Erstellt:	7. Februar 2023 23:45:42 MEZ
Bearbeitet:	7. Februar 2023 23:52:17 MEZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Bastian Mester
Präsentierender Autor:	Bastian Mester
Einreichender Autor:	Bastian Mester
Autorenliste:	Bastian Mester[1], Manuel Burggraf[1], Paula Beck[1], Heinz-Lothar Meyer[1], Christina Polan[1], Thomas Albrecht[2], Wiebke Guder[2], Arne Streitbürger[2], Marcel Dudda[1], Jendrik Hardes[2]
Institut/e:	[1] Klinik für Unfall-, Hand- und Wiederherstellungschirurgie, Universitätsklinikum Essen, Essen, Deutschland [2] Klinik für Tumororthopädie und Sarkomchirurgie, Universitätsklinikum Essen, Essen, Deutschland

Thema: Sonstiges

Inhalt Englisch

Titel: Cortical Desmoid of the distal femur - incidentaloma or insertional tendinopathy?

interrogation: The Cortical Desmoid (DFCI) of the posteromedial femoral condyle is considered an asymptomatic incidental finding in adolescents without clinical relevance. An accumulation in ambitious athletes is reported, according to the "thug theory" it is an insertional tendinopathy of the medial head of the gastrocnemius muscle. Patients with DFCI are frequently presented to exclude malignant bone tumors, knee symptoms are reported regularly. Aim of this study is to evaluate the clinical relevance of DFCI from both a tumor orthopedic and sports medicine point of view.

methodology: For this retrospective investigation, n=23 patients (13.74 ± 2.74 years; 19 female, 4 male) with DFCI of the posteromedial femoral condyle were included. A localized posteromedial knee pain on exertion is differentiated from non-specific knee pain. Symptom duration, additional pathologies, number of MRIs, sports activity and training intensity, downtime, therapeutic modalities, and relief/remission of symptoms are documented. Tegner Activity Scale (TAS) and Lysholm Score (LS) are collected.

results and conclusion: 100% reported knee symptoms at initial presentation. A localized posteromedial pain was documented in 52%. In 16/23 (70%), additional functional pathologies were diagnosed. Patients were physically highly active with corresponding high training intensities (6.52±5.87 hours/week) and performance levels (65% competitive versus 35% recreational). Patients underwent 1.91±0.97 MRIs (max 4). Symptom duration was 10.48±11.02 weeks. A follow-up examination was performed after 12.62±10.41 months (n=2 lost to follow-up). 17/21 had physiotherapeutic exercises, on average 17.06±13.33 units. Alternative conservative treatment modalities were applied in 18/21, n=2 had surgery due to persistent knee pain. Overall downtime was 13.39±12.50 weeks, the RTS rate 81%. 100%/38% reported a relief/remission of complaints. LS was 93.29±7.95, TAS before onset of knee complaints / at follow-up 6.86±1.17 / 6.43±1.50 (delta-TAS 0.43±0.95).

DFCI as pathognomonic finding is recurrently encountered in MRIs of physically active adolescents. The "thug theory" is supported by the find-ings of this study. Knowledge of DFCI is essential to spare patients from uncertainty and over-treatment. Contrary to the available literature, the present results implicate a clinical relevance of DFCI particularly in a relevant proportion of physically highly actives with localized pain on ex-ertion. Concordantly to established treatment concepts for insertional tendinopathies, structured physiotherapy as basic treatment is recommended.

Stichwörter: Cortical Desmoid; DFCI; competitive sports; bone tumor; insertional tendinopathy

Erstellt:	11. Februar 2023 17:28:31 MEZ
Bearbeitet:	5. März 2023 13:07:31 MEZ
Status:	Eingereicht
Beitragsart:	Poster
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Nico Hinz
Präsentierender Autor:	Nico Hinz
Einreichender Autor:	Nico Hinz
Autorenliste:	Nico Hinz[1], Lena Eggeling[2], Tobias Drenck[2], Stephan Breer[2], Maximilian Müller[1], Karl-Heinz Frosch[3], Ralph Akoto[4]
Institut/e:	[1] BG Klinikum Hamburg, Unfallchirurgie, Orthopädie und Sporttraumatologie, Hamburg, Deutschland [2] BG Klinikum Hamburg, Abteilung Unfallchirurgie, Orthopädie und Sporttraumatologie, Hamburg, Deutschland [3] Universitätsklinikum Hamburg-Eppendorf, Klinik für Unfallchirurgie und Orthopädie, Hamburg, Deutschland [4] BG Klinik Hamburg, Hamburg, Deutschland

Thema: Ligamentverletzungen

Inhalt Englisch

Titel: Clinical outcome in patients with an anteromedial knee instability undergoing MCL augmentation with a peroneus longus tendon autograft in combination with ACL reconstruction

interrogation: A concomitant medial knee instability causes an up to 17-fold increased risk for failure of an ACL reconstruction. An additional augmentation of the medial collateral ligament complex (MCL) significantly reduces the risk for an ACL reconstruction failure. However, the optimal surgical technique and the optimal graft choice for a MCL augmentation is discussed controversially. This study aims to present first clinical data after a minimally invasive MCL augmentation using a peroneus longus tendon autograft in combination with an ACL reconstruction in patients with an anteromedial instability.

methodology: In this longitudinal case study, we included 18 patients, who have been prospectively enrolled in our clinic's internal knee-ligament-register and underwent a primary or revision ACL reconstruction in combination with a MCL augmentation using a peroneus longus tendon autograft between December 2020 and May 2022. In these patients, a clinical stability testing including an instrumental examination by rolimeter was performed preoperatively and during a follow-up at least 1 year postoperatively. A side-to-side difference (SSD) > 4mm and/or a positive pivot-shift test grade 2/3 was defined as a failure of the ACL reconstruction. Additionally, the knee-specific PROMs IKDC and Lysholm as well as the food-specific score AOFAS were assessed. Postoperative pain and surgery-related complications were recorded.

results and conclusion: The mean follow-up for the 18 patients included was 13.4 months. The mean SSD was significantly reduced from 6mm preoperatively to 1mm in the follow-up ($p<0.001$). One patient showed a failure of the ACL reconstruction 1 year postoperatively with a positive Lachman test grade 2 and a positive pivot-shift test grade 2. No patient presented with a medial instability grade 2/3 in the follow-up. The PROMs IKDC and Lysholm were both significantly improved from 52.0 preoperatively to 70.4 in the follow-up ($p=0.007$) and from 65.7 preoperatively to 81.5 in the follow-up ($p=0.02$), respectively. There was no significant difference in the AOFAS score between 100 preoperatively and 98.2 postoperatively. During the follow-up, one patient reported pain at the peroneus longus tendon donor site and one patient reported pain at the MCL augmentation site. No surgery-related complications were observed.
The minimally invasive MCL augmentation with a peroneus longus tendon autograft used here in combination with an ACL reconstruction is a safe surgical technique with a low complication rate, a low failure rate and a good clinical outcome in the 1-year follow-up. Harvesting the peroneus longus tendon does not seem to limit foot function. Further clinical studies with a longer follow-up are required to assess the significance of this surgical technique more accurately.

Stichwörter: MCL augmentation; anteromedial instability; peroneus longus tendon autograft

Erstellt:	13. Februar 2023 20:11:09 MEZ
Bearbeitet:	13. Februar 2023 22:12:25 MEZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Georgios Neopoulos
Präsentierender Autor:	Georgios Neopoulos
Einreichender Autor:	Georgios Neopoulos
Autorenliste:	Georgios Neopoulos[1], Manuel Paul Sava[2], Michael Tobias Hirschmann[2]
Institut/e:	[1] Universitätsspital Basel, Kantonsspital Baselland, Universität Basel, Zunzgen, Schweiz [2] Kantonsspital Baselland, Universität Basel, Binningen, Schweiz

Thema: Patellofemoral

Inhalt Englisch

Titel: Patellofemoral arthroplasty with onlay prosthesis leads to higher rates of osteoarthritis progression than inlay design implants: A systematic review

interrogation: The aim of this study was to report the clinical and functional outcomes, complication rates, implant survivorship and the progression of tibiofemoral osteoarthritis (OA), after new inlay or onlay patellofemoral arthroplasty (PFA), for isolated patellofemoral OA. Comparison of different implant types and models, where it was possible, also represented one of the objectives.

