

The noncontact ankle sprain is not always the result of a “bad landing”

a systematic video-analysis of 145 non-consecutive cases

Bagehorn, Timo; de Zee, Mark; Fong, Daniel T. P.; Thorborg, Kristian; Kersting, Uwe Gustav; Lysdal, Filip Gertz

Published in:
BMJ Open Sport & Exercise Medicine

DOI (link to publication from Publisher):
[10.1136/bmjsem-2023-sportskongres2023.5](https://doi.org/10.1136/bmjsem-2023-sportskongres2023.5)

Creative Commons License
CC BY-NC 4.0

Publication date:
2023

Document Version
Publisher's PDF, also known as Version of record

[Link to publication from Aalborg University](#)

Citation for published version (APA):
Bagehorn, T., de Zee, M., Fong, D. T. P., Thorborg, K., Kersting, U. G., & Lysdal, F. G. (2023). The noncontact ankle sprain is not always the result of a “bad landing”: a systematic video-analysis of 145 non-consecutive cases. *BMJ Open Sport & Exercise Medicine*, 9(Suppl. 1), Article 9. <https://doi.org/10.1136/bmjsem-2023-sportskongres2023.5>

General rights

Copyright and moral rights for the publications made accessible in the public portal are retained by the authors and/or other copyright owners and it is a condition of accessing publications that users recognise and abide by the legal requirements associated with these rights.

- Users may download and print one copy of any publication from the public portal for the purpose of private study or research.
- You may not further distribute the material or use it for any profit-making activity or commercial gain
- You may freely distribute the URL identifying the publication in the public portal -

Take down policy

If you believe that this document breaches copyright please contact us at vbn@aub.aau.dk providing details, and we will remove access to the work immediately and investigate your claim.

0.031) and KOOS activity of Daily Living Function (4.71, 95% CI 1.20 to 8.22; $p = 0.010$) than CON.

Conclusion In ACLR participants with persistent hamstrings muscle deficiency, 12 weeks of supervised progressive strength training was superior compared to low-intensity home based exercises (usual care) for improving knee flexor muscle strength and some patient reported outcomes.

7

IS ABSOLUTE OR RELATIVE KNEE FLEXOR STRENGTH RELATED TO PATIENT-REPORTED OUTCOMES IN PATIENTS WITH ACL RECONSTRUCTION WITH HAMSTRING TENDON AUTOGRAFT?

^{1,2,3}Johan Högberg*, ^{1,2,3}Ramana Piussi, ^{1,2,3}Rebecca Simonson, ¹Axel Sundberg, ^{1,2}Daniel Broman, ^{1,3,4}Kristian Samuelsson, ^{1,2}Roland Thomeé, ^{1,2,3}Eric Hamrin Senorski. ¹University of Gothenburg, Sweden; ²Sportrehab, Sweden; ³Sahlgrenska Sports Medicine Center, Sweden; ⁴Sahlgrenska University Hospital, Sweden

10.1136/bmjsem-2023-sportskongres2023.4

Background There is a need for better understanding of how knee flexor strength influence patient-reported outcomes (PROs) after anterior cruciate ligament (ACL) reconstruction. Therefore, the aim was to investigate the relationship between the eccentric NordBord test and the seated concentric Biodex test, with PROs, during the first year of rehabilitation after ACL reconstruction with a hamstring tendon (HT) autograft.

Methods Data of patients with an index ACL reconstruction with an HT-autograft participating in a rehabilitation registry were screened for inclusion. Outcomes of interest were the correlation between absolute (N/kg or Nm/kg) and relative (limb symmetry index) knee flexor strength measured in the NordBord and Biodex with the results of PROs. The significance level was set at $p < 0.05$ and Pearson's correlation coefficient was used.

Results 137 patients were included (47% women) with a mean age of 24.8 ± 8.4 years. There were non-significant and weak correlations between relative strength for all PROs. Significant and weak correlations between absolute strength in the Biodex with the K-SES18present at 4 and 8 months, and for the ACL-RSI at 12 months was observed, accounting for 8.4–15.7% of the variance. Significant and weak correlations between absolute strength in the Nordbord with the KOOS-Sports at 4 months, the K-SES18present and the ACL-RSI at 8 months were observed, accounting for 9.4–14.4% of the variance.

Conclusion Absolute knee flexor strength relative to body-weight for both the Biodex and NordBord test appeared to have a stronger relationship with perceived knee function than relative knee flexor strength, although the observed correlations were weak.

