

## 5-The Effect of Music on the Whole Human Being Article Briefs

### Music and the Brain

#### **Researchers explore the biology of music**

#### **Music on the brain: Researchers explore the biology of music**

By William J. Cromie Gazette Staff

Babies come into the world with musical preferences. They begin to respond to music while still in the womb. At the age of 4 months, dissonant notes at the end of a melody will cause them to squirm and turn away. If they like a tune, they may coo. Scientists cite such responses as evidence that certain rules for music are wired into the brain, and musicians violate them at the risk of making their audiences squirm. Even the Smashing Pumpkins, a hard-rock group, play by some of the same rules of harmony that Johann Sebastian Bach did in the 18th century. "Music is in our genes," says Mark Jude Tramo, a musician, prolific...

<http://www.hno.harvard.edu/gazette/2001/03.22/04-music.html>

#### **Music and the Brain: Processing and Responding (A General Overview)**

Feyza Sancar

For any individual who either avidly listens to or performs music, it is understood that many melodies have amazing effects on both our emotions and our perception. To address the effects of music on the brain, it seems most logical to initially map the auditory and neural pathways of sound. In the case of humans, the mechanism responsible for receiving and transmitting sound to the brain are the ears. Briefly stated, the outer ear (or pinna) 'catches' and amplifies sound by funneling it into the ear canal. Interestingly, the outer ear serves only to boost high frequency sound components (1). The resonance provided by the outer ear also serves in amplifying a higher range of frequencies corresponding to the top octave of the piano key board. The air pressure wave travels through the ear canal to ultimately reach and vibrate the tympanic membrane (i.e.-- the eardrum). At this particular juncture, the pressure wave energy of sound is translated into mechanical energy via the middle ear. Here, three small bones, the ossicles, vibrate in succession to produce a unique pattern of movements that embodies the frequencies contained in every sound we are capable of hearing. The middle ear is also an important component in what music we actually keep out of our 'head'. The muscles grasping the ossicles can contract to prevent as much as two thirds of the sound from entering the inner ear.

<http://serendip.brynmawr.edu/bb/neuro/neuro99/web1/Sancar.html>

#### **Brain Wave Music**

Music comes in many forms and variations. What is considered music by some people seems like a cacophony, a deafening barrage of noise, to others. Also the appeal of different music seems to call to us depending on our varying moods.

<http://sleepdisorders.about.com/cs/othertreatment/a/brainmusic.htm>

#### **MUSIC CHANGES LINKS IN BRAIN**

## **Exposure to melody is found to have effect on neural structure. NEW YORK**

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From Mozart to Miles Davis, the harmonies of music rewire the brain, creating patterns of neural activity at the confluence of emotion and memory that strengthen with each new melody, research made public Thursday shows. By monitoring the brains of people listening to classical scales and key progressions in Western music, scientists at Dartmouth College glimpsed the biology of the hit-making machinery of popular song. The flash-dance of these brain circuits, which process the harmonic relationship of musical notes, is shaped by a human craving for melody that drives people to spend more every year on music than on prescription drugs...

<http://www.eupsychia.com/perspectives/articles/musicbrain.html>

## **THE IMPORTANCE OF MUSIC AND BRAIN RESEARCH**

Executive Summary:

The Institute for Music and Neurologic Function is considered one of the country's leading resources on questions concerning the impact of music on brain function.

Although music has been an aesthetic part of our world for centuries, the study of its therapeutic effects gained intensity in the last half of the 20<sup>th</sup> century. Interest in music's healing powers has accelerated in response to the growing scientific study of cognition, perceptual neuropsychology, brain development and function, audio engineering and psychoacoustics. The development of music therapy as a discrete clinical discipline has also been a key factor. The majority of research over the last forty years has focused on music perception and performance. Today basic science continues to yield promising new information about the neuroscientific effects of music. Practicing music therapists are reporting significant results when music is used with neurologically and physically impaired patients.

[http://www.bethabe.org/Resource\\_Center97.html](http://www.bethabe.org/Resource_Center97.html)

## **Using Music for Brain Food**

By Dr. Alice Cash

School is very competitive these days. Actually life is very competitive. Everyone is looking for a way to get a little edge over the next guy or gal. Although I believe that cooperation and not competition is the way to go, maximizing your brain's potential certainly can't hurt. Today there is ample research documenting that that music is far more than just entertainment.

[http://www.healingmusiccenterprises.com/articles/music\\_brain.html](http://www.healingmusiccenterprises.com/articles/music_brain.html)

## **Music and the Brain By Paul McKay**

Sex. Chocolate. Caffeine. Champagne. Cocaine. If none of the above turn your cranial crank, it's also likely that Mozart or Alanis Morissette won't send shivers down your spine. And that your pulse rate should be checked by a doctor -- because the human survival instinct is hard-wired to the same brain circuits that process intense pleasure.

[http://www.dovesong.com/positive\\_music/archives/basement/Music%20and%20the%20Brain.asp](http://www.dovesong.com/positive_music/archives/basement/Music%20and%20the%20Brain.asp)

### **Music Makes Your Brain Happy By Randy Dotinga**

In his new book, *This Is Your Brain on Music: The Science of a Human Obsession*, Levitin explores research into how our brains process the works of artists as varied as Beethoven, the Beatles and Britney Spears, and why they make us feel so good. Wired News picks his brain about how it all works.

<http://www.wired.com/news/culture/1,71631-0.html>

### **Music and the Brain From Wikipedia**

Sounds and noises are only separated by the experience of the listener. In the domain of the mind subjectivity reigns, and yet attempts are still made to chip away at individual variation to quantify the actions of the brain. As ultimate subjective experience, music combines the cognitive elements of language, tonality, emotion and rhythm to elicit responses as variable as the individuals who are listening.

[http://en.wikipedia.org/wiki/Music\\_and\\_the\\_brain](http://en.wikipedia.org/wiki/Music_and_the_brain)

### **The Musical Hormone**

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Music has well established psychological effects, including the induction and modification of cognitive states, moods and emotions... There are now several studies, mainly within the last five years or so, that have addressed the issue of whether music itself actually changes the amount of release of our stress hormones. Most of these have concentrated on measuring levels of cortisol before and after various exposures to music.

<http://www.musica.uci.edu/mrn/V4I2F97.html#hormone>

### **Brain Anatomy and Music**

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There is a widespread belief that early exposure to music increases the size of brain structures in young children. However, examination of scientific publications reveals that there are only a very few studies of brain size and music and these have been conducted only with adults. The results do support the view that certain regions of the brain are enlarged in musicians. Although increased relative size of a part of the brain suggests increased function or competence, increased function and skill develop and are maintained without any detectable change in the relative size of brain structures. Thus, the assumption that increased size of certain regions of the brain is necessary for achieving a high level of musicianship is not supported. Therefore, it is not necessary for...

