

**HUBUNGAN ANTARA LEMAK VISCERAL DINILAI BERDASARKAN  
LINGKAR PINGGANG DENGAN TINGKAT KEBUGARAN ( $\dot{V}O_2MAX$ )  
PADA KARYAWAN LAKI-LAKI FAKULTAS KEDOKTERAN,  
KESEHATAN MASYARAKAT, DAN KEPERAWATAN UNIVERSITAS  
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**INTISARI**

**Latar Belakang:** Berdasarkan data Riset Kesehatan Dasar (RISKESDAS) 2018, prevalensi obesitas sentral di Indonesia adalah 31% pada penduduk berusia >15 tahun. Obesitas sentral lebih diasosiasikan dengan lemak *visceral* daripada lemak subkutan. Pengukuran lemak *visceral* dapat dilakukan secara tidak langsung dan langsung. Lingkar pinggang adalah salah satu ukuran antropometri yang sering digunakan pada praktik klinis karena cepat, ekonomis dan praktis. Lingkar pinggang memiliki asosiasi yang baik dengan lemak *visceral*. Akan tetapi, keakuratan lingkar pinggang dalam memprediksi lemak *visceral* masih diperdebatkan.  $\dot{V}O_2$  *Maximal* merefleksikan tingkat kebugaran kardiorespiratori. Penelitian tentang hubungan antara ukuran antropometri selain Indeks Massa Tubuh (IMT) dengan tingkat kebugaran belum banyak dilakukan.

**Tujuan:** Menilai hubungan antara lemak *visceral* dinilai berdasarkan lingkar pinggang dengan tingkat kebugaran ( $\dot{V}O_2Max$ ) pada karyawan laki-laki Fakultas Kedokteran, Kesehatan Masyarakat dan Keperawatan (FK-KMK) UGM.

**Metode:** Penelitian ini merupakan analisis observasional menggunakan desain potong lintang. Teknik pengambilan sampel adalah *simple random sampling*. Pengukuran  $\dot{V}O_2Max$  menggunakan metode *Astrand Submaximal Indirect Rhyming Ergocycle*. Lingkar pinggang diukur pada area tersempit antara *crista iliaca* dan *costae* 10. Subjek adalah 46 karyawan laki-laki FK-KMK UGM berusia 25-59 tahun.

**Hasil:** Pada 46 subjek, didapatkan rerata usia adalah  $41,39 \pm 8,58$  tahun, dengan kelompok usia terbanyak adalah 35-39 tahun, sebanyak 32 subjek (69,6%) memiliki lingkar pinggang <90cm, sedangkan 14 subjek (30,4%)  $\geq 90$ cm. Sebanyak 33 subjek (71,7%) memiliki tingkat kebugaran *low*, 6 subjek (13,0%) *somewhat low*, 7 subjek (15,2%) *average*, dan tidak ada subjek (0%) masuk ke kategori *high* dan *very high*. Hasil uji korelasi lingkar pinggang dengan  $\dot{V}O_2Max$  menggunakan *Pearson's correlation (r)* menunjukkan hasil korelasi negatif lemah ( $r = -0,171$ ), tetapi tidak signifikan secara statistik ( $p \text{ value} = 0,255$ ).

**Kesimpulan:** Tidak ada hubungan yang bermakna antara lemak *visceral* dinilai berdasarkan lingkar pinggang dengan tingkat kebugaran ( $\dot{V}O_2Max$ ) pada karyawan laki-laki Fakultas Kedokteran, Kesehatan Masyarakat, dan Keperawatan UGM.

**Kata Kunci:** Kebugaran,  $\dot{V}O_2Max$ , lemak *visceral*, lingkar pinggang, obesitas sentral.

**THE CORRELATION BETWEEN PHYSICAL FITNESS ( $\dot{V}O_2MAX$ ) AND  
VISCERAL FAT ASSESSED BY WAIST CIRCUMFERENCE IN MALE  
EMPLOYEES OF FACULTY OF MEDICINE, PUBLIC HEALTH, AND  
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**ABSTRACT**

**Background:** According to Riset Kesehatan Dasar (RISKESDAS) 2018 data, the prevalence of central obesity in Indonesia is 31% among the population aged >15 years. Central obesity is more associated with *visceral* fat than subcutaneous fat. Measurement of *visceral* fat can be performed by indirect or direct methods. Waist circumference is one of the indirect anthropometric measurements often used in clinical practice because it is rapid, economical and practical. Waist circumference has significant association with *visceral* fat, however, the accuracy of waist circumference in predicting *visceral* fat is still debated,  $\dot{V}O_2$  Maximal reflects the level of cardiorespiratory fitness. Research on the relationship between anthropometric measures other than Body Mass Index (BMI) and fitness levels has not been done much.

**Objective:** To determine the correlation between *visceral* fat assessed by waist circumference and level of physical fitness ( $\dot{V}O_2Max$ ) in Faculty of Medicine, Public Health, and Nursing UGM male employees.

**Methods:** This study was an observational study using a cross-sectional design carried out on 46 subjects aged 25-59 years. The subjects of this research were male employee of FK-KMK UGM Yogyakarta who fulfills the inclusion and exclusion criteria. Fitness level is measured by Astrand Submaximal Indirect Rhythmic Ergocycle method. Waist circumference was measured in the narrowest area between iliac crest and costae 10.

**Results:** In 46 subjects, the average age was  $41.39 \pm 8.58$  years, with the most age group being 35-39 years, 32 subjects (69.6%) had waist circumference <90cm, while the remaining 14 subjects (30.4 %)  $\geq 90$ cm. A total of 33 subjects (71.7%) had a low fitness level, 6 subjects (13.0%) were somewhat low, 7 subjects (15.2%) were average, and no subject (0%) entered the high and very high categories. The results of waist circumference correlation test with  $\dot{V}O_2Max$  using Pearson's correlation (r) demonstrated a weak negative correlation (r = -0.171), but not statistically significant (p value = 0.255).

**Conclusion:** There is no significant correlation between visceral fat assessed by waist circumference and physical fitness level ( $\dot{V}O_2Max$ ) in male employees of Faculty of Medicine, Public Health, and Nursing UGM.

**Keywords:** Physical fitness,  $\dot{V}O_2Max$ , *visceral* fat, waist circumference, central obesity.