

Medical Science

The particle nature of thoughts – *do thoughts matter and mass*

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Received 03 May; accepted 24 June; published online 01 July; printed 16 July 2013

ABSTRACT

In this paper, we have a look at the potential power of thoughts and whether thoughts do have mass or the power to influence the physical environment like matter do with its gravity. We also have a look at some of the mind-boggling experiments performed in which thoughts seem to affect the physical universe and also take a peek at the probable mechanism of interaction between thoughts and the external environment. Also some methodologies to perform such experiments have been outlined. But really...

Do thoughts have the power to kill a cancer cell or bring back a cell from the point of no return into viable existence?

Like the rice experiment, can good thoughts amplify cell growth and bad thoughts cause a cell death in a cell culture?

Again, can a cell culture inoculated with virus be affected by mere thoughts?

Can strong concentrated thoughts really heal?

Forget that our thought possesses more than just the energy in our human body. Forget that our thoughts might be influencing the environment-air, water and soil to help us, or hurt us if we seek to harm them. Forget that the planet might be a part of a single living organism that we share with this unified field. Just ponder on the fact that the more caring, beneficial, cooperative, loving and universal your goal is, the more people that will share it, feel it and get excited about it. And that is what makes dreams and miracles come true. It works with companies, families, dreams and oh yes, even on water and flower seeds.

Till then THINK AND DO THINK... COZ THOUGHTS DO MATTER AND MASS.

Keywords: Thoughts, mind, energy, matter, mass, mass-energy equivalence, brain-waves.

1. INTRODUCTION

"As you know, a little grain of sand has mass, a very small mass, but mass nonetheless. And because this grain of sand has mass, it therefore exerts gravity. Again, too small to feel, but there. Now if we take trillions of these sand grains and let them attract one another to form....say, the moon, then their combined gravity is enough to move entire oceans and drag the tides back and forth across our planet. So let's take a hypothetical....What if I told you that a thought....any tiny idea that forms in your mind....actually has mass? What if I told you that a thought is an actual thing, a measurable entity, with a measurable mass? A minuscule mass, of course, but mass nonetheless. What are the implications?. Hypothetically speaking..... the obvious implications are....if a thought has mass, then a thought exerts gravity and can pull things toward it. Now what happens if many people start focusing on the same thought? All the occurrences of that same thought begin to merge into one, the cumulative mass of this thought begins to grow. And therefore, its gravity grows. Meaning.....if enough people begin thinking the same thing, then the gravitational force of that thought becomes tangible....and it exerts actual force.... And it can have a measureable effect in our physical world." Thus goes a quote from the famous novel called THE LOST SYMBOL by DAN BROWN (2010). INTRIGUING..... ISN'T IT???

Thoughts:

It generally refers to any mental or intellectual activity involving an individual's subjective consciousness. It can refer either to the act of thinking or the resulting ideas or arrangements of ideas. Similar concepts include cognition, sentience, consciousness and imagination.

MEG:

Magnetoencephalography (MEG) is a technique for mapping brain activity by recording magnetic fields produced by electrical currents occurring naturally in the brain, using very sensitive magnetometers.

2. SO ARE OUR THOUGHTS REALLY ENERGIES?

2.1. What are thoughts?

Thought generally refers to any mental or intellectual activity involving an individual's subjective consciousness. It can refer either to the act of thinking or the resulting ideas or arrangements of ideas. Similar concepts include cognition, sentience, consciousness & imagination (Webster's II New College Dictionary, 1999, pg. 1147).

2.2. How are thoughts formed?

What makes up a thought? First of all, it is a firework of neuronal activity, produced by *neurons*, the building blocks of the brain, which encode and transmit information in the form of electrical impulses. Brain scientists hope to explain, for example, how a goal keeper uses his arms and legs, and his intuition to block a penalty by the opponent. But not always when we think or remember is there a direct input from the environment. A team of scientists at the Bernstein Center for Computational Neuroscience of the University of Freiburg, led by Stefan Rotter from the Institute for Frontier Areas in Psychology and Mental Health, found by means of elaborate computer simulations, that under certain conditions very large neuronal networks can show sustained activity even without external input. The researchers hypothesize that it is this sustained activity that provides the fundamental components of memory and thought (Kumar, Schrader, Aertsen & Rotter. 2008, p. 1-43). Thus, the

Brainwaves?