<http://www.musica.uci.edu/mrn/V6I2S99.html#anatomy>

### **Lessons of the Music Womb**

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So if we cannot rely upon personal recollections and anecdotal stories, how is it possible to know whether or not the newborn child, or the fetus in particular, has musical competencies? How can we try to find the beginnings of music? We have to answer four questions, objectively. First, after conception how long does it take until the fetus can actually hear? Second, do musical sounds from the outside world reach the ears of the fetus? Third, what are the in utero responses to sound, particularly music. Fourth, what are the postnatal effects of in utero musical stimulation?

<http://www.musica.uci.edu/mrn/V6I1W99.html#womb>

### **Methods For Stimulation Of Brainwave Function Using Sound**

Dr. Jeffrey D. Thompson, D.C., B.F.A.

From previous evidence of effective human biological response using various sounds and sonic vibration frequencies, certain sounds have been found to have a direct effect upon physiological systems, i.e., pulse rate, respiration, GSR, EMG pupillary dilation, EEG, EKG, body temperature, and others. Recent advances in technology and research have yielded a wealth of information concerning sonic waveforms and their effect on the body and the brain. A new science of psychoacoustics has arisen, parallel to the already established discipline of music therapy. Front-runners in the field of sonic vibration, sound and music for stimulating physical and subconscious response have shown positive results.

More recent evidence has shown physical and psychological responses using electronically disguised nature sounds. This includes ocean, wave, water, wind, animal human, organic, dolphin, etc. sounds processed electronically in different octaves, speeded up and slowed down, processed through different filters and embedded with specific frequencies for resonating brain waves into target states for opening the subconscious mind. Studies carried out in a variety of centers across the United States have seen positive physiologic responses to the application of sound frequencies and music...

<http://www.neuroacoustic.com/registry/articles/articleentrain.htm>

### **'Altruistic' brain region found**

Scientists say they have found the part of the brain that predicts whether a person will be selfish or an altruist. Altruism - the tendency to help others without obvious benefit to oneself - appears to be linked to an area called the posterior superior temporal sulcus. Using brain scans, the US investigators found this region related to a person's real-life unselfish behaviour. The brain area was more active among the altruistic group.

<http://news.bbc.co.uk/2/hi/health/6278907.stm>

### **Musical Building Blocks in the Brain**

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Our own private experience of the world is seamless, a smooth and continuous flow of sensory impressions and perceptions of objects and events, sights and sounds. When we see an object, such as a red ball, we do not experience the shape of the ball separately from its color. And when we hear a violin, we do not perceive its pitch separately from its timbre. The notes in a chord are not heard as several individuals but rather in a more holistic fashion. Yes, it is possible to learn to pay more attention to one feature of a composition at the expense of attention to other features. But this process does not fractionate the sound into its all of its separate constituents, the building blocks of music such as pitch, contour, interval, harmony, melody, timbre (tone color) , and rhythm. Because our experience is so immediate, clear and effortless, we tend to take it for granted. However, the integrated nature of our musical and other experiences constitutes a major puzzle for brain scientists who search for the answer to how our brains apparently effortlessly meld all of these aspects of sound into a meaningful whole, that presents to us personally ... music. An unlikely answer is that our brains are specialized...

<http://www.musica.uci.edu/mrn/V1I2F94.html#cognitive>

### **What the Brain Tells us About Music: Amazing Facts and Astounding Implication Revealed**

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Newspaper headline writers, those obscure cubicle dwellers within the maelstrom of the pressroom, no longer write florid tag lines for stories. This practice, whose purpose was to draw a potential reader into the story, probably reached its peak around the turn of the century, that is the turn of the 19th to the 20th century. “ HORSE PERFORMS MATHEMATICS ” “ Astounding Revelations — Equine Genius Taps Answers, Surpasses Eight Year Old Child in Ability to Answer Numerical Queries ” The titillating title tells us the main point — a “ calculating ” horse. We want to know more. The following tag line tells us we are dealing with a high level of mathematical intelligence, better than an eight year old! It also tells us how the horse gives answers, by tapping a hoof. Finally, we are told just how important it all is, indeed, how we should react — “ Astounding Revelations ” .

<http://www.musica.uci.edu/mrn/V7I3F00.html#tells>

### **Your DNA Is a Song: Scientists Use Music to Code Proteins**

"This produces a chord for each amino acid," King wrote in an e - mail interview. "Because proteins are an interesting mixture of novel and repetitive elements, like music, the translation to music sounds interesting." By changing the rules of how notes are assigned to amino acids, composers can create variations in their songs. However, since all proteins have a basic structure, all the protein songs have a basic structure as well, Clark said. Teaching Tool According to King, while some scientists have used protein music to help them analyze data, it is most useful as a teaching tool.

[http://news.nationalgeographic.com/news/2005/10/1021\\_051021\\_protein\\_music\\_2.html](http://news.nationalgeographic.com/news/2005/10/1021_051021_protein_music_2.html)

## **NEUROSCIENCE - "THIS IS YOUR BRAIN ON MUSIC"**

"By the age of 5 we are all musical experts, so this stuff is clearly wired really deeply into us," said Dr. Levitin, an eerily youthful-looking 49, surrounded by the pianos, guitars and enormous 16-track mixers that make his lab look more like a recording studio...

Dr. Levitin is singular among music scientists for actually having come out of the music industry. Before getting his Ph.D. he spent 15 years as a record producer, working with artists ranging from the Blue Öyster Cult to Chris Isaak. While still in graduate school he helped Stevie Wonder assemble a best-of collection; in 1992 Dr. Levitin's sensitive ears detected that MCA Records had accidentally used third-generation backup tapes to produce seven Steely Dan CDs, and he embarrassed the label by disclosing it in Billboard magazine. He has earned nine gold and platinum albums, which he tucks in corners of his lab, office and basement at home...Perhaps because music triggers the reward centers in our brains. In a study published last year Dr. Levitin and group of neuroscientists mapped out precisely how...The cerebellum, an area normally associated with physical movement, reacted too, responding to what Dr. Levitin suspected was the brain's predictions of where the song was going to go. As the brain internalizes the tempo, rhythm and emotional peaks of a song, the cerebellum begins reacting every time the song produces tension (that is, subtle deviations from its normal melody or tempo).

