

A LITERATURE REVIEW: THE CARDIOVASCULAR EFFECTS OF EXPOSURE TO EXTREMELY LOW FREQUENCY ELECTROMAGNETIC FIELDS

The effects of exposure to extremely low frequency (ELF) electromagnetic fields (EMFs) on human cardiovascular parameters remain undetermined. Epidemiological studies have utilized dosimetry estimations of employee workplace exposure using altered heart rate variability (HRV) as predictive of certain cardiovascular pathologies. Laboratory studies have focused on macrocirculatory indicators including heart rate, HRV and blood pressure. Few studies have been conducted on the response of the microcirculatory system to EMF exposure. Attempts to replicate both epidemiological and laboratory studies have been mostly unsuccessful as study design, small sample populations and confounding variables have hampered progress to date. Identification of these problems, in the current context of international exposure guideline re-evaluation, is essential for future EMF studies. These studies should address the possible deleterious health effects of EMFs as well as the detection and characterization of subtle physiological changes they may induce. Recommendations for future work include investigating the macro- and microcirculatory relationship and the use of laboratory geomagnetic shielding.