Music Therapy Level 3
Entrainment and Achieving Gamma Wave Excellence
by A. True Ott, PhD

Many people have never heard of ‘Music Therapy’. The AMTA (American Music Therapy Association) on its website www.musictherapy.org defines Music Therapy in this manner: “Music Therapy is the clinical and evidence-based use of music interventions to accomplish individualized goals within a therapeutic relationship by a credentialed professional who has completed an approved music therapy program.

Music therapy interventions can be designed to:
- Promote Wellness
- Manage Stress
- Alleviate Pain
- Express Feelings
- Enhance Memory
- Improve Communication
- Promote Physical Rehabilitation

Research in music therapy supports its effectiveness in a wide variety of healthcare and educational settings.”

Indeed, the AMTA has made commendable strides in compiling and quantifying research studies worldwide on the healing and rejuvenating power of music and sound, publishing the “Journal of Musical Therapy” annually since the year 1981. Study after study has conclusively proven that both performing as well as listening to music has incredible inherent healing power to the human mind, body and spirit. Despite these many studies, however, the concept of “Music Therapy” as a viable and essential “complementary” healing modality is still largely relegated to the dust bin of “quackery” by the majority of our modern health-care practitioners and regulators. This author and researcher would submit that such a knee-jerk mindset may well be tragically flawed..

ALL MATTER IS VIBRATORY IN NATURE

Only the most blind and ignorantly myopic individual would deny that all matter in the physical universe is composed of elements constantly in motion (aka energy). This includes drugs. Consider that the chemist in the pharmaceutical lab is employed to combine certain elements in unique and specific ways in order to hopefully produce a new patent-protected “compound” that is commonly called a “drug”. Raw, natural opium extracted from poppies in Afghanistan is transported via Pakistan to labs and factories in India to be further chemically altered (aka refined) into highly “controlled” drugs such as morphine, oxycodone, etc. The hard reality of fact is simply that whatever “effect” (‘side’ effects are still effects) produced by any patented drug chemical is directly caused by the drug’s specific vibratory energy or “frequency” pattern on the individual cells of the body. Nothing more, and nothing less. If it is true that specific music patterns and tones can indeed “alleviate pain” and remove depression and
anxiety, does it not follow that drug manufactories would see this as their most dangerous competition and seek to have such information repressed?

**MUSIC IS SIMPLY HARMONIC VIBRATION (I.E. ENERGY IN MOTION)**

![Image of Albert Einstein quote]

> "Everything is energy and that's all there is to it. Match the frequency of the reality you want and you cannot help but get that reality. It can be no other way. This is not philosophy. This is physics."
> - Albert Einstein

In the most basic definition of music ‘theory”, music is simply a systematic series of vibrating energy signatures called tones (aka notes) that are combined in specific geometric/numerical ratios commonly called chords. Notes and chords are then placed “in measure” to form specific rhythms or “beats” which in turn produces a “melody” and then finally, a complete “song”. The most common “measures” in music are either 3 or 4 beats per the allotted or “measured” four divisions or standard pulse counts (3/4 time or 4/4 time or some even multiple of the same such as 6/8). Of course, this is nothing new to any musician - the problem is that sometimes this basic knowledge is too often taken for granted. In other words, musicians seldom stop to realize the vast potential of the medium of the literal energy field they are working with.

Of course, it is also self-evident that the harmonic vibrations we call music are produced by devices known as instruments. There are three (3) types of musical instruments. We have stringed instruments such as harps, cellos, violins, pianos, guitars, etc. There are so-called wind instruments that also produce unique tones, such as brass, woodwinds, flutes and organ pipes. And finally, there are percussion instruments that can only produce their tones after they are struck with force. The energy and brain function demands of physically vibrating the strings, blowing air into
tubes, or the striking of the instrument simply changes a form of human energy into that of sound energy - just as Einstein declared in the quote above.

THE HUMAN BRAIN AND CNS IS COMPOSED OF WAVES OF ENERGY

The reason for reviewing the basic rudiments of music is simply to show the parallel that just like a musical instrument generates a standing wave of sound called a tone or a note, the human brain and thus the entire central nervous system is likewise continually influenced and governed by standing waves of energy, 24 hours a day, seven days a week from the moment of birth until death. This is true as long as the human mind and body is “alive”. “Death” is best described as simply the cessation of this standing energy wave in the brain and central nervous system. Upon the cessation of “brain-waves” of measurable energy - the cells of the body decay and decompose (unless mechanically induced by “life support” equipment in a hospital bed).