<http://www.surfingtheapocalypse.net/cgi-bin/forum.cgi?read=163679>

### **How Your Brain Listens to Music**

By William J. Cromie Gazette Staff

Your inner ear contains a spiral sheet that the sounds of music pluck like a guitar string. This plucking triggers the firing of brain cells that make up the hearing parts of your brain. At the highest station, the auditory cortex, just above your ears, these firing cells generate the conscious experience of music. Different patterns of firing excite other ensembles of cells, and these associate the sound of music with feelings, thoughts, and past experiences. That's a sketch of how the brain listens to music -- just a short ditty to outline the complex symphony of activity that governs our perception of everything from Bach to U2. It's also a lot more than was known until recently. "We know much more about how we see than how we hear,"...

<http://www.news.harvard.edu/gazette/1997/11.13/HowYourBrainLis.html>

### **A Few Notes On Pitch**

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In summary, observations from both animals and humans indicate that the auditory cortex is involved in the construction of pitch from raw frequency information. Moreover, the data from humans suggests the existence of a map of pitch in the auditory cortex. Although additional studies are needed, the findings

to date strongly support the view that a basic building block of music is an important feature of brain organization.

<http://www.musica.uci.edu/mrn/V111S94.html#infant>

January 22, 2001

### **Exploring the Musical Brain Part 1**

By Kristin Leutwyler

Music may be even more ancient than the human race, over which it holds tremendous sway. Scientists are beginning to find out why.

It can bring us to tears or to our feet, drive us into battle or lull us to sleep. Music is indeed remarkable in its power over all humankind. Perhaps for that very reason, no human culture on earth has ever lived without it: people making music predates agriculture and perhaps even language. Take, for instance, the recent discoveries in France and Slovenia of surprisingly sophisticated, sweet-sounding flutes, made by our Neandertal cousins. Some of these instruments, carved from animal bones, are as much as 53,000 years old—more than twice as old as the famed cave paintings in Lascaux.

Despite the ancient and primal nature of music, though, scientists have struggled with some very fundamental questions about its origins and purpose. How does the brain process music? Are there special neural circuits dedicated to creating or interpreting it? If so, are...

<http://www.sciam.com/article.cfm?articleID=0006255F-8BAA-1C75-9B81809EC588EF21>

### **Exploring the Musical Brain Part 2**

The scientists found that people with damage to the left temporal lobe had difficulty recognizing changes only in key, whereas those with damage to the right side struggled to recognize changes in both key and contour. Later imaging studies showed a similar bias toward the right hemisphere—particularly among nonmusicians— although Tramo notes that more recent work calls some of this "musical hemisphere" hypothesis into question. "The belt and parabelt areas [of the auditory cortex] in the right hemisphere discriminate local changes in note duration and separation," he writes, "whereas grouping by meter involves mostly anterior..."

<http://www.sciam.com/article.cfm?articleID=0006255F-8BAA-1C75-9B81809EC588EF21>

### **Exploring the Musical Brain Part 3**

Gray and company note that humpback composers employ many of the same tricks human songwriters do. In addition to using similar rhythms, humpbacks keep musical phrases to a few seconds, creating themes out of several phrases before singing the next one. Whale songs in general are no shorter than human ballads and no longer than symphony movements, perhaps because they have a similar attention span. Even though they can sing over a range of seven octaves,

the whales typically sing in key, spreading adjacent notes no farther apart than a scale. They mix percussive and pure tones in pretty much the same ratios as human composers—and follow their ABA form, in which a theme is presented, elaborated on and then revisited in a slightly modified form.

<http://www.sciam.com/article.cfm?articleID=0006255F-8BAA-1C75-9B81809EC588EF21>

## NEUROSCIENCE - "THIS IS YOUR BRAIN ON MUSIC"

Posted By: Il\_Bagattel Date: Tuesday, 2 January 2007, 10:04 p.m.

Music of the Hemispheres By CLIVE THOMPSON Published: December 31, 2006 Montreal

“ Listen to this, ” Daniel Levitin said. “ What is it? ” He hit a button on his computer keyboard and out came a half-second clip of music. It was just two notes blasted on a raspy electric guitar, but I could immediately identify it: the opening lick to the Rolling Stones ’ “ Brown Sugar. ” Then he played another, even shorter snippet: a single chord struck once on piano. Again I could instantly figure out what it was: the first note in Elton John ’ s live version of “ Benny and the Jets. ” Dr. Levitin beamed. “ You hear only one note, and you already know who it is, ” he said. “ So what I want to know is: How we do this? Why are we so good at recognizing music? ”

<http://www.nytimes.com/2006/12/31/arts/music/31thom.html?ex=1325221200&en=e00c9b67991b7b24&ei=5088&partner=rssnyt&emc=rss>

## **Sight-Reading Music: A Unique Window on the Mind**

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Music research affords the potential to discover new capacities and processes of the human mind. However, music cognition and behavior are often viewed merely as an instance of other, better known subjects. An example is music sight-reading, often believed to obey the laws of language reading. However, recent studies reveal that the study of sight-reading in music provides a unique window on the mind. The human brain is perhaps the ultimate topic in all of scientific endeavor. This may seem like a preposterous overstatement; after all, the brain is just one of many interesting things. True, but reflect for a moment -- the brain is the gateway to all of these other things, to all knowledge of the world. It is only through our brains that we can perceive and learn about what is outside our brains. Thus, what we can know about anything depends upon what the human brain can do and how the brain does it all . Many people consider these two issues -- brain capability and brain function -- to be paramount questions. Brain capability includes the competency to conceive, compose, read, perform, perceive and comprehend music. Therefore, to understand the brain means we have to understand...

<http://www.musica.uci.edu/mrn/V5I1W98.html#sightreading>

## **The Earliest Music Lessons**

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Music lessons come in many forms. There are formal lessons, which are highly structured and follow a carefully worked out series of increasing complexities. There are also informal lessons. Most often these consist simply of watching and listening to someone perform. Both provide opportunities to learn about music and both promote and encourage the incorporation of a musical sense into cognition and emotion. Today we consider informal music lessons, in particular the earliest lessons in music, those of the human infant. In the inaugural issue of Music Research Notes, we highlighted the surprising musical capacities of infants ("The Musical Infant", MRN, 1994, 1, #1). Also noted were some parallels between music and language competencies and the fact that infant language behaviors are strongly reinforced and encouraged by parents and caregivers, in contrast to musical behaviors, which are not. Here, we expand on this theme, focusing on a generally ignored but hardly insignificant fact. Infants receive music "lessons" beginning immediately after birth, from parents and others. These lessons are in the form not only...

<http://www.musica.uci.edu/mrn/V2I1S95.html#earliest>

### **“Physiological Response to Music Stimuli” by Jonathan Stocking**

Jonathan Stocking is a 17 year old junior at Hedgesville High School in Hedgesville, West Virginia. His study was awarded 1<sup>st</sup> place in the Behavioral and Social Sciences category at the West Virginia State Science Fair. He also received a cash award on behalf of Marshall University to further his research.

