

IS THERE A LINK BETWEEN ACUPUNCTURE MERIDIANS, EARTH-IONOSPHERE RESONANCES AND CEREBRAL ACTIVITY?

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ABSTRACT

Acupuncture points and meridians have been shown to have distinct electrical characteristics. Acupuncture points have been found to have lower electrical impedance and acupuncture meridians represent low resistance pathways. We examined the spectral characteristics of a section of the large intestine acupuncture meridian in 10 healthy volunteers by inserting a broad-spectrum pulse at one point and detecting the output response further along the meridian. Analysis of the meridian transfer function revealed characteristic resonant frequencies that strongly coincide with the spectral components of Schumann resonances and the human EEG.

INTRODUCTION

While the mechanism of acupuncture is still not well understood there is evidence to suggest that bioelectric phenomena may be involved. The ancient Chinese were aware of electromagnetic phenomena and considered health to be an energetic balance between the organism and the environment. Chinese historical writings describe the use of magnets in healing as well as the correlation between illness and sightings of the aurora borealis (a visible indicator of geomagnetic disturbances).

More recent investigations have established that electromagnetic phenomena are involved in the practice of acupuncture by demonstrating the lower electrical resistance of acupuncture points and meridians [1,2]. The low impedance properties of acupuncture points gives weight to the traditional idea that acupuncture points are sites of energy transfer. Furthermore, impedance characteristics suggests that certain frequencies may preferentially propagate along acupuncture meridians [3]. The extremely low frequency (ELF) range is of particular interest as homeostatic responses have been linked to the occurrence of electroencephalogram (EEG) alpha activity which may be induced by acupuncture [4].

METHOD

In order to determine the resonant frequencies of an acupuncture meridian, two acupuncture points along the large intestine meridian were located using standard charts. Conventional 32 gauge stainless steel acupuncture needles were inserted into these points and a broad frequency, biphasic pulse 1 msec/phase (2 msec pulse width) and 1 volt p-p amplitude was introduced into the distal point (Li 4) at a rate of 1 pulse per second. Recordings were taken from this point as well as from a point further along the meridian (Li 11) over a 30 second period (meridian shown in Figure 1). An additional large stainless steel electrode was held in the palm of the subject and was used as common reference point. The recorded signals were subject to frequency domain analysis to determine the transfer function and hence the spectral characteristics of the meridian. This procedure was repeated for 10 healthy subjects aged between 20 and 38 years old.

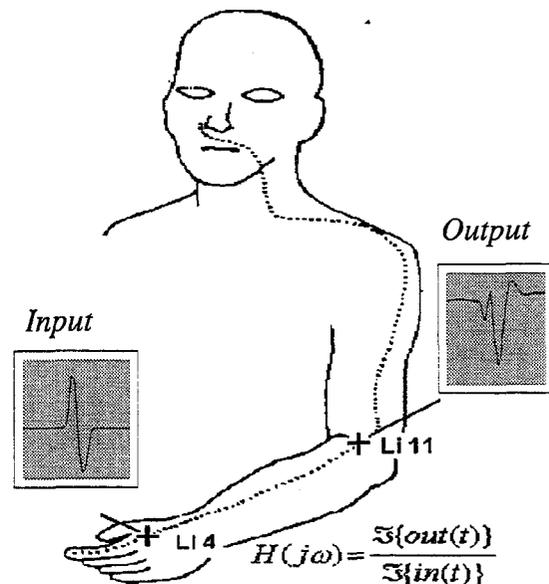


Figure 1. Li 4-11 Meridian

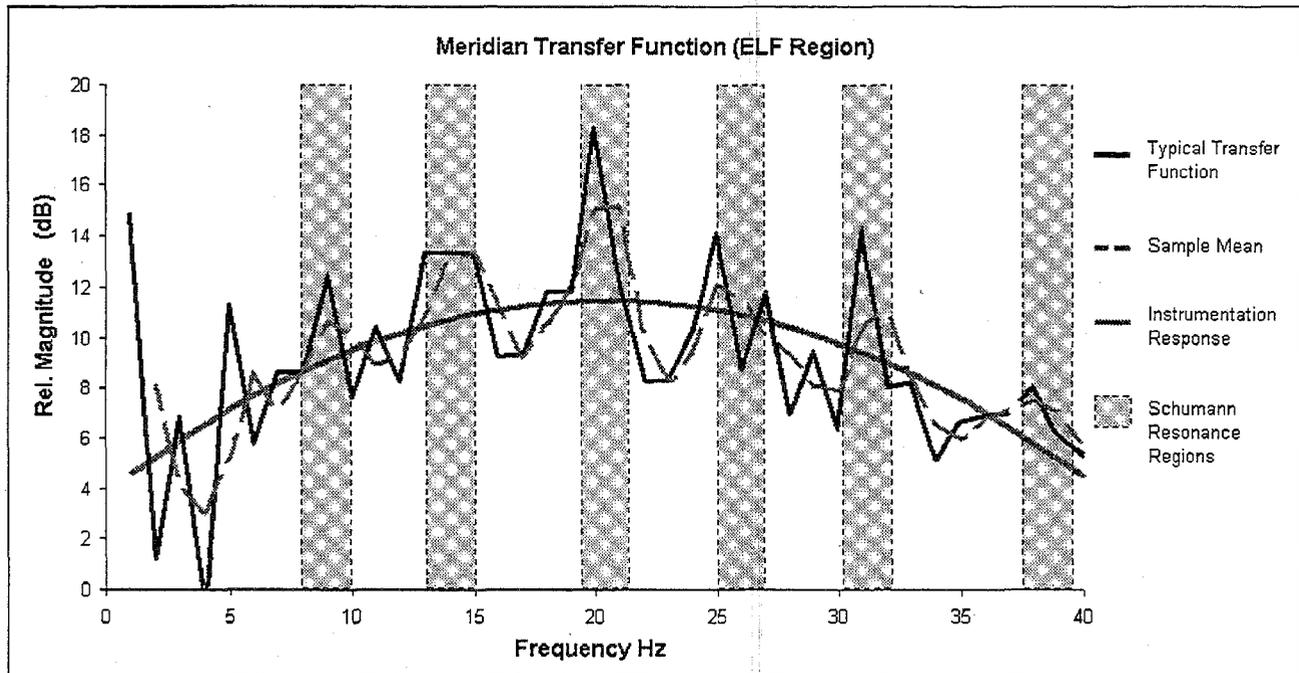


Figure 2. Meridian Transfer Function

RESULTS

Preliminary results indicate the presence of strong resonant peaks in the transfer function spectra of the large intestine meridian (Figure 2). These resonances occur in the ELF range up to 45Hz. Of particular interest are the peaks occurring in the 8, 14, 20, 26, 33 and 39 Hz regions, which closely correspond to the "Schumann resonances". Schumann resonances are the result of lightning-induced electromagnetic propagation between the surface of the earth and the ionosphere [5]. These natural earth-ionosphere resonances have been previously shown to overlap with the principal spectral regions of the EEG [6]. In addition, the dominant Schumann component around 8 Hz corresponds to the alpha region of the EEG, which is known to have beneficial effects on health.

This result confirms our previous studies [7,8] on the resonant frequencies of acupuncture meridians using Ag/AgCl electrodes.

CONCLUSION

The results of this study indicate that there are characteristic resonant frequencies in the spectra of the large intestine meridian. These ELF frequencies closely correspond to Schumann resonances and the principal spectral components of EEG. This result suggests there may be a resonant relationship between environmental ELF radiation, acupuncture meridians and central nervous system activity.

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