

Influence of 50 Hz, 1m Tesla Electromagnetic Fields on Serum Male Sex Hormones of Male Rats

Authors : Randa M. Mostafa, Y. Moustafa

Abstract : During our daily life, we are continuously exposed to the extremely low frequency electromagnetic fields (ELF-EMFs) generated by electric appliances. The possible relation between exposure to (ELF-MFs) and adverse health effects has attracted and passed through long debate sessions. Extremely low frequency is a term used to describe radiation frequencies below 300 Hertz (Hz). It is very important for public health because of the widespread use of electrical power at 50-60 Hz in most countries. This study set out to investigate the impact of chronic exposure of male rats to 50- Hz, 1 mTesla (ELF-EMF) of over periods of 1, 2, and 4 weeks on concentration of serum FSH, LH, and testosterone hormones. 60 male albino rats were divided into 6 groups and were continuously exposed to 50-Hz, 1 m Tesla (ELF-EMF) generated by magnetic field chamber for periods of 1, 2, and 4 weeks. For each experimental point, sham treated group was used as a control. Assay of serum testosterone LH, and FSH were performed. Serum testosterone showed no significant changes. FSH showed significant increase than sham exposed group after 1 week of field exposure. LH showed significant increase than sham exposed group only after 4 weeks of field exposure. A future detailed molecular studies must be carried out to figure out and may be able to explain the possible interactions between ELF-EMF and hypothalamic-pituitary gonadal axis.

Keywords : extremely low frequency electromagnetic fields, testosterone, follicular stimulating hormone, LH

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