

## **Does Satan Truly Exist?**

#### Abdelrazak Mansour Ali<sup>\*</sup>

Professor of Pediatrics, Al-Azhar University, Cairo, Egypt

Citation: Abdelrazak Mansour Ali. Does Satan Truly Exist?. Int Clinc Med Case Rep Jour. 2023;2(9):1-9. Received Date: 17 March, 2023; Accepted Date: 21 March, 2023; Published Date: 23 March, 2023 \*Corresponding author: Abdelrazak Mansour Ali, Professor of Pediatrics, Al-Azhar University, Cairo, Egypt Copyright: © Abdelrazak Mansour Ali, Open Access 2023. This article, published in Int Clinc Med Case Rep Jour (ICMCRJ) (Attribution 4.0 International), as described by http:// creativecommons.org/licenses/by/4.0/.

#### **ABSTRACT**

Modern physics has made and verified some accurate predictions, but it introduces both scientific uncertainty and the potential for incredible new discoveries. It is harder to demarcate the boundaries of magic and science as there is no single scientific method that all the sciences shares. This meta-analysis study is conducted for the purpose of disclosing the presence of Jinn and Demons and how they manifest themselves. Analyzing and understanding the vast range of technological, and molecular human cell contexts that crucially shape global mysteries and their solutions. Jinn and Satan are created from ultrasound waves, which are mechanical energy that depends on their passage and speed on the presence of a medium that they collide with to move in it. Satan could reveal itself through technological applications whose mechanisms depend on ultrasound and heat. And the unique opportunity to expand its impact is wherever the thermal ultrasound is involved. It is evident that Satan's ultrasound may affect the human body through transient pore formation in the cell membrane with increased intracellular Ca2+ influx which altered the brain's synaptic properties. It is obvious that Satan manipulates and visualizes Human being by using the ultrasound (U/S) pathway. Therefore, we could not see Satan because we use the light not the U/S for vision. Satan could use ultrasound to penetrate our body, particularly the brain to induce transient affection of memory, consciousness, and cognitive function by disturbing the intracellular calcium homeostasis in brain regions. The ultrasound-evoked responses are transient and brain region-specific "the motor cortex and the hippocampus". During the state of memory and cognitive cloudiness, the cerebral cortex decision-making function is impaired and not well controlled  $\rightarrow$  improper judgment.  $\rightarrow$  abnormal behavior, and liability for mistakes. Keywords: Satan; Physics; Ultrasound waves

#### **INTRODUCTION**

Einstein explained his view on the relationship between science, philosophy, and religion: "Science can only be created by those who are thoroughly imbued with the aspiration towards truth and understanding. This source of feeling, however, springs from the sphere of religion", "even though the realms of religion and science are clearly marked off from each other" there are "strong reciprocal relationships and dependencies" as aspirations for truth derive from the religious sphere <sup>[1]</sup>. David Belinsky in his book The Devil's Delusion: Atheism and its scientific pretensions, "that science has never been able to prove the nonexistence of a God or explain the start of the universe



<sup>[2]</sup>. Milton's in his story, defined the devil figure by cunning, eloquence, and the ability to manipulate others into bringing about their own ruin. "He doesn't often act through direct violence. Deceit and lies are how the Miltonic devil ensnares his prey <sup>[3]</sup>. "Paradise Lost" is most widely admired and intensively studied in English literature. Very few critics have noticed the body narrative of Satan, which is a complex and subtle image. The gradual degradation of Satan's body is closely linked with his disobedience of the hierarchical nature of the universe and his downward moral path <sup>[4]</sup>. questions about reality and meaning seem to be everywhere. One way to answer these questions more systematically is to invoke the concept of an effective theory, which is a deep yet simple-sounding approach to reality. Effective theories employ what is measurable to make physical laws whose claims to applicability extend only over the regime that has been tested. Such theories make predictions and describe measurements while acknowledging the possibility of a more fundamental description of nature that might emerge when measuring devices and measurements improve <sup>[5]</sup>. The universe has its secrets. It may even hide extra dimensions, different from anything ever imagined <sup>[6]</sup>.