methodology: A systematic literature search following PRISMA guidelines was conducted on PubMed, Scopus, Embase and Cochrane databases, to identify possible relevant studies, published from the inception of these databases until 11.11.2022. Randomized control trials (RCTs), case series, case control studies and cohort studies, written in English or German, and published in peer-reviewed journals after 2010, were included. Not original studies, case reports, simulation studies, systematic reviews, or studies that included patients who underwent TKA or unicompartmental arthroplasty (UKA) of the medial or lateral compartment of the knee, were excluded. Additionally, only articles that assessed functional and/or clinical outcomes, patient-reported outcomes (PROMs), radiographic progression of OA, complication rates, implant survival rates, pain, as well as conversion to TKA rates in patients treated with PFA, using inlay or onlay trochlea designs, were included. For quality assessment, the Methodological Index for Non-Randomized Studies (MINORS) for non-comparative and comparative clinical intervention studies was used.

results and conclusion: The literature search identified 404 articles. 29 of them met all the inclusion criteria following the selection process. Median MINORS for non-comparative studies value was 12.5 (range 11-14), and for comparative studies 20.1 (range 17-24). In terms of clinical and functional outcomes, no difference between onlay and inlay PFA has been described. Both designs yielded satisfactory results at short, medium and long-term follow-ups. Both designs improved pain postoperatively and no difference between them in terms of postoperative VAS has been noted, although the onlay groups presented a higher preoperative VAS.
When comparing the inlay to onlay trochlea designs, the inlay group displayed a lower progression of OA rate.
In Conclusion there is no difference in functional or clinical outcomes after PFA between the new inlay and the onlay designs, with both presenting an improvement in most of the scores that were used. A higher rate of OA progression was observed in the onlay design group.

Stichwörter: patellofemoral arthroplasty; patellofemoral replacement; inlay; onlay; clinical outcomes; functional outcomes; PROMs; complication rate; progression of OA; pain; implant survivorship; systematic review.

Erstellt:	15. Februar 2023 19:58:56 MEZ
Bearbeitet:	15. Februar 2023 20:05:15 MEZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Arthur Praetorius
Präsentierender Autor:	Arthur Praetorius
Einreichender Autor:	Arthur Praetorius
Autorenliste:	Arthur Praetorius[1], Janina Tennler[1], Christian Schoepp[1]
Institut/e:	[1] BG Klinikum Duisburg, Klinik f. Arthroskopische Chirurgie, Sporttraumatologie und Sportmedizin, Duisburg, Deutschland

Thema: Ligamentverletzungen

Inhalt Englisch

Titel: Do we need functional data analysis to evaluate safe return-to-running after hamstring ACL-reconstruction?

interrogation: Patients return to running (RTR) as early as 12-weeks post-surgery following hamstring graft ACL reconstruction (ACL-R) [1]
Evidence on altered arthrokinematics and its consequences for long-term knee function (i.e. knee osteoarthritis) after ACL-R is still limited. Frontal and transverse plane asymmetries and specifically, modified hamstring function is likely to lead to a shift in joint loading and contact pressure during running [2, 3]
To make meaningful inferences about these deficits 3-D motion capturing is used to analyze distinct movement phases, e.g. initial contact (IC) or stance phase (SP) [4]. Instead of solely focusing on peak and mean data functional data analysis (FDA) via statistical parametric mapping (SPM) might offer additional clinically important information [5, 6].
In this study we aimed to investigated inter-limb-differences (ILD) in running kinematics and evaluated RTR recommendations by peak or mean data analysis or FDA via SPM, respectively.

methodology: Data from 114 patients (65% male; age 33±11 (years±SD); BMI 26±4) of a RCT were collected 6 months following ACL-R with hamstring tendon (HT). Kinematic output variables from a 60s running trial at 10 km/h were hip (H), knee (K) and ankle (A) joint angles (deg°) for flexion (F), abduction (A) and external rotation (R) measured with an inertial sensor measurement (IMU) system. SPM t-tests were computed for time normalized running cycles and classical two-tailed paired t-tests were used to detect differences in mean peak kinematics of IC and SP. Effect sizes are presented as cohen's d for small (0.2), medium (0.5), and large effects (0.8).

results and conclusion: 6-months after surgery SPM established areas of statistical ILD between operated and non-operated limb for HF (statistical threshold cluster, STC 0%-34,6%, p<0.001, ES -0.38); HA (STC 27,8%-51,5%, p=0.005, ES 0.5); KF (STC 0%-42,9%/96,1%-99%, p<0,001, ES -0.97/-0.33); KR (STC 2,7%-13,2%, p=0.012, ES 0.57); KA (STC 53,2%-74,5%, p=0.003, ES 0.6), AF (STC 0%-72,4%/81,7%-99%, p=0.007, ES -0.87/-0.45) and AR (STC 3,6%-30,8%, p<0.001, ES 0.67).
Classic t-tests showed inter-limb-differences during IC for HA (p 0.006, ES 0.3), KF (p 0.001, ES 0.5), AF (p 0.002, ES 0.35) and SP for HA (p <0.001, 0.43), KF (p<0.001, ES 0.6), AF (p<0.001, ES -0,6) and AR (p 0.002, ES 0.36).

Conclusion: 6-months post-surgery t-tests failed to detect ILD for HF, KA and KR compared to an FDA approach. In addition, classic t-tests produced much lower ES and did not elucidate on kinematic changes in distinct running phases (e.g. loading response, push-off). RTR after 12 weeks might pose individual risks.
Specific changes to running kinematics in frontal and transverse plane should be assessed by 3-D motion capture and analysed with FDA to advise patients on a safe return to running schedule.

1. Rambaud, A.J.M., et al. 2018.
2. Tashman, S., et al., 2007.
3. Pairot-de-Fontenay, B., et al., 2019.
4. Abourezk, M.N., et al., 2017.
5. King, E., et al., 2018.
6. Garcia, S.A., et al., 2021

Stichwörter: ACL, return-to-running, functional data analysis, SPM, IMU

Erstellt:	16. Februar 2023 11:46:46 MEZ
Bearbeitet:	16. Februar 2023 11:52:43 MEZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
Sonstiges:	Ja, mit diesem Abstract für den Nachwuchswissenschaftspreis bewerben.
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Claas Neidlein
Präsentierender Autor:	Claas Neidlein
Einreichender Autor:	Claas Neidlein
Autorenliste:	Claas Neidlein[1], Wolf Christian Prall[2], Boris Holzapfel[3], Wolfgang Böcker[4], Julian Fürmetz[5], Markus Bormann[6]
Institut/e:	[1] Muskuloskelettales Universitätszentrum München (MUM), München, Deutschland [2] Schön Klinik München Harlaching, München, Deutschland [3] Klinik für Orthopädie und Unfallchirurgie, Muskuloskelettales Universitätszentrum München (MUM), LMU Klinikum, München, Deutschland [4] Klinikum der Universität München, Klinik für Orthopädie und Unfallchirurgie, München, Deutschland [5] Murnau, Deutschland [6] Klinikum der LMU München, München, Deutschland

Thema: Frakturen

Inhalt Englisch

Titel: No difference in complication rate between initial brace or external fixator therapy for bicondylar tibial plateau fractures: A 10-Year Review of a Level I Trauma Center

interrogation: Complex tibial plateau fractures (TPF) are a common type of injury caused by high-energy trauma. External fixation (EF) is a treatment strategy for temporary stabilization in acute situations. The indication for this treatment is not clearly specified. The aim of this study was to evaluate the complication rate of initial treatment by external fixator and to detect risk factors to increase patient care.

methodology: This retrospective single center study includes all surgically treated bicondylar TPF between January 2011 and December 2020 in a level I trauma center in Central Europe. The study population consists of 149 patients, of which 67 (45%) were treated with EF. The overall complication rate and the most common complications were recorded and analyzed.

results and conclusion: The overall complication rate for the population was 35.57% (52/149). For EF the rate was 40.3% (27/67). Univariate regression analysis revealed that overall complications (odds ratio (OR) 1.97, 95% CI 0.90-4.37, p=n.s.) was not significantly increased for EF. Compartment syndrome (OR 1.22, 95% CI 0.01-97.43, p=n.s.), wound healing disorders (OR 0.60, 95% CI 0.05-4.35, p=n.s.) and structural defects (OR 3.54, 95% CI 0.80-21.60, p=n.s.) showed no significant differences. Also, the range of motion (OR 0, 95% CI 0-2.94, p=n.s.) and postoperative instability (OR 0.23, 95% CI 0.01-2.17, p=n.s.) showed no significant difference. Infections showed significant association with the use of EF (OR 5.11, 95% confidence interval (CI) 1.27-29.88, p<0,01). There was a significantly longer time between accident and definitive osteosynthetic treatment in the EF group, with a mean of 18 ± 29 days, compared to 11 ± 12 days in the other group. The age difference was statistically significant but numerically it was only one year (53.7 ± 15.7 EF, 54.8 ± 15.3 no EF).
This study found no superiority of initial treatment with EF or brace in complex TPF. The odds of complications are equal to lower with the use of EF, but there is also no superiority in terms of developing a compartment syndrome or wound healing complications. For the increased infection rate, it must be considered that treatment with EF was performed in cases of critical soft tissues or severely injured patients. In conclusion, the use of EF is not superior but also not worse than Knee brace. It remains unclear, whether the use of EF is needed. The indication for initial treatment by EF in bicondylar TPF remains an individual decision and is not required routinely.

