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The influence of eccentric hip abductor strength on contralateral pelvic drop and mediolateral knee movement

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Affiliations

Background

Running is associated with overuse injuries and **approximately 50% of all recreational and competitive runners experience this type of injuries yearly** (1). The predominant sites of injuries are located in the knee. Hip Abductor weakness is related to knee injuries like Patellofemoral pain and illiotibial band syndromes (2,5,6). This relationship is likely due to the hip abductor muscles is stabilizing the hip and knee by preventing a hip adduction, internal rotation of femur and a knee abduction (3,4). The hip abductors works eccentric during stance and therefore low eccentric hip abductor strength may be related with a higher contralateral pelvic drop (CPD) and mediolateral knee movement (MKM) during stance (2-4). Therefore a weak eccentric hip abductor muscle may be a potential risk of knee injuries.

Objectives

The objective of the study was to elaborate the influence of eccentric hip abductor strength on CPD and MKM during stance.

Hypothesis

Low eccentric hip abductor strength induces the highest CPD and MKM during stance

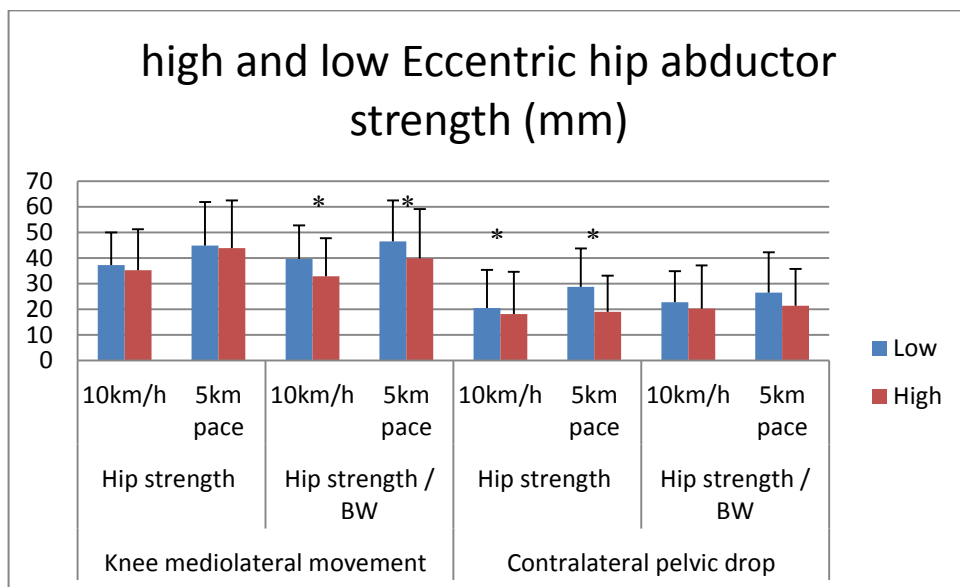
Design

26 male recreational runners running at least 2 times a week and had at least 2 years of running experience and without any pain for the last 3months. Hip abductor strength, CPD and MKM was measured on both legs and the each leg was considered as independent.

Hip abductor strength and demographics for High vs low Strength group (mean +/-sd)

	Low (n=26 legs)	High (n = 26 legs)	P-value
<i>Eccentric hip abduction</i>			
Strength (nm)	144,42 +/-16,14	200,54 +/-22,95	0,000*
Strength / kg (nm/kg)	1,91+/-0,23	2,55+/-2,55	0,000*
Bodyweight (kg)	76,08+/-7,77	79,46+/-7,65	0,06
Age (years)	34,12+/-7,97	30,58+/-10,35	0,08
Height (m)	178,00+/-23,54	176,46+/-23,16	0,4

Outcome



Discussion/Perspective

Low eccentric hip abductor strength probably has an influence on CPD and MKM but should be adjusted for weight and maybe static knee alignment and strike pattern as well. Results need power and therefore more subjects are needed.

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