The world looks fuzzy at the far boundaries of scientific knowledge. Modern physics has made and verified some accurate predictions, but it introduces both scientific uncertainty and the potential for incredible new discoveries. Experiments and calculations are designed to reduce or eliminate as many uncertainties as possible and precisely determine those that remain. Nonetheless, though it might sound paradoxical, in practice, science is fraught with uncertainty <sup>[7]</sup>. It is harder to demarcate the boundaries of magic and science as there is no single scientific method that all the sciences shares. Part of the meaning of science comes from its putative opposition to magic which couldn't be fully maintained.

Driving an unrealistic wedge between science and religion has got to stop. It impoverishes our understanding of our own science's historical context <sup>[8]</sup>. Although most scientists denied the presence of devils and considered devils religious myths, they could not deny the results of the following experiments so far, for example, Maxwell's demon can convert random fluctuations into work, write its actions into the output stream, and/or erase the record of what it did. The recording and erasure steps are necessary to preserve the second law of thermodynamics, which says that the entropy of the entire system (demon, thermal reservoir, data stream, and mass) must increase, even as the demon lowers the entropy of the thermal reservoir by extracting usable energy from it. At any temperature above absolute zero, particles in a system move randomly, an effect known as thermal fluctuation. The random character of the fluctuations means they cannot be put to work in a mechanical sense (the measure of the energy unavailable for work is called entropy). 19th-century physicist James Maxwell proposed a tiny intelligent "demon" that could harvest the thermal fluctuations to restore their usefulness; later work in the 20th century showed that the demon itself would have entropy, which would keep the thermodynamic books balanced <sup>[9]</sup>. Real-life versions of Maxwellian demons occur, but all such "real demons" or molecular demons have their entropy-lowering effects duly balanced by an increase of entropy elsewhere <sup>[10]</sup>.

In 2014, Pekola et al. demonstrated an experimental realization of a Szilard engine <sup>[11,12]</sup>. Only a year later and based on an earlier theoretical proposal, <sup>[13]</sup>. The same group presented the first experimental realization of an autonomous Maxwell's demon, which extracts microscopic information from a system and reduces its entropy by applying feedback. The demon is based on two capacitively coupled single-electron devices, both integrated into the same



electronic circuit. The operation of the demon is directly observed as a temperature drop in the system, with a simultaneous temperature rise in the demon arising from the thermodynamic cost of generating the mutual information <sup>[14]</sup>. In 2016, Pekola et al. demonstrated a proof-of-principle of an autonomous demon in coupled singleelectron circuits, showing a way to cool critical elements in a circuit with information as fuel <sup>[15]</sup>. Pekola et al. has also proposed that a simple qubit circuit, e.g., made of a superconducting circuit, could provide a basis to study a quantum Szilard's engine<sup>[16]</sup>. In this study we try to prove the real presence of Demons (Devil and Jinn) experimentally, logically, and scientifically.

#### **METHOD**

This meta-analysis study is conducted for the purpose of disclosing the presence of Jinn and Demons and how they manifest themselves. Analyzing and understanding the vast range of technological, and molecular human cell contexts that crucially shape global mysteries and their solutions. The study will push our learning beyond the boundaries of medical research to develop the kind of multidimensional knowledge that prepares us to solve big problems not only at the human level but also at the material level. The historical religious and literature concepts about Satan would be revised and modeled in the spotlight of the scientific research point of view to be corrected and interpreted.

#### RESULTS

1- Satan and Jinn are created from ultrasound waves, which are mechanical energy that depends in their passage and speed on the presence of a medium that they collide with to move in it,

2- Satan's ultrasound may affect the human body through transient pore formation in the cell membrane with increased intracellular Ca2+ influx which altered the brain's synaptic properties causing transient memory decrease, cloudiness of consciousness, and cognitive deficits.

