



Sensibilité aux champs électromagnétiques:

Quelle maladie est-ce vraiment ?

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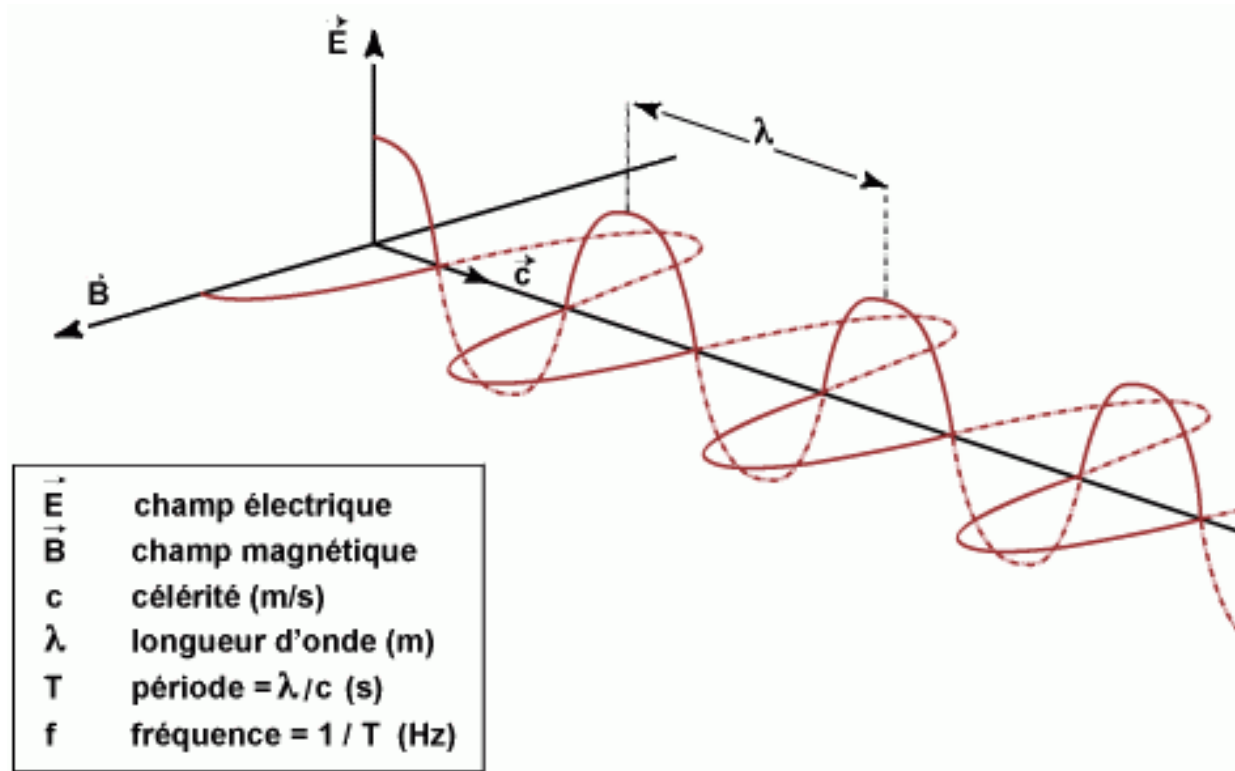
ÉLECTROSENSIBILITÉ

Capacité pour un être vivant

- d'être affecté de manière consciente ou inconsciente
- par un changement du rayonnement électromagnétique environnant
- et ce pour des intensités inférieures au seuil thermique