Stichwörter: Tibial Plateau Fractures, External Fixation, Complication Rates, Surgical Treatment

Erstellt:	5. März 2023 20:11:00 MEZ
Bearbeitet:	31. Mai 2023 09:54:31 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Maximilian Müller
Präsentierender Autor:	Maximilian Müller
Einreichender Autor:	Maximilian Müller
Autorenliste:	Maximilian Müller[1], Oliver Tenfelde[2], Ralph Akoto[3], Karl-Heinz Frosch[4], Jürgen Höher[2]
Institut/e:	[1] BG Klinikum Hamburg, Hamburg, Deutschland [2] Sportsclinic Cologne, Klinikum Köln-Merheim, Universität Witten/Herdecke, Köln, Deutschland [3] BG Klinikum Hamburg, Universität Witten/ Herdecke, Klinikum Köln-Merheim, Hamburg, Deutschland [4] BG Klinikum Hamburg, Universitätsklinikum Hamburg-Eppendorf , Hamburg, Deutschland

Thema: Ligamentverletzungen

Inhalt Englisch

Titel: The app-based quadrant method for analyzing femoral tunnel position in ACL-Reconstruction

interrogation: The femoral tunnel position in anterior cruciate ligament reconstruction (ACLR) is a decisive factor for the success of the operation. For the analysis of the femoral tunnel placement, the quadrant method, according to Bernard and Hertel, is considered the gold standard. The app "ACL-X" (Linova Software GmbH, Munich, Germany) is a tool that enables intuitive analysis of tunnel positions utilizing the quadrant method.

The aim of the study is to assess the inter- and intraobserver variability of the app-based quadrant method for determining femoral tunnel position.

methodology: This study retrospectively included 50 randomly selected, strictly lateral, fluoroscopic images taken during primary ACLR and photographed with a smartphone. When using "ACL-X", digital lines are interposed on the image according to the anatomic landmarks (see Fig. 1). Then, the position of the guide wire tip is marked and the relative position in the quadrant is described in terms of the depth relation (DR) and height relation (HR). The measurements were conducted by 4 observers. For retest reliability analysis, measurements were performed a 2nd time in randomized order by 2 observers at an interval of 4 weeks.
To determine interobserver variability, Pearson's correlation coefficient was calculated from both sets of measurements. Intraobserver variability was analyzed with calculation of the ICC.

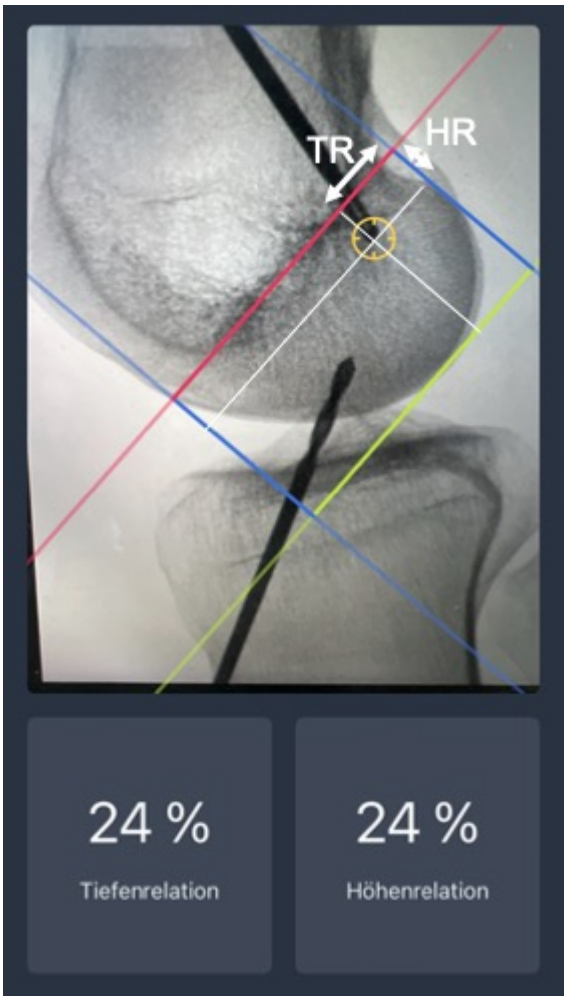


Fig. 1: Analysis of the femoral tunnel position according to the quadrant method using the app "ACL-X"

results and conclusion:

The femoral tunnel positions of all included patients averaged 27.86% ± 3.8% in the DR and 15.61% ± 5.41% in the HR (Tbl. 1). Statistical analysis showed almost perfect inter- and intraobserver variability in the DR and HR. Pearson's correlation coefficient was 0.92 in the DR and 0.84 in the HR. The ICC in the DR/HR, of observer 1 (DR/HR: 0.94/0.81) was only slightly different from the ICC of observer 2 (DR/HR: 0.92/0.85).

Observers	depth relation arithmetic mean	depth relation SD	height relation arithmetic mean	height relation SD
1	28.78 %	+/- 3.77 %	16.6 %	+/- 5.18 %
2	27.98 %	+/- 3.91 %	16.1 %	+/- 5.22 %
3	26.94 %	+/- 3.59 %	17.06 %	+/- 4.82 %
4	27.74 %	+/- 3.8 %	12.7 %	+/- 5.42 %

Tbl. 1: Arithmetic mean & standard deviations analyzing the X-ray images using the quadrant method

conclusion
The femoral tunnel analysis with the app "ACL-X" in ACLR has a very low intra- and interobserver variability. With the help of a smartphone, a fast and reliable, if necessary also intraoperative control of the tunnel position could be performed. The method could be support for femoral tunnel positioning in ACLR, especially for inexperienced surgeons and/or during revision surgery.

Stichwörter: anterior cruciate ligament reconstruction, femoral tunnel, quadrant method, ACL-X

Erstellt:	22. April 2023 12:52:31 MESZ
Bearbeitet:	22. April 2023 12:58:56 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Martin Häner
Präsentierender Autor:	Martin Häner
Einreichender Autor:	Martin Häner
Autorenliste:	Martin Häner[1], Wolf Petersen[1], DKG Ligament-Komitee[1]
Institut/e:	[1] Martin-Luther-Krankenhaus, Berlin, Deutschland

Thema:	Ligamentverletzungen

Inhalt Englisch

Titel:	Management after acute injury of the anterior cruciate ligament (ACL) part 2: Management of the ACL injured patient
interrogation:	The aim of this consensus project was to create a treatment algorithm for the management of the ACL injured patient which can serve as an aid in a shared decision-making process.
methodology:	For this consensus process, a steering and a rating group was formed. In an initial face-to-face meeting, the steering group, together with the expert group, formed various key topic complexes for which various questions were formulated. For each key topic, a structured literature search was performed by the steering group. The results of the literature review were sent to the rating group with the option to give anonymous comments until a final consensus voting was performed. Sufficient consensus was defined as 80% agreement.
results and conclusion:	During this consensus process, 15 key questions were identified. The literature search for each key question resulted in 24 final statements. Of these 24 final statements, all achieved consensus. This consensus process has shown that ACL rupture is a complex injury, and the outcome depends to a large extent on the frequently accompanying injuries. These additional injuries as well as various patient-specific factors should play a role in the treatment decision. The present treatment algorithm can be used as a decision aid within the framework of a shared decision-making process for the ACL injured patient.
Stichwörter:	ACL reconstruction, meniscus, medial collateral ligament, shared decision making, meniscus repair

Erstellt:	22. April 2023 13:01:32 MESZ
Bearbeitet:	22. April 2023 13:10:40 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Martin Häner
Präsentierender Autor:	Martin Häner
Einreichender Autor:	Martin Häner
Autorenliste:	Martin Häner[1], Thomas Stoffels[2], Amelie Stöhr[3], Sebastian Bierke[1], Wolf Petersen[1]
Institut/e:	[1] Martin-Luther-Krankenhaus, Berlin, Deutschland [2] OC Stadtmitte, Berlin, Deutschland [3] OC München, München, Deutschland

Thema: Ligamentverletzungen

Inhalt Englisch

Titel: A systematic review of transphyseal ACL reconstruction in children and adolescents: comparing the transtibial and independent femoral tunnel drilling techniques

interrogation: Aim of this systematic review was to analyze the outcome after transphyseal ACL reconstruction in children and adolescents regarding the femoral drilling technique.

methodology: A systematic literature search was carried out in various databases on studies on transphyseal ACL reconstruction in children and adolescents. The literature search was limited to the last 20 years. Primary outcome criterion was the failure rate. Secondary outcome criteria were growth disturbances such as leg length discrepancies or deformities and clinical scores.

