Movement variability in those with and without athletic groin pain during a running cut task.

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INTRODUCTION:

Athletic groin pain (AGP) is a common injury, typically associated with sports involving repetitive agility tasks. Given the association between repetitive loading and chronic overuse injuries such as AGP, there has been a growing interest in the functional role movement variability may have with respect to injury (Baida *et al.*, 2018). The aim of this study was to investigate if the magnitude of variability differed between those with and without AGP across the total waveform.

METHODS:

Twenty AGP patients and twenty recreationally active male field sport athletes were recruited to this study. Each participant attended the lab on one occasion and completed 7 trials of a 110° cutting action. Motion and force data were captured using 10 Vicon Bonita cameras and 2 AMTI force plates at a sampling frequency of 200 Hz and 1000 Hz, respectively. Data was then filtered at 15 Hz and normalised to 101 data points. A modified vector coding approach was utilised to calculate the co-ordination between joints (Sparrow *et al.*, 1987). Variability was calculated for both joint angles and the co-ordination between every joint of the lower limbs, trunk and pelvis using the between trial standard deviation or the circular equivalent for the coordination data. A statistical curve analysis was performed using one-dimensional statistical non-parametric mapping (Nichols and Holmes, 2002) and rank rank-biserial correlation (RBC) was presented as a standardised measure of effect. Only phases of 3% or longer were considered as true differences (Gribbin *et al.*, 2016).

RESULTS:

Ankle dorsi/plantar flexion (79-93%, RBC = 0.51), Thorax abd/adduction – Hip flex/extension (88-93%, RBC = 0.65) and Pelvis abd/adduction – Hip flex/extension (88-93%, RBC = 0.57) variability were all significantly less in the AGP group in comparison to the uninjured group ($p < 0.01$). In contrast Pelvis flex/extension variability (36-63%,70-84%, RBC =0.49) was significantly greater in the uninjured group in comparison to the AGP group ($p < 0.01$).

CONCLUSION:

The results from d. Variability may therefore represent a target for AGP rehabilitation. Future confirmatory research, using appropriate methodology is warranted to

ascertain if variability of the features identified in this current study are truly affected by AGP.

REFERENCES:

1 Baida et al. (2018) Scand. J. Med. Sci.
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