The subjects were twenty-six volunteers who either listened to four minutes of Mozart's Piano Sonata #1 in C major (16 subjects) or silence (10 subjects). Heart rate and blood pressure were measured before and after the music or silence. Although heart rate results were unclear, there was a statistically significant decrease in blood pressure in the music group.

Jonathan then hypothesized that the alpha rhythm of brain waves would be increased by the Mozart sonata because the decrease in blood pressure seemed related to increased relaxation and alpha waves have been linked to relaxation. He then arranged to run two subjects at the National Institute of Health in Bethesda, Maryland. A highly sophisticated apparatus was used to simultaneously obtain brain waves from 32 scalp electrodes and to process the data, yielding complete "maps" of changes in brain wave activity across the entire brain. Jonathan reported that although most brain waves were unchanged, the alpha rhythm did increase in relation to the music.

Jonathan wishes to acknowledge the help of Dr. Keiichiro Toma at the NIH, the Loudoun County Regional Library, the Sterling Public Library, his parents and siblings.

## **Music and the Brain - Pt 1, Pt 2, Pt 3, Pt 4, Pt 5 (sciam.com)**

November 2004; Scientific American Magazine; by Norman M. Weinberger; 8 Page(s)

Music surrounds us--and we wouldn't have it any other way. An exhilarating orchestral crescendo can bring tears to our eyes and send shivers down our spines. Background swells add emotive punch to movies and TV shows. Organists at ballgames bring us together, cheering, to our feet. Parents croon soothingly to infants.

And our fondness has deep roots: we have been making music since the dawn of culture. More than 30,000 years ago early humans were already playing bone flutes, percussive instruments and jaw harps--and all known societies throughout the world have had music. Indeed, our appreciation appears to be innate. Infants as young as two months will turn toward consonant, or pleasant, sounds and away from dissonant ones [see box on page 94]. And when a symphony's denouement gives delicious chills, the same kinds of pleasure centers of the brain light up as they do when eating chocolate, having sex or taking cocaine...

<http://www.sciam.com/article.cfm?articleID=0007D716-71A1-1179-AF8683414B7F0000>

## **The Musical Brain**

By Norman M. Weinberger

October 2004

Music has been ubiquitous in human societies throughout the world since the dawn of culture. Appreciation for music appears to be innate; infants as young as two months will turn toward pleasant sounds.

Many different regions of the brain respond to the perceptual and emotional aspects of music, and the brain alters itself to react more strongly to musical sounds that become important to an individual.

Scientists who study how music is processed in the brain are laying the groundwork to understand the underlying reasons for music's power and importance to humans.

<http://www.sciam.com/article.cfm?articleID=000CB3B8-72DC-1179-AF8683414B7F0000>

## **Fast Facts: The Perception of Music**

By Norman M. Weinberger

December 01, 2003

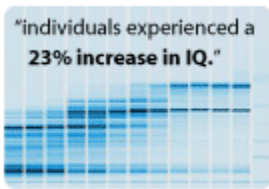
Music is a powerful form of expression that can bring us to tears--or to our feet. Like language, music has been a part of every human culture across the globe. Exactly why is a matter of debate.

Scientists are piecing together what happens in the brain when someone listens to music. The brain's response involves a number of regions outside the auditory cortex, including areas normally involved in other kinds of thinking.

The ear has the fewest sensory cells of any sensory organ--3,500 hair cells occupy the ear versus, for example, 100 million photoreceptors in the eye. Yet

hearing is remarkably adaptable; even a little practice at the piano can alter mental patterns considerably.

<http://www.sciam.com/article.cfm?articleID=0003062F-F793-116E-B79383414B7F0000>



### **Music Increases Intelligence + IQ**

A M.D. associated with Dr. Siegfried Othmer based in North Carolina used brainwave training to treat a boy with an IQ of 70 who was labeled as mildly retarded. A year later this boy was retested and the improvements were startling; he scored 60% higher with an IQ of 112. This specific case is consistent with a myriad of similar cases that have been documented with children with sub 90 IQ scores. **Dr. Siegfried Othmer says that “brainwave training clearly facilitates the organization of mental functioning so that the child can exhibit his native intelligence. The results are so striking that they must compel us to revisit the whole issue of whom we are calling mentally retarded.”**

A study conducted by Dr. Siegfried Othmer, an international leader in the field of neurofeedback and brainwave training, led to the conclusion that **brainwave training has exceptional effects on IQ**. On average, individuals experienced a 23% increase in IQ. Individuals that began brainwave training with IQ levels that were less than 100 have been shown to enjoy IQ gains of 33 points on average, in addition to significant improvements in reading comprehension, memory related tasks and logic handling abilities. A year later, a follow up with those involved in the study found major improvements in self concept, creativity and concentration to be rampant.

[http://www.vth.biz/kb/index.php?page=index\\_v2&id=61&c=11](http://www.vth.biz/kb/index.php?page=index_v2&id=61&c=11)

### **Brainwaves and Cognitive Performance**

Findings from several experiments indicate that cognitive performance is superior when alpha ERD and resting power is large, but when theta ERS is large and resting power is small. Most interestingly, we have found a similar relationship for evoked oscillations and ERP components. In addition, recent results indicate that increased theta and alpha phase-locking is related to improved cognitive performance.

[http://www.vth.biz/kb/index.php?page=index\\_v2&id=70&c=11](http://www.vth.biz/kb/index.php?page=index_v2&id=70&c=11)

## **Music and the Brain/Mind/Thought/Intent**

### **Miracles in the Music**

January 2007 Issue

Author: Jennifer Haliburton

Northeast Songs have always provided a sound track to Deforia Lane's life. Now, the director of music therapy at University Hospitals of Cleveland uses harmony to help others heal. Geraldine M. Brown is impatient. She knows it, and she apologizes. But it's three o'clock, and this session -- the one where the singing angels make her forget that she's lost 25 pounds in the last 25 days -- this is what she's been waiting for. She's not going to waste a second. "Come on! Come on!" the 81-year-old says, her tiny feet excitedly shifting back and forth beneath the hospital blanket. "Come on with the singing!"

<http://www.ohiomagazine.com/OhioLife/report.asp?ID=39D226BB6C6E4903B6623C99A462C014>

### **The Intelligence of Water**

By Chris Thomas, The Epoch Times New Zealand Staff, Jul 09, 2006

Dr Masaru Emoto's 'Thoughts on Water' seminar enraptures audience with photographed frozen water crystals, showing the mysterious response of water to thoughts, words and pictures. Dr Emoto's original and groundbreaking research reveals that water is deeply connected to our individual and collective consciousness... His experiments include photographing differences between water crystals after attaching different word labels to identical bottles of water, playing different types of music to water, sending good and bad thoughts towards water, and showing images to water, has revealed that water has life, memory, and intelligence...