The present study was registered prospectively (www.crd.york.ac.uk/PROSPERO; CRD42022345964).

results and conclusion: A total of 22 retrospective or prospective case series (level 4 evidence) were identified that reported on transphyseal ACL reconstruction in children and adolescents. The overall failure/rupture rate after transphyseal ACL reconstruction was 11.0 %. The overall ACL rupture rate of the contralateral side was 9.7 %. No statistical significant difference in the failure rates between independent and transtibial drilling techniques could be detected ((p=0.76/p=0.28)). Furthermore nNo statistical significant differences differences in the rate of reported growth disturbances between independent and transtibial drilling techniques were shown (p=0.15). The reported clinical scores at follow-up (mean follow-up 5.05 years) revealed good to very good results.

This systematic review demonstrates that children and adolescents have a relatively high failure rate after transpyseal ACL reconstruction without any statistically significant differences between independent or transtibial drilling techniques regarding reruptur rates or the rate of growth disturbances. The results of this systematic review warrant a comparison of both techniques for femoral tunnel drilling in a controlled randomized trial.

Stichwörter: ACL injury, ACL repair, medial portal drilling, anatomical ACL reconstruction

Erstellt:	2. Mai 2023 23:36:31 MESZ
Bearbeitet:	31. Mai 2023 02:38:33 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Lorenz Fritsch
Präsentierender Autor:	Lorenz Fritsch
Einreichender Autor:	Lorenz Fritsch
Autorenliste:	Lorenz Fritsch[1], Bastian Scheiderer[1], Sebastian Siebenlist[1], Marco-Christopher Rupp[1], Philipp Winkler[2], Julian Mehl[1], Konstantin Dworschak[1], Maximilian Hinz[1], Romed Katharina[1], Stefan Hinterwimmer[1]
Institut/e:	[1] Sektion Sportorthopädie, Klinikum rechts der Isar, Technische Universität München, München, Deutschland [2] Kepler Universitätsklinikum, Linz, Österreich

Thema: Ligamentverletzungen

Inhalt Englisch

Titel: Slope-reducing high tibial osteotomy and revision anterior cruciate ligament reconstruction for insufficiency of primary anterior cruciate ligament reconstruction: Clinical and radiological results after a minimum of 24 months.

interrogation: The failure rate after primary anterior cruciate (ACL) ligament replacement is between 5 and 25%, depending on the literature. In case of revision, it is important to recognise all concomitant pathologies and to treat them in a targeted manner. Among these, tibial slope has emerged as a major risk factor for ACL-reconstruction failure. The aim of the study was to assess clinical outcomes after slope-reducing high tibial osteotomy (HTO) and ACL-revision surgery for re-insufficiency of the anterior cruciate ligament.

methodology: All patients who underwent slope-reducing HTO and ACL re-EPL for ACL re-insufficiency between 01/2015 and 07/2021 were included. The pre- and postoperative slope was measured using lateral X-rays. At least 24 months post-surgery, patient satisfaction and the change from preoperative to postoperative pain (VAS) were recorded. The Tegner score, the IKDC score, the KOOS score and the Lysholm score were also recorded. A clinical examination of the knee joints in comparison to the contralateral knee was performed; the anterior tibial translation was measured with the Rolimeter in 25° flexion.

results and conclusion: After a mean follow-up of 42.1+-14.3 months, 16 patients (12 m, 4 w) with a mean age of 27.5+-8.8 years at the time of surgery were examined. Postoperative, the slope was 5.9+-4.1° versus 17.9+-4.1° preoperative. At the time of the final follow-up, 10 (62,5%) patients were very satisfied, 4 (25.0%) satisfied and 2 (12.5%) patients were neutral about the surgical result. 14 patients (87.5%) stated that they had a subjectively stable knee joint.
In addition patients reported significantly less pain than before surgery (VAS: 4.0+-2.8 vs. 1.4+-1.3; p=0.004). On average, the patients scored 5 points [interquartile range 4-7] on the Tegner score, 76+-10.9 points on the IKDC score, 78.2+-8.7 points on the KOOS score and 82.8+-9.4 points in the Lysholm score. 8 out of 11 patients were able to return to their pre-operative sport, 5 did not practise any sport. The side-to-side difference of the anterior tibial translation was 3mm more on the affected side.

Correction of the tibial slope in combination with ACL revision surgery leads to promising clinical results and enables the patient to return to their prior sporting activity.

Stichwörter: Slope, ACL Revision, Return to Sports

Erstellt:	4. Mai 2023 08:43:47 MESZ
Bearbeitet:	4. Mai 2023 09:03:51 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
Sonstiges:	Ja, mit diesem Abstract für den Nachwuchswissenschaftspreis bewerben.
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Ole Grunenberg
Präsentierender Autor:	Ole Grunenberg
Einreichender Autor:	Ole Grunenberg
Autorenliste:	Ole Grunenberg[1], Adrian Deichsel[1], Michael Johannes Raschke[2], Christoph Kittl[1], Elmar Herbst[1], Johannes Glasbrenner[1]
Institut/e:	[1] Unfall-, Hand- und Wiederherstellungschirurgie des UKM, Münster, Deutschland [2] Universitätsklinikum Münster, Klinik für Unfall-, Hand- und Wiederherstellungschirurgie, Albert-Schweitzer-Campus 1, Münster, Deutschland

Thema:	Prävention und Rehabilitation

Inhalt Englisch

Titel:	Mid-Term Outcome Following ACL Reconstruction with Accelerated Rehabilitation compared to a Conservative Rehabilitation Protocol

interrogation:	Whilst the impact of surgical parameters has already been examined in several studies, little is known about the influence of postoperative rehabilitation protocols on long-term outcomes after anterior cruciate ligament reconstruction (ACLR). However, it was hypothesized that an accelerated rehabilitation protocol would lead to a higher rate of recurrent instability and revision surgery compared to a conservative rehabilitation protocol. The purpose of this study was to compare the long-term outcome of isolated ACLR after following an accelerated or a conservative rehabilitation protocol.
methodology:	Two different rehabilitation protocols were applied for 65 patients with isolated hamstring ACLR in 2016 to 2017. 33 patients were treated with an accelerated rehabilitation protocol which included an earlier beginning of exercising and an omission of hard frame braces. Whereas the therapy of the other 32 patients contained a slowly increased exercising protocol and the use of braces. Recurrent instability, revision surgery and other complications were evaluated. Further, the subjective knee function was retrospectively analyzed by performing the Tegner Activity Scale, Lysholm Score and IKDC-subjective Score. Statistical comparison between the two groups was performed utilizing Fisher's exact test and student's t-test.
results and conclusion:	Both patient cohorts showed comparable mean age (29.3 vs 26.6) and preoperative Tegner score (6.4 vs 5.9). At 64 ± 7.4 months after ACLR, 18% (n=6/33) of the accelerated protocol cohort and 9% (n=3/32) of the conservative protocol cohort reported recurrent instability (n.s.). Further, no significant differences were found between both cohorts regarding revision surgery and further complications. Moreover, no significant differences were found regarding Tegner (5.5 ± 1.9 vs. 5.5 ± 1.2), Lysholm (93.6 ± 6.3 vs. 89.3 ± 10.7), and IKDC subj. score (89.7 ± 7.9 vs. 86.7 ± 12.1) between both groups. The present study demonstrated no significant differences between an accelerated and a conservative rehabilitation protocol following ACLR in terms of recurrent instability rate, revision surgery or patient-reported outcome. However, further research evaluating rehabilitation protocols for ACLR is desirable.

