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DEVELOPMENT OF A DIAGNOSTIC TEST FOR SENSITIVITY TO ELECTROMAGNETIC FIELDS BASED ON QUANTITATIVE ANALYSIS OF BRAIN WAVES

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Epidemiological studies suggest that chronic exposure to electromagnetic fields (EMFs) increases the risk for disease, particularly cancer. Clinical observations suggest that acute exposure to EMFs produces a broad range of symptoms. Our hypothesis is that EMF effects are posttranslational with respect to the EMF-detecting cell (PDC): fields are detected by a neural electrogenic protein that mediates subthreshold changes in membrane potential which modify ongoing oscillatory behavior. The resulting efferent CNS signals initiate non-specific adaptive responses to the EMF, which may trigger reactions in sensitive individuals. Chronic activation of the adaptive system adversely affects immunosurveillance by natural killer cells, thereby increasing the occurrence of disease. The portion of the theory dealing with the prediction of altered brain-wave activity was tested by exposing subjects to EMFs, and comparing the brain waves (in the form of their Fourier transform) with those obtained from the same subject when the EMF was not applied, sing the Wilcoxon signed-ranks test. Sham exposure (no field applied) was used as a negative control, light was used as the positive control. The results are shown in the Table.

Experiment Number	Stimulus	Normal Subjects		Neurology Patients	
		N	ND	N	ND
1	Sham	16	0	12	0
	Light	16	6	12	5
	2.5–0.5 G, 40 Hz	12	8	8	1
2	Sham	10	0	10	0
	0.784 G, DC	10	3	10	4
	0.784 G, 60 Hz	10	7	10	5
	0.784 G, DC & 60 Hz	10	5	10	6

N, no. of subjects; ND, no. of subjects that detected the stimulus

It is clear that EEG sensitivity to weak magnetic fields is a general characteristic of human subjects, as predicted by the PDC theory.