3- Satan could reveal itself through technological applications whose mechanisms depend on ultrasound and heat and had the unique opportunity to expand its impact wherever thermal ultrasound is involved.

4- We can develop high-frequency, high-resolution scan Sonar devices, which have more capabilities than the ultrasound devices currently used in medical diagnosis, and therefore the ultrasonic cameras could see the Jinn and Demons. Subjecting the bat to scientific experiments and research and taking it as a model for designing these cameras, is highly beneficial as it has been scientifically proven that bat can use ultrasound to help them see at night.

#### DISCUSSION

**Ultrasound:** Is a pressure wave, capable of both thermal and mechanical effects in the medium through which it passes. Tissue heating arises from the absorption of sound energy due primarily to frictional effects, and the mechanical effects are a consequence of the high positive and negative pressure amplitudes involved. When continuous wave or tone burst exposures are used, the heating of tissue can be exploited. However, when short, high-amplitude pulses at low repetition rates are used, thermal effects can be avoided, and mechanical effects can be



called into play. These are the two ends of the mechanistic spectrum, but often, both thermal and mechanical effects are involved. Ultrasound is the only conventional wave that produces high heat in this way <sup>[17]</sup>. The thermal effect of ultrasound was employed for developing the Russian thermal weapon known as the father of bombs, whose damage results from the shock of ultrasound waves and high temperatures that reach 3000 degrees so that it is sometimes called the devil's bomb. Recently, Researchers from North Carolina State University have developed a technique that allows ultrasound to penetrate bone or metal, using customized structures <sup>[18]</sup>.

**Jinn and Demons**: They are invisible creatures to us, and this does not mean that they do not exist, as evidenced by the fact that electricity and gravity could not see them, but most of the modern technologies and applications depend on confirming the hypothesis of their existence, and no sane person can deny their existence. According to the properties of ultrasound energy, we conclude that the Jinn and demons are created from ultrasound waves, which are mechanical energy that depends in their passage and speed on the presence of a medium that they collide with to move in it, and thus: A- Intense heat is generated because of this collision with the particles of the medium. B- It has small wavelengths, and as a result, its ability to penetrate is high. So, the sum of "A + B" = fire of poisons = fire that penetrates pores.

This alerts us that demons are hidden creatures and manifest themselves in certain domains such as the hidden electricity which manifests itself in various electrical applications, and the hidden gravitational force that manifests itself in the diverse well-known practiced phenomena of gravity. Experimentally, it was found that objects can be held and moved in mid-air using the force from high-intensity ultrasound waves (which have a frequency higher than humans can hear) to hold something in place, known as acoustic levitation. This technique also makes it possible to create interactive 3D images, such as holograms, in mid-air that you can see, feel, and hear <sup>[19]</sup>. Acoustic meta-atoms serve as the building blocks of metamaterials, with linear properties designed to achieve functions such as beam steering, cloaking, and focusing. They have also been used to shape the characteristics of incident acoustic fields, which led to the manipulation of acoustic radiation force and torque for the development of acoustic tweezers with improved spatial resolution. <sup>[20]</sup>. The ultrasound could lift and tweeze three-dimensional objects up against the effect of gravity, and is used as tweezers with improved spatial resolution, meaning that ultrasound has the "force of weight" opposite to the force of gravity, in other words, it has weight, but in negative value. The Demons are created by ultrasound, whose weight is measured in negative grams, and we give an example for clarification. We said that the temperature is 3 or 4 below zero =" 3- & -4 ", meaning the temperature is negative. For the same reason, the weight of the Demons is negative.