Stichwörter:	ACL, anterior cruciate ligament reconstruction, ACLR, rehabilitation, brace, weightbearing

Erstellt:	4. Mai 2023 09:17:30 MESZ
Bearbeitet:	14. Mai 2023 09:22:01 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Ilona Schubert
Präsentierender Autor:	Ilona Schubert
Einreichender Autor:	Ilona Schubert
Autorenliste:	Ilona Schubert[1], Wohlrath Aileen[2], Jörg Dickschas[3]
Institut/e:	[1] Orthopädie und Unfallchirurgie Klinikum Bamberg, Bamberg, Deutschland [2] Universität Erlangen, Erlangen, Deutschland [3] Klinik für Orthopädie und Unfallchirurgie Bamberg, Friedrich Alexander Universität Erlangen, Bamberg, Deutschland

Thema: Osteotomie

Inhalt Englisch

Titel: Clinical and radiological outcome of acute biplane medial closing-wedge high tibial osteotomies in knees with valgus deformity

interrogation: The purpose of this study was to analyze the clinical and radiological outcomes of patients who underwent medial closing-wedge high tibial osteotomy (CW-HTO).

methodology: A retrospective , non-randomized, monocentric case series of 15 knees from 14 patients who underwent medial CW-HTO, was performed at our institution (level of evidence IV). CW-HTO was indicated for anterolateral knee pain, cartilage damages or patellar instabilities in patients with a valgus axis after excluding other reasons for the complaints. All patients were evaluated clinically with three different outcome scores (Lysholm-Score, Kujala-Score, Tegner-activity-scale) and radiologically on whole leg x-rays. The analysis was done in Microsoft Excel. The values are given as mean value (standard deviation; min-max).

results and conclusion: We identified 15 knees that met the inclusion criteria. These 10 women and 4 men were 35.9 years (± 11.8y; 15-53y) of age at the time of surgery; the side distribution was 9 right und 6 left knees. 9 patients had already been operated on the affected knee in the past. The preoperative axis was 5.07° valgus (± 1.49°; 3-8° valgus). All surgeries included an arthroscopy before performing the osteotomy. In 5 cases additive surgical procedures were performed: 3x lateral widening retinaculoplasty, 2x MPFL reconstruction, 1x arthrolysis, 1x MACT, 1x drill-channel filling after ACL reconstruction. Postoperatively, the mean axis was 1,47° varus (± 1,89°; 1°valgus- 5°varus), the mean correction angle was 6.53° (± 1.46°; 5-9°). The mMPTA (mechanical medial proximal tibial angle) changed by 7.2° (± 1.86°; 5-10°) from 91.93° (± 1.39°; 90-94°) to 84.73° (± 1.98°; 80-88°). During the follow-up period, implant removal was performed in 8 cases at an average of 8.03 months (± 3.19m; 4.5-15m) after surgery. Clinical outcome was assessed by a patient survey at an average of 27.9 months after the procedure. 80% of the cases had no complications at all, 2 patients suffered from pain catheter associated quadriceps weakness and 1 patient suffered soft tissue scarring and Hoffa hypertrophy, so another arthroscopy was performed. No patella-re-dislocation occurred in those patients who underwent surgery for patella instability. The clinical outcome-Scores showed significantly higher results after surgery: Lysholm Score improved from 51.33 points (±17.19; 18-81) to 78.5 (± 18.10; 47-94); the Kujala-Score improved from 52.82 points (± 11.37; 31-70) to 79.73 (±16.06; 56-95); the Tegner-activity-Scale improved from 3.0 points (±0.67; 2.0-4.0) to 4.1 (±0.74; 3.0-5.0). All patients answered in the affirmative to the question of whether they would have the surgery again.
In conclusion medial CW-HTO is a valid treatment option, with successful results in both clinical and radiological outcomes.

Stichwörter: closing-wedge osteotomy; knee function; HTO

Erstellt:	8. Mai 2023 12:31:11 MESZ
Bearbeitet:	31. Mai 2023 22:01:40 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
Sonstiges:	Ja, dies ist ein Case Report
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Arian Große-Allermann
Präsentierender Autor:	Arian Große-Allermann
Einreichender Autor:	Arian Große-Allermann
Autorenliste:	Arian Große-Allermann[1], Adrian Deichsel[2], Michael Raschke[1], Christian Peez[1], Thorben Briese[1], Johannes Glasbrenner[1], Elmar Herbst[1], Christoph Kittl[1]
Institut/e:	[1] Klinik für Unfallchirurgie des UKM, Münster, Deutschland [2] Klinik für Unfall-, Hand- und Wiederherstellungschirurgie, Universitätsklinikum Münster, Münster, Deutschland

Thema:	Case Report

Inhalt Englisch

Titel:	Simultaneous medial and lateral patellofemoral ligament reconstruction using quadriceps autograft for medial patellar instability
interrogation:	This is a case of a 24-year-old female patient, who suffered from medial patellar instability after a tibial tuberosity (TT) medialization combined with an MPFL reconstruction aimed at correcting a lateral patellar instability. She experienced daily medial patellar dislocations, pain, and limited range of motion. Examination showed a positive medial apprehension and an insufficient MPFL reconstruction. The radiologic patella parameters showed a straight leg axis, a decreased TTTG-distance (3 mm), a trochleadysplasia Type A with an inclination angle of 13°, normal Caton-Dechamps index (1), and a normal femoral antetorsion (20°) and tibial external torsion (31°). In May 2021 the TT was transferred 8 mm laterally back to its origin, which resulted in a TTTG of 13 mm. However, the medial patella instability persisted. Due to normal radiographic parameters we decided to address the instability with a concurrent reconstruction of the medial patellofemoral ligament (MPFL) and lateral patellofemoral ligament (LPFL) using a quadriceps autograft in April 2022.
methodology:	For the reconstruction, a strip of quadriceps tendon was harvested from its central portion, with the insertion on the patella left intact. The graft was then divided into a superficial and deep strip. The superficial layer was then sutured at the insertion point of the lateral retinaculum on the patella and then shuttled between the superficial and deep layers of the lateral retinaculum towards the lateral epicondyle (1a). Since there was no radiologically defined LPFL femoral insertion site, the correct insertion was defined by isometry testing and the isometric insertion was found posterior and proximal to the medial Schöttle point on a lateral radiograph (1b). The LPFL was fixated by an all-suture anchor. The MPFL was then reconstructed using the second layer of the quadriceps.

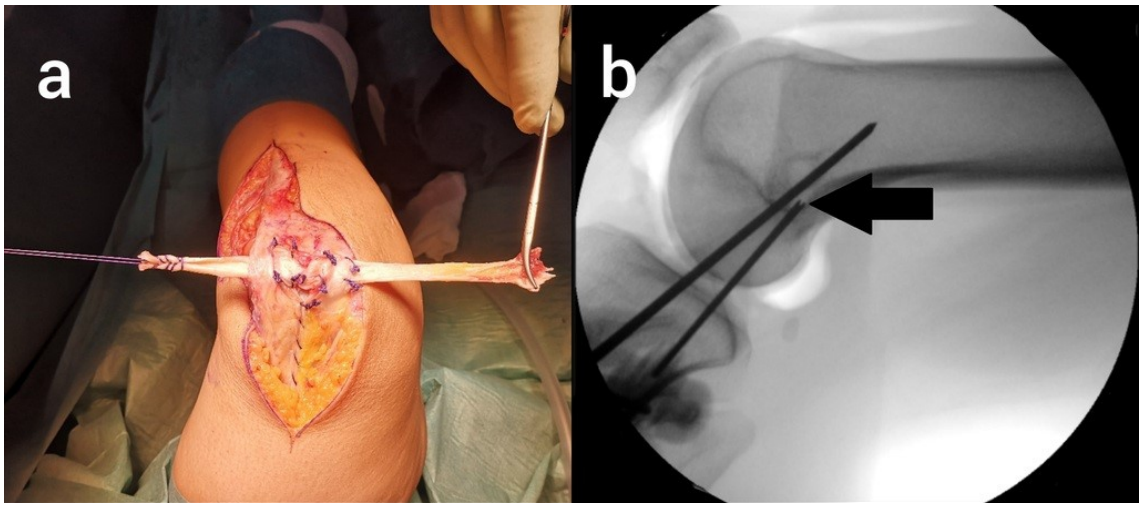


Fig.1: a.) Strips sutured to the lateral and medial patellar retinacula. b.) Intraoperative radiograph showing the insertion points of the LPFL (arrow). K-wire for MPFL reconstruction already inserted.

