**PERBEDAAN MOTILITAS SPERMATOZOA TIKUS PUTIH (*Rattus norvegicus*) JANTAN PASCA INDUKSI BERBAGAI MODEL STRES *SLEEP DEPRIVATION***

## ABSTRAK

**Latar belakang** : Stres yang disebabkan oleh perlakuan *paradoxical sleep deprivation* (PSD) dan *total sleep deprivation* (TSD) dapat menyebabkan gangguan aksis HPA, aksis HPG, dan peningkatan stres oksidatif yang berhubungan dengan peningkatan *reactive oxygen species* (ROS) sehingga mengganggu motilitas spermatozoa. *Sleep recovery* (SR) dapat menginduksi pengeluaran hormon melatonin sebagai antioksidan endogen sebagai pemutus rantai oksidasi sehingga mencegah pembentukan radikal bebas baru untuk memperbaiki motilitas spermatozoa.
**Tujuan** : Mengetahui perbedaan motilitas spermatozoa pada tikus putih (*Rattus norvegicus*) jantan pasca induksi berbagai model stres *sleep deprivation*.
**Metode** : Penelitian ini merupakan penelitian eksperimental dengan desain posttest only with control group. Tiga puluh ekor tikus putih dibagi secara acak menjadi 5 kelompok yaitu KI (kontrol sehat), KII (PSD 20 jam/hari selama 5 hari), KIII (TSD 24jam/hari selama 5 hari), KIV (PSD 20 jam/hari selama 5 hari pertama dilanjutkan dengan *sleep recovery* selama 5 hari berikutnya), dan KV (TSD selama 24 jam/hari selama 5 hari pertama dilanjutkan dengan *sleep recovery* selama 5 hari berikutnya).
**Hasil** : Rerata persentase motilitas spermatozoa tertinggi terdapat pada KI (64,37±8,58)%, diikuti KIV (57,35±7,40)%, KV (50,34±10,63)%, KII (33,65±11,61)%, dan terendah KIII (28,36±8,97)%. Uji *One Way* ANOVA menunjukkan perbedaan signifikan ($p<0,05$) kemudian uji *Post-Hoc Tukey* menunjukkan adanya perbedaan rerata yang signifikan ($p<0,05$) pada kelompok I-II, I-III, II-IV, III-IV, III-V.
**Kesimpulan** : Terdapat perbedaan signifikan motilitas spermatozoa tikus putih (*Rattus norvegicus*) jantan pasca induksi berbagai model stres *sleep deprivation*.

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Kata kunci : Persentase motilitas spermatozoa, *Paradoxical sleep deprivation* (PSD), *Total sleep deprivation* (TSD), *sleep recovery*.

**THE DIFFERENCE OF SPERM MOTILITY IN MALE ALBINO RATS (*Rattus norvegicus*) AFTER THE INDUCTION IN VARIOUS STRES MODEL OF SLEEP DEPRIVATION**

## ABSTRACT

**Background:** Stres caused by sleep deprivation can cause disrupt of HPA axis, HPG axis, and increased oxidative stres which related with increased reactive oxygen species (ROS) thus disrupt sperm motility. Sleep recovery can induce secretion of melatonin as an endogenous antioxidant as discontinuance of oxidation chain thus preventing the formation of new free radicals to improve sperm motility.
**Objective:** To know the difference of sperm motility in male albino rats (*Rattus norvegicus*) after the induction in various stres model of sleep deprivation.
**Method:** This research was an experimental research with posttest only and control group design. Thirty male albino rats were distributed into 5 groups, KI (health control), KII (PSD 20 hours/day for 5 days), KIII (TSD 24 hours/day for 5 days), KIV (PSD 20 hours/day for the first 5 days then continue with sleep recovery for the next 5 days), and KV (TSD 24 hours/day for the first 5 days then continue with sleep recovery for the next 5 days).
**Result:** Percentage of sperm motility in K I had the highest rates (47,35±11,47)%, followed by KIV (30,55±2,74)%, KV (21,08±1,39)%, KII (7±0,96)%, dan terendah KIII (2,65±1,53)%. One Way ANOVA showed significant differences ($p<0,05$) and Post-Hoc Tukey showed significant differences ($p<0,05$) in group I-II, I-III, II-IV, III-IV, III-V.
**Conclusion:** There was significant difference of sperm motility in male albino rats (*Rattus norvegicus*) after the induction in various stres model of sleep deprivation.

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**Keywords:** Percentage of sperm motility, Paradoxical Sleep Deprivation, Total Sleep Deprivation, Sleep Recovery