KNOWN DIVISIONS OF BRAIN WAVES

Just as the oceans and seas of the world produce constant and measurable rhythmic waves and tides every minute of every day - the healthy and alive human brain likewise produces similar waves called “brain waves”. In the year 1929, the first human brain waves were measured by a machine called an electroencephalograph, or simply EEG for short. Below is an example of the first 1929 “graph”:

Thanks to our modern, computer-driven EEG machines, researchers have now conclusively proven that brain waves have a direct correlation to the overall systemic health and well-being of the entire body - and conversely, the development and manifestation of chronic disease states often show up as altered brain wave patterns as well. This is where the science of “Music Therapy” enters the arena of health and emotional well-being. Through the process called “entrainment” (not entertainment) research has consistently proven that brainwaves can be positively altered which in turn generates potentially powerful healing standing waves through the central nervous system system of neuron connections. Keep in mind that “disease” is primarily a manifestation of disharmonious frequency at the cellular level. The theory is that if the brainwaves can be “entrained” to emit normal and healthy wave patterns, then healthy balance of other organs and cell tissues will soon follow. This theory has clear merit, according to the numerous studies published over the years in the JMT of the AMTA.

Just like waves of sound called music, brain waves are also quantified by means of “cycles per second” measurements - commonly called “hertz” or hz. for short. Research
has shown there are basically five measurable divisions of the human brain-wave patterns - specifically known as 1. Delta, 2. Theta, 3. Alpha, 4. Beta and 5. Gamma. When one is involved in deep, healing sleep - “Delta” waves are generated. The preferred hertz wave threshold of the Delta is three (3) hertz and the repair and rejuvenation of body cellular damage through the activity of stem cells occurs most effectively during Delta wave deep sleep of 3 hertz.\(^1\) Theta waves are typically present during periods of light sleep and are often exhibited following extended television viewing of over 1/2 hour duration. Research has shown that the preferred threshold of Theta wave activity is 6 hertz - which happens to be the brain wave pattern exhibited when the brain is under total and complete hypnosis.\(^2\)

Alpha and Beta brain waves are the fully “awakened” brain waves. Alpha waves are typically exhibited upon arising first thing in the morning following a refreshing night’s sleep - and are almost always operating at the optimum level of 9 hertz in the healthy, balanced individual. Research has consistently proven that when a person closes their eyes, Alpha brain waves of 9 hertz immediately begin to be generated. Beta waves are generated when people communicate with each other, and when thoughts and plans for the day’s activities start to take shape. Beta begins at 12 hertz and ends at 27 hertz. The final level of known brain wave activity is the threshold of what are called Gamma waves - which begin to be generated at the 27 hertz oscillation. Gamma level waves are basically where “genius” level I.Q. begins to be manifest.\(^3\)

THE AMAZING GAMMA BRAIN WAVE LEVEL - “CYCLE 9”

In his seminal book, *Rhythms of the Brain*, Dr. Gyorgi Buzsaki outlines some of the marvelous recent discoveries associated with Gamma brain waves. He explores this under the chapter heading: “Cycle 9, The Gamma Buzz”. Some of the benefits of Gamma wave generation include:

1. A feeling of one-ness with all creation. There is a “feeling of blessings” and ecstasy that accompanies high levels of gamma brainwave activity.
2. People with high Gamma wave activity tend to be happier, calmer, and more “at peace”. Research shows that people suffering from clinical depression are sorely missing Gamma wave activity.
3. All of the basic sensory functions are heightened during Gamma wave activity. Food tastes better, hearing levels improve, memory is sharpened, etc.

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What exactly is “brain wave entrainment” (BWE) and how can it help produce increased Gamma wave activity in individuals? The concept of “entrainment” was first explored by Johannes Kepler in the year 1614. In his book entitled “Harmony of the World”, Kepler observed that basically all of the created universe is governed by three universal “Laws of Harmonics”. Kepler postulates that all creation is naturally bonded to a universal “frequency” that is designed by a divine Creator. Indeed, another 17th Century Dutch astronomer named Christiaan Huygens, verified Kepler’s observations and conclusively proved that two pendulum clocks which normally would keep slightly different time nonetheless became perfectly synchronized when hung from a common beam. This is basically the concept of “entrainment” - supplying a “common beam” of beneficial hertz rhythm structure to the brain will eventually cause the brain to synchronize and to adopt the higher frequency. But what is the “best” “Common Beam”?

