



## The Effect of Mobile Phone Radiation on Sperm DNA Fragmentation

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**Abstract : Background:** Mobile phones is ubiquitous in everyday life. The need for mobile phones is very important, considering the rapid development in the era of communication and internet. Radiofrequency electromagnetic wave (RF-EMW) emitted from mobile phones can disrupt human body through direct contact. The impact of this exposure on male reproduction system include decreased sperm quality. This study aimed to determine the effect of mobile phone radiation on human sperm quality, particularly in sperm DNA fragmentation.

**Methods:** Twenty-four healthy normozoospermia men donated their sperm for this research. After being prepared using the swim up method (SpermRinse), the sperm sample is divided into 2 groups: Group A received mobile phone radiation exposure for 180 minutes and Group B serves as control. After 180 minutes, DNA fragmentation was examined through flowcytometry using Spermfunc™ DNaf medium. WHO guidelines were used in the identification and calculation of DNA fragmentation.

**Result:** After 3 hours, DNA fragmentation was calculated and the result was analyzed using Wilcoxon Signed-Rank Test. In group A, 7.2% of the sperm had DNA fragmentation after 180 minutes of exposure; while in the group B, only 4.8% of the sperm had DNA fragmentation ( $p < 0.001$ ). However, further research needs to be performed to find the correlation between this result and its clinical implications on daily life.

**Conclusion:** In this study, exposure to mobile phone radiation is associated with more DNA fragmentation on human sperm compared to control group. This may have an effect on male infertility.

**Keywords :** phone radiation, sperm, DNA fragmentation, clinical trial.