The root of all our thoughts, emotions and behaviour is the communication between neurons within our brains. Brainwaves are the tiny electrical impulses that are produced as the neurons communicate with each other. Brainwaves are picked up by placing electrodes on the scalp. Our brainwaves vary according to what we're doing or feeling. When slower brainwaves are dominant we can feel slow, tired or dreamy. The higher frequencies are dominant when we feel alert and active.

Types:

Delta waves (frequency range 1 to 4 Hz)

Delta brainwaves have the lowest frequency. They are generated in deepest meditation and dreamless sleep.

Theta waves (frequency range 4 to 7 Hz)

Theta brainwaves occur mostly in sleep but are also dominant in the deep meditation. It acts as our gateway to learning and memory. Theta are produced during dreams; vivid imagery, intuition and information beyond our normal conscious awareness. It's where we hold our 'stuff', our fears, troubled history, and nightmares.

Alpha waves (frequency range of 8–12 Hz)

Alpha brainwaves are present during silent thoughts. Alpha is the resting state for the brain. Alpha waves aid overall mental coordination, calmness, alertness, mind/body integration and learning.

Beta waves (frequency range of 13 to 30 Hz)

Beta brainwaves dominate our normal waking state of consciousness when attention is directed towards cognitive tasks. Beta is a present we are alert, focused, attentive or engrossed in problem solving.

Gamma waves (frequency range of 30 to 70 Hz)

Gamma brainwaves are the fastest of brain waves and relate to simultaneous processing of information from different brain areas. It mainly deals with processing of various attended stimuli (visual, auditory, touch). Researchers recently discovered it was highly active when in states of love, altruism, and the 'higher virtues'.

Significance

Our brainwave profile and our daily experience of the world are inseparable. When our brainwaves are out of balance, there will be corresponding problems in our emotional or neuro-physical health. Research has identified brainwave patterns associated with all sorts of emotional and neurological conditions. Instabilities in brain rhythms correlate with tics, obsessive-compulsive disorder, aggressive behaviour, rage, panic attacks, bipolar disorder, migraines, narcolepsy, epilepsy, sleep apnoea, vertigo, tinnitus, anorexia/bulimia, PMT, diabetes, hypoglycaemia and explosive behaviour.



Figure 1

4-meter-tall sculpture of Einstein's 1905 $E = mc^2$ formula at the 2006 Walk of Ideas, Berlin, Germany



Figure 2

An Artistic Capture of Water Splash; Photo courtesy by hethens.com/water-experiment

EEG:

Electroencephalography (EEG) is the recording of electrical activity along the scalp.

thoughts arise by a complex process wherein electrical impulses are generated and pass through synapses between the neurons. Our brain is filled with neurons, individual nerve cells connected to one another by dendrites and axons. Every time we think, move, feel or remember something, our neurons are at work. That work is carried out by small electric signals that zip from neuron to neuron. The

signals are generated by differences in electric potential carried by ions on the membrane of each neuron. Various neurotransmitters are also involved in this action. These open up ion channels which further helps in propagation of the electrical impulses or energy through the neurons. This electrical energy is released from the brain into certain areas of the brain or body (depending on the thought).

