sleep data were recorded for twelve nights. Exposure was realized by an experimental base station working constantly with a well defined emission. The base station was manipulated to ensure blinding.

Results. Altogether 397 subjects (> 17 years) from 10 villages in various parts of Germany participated in the study. The number of inhabitants of the villages varied from 125 to 652, the total number was 2856 (> 17 years: 2329), which reflects 17.1% of the eligible inhabitants participated in the study (50.9% females in the sample out of 48.5% eligible females). The mean age of participants was 45.0 ± 14.2 years, the range was 18 to 81 years. Males were slightly, but not significantly older than females (46.3 ± 14.2 years vs 43.8 ± 14.2 years). 21 subjects (5.3%) had to drop out of the study before the end due to illness (own or of relatives) or job-related reasons.
Analysis of the questionnaires to characterize the sample showed that study participants are representative of general population based samples. There was no indication of an increased prevalence of depression, anxiety, special personality traits, morning-evening types. Furthermore the attitude towards mobile communication in the sample was equivalent to results from representative population surveys. The analysis of the subjective and objective sleep data in relation to exposure is under way and will be finalized by the end of March 2008. So it will be possible to present the data at the meeting.

Conclusions. One conclusion to be drawn so far is that the participants are a representative sample of the general population. There is no selection bias with regard to factors that might influence the relationship between EMF exposure and sleep.

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8-8 THE ACUTE EFFECTS OF WHOLE BODY EXPOSURE TO A 1800 MICRO-TESLA , POWER-LINE FREQUENCY MAGNETIC FIELD ON THE HUMAN CARDIOVASCULAR SYSTEM

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Summary of Abstract. The physiological effects of magnetic field (MF) exposure on the human cardiovascular system have been questioned and debated in the literature for many years now. Several research teams have focused their efforts on power-line frequency field exposure, investigating macrocirculation parameters such as blood pressure, heart rate, and heart rate variability. The results of these studies have proved inconclusive and often contradictory. This is likely due to heterogeneous field characteristics employed in the various

studies as well as confounding variables that have been identified in the literature. Interestingly, there has been very little research conducted on the effect of power-line frequency fields on the microcirculation. As the macrocirculation and microcirculation are continuous, we believe that by investigating how both respond to exposure in the same experiment, we might gain a better picture of the cardiovascular response. Previous unpublished work conducted in our laboratory on rats has suggested a decrease in microcirculation as a result of exposure to power line frequency MFs. The results of this study would then be of value in determining risk assessment models for populations subject to this type of exposure, addressing previous inconsistencies in macrocirculatory literature and as a possible therapeutic approach for microcirculatory pathologies.

Objectives. Our objective was to determine if changes in peripheral microcirculation, blood pressure (BP), heart rate (HR), heart rate variability (HRV) and skin surface temperature (SST) occur during and/or after an acute, 60 Hz MF exposure session at 1800 μT. It is hypothesized that MF exposure will decrease peripheral microcirculation and heart rate variability and have no effect on heart rate frequency, systolic blood pressure, or skin surface temperature.

Methods. This project is part of a current study protocol (University of Western Ontario Health Sciences Research Ethics Board # 11956E) investigating various physiological responses to power line frequency MF exposure. Ethics has been obtained to recruit 120 healthy adult volunteers between the ages of 18 and 55 years of age. The experiment uses a double blinded computer program (National Instrument Inc., USA) to assign subjects to 2 counterbalanced exposure sessions administered on 2 separate days. The exposure sessions are either real (active) or control (sham). Each session is composed of 4 blocks of testing interspaced with 15 minutes of rest. Testing occurs 15 minutes before the beginning of exposure, after 15 and 45 minutes of exposure and 15 minutes following exposure.
During each block of testing, the subject's peripheral microcirculation is measured with a laser Doppler flowmetry probe (PF 5010 Laser Doppler Perfusion Unit, Perimed, Sweden) attached to the ventral tip of the middle finger of the non dominant hand. After each perfusion recording has been taken in each block of testing, a systolic blood pressure measurement is taken with a digitally controlled pressure cuff (PF 5050 Pressure Unit, Perimed, Sweden). Additionally heart rate and skin temperature are continuously recorded throughout the testing block with an ambulatory electrocardiogram (Siesta, Compumedics Inc., USA) and skin surface thermistor (Series 400, Yellowstone Scientific Instruments, USA) respectively.
The exposure chamber consists of two Helmholtz like orthogonal coils, 1.6 m wide (80 turns of AWG10 wire) spaced with 1.2 m apart. The subject is seated in the middle of the coils for whole body exposure.

Results. We are presently concluding this study and are in the process of analyzing data from 94 subjects. The results will be presented at the conference in June.

Conclusions. The results from this study will be the first investigation into the effects of power line frequency magnetic fields on the human microcirculatory system. Additionally

the data will provide a "big picture" perspective of how the cardiovascular system responds to fields of this nature.

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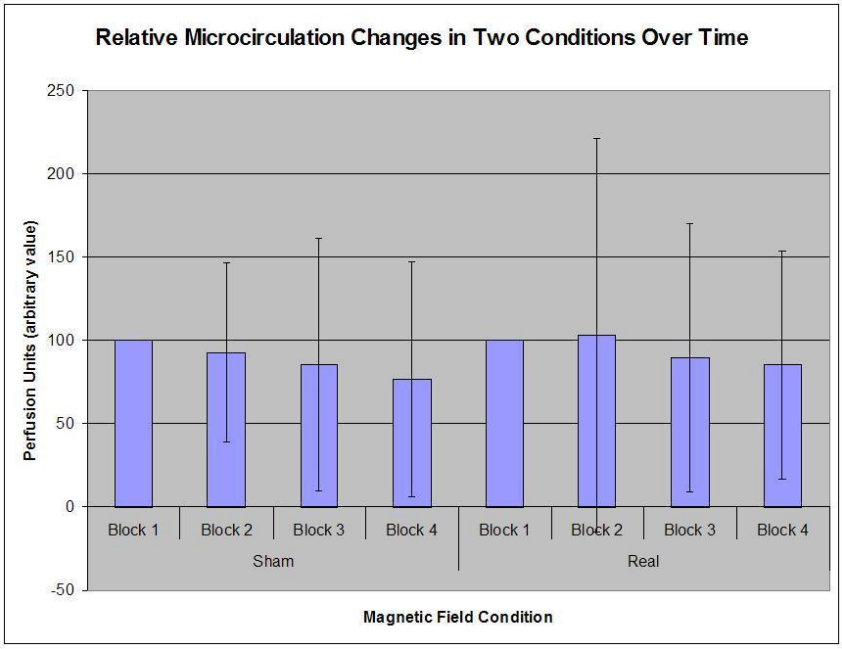

FIGURE 1.