<http://en.epochtimes.com/news/6-7-9/43733.html>

### **The Objects of the Senses: There is No 'out there' out there!**

The world is in your brain. There is no 'out there' --- out there, meaning the external hologram is illusory, as well as temporal... How we perceive the temporal illusory holographic world, and thus our character, is the sum accumulation of these acquired tendencies. If it often seems to you that everyone is living in a world of their own – in fact, THEY ARE! Perception is reality...

<http://www.metaphysicalmusing.com/articles/objects.htm>

### **Projecting Intention Excerpts on the subject from HEALING SOUNDS: The Power of Harmonics**

by Jonathan Goldman - ©2002

From Chapter 1 " Hermetic Harmonics "

When I first began working with sound and music for healing, I understood that everything was based upon frequency. As the Hermetic Principles tell us, the universe is nothing, more or less, than an endless number of vibrations and rhythms. Yet, as I began to pursue and study this work more, I began to notice another interesting phenomenon. Sometimes different people apparently used different frequencies or different sounds to heal the same problem. ' How could this be? ' I wondered, unless there was something else besides the frequency. There must have been something equally important in sound that I had been ignoring. It was my friend and fellow colleague Steven Halpern, PhD, who first brought my attention to the missing area in question. ' Sound is a carrier wave of

consciousness, ' Steven said. This means that depending upon where an individual ' s awareness is placed when he creates a certain sound, the sound will carry information on that state to the person receiving it. If, for example, you are angry and you create a sound, even though it may be a pleasant sound, you will be sending anger that is incorporated into that sound. This will be perceived on some subtle level by those receiving the sound...

[http://www.healingsounds.com/sounds/project\\_intention.asp](http://www.healingsounds.com/sounds/project_intention.asp)

### **"Elevator Music": More Than It Seems**

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"The musically aware hostess no longer allows the butler, or her husband, to sling records on to the turntable in a haphazard way. She no longer risks the dangers of the soup being spilled by Haydn's 'Surprise' Symphony, or Mrs. Alias-Jones choking over the fish because an ill-timed bit of jazz trumpet has frightened her. She now supplies a ready-made background of elegant and suitable music to smooth the evening into one long feast of pleasure and unshattered nerves (1)." This quotation, obviously taken from a dated source as indicated by style, content and reference to a rapidly disappearing medium of musical recording, nonetheless encapsulates the assertion that "background music" has profound and to some extent compelling effects on human emotion and behavior.

<http://www.musica.uci.edu/mrn/V2I2F95.html#elevator>

### **"Exploring The Human Energy System"**

© Interview With Barbara Brennan Ph.D. Interviewed

By Russell E. DiCarlo Barbara Brennan is a former NASA scientist whose ground-breaking exploration of the human energy field is discussed in her books "Hands of Light" and "Light Emerging."

DiCarlo: In your work you have explored the human energy field and I am wondering if you could tell me exactly what the energy field is?

<http://www.healthy.net/scr/interview.asp?id=165>

## **Music and Memory**

### **Anxiety and Memory: Their Effects on Cognition and Musical Performance**

by Daisy T. Lu, Ph.D. Music Specialist, Cascade View Elementary School, Tukwila School District, WA Adjunct Faculty Member, Seattle Pacific University, Seattle, WA

The way in which the brain works is one of the great mysteries and wonders of science. Information is acquired, stored and retrieved in the brain by a complex process. Analysis of how learning and memory work through musical performance is the thesis of this essay. Musical learning has additional

implications for cognitive processes involved in presenting a paper from memory or performing in a play or a dance...

<http://faculty.washington.edu/chudler/dl3.html>

### **Music and Its Memories**

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Music relies on memory. What is the nature of this memory? Researchers in both cognitive science and behavioral neuroscience are actively engaged in a major debate about memory. They are particularly concerned with the growing multiplicity of forms of memory. How many are there? How do they differ from each other? Two of the generally accepted types are "declarative" and "procedural" memory. In a moment, we will consider their relevance for music. But first, some definitions are needed. "Declarative" refers to memories that can be consciously recalled and stated. The contents of declarative memory seem to be largely life episodes, i.e., recall of a specific occasion, like your first date, what you had for dinner yesterday, etc. or facts, e.g. the capital of France. Declarative memories are acquired rapidly; generally, they don't require much repetition of the experience to become fairly strong. In fact, highly emotional events need be experienced only once to leave a life-time declarative memory. Each reader can probably think of such a personal experience...

<http://www.musica.uci.edu/mrn/V3I2F96.html#sing>

### **Musical Training Aids Memory**

By Sarah Graham

People who learn to play an instrument may reap benefits that aren't musical in nature, according to a new study. Findings published this month in the journal *Neuropsychology* indicate that children with training in music have better verbal memory skills than do their peers who haven't received musical instruction.

<http://www.sciam.com/article.cfm?articleID=000C466A-9B32-1F21-9B3280A84189F2D7>

### **Music and Learning Development**

#### **Music and Cognitive Achievement in Children**

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Music is widely believed to have many benefits for children beyond those within the realm of music itself. These benefits are thought to contribute importantly to development by improving intellectual, motor, and social abilities and skills. This article reviews part of this topic, specifically the relationship between music education and cognitive achievement. A scan of the research literature suggests the variable pursuit of this problem over the years, rather than a systematically enlarging body of research. With this in mind, let us consider studies that pertain

to the single reason for music education that has exhibited continual and substantial increased emphasis in the modern period i.e., the view that music promotes cognitive development and abstract thought (see Matters of Opinion). Within this realm, we include topics such as reading, the mental rotation of representations of objects, and creative thinking. These tap into three of the many aspects of intelligence.

<http://www.musica.uci.edu/mrn/V1I2F94.html#cognitive>

### **Can Music Really Improve the Mind? The Question of Transfer Effects**

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There is an increasing interest in the effects of music on the mind, an issue best understood as transfer effects from music to other cognitive domains...

In 1998 this journal hosted a published "Discussion Note" section in which the issue of music's mental benefits was set forth by Professor Katie Overy of the University of Sheffield, U.K. 1 She pointed out that while there is great current interest in the benefits of music, the topic is one of long standing. I present here one of the quotations she provided at the beginning of her article. "It is an acknowledged fact that, when properly carried out, class-work in music ... has most certainly the effect of stimulating the mental faculties of those who take part in it, and, as a result, of improving the standard of work in other departments." -- MacPherson, 1922

<http://www.musica.uci.edu/mrn/V6I2S99.html#improve>

### **Musical Compositions by Schoolchildren**

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One of the emerging themes in music research is that children's capabilities and knowledge have been vastly underestimated. For example, infants are born with the ability to perceive and process basic musical sounds and patterns ( MRN, "[The Musical Infant](#)", Spring 1994). So it is with composing music. Studies have shown not only that children do compose but that by the age of nine they use the same processes as those employed by professional composers.