results and conclusion:	12 months postoperatively, the patient presented without pain at rest or during weight-bearing. There have been no patellar dislocations since the operation. She was able to return to low density activities. This report demonstrated a rare case of a recurrent medial patella dislocation. Without morphological pathology, we decided to address the medial patella dislocation using a LPFL reconstruction. To avoid the risk of the recurrence of the lateral patella dislocation a MPFL reconstruction was also performed. Case reports of LPFL reconstructions are rare, and the determination of the isometric femoral insertion point was challenging. Future research should aim to find the optimal insertion points for such LPFL reconstruction.
Stichwörter:	MPFL, LPFL, Patella, Patellar Instability, Medial Patellar Instability, Lateral Patellar Instability, MPFL Reconstruction, LPFL Reconstruction

Erstellt:	13. Mai 2023 15:45:53 MESZ
Bearbeitet:	29. Mai 2023 12:17:02 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
Sonstiges:	Ja, mit diesem Abstract für den Nachwuchswissenschaftspreis bewerben.
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Nina Gercek
Präsentierender Autor:	Nina Gercek
Einreichender Autor:	Nina Gercek
Autorenliste:	Nina Gercek[1], Dorothea Mehler[1], Charlotte Arand[1], Erol Gercek[1], Christian Glockner[2], Dominik Gruszka[1]
Institut/e:	[1] Universitätsmedizin Mainz, Zentrum für Orthopädie und Unfallchirurgie, Mainz, Deutschland [2] Fachbereich Ingenieurwissenschaften, Hochschule RheinMain, Rüsselsheim, Deutschland

Thema: Frakturen

Inhalt Englisch

Titel: Locked intraosseous double nail system for transverse patellar fractures on Sawbones®

interrogation: Displaced transverse patellar fractures are usually treated with classical tension band osteosynthesis, even though it is associated with high complication rates. We conducted a biomechanical analysis to examine a new treatment technique for transverse patellar fractures using locked intraosseous patellar double nails tested on Sawbones®. The aim was to investigate if this alternative treatment displays a higher stability for fracture fixation compared to the normally used method.

methodology: A dynamic test set-up on Sawbones® was developed on a servo-pneumatic testing machine simulating 0-0-90° extension/flexion of the knee joint. Tensile forces up to 300N were applied on a gliding patella on the distal femur model. A transverse patellar fracture type AO 34 C1.1 was placed by osteotomy on 16 patellar Sawbones®. The samples were divided equally in 2 test groups that were treated following two different principles :the first with classical tension band wiring (2x parallel 1.8 mm K-wires at a distance of 15 mm, 8-turn wire cerclage, thickness 1.25 mm with one twister), the second with a newly developed locked intraosseous double-nail system transversely locked with 2 locking bolts each proximal and distal to the fracture side (2x 5 mm diameter at a distance of 18 mm, 40 mm length and 4 locking holes each). The change in width of the medial and lateral fracture gap was investigated using the video-optical system (SimiMotion®) in extension and flexion positions of the knee joint after applying 1000 movement cycles. The significance level was set at 0.05 for all tests. Statistical analysis was performed with SPSS using the Bonferroni-Holm corrected unilateral unpaired t-test. The symmetry of the fracture gap is reflected by the difference between the medial and lateral gap. The larger the difference, the less symmetric is the gap. This was investigated using a mixed ANOVA and post-hoc Turkey test.

results and conclusion: Cyclic loading tests showed a maximum fragment displacement of M = 2.04 ± 0.67 mm using classical tension band osteosynthesis and M = 0.55 ± 0.31 mm using intraosseous double-nail system.
There was statistically significant change in width of the fracture gap in the flexed position of the knee joint comparing the two applied methods ($p = 0.0015$), with an average of 1.49 mm larger fracture gap using the classical tension band osteosynthesis. Moreover, the double nail system showed a statistically significant more symmetrical fracture gap compared to the tension band osteosynthesis ($p < 0.001$).

In conclusion, treatment with a locked intraosseous patella double-nail system demonstrated a statistically more significant stability and symmetrical fracture gap under cyclic loading tests after transverse patellar fracture fixation compared to classical tension band osteosynthesis.

Stichwörter: patella, biomechanical analysis, tension band wiring, patellar fracture, intramedullary nail implant

Erstellt:	22. Mai 2023 18:25:12 MESZ
Bearbeitet:	22. Mai 2023 21:21:14 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Sebastian Schmidt
Präsentierender Autor:	Sebastian Schmidt
Einreichender Autor:	Sebastian Schmidt
Autorenliste:	Sebastian Schmidt[1], Alexander Ruhl[2], Daniel Krahl[2], Judith Podszun[3], Alexander Zimmerer[4], Christian Sobau[2], Andree Ellermann[2]
Institut/e:	[1] Orthopaedische Klinik Paulinenhilfe, Diakonieklinikum Stuttgart, Stuttgart, Deutschland [2] Arcus Sportklinik Pforzheim, Pforzheim, Deutschland [3] Orthopy Health GmbH, Hamburg, Deutschland [4] Orthopaedische Klinik Paulinenhilfe, Diakonieklinikum Stuttgart, Universitätsmedizin Greifswald, Stuttgart, Deutschland

Thema: Prävention und Rehabilitation

Inhalt Englisch

Titel: Use of a smartphone application (Orthopy App) to improve pre-operative and post-operative therapy in patients with ACL ruptures, compared with conventional standard of care treatment - a randomized, monocentric study

interrogation: Anterior cruciate ligament (ACL) rupture is one of the most common sports injuries. Regardless of the surgical treatment, patients require intensive education about the pathology, therapeutic options, and, in any case, physical therapy. However, it is often not possible for the patient to start physical therapy directly and schedule an adequate number of consultations. Digital health applications ("DiGA") are medical devices that can help bridge the gap between physiotherapy sessions and provide qualified, convenient, and effective education and treatment in case there is no immediate access to face-to-face physiotherapy.

The aim of the study was to compare app-assisted therapy plus standard of care (SoC, conventional orthopedic and physiotherapeutic measures) versus isolated SoC for patients with planned ACL surgery

methodology: A monocentric, two-arm,1 :1 randomized controlled study examined 80 patients after a cruciate ligament rupture with or without meniscal injury.
Inclusion and exclusion criteria
Patients >18 years with a confirmed diagnosis of ACL rupture and planned surgical reconstruction using autologous graft were included. Further criteria were informed consent, willingness to use the Orthopy app on their own smartphone, and sufficient knowledge of the German language.
Exclusion criteria were the presence of multi-ligament injuries, bucket handle tears, higher grade cartilage damage, knee joint dislocation, prior surgery, pregnancy, chronic pain patients, age <18 years, and CE-determined app use exclusions.

The patients were randomized, and baseline data (t0) was collected. Subsequently, they received their treatment according to their treatment group. The interventional period consisted of the pre-surgery period (2-6 weeks) and the post-surgery period (14 weeks), An interim visit (t1) via online questionnaire was scheduled in cases with more than 3 weeks between baseline and surgery. The next visit took place before the surgery (t2) at the study center. After surgery, further visits were conducted via online questionnaires (t3, t4, t5). The final visit (t6) took place at the study center approximately 14 weeks after surgery.
The Knee Injury and Osteoarthritis Outcome Score (KOOS) was assessed as the primary outcome measure. Subjective pain level (Numeric Rating Scale [NRS]) and subjective function (NRS) were collected as secondary endpoints.

results and conclusion: The clinical trial was able to show positive outcomes on the KOOS Pain and Symptoms subscale. A statistically significant pain reduction at t1, t2, and t4 (approx. 6 weeks after surgery) could be seen. A significant reduction of symptoms at t1, t2, and at t6 were recognized. These findings are further supported by the significant benefit of the pain NRS at t4 and positive tendencies at t3, t5, and t6. The Orthopy app is a safe and effective medical device. The combination of the Orthopy app and SoC can significantly improve pre-and rehabilitation in patients with ACL reconstruction compared to the

isolated SoC.