Manifestations of Satan's (Demons) effects were first proposed and realized by,

A- Maxwell demon which can convert random fluctuations into work, write its actions into the output stream, and/or erase the record of what it did. Pekola et al. has also proposed that a simple qubit circuit, e.g., made of a superconducting circuit, could provide a basis to study a quantum Szilard's engine <sup>[16]</sup>. It's the first time someone has worked out the details of a quantum version of Maxwell's demon. The interesting aspects are as much in understanding quantum information theory as in possible future applications: it shows in principle how a purely mechanistic demon could convert random fluctuations to useable energy, and how a 19th-century thought experiment could be made useful in the real world. The findings of Bengtsson et al, shed new light on the role of



information in controlling thermodynamic fluctuations in the deep quantum regime, which are strongly influenced by quantum correlations in interacting systems <sup>[21]</sup>.

B - A paper described a project whose aim was to characterize the presence of ghosting in anaglyphic 3D images due to spectral issues. "Ghosting or crosstalk" is the leaking of an image to one eye when it is intended exclusively for the other eye. Ghosting degrades the ability of the observer to fuse the stereoscopic image and hence the quality of the 3D image is reduced. Ghosting is present in various levels with most stereoscopic displays; however, it is often particularly evident with anaglyph 3D images <sup>[22]</sup>. It was shown that a thermal ghost image always resides on top of a large background; the fluctuation in this background constitutes an intrinsic noise source for thermal ghost imaging. In contrast, there is a negligible intrinsic background to a quantum ghost image <sup>[23]</sup>. A work developed a novel and indirect imaging modality different from conventional imaging approaches, which reveals that reflective ghost imaging "RGI" is much more robust against the degree of polarization "DOP" of the light source, which thereby has advantages in remote sensing. <sup>[24]</sup>. This explained that Satan uses ultrasound to perceive, recognize and achieve their actions. In addition, Kafai Ali et al, in their study confirmed that the Demons algorithm is an appropriate algorithm for Ultrasound Elastography (USE) for B-mode images since phase information is not available, as "USE" has been widely used to obtain the mechanical properties of tissues <sup>[25]</sup>. Satan could reveal itself through technological applications whose mechanisms depend on ultrasound and heat. And the unique opportunity to expand its impact is wherever thermal ultrasound is involved.

Manifestations of Satan's impact on our body cells.

**1.Sonoporation** is a rapidly developing novel technique based on the interaction between microbubbles located in the surrounding of a cell and its membrane. The interaction is obtained by the excitation of microbubbles with ultrasounds. This leads to reversible cell membrane pore formation. Depending on the intensity of ultrasounds, and different environmental factors, microbubbles can interact in two manners. First, Microbubbles must be very close to a cell membrane, therefore, they are usually targeted to an antigen located on the cell membrane by antibodies. Consequently, microbubbles push and pull on the cell membrane and create microstreaming around it causing its disruption. Second, inertial cavitation, where contrary to the previous one, oscillations cause a rapid collapse of microbubbles, which creates shock waves and microjets for the same purpose. Ca2+ ions play a crucial role in the process as well as endo exocytosis <sup>[26]</sup>.

-Sonoporation causes transient pore formation in the cell membrane triggered by ultrasound (US) and there is a massive gap in the body of literature on the issue of understanding the complexity of biophysical and biochemical sonoporation-induced cellular effects; cell compartments and the internal environment of the cell, and detailed biophysical insight into US-provoked pore formation is presented <sup>[27]</sup>. Pulsed focused ultrasound (p FUS) can open the blood–brain barrier (BBB) and induces a sterile inflammatory response compatible with ischemia or mild traumatic brain injury <sup>[28]</sup>. Another finding provided direct evidence that noninvasive ultrasound stimulation activates individual neurons by elevating intracellular calcium concentration in multiple brain regions. and the ultrasound-evoked responses are transient and brain region-specific that is "the motor cortex and the hippocampus" <sup>[29]</sup>. Experimentally raising the level of intracellular pre-synaptic calcium in the brain altered the synaptic properties so that causing decreased memory. Most fascinating of all the results is that the reverse is also true: lowering