<http://www.musica.uci.edu/mrn/V5I3F98.html>

### **Mental Health Screening: New Tool for Child-Control**

Phyllis Schlafly

Mental health screening of all children is the goal of legislation introduced into many state legislatures this year. Typical of these highly controversial bills is the Missouri bill that would require every Missouri school district, in collaboration with "the office of comprehensive child mental health," to develop "a policy of incorporating social and emotional development into the district's educational program."...

Mental health screening is based on the assumption that ten percent of children suffer from a mental disorder severe enough to cause impairment, and that five percent of children have emotional or behavior difficulties that interfere with

learning, friendships and family life...Even the American Academy of Child and Adolescent Psychiatry, an organization whose members strongly favor drug treatment, just completed new guidelines recommending that children receive talk therapy before being given drugs for the common complaint of moderate depression.

<http://www.informationliberation.com/?id=19894>

### **The Nonmusical Outcomes of Music Education**

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"In the face of the severe financial problems besetting many school districts, the role of education in the arts has come under increasingly close scrutiny as school administrators have sought to balance their budgets. Because many people are able to dismiss music and the other arts as educational frills, they find them the logical targets for reductions when school finances are strained. In situations such as these, the effect on music education is crippling." Sound familiar? A resume of the current state of affairs? Hardly. This statement appears at the beginning of a review article published in 1979 (1). Written by Karen Wolff, it continues ... "Such actions make it incumbent upon the profession to provide a thorough and convincing justification for the place of music and, by extension, all arts education in the school curriculum." Dr. Wolff goes on to argue that the case for music education can be strengthened if it has nonmusical benefits to students, be they in academic subjects, social and emotional adjustments or physical development. I would add to the list general cognitive and intellectual growth.

<http://www.musica.uci.edu/mrn/V2I2F95.html#outcomes>

### **Music and Accelerated Learning**

By Dr. Alice Cash

Research results, such as the UC-Irvine Mozart studies, have substantiated some benefits of music in learning. Teaching practices stemming from the Mozart research and other studies are being implemented to some degree despite on-going controversy over accuracy of the research and disputes over methods of implementation. Brain-based learning promotes music use in very broad terms but spends more time acknowledging the benefits than providing directions for use...

[http://www.healingmusicenterprises.com/articles/music\\_accelerated\\_learning.html](http://www.healingmusicenterprises.com/articles/music_accelerated_learning.html)

### **The Neurobiology of the Benefits of Music**

The following opinions about music are based on the reports of scientific studies. This does not mean that the opinions carry the same importance as the results of such studies themselves. They are simply opinions, intended to provoke thought and sometimes perhaps even argument, but ultimately to energize and enlarge thought and action on music In this column of the last issue of MRN (Fall, 1996),

I discussed two views on music, "purism" and "utilitarianism". The "purists" hold that music should be studied only because of its intrinsic values. The "utilitarians" hold that any benefits extrinsic to music also form the rationale for music education and music making. I come down on the "utilitarian" side. But I would like to think that as research on music, human behavior and the brain progresses from its still rather limited base (compared, for example, to research on language), a coalescence of these positions will emerge. But this is likely to develop only with greatly expanded research in music and ultimately will depend on a generally advanced view of the role of music in the human condition.

<http://www.musica.uci.edu/mrn/V4I1S97.html#threads>

### **The Neurobiology of Musical Learning and Memory**

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Music may set our toes "a-tapping", cause us to burst into song, send us into deep reverie, initiate recall of a specific experience, induce a deep emotional state, or produce an almost infinite number of mental and behavioral effects. The immediacy of these experiences gives them top billing in our daily lives, or if not attaining quite that exalted a status, at least doesn't force us to think about how the brain does all that. How does music get incorporated into our lives? How do musical experience and knowledge get stored in our brains, so that they can later affect our personal and interpersonal lives? This is a problem within the larger field of learning and memory, an area of inquiry that is the central focus of much behavioral and brain research, indeed which is foundational to most of life. If you don't agree about the critical import of learning and memory, then reflect for a moment on what your life would be like without the ability of acquire and remember things. At the most immediate level, you would not be reading this, since reading is learned. At a more fundamental level, there would be little if any psychological "you" -- no particular personal identity, no comprehension that you are a human, no set of values, neither knowledge about the people you care about, nor what anything in the world is. No language, no walking .... all of these things (and much more) are learned. Without learning and memory, we would be little more than a bundle of knee-jerk type reflexes.

<http://www.musica.uci.edu/mrn/V4I2F97.html#neurobiology>

### **A Multiplicity of Intelligences; Exploring Intelligence**

Scientific American Presents; by Gardner; 6 Page(s)

As a psychologist, I was surprised by the huge public interest in The Bell Curve, the 1994 book on human intelligence by the late Harvard University psychologist Richard J. Herrnstein and policy analyst Charles Murray. Most of the ideas in the book were familiar not only to social scientists but also to the general public. Indeed, educational psychologist Arthur R. Jensen of the University of California at Berkeley as well as Herrnstein had written popularly about the very same ideas in the late 1960s and the early 1970s. Perhaps, I reasoned, every quarter-

century a new generation of Americans desires to be acquainted with "the psychologist's orthodoxy" about intelligence-namely, that there is a single, general intelligence, often called g, which is reflected by an individual's intelligence quotient, or IQ.

This concept stands in contrast to my own view developed over the past decades: that human intelligence encompasses a far wider, more universal set of competences. Currently I count eight intelligences, and there may be more. They include what are traditionally regarded as intelligences, such as linguistic and logical-mathematical abilities, but also some that are not conventionally thought of in that way, such as musical and spatial capacities. These intelligences, which do not always reveal themselves in paper-and-pencil tests, can serve as a basis for more effective educational methods.

[http://www.sciamdigital.com/index.cfm?fa=Products.ViewIssuePreview&ARTICLEID\\_CHAR=C85BA732-2A67-4F78-BE5D-070310BCFFA](http://www.sciamdigital.com/index.cfm?fa=Products.ViewIssuePreview&ARTICLEID_CHAR=C85BA732-2A67-4F78-BE5D-070310BCFFA)

### **Brainwaves and Cognitive Performance**

Findings from several experiments indicate that cognitive performance is superior when alpha ERD and resting power is large, but when theta ERS is large and resting power is small. Most interestingly, we have found a similar relationship for evoked oscillations and ERP components. In addition, recent results indicate that increased theta and alpha phase-locking is related to improved cognitive performance.

