

Ergebnisse und Schlussfolgerung:

53 Patienten (83% FU) wurden 63,2 ± 4,7 Monate nach der Operation, 28 Patienten in der DB-Gruppe und 25 Patienten in der EB-Gruppe untersucht. IKDC subjective (EB: 92,8 ± 6,2, DB: 91,6 ± 7,1, p = 0,55) und IKDC objective (Grade A: EB / DB 20% / 25%, B: EB / DB 72% / 57%, C: EB / DB 8% / 18%, D: EB / DB 4% / 0%, p = 0,45) zeigten keine signifikanten Unterschiede zwischen den beiden Gruppen. Die Laxitester[®]-Messungen zeigten keinen signifikanten Unterschied in Bezug auf die ap-Translation in Neutralstellung, Innen- oder Außenrotation oder in den Rotationswinkeln (p = 0,79). Hinsichtlich der arthrotischen Veränderungen und der Tunnelerweiterung wurde kein Unterschied zwischen den Gruppen festgestellt.

Schlussfolgerung: Im 5-Jahres-FU zeigt die VKB-R in DB- gegenüber EB-Technik keinen Vorteil im „patient related“ Outcome und objektiven Outcome.

Schlüsselwörter: Vorderes Kreuzband, Einzelbündeltechnik, Doppelbündeltechnik, 5-Jahresergebnisse

<http://dx.doi.org/10.1016/j.orthtr.2019.04.043>

²Luxembourg Institute of Health, Luxembourg, Luxembourg

³Centre Hospitalier de Luxembourg, Département de l'Appareil Locomoteur, Luxembourg, Luxembourg

⁴Centre Hospitalier Luxembourg, Department of Orthopaedic Surgery, Luxembourg, Luxembourg

E-Mail: christophe.meyer@lih.lu

Fragestellung: Jump task performance during rehabilitation of patients following anterior cruciate ligament reconstruction (ACLR) is a well-accepted indicator for return to physical activity. However, evaluation of loading asymmetries of these tasks has been overlooked. Knowing the relationship between cartilage modifications and altered loading thereby leading to early onset of knee osteoarthritis, evaluation of loading asymmetries needs to be addressed. This study therefore aims at evaluating general loading conditions during single and double legged jumps of ACLR patients using force platform derived parameters.

Methodik: Three-dimensional motion analysis of a drop vertical jump (DVJ) and a side-hop jump (SH) was performed in a rehabilitated cohort of 17 patients with unilateral ACLR (9 months since surgery, 6 bone-patellar-tendon-bone/11 hamstring grafts) and in 27 healthy age/BMI-matched controls. Landing from the jumps was performed on 2 separate floor-embedded force platforms sampling at 1000 Hz. DVJ was performed from a 40-cm box and the SH was realized over 30s. Lateral and medial jumps of the SH were separately evaluated. For both groups, involved and non-involved leg was considered (randomly attributed in controls). Peak vertical ground reaction force (vGRF,

unit: *Bodyweight, BW), instantaneous and vertical loading rates (*BW/s) were computed and averaged over 3 DVJ, as well as lateral and medial jumps over 30s. A mixed model analysis of variance was independently used for each test to investigate differences between groups and legs (p < 0.05).

Ergebnisse und Schlussfolgerung:

All loading parameters were found greater during the SH test in comparison with the DVJ. Overall, peak vGRF was twice as high during SH when compared to DVJ, 2.53BW and 1.25BW respectively. No significant group-by-leg interactions were found for any of the variables in any of the tests. However, significant leg effect was found for peak vGRF during medial jumps of the SH test. The largest difference was observed in patients with greater values at the non-involved leg (2.51 ± 0.27, 2.63 ± 0.38 for the involved and non-involved leg respectively). A tendency towards significant leg effect (0.07 < p < 0.09) was found for peak vGRF for the DVJ and lateral jumps of the SH. For each task, increased peak vGRF of the non-involved leg of ACLR patients was observed.

Our study illustrates that in rehabilitated patients, a tendency towards loading asymmetry during jump task is observed. Such finding illustrates that force platform could be a useful tool in clinical practice for the clinical decision making process. Achieving loading symmetry during jump task could be a therapeutic target to improve long-term patient outcome following ACLR.

<http://dx.doi.org/10.1016/j.orthtr.2019.04.044>

SY13 Freie Themen

SY13-117

Single versus double-legged jump biomechanics in patients following anterior cruciate ligament reconstruction

C. Meyer¹, A. Urhausen², P. Gette¹, C. Mouton³, R. Seil⁴, D. Theisen¹

¹Sports Medicine Research Laboratory, Luxembourg Institute of Health, Luxembourg, Luxembourg

SY13-97

Lateral meniscal slope negatively affects post-operative anterior

tibial translation within the first 18 months after primary anterior cruciate ligament reconstruction

C. Mouton¹, D. Tradati¹, W. Beel¹, C. Nührenböcker¹, D. Theisen², R. Seil¹

¹Centre Hospitalier de Luxembourg - Clinique d'Eich, Sports Clinic, Luxembourg, Luxembourg

