

KORELASI KADAR TESTOSTERON TERHADAP KEKUATAN OTOT DAN KETAHANAN OTOT PADA MAHASISWA FAKULTAS KEDOKTERAN UNIVERSITAS JENDERAL SOEDIRMAN

ABSTRAK

Latar Belakang : Otot merupakan jaringan yang terbesar dalam tubuh manusia, otot memiliki peran sebagai motor untuk menggerakkan seluruh bagian tubuh.. Hormon testosteron memiliki efek anabolik yang dapat meningkatkan sintesis protein sehingga otot dapat bekerja secara efektif. Tujuan penelitian ini adalah untuk mengetahui korelasi kadar testosteron dengan ketahanan otot, massa otot dan ketahanan otot

Metode: Penelitian ini menggunakan desain *crossectional* dengan uji korelasi *pearson*. Subjek penelitian adalah 21 mahasiswa laki-laki Fakultas Kedokteran Universitas Jenderal Soedirman yang dipilih secara *consecutive Sampling*. Seluruh subjek penelitian berusia antara 18-25 tahun. Kekuatan otot diukur menggunakan metode *leg strength test* dengan satuan kg. ketahanan otot diukur menggunakan metode *sit-up test* dengan satuan kali dalam satu menit. Massa otot diukur menggunakan metode *Bioelectrical Impedance Analysis*. Kadar testosteron diukur menggunakan testosteron saliva dengan teknik *Salimetric Testosterone Saliva Enzyme Immunoassay*.

Hasil: Penelitian menunjukkan bahwa kekuatan otot memiliki rerata $101 \pm 29,8$ kg dengan kategori cukup. Ketahanan otot memiliki rerata $28,4 \pm 6,5$ kali dalam 1 menit dengan kategori sedang. Massa otot memiliki rerata $50,2 \pm 4,9$ Kg. Kadar testosteron memiliki rerata $55,4 \pm 24$ pg/mL dengan kategori normal. Uji korelasi *pearson* testosteron dan kekuatan otot menunjukkan nilai $p < 0,05$ sehingga terdapat korelasi antara kekuatan otot dan testosteron. Uji korelasi *pearson* testosteron dan ketahanan otot menunjukkan $p > 0,05$ sehingga tidak terdapat korelasi antara testosteron dan ketahanan otot. Uji korelasi *pearson* testosteron dan massa otot menunjukkan $p > 0,05$ sehingga tidak terdapat korelasi antara testosteron dan massa otot.

Kesimpulan: Testosteron memiliki korelasi dengan kekuatan otot namun tidak berkorelasi terhadap ketahanan otot dan massa otot pada mahasiswa Fakultas Kedokteran Universitas Jenderal Soedirman.

Kata Kunci : kekuatan otot; ketahanan otot;*leg strength test*; *sit-up test*; testosteron

**CORRELATION OF TESTOSTERONE LEVELS TO MUSCLE STRENGTH
AND MUSCLE ENDURANCE IN FACULTY OF MEDICINE STUDENTS,
GENERAL SOEDIRMAN UNIVERSITY**

ABSTRACT

Background: Muscle is the largest tissue in the human body, muscle has a role as a motor to move all parts of the body. Testosterone has an anabolic effect that can increase protein synthesis so that muscles can work effectively. The purpose of this study was to determine the correlation between testosterone levels and muscle endurance, muscle mass and muscle endurance

Methods: This study used a cross-sectional design with the Pearson correlation test. The research subjects were 21 male students of the General Sudirman University Faculty of Medicine who were selected by consecutive sampling. All research subjects aged between 18-25 years. Muscle strength was measured using the leg strength test method with units of kg. Muscle endurance was measured using the sit-up test method with units of times in one minute. Muscle mass was measured using the Bioelectrical Impedance Analysis method. Testosterone levels measured were salivary testosterone using the Salimetric Testosterone Saliva Enzyme Immunoassay technique.

Results: The research shows that muscle strength has an average of $101+29.8$ kg with sufficient category. Muscle endurance has an average of $28.4+6.5$ times in 1 minute in the moderate category. Muscle mass has an average of $50.2+4.9$ Kg. Testosterone levels have an average of $55.4+24$ pg/mL in the normal category. Pearson's correlation test of testosterone and muscle strength showed a p value <0.05 so that there was a correlation between muscle strength and testosterone. Pearson's correlation test of testosterone and muscle endurance showed $p>0.05$ so that there was no correlation between testosterone and muscle endurance. Pearson's correlation test of testosterone and muscle mass showed $p>0.05$ so there was no correlation between testosterone and muscle mass.

Conclusion: Testosterone has a correlation with muscle strength but does not correlate with muscle endurance and muscle mass in students of the Faculty of Medicine, Jenderal Soedirman University.

Keywords : muscle strength; muscle endurance; leg strength test; sit-up test; testosterone