

**HUBUNGAN TINGKAT KELELAHAN DENGAN *KINEMATICS  
VARIABLE LUNGE ACTION, MAXIMUM SWORD VELOCITY (MSV)  
DAN ACCURACY OF ATTACK* PADA OLAHRAGA ANGGAR  
NOMOR EPEE**

**TESIS**

diajukan untuk memenuhi salah satu syarat mendapatkan gelar  
magister pendidikan



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Sebuah Tesis yang Diajukan untuk Memenuhi Syarat Memperoleh Gelar Magister  
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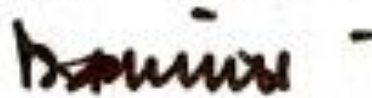
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**ABSTRAK**  
**HUBUNGAN TINGKAT KELELAHAN DENGAN *KINEMATICS VARIABLE LUNGE ACTION*, *MAXIMUM SWORD VELOCITY (MSV)* DAN *ACCURACY OF ATTACK* PADA OLAHRAGA ANGGAR NOMOR EPEE**

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Tujuan dari penelitian ini adalah untuk mengetahui hubungan kelelahan dengan *Kinematik variable Lunge Action*, *Maximum Sword Velocity (MSV)* dan *Accuracy Of Attack*. 5 sampel atlet Anggar pria (usia=19,68±0,7 tahun; Tinggi Badan=170,2±1,43 cm; Berat Badan=62,5±3,5 kg). Semua sampel di hitung antropometrinya dan di ukur kadar asam laktat awal setelah melakukan pemanasan sampel melakukan gerakan *Lunge* sebanyak 10 kali dan di rekam menggunakan camera Sony 32GB HDR-PJ540, camera Go-pro untuk nanti di analisis menggunakan Kinovea, dan di depannya terdapat target serangan untuk mengukur ketepatan serangan, setelah itu sampel di berikan *treatment* kelelahan yaitu *squat thrust* dan kembali di ukur kadar asam laktat nya, sampel kembali melakukan lagi 10 gerakan *Lunge*. Hasil analisis menunjukkan terdapat hubungan antara kelelahan otot dengan *kinematics variable Lunge Action*, *Maximum Sword Velocity (MSV)* dan *Accuracy*. Dalam pengujian perbandingan rata-rata di level kelelahan yang berbeda dari semua variable dari lima fase 7 indikator variabel *kinematik* ada 2 fase yang variable nya menunjukkan perbedaan rata-rata yang signifikan yaitu fase ke 3 *Phase Range Of Motion* dan fase ke 5 *Phase Peak Angle*, dan variable lainnya yang di ujikan *Accuracy* serangan memiliki perbandingan rata-rata yang signifikan.

Kata kunci: *Accuracy*, Biomekanik, *Kinematik variable Lunge Action*, *Lunge Action*, *Maximum Sword Velocity (MSV)* dan *fatigue level*

**ABSTRACT**  
**THE RELATIONSHIP OF FATIGUE LEVEL WITH KINEMATICS**  
**VARIABLE LUNGE ACTION, MAXIMUM SWORD VELOCITY (MSV)**  
**AND ACCURACY OF ATTACK IN FENCING EPEE NUMBER**

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The purpose of this study was to determine the relationship between fatigue and Kinematic variables Lunge Action, Maximum Sword Velocity (MSV) and Accuracy Of Attack. 5 samples of male fencing athletes (age=19.68±0.7 years; Height=170,2±1.43 cm; Weight=62.5±3.5 kg). All samples were anthropometrically calculated and the initial lactic acid levels were measured after warming up the sample doing the Lunge movement 10 times and recorded using a Sony 32GB HDR-PJ540, camera Go-pro for later analysis to reveal Kinovea, and in front of it there is an attack target To measure the accuracy of the attack, after that the sample was given a fatigue treatment, namely the squat thrust and again the lactic acid level was measured, the sample again did 10 Lunge movements. The results of the analysis show that there is a relationship between muscle fatigue and the kinematics variables of Lunge Action, Maximum Sword Velocity (MSV) and Accuracy. In testing the average comparison at different fatigue levels of all the variables of the five phases, 7 indicators of kinematic variables, there are 2 phases whose variables show a significant average difference, namely the 3rd phase, Phase Range Of Motion and phase 5, Phase Peak Angle, and other variables tested Accuracy attacks have a significant average comparison.

**Keywords:** Accuracy, Biomechanics, Kinematic variable Lunge Action, Lunge Action, Maximum Sword Velocity (MSV) and fatigue level

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