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Teratogenic Effects of Electromagnetic Fields on the Skeletal Systems of Rat Fetuses

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**Abstract:** OBJECTIVE: To evaluate the potential teratogenic effects of electromagnetic fields on the skeletal systems of rat fetuses. MATERIAL AND METHODS: Twenty-five pregnant rats, which had been exposed to electromagnetic fields with frequencies of vertical 50 Hz and horizontal 20 kHz and a total maximum intensity of 10 milligauss, during their pregnancies, were the study group, while 15 pregnant rats were the control group. One hundred eighty-nine and 125 fetuses obtained from the study and the control group respectively, were evaluated for abnormalities and variations in the skeletal system. The chi-square test was used for the statistical analysis. RESULTS: Major abnormality, minor abnormality and variation of the skeletal system were seen in 4(16.0%), 3(12.0%) and 12 (48.0%) of the 25 litters and 8(4.2%), 4(2.1%), and 41 (21.7%) of the 189 fetuses respectively, in the study group, while none of the litters or fetuses had any abnormalities and 2 litters (13.3%) including 5(4.0%) fetuses had variations of the skeletal system in the control group. The proportions of the litters ( $p<0.05$ ) and fetuses ( $p<0.01$ ) with skeletal system variation in the study group were found to be significantly higher than the proportions of those in the control group. CONCLUSION: Electromagnetic fields created by video display terminals might alter the normal development of the skeletal systems of rat fetuses.

**Key Words:** Electromagnetic field, rat, skeletal system, teratogenic effect.

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