

[O-249] LAPTOP EXPOSITIONS AFFECT MOTILITY AND INDUCE DNA FRAGMENTATION IN HUMAN SPERMATOZOA IN VITRO BY A NON-THERMAL EFFECT: A PRELIMINARY REPORT.

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OBJECTIVE: The use of laptops has drastically increased in the last years. These devices are commonly used on the lap near the groin area and may expose the human testes to radio frequency electromagnetic waves (WiFi mode) as well as to high temperatures. There is weak scientific information about the possible impact of exposition to laptops on male reproduction. Therefore, we have assessed the sperm exposure to laptops in an in vitro study.

DESIGN: An in vitro prospective study.

MATERIALS AND METHODS: Semen samples from 15 men were evaluated. Semen parameters (concentration, motility, morphology and vitality) were assessed. Motile sperm were selected by swim up and separated in two fractions and incubated 4 hours at controlled temperature (25°C). The first aliquot was exposed to the laptop during the incubation times. The second fraction was incubated without exposition (control group). Motility, vitality and sperm DNA fragmentation (TUNEL) was evaluated after incubation in all samples. Comparisons between groups were performed by Student's t test. Data is expressed as mean \pm SD.

RESULTS: Our results showed decrease progressive sperm motility ($73,5 \pm 8,2$ vs $63,6 \pm 7,3$; $p < 0,05$), increase sperm immotily ($18,8 \pm 6,9$ vs $28,3 \pm 7,3$; $p < 0,05$) and increase of sperm DNA fragmentation ($6,3 \pm 8,1$ vs $13,1 \pm 9,2$; $p < 0,05$) in the exposed group vs non exposed. Levels of non progressive sperm motility and vitality did not show significant difference between the two groups.

CONCLUSION: To the best of our knowledge, this is the first study to evaluate the impact of laptops on human spermatozoa. We have demonstrated that exposure to laptops decrease progressive motility and induce DNA fragmentation in human spermatozoa in vitro by a non-thermal effect. We speculate that keeping the laptops (WiFi mode) on the lap near the testes may result in decreased male fertility. Further studies are needed to test this hypothesis and identify the causes why sperm quality is affected by laptops exposition.

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