

# **PENGARUH POLIMORFISME GEN UCP-2 Ala55Val TERHADAP PERUBAHAN LINGKAR PINGGANG PASCA INTERVENSI *CONTINUOUS TRAINING* PADA WANITA DENGAN OBESITAS**

Aulia Nury Faza

Fakultas Kedokteran, Universitas Jenderal Soedirman, Purwokerto, Indonesia

Email : [aulia.faza@mhs.unsoed.ac.id](mailto:aulia.faza@mhs.unsoed.ac.id)

## **ABSTRAK**

**Pendahuluan:** Obesitas ditandai dengan ukuran lingkaran pinggang lebih dari 90cm untuk laki-laki dan 80cm untuk perempuan. Salah satu faktor yang mempengaruhi obesitas adalah faktor genetik, diantaranya gen *uncoupling* protein (UCP)-2 Ala55Val. Latihan fisik *continuous training* (CT) dapat meningkatkan perubahan ukuran lingkaran pinggang dan persentase lemak tubuh pada orang obesitas, namun pengaruh polimorfisme gen UCP-2 Ala55Val terhadap perubahan lingkaran pinggang pasca intervensi CT masih belum jelas. **Tujuan:** Mengetahui pengaruh variasi genetik UCP-2 Ala55Val terhadap perubahan lingkaran pinggang pasca intervensi *continuous training* pada wanita dengan obesitas. **Metode:** Penelitian ini menggunakan rancangan penelitian *Quasi Experimental Pre and Post Design* tanpa kontrol. Subjek sebanyak 14 orang yang diambil melalui *purposive sampling*. Pemeriksaan lingkaran pinggang dilakukan sebelum dan sesudah intervensi, sedangkan polimorfisme gen UCP-2 Ala55Val sebelum intervensi. Pemeriksaan gen UCP-2 Ala55Val menggunakan metode *Polymerase Chain Reaction - Restriction Fragment Length Polymorphism* (PCR – RFLP). Data dianalisis secara univariat dan bivariat. Analisis bivariat menggunakan uji t berpasangan dan uji t tidak berpasangan. **Hasil:** Hasil menunjukkan lingkaran pinggang sebelum intervensi sebesar 86,82±9,14cm dan setelah intervensi sebesar 82,64±7,73cm, yang dinyatakan bermakna dengan uji t berpasangan ( $p=0,000$ ). Perubahan lingkaran pinggang setelah intervensi pada genotip CC sebesar 3,59±3,08cm dan genotip TT 6,33±4,16cm, dinyatakan tidak bermakna dengan uji t tidak berpasangan ( $p=0,224$ ). **Kesimpulan:** Terdapat pengaruh *continuous training* (CT) terhadap lingkaran pinggang. Tidak ditemukan perbedaan perubahan lingkaran pinggang yang bermakna pada kedua kelompok genotip polimorfisme gen UCP-2 Ala55Val.

---

**Kata kunci:** Ala55Val, *Continuous Training*, Lingkaran Pinggang, Obesitas, UCP-2.

# THE IMPACT OF UCP-2 Ala55Val GENE POLYMORPHISM ON WAIST CIRCUMFERENCE CHANGE POST CONTINUOUS TRAINING INTERVENTION IN OBESE WOMEN

Aulia Nury Faza

Medical Faculty, Jenderal Soediman University, Purwokerto, Indonesia

Email : [aulia.faza@mhs.unsoed.ac.id](mailto:aulia.faza@mhs.unsoed.ac.id)

## ABSTRACT

**Introduction:** Obesity is characterized by waist circumference more than 90cm for men and 80cm for women. One of the factors that influence obesity is genetic factors, including uncoupling protein (UCP)-2 Ala55Val gene polymorphism. Continuous training (CT) exercise can increase change on waist circumference and body fat percentage in obese individuals, but the impact of the UCP-2 Ala55Val gene polymorphism on waist circumference change after CT intervention is unclear. **Objective:** To determine the impact of UCP-2 Ala55Val genetic variation on waist circumference change post continuous training intervention in obese women. **Methods:** This study used a Quasi Experimental Pre and Post Design Without Control Group design. Subjects were 14 people chosen based on purposive sampling. Waist circumference was examined before and after intervention, while UCP-2 Ala55Val gene polymorphism before intervention. Gene examination used Polymerase Chain Reaction - Restriction Fragment Length Polymorphism (PCR-RFLP) method. Data were analyzed by univariate and bivariate test. Bivariate analysis was using dependent t-test and independent t-test. **Results:** The results indicate that waist circumference before intervention is  $786,82 \pm 9,14$ cm and after intervention is  $82,64 \pm 7,73$ cm, which is significant using dependent t-test ( $p=0,000$ ). Waist circumference change post intervention in CC genotype is  $3,59 \pm 3,08$ cm and TT genotype is  $6,33 \pm 4,16$ cm, which is not significant using independent t-test ( $p=0,224$ ). **Conclusion:** There is an effect of continuous training (CT) on waist circumference. There is no significant difference in waist circumference changes in the two groups of genotypes of the UCP-2 Ala55Val gene polymorphism

---

**Keywords:** Ala55Val, Continuous Training, Obesity, UCP-2, Waist Circumference.