2.3. Are thoughts energies?

Although the paths the electrical impulses are insulated by something called myelin, but some of the electric signal escapes. These electrical energies or impulses can be picked up by placing electrodes in the scalp. Now as electricity in motion has associated magnetic field with it, so these are represented as electromagnetic waves in an EEG or electroencephalogram. This is why thoughts, which form these electroencephalographic waves or brain-waves, are technically energy. Infact, the brain waves are indeed forms of electromagnetic radiation—waves of energy that travel at the speed of light. The difference between brain waves, radio waves, and other electromagnetic waves (such as visible light, X-rays and Gamma rays) lies in their frequency—that is, how often the waves peak and trough in a second. The human brain emits waves, like when a person focuses her attention or remembers something. This activity fires thousands of neurons simultaneously at the same frequency generating a wave—but at a rate closer to 10 to 100 cycles per second (engineering.mit.edu). Though these are hard to measure, but not impossible. MIT recently installed a new MEG scanner to study the function of the human brain. To capture brain signals or brain waves, the MEG scanner is in a room shielded with mu metal, a special alloy that blocks external magnetic fields. Even if that was the case, brain waves are so weak, they are hardly measurable at all. For comparison the magnetic field of the earth is just strong enough to move the needle of a compass. Signals from the brain are a billionth of that strength, but has a magnitude nonetheless (Elizabeth Dougherty, 2011).

2.4. Can Thoughts Really Have A Mass?

Now comes the role of mass-energy equivalence put forward by none other than the great Albert Einstein. In physics – in particular special and general relativity – mass–energy equivalence is the concept that the mass of a body is a measure of its energy content. In this concept, mass is a property of all energy; energy is a property of all mass; and the two properties are connected by a constant. Albert Einstein proposed mass–energy equivalence in 1905 in one of his *Annus Mirabilis* papers entitled "Does the inertia of an object depend upon its energy-content?" (Figure 1), (Einstein, 1905, p. 639–643).

The equivalence is described by the famous equation:

$$E = mc^2$$

where E is energy, m is mass, and c is the speed of light. The formula is dimensionally consistent and does not depend on any specific system of measurement units. The equation $E = mc^2$ indicates that energy always exhibits relativistic mass in whatever form the energy takes.

Now energy of an electromagnetic wave is given by-

$$E = h\nu \quad \text{where } \nu \text{ - frequency of brain wave (can be detected by EEG)}$$

$$\text{Also, } E = mc^2 \quad \text{and } h \text{ is Planck's constant}$$

$$\text{So we have, } h\nu = mc^2$$

$$\text{Hence, } m = \frac{h\nu}{c^2} \quad \text{where } m \text{ is the probable mass of a brain wave}$$

From this equivalence it was shown that even light, an electromagnetic wave is also composed of small particle called *photon*. So if we conclude that thoughts or rather brain-waves are a form of electromagnetic energy or wave,

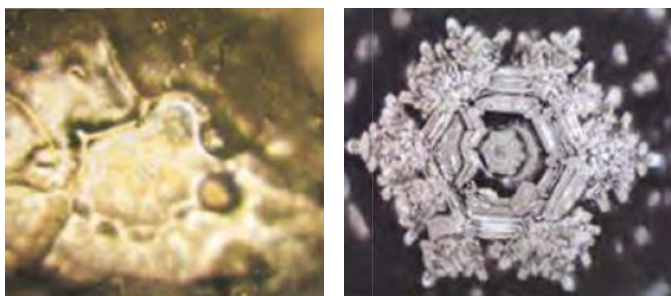
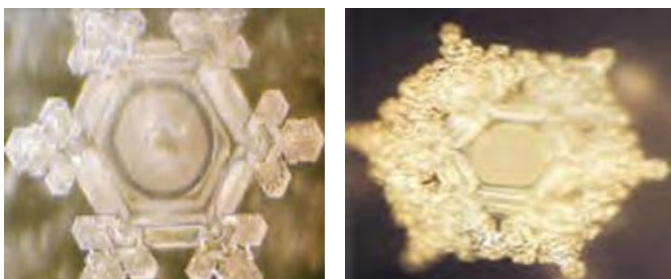


Figure 3
(a) Water Before Prayer, (b) Water After Prayer



"You make me sick"

"I will kill you"



"Thank you"

"Love and Gratitude"



Figure 4
"I love you. I like you" (Photos Courtesy by www.masaru-emoto.net/english/water-crystal.html)

then they surely do would have a particle nature in them. In simple words, thoughts then do would have a mass, a very

tiny mass but a mass indeed (I like to call them the BION). A thought would thus have a miniscule mass. But if a large number of people concentrate on the same thing or have the same thought then the mass becomes tangible and it grows and if properly moulded can alter the physical world. And if this is so lets have a quick look around to some of the remarkable experiments. Many would doubt their real existence or their accuracy and scientific explanation, but they haven't been proven inaccurate too.

