

## **NUTRIENTS IN THE TREATMENT OF ELECTROMAGNETIC SENSITIVITY, AN EMERGING DISEASE**

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### **ABSTRACT**

The electromagnetically sensitive person is often anemic with high cholesterol and high glucose and low blood pressure. Malnutrition commonly occurs and adversely affects the quality of life, working ability and survival. It is caused by decreased food intake, radiation and enteritis with abdominal pain and frequent diarrhea. As a result there is malabsorption and impaired metabolism. Russian physicians had positive results with intravenous injections of 40% glucose, 5% ascorbic acid and ginseng. Chinese physicians suggest the herbs Genoderma and Krestin to enhance the recover of cellular immunocompetence. Neurological symptoms include profuse sweating, depression, fine tremor of the hands and inability to concentrate. Rea's double blind laboratory provocation study documented that hypersensitive persons are able to identify weak fields. Frequencies used range from 0.1 Hz to 5 MHz.<sup>2</sup>

### **INTRODUCTION**

Electromagnetic sensitivity (ES) is a progressive disabling disease associated with exposure to electronic equipment. While researchers have been aware of this disease for more than two decades (Dodge, 1970), ES has received little attention from the scientific community. It has many names: electrical sensitivity, electrical-hypersensitivity, electrically injured, electrical intolerance, electric allergy and electromagnetic sensitivity. Several million people all over the world suffer from ES. Some people with severe ES are unable to work. Compounding the medical problems is the uncertainty as to whether the medical profession will recognize their illness, whether disability boards will award their claims, whether their health insurance will pay for their treatment, and whether their employers will provide an atmosphere in which they may continue to work.

Electrical sensitivity is usually accompanied by chemical sensitivity. Electrically sensitive people react to computers, TV's, stereos, VCRs, fluorescent lights, telephones, electronic security systems, electric tools, electric sewing machines, electric heaters and electric trains. Electromagnetically sensitive people are usually sensitive to perfumes, pesticides, solvents, cleaning fluids, petrochemical products, diesel fumes and formaldehyde. They react to airborne particles and certain foods. Electromagnetic sensitivity to many chemicals and to many sources of electromagnetic fields.

\* This paper does not reflect and opinion of any U.S. federal agency.

## MATERIALS AND METHODS

This report evolves from:

- Studies and papers published at the following conferences: The Second World Congress for Electricity and Magnetism in Biology and Medicine Bologna, Italy, 1997; The 15th Annual International Symposium on Man and His Environment in Health and Disease, Special Focus on Bioelectricity, Dallas, Texas, 1997; The First World Conference on Nutrition and Vitamin Therapy, New York, 1997; The Annual Review of Research on Biological Effects of Electric and Magnetic Fields From Generation. Delivery and Use of Electricity, San Diego, California, 1997; The 20th Annual Meeting of the Bioelectromagnetics Society, St. Petersburg, Florida, 1998; The Second Electromagnetic Hypersensitivity Conference, Copenhagen. Denmark, 1995; The Fourth International Conference on Work with Display Units, Milan, Italy, 1994; The Third International Scientific Conference on Work with Display Units, Berlin, Germany, 1992; and The International Symposium on Biological Effects and Health Hazards of Microwave Radiation, Warsaw. Poland, 1973.\*

- Studies published in **Index Medicus** 1960-1997.  
**Sick From Computers**, 1989, by O. Nordstrom and C. von Scheele.

- Many of the results reported herein have previously been reported in the following: **Computer Health Hazards**, v.1 and v.2 1990 and 1993 and in **Computer, Antenna, Cellular Telephone and Power Lines Health Hazards**, v. 3 1996.

\*The author's studies were among the papers presented at Bologna. Italy. 1 1997; New York. New York. 1997. Copenhagen. Denmark. 1995, San Diego. California, 1997 and San Petersburg, Florida. 1 1998.

## RESULTS

In the 1980's people suffering from the electromagnetic sensitivity had skin and nervous system symptoms. Electromagnetically sensitive sufferers most commonly complained about skin problems including red face, erythema, and dermatitis with blisters. In 1989, Dr. Bent Knave reported that the symptoms as "nausea, headache, rash and jitteriness are among the first symptoms to appear." In 1994, Dr. Knave's reported further the symptoms from the nervous system, sex organs, upper respiratory tract, and gastrointestinal tract. Symptoms from the nervous system include headaches, dizziness, heart palpitations, profuse sweating, depression and memory difficulties. The prognosis varies with the type of symptoms. Symptoms of the nervous system generally persist longer than skin symptoms. Dr. William Rea (1991), in a double blind laboratory study, documented electromagnetic sensitivity and the existence of neurological symptoms. Dr. Knave referred to Dr. Rea's laboratory study in 1995 at the 2<sup>nd</sup> Electromagnetic Conference in Copenhagen, Denmark.