Stichwörter: ACL, DiGA, digital health, Orthopy, rehabilitation, prehabilitation, app

Erstellt:	22. Mai 2023 18:30:34 MESZ
Bearbeitet:	22. Mai 2023 18:39:13 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
Sonstiges:	Ja, mit diesem Abstract für den Nachwuchswissenschaftspreis bewerben.
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Henryk Haffer
Präsentierender Autor:	Henryk Haffer
Einreichender Autor:	Henryk Haffer
Autorenliste:	Henryk Haffer[1], Luis Becker[1], Clemens Gwinner[1], Georg N. Duda[2], Carsten Perka[1], Tobias Winkler[1]
Institut/e:	[1] CMSC, Charité Universitätsmedizin Berlin, Berlin , Deutschland [2] Julius Wolff Institute, Berlin Institute of Health Charité, Berlin, Deutschland

Thema:	Prävention und Rehabilitation

Inhalt Englisch

Titel:	Influence of prehabilitation on clinical and functional outcomes in primary knee arthroplasty patients with frailty syndrome - results of a multicenter randomized controlled trial at 3-month follow-up
interrogation:	Frailty syndrome is a geriatric condition that increases the risk of postoperative complications and death. Prehabilitation interventions have been studied in total knee arthroplasty (TKA) patients and have the potential to improve clinical outcomes. However, data from randomized controlled trials are lacking for the particularly vulnerable patient population with frailty syndrome undergoing TKA. Therefore, we aimed to assess the effect of prehabilitation in patients with Frailty-Syndrome undergoing TKA in a randomized controlled interventional investigation.
methodology:	A multicenter randomized controlled trial evaluating the effect of prehabilitation on clinical and functional outcomes in primary TKA patients with frailty syndrome is currently conducted. Frailty is determined using the criteria defined by Fried et al (1). The intervention group completes a three-weeks prehabilitation program. Baseline assessment (V1) includes functional tests (hand strength, walking speed, Timed-Up&Go (TUG), 2-minutes step test, stair climbing speed) and patient-reported outcomes (PROs: Knee Injury and Osteoarthritis Outcome Score (KOOS), EuroQol-5-dimension-Questionnaire (EQ-5D-5L)). Follow-up examinations are performed at 3 (V2) and 12 months postoperatively. Differences between V1 and V2 were determined using the Wilcoxon signed-rank test and between the control and intervention group at V2 using the Mann-Whitney-U-test.
results and conclusion:	72 patients are currently enrolled in the study. Data from N=20 patients (N=10 intervention: 60.0% women; 76.7 years; BMI 29.1kg/m2; N=10 control: 80.0% women; 77.5 years; BMI 27.4kg/m2) followed-up at V2 have been analyzed so far. No significant differences were found between the intervention and control groups at time point V2 in terms of TUG, 2-minutes step test, stair climbing speed, EQ-5D-5L-VAS and KOOS subscales (symptoms, pain, activities of daily living, exercise, quality of life). There were significant improvements in the KOOS subscales from V1 to V2 in both groups. The preliminary results of this multicenter randomized controlled trial could not demonstrate an impact of the three-weeks prehabilitation on the outcome of TKA patients with frailty syndrome at the 3-month follow-up. The significant improvement of the KOOS subscales in the intervention and control groups underlines the sensitivity of the measurements and the positive effect of TKA on PROs. While it may be expected that the study design is sensitive to show that TKA is effective for improving the quality of life in patients with frailty, no beneficial effects of prehabilitation were so far detectable. Nevertheless, the results are limited by the still small sample size. However, we anticipate being able to present a larger cohort of patients at the DKG congress, which may alter the results. 1. Fried et al.; Cardiovascular Health Study Collaborative Research Group. Frailty in older adults: evidence for a phenotype. J Gerontol A Biol Sci Med Sci. 2001
Stichwörter:	-

Erstellt:	24. Mai 2023 20:49:04 MESZ
Bearbeitet:	24. Mai 2023 21:20:22 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Mirjam Neumann - Langen
Präsentierender Autor:	Mirjam Neumann - Langen
Einreichender Autor:	Mirjam Neumann - Langen
Autorenliste:	Mirjam Neumann - Langen[1], Stefan Barzen[2], Lena Eggeling[3], Richard Glaab[4], Clemens Kösters[5], Matthias Krause[6], Elmar Herbst[7]
Institut/e:	[1] Klinikum Konstanz, Klinik für Orthopädie und Unfallchirurgie, Konstanz, Deutschland [2] Berufsgenossenschaftliche Unfallklinik Frankfurt am Main, Abteilung für Orthopädie und Unfallchirurgie, Frankfurt, Deutschland [3] BG Klinikum Hamburg, Abteilung für Orthopädie und Unfallchirurgie, Hamburg, Deutschland [4] Kantonsspital Aarau, Abteilung für Orthopädie und Unfallchirurgie, Aarau, Schweiz [5] Maria-Josef-Hospital Greven, Abteilung für Orthopädie und Unfallchirurgie, Greven, Deutschland [6] Uniklinikum Hamburg Eppendorf, Klinik für Unfallchirurgie und Orthopädie, Hamburg, Deutschland [7] Universitätsklinikum Münster, Klinik für Unfall-, Hand- und Wiederherstellungschirurgie, Münster, Deutschland

Thema: Frakturen

Inhalt Englisch

Titel: Hoffa fractures are frequently associated with concomitant soft tissue injuries and are associated with a high postoperative complication rate

interrogation: The purpose of this study was to analyze treatment strategies and outcomes of Hoffa fractures between different trauma centers.

methodology: This multicenter retrospective study included patients with an isolated Hoffa fracture who were surgically treated between 2010 and 2020. Demographics, mechanism of injury, diagnostic and therapeutic algorithm, Letenneur classification, concomitant soft tissue injuries, and postoperative knee function and complications were recorded and statistically analyzed.

results and conclusion: A total of 56 patients from 6 participating trauma centers with a median age at injury of 45 (15 - 94) years were included in the study. Median follow-up was 19 (2-108) months. Most of the injuries occurred during a high energy trauma and were predominantly unicondylar lateral Letenneur type I and II Hoffa fractures. Surgical treatment included isolated screw fixation, combined plate and screw fixation, and isolated plate osteosynthesis and was independent of the fracture type. The preferred fixation method was isolated screw fixation with significantly better range of motion (ROM) values (p=0.032) but the highest number of postoperative complication rates (n.s.) compared to the other techniques. The highest number of fixation failures requiring revision was observed in the plate and screw fixation group (p=0.008). Osteochondral flake fractures (27%) and lateral meniscus injuries (10%) were common. Postoperative management was independent to the fracture entity and fixation method with generally limited weight bearing.
Surgical fixation technique was chosen independently of the fracture type. Treatment of Hoffa fractures with screw fixation resulted in significantly better functional outcomes, probably due to less comminuted fractures. Concomitant cartilage, meniscal, and ligamentous injuries are common and warrant proper recognition and management. A general treatment algorithm regarding the fracture entity and fixation method including postoperative aftercare is yet not defined.

Stichwörter: knee, distal femur, hoffa, fracture, screw fixation, plate fixation, postoperative complications

Erstellt:	25. Mai 2023 08:37:07 MESZ
Bearbeitet:	25. Mai 2023 08:45:15 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Maria Bernstorff
Präsentierender Autor:	Maria Bernstorff
Einreichender Autor:	Maria Alexandra Bernstorff
Autorenliste:	Maria Bernstorff[1], Norman Schumann[2], Thomas Armin Schildhauer[1], Matthias Königshausen[3]
Institut/e:	[1] Ruhr-Universität Bochum, BG-Universitätsklinikum Bergmannsheil, Chirurgische Klinik und Poliklinik, Bochum, Deutschland [2] Ruhr - Universität Bochum, Bochum, Deutschland [3] Bergmannsheil Bochum, Bochum, Deutschland

Thema: Prävention und Rehabilitation

Inhalt Englisch

Titel: Fitness sport, one of the most popular sports - An analysis of 1378 fitness amateur athletes with regard to the most injury-prone exercises related to the knee joint

interrogation: Fitness mass sport is one of the most popular sports worldwide and ranks first among all organized sports. Despite these large numbers of participants, there is little of scientific work addressing injury behavior in recreational fitness sports. This study attempts to fill this gap by examining which exercises are most prone to injury and which body regions of the lower extremity, particularly the knee, are most commonly affected.

methodology: Using an online questionnaire distributed throughout Germany, a total of 20 demographic and exercise-specific characteristics and 49 sport-specific exercises were recorded. The aim of the evaluation was to determine the frequency and distribution of pain symptoms that athletes experienced during or in connection with their training and which exercises they were most frequently associated with. The focus of the work was to evaluate pain symptoms of the lower extremity, particularly the knee joint, and corresponding exercises that resulted in pain in this context.

results and conclusion: A total of 1378 respondents were included in the study. N= 732 (53.1%) (f = 333 (24.2%), m = 397 (22.3%)) reported having experienced or persisting pain in relation to their fitness training. The localization "knee joint" was given as a complaint localization a total of 547x (f = 345, m = 202). The way the training plan was created showed a significant influence (p = 0): Those athletes who created a plan themselves reported discomfort more frequently than the comparison groups. Guided exercises on equipment were the least likely to cause discomfort (11.54%). Exercises with free weights caused the most discomfort among respondents (19.94%). We were able to identify exercises such as "backsquats" and "treadmill" as the most commonly associated with pain in the knee joint. Unlike the upper extremity, the female gender is more commonly affected in the lower.