3. EXPERIMENTS DEMONSTRATING THE POWER OF THOUGHTS

3.1. Emoto's Water Experiment: The Power of Thoughts

Now many may have heard of Dr Emoto. He became famous when his water molecule experiments featured in the 2004 film, *What the Bleep Do We Know?* (Figure 2). Through the 1990's, Dr. Masaru Emoto of Japan conducted a series of experiments observing the physical effect of words, prayers, music and environment on the crystalline structure of water (Figure 3). After observing these miraculous results, Dr. Emoto went on to type out different words, both positive and negative in nature, and taped them to containers full of water. The results were shown in Figure 4. The results were nothing short of remarkable.... In July 1999 Dr. Emoto and 350 of his supporters successfully carried out a dramatic demonstration on the shores of Lake Biwa in Japan. Lake Biwa was polluted and dead, but shortly after these people intensely focused on a clean, pure, and pristine lake, their intent was manifested. Dr. Emoto called this effect hado, and describes it as "the intrinsic vibrational pattern at the atomic level in all matter." The theory of hado, just as in Heisenberg's Uncertainty Principle, postulates that since all phenomena are resonating energy, by changing the vibration we change the substance (www.hado.net). Dr. Emoto's published that the method of obtaining photographs of crystals involves a relatively simple and inexpensive process. 0.5 mL samples of liquid water from a specific sample are placed on 100 petri dishes that are then frozen and stored at a temperature of -25°C for three hours in a freezer. A sample is removed from the freezer for observation under a microscope with a camera in a room with a constant temperature of -5°C. As the microscope's light melts the top of the sample, crystals are observed and photos are taken (Emoto, *Healing 2*). The pictures of water crystals are before and after prayer at Fujiwara Dam is shown in Figure 3. As you can tell, the water stamped with positive words is far more symmetrical and aesthetically pleasing than that stamped with dark, negative phrases. That concept is relatively easy to grasp, but this extremely tangible evidence of it is astounding. If the words and thoughts that come out of us have this effect on water crystals, it's amazing to think of what kind of effect they have on the people and events that come into our lives. I don't know if Dr. Emoto's experiment is scientific or not, but I do know about positive and negative vibrations and the effect each has on it's environment. It only makes sense if you are conscious enough to recognize that it makes sense.

3.2. Emoto's Rice Experiment: The Power of Thoughts

The rice experiment is another famous Emoto demonstration of the power of negative thinking. In this experiment, Dr Emoto placed cooked rice (make sure you use cooked rice, as its water content is what produces the results) into two containers. On the first container he wrote "thank you" and on the other "you fool" (Figure 5). He then instructed school children to say the labels on the jars out loud everyday when they passed them by. After 30 days, the rice in the container with positive thoughts had barely changed, while the other was moldy and rotten (www.positive-thinking-principles.com). There are plenty of people out there saying they have done this experiment themselves with positive results. Alarming finding evidence to debunk it is rather more difficult. A quick googling and you will see for yourselves. OH AND BY THE WAY, THE AVERAGE



Figure 5

Positive and Negative Thinking Power - The Rice Experiment
(Photo courtesy by www.hado.net/hado/ powerword.php)