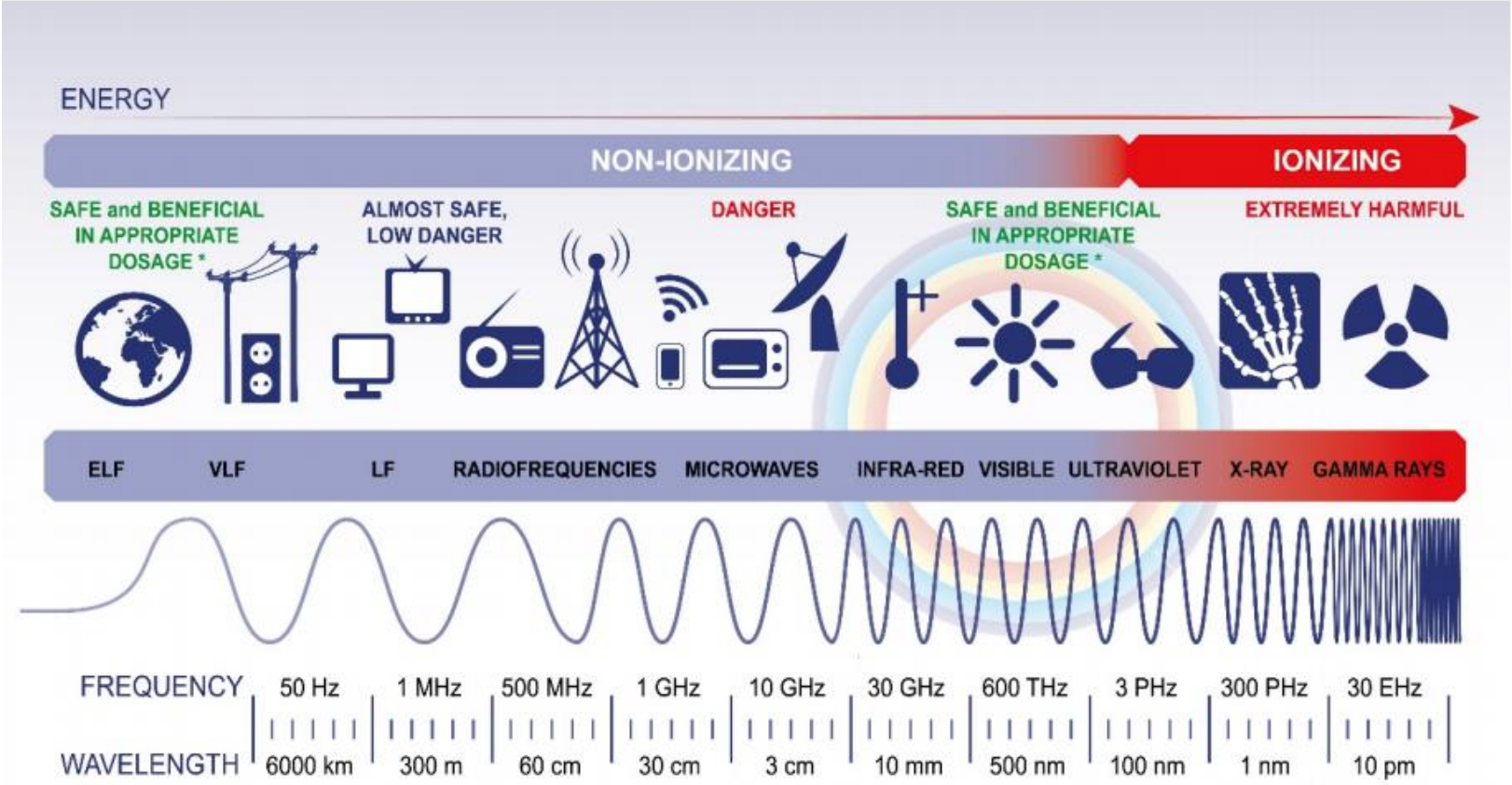


Le rayonnement électromagnétique

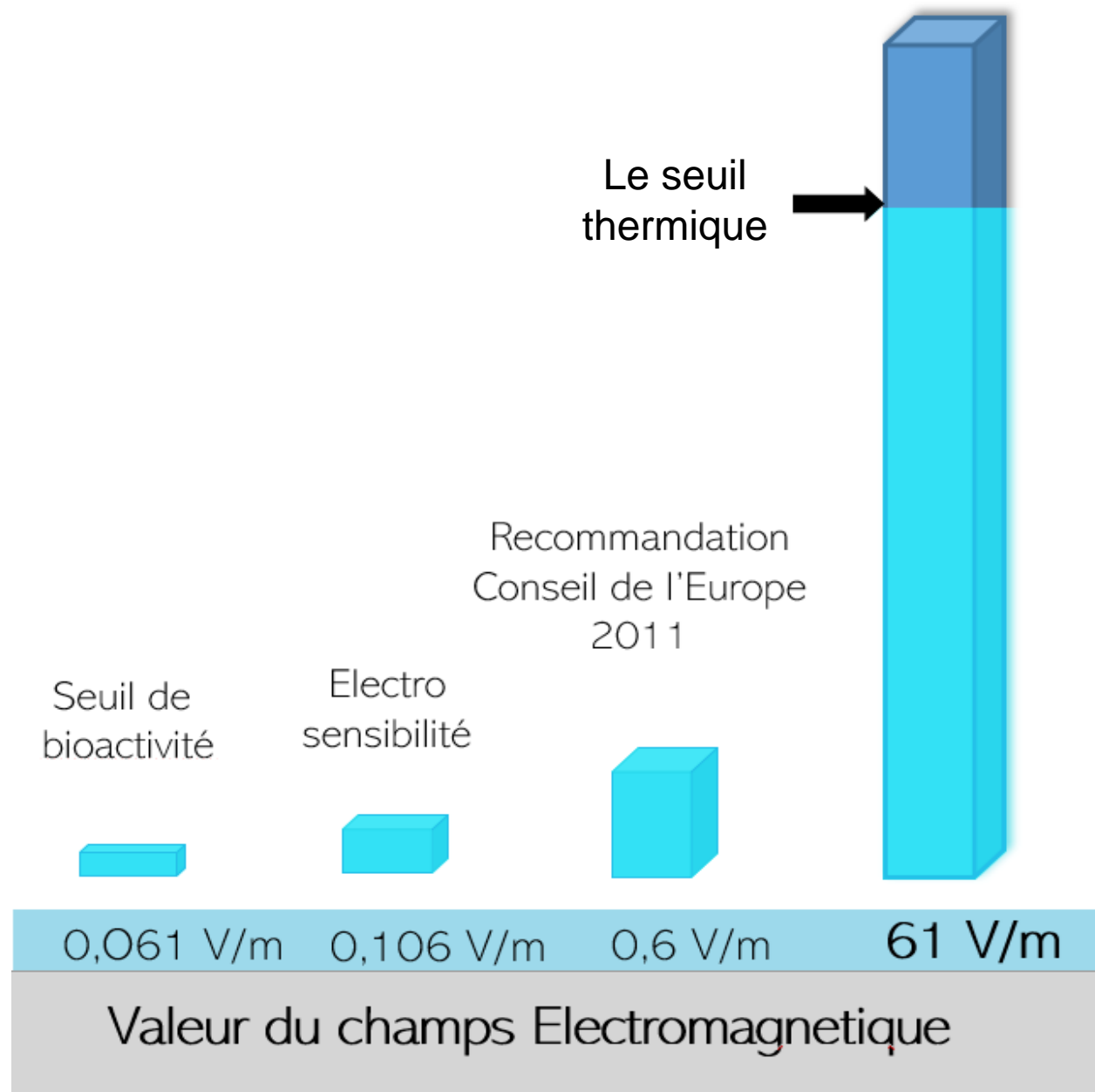


- Transfert d'énergie.
- Propagation de photons.
- Onde électromagnétique.

Le rayonnement électromagnétique



Le seuil thermique



Les bactéries

Evaluation of Wi-Fi Radiation Effects on Antibiotic Susceptibility, Metabolic Activity and Biofilm Formation by *Escherichia Coli* 0157H7, *Staphylococcus Aureus* and *Staphylococcus Epidermis*

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ABSTRACT