**EXISTENCE OF ELECTROMAGNETIC SENSITIVITY (ES) CONFIRMED IN A MEDICAL STUDY**

REA, ET AL.

- Double blind study had 21 active challenges and 5 false challenges
- Magnetic fields were from 0.1 Hz to 5 MHz
- 100 ES patients were blindfolded and seated in chairs exposed to electromagnetic fields generated from a coil
- Fields were 350 nT at the patient’s knees and 70 nT at their hands
- 25 (20%) reported intense symptoms
- 16 (64%) reported painful reactions
- Frequencies causing the most painful reactions were 1, 2.5, 5, 10, 20 Hz and 10kHz
- Some ES patients were sensitive to testing devices (Irisorder) and were excluded

<b>SYMPTOMS RELATED TO EMF EXPOSURE:</b>
Neurological: tingling, sleepiness, headaches, dizziness, loss of consciousness
Musculoskeletal: pain, spasms, vibration
Respiratory: pressure in ears, tooth pain, tightness in chest, shortness of breath
Cardiovascular: palpitation, flushing, tachycardia, edema
Gastrointestinal: belching, nausea
Ocular: burning
Dermal: itching, burning, prickly pain

**Table 1**

Phase II — Single-blind Challenge of 100 Patients

Number of Patients	Number of Active Challenges	Number of False Challenges	Positive Reactions to Active Challenges	Positive Reactions to False Challenges
50	1050	250	750	150
25	525	125	0	0
25	525	125	325	0

Rea, W, et al. Electromagnetic Field Sensitivity. *Journal of Bioelectricity* 10:241-256, 1991.

**Table 2**

Phase III — 25 Patients Previously Positive Rechallenged and 25 Controls Tested Double-blind

Number of Patients	Number of Active Challenges	Number of False Challenges	Positive Reactions to Active Challenges	Positive Reactions to False Challenges
16	336	80	179	6
25	525	125	0	0

Rea, W, et al. Electromagnetic Field Sensitivity. *Journal of Bioelectricity* 10:241-256, 1991.

**Table 3**

## Percentage of 16 Patients With Severe Reactions To Different Frequencies

Frequency (Hz)	Patients with Positive Reaction (%)
0.1	31
0.5	44
1	75
2.5	75
5	69
10	69
20	69
40	50
50	50
60	63
100	56
1K	56
5K	38
10K	69
20K	56
35K	31
50K	50
75K	50
100K	38
1M	50
5M	31

Rea, W, et al. Electromagnetic Field Sensitivity. *Journal of Bioelectricity* 10:241-256, 1991.

**Table 4**

### **DISCUSSION**

The electronically sensitive person is often anemic with high cholesterol and high glucose and blood pressure.

The patient history, the physical exam and laboratory tests are:

#### PATIENT HISTORY

- Relate the symptoms to EMF exposure: acute, delayed, chronic
- Recent eye problems, pressure behind the eyes, floaters, difficulty focusing, deteriorating vision, eye aches
- Dental problems, especially broken fillings
- Dryness of the lips, mouth, skin or eyes
- Puffy lips
- Swollen or sore throat
- Sinusitis, bronchitis, headaches
- Ear aches/ringing in the ears
- “Burning” in any part of the body: chest, eyes, ears, testicle
- Pressure or pain in the chest

- Insomnia
- Dizziness
- Nausea, loss of appetite
- Pelvic discomfort/pain in the testicles or ovaries
- Paresthesia
- Muscle spasms, pain in the soles of the feet, pain in the legs, muscle, joint, or abdominal pain, especially pain that moves around the body
- “Electrical currents” in any part of the body
- Sweating
- Itchy systemic rash
- Spontaneous nosebleeds and gum bleeds
- Frequent urination
- Craving for carbohydrates

**Table 5**

### PHYSICAL EXAM

Look for:

- Skin rash
- Enlargement or tenderness of thyroid
- Blood pressure higher than usual
- Shortness of breath (may look like an anxiety attack)
- Wheezing
- Lungs not clear
- Increase in the size of heart
- Liver tenderness
- General hypersensitivity
- Any elevation of body temperature
- Sinus pain/drainage
- Deterioration of the teeth/pain in the teeth with metallic fillings

Neurological:

- Tremors, especially of eyelids and hands
- Change in visual acuity
- Increased sensitivity to vibration
- Increased tendon reflexes of the upper or lower extremities
- Decreased abdominal reflexes
- General muscle weakness

Mental:

- Agitation
- Fatigue
- Impaired short or long term memory

**Table 6**

## LABORATORY TESTS

Blood May Show:

- Abnormal blood sugar curve
- Elevated blood histamine
- Elevated serum protein and globulin
- Lower albumin/globulin ratio
- Increase in cholesterol and beta-lipoprotein
- Leukopenia or thrombocytopenia. Or a change in leucocytes (increase or decrease) or immunoglobulins for that patient, or
- IGG subclasses abnormal
- Signs of autoimmunity
- Altered serum lactic acid
- Altered oxygen content or pH of the blood
- Increased copper or zinc in the urine
- Decreased red blood cell copper
- Change in appearance of red blood cells (rouleaux formation, etc.)
- Increased thyroid activity
- Increased adrenal activity

EKG

- Lengthening of the intraauricular and intraventricular conduction. Decrease in amplitude of the R and T waves. Any arrhythmias.

EEG

- Seizure activity. Abnormal excitation.

### Table 7

Malnutrition commonly occurs and adversely affects the quality of life, working ability and survival. It is caused by decreased food intake, radiation enteritis with abdominal pain and frequent diarrhea. As a result, there is malabsorption and impaired metabolism. Russian physicians had positive results with intravenous injections of 40% glucose, 5% ascorbic acid and ginseng. Macrobiotic authorities often recommend a diet of 60-70% of whole grain cereals, 3-5% (1-3 cups) of miso soup with vegetables and seaweed, 20% cooked vegetables, 5-10% beans and seaweed, Sea vegetables contain sodium alginate which binds heavy metals in the intestine and converts them into insoluble salts which can be excreted from the body. Chinese physicians suggest the herbs Genoderma and Krestin to enhance the recovery of cellular immunocompetence, Genoderma is more effective than Krestin. Gynostema Pentaphyllum (32 mg/kg) accelerates the recovery of leukocyte counts and releases the inhibitor of the response of splenic cells to mitogens. Gynostemma has both radioprotective and radio-therapeutic effects. Jean-Shen-Yang-Tang has radio-therapeutic effects: It enhances the recovery of decreased cellular immunocompetence and it augments the function of hemocytopoietic organs through stimulating the reticuloendothelial system.

## TREATMENT

No cure has been found.

Avoid exposure to:

Computers, TVs, VCRs, all electronic equipment sunlight, and synthetic fabrics

Use cotton, silk or wool clothing

Treatment of excessive intestinal candida

- use yogurt, buttermilk and kefir in the diet
- antifungals may be needed

Oral antioxidants and herbs

- Vitamins A, E, C, selenium, cysteine, glutamine

Injectable nutrients required if severe malabsorption exists

- Rea, 1991 has good results over a long period of time
- Kapitenko, 1965: IV 40% glucose, 5% ascorbic acid solution, ginseng

Avoid salted, processed food and hydrogenated fat

If chronic radiation enteritis: limit fat, fiber and lactose to reduce diarrhea

### **Table 8**

Large oral doses of vitamins help correct vitamin deficiency. Supplementing the vitamins A (25,000 IU), C (2,000-3,000) mg daily plus bioflavonoids and rutin, E (400 IU up to 800 IU) and the trace minerals, especially selenium (200 mg daily), can inhibit the promotion of free radicals.

Superoxide dismutase (SOD) is natural in barley grass, very young broccoli, brussels sprouts, cabbage, wheat grass and most green plants. This antioxidant aids in the body's utilization of zinc, copper and manganese. If the SOD supplement is in the pill form, it must be enteric coated.

Exposure to radiation pollution is destructive to vitamins A, C, E, K and several B vitamins, and essential fatty acids. Both vitamin A and beta-carotene are absorbed more readily when optimal amounts, of B-complex, vitamins C, D and E, and zinc are present in the diet.

Intestinal candida should be resolved if excessive. Yogurt, buttermilk and kefir are recommended, since they contain microorganisms that protect the gastrointestinal tract.

Also recommended are calcium, magnesium, beta-carotene and the amino acids glutamine and cysteine.

## CONCLUSION

Dodge described electromagnetic sensitivity in 1971<sup>3</sup> and indicated that Russian physicians have also described the illness as “microwave sickness.”<sup>4</sup> To date, this illness has not been recognized for insurance and workers’ compensation claims. The worldwide introduction of computers makes it urgent that this disabling disorder be given widespread attention by the medical community, diagnostic criteria established and treatment protocols developed. Findings are based on my investigation of the scientific literature, the results published in my books, *Computer Health Hazards*. v.1 & v. 2. 1990 and 1993<sup>5-6</sup>, and computer *Antenna, Cellular Telephone and Power Lines Health Hazards*. v.3, 1996<sup>7</sup>.

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