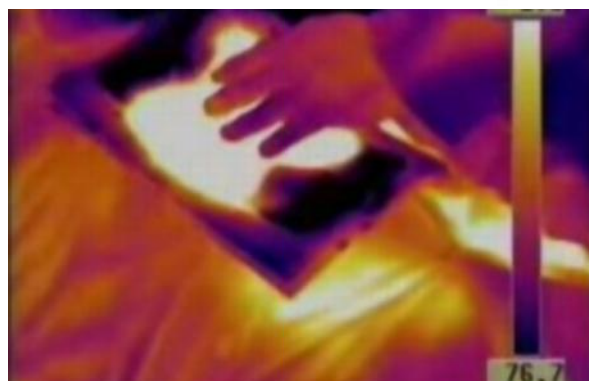


Figure 6

CHI energy

HUMAN BODY IS 60% WATER. PONDER THAT ONE A WHILE... Now will the living cell, having about 80% water content be affected by brainwaves?. If performed under suitable conditions and appropriate facilities, when concentrated thoughts be applied on a cell culture, can the results be that much fascinating as Emoto's water experiment. Actually such experiment have been tried in the living where one patient was prayed upon while the other neglected in prayers without making the patients aware of it but that seemed to have absolutely no effect in the recovery of the patients. But my dear friends, for such experiment to hold true, we would require two persons having the same disease of exactly the same magnitude and having the same genetic build-up and same number of cells and also the persons should be of the same immune status or else the effects of thoughts would not hold true.

3.3. The Love Study: The Institute of Noetic Sciences by Dr. Schlitz

The Institute of Noetic Sciences has been a pioneer in the study of intention and prayer on healing. As part of this work,

the Institute initiated what came to be called "The Love Study" to test the effects of compassionate intention on people afflicted with a serious illness. The goal of "The Love Study," so-called because it was partially funded by the Institute for Research on Unlimited Love, was to measure what would happen in the nervous system of one person when exposed to strong intentions from another person at a distance. This laboratory study recruited long-term, loving couples as participants, and rather than specifically testing prayer per se, trained the healthy partner (the other partner had cancer) in the cultivation of compassionate intention—directing selfless love to another—and explored whether training and practice in sending intentions would have any measurable effects. A total of 36 couples participated in the study: 12 in the trained group, 10 in a "wait" group, and 14 in the control group (noetic.org). In this experiment, one of the couple is led into an isolated room, where no sound can come in or go out. They settle into a deep armchair and electrodes are attached to their right hand which measures blood flow in the thumb and skin conductance activity, both of which are measures of their unconscious nervous system. The person is then locked in the electromagnetically shielded chamber and the partner is taken into another isolated room with a closed-circuit television. At random intervals, the images of the other partner will appear on the screen for 10 seconds. During the times when they see them, they are told to think about sending loving, compassionate intention. Analysis of data combined across all couples showed that the receiver's skin conductance increased to a statistically significant degree over the course of the average 10-second intentional sending period. The results also show changes in the first partners blood pressure and perspiration when they sees the image of their partner, the steady lines suddenly jump and become ragged ... More interesting however, is that at the same time there's a change in the blood volume of the other partner. It is described as a sudden change like that associated with an orienting response. The experiment was published in 2008 as "Compassionate Intention as a Therapeutic Intervention by Partners of Cancer Patients" in *Explore: the Journal of Science and Healing*.

3.4. Healers: The Hand of God or Chi Energy

There are numerous incidences of HEALERS who can heal with their touch. They are believed to have cured the patient of their pain and arthritis and many more. They are even said to have cured tumours (not malignancies though) by the touch of their hands. Interestingly, on radiography of their palms a distinct luminescence has been observed on the tips of their fingers and palms – known as CHI energy is shown in Figure 6.

3.5. The Placebo Effect

Also in medicine and pharmacology, PLACEBOS are used. A placebo (I please) is a pharmacodynamically inert substance which is sometimes given to the patient in dosage forms which resembles the actual medication in size, shape, colour and smell. If the physician commands good confidence of a patient, even a pharmacologically inert substance can bring dramatic relief in the subjective symptoms associated with psychological problems (like anxiety, headache, pain, anorexia etc), (Sharma & Sharma, 2007).