9

THE NONCONTACT ANKLE SPRAIN IS NOT ALWAYS THE RESULT OF A "BAD LANDING": A SYSTEMATIC VIDEO-ANALYSIS OF 145 NON-CONSECUTIVE CASES

¹Timo Bagehorn, ¹Mark de Zee, ²Daniel Fong, ³Kristian Thorborg, ^{1,4}Uwe G Kersting, ^{1,5}Filip Gertz Lysdal*. ¹Department of Health Science and Technology, Aalborg University, Denmark; ²School of Sport, Exercise and Health Sciences, Loughborough University, UK; ³Department of Orthopedic Surgery, Sports Orthopedic Research Center—Copenhagen, Amager-Hvidovre Hospital, Copenhagen University, Denmark; ⁴Institute of Biomechanics and Orthopaedics, German Sport University Cologne, Germany; ⁵Faculty of Sport, Allied Health and Performance Science, St Mary's University, UK

10.1136/bmjsem-2023-sportskongres2023.5

Introduction The noncontact lateral ankle sprain is the most common injury in indoor and court sports. Here, it is predominantly described as occurring via a mechanism that typically incites from an initial "bad landing" – with the foot in inverted position. Descriptions of the actual foot landing posture prior to injury has, however, only been documented in few quantitative cases, or simply retrospectively reported by the incurring athletes during prospective trials. Therefore, we aimed to determine the initial foot landing posture using video-recorded injuries.

Materials and Methods In this explorative, observational, non-consecutive, case-series study, two independent, blinded, analysts systematically retrieved and analysed 585 video-recorded lateral ankle sprain injuries.

Results 445 injuries remained after 79 duplicates, and 61 videos with no clear view or non-lateral joint excursion, had been excluded. Of these, 113 (25%) were noncontact and 32 (7%) were indirect-contact injuries. Among the 113 noncontact injuries, 18 (16%) were characterised by initial contact on the lateral side, while 95 (84%) had a medial- or flat landing posture prior to injury. Among the 32 indirect-contact injuries, 9 (28%) injuries had initial contact on the lateral side, while 23 (72%) had a medial- or flat landing posture.

Conclusion Contrary to our expectations, most noncontact injuries were not caused by an initial "bad landing" with the foot in an initially inverted position. It is important to concede that the noncontact lateral ankle sprain can indeed occur and progress irrespective of initial foot landing posture. Joint stiffness might be more important than joint position.

10

INTERRATER AND INTRARATER RELIABILITY OF FOUR DIFFERENT CLASSIFICATION METHODS FOR EVALUATING ACROMIAL MORPHOLOGY ON STANDARDIZED RADIOGRAPHS

¹Thomas Mayntzhusen*, ¹Adam Witten, ¹Jens Gramkow, ²Sanja Bay Hansen, ²Shefali Anup Chatterjee, ¹Per Hølmich, ¹Kristoffer Weisskirchner Barfod. ¹IOC Research Center Copenhagen, Sports Orthopedic Research Center – Copenhagen (SORC-C), Department of Orthopedic Surgery, Copenhagen University Hospital, Amager-Hvidovre, Kettegård Alle 30, Denmark; ²Department of Radiology, Center for Functional and Diagnostic Imaging and Research, Copenhagen University Hospital Hvidovre, Hvidovre, Denmark, Kettegård Alle 30, Denmark

10.1136/bmjsem-2023-sportskongres2023.6

Introduction Acromial morphology is an important pathophysiological factor for the development of subacromial impingement syndrome. There are three radiological methods to evaluate acromial morphology: Bigliani, Modified Epstein, and Acromial angle. However, their reliability have not been compared in a single study, nor using standardized radiographs. Consequently, the evaluation of acromial morphology is currently not validated though its widespread use across the world. The objective of this study was to investigate reliability of the three known classifications and the novel Acromial curve classification.

Materials and Methods Three experienced clinicians rated 102 standardized supraspinatus outlet view radiographs with the four classification methods in two separate sessions a month apart. All measurements were blinded. With an expected kappa and ICC > 0.7 (± 0.15), the target sample size was 87 radiographs.

Results The Bigliani classification had interrater and intrarater reliability ranging from fair to good (Kappa 0.32–0.41 and 0.26–0.62). The modified Epstein classification had fair to