



## **Introduction to sound therapy**

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Sound Therapy can be regarded as a form of Acoustic Brainwave Entrainment.

We spend most of our waking state with our brainwave activity registering in the domain of what are now called beta waves, measuring between 13 and 30 Hz. This is the domain of 'normal' rational thinking and active consciousness. However, research has shown that this domain has a downside, as it is associated at the higher frequencies with the 'fight or flight response', with our sympathetic nervous systems in overdrive, releasing stress hormones such as ACTH and cortisol. This mechanism contracts our muscles to be ready for 'fight or flight' action, our blood pressure increases, our heart rate speeds up, our respiration rate speeds up, blood flow is taken away from the brain and to the periphery of the body (the limbs), and the bloodstream is flooded with sugar. In this state learning ability, as well as other mental functions including problem solving and reasoning ability, are inhibited.

Our waking lives are spent in a perpetual state of 'high alert' which is usually unjustified by external events, and which produces this incredible stress on the tissues and systems of the body, thus ageing takes place. All the meditation and body/mind relaxation techniques of the world's wisdom traditions are designed to slow our brainwave states, to get them into the deeper levels of alpha (8-13Hz), theta (4-8 Hz) and even delta (0-4Hz) Each of these states produces the opposite of the flight or flight response, known as the relaxation response. The relaxation response mobilises us for inward activity by reducing heart rate and blood pressure, relaxing muscles, and increasing oxygen flow to the brain. Until one works consciously with meditation/body-mind techniques, these reduced frequency brainwave states are only experienced during sleep, with alpha associated with dozing/light sleep, theta with dream level (REM) sleep, and delta with deep level restorative sleep. However, once one engages with a modality such as meditation, t'ai chi etc., or, in our case, the use of sacred sound, such states can be experienced even while conscious. In the case of delta states this is the paradoxical seeming combination of deep 'sleep' (no measurable mental activity) and yet a retention of consciousness, dismissed until

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recently by science as impossible, but now verified, and known to the world's wisdom traditions as 'the fourth state'.

The benefits of the lowered brainwave states are almost inexhaustible. As pointed out, all the stressful and tissue damaging effects such as increased blood pressure etc. are cancelled out. Production of stress hormones such as ACTH and cortisol are reduced. DHEA, which, because it acts as the basis of all other useful hormones is a key determinant of physiological age and resistance to disease, is produced instead, actually, blocking the age-accelerating hormone cortisol. The immune system is stimulated to produce higher levels of useful immune cell messenger molecules such as interleukin-1 and antibodies such as B-cells and immunoglobulin A, and T-helper cells, the latter allowing HIV sufferers to stave off the onset of full-blown AIDS.

Slower brainwave patterns are accompanied by deep tranquillity, flashes of creative insight, euphoria, focussed attention, enhanced learning abilities and memory retention, (so-called super learning abilities) and ESP. The brain releases endorphins natural pain-killers, such as serotonin and, promoting deep-level sleep, melatonin. With slower brainwave patterns the brain also releases catecholamine's, acetylcholine and vasopressin, all vital for increased memory function (and, for example, found in low levels in Alzheimer's sufferers). Endorphins are released giving us a rush of pleasure at our enhanced learning abilities as, it would seem, a sort of internal reward for learning more! Thus experiments with alpha and theta wave producing modalities have shown results such as the 'modification of habitual behaviours', 'life-altering insights', 'integrative experiences leading to feelings of psychological well-being', 'improved relationships with other people as well as greater tolerance, understanding, and love of oneself and one's world', 'the seemingly miraculous resolutions of complex psychological problems'—and, as a concomitant to all these addiction recovery.

Alpha and theta states also produce polarisation of the right and left hemispheres of the brain (in the beta state, the filtering left brain is dominant), representing maximum efficiency of brain functioning and a balancing of reasoning and intuitive powers. And, as with greater stimulation more neural pathways are created, it actually stimulates brain growth!

How does Sound fit in?

Sound is just of many modalities for enhancing alpha and theta waves and the relaxation response. With our model I believe it is because we are dealing with pure sounds. Normally when you hear a single note, due to the laws of acoustic physics, as well as the 'fundamental', (the loudest and first note, the one that you can actually hear), the vibrating string or air column also generates a whole series of extra tones on top, generally inaudible, reaching up beyond the level of our hearing, called the overtones of the harmonic series. This explains why the same pitched note on one instrument sounds different from the same note played on another instrument even though the notes are of the same frequency. Certain of the overtones are emphasised in one instrument, others in another—the clarinet, for example, emphasises the odd numbered overtones. Using vocal over toning techniques makes these usually inaudible sounds, which generally do not occur in audible form in nature, actually audible to the ear. Similarly the Tibetan bowls produce audible overtones as well as

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the fundamental. The crystal bowls, in the meantime, (and this is definitely unheard of in nature) create a fundamental with no overtones on top! So in each case the client/listener is being exposed to these pure sounds. This seems to stimulate the nervous system in a specific way and to therefore facilitate the alteration of our brainwave states down into the health promoting, immune system boosting, de-stressing, anti-ageing, lowered brainwave frequencies we have discussed above!



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