[http://www.vth.biz/kb/index.php?page=index\\_v2&id=70&c=11](http://www.vth.biz/kb/index.php?page=index_v2&id=70&c=11)

### **Music Training and The Brain**

Advocates for music education have always sworn that piano lessons pay off. Although no one would have denied that music training makes you more well-rounded and may even help you liven up some holiday parties, the extent of its benefit was unclear. Now, an increasing amount of scientific research is indicating that the benefits of music training reach to the brain. Some studies are suggesting that it boosts brain circuitry and increases certain mental functions. Further insights into how music training affects the brain may lead to new education methods and new ways to treat brain damage.

[http://www.sfn.org/index.cfm?pagename=brainBriefings\\_musicTrainingAndTheBrain](http://www.sfn.org/index.cfm?pagename=brainBriefings_musicTrainingAndTheBrain)

### **Music, Development, Aging and the Brain It's Never Too Late for Music**

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"By approximately age 11, the neuron circuits that permit all kinds of perceptual and sensory discrimination, such as identifying pitch and rhythm, become closed off. Not using them dooms the child to be forever tone deaf and offbeat." (1) This dire statement from a popular magazine is provided within the context of an article that urges teachers who are untrained in music to promote musical activities in their classrooms. Of course, this is a laudable and proper goal. But the misinformation contained in the quote could have disastrous consequences.

Therefore, the misconceptions it engenders require correction. In short, the article is dead wrong. Children lacking musical training before about the age of eleven are not "doomed" to anything, much less tone-deafness, etc. This fact, and the far more hopeful and optimistic message that it brings, is true irrespective of naive and hopelessly oversimplified beliefs about brain development. In brief, the "neuron circuits" are most definitely not closed off. Before continuing, let's be clear about some basic points. First, all things considered, is it better to initiate musical activities, including education and play, well before the age of eleven? Yes, certainly. As reviewed previously in this newsletter, infants have considerable musical capabilities (2). Moreover, we, as others, have suggested that delayed encouragement of musical activities (not necessarily only...

<http://www.musica.uci.edu/mrn/V3I1S96.html#never%20too%20late>

## **Music and Behavior**

### **The Coloring of Life: Music and Mood**

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We go about our daily lives in the belief that we see objectively, remember accurately, think rationally and act appropriately. We readily admit exceptions, such as on occasions when we feel an intense emotion, be it happiness, sadness, amusement, fright, bodily pleasure, or whatever. But even when we are in a strong emotional state, and know that we lose reason for a bit and act impulsively for a while, we maintain our belief in being able to see the "real world", not a world of our own construction. This belief is open to serious question, if not subject to outright rejection. It is not that we hallucinate and believe in the existence of people or objects that don't exist. Rather, it is that our daily perceptions and memories, and thus are consequent actions, are "colored" by our moods. Recent research emphasizes that music plays a major role. Initially, we can ask whether music affects mood. Many systematic studies have assessed the detailed relationship between various types of music and emotional reactions thereto.

<http://www.musica.uci.edu/mrn/V3I1S96.html#never%20too%20late>

### **What is Emotion**

...There is an emotional component to every sensual experience as well. Emotion seems to be in everything, but the advantage emotion gives us in survival may not be obvious. A very loud noise surprises you from behind and you flinch. Muscles throughout your body contract and the body bends forward suddenly. Objects in your grasp are dropped. Thoughts in your mind are dropped. The eyes close tightly and the muscles in the face contract into an expression of extreme stress. Almost every part of the nervous system is affected by such a sudden and extreme change in the environment. The reaction is one of violence. This is an emotional reaction...

<http://www.stevenharris.com/theory/028.htm>

## **Raw Emotions: 5 Ways to Buffer Your Suffering**

By Don Munro, Special to LifeScript Sunday, January 28, 2007

See if this sounds familiar: You wake up vowing that today you 'll be kind, considerate and full of goodwill toward everyone. Then, on the way to work, a sports car cuts you off on the freeway. Your rage erupts and you start fantasizing about ramming the jerk off the road. Your anger lingers until lunch, affecting your concentration and your appetite. Are negative emotions gnawing away at your well-being? If so, try these simple strategies to soothe your psyche...

[http://www.lifescrpt.com/channels/well\\_being/Meditations\\_Motivations/raw\\_emotions\\_5\\_ways\\_to\\_buffer\\_your\\_suffering.asp?page=1](http://www.lifescrpt.com/channels/well_being/Meditations_Motivations/raw_emotions_5_ways_to_buffer_your_suffering.asp?page=1)

## **Music and the Immune System**

**R. McCraty. Proceedings of the Tenth International Montreux Congress on Stress, Montreux, Switzerland, 1999.**

There is considerable scientific rationale to support the use of music to enhance immunity via its powerful influence on emotions. Music's ability to alter mood and emotional state has long been known experientially, and more recently has been scientifically documented. Likewise, it is well recognized that mental and emotional states can alter autonomic nervous system (ANS) activity and balance. The ANS, in turn, can modulate virtually every aspect of immune function, both through direct innervation of lymphoid tissues and by way of its regulatory influence on immunomodulatory hormones. The interaction between feeling states, immunity and autonomic function has been highlighted by a number of studies showing that negative emotions such as anger and hostility stimulate sympathetic activity, increase the cortisol/DHEA ratio and suppress the immune system, while positive emotional...

<http://www.heartmath.org/printer-friendly/print-research-abstracts-music.html>

## **Drumming and the Immune System**

(January 2001) by Barry Bittman, MD, and researchers...

Drumming was chosen because percussion activities require little musical training or experience. In addition, group drumming has been used in many cultures throughout history in healing rituals and to bring people together physically and energetically. Dr. Bittman and colleagues chose to study "composite" drumming after investigating several types of group drumming, including shamanic drumming, basic drum sessions with differing instruction-to-activity ratios, and the composite protocol that uses guided imagery. The drumming groups were also compared to a

Drumming and the immune system - Shorts Townsend Letter for Doctors and Patients, Dec, 2002 by Jule Klotter...

[http://www.findarticles.com/p/articles/mi\\_m0ISW/is\\_2002\\_Dec/ai\\_94538628](http://www.findarticles.com/p/articles/mi_m0ISW/is_2002_Dec/ai_94538628)

## **The Musical Hormone**

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Music has well established psychological effects, including the induction and modification of cognitive states, moods and emotions. Were it not so, then marches would be played as readily at bedtime as at the half-time of football games, dirges would grace weddings, lullabies would be heard at parades and Gregorian chant would bombard our ears in supermarkets. Many people think that psychology is one thing but physiology is another thing. There is the mind and there is the body. This common "dualist" assumption scores high on our own psychological "comfort meters". It is always nice when common sense matches scientific reality. When that happens, we feel that we have a good grasp of things and that an issue has been settled. Of course, the dualist position has a problem with the question of just how music affects our private mental lives. And just where is it that our private mental lives live anyway? But mind-body dualism has been the dominant belief in the history of the world. Can so many people over so long a time be wrong? Certainly...