4. PROBABLE MECHANISM OF INTERACTION OF THOUGHTS WITH THE ENVIRONMENT

During production of a thought, a brain wave is induced and released in the environment. Good thoughts may produce brain waves of specific frequency while other bad thoughts may have other specific sets of frequency. After the brain wave is released, the wave propagates in the media with the speed of light having its particle nature associated with it as discussed earlier. Now on reaching the specific target for interaction, the particle of the brain wave may hit an atom of



the target. It may excite electrons and get absorbed and thus interacts with the environment. These particles can also be absorbed by nuclei, atoms or molecules, provoking transitions between their energy levels. Thus specific thoughts with specific frequencies and specific particle

nature influence the target in a specific way giving rise to various responses by the target. It may be so that the words chosen by Emoto had such specific frequencies so as to bring about a specific change in water and so on. Many describe water to have "memory" too.

SUMMARY OF THE REPORT

1. This report looks at the potential power of thoughts and whether thoughts do have a particle nature associated with it.
2. It also looks at the probable interactions between our thoughts and the reality of the physical universe.
3. It also eyes some of the jaw-dropping and thought provoking mind-and-matter experiments with a view to strengthen our hypothesis.
4. The above report also avails the opportunity to research further to test the hypothesis and find possible interactions between the effects of positive and negative thinking at the cellular and molecular level.
5. It also raises many questions which at this moment remain best unanswered.

FUTURE ISSUES

Now for the propose of conducting such experiments, we must consider the following aspects

- *It would be better to work at the cellular level and concentrate first on cell culture as.*
- *the number and the genetic build-up of the cells involved can be regulated and similar as far as practical*
- *various other factors including pH, temperature and strict asepsis can be tightly maintained*
- *Further these experiments need to be performed in an isolated chamber in which there would be no interference by outer electromagnetic waves.*
- *Also there should be no interaction between the good thoughts and bad thoughts*
- *And the quality and quantity of thought also matters.*

Only then we can proceed with these experiments. And then if we proceed.....

Do thoughts have the power to kill a cancer cell or bring back a cell from the point of no return into viable existence? Like the rice experiment, can good thoughts amplify cell growth and bad thoughts cause a cell death in a cell culture? And if this works, thoughts or brain-waves would definitely replace chemotherapy in the near future. Again, can a cell culture inoculated with virus be affected by mere thoughts? The resultant effects can be monitored by the cytopathic effects produced by the growth of the virus. For example, if the CAM (chorio-allantoic membrane) culture of herpes virus be affected by thoughts then the decreased load of virus in the culture can be monitored by counting and comparing the number of pock marks and so on. And in the still distant future can we intercept the brain-waves and process it into meaningful data similar to the processing of a radio-wave by a radio? Or better still. Forget what you just read, that our thoughts might be harnessing more than just the energy in our human body. Forget that our thoughts might be influencing the birds, air, water and soil to help us, or hurt us if we seek to harm them. Forget that the planet might be a part of a single living organism that we share with this unified field, and the planet might be rejecting us through hurricanes, tsunamis and global warming. Just focus on the fact that the more caring, beneficial, cooperative, loving and universal your goal is, the more people that will share it, feel it and get excited about it. And that is what makes dreams and miracles come true. It works with companies, families, dreams and oh yes, even on water and flower seeds. The possibilities are endless but the opening break-through dawns us. Till then THINK AND DO THINK..... COZ THOUGHTS DO MATTER AND MASS.

DISCLOSURE STATEMENT

There is no financial support for this future research work on cell culture from any funding agencies.

ACKNOWLEDGMENT

I have taken efforts in this project. However, it would not have been possible without the kind support and help of many individuals and organizations. I would like to extend my sincere thanks to all of them. I would like to express my gratitude towards my parents for their kind co-operation and encouragement which help me in completion of this project. My thanks and appreciations also go to my friends and batch-mates and the people who have willingly helped me out with their abilities.

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