

# Reducing the level of 50 Hz Magnetic Fields Lessens Symptoms of Chronic Fatigue and Improves Sleep

2nd International Workshop on "Biological effects of Electromagnetic fields", 7-11 October 2002 , Rhodes, Greece.

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## ABSTRACT

Research suggests that people exposed to 50 Hz magnetic fields (MFs) may show symptoms of chronic fatigue (CF) 1. We studied 49 subjects suffering from CF and CFS (Chronic Fatigue Syndrome) who were exposed to mains frequency MFs in their homes. Some highly exposed subjects (>2 mG) were given advice on how to reduce their exposure levels. Those exposed to <2 mG were given no such advice. After 6 months, 64% of those in the high exposure group but only 12% in the low exposure group reported improved sleep quality. It is proposed that the sleep quality changes were due to a reduction in the effects of MFs on melatonin secretion, a hormone known to be involved in the timing and quality of sleep.

## INTRODUCTION

Clinically, CFS is characterised by incapacitating fatigue of at least 6 months duration, usually with an abrupt onset accompanied by and infectious-like illness. It can affect every major system in the body. We have hypothesised elsewhere 1, 2 that exposure to power line frequency MFs may be a co-factor to consider in treating CFS/CF. Here, we report some of the results from a pilot study designed to test this hypothesis.

## METHODS

Subjects were drawn from 3 Australian States: Victoria, South Australia, and Tasmania. All were being treated by a medical practitioner for CFS/CF at the time of the study. Through a questionnaire, we collected data on the presence and severity of 86 physical symptoms, CFS/CF symptoms, and a wide range of factors that might influence responses - blood iron levels, sleep patterns, use of a mobile phone, and much more. In all, 202 questionnaires were distributed and 49 subjects responded. Of these, 35 were female and 14 male with an age range of 17 -72 years.

Measurement of the MFs was carried out with an F. W. Bell Triaxial Extremely Low Frequency [ELF] MF meter. Measurements were taken over 2 weeks at times to suit the subjects. Generally, one set of measurements were done with most appliances off and another set with most appliances on. Readings were taken from the centre of a room one meter above the ground. Areas close to meter boxes, wiring concentrations, and water pipes were also monitored.

## RESULTS

We found no relationship between CFS/CF symptom severity and the average MF strength subjects were exposed to.

Of the 49 subjects, 11 were clearly exposed to an average MF >2 mG (Group A) and another 34 to an average MF of < 2 mG (Group B). (Some subjects' data could not be included.) Group A was given advice and assistance on how to reduce exposure; Group B was given no

such advice. Six months later subjects were again questioned, especially in regard to their CFS/CF symptoms and sleep quality.

<b>TABLE 1</b>			
<b>Percentage change in health systems 6 months after initial contact.</b>			
<b>Improvement</b>	None	Slight	Definate
<b>Group A (&gt;2mG)</b>	45	0	55
<b>Group B (&lt;2mG)</b>	68	18	14

Table 1 shows that those who received advice were more likely to report improvements in their symptoms. Interestingly, 64% of Group A reported a marked improvement in sleep quality, whereas only 12% of Group B reported this change.

*Note: Only some of our results are reported here.*

## **CONCLUSIONS**

Power line frequency MFs do not seem to be related to CFS/CF symptom severity. However, the point estimates of MF strength we obtained were less than satisfactory. A future study will equip each subject with a portable meter so that MFs can be tracked both in the home and elsewhere.

There is some evidence that reducing MF exposure assists in reducing CFS symptoms and improving sleep quality. Our findings on sleep quality are consistent with those of other researchers who found that a 50 Hz MF interfered with sleep. Several investigations show that ELF MFs can suppress melatonin release, a hormone known to be involved in circadian functioning. Reducing MFs may improve sleep quality by enabling a more normal pattern of melatonin secretion.

## **REFERENCES**

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