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## The effect of melatonin on body mass and behaviour of rats during an exposure to microwave radiation from mobile phone.

Sokolovic D, Djordjevic B, Kocic G, Babovic P, Ristic G, Stanojkovic Z, Sokolovic DM, Veljkovic A, Jankovic A, Radovanovic Z.

Source

Department of Biochemistry, University of Nis, Nis, Serbia.

Abstract

BACKGROUND:

Microwave radiation (MW) produced by wireless telecommunications and a number of electrical devices used in household or in healthcare institutions may cause various disorders in human organism. On the other hand, melatonin is a potent antioxidant, immunostimulator and neuromodulator. The aim of this research was to determine body mass and behaviour changes in rats after a chronic microwave exposure, as well as to determine the effects of melatonin on body mass and behaviour in irradiated rats.

METHODS:

Wistar rats were divided into the four experimental groups: I group (control) - rats treated with 0,9 % saline, II group (Mel) - rats treated with melatonin (2 mg/kg), III group (MW) - rats exposed to MW radiation (4 h/day), IV group (MW+Mel) - rats, which were both exposed to MW radiation and received melatonin premedication (2 mg/kg).

RESULTS:

A significant body mass reduction was noted in animals exposed to MW radiation when compared to controls after 20, 40 and 60 days ( $p < 0.001$ ). Furthermore, body weight was significantly increased ( $p < 0.05$ ) in irradiated rats, which received melatonin pretreatment (MW+Mel) in comparison to irradiated group (MW) after 20 days. Microwave radiation exposed animals showed an anxiety related behaviour (agitation, irritability) after 10 days of exposure. After the radiation source removal, changes in behaviour were less noticeable. Melatonin administration to irradiated rats caused a decrease in the stress induced behaviour.

CONCLUSION:

Microwave radiation causes body mass decrease and anxiety related behaviour in rats, however melatonin causes a reverse of those effects on both body weight and behaviour of irradiated animals (Fig. 2, Ref. 32).

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[Publication Types, MeSH Terms, Substances](#)

Publication Types

Research Support, Non-U.S. Gov't

MeSH Terms

Animals

Antioxidants/pharmacology\*

Behavior, Animal/radiation effects\*

Body Mass Index\*

Body Weight/radiation effects\*

Cellular Phone\*

Male

Melatonin/pharmacology\*

Microwaves/[adverse](#) effects\*

Rats

Rats, Wistar

Substances

Antioxidants

Melatonin

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Full Text Sources

AEPress, s r. o.

Medical

Antioxidants - MedlinePlus Health Information

Body Weight - MedlinePlus Health Information

Molecular Biology Databases

MELATONIN - HSDB