intracellular calcium rejuvenates their synapses and improved memory. <sup>[30]</sup>. Free intracellular calcium is an important messenger for many signal transduction pathways of neurons. The maintenance of neuronal viability and function requires the maintenance of intracellular calcium homeostasis, that is why many results provided evidence for an association between calcium channel blocker use and a lower risk of developing dementia among elderly hypertensive patients <sup>[31]</sup>. It is evident that Satan's ultrasound may affect the human body through transient pore formation in the cell membrane with increased intracellular Ca2+ influx which altered the brain's synaptic properties causing transient memory decrease, cloudiness of consciousness, and cognitive deficits.

A little extra calcium is a good thing, to help maintain healthy bones and muscles. However, too much calcium in neurons could be an underlying cause of memory loss., In neurodegenerative disorders, cellular Ca2+-regulating systems are compromised. Oxidative stress, perturbed energy metabolism, and alterations of disease-related proteins result in Ca2+-dependent synaptic dysfunction, impaired plasticity, and neuronal demise <sup>[32]</sup>. Other findings support the hypothesis that intracellular Ca2+ dyshomeostasis is a major mechanism underlying the cognitive deficits seen in both normal aging and degenerative neurologic diseases <sup>[33]</sup>. At the cellular level, ultrasound has been proposed to act on membranes, receptors, extracellular matrix, and intra-neuronal cytoskeletal microtubules. With known resonances in megahertz, microtubules play prominent roles in synaptic plasticity and have been theoretically proposed as a substrate for consciousness. <sup>[34]</sup>.

- It is obvious that Satan manipulates and visualizes Human being by using the ultrasound(U/S) pathway. Therefore, we could not see Satan because we use the light not the U/S for vision. Satan could use ultrasound to penetrate our body, particularly the brain to induce transient affection of memory, consciousness, and cognitive function by disturbing the intracellular calcium homeostasis in brain regions. The ultrasound-evoked responses are transient and brain region-specific "the motor cortex and the hippocampus". During the state of memory and cognitive cloudiness, the cerebral cortex's decision-making function is impaired and not well controlled  $\rightarrow$ improper judgment.  $\rightarrow$  abnormal behavior, and mistakes liability.

1- Visual pathway in humans. When light passes through the cornea to the lens it reaches the retina, where the formed image is inverted and reversed <sup>[35]</sup>. Retina  $\rightarrow$  electric impulses in the optic nerve  $\rightarrow$  optic chiasm  $\rightarrow$  optic tract  $\rightarrow$  lateral geniculate body  $\rightarrow$  optic radiation to the primary visual cortex <sup>[36]</sup>.

2- Bats rely on echolocation to navigate in the dark. They locate and identify objects by sending out shrill calls and listening to the echoes that bounce back. Bats emit high-frequency sounds and use the returning echoes to spot obstacles in their surroundings. But a sleek vertical surface reflects away the echoes, fooling bats into recognizing it as an open flyway. <sup>[37]</sup> – Summation of 1&2 we can develop an integrated pathway including Ultrasound and light energy to enable us to see Satan.

#### CONCLUSION

Jinn and Demons are created from ultrasound waves, which are mechanical energy that depends on their passage and speed on the presence of a medium that they collide with to move in it. Satan could reveal itself through technological applications whose mechanisms depend on ultrasound and heat. And the unique opportunity to expand



