begin to resonate. Resonance in our body will increase the circulation of blood and enhance our metabolism. It will also release tension in muscles and resonate with affected body parts.

In this article we will elucidate some of the existing research work on Vibroacoustics and its proven benefits. As we dive deeper into secondary research on the impact of these PEMF on the body and mind, it is important to note that much is still to be studied and this is a relatively new and expanding field with more possibility to research.
Stress, anxiety & immune system

When psychologists study stress, it isn’t always viewed as a negative construct. Stress can be categorically distinguished as eustress (an optimum level of positive stress or stimulation needed to function or perform a task having a beneficial effect on health, motivation, performance, and emotional well-being) and distress (impact of chronic stress often involving negative affect and physiological reactivity). It is this chronic state of stress that leads to the debilitating effects on the body such as sleep disorders, chronic digestive issues and psycho-somatic ailments.

Some studies have been successful to establish a relationship between vibroacoustics and sleep disturbances. In their study, Jing et. al evaluated 164 patients with sleep disturbances and assessed them using The Pittsburgh Sleep Quality Index (PSQI). They also assessed their physical and mental state using Symptom checklist 90. They found that when the participants were divided into two groups, one being exposed to vibroacoustic therapy, they showed significant difference between the two groups in score of PSQI. Although there were no statistical differences in time of falling asleep, time of sleep, effect of sleep and the factor of taking sleeping pills, there was a significant difference in the factors of somatization, compulsion, depression, anxiety, hostility and prejudice according to the SCL-90. This helps us to understand that vibroacoustic therapy does have an identified therapeutic effect to improve sleep state and physical and mental symptoms.

Furthermore, there is an interesting pilot study that elucidated the connection between VAT and cortisol levels. In this study 30 participants were exposed to varying frequency ranges - first at 40–115 Hz, second at 8200–8500 Hz, third with mixed radio-waves.
It was observed that after an hour of exposure to low frequencies between 40-115Hz, the hematic cortisol diminished in 86% of the participants. Conversely the higher frequencies increased the cortisol levels in 65% of the participants in just 30-40 minutes of exposure.

Cortisol - also called hydrocortisone, does many things in the body - one of the most well-known functions is that it triggers the fight or flight state. However it is also essential for managing metabolism, blood sugar, circadian rhythm, the immune response, and inflammation. Many studies have linked cortisol levels directly with the immune system.

In their study, Vitlic et al state that “Cortisol is ordinarily anti-inflammatory and contains the immune response, but chronic elevations can lead to the immune system becoming “resistant,” an accumulation of stress hormones, and increased production of inflammatory cytokines that further compromise the immune response”. In this study the authors provide a definitive review of the aging, stress, and their interplay on the robustness of the human immune response. Cortisol has been related to immune system in other studies as well.

The analysis of these relationships through this study further helps us to understand why VAT may contribute to managing cortisol levels, improving sleep quality and overall immune system optimization.
Rehabilitation/healing

There are many studies done in this aspect to establish that vibrations can lead to regeneration, healing and cleansing of the body. One of these theories is the Jindrak postulate. It theorizes about the possible mechanical cleaning effect of vibration in our body and brain. According to Jindrak and Jindrak, vibration can assist in removing some of the molecules, which are waste products resulting from activity in the nerve cells, through a diffusion process.

When it comes to healing, the perception and experience of pain is an important factor. In a study done by Lukasiak et al., McGill Pain Questionnaire was used to assess the difference in pain experienced by patients with "heel spur". It was documented that the scores of those who underwent VAT dropped by 17 points after exposure to VAT. There is still more to be studied in terms of pain and VAT, however the experience of pain cannot be far removed from its impact on healing itself. Furthermore, this leaves room for us to explore what this word 'healing' actually means and how it can be understood. Apart from experience of pain another aspect of 'healing' is the reduction in medication by patients after exposure to VAT. In a study done by Manag, fibromyalgia patients were given VAT. The research elucidated that medication dose was reduced in 73.68% of patients and completely discontinued in 26.32%.

Another way to look at healing is rehabilitation from an injury. In an interesting study done by Park et al., participants recovering from ACL surgery were exposed to local body vibration (LBV) with built-in vibroacoustic sound. They were then assessed on various measures such as psychological measures of pain and anxiety symptoms; physiological
measures of systolic blood pressure (SBP), diastolic blood pressure, heart rate (HR), breathing rate (BR), sympathetic activation (SA), parasympathetic activation (PSA), range of motion (ROM), and isokinetic muscle strength at Weeks 0, 4, and 8. It was observed that local body vibration mitigated the participants’ pain and symptoms and improved their leg strength and ROM - proving the impact of VAT on rehabilitation.

