

Total Sleep Deprivation Reduces Quality of Spermatozoa in Male Albino Rat (*Rattus norvegicus*)

Title	Total Sleep Deprivation Reduces Quality of Spermatozoa in Male Albino Rat (<i>Rattus norvegicus</i>)
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Abstract	<p>Abstract: Sleep deprivation-induced stress decreases the quality of spermatozoa due to the increase of glucocorticoid levels through the hypothalamic-pituitary-adrenal axis. Sleep recovery (SR) restores the effect of stress due to sleep deprivation by decreasing lipid peroxides and other free radicals and increasing glutathione antioxidants. This study aims to determine the spermatozoa quality in male albino rats (<i>Rattus norvegicus</i>) after the stress induction by diverse sleep deprivation protocols. This study is experimental research with posttest-only control group design in 30 male albino rats divided into five groups consisting of group I for negative control (no induction of sleep deprivation), group II for paradoxical sleep deprivation (PSD), group III for total sleep deprivation (TSD), group IV for PSD followed by SR, and group V for TSD followed by SR. PSD and TSD were performed by depriving rats sleep for 20 and 24 hours/day, respectively, for five days. SR was done for the next five days after PSD or TSD. Shapiro-Wilk test was used for normality of data distribution, and Levene's test was used for variance homogeneity. Comparative hypothesis was then analyzed with One Way Analysis of Variance (ANOVA) test, and significance between groups was analyzed with Tukey's Post-Hoc test. Group III (TSD) demonstrated the lowest mean of spermatozoa count ($41,53 \pm 2,29$), spermatozoa morphology ($13,00 \pm 2,91$), spermatozoa viability ($31,00 \pm 7,39$), and percentage of motility rate ($37 \pm 8,58\%$) among all groups. In conclusion, total sleep deprivation (TSD) decreases the quality of spermatozoa in male albino rats (<i>Rattus norvegicus</i>).</p>
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