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Letter to editor

Fear of re-injury does not differ between those with and without chronic ankle instability

Dear Editor in-chief

Chronic ankle instability (CAI), the sequela of a lateral ankle sprain, has been reported for years after the initial trauma (Anandacoomarasamy and Barnsley, 2005). However, some individuals (copers), despite a history of a lateral ankle sprain, appear to have a mechanism that allows them to function as if uninjured (Wikstrom et al., 2009). To date, differences in perceptual (Wikstrom et al., 2009), mechanical (Hubbard, 2008), and sensorimotor (Wikstrom et al., 2010) outcomes have been identified between copers and individuals with CAI. However, the existing literature has focused solely on self-assessed disability (Hubbard, 2008; Wikstrom et al., 2009; Wikstrom et al., 2011) while disregarding other perceptual outcomes such as fear of re-injury/movement. This is troubling, since both researchers and clinicians have noted a lack of confidence with the injured ankle in those with CAI. Therefore, the aims of this investigation were to determine if fear of re-injury/movement: 1) differed between those with and without CAI and 2) correlates with injury characteristics that quantify the magnitude of CAI.

All subjects read and signed the informed consent form that was approved by university's Institutional Review Board prior to participation. Participants included 29 individuals with CAI (21.9 ± 2.8 years, 1.77 ± 1.27 m, 72.4 ± 12.5kg) and 29 copers (20.9 ± 1.5 years, 1. 74 ± 1.06 m, 75.4 ±1 6.4 kg). Copers were required to have suffered an initial ankle sprain that required immobilization and/or non-weight bearing for at least three days (7.6 ± 6.3 days) but have resumed all pre-injury physical activity without limitation and without further complication for at least 12 months prior to participation. Those with CAI must have had an initial lateral ankle sprain that required immobilization and/or non-weight bearing for at least three days (8.5 ± 9.1 days), have multiple episodes of giving way within the past year (5.3±5.2 episodes), and at least 1 recurrent sprain between 3 and 6 months prior to study participation (1.3 ± 0.7 recurrent sprains). Further, copers were required to score >22 on the Ankle Joint Functional Assessment Tool [AJFAT] (25.0 ± 1.1) while those with CAI were required to score <22 on the AJFAT (18.0 ± 2.4) (Wikstrom et al., 2009; 2010).

Once enrolled, all 58 subjects completed the 17 item Tampa Scale of Kinesiophobia (TSK) questionnaire which assesses fear of re-injury/ movement. Subjects rate each item on a 4-point likert scale with scoring alternatives ranging from strongly disagree (1) to strongly agree (4). Items 4, 8, 12, and 16 are inversely scored. Total scores range from 17-68 with higher scores reflecting greater fear of re-injury/ movement (Lentz et al., 2010; Swinkels-Meewisse et al., 2003)

A Pearson Product-Moment Correlation revealed that TSK scores of copers and those with CAI did not correlate with AJFAT scores (r = 0.07). Further, the TSK scores of those with CAI did not correlate to time immobilized (r = 0.01), the number of recurrent sprains (r = 0.27), or the number of giving way episodes experienced (r = 0.12). Independent sample t-tests revealed that TSK scores [$T_{(2,56)}$ = -0.83, p = 0.41] did not differ between those with CAI (31.6 ± 4.4, 95% confidence interval= 29.92-33.25) and those without (30.5 ± 5.7, 95% confidence interval = 28.33-32.64).

The primary purpose of this investigation was to determine if TSK scores differ between those with CAI and those without. The lack of a relationship between TSK and AJFAT scores suggest that these scales are unique perceptual outcome measures and ensures that the observed TSK scores are not being influenced by self-assessed disability levels in those with CAI. The current findings also suggest that: 1) fear of re-injury/ movement, as quantified by the TSK, is not a component of the underlying mechanism of CAI and 2) fear of re-injury/ movement is not influenced by the quantity of previous injurious events experienced by those with CAI.

However, caution should be taken when interpreting the results for several reasons. First, the TSK was originally designed to capture how pain influenced fear of re-injury/ movement (Swinkels-Meewisse et al., 2003). Anecdotal evidence from our sample would suggest that a large percentage of subjects were not in pain at the time of testing which may have invalidated the TSK items that ask about pain (n = 10). Second, CAI is a heterogeneous pathology with recent work identifying as many as 7 CAI subgroups (Hiller et al., 2011). Thus the current results may have only captured the fear of movement/re-injury of a single subgroup of CAI while other subgroups may have increased and/or decreased TSK scores relative to copers. Finally, the cultural significance assigned to lateral ankle sprains may also have influenced the current results. Specifically, lateral ankle sprains are viewed as insignificant injuries that can be "walked off" which is particularly troubling given the life-long consequences (Anandacoomarasamy and Barnsley, 2005). The abnormally low response trends to 4 items on the TSK questionnaire (#3, #5, #13, and #15) support this hypothesis. These specific items aim to determine if an individual considers their past ankle sprain as a severe injury with potential long-term consequences. Interestingly, it appears that both the copers and those with CAI perceived their previous ankle sprain as a minor injury with no potential consequences. Thus it appears that TSK scores may have been artificially lowered based on the cultural significance of ankle sprains but this effect appears to have

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influenced both groups equally.

The current results indicate that TSK scores do not differ between copers and those with CAI. Additionally, TSK scores do not correlate with self-assessed disability levels or injury characteristics in those with CAI. Future research is needed to develop a fear of re-injury/ movement questionnaire specifically for those with a history of an ankle sprain and instability for more robust conclusions to be drawn.

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