

THE EFFECT OF INTERMITTEN FASTING TOWARDS PERITONEAL ADIPOCYTE OF BALB-C MICE

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ABSTRACT

Background: Central obesity is strongly associated with many diseases such as hypertension, cardiovascular disease, and metabolic disease. Many studies about histomorphological of adipocyte due to dietary restriction such as intermittent fasting have been conducted, but the results are still controversial. The study aims to determine the effect of intermittent fasting (14 hours without diet intake and drink) on histologic structure of peritoneal adipocyte in term of number and size of cells.

Method: This study is classified as an experimental study with post test only control group design. 8-10 weeks old BALB-C mice with 15-30 g weight from 15 mices divided into 3 groups which are intermittent fasting (IF) group, ad libitum (AL) group, and high fat (HF) group. Each group consists of 5 mices. IF group did fasting within 14 hours (17.00-07.00) every 2 days for 56 days. Histomorphological of the adipose cells observed by microscope within 100x zoom-in in each 10 fields of view. The number of cells were counted manually and the size of cells were measured by imageJ. The data was analysed by SPSS software with one way ANOVA test.

Result: The average number of the peritoneal adipocyte cells for AL, HF, and IF are: 26.52 ± 6.57 ; 48.92 ± 15.51 ; and 51.92 ± 11.14 ($p = 0.009$). The average of peritoneal adipocyte size for AL, HF, and IF are: $16178.52 \pm 3926.25 \mu\text{m}^2$; $5444.06 \pm 1718.91 \mu\text{m}^2$; and $8912.76 \pm 1816.97 \mu\text{m}^2$ ($p = 0.000$).

Conclusion: The average of size and number of peritoneal adipocyte cell has been affected by intermittent fasting.

Keywords: *Obesity, Peritoneal adipocyte, Intermittent fasting*