its impact is wherever thermal ultrasound is involved. It is evident that Satan's ultrasound may affect the human body through transient pore formation in the cell membrane with increased intracellular Ca2+ influx which altered the brain's synaptic properties causing transient memory decrease, cloudiness of consciousness, and cognitive deficits. It is obvious that Satan manipulates and visualizes Human being by using the ultrasound(U/S) pathway. Therefore, we could not see Satan because we use the light not the U/S for vision. Satan could use ultrasound to penetrate our body, particularly the brain to induce transient affection of memory, consciousness, and cognitive function by disturbing the intracellular calcium homeostasis in brain regions. The ultrasound-evoked responses are transient and brain region-specific "the motor cortex and the hippocampus". During the state of memory and cognitive cloudiness, the cerebral cortex's decision-making function is impaired and not well controlled  $\rightarrow$ improper judgment.  $\rightarrow$  abnormal behavior, and mistakes liability. Emphasis on the fact that the jugglers lied and those who claim that they were able through special cameras to photograph Jinn in some places. The evidence of their lies is very simple the camera technology depends on light waves, and even the latest night cameras use infrared radiation, which is one of the wavelengths of the light spectrum, so these cameras are not qualified to detect and see the Jinn.

## ACKNOWLEDGMENTS

The author acknowledges Radwa Ali and Ahmed Ali as they have drafted the work and substantially revised it.

#### **DECLARATION OF INTERESTS**

The author declares that they there is no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper. The author declares no conflict of interest.

## REFERENCES

- 1- "Albert Einstein Science and Religion (1939)". 2022.
- 2- Austen Brian. "Book Review: The Devil's Delusion by David Belinsky" C-SPAN.org.
- 3- <u>Paradise Lost Dressed in the Costume of History: John Martin's Rendition of Paradise Lost.k ta.</u> 2012;13(2).
- 4- Advances in Literary Study. 2015;3(2)
- 5- Lisa Randall. Effective theories are the key. The new European Newsletter. 2022.
- 6- Randall, Lisa. "Warped Passages by Lisa Randall". 2015.
- 7- <u>Randall, Lisa . Knocking on Heaven's Door: How Physics and Scientific Thinking Illuminate the Universe</u> and the Modern World by Lisa Randall. 2012.
- 8- Tom McLeish. Physics Today. 2018;71(2):10.



- 9- <u>Mandal D, Jarzynski C. Work, and information processing in a solvable model of Maxwell's demon. Proc</u> Natl Acad. Sci U S A. 2012;109(29):11641-11645.
- 10- Loewenstein R, Werner . Physics in mind: a quantum view of the brain. New York. 2013.
- 11- Koski JV, Maisi, V.F, Sagava T, Pekola JP. "Experimental Observation of the Role of Mutual Information in the Nonequilibrium Dynamics of a Maxwell Demon". Physical Review Letters. 2014;113(3):030601.
- 12- Koski JV, Maisi VF, Pekola JP, Averin DV. "Experimental realization of a Szilard engine with a single electron". Proceedings of the National Academy of Sciences of the United States of America. 2014;111(38):13786–13789.
- 13- <u>Strasberg, P, Schaller, G, Brandes, T, Esposito M. "Thermodynamics of a Physical Model Implementing a</u> <u>Maxwell Demon". Physical Review Letters. 2013;110(4):040601.</u>
- 14- Koski JV, Kutvonen A, Khaymovich IM, Ala-Missile T, Pekola JP. "On-Chip Maxwell's Demon as an Information-Powered Refrigerator". Physical Review Letters. 2015;115(26):260602.
- 15- Koski JV, Pekola JP. "Maxwell's demons realized in electronic circuits". Competes Rendus Physique. 2016;17(10):1130–1138.
- 16- <u>Pekola JP, Golubev DS, Averin DV. "Maxwell's demon based on a single qubit". Physical Review B. 93</u> (2):024501
- 17- <u>Ter Haar GR, Coussios CC. High intensity focused ultrasound (HIFU): Past, present, and future. Int J</u> <u>Hyperthermia 2007;23:85–87</u>
- 18- <u>Chen Shen, Jun Xu, Nicholas X. Fang, Yun Jing. Anisotropic Complementary Acoustic Metamaterial for</u> <u>Canceling out Aberrating Layers. Physical Review X. 2014;4(4)</u>
- 19- Bruce W. Drinkwater. Levitating Objects Using Sound. In Frontiers Journal. University College London. 2021.
- 20- <u>Shahrukh Sepehri Rahami Rahami et al. Willis Coupling-Induced Acoustic Radiation Force and Torque</u> <u>Reversal, Physical Review Letters. 2022.</u>
- 21- Bengtsson J, Nilsson Tengstrand M, Wacker A, et al. Supremacy of the quantum many-body Szilard engine with attractive bosons. In Quantum Physics 2023.
- 22- <u>Woods, Andrew J, Rourke Tegan. Ghosting in anaglyphic stereoscopic images. NASA Astrophysics Data</u> <u>System (ADS). 2004.</u>
- 23- O'Sullivan, Malcolm N, Chan, Kam Wai Clifford, et al. Physical Review. 82(5).
- 24- <u>Hong-Guo Li, Yan Wang, Rui-Xue Zhang, et al. Robust reflective ghost imaging against different partially</u> polarized thermal light, Optics Communications. 2018;410:867-870.
- 25- <u>Kafai Ali, Mozaffarzadeh, Moen Mardi, Zahra Hozhabr, et al. Application of Demons algorithm in</u> <u>ultrasound elastography using B-mode ultrasound images V 10878B.</u>
- 26- <u>Piotr Wawryka, Aleksander Kiebach, Gracjan Iwanek. Microbubble-based sonoporation from the basics</u> into clinical implications. In Medical Research Journal. 2019:4(3):178–183.
- 27- <u>Przytulski D, Ussowicz M. Landscape of Cellular Bioeffects Triggered by Ultrasound-Induced</u> Sonoporation. Int. J. Mol. Sci. 2022;23:11222.