Background: The radiation emitted from electromagnetic fields (EMF) can cause biological effects on prokaryotic and eukaryotic cells, including non-thermal effects.

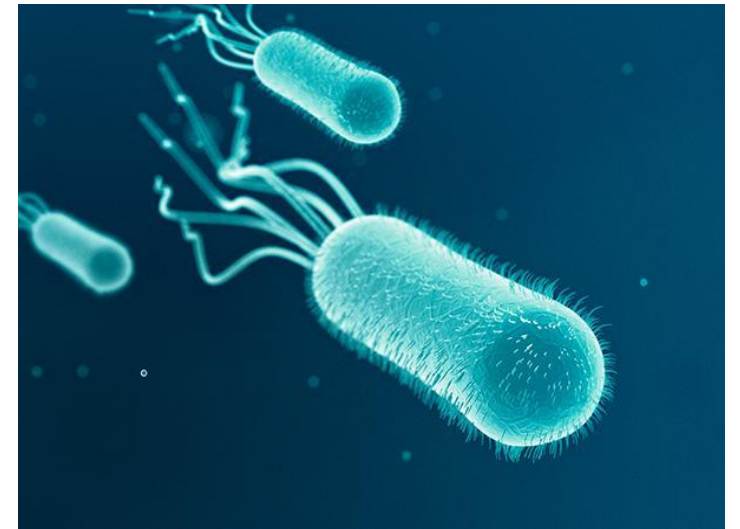
Objective: The present study evaluated the non-thermal effects of wireless fidelity (Wi-Fi) operating at 2.4 GHz part of non-ionizing EMF on different pathogenic bacterial strains (*Escherichia coli* 0157H7, *Staphylococcus aureus*, and *Staphylococcus epidermis*). Antibiotic resistance, motility, metabolic activity and biofilm formation were examined.

