

ABSTRAK

Latar Belakang : Pada wanita, siklus menstruasi yang teratur merupakan indikator dari sistem reproduksi yang sehat. Pada saat ini, gangguan menstruasi banyak terjadi pada atlet wanita. Hal tersebut menjadi perhatian karena hampir semua jenis dan cabang olahraga telah diikuti oleh wanita baik berupa olahraga prestasi maupun rekreasi. Latihan fisik juga dapat menginduksi patologi endokrin pada *Hipothalamic-Pituitary-Adrenal axis* (HPA) dan *Hipothalamic-Pituitary-Ovarian axis* (HPO) sehingga dapat menurunkan sekresi *Luteinizing Hormone* yang dapat menghambat ovulasi serta mengakibatkan gangguan menstruasi. Sehingga latihan fisik menjadi perhatian karena latihan fisik memiliki implikasi penting pada fekundabilitas pada sistem reproduksi wanita. **Tujuan:** Menganalisis efek perbedaan latihan fisik intensitas ringan, sedang, dan berat terhadap kadar *Luteinizing Hormone* (LH). **Metode:** Mencit betina dewasa sehat, dibagi dalam 3 kelompok, kontrol (n=12), intensitas ringan (n=10), sedang (n=7). Intensitas latihan diberikan dengan memberikan beban berdasarkan berat badan (BB), yaitu intensitas ringan sebesar 3% BB, sedang sebesar 6% BB. Mencit direnangkan sebanyak 5 kali per minggu, selama 4 minggu. Renang dimulai pada fase estrus. Durasi renang pada minggu pertama selama 3 menit, minggu kedua selama 5 menit, minggu ketiga selama 7 menit, dan minggu keempat selama 9 menit. **Hasil:** Kadar *luteinizing hormone* (LH) kelompok kontrol lebih tinggi ($10,5 \pm 2,0$) mIU/dL daripada kelompok ringan ($8,9 \pm 3,7$) mIU/dL, sedang ($8,8 \pm 1,1$) mIU/dL. Namun, kadar *luteinizing hormone* (LH) tersebut tidak menunjukkan perbedaan bermakna ($p=0,100$) antar kelompok. **Kesimpulan:** Latihan fisik intensitas ringan dan sedang mungkin tidak mempengaruhi sekresi *luteinizing hormone* (LH), namun dari rerata kadar *luteinizing hormone* (LH) didapatkan ada kecenderungan penurunan kadar *luteinizing hormone* (LH) akibat latihan fisik.

Kata kunci: Siklus menstruasi, latihan fisik, *Luteinizing Hormone*

ABSTRACT

Background: In women, regular menstrual cycles are an indicator of a healthy reproductive system. In this time, menstrual disorders occur mostly in female athletes. This is a concern because almost all types and branches of sports have been followed by women both in the form of sports achievements and recreation. Physical exercise can also induce endocrine pathology on the Hypothalamic-Pituitary-Adrenal axis (HPA) and the Hypothalamic-Pituitary-Ovarian axis (HPO), so that it can reduce Luteinizing Hormone secretion which can inhibit ovulation and cause menstrual disorders. Therefore, physical exercise is a concern because it has important implications on fecundability in the female reproductive system. **Objective:** To analyse the effects of differences in low, moderate, and high physical exercise intensity on decreasing Luteinizing Hormone (LH) levels. **Method:** Healthy adult female mice, divided into 4 groups, control ($n = 12$), low intensity ($n = 10$), and moderate ($n = 7$). The intensity of the exercise is given by giving a burden based on the body weight, which is a low intensity amount 3% of the body weight, moderate amount 6% of the body weight. Mice are floating together 5 times a week for 4 weeks. Swimming process starts in the estrous phase. The duration of swimming process in the first week was around 3 minutes, the second week for 5 minutes, the third week for 7 minutes, and the fourth week for 9 minutes. **Results:** The control group's luteinizing hormone (LH) level was higher (10.5 ± 2.0) mIU / dL than the low group (8.9 ± 3.7) mIU / dL, moderate (8.8 ± 1.1) mIU / dL. However, luteinizing hormone (LH) levels did not show significant differences ($p = 0.100$) between groups. **Conclusion:** Physical exercise of low, moderate, and high intensity may not affect the luteinizing hormone (LH) secretion, but from the average level of luteinizing hormone (LH) there is a tendency to decrease the level of luteinizing hormone (LH) because of physical exercise.

Keywords: menstrual cycles, intensity, physical exercise, luteinizing hormone