Int Clinc Med Case Rep Jour (ICMCRJ) 2023 | Volume 2 | Issue 9



- 28- <u>Bobbi K. Lewis, Michele Bressler, et al. Disrupting the blood–brain barrier by focused ultrasound induces</u> sterile inflammation, Proceedings of the National Academy of Sciences. 2017;114(1):E75-E84.
- 29- <u>Tseng HA, Sherman J, Bortz E, Mohammed A, et al. Region-specific effects of ultrasound on individual</u> neurons in the awake mammalian brain. I Science. 2021;24(9):102955.
- 30- <u>Daniel Pereda, Ibrahim Al-Osta, Albert E et al. Changes in presynaptic calcium signaling accompany age-</u> related deficits in hippocampal LTP and cognitive impairment. In Aging Cell. 2017;18(5).
- 31- <u>Wu, Chia-Liang MD, MS; Wen, Shu-Hui PhD. A 10-year follow-up study of the association between</u> calcium channel blocker use and the risk of dementia in elderly hypertensive patients. Medicine 2016;95(32): e4593.
- 32- Zündorf G, Reiser G. Calcium dysregulation and homeostasis of neural calcium in the molecular mechanisms of neurodegenerative diseases provide multiple targets for neuroprotection. Antitoxic Redox Signal. 2011;14(7):1275-88.
- 33- <u>Uryash Arcady, Flores Valentina, et al. Memory and Learning Deficits Are Associated with Ca2+</u> <u>Dyshomeostasis in Normal Aging. In Frontiers in Aging Neuroscience 2012;12</u>.
- 34- Joseph L Sanguinetti, Stuart Hameroff, John JB Allen, et al. Transcranial Focused Ultrasound to the Right Prefrontal Cortex Improves Mood and Alters Functional Connectivity in Humans Frontiers in Human Neuroscience. 2020.
- 35- Jefferey G, Neven MM. "Chiasm Formation in Man Is Fundamentally Different from That in the Mouse." Nature.com. Nature Publishing Group. 2016.
- 36- "The Optic Pathway Eye Disorders". MSD Manual Professional Edition. 2022.
- 37- Martin B. Bats slam into buildings because they can't 'see' them. Nature 2017.