

Gorpinchenko, et al. The influence of direct mobile phone radiation on sperm quality. Cent European J Urol. 2014; 67: 65–71

Letter to the Editor

The widespread use of mobile phones and other wireless technologies has led to increasing public and scientific concern, due to the potential adverse effects of such a common source of environmental physical pollution on human health.

The paper “The influence of direct mobile phone radiation on sperm quality”, by Gorpinchenko and co-authors is potentially interesting. Indeed, it attempts to unveil some hidden, yet very important biological effects of radiofrequency (RF) fields on male fertility potential.

Regarding the outcome, temperature is the most crucial variable. It mediates many effects related to RF fields and governs many biological processes. RF radiation is able to cause tissue damage by thermal effects (for an extensive review, see Blackman, 2009). Since the cell phone used for this experiment was [1] operating in standby/talk mode, the temperature of the specimen is likely to rise due to the RF field (IARC, 2013 [2]). The exact method by which the temperature is controlled throughout the experiment is, unfortunately, missing. This piece of information would have been valuable as it is a postulated standard procedure (Meltz, 2003 [3]). As a result the

question arises regarding whether the thermostat was able to actively dissipate the excess heat produced by the operating cellular phone. Indeed, common incubators can only elevate temperature inside, not being able to compensate any internal heating. Were possible changes in temperature within the “cellphone” incubator verified by the Authors? The distance of 5 cm between the device and the sample strongly suggests thermal-dependent effects, not only due to the RF emitted, but also due to the heat produced by the battery and device themselves. Such temperature alterations could have been verified by using a simple thermocouple. A slight, yet likely temperature change induced by the phone could alter the sperm endpoints of the study. How was this possibility ruled out? Additionally, it would have been nice to see a dosimetric assessment. Last but not least, other sources of RF fields are present in a typical GSM handset (e.g., WiFi, Bluetooth, NFC etc.). Were such alternative RF sources de-activated? In summary, I congratulate Gorpinchenko and colleagues for their work. However, I suggest more detailed descriptions of the experimental set-up, which would result in a sounder conclusion.

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References

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