Material and Methods: In this case-control study, a Wi-Fi router was used as a source of microwaves and also bacterial cells were exposed to Wi-Fi radiation continuously for 24 and 48 hours. The antibiotic susceptibility was carried out using a disc diffusion method on Müller Hinton agar plates. Motility of *Escherichia coli* 0157H7 was conducted on motility agar plates. Cell metabolic activity and biofilm formation were performed using 3-(4, 5-Dimethylthiazol-2yl)-2, 5-diphenyltetrazolium bromide (MTT) assay and crystal violet quantification, respectively.

Results: The exposure to Wi-Fi radiation altered motility and antibiotic susceptibility of *Escherichia coli* 0157H7. However, there was no effect Wi-Fi radiation on antibiotic susceptibility of *Staphylococcus aureus* and *Staphylococcus epidermis*. On the other hand, the exposed cells, as compared to the unexposed control, showed an increased metabolic activity and biofilm formation ability in *Escherichia coli* 0157H7, *Staphylococcus aureus* and *Staphylococcus epidermis*.

Conclusion: These results proposed that Wi-Fi exposure acted on bacteria in stressful manner by increasing antibiotic resistance and motility of *Escherichia coli* 0157H7, as well as enhancing biofilm formation by *Escherichia coli* 0157H7, *Staphylococcus aureus* and *Staphylococcus epidermis*. The findings may have implications for the management of serious diseases caused by these infectious bacteria.

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Les
cellules

Pulsed Electromagnetic Field Therapy Improves Osseous Consolidation after High Tibial Osteotomy in Elderly Patients—A Randomized, Placebo-Controlled, Double-Blind Trial

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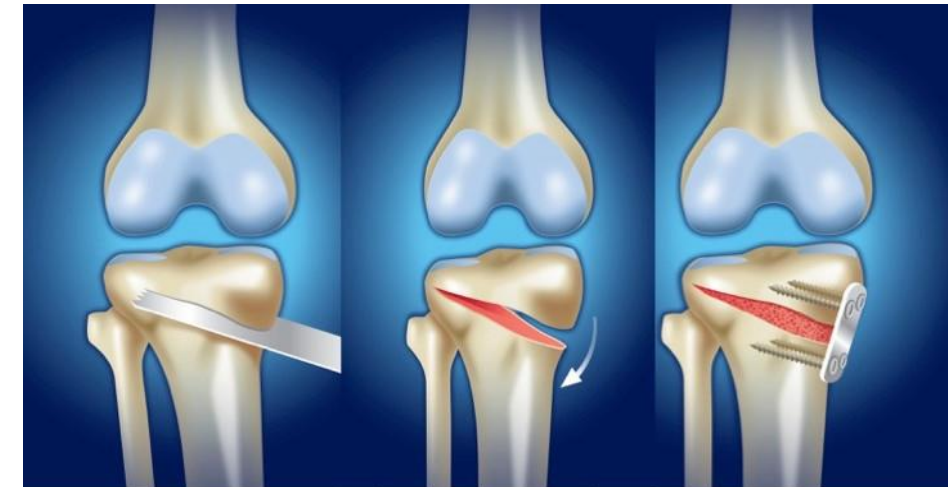
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Abstract: Extremely low-frequency pulsed electromagnetic field (ELF-PEMF) therapy is proposed to support bone healing after injuries and surgical procedures, being of special interest for elderly patients. This study aimed at investigating the effect of a specific ELF-PEMF, recently identified to support osteoblast function in vitro, on bone healing after high tibial osteotomy (HTO). Patients who underwent HTO were randomized to ELF-PEMF or placebo treatment, both applied by optically identical external devices 7 min per day for 30 days following surgery. Osseous consolidation was evaluated by post-surgical X-rays (7 and 14 weeks). Serum markers were quantified by ELISA. Data were compared by a two-sided t-test ($\alpha = 0.05$). Device readouts showed excellent therapy compliance. Baseline parameters, including age, sex, body mass index, wedge height and blood cell count, were comparable between both groups. X-rays revealed faster osseous consolidation for ELF-PEMF compared to placebo treatment, which was significant in patients ≥ 50 years ($\Delta_{\text{mean}} = 0.68\%$ /week; $p = 0.003$). Findings are supported by post-surgically increased bone-specific alkaline phosphatase serum levels following ELF-PEMF, compared to placebo ($\Delta_{\text{mean}} = 2.2 \mu\text{g/L}$; $p = 0.029$) treatment. Adverse device effects were not reported. ELF-PEMF treatment showed a tendency to accelerate osseous consolidation after HTO. This effect was stronger and more significant for patients ≥ 50 years. This ELF-PEMF treatment might represent a promising adjunct to conventional therapy supporting osseous consolidation in elderly patients. Level of Evidence: I.



Principes de l'ostéotomie