Some preconceived ideas

- *"The higher the frequency, the more danger there is."*

This is not true. All electromagnetic waves have effects above a certain exposure level. In the radio frequency range, it is primarily the energy absorbed that counts, which in turn depends on the level of exposure. For example, Wi-Fi [1] often uses the same frequency as the microwave oven (2.45 GHz) [2], but the resulting exposure is very low [3]. The oven is an enclosed space with a transmitter (700 to 1,000 W) about 100,000 times more powerful than that of a home Wi-Fi terminal (100 milliwatts). By the way, a fake video showing the making of popcorn with 4 mobile phones has circulated a lot on the Internet. The power of mobile phones being 1 to 2 watts maximum, it is impossible!

- *"The more transmitters there are the more ambient exposure increases."*

This is true. However, the level of ambient electromagnetic field does not increase proportionally to the number of relay antennas in our environment. For this to happen, the waves would have to be emitted from the same place, and the transmitting power and the orientation of the antennas are adjusted so as to cover an area without unnecessary excess emissions. And let's not forget that the main source of exposure for people is the mobile phone itself when it is in communication. This exposure is mainly localized to the parts of the body closest to the device [4]. Finally, the addition of relay antennas on a territory results in improved connections, but also reduces the power emitted by the mobile phone and the antennas, because the distances to be covered are smaller.

- *"Phone waves make your head hot."*

This is **not true**. The amount of energy coming from the phone is too low to induce a perceptible variation in skin temperature. The sensation of heat often perceived during a conversation with a mobile phone glued to the ear is therefore not a thermal effect of radiofrequencies. It is due to the heating of the battery and the electronics of the device as well as the fact that an object applied to a part of the body naturally causes a rise in local temperature by hindering the normal dissipation of heat.

Notes and references

Cover image. [Source: https://www.babelio.com/quiz/32643/Le-vrai-ou-faux-de-quelques-idees-recues]

[1] Wi-Fi: Wireless Fidelity (to refer to a technique where connections within a network of computer and mobile phone equipment are made wirelessly over short distances. A wireless network is called WLAN, or Wireless Local Area Network)

[2] Depending on the device, WiFi can also operate at 5 GHz.

[3] " No, Wi-Fi is not a 'silent killer' ", Les Décodeurs du Monde, 16 August 2019.

[4]" Electromagnetic waves: Cell phones, relay antennas, WiFi, what are their powers? ", Huffingtonpost, 2013, updated 2016.
