

ABSTRAK**PENGARUH KOMPOSISI DIET KETOGENIK TERHADAP
PENURUNAN BERAT BADAN MELALUI EKSPRESI
UNCOUPLE PROTEIN 1 PADA LEMAK VISERA TUBUH
MENCIT**

Obesitas telah menjadi salah satu fenomena kesehatan yang harus diatasi. Organisasi kesehatan dunia atau WHO mengatakan bahwa setidaknya 650 juta penduduk dunia menderita obesitas. Oleh karena itu, banyak penelitian yang telah dilakukan untuk menanggulangi fenomena tersebut. Salah satu dari penemuan tersebut adalah diet ketogenik yang saat ini fenomenal dikalangan masyarakat. Meskipun banyak penelitian sudah dilakukan, komposisi diet ketogenik yang dapat mengekspresikan UCP1 pada lemak visera belum banyak diteliti.

Penelitian ini bertujuan untuk mengetahui komposisi diet ketogenik terhadap penurunan berat badan melalui ekspresi UCP1 sehingga masyarakat dapat menggunakan panduan komposisi tersebut sebagai acuan untuk melaksanakan diet.

Penelitian ini dilakukan selama 4 minggu menggunakan mencit (*Mus musculus*) yang dibagi secara acak menjadi 5 kelompok yaitu satu kelompok kontrol dan empat kelompok perlakuan. Kelompok kontrol mempunyai komposisi 20% protein, 62.0% karbohidrat, 12% lemak. KD 1 mengandung 60% protein, 0% karbohidrat, 30% lemak. KD 2 mengandung 45% protein, 0% karbohidrat, 45% lemak. KD 3 mengandung 30% protein, 0% karbohidrat, 60% lemak. KD 4 mengandung 15% protein, 0% karbohidrat, 75% lemak. Berat badan mencit ditimbang setiap minggu, berat lemak visera dan ekspresi UCP1 diukur pada akhir minggu ke empat.

Rerata dan standar deviasi penurunan berat badan paling banyak sebesar (-9,60 kg \pm 3,806). Terdapat perbedaan bermakna ($p < 0.05$) antara penurunan berat badan kelompok kontrol dan kelompok perlakuan. Berat lemak visera paling rendah sebesar 0,02kg dengan standar eror ($\pm 0,06$). Perbedaan bermakna ($p < 0.05$) juga ditemukan antara berat lemak visera kelompok kontrol dan perlakuan. Ekspresi UCP1 paling banyak sebesar (9,50 \pm 3,622). Namun, tidak terdapat perbedaan signifikan antara kelompok KD5 dengan kelompok kontrol ($p > 0.05$)

Diet ketogenik dapat menurunkan berat badan, menurunkan berat lemak visera. Terdapat tendensi menurun ekspresi UCP1 pada kelompok perlakuan.

Keywords: obesitas, diet ketogenik, *uncouple protein 1*

ABSTRACT**The Effect of Ketogenic Diet Composition on Weight Loss Through The Expression of Uncouple Protein 1 in Mice Visceral Fat Mass**

Obesity have become one of health phenomenon that must be dealt with immediately. World Health Organization (WHO) stated that approximately 650 million people of world population suffered from obesity. Hence, many experiments have been done to overcome obesity. One of the many findings mentions ketogenic diet, which is famous amongst the public as a solution to the problem. Even though there were many experiments which had been done, the composition to express UCP1 in the visceral tissue is still a mystery to be explained.

The purpose of this experiment is to determine the ketogenic diet composition on weight loss through the expression of UCP1, thus the general public can make the said composition as a guide for the diet.

This experiment was held for 4 weeks using mice, which will be put into 5 different groups randomly. The control group has composition of 20% protein, 62,0% carbohydrate, and 12% fat. KD 1 has composition of 60% protein, 0% carbohydrate, 30% fat. KD 2 has composition of 45% protein, 0% carbohydrate, 45% fat. KD 3 has composition of 30% protein, 0% carbohydrate, 60% fat. KD 4 has composition of 15% protein, 0% carbohydrate, 75% fat. The mice was measured every week, visceral fat mass and uncouple protein 1 was measured at the end of week 4.

The greatest weight loss recorded was $(-9,60 \text{ kg} \pm 3,80)$. There are significant difference ($p < 0.05$) on mice body weight loss between the control group and the diet group. The least visceral fat mass recorded was $(0,020 \text{ kg} \pm 0,06)$. There are also significant difference ($p < 0.05$) on visceral fat mass between the control group and the diet group. The greatest UCP1 expression recorded was found on group KD5 $(9,50 \pm 3,62)$. Unfortunately, there was no significance difference between KD5 and the control group.

In conclusion ketogenic diet can reduce body weight, reduce visceral fat mass. There is a downward trend of UCP1 expression on the visceral fat mass.

Keywords: obesity, ketogenic diet, uncouple protein 1