

## PENGARUH RENANG BERBAGAI INTENSITAS TERHADAP KADAR IL-6 PADA TIKUS (*Rattus norvegicus*) MODEL OBESITAS

### ABSTRAK

**Latar Belakang** – Renang terbagi menjadi tiga tingkatan intensitas. Renang dapat berpengaruh terhadap kadar Interleukin-6 tikus model obesitas yang diinduksi HFD. Renang dengan intensitas tertentu dapat menginisiasi lipolisis, memperbaiki stres oksidatif, dan memperbaiki resistensi leptin sehingga kadar IL-6 menurun.

**Tujuan** – Mengetahui pengaruh renang berbagai intensitas (ringan, sedang, dan berat) terhadap kadar IL-6 tikus putih model obesitas.

**Desain Penelitian** – Penelitian ini menggunakan metode *true experimental* dengan desain *post test only with control group*. Jumlah sampel sebanyak 20 ekor tikus putih jantan galur Wistar yang terbagi dalam 5 kelompok, yaitu kelompok kontrol (KI), kelompok obesitas tanpa perlakuan (KII), kelompok obesitas dengan perlakuan renang intensitas ringan (KA), kelompok obesitas dengan perlakuan renang intensitas sedang (KB), kelompok obesitas dengan perlakuan renang intensitas berat (KC). Pengambilan sampel darah dilakukan pada hari ke-15 setelah perlakuan renang dan diperiksa kadar IL-6 menggunakan uji ELISA. Data dianalisis menggunakan uji nonparametrik *Kruskal Wallis* dan *Mann Whitney*.

**Hasil** – Rerata kadar IL-6 KI  $2,367 \pm 0,323$  ng/L; KII  $4,255 \pm 0,461$  ng/L; KA  $3,240 \pm 0,204$  ng/L; KB  $2,577 \pm 0,349$  ng/L; KC  $3,915 \pm 0,491$  ng/L. Uji *Kruskal Wallis* menunjukkan  $p=0,003$  ( $p < 0,05$ )

**Kesimpulan** – Terdapat pengaruh renang berbagai intensitas terhadap kadar IL-6 tikus model obesitas.

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**Kata kunci:** IL-6, Intensitas Renang, Obesitas

**THE EFFECT OF VARIOUS INTENSITIES SWIMMING ON IL-6 LEVELS  
IN RATS (*Rattus norvegicus*) OBESITY MODEL**

**ABSTRACT**

**Background** – Swimming divided into three levels of intensity. Swimming can affect Interleukin-6 levels on HFD-induced obesity model in rats. Swimming at a certain intensity can initiate lipolysis, improve oxidative stress, and improve leptin resistance that can lowering of IL-6 levels.

**Objective** – Determine the effect of various intensities of swimming (low, moderate, high) on IL-6 levels in obese model of rats.

**Research Design** – This study used a true experimental method with a post test only with control group design. The total sample was 20 white male Wistar rats divided into 5 groups, namely control group (KI), the obese group without any intervention (KII), the obese group with low intensity swimming intervention (KA), the obese group with moderate intensity swimming intervention (KB), and the obese group with high intensity swimming intervention (KC). Blood samples were taken on the 15th day after swimming intervention and IL-6 levels were checked using ELISA test. Data were analyzed using Kruskal Wallis and Mann Whitney nonparametric tests.

**Results** – IL-6 average of groups are: KI  $2,367 \pm 0,323$  ng/L; KII  $4,255 \pm 0,461$  ng/L; KA  $3,240 \pm 0,204$  ng/L; KB  $2,577 \pm 0,349$  ng/L; KC  $3,915 \pm 0,491$  ng/L. Data analyzed by Kruskal Wallis showed  $p=0,003$  ( $p<0,05$ ).

**Conclusion** – There is an effect of various intensities of swimming in rats with obese model.

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**Keyword:** IL-6, Obesity, Swimming intensities