<http://www.musica.uci.edu/mrn/V4I2F97.html#hormone>

### **The Musical Infant - Studies Show Infants Are "Musical"**

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How are infants as music listeners? How well do they use musical concepts to organize their musical experience? For many years, the capabilities of infants have been ignored, or have been studied only with respect to issues dealing with language. However, in recent years, systematic programs of research have undertaken to elucidate the origins of musical capabilities at the earliest stages of human development. Musical abilities can be determined in such young, pre-verbal children by careful observation of their behavior by a trained experimenter. An infant sits on its mother's lap. To the left and right of the infant are two loudspeakers and next to each speaker is a...

<http://www.musica.uci.edu/mrn/V1I1S94.html#infant>

### **Music, Emotion and the Brain**

Geetanjali Vaidya

There is a beautiful passage in a book called "Home of the Gentry", by Ivan Turgenev, where the protagonist of the novel listens to a piece of music being played on the piano that touches him to the very depths of his soul. I will quote part of this passage, since it describes very eloquently the almost mystical power that music wields over the human mind, a power which I find fascinating. "The sweet, passionate melody captivated his heart from the first note; it was full of radiance, full of the tender throbbing of inspiration and happiness and beauty, continually growing and melting away; it rumoured of everything on earth that is dear and secret and sacred to mankind; it breathed of immortal sadness and it departed from the earth to die in the heavens." (10) The tremendous ability that music has to affect and manipulate emotions and the brain is undeniable, and yet largely inexplicable. Very little serious research had gone into the mechanism

behind music's ability to physically influence the brain until relatively recently, and even now very little is known about the neurological effects of music. The fields...  
<http://serendip.brynmawr.edu/bb/neuro/neuro04/web2/gvaidya.html>

## **Music and the Body**

### **Frequency Fields at the Cellular Level**

By Stephen Linsteadt, NHD

In the Scalar Heart Connection technique, we use muscle checking to provide physical, mental, and emotional feedback regarding areas of coherence or incoherence. Yet, we may not fully appreciate the remarkable functionality of the body's energetic field and holographic characteristics that are producing these positive or negative energetic feedback responses. By expanding our awareness of the components underlying coherence, such as the absorption of light into our cells, we can take steps to move into more complete coherence, with resultant benefits to our physical, mental, emotional, and spiritual well-being...

It has been documented that DNA repair can be activated using a frequency of 528hz. At this precise frequency the clustered water molecules that surround and support the DNA structure form a perfect six-sided hexagon.<sup>9,10</sup> This demonstrates how important it is to our health and vitality to support and maintain our energetic coherence on all levels of our lives. Even the slightest deviation in resonance on the cellular level can cause the frequency that supports the beautiful and magical six-sided hexagon to become something less coherent. Since every cell encapsulates information about the entire organism, we can see how important it is to our health and vitality to support and maintain our energetic coherence on all levels of our lives.

<http://www.naturalhealinghouse.com/frequency.htm>

### **Scientists 'hear' skin cancer cells**

COLUMBIA, Mo., Oct. 17 (UPI) –

U.S. scientists say they can detect the spread of skin cancer cells through the blood by literally listening to the cells' sound. The new, minimally invasive technique developed by researchers at the University of Missouri-Columbia causes melanoma cells to emit noise and could allow oncologists to spot early signs of metastases before the cells settle into other organs. The team's method, called photoacoustic detection, uses a laser to make cells vibrate and pick up the characteristic sound of melanoma cells...

<http://www.sciencedaily.com/upi/index.php?feed=Science&article=UPI-1-20061017-1649> ...

### **Sing, Sing, Sing!**

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Research indicates that singing has a strong biological basis, appears as song babbling in infants, undergoes regular developmental stages in young children and can facilitate cognitive abilities. Birds do! Bugs do it! Even gibbons in the trees do it! Let's do it. Let's .... sing, sing, sing! Many readers will recognize this as a paraphrase of a popular song of long ago -- "Let's Fall In Love". While sex may be almost universal in the Animal Kingdom (don't forget the creatures that don't need a partner to reproduce), love as an almost universal is not so clear. In fact, singing might be more widespread than love. However, many would disagree. This point of view dismisses grasshopper song as just so much noise, holds that whale singing isn't really all that musical and even regards...

<http://www.musica.uci.edu/mrn/V3I2F96.html#sing>

## **Music and the Spirit**

### **KEEPING SPIRITUALLY SANE IN CHALLENGING TIMES**

Posted By: Curious Date: Thursday, 11 January 2007, 5:15 a.m.

Spend silent time each week in nature, as the nature kingdoms are already aligned with Spirit and new energy, and so can be very healing. Make daily contact with the elements—water, air, earth and fire: take a shower or swim, sit in front of an open fire or candle, put your hands in the earth, let the wind blow caress your body.

<http://www.surfingtheapocalypse.net/cgi-bin/forum.cgi?read=164763>

### **Chanting, Listening and the Electronic Ear**

The Pioneering Work of Dr. Alfred Tomatis

by Don G. Campbell

For nearly two years, the monks of Santa Domingo in Spain have been making the top of the charts for months and months in Europe and the U.S. The monks themselves think it is because of the marketing techniques of their producers, but it may be because of a far more interesting phenomenon predicted nearly twenty years ago by the remarkable French MD, Alfred Tomatis. Since the 1950's Dr. Tomatis has researched the effects of Gregorian chant upon the brain and body. By the early 1970's when Vatican II modified the liturgy of the Roman Catholic Church, Dr. Tomatis was being asked to visit monasteries and counsel the abbots and monks on their failing health and energy. He remarkably noted that until they returned into their natural sounds of Latin singing psalmody and chant, that they would no longer feel the natural rhythms of the day.

<http://www.soundhealersassociation.org/sha/doncambel.html>

### **The Healing Power of Harmonic Sounds**

by Teya Skae

Harmonics are inherent within all sounds. Anything that vibrates in air produces sound and creates harmonics: the pop of champagne cork, the roar of a jet engine or the sound of our voice. In fact, harmonics are responsible for our individual and unique speaking

voices. Also known as overtones, harmonics are mathematically interrelated ratios or intervals that are created when striking any fundamental note (e.g. F, F#, G, G#, A, etc.)...

<http://www.healthdimensions.com.au/a/89.html>