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COMPARISON OF TWO RUNNING INTENSITY GROUPS: EFFECTS ON CONCENTRIC AND ECCENTRIC HAMSTRINGS TORQUE FOLLOWING AN 80-MINUTE INTERMITTENT RUNNING PROTOCOL

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As running velocity increases eccentric and concentric hamstrings torque production during the pre-contact and braking phases also increases. However the effects of different running velocities on post exercise muscle torque is unclear. PURPOSE: To examine the effect of two 80-minute intermittent running intensity groups on concentric and eccentric hamstrings torque. METHODS: Twenty two Australian Rules Football (ARF) players (mean ±SD) (age, 21.4±2.9 years; weight, 84.4± 8.6kgs) were evenly allocated to either group one (G1) who had the faster maximal sprint (MS) velocities (5.58±0.18m·sec^{-1}) or group two (G2) with the lower MS velocities (5.24±0.26m·sec^{-1}). Both groups completed maximal concentric and eccentric hamstrings muscle contractions on a Biodex isokinetic dynamometer (Biodex) at baseline and immediately following an 80-minute intermittent running protocol (IRP) on a Woodway® Force 3 non-motorized treadmill. The IRP was divided into 4 x 20-minute quarters consisting of five MS efforts, sixteen fast runs (65% of MS), thirty two jogs (35% of MS) and thirty two walks (20% of MS) per quarter. RESULTS: Both groups decreased from baseline to post IRP in eccentric hamstrings torque ($p<0.01$) however, there was no interaction effect ($p>0.05$). There was no time or interaction effect ($p>0.05$) on concentric hamstrings torque. CONCLUSION: Team game players from two different intensity groups similarly reduce eccentric hamstrings torque following eighty minutes of intermittent running on a non-motorized treadmill. This indicates higher intensities for similar movement patterns over the same time period may not be a sole determinant for reduced eccentric hamstrings torque. PRACTICAL APPLICATIONS: Results of the present study showed from this sample of semi professional ARF athletes the faster players do not reduce eccentric hamstrings torque to any greater degree than their slower counterparts over an extended intermittent running time period.

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