

ANALISIS PERBEDAAN KOMPOSISI TUBUH DAN DAYA LEDAK OTOT ANTARA BERBAGAI CABANG OLAHRAGA KATEGORI *COMBAT SPORT*: KAJIAN PADA *STRIKING* DAN *GRAPPLING SPORT*

INTISARI

Latar Belakang: *Combat sport* merupakan olahraga yang memerlukan gerakan eksplosif, intermitten, dan cepat dari kedua ekstremitas. Untuk dapat memiliki performa tersebut, komposisi tubuh dan daya ledak otot menjadi komponen penting yang perlu dioptimalkan atlet. *Combat sport* dikelompokkan menjadi *striking* dan *grappling* berdasarkan karakteristik permainan. Walaupun termasuk dalam olahraga kategori *combat sport*, tidak menutup kemungkinan jika terdapat perbedaan karakteristik komposisi tubuh dan daya ledak otot pada kedua kelompok tersebut.

Tujuan Penelitian: Mengetahui perbedaan komposisi tubuh dan daya ledak otot antar cabang olahraga combat sport kelompok *striking* dan *grappling*

Metode: Penelitian *cross sectional* yang dilakukan di SMANOR Sidoarjo dan Padepokan Judo PJSI DIY pada bulan Februari-Maret 2024 dengan total subjek 50 atlet dari kelompok *striking* dan *grappling combat sport*. Pengukuran komposisi tubuh dilakukan dengan BIA, daya ledak otot dengan *vertical jump test* dan *two-hand medicine ball put test*, dan asupan makan dengan SQ-FFQ.

Hasil: Rerata persentase massa otot atlet *striking* $33.8 \pm 5.1\%$ dan *grappling* $34.3 \pm 5.4\%$. Rerata persentase lemak tubuh atlet *striking* $15.1 \pm 7.9\%$ dan *grappling* $14.4 \pm 6.2\%$. Rerata nilai daya ledak otot lengan (m) atlet *striking* 3.74 ± 0.74 m dan atlet *grappling* 3.40 ± 1.06 m. Rerata nilai daya ledak otot tungkai (cm) atlet *striking* 55.9 ± 13.8 cm dan atlet *grappling* 45.9 ± 8.6 cm. Hasil uji beda menunjukkan tidak terdapat perbedaan secara signifikan ($p \geq 0.05$) pada variabel persen massa otot ($p = 0.516$), persen lemak tubuh ($p = 0.621$), dan daya ledak otot lengan ($p = 0.143$). Akan tetapi, terdapat perbedaan signifikan ($p < 0.05$) antar atlet *striking* dan *grappling* pada variabel daya ledak otot tungkai ($p = 0.011$). Hasil uji korelasi menunjukkan adanya hubungan signifikan ($p \leq 0.01$) antara komposisi tubuh dengan daya ledak otot pada atlet *combat sport*. Akan tetapi, tidak terdapat hubungan signifikan ($p \geq 0.05$) antara asupan makan dengan daya ledak otot.

Kesimpulan: Daya ledak otot tungkai kelompok *striking* secara signifikan lebih tinggi dari kelompok *grappling*. Persen massa otot memiliki hubungan positif dengan daya ledak otot, sedangkan persen lemak tubuh memiliki hubungan signifikan negatif dengan daya ledak otot.

Kata Kunci: Komposisi Tubuh, Daya Ledak Otot, Asupan Makan, *Combat Sport*, *Striking*, *Grappling*

**ANALYSIS OF DIFFERENCES IN BODY COMPOSITION AND MUSCLE
EXPLOSIVE POWER BETWEEN VARIOUS BRANCHES OF COMBAT SPORT
CATEGORY: STUDY ON STRIKING AND GRAPPLING SPORT**

ABSTRACT

Background: Combat sport is a sport that requires explosive, intermittent and fast movements of both extremities. To be able to have this performance, body composition and muscle explosive power are important components that athletes need to optimize. Combat sports are categorized into striking and grappling based on the characteristics of the game. Although included in the combat sport category, it is possible that there are differences in body composition characteristics and muscle explosive power in the two groups.

Objective: To determine the differences in body composition and muscle explosive power between combat sports striking and grappling groups.

Methods: Cross sectional study conducted at SMANOR Sidoarjo and Padepokan Judo PJSI DIY in February-March 2024 with a total of 50 athletes from striking and grappling combat sport groups. Body composition was measured with BIA, muscle explosive power with vertical jump test and two-hand medicine ball put test, and food intake with SQ-FFQ.

Results: The mean muscle mass percentage of striking athletes was $33.8 \pm 5.1\%$ and grappling athletes was $34.3 \pm 5.4\%$. The mean body fat percentage of striking athletes was $15.1 \pm 7.9\%$ and grappling athletes was $14.4 \pm 6.2\%$. The mean value of arm muscle explosive power (m) of striking athletes 3.74 ± 0.74 m and grappling athletes 3.40 ± 1.06 m. The mean value of leg muscle explosive power (cm) of striking athletes 55.9 ± 13.8 cm and grappling athletes 45.9 ± 8.6 cm. T-test results showed no significant differences ($p \geq 0.05$) in the variables of percent muscle mass ($p=0.516$), percent body fat ($p=0.621$), and arm muscle explosiveness ($p=0.143$). However, there was a significant difference ($p < 0.05$) between striking and grappling athletes on the limb muscle explosiveness variable ($p=0.011$). The correlation test results showed a significant relationship ($p \leq 0.01$) between body composition and muscle explosiveness in combat sport athletes. However, there was no significant relationship ($p \geq 0.05$) between food intake and muscle explosive power.

Conclusion: The explosive power of the leg muscles in the striking group was significantly higher than that in the grappling group. Percent muscle mass has a significant positive relationship with muscle explosive power, while percent body fat has a significant negative relationship with muscle explosive power.

Keywords: Body Composition, Muscle Explosiveness, Dietary Intake, Combat Sport, Striking, Grappling