²Luxembourg Institute of Health, Sports Medicine Research Laboratory, Luxembourg, Luxembourg

E-Mail: mouton.caroline@chl.lu

Fragestellung: Posterior tibial slope (PTS) is considered a risk factor for non-contact anterior cruciate ligament (ACL) injuries and postoperative graft-failure. A steeper PTS has been reported to be related to a greater anterior tibial translation (ATT) after ACL reconstruction. Aside from tibial bony-geometry, menisci play a key role in knee anterior laxity. Their obliquity in the sagittal plane, defined as meniscal slope (MS), could minimize or increase the effect of PTS over ATT. The aim of this study was to assess the correlation between both PTS and MS over postoperative-ATT in a group of patients who under-
<http://dx.doi.org/10.1016/j.orthtr.2019.04.045>

went ACL reconstruction. In our hypothesis MS could be a better predictor of postoperative-ATT than PTS.

Methodik: Data from primary ACL reconstructed patients were extracted from an in-house registry. All had performed an MRI within our institution. The lateral-PTS, medial-PTS, lateral-MS and medial-MS were measured twice by the same examiner with a 6-week interval. ATT side-to-side-difference (ATT-SSD) was measured in all patients 9 to 18 months after ACL-reconstruction at a force of 200N. The correlation between ATT-SSD and both PTS and MS was determined using Pearson's Chi-square Test. For significant correlation(s), a linear regression allowed to quantify the magnitude and the impact of PTS and MS over ATT-SSD. Intraobserver reliability was assessed for all slope values using the Intraclass-Correlation-Coefficient (ICC) (2.1). The Standard-Error-Measurement (SEM) was then estimated for PTS and MS. Significance was set at $p < 0.05$.

Ergebnisse und Schlussfolgerung: Seventy-one patients were included, 44 males and 27 females (mean-age 26.0 ± 9.8 years; mean-height: 175 ± 10 cm; mean-weight: 72 ± 13 kg). Postoperative-ATT-SSD mean value reached 1.0 ± 1.1 mm

Universitätsklinikum Regensburg, Regensburg, Germany

E-Mail: leonardachenbach@gmail.com

**SY13-14
Video Analyse von Drop-Jump und Side-Hop identifiziert Geschlechtsunterschiede aber keine Risikofaktoren für zukünftige schwere Knieverletzungen in jungen Risikosportlern**

L. Achenbach, P. Angele, W. Krutsch

Fragestellung: Nur wenige Methoden zur Identifizierung von Athleten, die ein hohes Risiko besitzen, eine Knieverletzung zu erleiden, wurden bisher in der Literatur beschrieben und Wissen über Geschlechtsunterschiede ist limitiert. Diese Studie analysiert Knie-Kinematik während Hochrisiko-Manövern in männlichen und weiblichen

at a mean time of 12 ± 2 months after ACL reconstruction. Mean slope values were: lateral-PTS $4.7 \pm 2.7^\circ$, medial-PTS $3.9 \pm 2.8^\circ$, lateral-MS $2.9 \pm 2.4^\circ$ and medial-MS $1.3 \pm 3.0^\circ$. ATT-SSD was significantly correlated with lateral-PTS ($r = 0.30$; $p < 0.05$), lateral-MS ($r = 0.61$; $p < 0.01$), medial-MS ($r = 0.26$; $p < 0.05$). No correlation was shown between ATT-SSD and medial-PTS. For each 1° increase in lateral-MS an increase of 0.28 mm 95% CI [0.20, 0.37] ($p < 0.01$) in ATT-SSD could be observed. Lateral-PTS, medial-PTS, lateral-MS and medial-MS ICC values were respectively 0.94, 0.93, 0.95, 0.93 and 95% CIs [0.91, 0.96], [0.89, 0.96], [0.91, 0.97] and [0.90, 0.96] respectively ($p = 0.001$). The SEM values were: lateral-TPS 0.9° , medial-TPS 1.0° , lateral-MS 0.9° and medial-MS 1.1° . In this study lateral meniscal-slope evidenced a higher correlation with postoperative-ATT-SSD in comparison to lateral-PTS. Patients with steeper lateral-MS resulted in higher values of postoperative-ATT-SSD. Lateral-MS should be taken into account in the setting of ACL-reconstruction.

Keywords: anterior cruciate ligament; tibial slope; meniscal slope; knee laxity

jugendlichen Handballspielern mit Hilfe eines Feld-Test Aufbaus, um Geschlechtsunterschiede und das Risiko für eine Knieverletzung zu bestimmen.

Methodik: 202 jugendliche Elite-Handballspieler beider Geschlechter (Alter: 15.1 ± 0.8 Jahre, Größe: 173.7 ± 9.0 cm, Gewicht: 66.3 ± 10.9 kg) komplettierten ein Feld-Test mit Drop Jump (DJ) und SideHop (SH) in einer Handballhalle. Der Landing Error Severity Score, Kniebeugung und Knieadduktion wurden durch VideoAnalyse