



Gaining a Newfound Appreciation for the Mathematics of Healing Music

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The stately chords and melody of Johann Pachelbel's "Canon in D" are familiar to millions of listeners but it is not the piece's notoriety that earned it a star role in Dr. Joseph Michael Levry's highly acclaimed Ra Ma Da Sa (Adagio) recording. Merging his extensive background in engineering with metaphysics, Dr. Levry appreciated the mathematical perfection Pachelbel infused into the composition, as did Alissa Crans, associate professor of mathematics at Loyola Marymount University. Indeed, Divine Spiritual Wisdom is the mathematics of spirituality and the deeper one studies the universal laws the more one cannot help but marvel at the inherent poetry of numbers. Crans was able to translate Pachelbel's famous melody into a mathematical equation, which she then expressed as a geometric pattern, revealing that the form possessed dihedral symmetry.¹ An abundance of dihedral groups can be found in nature, from the shape of a snowflake, to the body of a starfish and even to the conformation of DNA molecules during protein synthesis. For her discovery, she won the National Merten M. Hasse Prize at the Mathematical Association of America meeting in 2011.

This explains why Pachelbel's Canon, although a simple melody to our naked ear, is actually deeply complex, its polyphonic and a homophonic texture leaving us clues to its grander origin. The melody produces a feeling of peace and harmony that can only be described as a "coming home," a home many of us may have since lost touch with on our evolutionary journey. Like twins growing up in two different families we cannot help but love the warm embrace of Pachelbel's Canon each time we experience our harmonious reunion. Indeed, according to a 2001 study conducted at the Monash University in Australia, the simple act of listening to Pachelbel's Canon completely prevented increases in anxiety, blood pressure, and heart rate in the midst of being exposed to cognitive stressors, compared to subjects that did not have the protection of the "mighty Canon."² Among other prominent research is a study that showed patients' heart rhythm became more organized and improved after listening to this melody.

By now you have probably paused reading this article to find and play a copy of your own Pachelbel's Canon. It appears that the benefits of this classical piece are endless, and when it comes to Dr. Levry's music there are no coincidences. By seamlessly layering the ancient healing mantra Ra Ma Da Sa over this already very soothing melody, the result is a revolutionary piece of music that is unmatched in its ability to restore our health. What makes this recording so potent is that instead of using the original walking bass harmonic progression used by Pachelbel, Dr. Levry uses alternating "root" chords with chords in which the 3rd of the chord is in the bass making it a first position chord. The interval between the harmonies of the mantra and the baseline chords creates the famous Golden Ratio or Fibonacci number (0.618), also found in Leonardo Da Vinci's Vitruvian Man. The Golden Ratio, also known as the Divine Proportion, can be found everywhere throughout our human body. For instance, measure the distance from the tip of your head to the floor, then divide that by the distance from your belly button to the floor, and the number you will come up with is PHI. The number PHI can be derived from the Fibonacci sequence. Pythagoras venerated this symbol and the golden ratio. Ancient mystics along with scientists proclaimed PHI or 0.618 as the Divine Proportion. This marvelous piece of music applies this beautiful and Divine number for healing.

The underlying basic structure of Dr. Levry's Ra Ma Da Sa is the descent $\hat{3} - \hat{2}$ (with the $\hat{2}$ on its

way to 1̂). The same two-bar bass line and harmonic sequence is repeated over and over, for a total of 28 times. From the standpoint of the science of numbers, it is a continuous ascension and descension from Earth to Heaven and Heaven to Earth. According to Divine Spiritual Wisdom, this mathematical pattern outlines the metaphysical law of healing, first recorded on Hermes Trismegistus' Emerald Tablet, the earliest written historical record of the metaphysical principle of transmutation. It reads, "Ascend with great sagacity from Earth to heaven, and then again descend to Earth, and unite together the powers of things superior and inferior." The Emerald Tablet (Tabula Smaragdina), was highly regarded by European alchemists as the foundation of their art and its Hermetic tradition because it contained the secret of transmutation. When applied to healing this process, simply stated, is the changing of a sick body into a healthy one.



The same eight chord progressions are used in a sequence throughout the Ra Ma Da Sa and Pachelbel's Canon composition, which is arranged as: D major (tonic), A major (dominant), B minor (submediant), F# minor (mediant), G major (subdominant), D major (tonic), G major (subdominant), and A major (dominant). According to the law of correspondence, each note has a correlation to a part of the human anatomy. What is fascinating to note here is that the first note, D major, activates the mind and nervous system and the last note, A major, stimulates cell and tissue repair. It would seem that Dr. Levry's Ra Ma Da Sa seeks to reeducate the body, activating its innate healing process by continuously presenting it with the blueprint to health encoded in a simple, beautiful melody. In light of these new findings it is easy to gain a newfound appreciation for this deeply healing CD.

The power of prayer and meditation in their application for healing has a long history of being proven effective not only by countless personal accounts but by medical research studies conducted around the world. A study conducted at the San Francisco General Hospital, for

example, looked at the effect of prayer on 393 cardiac patients. Half were prayed for by strangers who had only the patients' names. Those patients had fewer complications, fewer cases of pneumonia, and needed less drug treatment. They also healed quicker and left the hospital earlier.³ In our 21st century understanding of energy and intention it is important to note here that the healing benefits of prayer and meditation are not limited by distance. A prime example is Dr. Robert Mirshak's experience with the Ra Ma Da Sa recording. Dr. Mirshak was visiting his father, who was lying in the hospital at that time with a severe heart problem, unsure whether or not he would live. That evening, his wife called to tell him that a group of people was going to do a meditation to send healing energy to his father with the help of the Ra Ma Da Sa melody.

Dr. Mirshak was touched by such news. Holding a Doctorate of Musical Arts in Vocal Performance, he had a scholarly appreciation for the healing melody and, although skeptical, welcomed such a kind gesture: "Unbeknownst to my father, at the exact time the chanting was happening, my father said he saw Angels, sat up in his hospital bed and talked about how beautiful the light was at that time. He didn't believe that this experience could be possible and honestly, neither did I. Two days later, my father was released from the hospital with the doctors and our family completely perplexed by his sudden recovery. The doctors didn't know how he could have recovered so quickly. My father's heart has been strong and healthy ever since. This event has changed both my father's life and mine forever. Ever since then he has been a different person."

References

1. Crans AS, 'Musical Actions of Dihedral Groups,' The American Mathematical Monthly, vol. 116, no. 6, June 2009, pp. 479-495.
https://www.maa.org/sites/default/files/pdf/upload_library/22/Hasse/Crans2011.pdf
2. Knight WE, Rickard PhD NS, 'Relaxing music prevents stress-induced increases in subjective anxiety, systolic blood pressure, and heart rate in healthy males and females,' J Music Ther. 2001 Winter;38(4):254-72.
<http://www.ncbi.nlm.nih.gov/pubmed/11796077>
3. Byrd RC, 'Positive therapeutic effects of intercessory prayer in a coronary care unit population,' South Med J. 1988 Jul;81(7):826-9.
<https://www.ncbi.nlm.nih.gov/pubmed/3393937>