

**PENGARUH VARIASI GENETIK UCP2 45bp I/D TERHADAP PERUBAHAN  
PERSEN LEMAK TUBUH WANITA OBESITAS YANG MENDAPAT  
INTERVENSI HIIT (*HIGH INTENSITY INTERVAL TRAINING*)**

**ABSTRAK**

**Latar belakang:** Obesitas merupakan kondisi penumpukan lemak dan pada wanita digambarkan dengan persentase lemak tubuh di atas 35%. Obesitas dapat diperbaiki dengan melakukan latihan fisik, seperti metode *high intensity interval training* (HIIT). Selain itu, obesitas juga dipengaruhi oleh genetik, secara khusus adalah UCP2 45bp I/D yang terdiri atas 3 genotipe (I/I, I/D, D/D) yang berperan dalam proses pengeluaran energi. Penelitian terkait pengaruh variasi genetik UCP2 45bp I/D terhadap kondisi obesitas yang telah dilakukan sebelumnya memberikan hasil yang berbeda.

**Tujuan:** Mengetahui pengaruh variasi genetik UCP2 45bp I/D terhadap perubahan persen lemak tubuh wanita obesitas yang mendapat intervensi HIIT.

**Metode:** Penelitian observasional analitik dengan pendekatan *cross sectional* dari data penelitian primer berupa komposisi tubuh (berat badan, tinggi badan, indeks massa tubuh, dan persentase lemak tubuh) dan variasi genetik UCP2 45bp I/D yang diambil dari sampel darah. Pengambilan data menggunakan teknik *total sampling* sejumlah 22 wanita obesitas yang mengikuti intervensi HIIT 3 kali seminggu selama 12 minggu. Data dianalisis dengan menggunakan uji T berpasangan dan uji T tidak berpasangan.

**Hasil:** Uji T berpasangan menunjukkan terdapat penurunan signifikan pada persen lemak tubuh setelah HIIT ( $p=0,011$ ). Uji T tidak berpasangan menunjukkan tidak terdapat perbedaan bermakna pada perubahan persen lemak tubuh antar kelompok genotip ( $p=0,053$ ).

**Kesimpulan:** Tidak terdapat pengaruh variasi genetik UCP2 45bp I/D terhadap perubahan persen lemak tubuh wanita obesitas yang mendapat intervensi HIIT.

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**Kata kunci:** gen UCP2 45bp I/D, *high intensity interval training*, obesitas, persen lemak tubuh

**THE EFFECT OF GENETIC VARIATIONS UCP2 45bp I/D ON CHANGES IN  
BODY FAT PERCENTAGE OF OBESITY WOMEN RECEIVING HIIT  
INTERVENTION (HIGH INTENSITY INTERVAL TRAINING)**

**ABSTRACT**

**Background:** Obesity is a condition of fat accumulation and in women is described by the percentage of body fat above 35%. Obesity can be improved by doing physical exercise, such as the method of high intensity interval training (HIIT). In addition, obesity is also influenced by genetics, specifically UCP2 45bp I/D which consists of 3 genotypes (I/I, I/D, and D/D) that play a role in the energy expenditure process. Research related to the effect of genetic variation of UCP2 45bp I/D on obesity conditions that have been carried out previously gave different results.

**Objective:** To determine the effect of genetic variation of UCP2 45bp I/D on changes in body fat percent of obese women who received HIIT intervention.

**Methods:** An analytical observational study with a cross sectional approach from primary research data in the form of body composition (weight, height, body mass index, and body fat percentage) and UCP2 45bp I/D genetic variation taken from blood samples. Data were collected using a total sampling technique of 22 obese women who participated in the HIIT intervention 3 times a week for 12 weeks. Data were analyzed using paired T-test and unpaired T-test.

**Results:** Paired T-test showed a significant decrease in body fat percentage after HIIT ( $p=0.011$ ). The unpaired t test showed that there was no significant difference in the change in body fat percentage between genotype groups ( $p = 0.053$ ).

**Conclusion:** There was no effect of genetic variation of UCP2 45bp I/D on changes in body fat percent of obese women who received HIIT intervention.

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**Keywords:** body fat percentage, high intensity interval training, obesity, UCP2 gene 45bp I/D.