ScienceDirect

Environmental Research

Volume 164, July 2018, Pages 405-416

# Wi-Fi is an important threat to human health

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https://doi.org/10.1016/j.envres.2018.01.035

## Highlights

- 7 effects have each been repeatedly reported following Wi-Fi & other EMF exposures.
- Established Wi-Fi effects, include apoptosis, oxidat. stress & testis/sperm dysfunct; Neuropsych; DNA impact; hormone change; Ca2+ rise.
- Wi-Fi is thought to act via voltage-gated calcium channel activation.
- One claim of no Wi-Fi effects was found to be deeply flawed.

## Abstract

Repeated Wi-Fi studies show that Wi-Fi causes oxidative stress, sperm/testicular damage, neuropsychiatric effects including EEG changes, apoptosis, cellular DNA damage, endocrine changes, and calcium overload. Each of these effects are also caused by exposures to other microwave frequency EMFs, with each such effect being documented in from 10 to 16 reviews. Therefore, each of these seven EMF effects are established effects of Wi-Fi and of other microwave frequency EMFs. Each of these seven is also produced by downstream effects of the main action of such EMFs, voltage-gated calcium channel (VGCC) activation. While VGCC activation via EMF interaction with the VGCC voltage sensor seems to be the predominant mechanism of action of EMFs, other mechanisms appear to have minor roles. Minor roles include activation of other voltage-gated ion channels, calcium cyclotron resonance and the geomagnetic magnetoreception mechanism. Five properties of non-thermal EMF effects are discussed. These are that pulsed EMFs are, in most cases, more active than are non-pulsed EMFs;

artificial EMFs are polarized and such polarized EMFs are much more active than non-polarized EMFs; dose-response curves are non-linear and non-monotone; EMF effects are often cumulative; and EMFs may impact young people more than adults.

These general findings and data presented earlier on Wi-Fi effects were used to assess the Foster and Moulder (F&M) review of Wi-Fi. The F&M study claimed that there were seven important studies of Wi-Fi that each showed no effect. However, none of these were Wi-Fi studies, with each differing from genuine Wi-Fi in three distinct ways. F&M could, at most conclude that there was no statistically significant evidence of an effect. The tiny numbers studied in each of these seven F&M-linked studies show that each of them lack power to make any substantive conclusions. In conclusion, there are seven repeatedly found Wi-Fi effects which have also been shown to be caused by other similar EMF exposures. Each of the seven should be considered, therefore, as established effects of Wi-Fi.

For full study, see https://www.sciencedirect.com/science/article/pii/S0013935118300355


1. Introduction
2. Wi-Fi and other wireless communication EMFs are pulsed, leading to larger biological impacts.
3. EMF effect are often cumulative and irreversible
4. Wi-Fi and other EMFs may be particularly damaging to young people
5. How do EMF exposures lead to non-thermal health impacts
6. How can the Wi-Fi effect be produced by EMF triggered VGCC activation?
7. Other propose biophysical mechanisms
8. Two other models for producing non-thermal effects
9. Foster and Moulder on Wi-Fi