Author’s response to reviews

Title: Immediate effect of ACL Kinesio Taping technique on Knee Joint biomechanics during a Drop Vertical Jump: a randomized crossover controlled trial

Authors:
Weerawat Limroongreungrat (weerawat.lim@mahidol.edu)
Chuanpis Boonkerd (cboonkerd@gmail.com)

Version: 1 Date: 14 Jun 2019

Author’s response to reviews:

Prof. Darren Byrne

Section Editor

BMC Sports Science, Medicine and Rehabilitation

June 13, 2019

Subject: Submission of revised paper “Immediate effect of ACL Kinesio Taping technique on Knee Joint biomechanics during a Drop Vertical Jump: a randomized crossover controlled trial” (SSMR-D-18-00066)

Dear Prof. Byrne,

Thank you for your email dated 9 May 2019 enclosing the reviewers’ comments. We have carefully reviewed the comments and have revised the manuscript accordingly. Our responses are given in a point-by-point manner below. Changes to the manuscript are shown in red type.
We hope the revised version is now suitable for publication and look forward to hearing from you in due course.

Sincerely,

Weerawat Limroongreungrat, Ph.D., PT

College of Sports Science and Technology

Mahidol University

Reviewer 1

Comment 1

The presented data show a statistical significance that can be due to a repeatability issue. According to Malfait, B. et al (2014) who have used the 3D LJMU model have shown that inter-trial errors that ranged from 1.1° - 3.5° for all peak kinematic parameters and from 3.6 N · m - 12.9 N · m for all peak kinetic parameters. The findings of the present manuscript are within the above-mentioned range. I question the reliability of the presented data.

We thank the reviewer for raising the issue about how our significant findings in peak kinematic and kinetic variables could be attributed to inter trial errors. We would like to point out that in contrast to Malfait et al’s (2014) study, which reported absolute values, we presently normalized our data by body weight. This may have some discrepancy. Additionally, we investigated only
the kinematics and kinetics of the knee joint, which had small inter-trial error as compared to Malfiat et al’s study.

Comment 2

The taping technique must be better described and justified. Why has the application shown in figure 2 been chosen?

This study applied a standardized Kinesio-taping method for an ACL injury, which was adopted from Kase K, et al. Clinical Applications of the Kinesio Taping Method, 2nd Edition (2003). This technique has been recommended to be applied to prevent injury.

Comment 3

A lack of control group in the design.

Please see the Reviewer 2 response (Comment 7, below).

Comment 4

Who applied the KT tape? Was he or she an expert?

The KT tape was applied by an experienced physiotherapist, a certified KT practitioner, to ensure the consistency between the taping conditions. The physiotherapist has extensive
experience of KT taping and could therefore be considered an expert. This has now been included in the text (see page 3, line on: 21 - 22).

Comment 5

Where the participants blind?

All participants were blinded to the experimental conditions in our study. The participants were not prior informed about the condition they were undertaking upon arrival at the laboratory or provided information about the tension applied to the KT tape (please see page 3, line no:30 - 33)

Comment 6

Why the groups were divided in 8 and 12 participants?

We thank the reviewer for highlighting this important point. It was originally our intention to have 10 subjects in each group, however we mistakenly first tested 2 subjects who were randomized to receive the placebo condition into the experimental condition.

Reviewer 2

Comment 1

First sentence does not make any sense.

We have now removed this sentence (see page 1, line no: 55).
Comment 2

- Define BTS

BTS has now been defined in the text (see page 2 line no: 28 and 52).

Comment 3

- Most studies assessing DVJ and ACL risk are performed in female athletes. Study uses only male subjects, should be a limitation

We’ve now included this as a limitation in the text (page 5, line no: 33-35).

Comment 4

Preferably no history of injury at all, not only in the last 6 months.

Unfortunately, our pre-test screening questionnaire only considered non-injury within the last 6 months. However, the subjects were also screened specifically for previous ACL injuries as part of the study exclusion criteria. This has now been included in the text (see page 2, line no:38-39).

Comment 5

Additional details for the power analysis are needed with more specific data. The reference used describes running and cutting manoeuvres, not vertical jump.
We thank the reviewer for highlighting how our power analysis was not based on a vertical jump. We’ve tried to address this oversight by retrospectively calculating power from our data using the mean ± SD of the placebo (1.43 ± 2.12) and KT condition (-1.24 ± 2.42) an effect size (dz) of 0.99, power of 0.90 and an α = .05 for the main outcome variable knee abduction/adduction at IC. A prospective study based on our data will require a sample size of 13 participants.

Comment 6

Details for the placement of the markers are needed.

The details of the marker placement are now included in Figure 1.

Comment 7

The use of a control with no tape is important to record the knee landing kinematics/kinetics as a baseline for these patients.

We thank the author for highlighting this important point. We agree that the addition of a control trial would have served to identify the effect of taping per se on jump kinematics/kinetics. However, our intention was to simply compare the effects of different taping tensions upon jump biomechanics during the DVJ in attempt to determine how taping application may reduce ACL risk. We have now added the omission of a control trial as a study limitation in the text (Page 5, line no: 25 - 27).
Comment 8

Please explain more the control group. It is not clear to someone outside the field to understand the non-stretched kinesio tape.

We have now added the following additional text to explain the placebo condition in more detail (page 3, line no: 31 -33).

Comment 9

Is the decrease in knee ab