The Effects of Non-Ionizing Radiation from Wireless Fidelity in the Circadian Rhythm of the Fruit Fly (Drosophila melanogaster)

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The amount of electronic devices that use Wi-Fi has created an excess of non-ionizing radiation which has been classified as pollution, called electrosmog. But what if the electromagnetic waves produced by these devices cause problems to living organisms? This research used Drosophila melanogaster to measure their circadian rhythm, and see if they were affected by the presence of Wi-Fi. The hypothesis was that if Drosophila melanogaster is exposed to non-ionizing radiation, then changes could occur in its circadian rhythm. To investigate this, movement sensors were used to track the changes that occurred in the circadian rhythm of the flies in a highly controlled environment. A group of thirty-two female flies and thirty-two male flies were exposed to these waves for six straight days. Data on the number of hours that each fly slept was gathered and averages were also obtained for the number of hours both male and female flies slept. The fruit flies' circadian rhythm was affected by the waves of Wi-Fi and it was affected in a different way for male and female flies. Statistical analysis evidenced that the effect of Wi-Fi, fly gender and the interaction between gender and Wi-Fi were significantly related to the circadian rhythm Graph analysis evidenced that male fruit flies, slept less than the male control group; they were awake when they were supposed to be asleep. The experimental females slept much more than the female control group; they slept when they were supposed to be awake. In conclusion the hypothesis was approved.

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