THE SIGNIFICANCE OF THE NUMBER THREE (DELTA).

Is it just a coincidence that brainwave cycles reach their optimum levels at exact multiples of 3 hertz cycles? The very word “delta” is defined in most modern dictionaries as “anything triangular, like the Greek capital delta (Δ)”. Indeed, perhaps the most important healing brainwave is the Delta triangular wave of deep healing sleep - which is three (3) hertz cycles per second, for this is when the amazing repair and regeneration work of stem cells is accomplished as mentioned earlier. If indeed modern research is correct and Gamma waves begin at the threshold of 27 hz., is it also just a mere coincidence that 27 is the product of three to the third power (3 x 3 x 3)? Is it also coincidence that there are also three divisions of the human brain - the Hind-Brain, Mid-Brain, and Fore-Brain and that the entire brain is invested with three separate membranes - the outer membrane, the dura mater, and the so-called pia mater? Keep in mind that there are likewise three divisions that govern human health - mind, body, and spirit. Time itself is divided into three parts - past, present, and future. Matter exists in three forms - gas, liquid, solid. There are three great forces of nature: gravitation, light, and electricity. There are three “kingdoms” in nature: animal, vegetable, and mineral. The sun itself produces three things: light, heat, and chemical rays. What is visible light? Three colors - blue, red, and green.

In the Christian tradition, the number three is also highly significant. In early Christian writings, three is often referred to as the “Number of Divinity” or simply the “Divine Number” and it is easy to see why this is so. First of all, there is the Christian concept of God as a three-fold “Trinity” of Father, Son, and Holy Ghost. Jesus Christ is described in three parts - one was “who was, who is, and who is to come.” The early Hebrews celebrated three great “feast days” - Passover, Pentecost, and Tabernacles. Jesus rose from the tomb after three days. He offered three prayers in the Garden of Gethsemane, Peter denied Christ three times, and Christ gave a threefold question and charge to Peter to “feed the sheep”. This is just scratching the surface, however. Indeed, the number three is so common throughout all of nature, as well as the Holy
Bible, that it should not be written off as mere “coincidence” that three shows up in brainwave research as well. Is it not logical then to assume that the most beneficial form of brain entrainment will recognize and employ multiples of three in its “entrainment”?

**MUSIC TUNED TO 432 HZ. THE OPTIMUM “DIVINE NUMBER” ENTRAINMENT**

Consider that not only is the number 27 the product of the “divine number” perfected (3 x 3 x 3), but to a musician it also stands as the base or primary first octave when “Concert A” is tuned to 432 hertz. For those who may not understand music and its measuring “scale” allow me to explain. There are a total of 12 notes in what is known as an “octave” to the musician. These 12 notes are composed of 7 “natural” notes (the white keys on a piano) and 5 sharp/flat notes (the black keys). Each “octave” doubles the hertz vibration or tone value of the preceding note. For instance, the second octave value of 27 hz is 54 hz (27 hz x 2). The 3rd octave is 108 hz, the 4th octave is 216 hz. and the 5th octave is exactly 432 hz. or “Concert A” pitch. Can this also be just a mere coincidence? Kepler surely didn’t think so in the year 1610, and neither did such incredible musicians and composers such as Johannes Pachelbel and Johann Sebastian Bach.

Have you ever noticed how incredibly soothing and relaxing the sound of falling or moving water naturally is? Most high-end spas and “healing centers” utilize fountains and moving water for this very reason. There is nothing that is more calming and rejuvenating that a quiet night spent in a rustic cabin in the backwoods with the sound of gentle rain on the roof, birds singing in the trees, and distant thunder echoing in the background. Using a very sensitive sound meter, I have measured and quantified the sound of rain, thunder, and moving water including streams, waterfalls, and ocean surf. Is it just coincidence that these are all octave notes of 432 hz tuning as well? This is also true with other calming sounds of nature such as tree frogs, crickets, and various songbirds. They each serenade us with the sounds rooted in the octave notes of 432 hz. Again I ask, can this all be coincidence, or is this an incredibly important pattern designed by a divine Creator for us to understand and utilize for our benefit and the healing of mankind?