

# PERBEDAAN RESPONS TEKANAN DARAH TERHADAP *COLD PRESSOR TEST* BERDASARKAN INDEKS MASSA TUBUH DAN *WAIST TO HEIGHT RATIO* PADA MAHASISWA FK UPN “VETERAN” JAKARTA

Gabrielle Beatrix Siahaan

## Abstrak

Peningkatan berat badan cenderung menetap dan meningkatkan risiko terjadinya hipertensi serta penyakit kardiometabolik sehingga dibutuhkan pemeriksaan (skrining) secara dini. Penelitian ini dilakukan untuk menganalisis perbedaan respons tekanan darah saat *cold pressor test* (CPT) setiap kategori indeks massa tubuh (IMT) dan *waist-to-height ratio* (WHtR) pada mahasiswa FK UPN “Veteran” Jakarta. Desain penelitian ini adalah potong lintang dengan teknik *simple random sampling* dengan sampel sebanyak 76 mahasiswa sebagai responden. Hasil penelitian menunjukkan individu dengan  $IMT < 23$  mayoritas memiliki respons tekanan darah normoreaktif (50%) dan cenderung hiperreaktif (31%) sedangkan individu dengan  $IMT \geq 23$  mayoritas memiliki respons tekanan darah hiporeaktif (41,2%) dan cenderung normoreaktif (47,1%). Individu dengan WHtR berisiko mayoritas memiliki respons tekanan darah hiporeaktif (40,5%) dan cenderung normoreaktif (45,2%) sedangkan individu dengan WHtR tidak berisiko mayoritas memiliki respons tekanan darah normoreaktif (52,9%) dan cenderung hiperreaktif (32,4%). Hasil uji *Chi-Square* memberikan makna adanya perbedaan respons tekanan darah CPT yang signifikan berdasarkan IMT ( $p = 0,043$ ) dan WHtR ( $p = 0,026$ ). Peningkatan IMT dan WHtR berbanding lurus dengan terjadinya penurunan respons tekanan darah CPT yang berhubungan dengan peningkatan aktivitas RAAS dan penurunan fungsi saraf simpatis.

**Kata Kunci:** *Cold pressor test*, indeks massa tubuh, tekanan darah, *waist-to-height ratio*

**THE DIFFERENCES IN BLOOD PRESSURE RESPONSE  
TOWARDS COLD PRESSOR TEST BASED ON  
BODY MASS INDEX AND WAIST TO HEIGHT RATIO  
IN FACULTY OF MEDICINE UPN “VETERAN” JAKARTA**

**Gabrielle Beatrix Siahaan**

***Abstract***

*Obesity tends to be permanent and increases the risk of hypertension and cardiometabolic disease, therefore early screening is needed. This study was conducted to determine the differences in blood pressure responses during cold pressor test (CPT) for each body mass index (BMI) and waist-to-height ratio (WHtR) category on students at the Faculty of Medicine UPN “Veteran” Jakarta. The design of this study is cross-sectional with a simple random sampling technique on 76 students. The results showed that the majority of individuals with BMI < 23 had a normoreactive response (50%) and tend to have hyperreactive response (31%), while the majority of individuals with a BMI ≥ 23 had a hyporeactive response (41.2%) and tend to have normoreactive response (47.1%). The majority of individuals with risk WHtR had a hyporeactive response (40.5%) and tend to have normoactive response (45.2%), while the majority of individuals with non-risk WHtR had a normoactive response (52.9%) and tend to have hyperreactive response (32.4%). Chi-Square analysis shows that there is a significant difference in CPT blood pressure response based on BMI ( $p = 0.043$ ) and WHtR ( $p = 0.026$ ). The increase in BMI and WHtR corresponds to the decrease in CPT blood pressure response. This is related to increased activity of the RAAS and the decreased function of the sympathetic nerves.*

**Keyword:** *Blood pressure, body mass index, cold pressor test, waist-to-height ratio*