

Electric Healing - The Cell, Surrounding Environment, Lightning & Headache

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(0:18) Something else interesting, this is loosely related to an upcoming project of ours later this year; just know that Electricity can do amazing things inside your body. Top article recommendation today...

The article, 'Range of electrical frequencies that help heal chronic wounds tested by researchers,' appeared in ScienceDaily on March 4th, 2014.

-High-frequency electrical stimulus changes the ionic environment surrounding the endothelial cells, which form the lining of blood vessels; inside these cells, this stimulus can create links with proteins (proteins have existing charges that react with the applied electrical field) to activate pathway signals leading to growth in the capillary network as cells produce chemicals called 'growth factors,' that help sustain growing vascular networks.

-"The stimulus frequency used by the team was as high as 7.5 billion cycles per second (Gigahertz, or GHz), and as low as 60 cycles per second (Hertz, or Hz), which is the same frequency used in 120V power outlets in the United States. The vascular tissue cells were exposed to the electrical fields for one hour per day for seven days, and the rate of wound healing was observed for 24 hours after each treatment."

ScienceDaily details the recent findings of physics and biomedical researchers from the University of Cincinnati who, "recently tested for the most effective magnitude, frequency when applying an external low-amplitude electric field to vascular cells, which are key to healing chronic wounds."

The team found that high-frequency electrical stimulus, which is similar to that generated by cell phones and Wi-Fi networks, increased the growth of blood vessel networks by as much as 50%; while low-frequency electrical stimulus did not produce such an effect. Some of the other take-aways from this particular article are:

"Therefore, these findings may have important implications with regard to the therapeutic use of Electric Fields (EF) to stimulate vascular tissue regeneration and repair, where the informed choice of the therapeutic field parameters for angiogenic activation of endothelial cells in the chronic wounds is essential...Currently, the FDA-approved use of EF-based devices in the USA is mostly limited to the healing of bone fractures and treatment of pain and oedema and preventing muscle atrophy [6,72].

Our results in combination with other studies provide valuable information regarding how EF of various modalities can affect different steps in pro-angiogenic signal transduction pathways, which expands our understanding of the biophysical interactions between the cell and the surrounding environment."

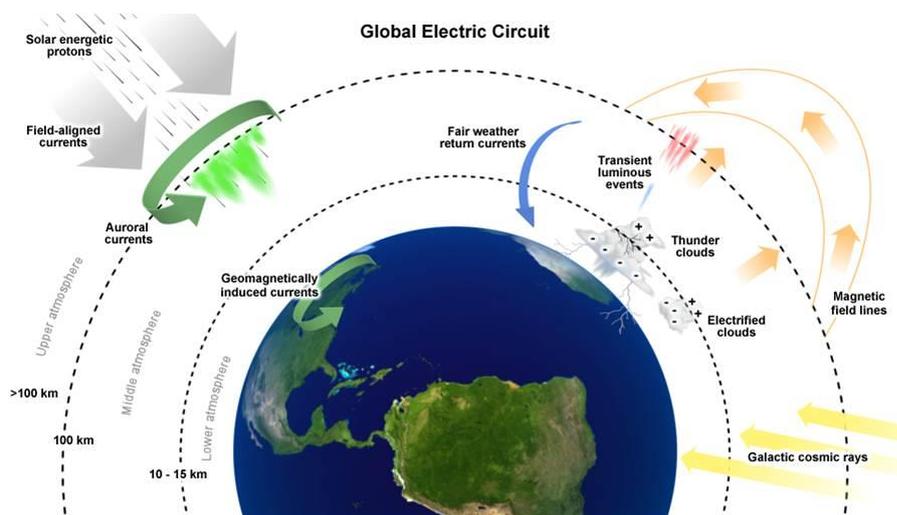
These externally applied, low-amplitude electric fields are capable of helping hard-to-heal chronic wounds by manipulating the body's naturally occurring electricity, so that new vessels form and the blood supply to the wound can be increased (i.e. diabetes, where there is insufficient blood supply and drug treatments are ineffective).

If we go to the source of this article, the paper 'Regulation of endothelial MAPK/ERK signalling and capillary morphogenesis by low-amplitude electric field,' we can see the authors' original conclusion:

The Cell, Surrounding Environment is Modulated in part by the Schumann Resonances:

The Schumann Resonance signal is created by topical thunderstorms, NASA says that, "At any given moment about 2,000 thunderstorms roll over Earth, producing some 50 flashes of lightning every second. Each lightning burst creates electromagnetic waves that begin to circle around Earth captured between Earth's surface and a boundary about 100 km up [the ionosphere]."

And, according to Dr. Neil Cherry, "The first five Schumann Resonances (SR) coincide with the frequency range of the first four EEG bands. The primary EEG bands are: Delta 0.5 to 4 Hz, Theta 4-8 Hz, Alpha 8-13 Hz and 13 to 30 Hz (Malmivuo & Plonsey 1995). Hence resonant absorption and reaction is biophysically plausible...SR consists of a spectrum of ULF/ELF resonant peaks with a fundamental frequency of about 7.8 Hz and broad resonant peaks typically at 14, 20, 26, 33, 39, 45 and 51 Hz (Cherry 2001)."



So, the daily amount of lightning striking the Earth determines the intensity of the Schumann Resonances and creates the basic conditions for our respective 'surrounding environment.'

In the Editorial 'En'lightning' the impact of atmospheric conditions in headache,' by Hayrunnisa Bolay, which appeared in the International Journal of Headache, Cephalalgia, the author explores the most frequent symptom associated with altered weather conditions: Headache. Interesting points:

- "Lightning produces enormous power and heat, and each strike can contain several hundred million volts of electricity. Lightning heats the surrounding air up 30,000 degrees Celsius, and fast expansion of heated air generates audible pressure waves (10). Such an energy outbreak induces rapid change in the chemical composition of the atmosphere."

- "The molecules and mechanisms generating headache during lightning and accompanying atmosphere conditions remain unclear. However, it is highly probable that inhalation is the major route for airborne atmospheric factors to trigger headache. Nitric Oxide (NO) and its pivotal role in migraine pathogenesis are well known (19)."

- "A lightning channel with all its branches also radiates electromagnetic impulses called 'sferics' that can propagate thousands of kilometres from their source and give direct information about thunderstorm activity on the ground. Sferics are very low and low-frequency electromagnetic waves between 1 Hz and 30 KHz, which were associated with migraine headache (7) and, with blood-brain barrier disruption in a preclinical study (22), may indicate another mechanism for headache."

- "Foley and colleagues (23) reported a novel route that electromagnetism could be transduced in the retina and sensed through the vision system in humans. This is a fascinating finding given the fact that the visual system plays an important part in migraine pathogenesis and symptoms. In addition to sferics, charged ions, yielded during thunderstorms, were also implicated in headache attacks. Martin et al. also noted that, if the lightning strikes occurred with a greater negative polarity, the risk of headache was further increases (9). Greater negative polarity of lightning could indicate the presence of positive air ions that was shown to be associated with migraine attacks (24)."

And there's still the photosensitive pineal gland to consider. The Editorial goes on to lament at how spring is, "the most critical time of the year in the northern hemisphere where composite weather (low pressure, warm air, wind, rain, storms, lightning) are mostly encountered...clinical study also suggests that spring is the time of year that migraine frequency is increased (25)."

Putting together the pieces we begin to see the strings that natural, man-made Electricity pulls throughout our lives.

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