A lot more is yet to be explored when correlating VAT with healing. There are many aspects of healing that one has to look into before claiming any therapy actually heals. A total recovery from an illness is yet to be observed and this means there is more scope to study VAT and its effect on healing physiological ailments.

The Sound Cube created at SVARAM
Mental, emotional & physical coherence

Coherence means we are self-regulating in an optimal way, it is an experience, as Daniel Siegel writes, of “a flexible state of harmony.” Research in this field in recent years has indicated the effects of certain frequencies on brain coherence. Chen et al. in their recent 2022 study established that 40-Hz audiovisual stimulation seems to be effective in treating cognitive, mood, and sleep disorders. In one of the studies by Zaehle et al. in 2010, it was determined that exposure to low frequencies can produce the same frequency of neural oscillations in the auditory cortex. Further more exposure to 40Hz had a stronger impact. In another study by Pastor et al. in 2002, the data demonstrated that 40Hz activated the auditory areas of the pontocerebellum and increases regional cerebral blood flow to the contralateral auditory cortex, superior temporal gyrus (STG), and ipsilateral postcentral gyrus, as well as the inferior temporal gyrus. Needless to say there is significant data indicating the benefits of low frequencies on brain coherence and function.

The benefits of low frequencies impact the emotional and cognitive processes as well. Researchers from the Center for Rehabilitation Research and the Center for Adult Habilitation conducted an experiment on the effectiveness of vibroacoustic music therapy as a method of treatment for patients with developmental disorders and challenging behaviors. The observers recorded each participant’s progress using the Behavior Problems Inventory before the treatment, after the treatment, and once again after a period of time. The results of the study concluded that “vibroacoustic music reduced challenging behavior in individuals with ASD and developmental disability.”
To understand the impact of vibration or sound therapy on mental and emotional coherence it is important to highlight the connection between frequencies and brain waves. Past research in Psycho-acoustics such as in the paper 'Auditory beats in the brain' by Gerald Oster, has established the connection between low frequencies and its ability to slow down the brain waves to alpha and even theta. This encourages the activation of the parasympathetic nervous system. This means that the body can easily enter the rest and recovery mode.

When we talk about healing, harmonizing and de-stressing the body, we must understand that the mechanisms of the body that promote this are already in place. One has to work towards activating these pre-existing systems in the body. And this is what can be achieved with vibroacoustic therapy. When esoteric literature talks about vibrations - whether it’s through sound, mantra or music - it highlights the importance of tapping into the innate healing capacity of the body. From a scientific and medical perspective this is what we mean - to activate the centers of the brain that promote rest and recovery mode, to encourage brain coherence and this further leads to emotional, cognitive and physical release and relaxation. VAT enables the individual to become naturally aware of the body-mind connection and study the experiences at all levels (sensorimotor, emotional, and cognitive). Perhaps this is why VAT seems to be beneficial for those with psychosomatic symptoms as well as physiological ailments. It is an exciting time for research related to sound and vibration as we look at the versatility of its application.
At SVARAM we continue to embrace the evolving literature in the field of sound & vibration therapy research. And with Soma bed - our version of a vibro-acoustic bed, we aspire to deepen this quest of tapping into the innate healing capacity of the body - to accept the wisdom of the body and allow individuals to recover with minimally invasive therapy modalities.

Vibrosonix sound beds are a proven solution for health, wellness & relaxation. Encoded sound and vibrations move as sonic waves through the liquids of the body. This bed, not only provides a completely new way to experience music, it stimulates the body with vibration and induces an increased healing effect on the body.

One of the researches conducted at SVARAM on the effects of Sonorium elucidated some intriguing findings on the effect of sound on the human mind and body. Our study conducted on 20 participants showed a remarkable drop in stress levels in 60% of the participants. Other findings of the same study showed that 93% of the participants claimed a relaxed state of mind after the session and 75% of the participants said they felt more balanced and centered after the session. 60% and 63.2% of participants said that they felt more connection to themselves and the cosmos respectively - thus highlighting the deeper effects of sound when it comes to entering spaces of deep receptivity & healing as highlighted in many esoteric literature as well.

It is our hope that this is just the beginning of a journey to honor the wisdom of the human body to heal, rehabilitate and thrive.