

Here we explore the regional variations of ITB strain during isolated contractions of TFL and GM. We hypothesized that contraction of the TFL will result in an increase in ITB strain in the anterior region of the ITB, with limited strain in the posterior region and that the opposite would occur with GM contraction.

Methods: Ten healthy participants (5m/5f, a:28±6years, h:173±6cm, w:74±11kg) gave written, informed consent. Fine-wire electrodes were inserted in to TFL and the superior, superficial portion of GM to deliver “trains” of electrical stimulation (3x60 rectangular pulses, 110Hz) across the motor point of each muscle. Two flat ultrasound transducers (Teled, 110Hz) imaged the ITB on the distal, lateral side of the femur aligned with the fibres of the ITB. Knee joint movement was assessed by a string potentiometer attached between the transducers and Gerdy’s tubercle. Participants were instructed to relax supine with their knee bent (90°). ITB displacement was tracked using a Kanade-Lucas-Tomasi (KLT) algorithm. Combining the string potentiometer and the ultrasound tracking displacements, the ITB strain was calculated.

Results: The maximum strain during TFL stimulation in the anterior and posterior regions of the ITB were 0.55% and -0.09%, respectively. The maximum strain during GM stimulation in the anterior and posterior regions of the ITB were 0.002% and 0.087%, respectively. We found significant differences between the maximum strain measured in the anterior and posterior regions of the ITB for both muscle stimulations ($P<0.05$). During TFL contractions, ITB strain was 1.17% lower in the posterior region of the ITB ($P=0.005$). During GM contractions, strain was 35% higher in the posterior region of the ITB ($P=0.035$).

Discussion/Conclusion: Our results demonstrate that the TFL has a different force transmission pathway than the GM through the distal ITB when activated in isolation. As hypothesized, TFL stimulation resulted in more anterior ITB strain than posterior. GMax stimulation resulted in more posterior ITB strain than anterior. We have begun to highlight the complex relationship between the ITB and its in-series musculature in the hopes of elucidating its potential functions and why some athletes develop ITB syndrome, while others do not.

Impact/Application to the field:

- The anterior and posterior regions of the ITB transmit forces differently, highlighting the differing force transmission pathways within the band.
- In athletes with ITB syndrome, differences in the activation patterns of the TFL and GM may alter force transmission pathways, potentially contributing to this pathology.

My co-authors and I acknowledge that we have no conflict of interest of relevance to the submission of this abstract.

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Health-seeking behaviours, management practices, and return to play decisions after an ankle sprain in netball: An international cross-sectional survey of 1,592 non-elite netballers

P. Rowe, A. Bryant, R. Hinman, K. Paterson

The University of Melbourne, Australia

Introduction: Ankle sprains are the most common injury in netball. Approximately three in four netballers report sustaining an ankle sprain, with half suffering recurrent sprains and two-thirds reporting moderate-severe instability. There is limited evidence on ankle sprain management and return-to-play decisions, and differences between countries have not been explored. This study aims to compare netballers' health-seeking behaviours, management practices, and return-to-play decisions after an ankle sprain and compare inter-country differences.

Methods: Netballers aged >14 years with a history of an ankle sprain were recruited from non-elite competitions in Australia (AUS), United Kingdom (UK), and New Zealand (NZ). Participants completed an online survey describing their most recent ankle sprain during netball, health-seeking behaviours, management strategies, return-to-play decision making, and the presence of residual symptoms when returning to netball. Data were described using mean (standard deviation) or number (proportion) as appropriate, and between-country differences were compared using chi-square tests.

Results: A total of 1,547 netballers from Australia (N=846), UK (N=454), and NZ (N=292) completed the survey. Overall, most undertook self-management strategies (N=1,572, 99%) and three in five netballers sought medical care from a health professional after their ankle sprain (N=951, 60%). Of those, most received strengthening (N=771, 81%), balance (N=665, 70%), and range of motion (N=656, 69%) exercises, in addition to taping (N=636, 67%) and bracing (N=291, 31%). When returning to netball, nearly a quarter returned within 1-7 days (N=338, 21%) and received medical clearance (N=362, 23%). Concerningly, nearly all netballers reported the presence of residual symptoms (N=1,496, 94%). When comparing countries, UK netballers reportedly sought less medical care than AUS and NZ netballers (53% vs. 60% vs. 68%, respectively, $p=0.000$). Of those who sought medical care, UK netballers compared to AUS and NZ netballers reportedly received less strengthening (73% vs. 84% vs. 84%, $p=0.001$) and balance exercises (60% vs. 71% vs. 80%, $p=0.000$), as well as taping (39% vs. 74% vs. 82%, $p=0.000$) or bracing (23% vs. 33% vs. 34%, $p=0.01$). When returning to netball, fewer UK netballers received medical clearance than AUS and NZ netballers (10% vs. 28% vs. 28%, $p=0.000$). However, a greater proportion of AUS netballers than UK netballers returned to play within 1-7 days (25% vs. 15%, $p=0.000$). Fear of re-injury was greater in AUS netballers compared to UK and NZ netballers (62% vs. 72% vs. 70%, $p=0.000$), but pain was greater in NZ netballers than UK netballers (58% vs. 69%, $p=0.01$).

Discussion: Health-seeking behaviours were poor for all netballers across all countries. Netballers from the UK were less likely to seek medical care, undertake strengthening and balance exercises or receive taping or bracing. They were also less likely to obtain medical clearance before returning to sport. These findings suggest current health-seeking behaviours are suboptimal, particularly in the UK.

Impact and application to the field: This international cross-sectional survey revealed that a very low proportion of netballers undertake appropriate health-seeking behaviours after sustaining an ankle sprain, particularly those from the UK. Our findings suggest greater education and resources regarding best-practice management of ankle sprains are needed.

Conflict of interest: The co-authors of this abstract acknowledge no conflicts of interest, financial and/or personal relationships which may result in research bias.

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