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Friday Morning Poster Presentations: Posters displayed from 7:30 a.m.-12:30 p.m.: One-hour author presentation times are staggered from 8:30-9:30 a.m. and 9:30-10:30 a.m.: E-31 Free Communication/Poster - Neural Control and Balance: FRIDAY, JUNE 2, 2006 8:30 AM - 10:30 AM ROOM: Hall B

Effects of the Rate of Force Development on Fatigue Onset and Location: 2405: Board #137 8:30 AM - 9:30 AM

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Increases in the rate of force development (RFD) seems to change the pattern of motor unit activation. Thus, the pattern of fatigue onset and location may also change as the RFD changes.

PURPOSE: This study was designed to determine if the RFD affects fatigue onset and location.

METHODS: Ten untrained males had their knee extensors fatigued through maximal isometric contractions with distinct RFDs: 30%, 60%, 90%, and 100% maxRFD/ sec. Central activation ratio (twitch interpolation) was measured before and after the fatigue protocol. Amplitude (RMS) and median frequency (MF) of the surface electromyographic (EMG) signal were estimated during the fatigue protocol on each contraction at four relative torque intervals (20%-30%, 45%-55%, 70%-80%, and 100%), for the vastus lateralis and vastus medialis muscles.

RESULTS: The slow RFD condition (30%maxRFD/sec) produced a faster drop in the impulse response through the fatigue protocol ($p < 0.05$). However, central activation ratio and the EMG amplitude did not mimic the faster drop in the impulse response.

CONCLUSION: The slowest RFD condition produced a faster fatigue onset and it seemed to be produced by peripheral factors since EMG amplitude increased and voluntary activation was not affected by changes in the RFD.

