

The Bass, Body & Brain Connection

I have been fascinated for some time now on the effects of low frequency/bass (250Hz-60Hz) and sub bass (60-20Hz) tones on the human body and brain. There is a shared human response to deep, rumbling sounds that goes back thousands of years to our ancestors beating a sacred drum and dancing around a fire. Bass in music has been used across cultures and genres, to carry and drive the rhythm of music, from shamanic drumming and the ancient use of the didgeridoo by the Aboriginal people of Australia, to modern use of speakers, subwoofers and transducers. Have you ever been to a concert, club or a drum circle where you have been witness to the effects of a tactile bass rhythm that often drives people to move and dance, or feel ecstatic and powerful from the multi-sensory experience? The ability of these bass frequencies to alter human states of consciousness, entrain the brain and create physiological effects on the body have shown to be profound. The use of bass has been used for tens of thousands of years in cultures and traditions around the world for healing ceremonies and rituals alike, showing us how powerful our organic response to bass is as humans.

It is well known that sounds and music can induce autonomic responses in listeners, but what is it about low pitch frequencies that seem to have the biggest physiological effect on us? These low end frequencies connect us back to our primal nature, and a theory that supports why is the experience that all humans have while in utero. In our individual and collective human memory, our relationship with low tones is imprinted on our psyche with our very first sensation of sound and rhythm; the beating of our mother's heart. Prior to even developing our sense of hearing in utero, we can feel and are literally bathed in the low frequency sound of our mother's heartbeat, entraining, deeply rooting and connecting us to a sense of rhythm to low pitch/bass sounds. Once the hearing part of the brain begins to function around 22-24 weeks and until birth, low frequency sounds such as mom's heartbeat, or voice come through loud and clear; while higher pitched noises from outside the body are filtered out.

One study done by Canadian scientists from McCaster Institute for Music and the Mind researched how our brains react to low- and high-pitched tones. The study found that our human brain picks up on and follows rhythms of lower, bassier sounds faster than high pitched noises. Dr. Laurel Trainor from the research team states "virtually all people will respond more to the beat when it is carried by lower-pitched instruments". So, bass heavy sounds are more successful at locking the brain into a rhythm (entraining/synchronizing the brain), because bass exploits a neurophysiological mechanism in the brain that strong-arms the brain into locking into the frequency of the pulse/beat by having a greater recruitment of brain structures involved in movement and planning.

Bass in music has been shown to create a unique impact on the human body and can stimulate a visceral response, inducing change in adrenaline, heart rate, and hormonal reactions related to mental and emotional states. Low frequencies have a strong physical impact on us, you can literally 'feel the bass'; because of the longer wavelengths it creates a tactile experience that vibrates the body more easily than high pitch tones, massaging every cell and atom. A story by NPR states "the internal cadences of the brain and nervous system appear to play a role in everything from walking to thinking", and abnormal brain rhythms have been associated with medical issues including, schizophrenia, epilepsy, autism and parkinson's disease. This tells us that a brain firing at a steady rhythm is more likely to be healthy than one that is firing abnormal rhythms. So if low tones have a synchronizing effect on the brain, you can use these bass frequencies to entrain, support and stabilize the brain into a natural rhythm to help with various motor control, nervous system and cognitive function. Using the brain's natural ability to lock onto a rhythm has been shown to help improve a range of conditions including cognitive and motor disorders.

In 1968, a Finnish scientist named Olav Skille conducted an experiment to understand the connection between sound and healing. Skille tested what he called vibroacoustic therapy to measure the physiological and psychological effects of different frequencies on children and adults who had language difficulties, personality disorders, difficulty in motor functions or limited learning capacity. Skille concluded that sound has a direct effect on muscles and nerves, and his theory was that lower frequencies reduce the activity level of the sympathetic nervous system and improve blood circulation. Vibroacoustic technology advancements have offered new ways in delivering these low pitch frequencies which envelope, stimulate and expose the body to multi-sensory vibrations that can be physically felt. With the use of bass frequencies, we have the ability to switch off our sympathetic nervous system, and turn on our parasympathetic nervous system, creating a relaxing and restoring effect that provides the body an opportunity to heal itself.

In conclusion, music's ability to make us feel emotionally, and the low frequencies that penetrate bodily systems (heartbeat, pulse, digestive system, respiratory, muscles) create a dynamic, tactile sensation that can provide powerful positive effects for all types of conditions and diseases. The multi-sensory, womb-like experience of bass frequencies cuddles the physical body and engulfs the psyche, removing blockages, creating new neural pathways and offers the body a chance to harmonize to its own inner vibrations.

. . . As you Feel, so you Heal . . .