The present work is the first large-scale study to investigate the injury behavior of recreational athletes in fitness sports. The results show a considerably high underreporting of pain symptoms. Due to the large number of athletes who perform this sport without any professional guidance, further research should be conducted, both in terms of injury behavior and prevention, in order to be able to make this sport safer and offer therapy options at an earlier stage.

Stichwörter: Fitness, Sports, Knee, Injurie, Sports Injury, Gender

Erstellt:	25. Mai 2023 10:08:36 MESZ
Bearbeitet:	26. Mai 2023 05:34:13 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Jannik Frings
Präsentierender Autor:	Jannik Frings
Einreichender Autor:	Jannik Frings
Autorenliste:	Jannik Frings[1], Anke Baranowsky[2], Alexander Korthaus[1], Karl-Heinz Frosch[1], Hendrik Fahlbusch[1], Milad Fal[1], Matthias Buhs[3], Johannes Keller[2], Matthias Krause[1]
Institut/e:	[1] Universitätsklinikum Hamburg-Eppendorf, Klinik und Poliklinik für Unfallchirurgie und Orthopädie, Hamburg, Deutschland [2] Universitätsklinikum Hamburg-Eppendorf, Klinik und Poliklinik für Unfallchirurgie und Orthopädie, Experimentelle Unfallchirurgie, Hamburg, Deutschland [3] Norddeutsches Knorpelcentrum, Quickborn, Deutschland

Thema: Knorpel und Meniskus

Inhalt Englisch

Titel: Arthroscopic harvest of minced cartilage results in reduced cell viability and lower quality repair tissue compared to conventional fragmentation

interrogation: The minced cartilage (MC) procedure is one of the most popular innovations in the modern treatment of cartilage defects in the knee. Based on the promising results of in-vitro and animal studies, investigating conventional MC procedures, novel arthroscopic techniques are increasingly being promoted. However, there is a lack of clinical and biological evidence to support this specific technique.
The aim of this study was to investigate the cell viability of arthroscopically harvested chondrocytes intended for autologous transplantation and the quality of the resulting repair tissue.

methodology: A two-arm study was conducted to evaluate the results of human and porcine samples. Chondral tissue was harvested from 9 human and 8 porcine knees. Human specimens were <40 years old with intact, native cartilage surfaces and deceased <48 hours prior to harvest. Porcine specimens were euthanized one day before harvest. Arthroscopic harvest was performed with two shaver blades (groups 1 and 2) in 2 operating modes (oscillating vs. forward) and compared to a scalpel-fragmented control. Samples were digested (Collagenase II) to optimize cell differentiation, while undigested tissue samples were included to improve comparability. Tissue samples were stained (Typan) and analyzed histologically. A subset of porcine samples was analyzed for cell viability, gene expression of the cartilage-specific markers Aggrecan (ACAN), collagen-II, alpha1 (COL2A1), collagen-I, alpha1 (COL1A1), fibronectin 1 (FN), and cartilage matrix formation (alcian blue staining) after 21 days of 2D culture.

results and conclusion: In both human and porcine specimens, arthroscopically harvested chondral tissue had significantly fewer viable chondrocytes (465-773/g^3 vs. 2271-2564/g^3, p=0.02) and a significantly lower live-dead ratio (41-54% vs. 90-91%, p<0.01) compared to the control, regardless of shaver blade or operating mode. After 21 days, the digested control showed high expressions of ACAN (29 virtual copy numbers (VCN)/GAPDH) and COL2A1 (30 VCN/GAPDH), which were significantly lower in the digested groups 1 and 2 (ACAN 2-9 VCN/GAPDH, COL2A1 2-7 VCN/GAPDH, p=0.001), regardless of shaver blade or operating mode. COL1A1 (9-20 VCN/GAPDH) and FN (12-19 VCN/GAPDH) expressions were significantly higher in groups 1 and 2 compared to the controls (1 and 5 VCN/GAPDH, p=0.001). Similar observations were made for the undigested samples, showing an overall decrease in ACAN and COL2A1, but an increase in COL1A1 and FN. The cartilage matrix formed in the digested control showed a strong signal intensity (85/mm^2) but was significantly less intense in groups 1 and 2 (7-11mm^2, p<0.01).
In conclusion, arthroscopic harvesting of healthy cartilage tissue significantly impaired chondrocyte quantity and viability compared to conventional fragmentation. Furthermore, the high chondrogenic potential of MC to form hyaline-like repair tissue could not be confirmed for arthroscopic techniques, which showed a high expression of fibroblast markers.

Stichwörter: minced cartilage, cell viability, arthroscopy, chondral lesion, hyaline

Erstellt:	26. Mai 2023 08:50:12 MESZ
Bearbeitet:	26. Mai 2023 12:25:41 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Lena Eggeling
Präsentierender Autor:	Lena Eggeling
Einreichender Autor:	Lena Eggeling
Autorenliste:	Lena Eggeling[1], Alexander Korthaus[2], Tobias Claus Drenck[1], Stephan Breer[1], Ralph Akoto[3], Karl-Heinz Frosch[2]
Institut/e:	[1] BG Klinikum Hamburg, Abteilung Unfallchirurgie, Orthopädie und Sporttraumatologie, Hamburg, Deutschland [2] University Medical Center Hamburg-Eppendorf, Department of Trauma and Orthopaedic Surgery, Hamburg, Deutschland [3] BG Klinikum Hamburg, Abteilung Unfallchirurgie, Orthopädie und Sporttraumatologie, University of Witten/ Herdecke, Hamburg, Deutschland

Thema: Frakturen

Inhalt Englisch

Titel: Intra-articular osteotomy vs. endoprosthetic knee replacement in malunited tibial plateau fractures - a matched-pair analysis with a mean follow-up of 3.3 years

interrogation: The aim of the study was to compare the clinical and functional outcome of patients after surgical treatment (intra-articular osteotomy (IO) vs. endoprosthetic knee replacement (ER)) of malunited tibial plateau fractures with a minimum follow-up (FU) of at least 24 months.

methodology: Between 2016 and 2021, all patients who underwent surgery due to malunited tibial plateau fractures in two national trauma centers (IO: n= 31; ER: n= 88) were included in the retrospective study. Patients with IO were matched to patients with ER with regard to initial fracture entity and gender. Clinical and functional results were collected with a follow-up period of at least 24 months.

results and conclusion: 20 patients with IO (11 men, 9 women, age: 45.6+/-11.2 years, FU 38.8+/-16.6 months) were matched to 20 patients with ER (11 men, 9 women, age: 60, 4+/-7.4 years, FU 41.4+/-19.3). At the time of the FU, the study population showed a significant reduction in pain (preoperative VAS 4.9 ± 2.1 vs. postoperative VAS 2.9 ± 1.9, p<0.001), as well as an increase in the Tegner activity score (preoperative 2.4 ± 1 points vs. postoperatively 3.3+/-1.5 points, p<0.001).
There were no differences between the groups with regard to postoperative pain (IO: 3.1 ± 1.8 vs. ER: 2.6 ± 2, p=0.463) or revision surgery (IO: 35% vs. ER: 55% p=0.204). 15% (n=3) of patients with IO converted to TEP over time.
In the ER group, postoperative limited loss of motion of the knee occurred significantly more often at the time of the FU (extension deficit 70% vs. 35%, p=0.027; flexion deficit
100% vs 50%, p<0.001). The postoperative Tegner activity score was significantly reduced in the ER group (2.7+/-1.1 vs. 3.9+/-1.6, p=0.009). The KOOS subscale sports activities was also significantly reduced in the ER group (26.1+/-21.9 vs. 46.1+/-26, p= 0.042), whereas the other four KOOS subscales, the clinical Rasmussen score or the Oxford Knee Score showed no significant differences. Linear regression analysis showed that the ER was a negative predictor of a reduced Tegner activity score regardless of patient age in comparison to the IO (OR -1.1, [95% CI, -2.1 to -0.12]; p= 0.028). Surgical treatment of malunited tibial plateau fractures resulted in a significant improvement in activity level and pain reduction, regardless of whether the treatment was performed by endoprosthesis or intra-articular osteotomy.
In this patient population, patients treated with an endoprosthetic knee replacement showed significantly more often postoperative loss of motion of the knee and lower activity scores, independent of age. Patients with intra-articular osteotomy showed a relatively high risk of failure with 15% TEP conversion.

Stichwörter: malunited tibial plateau fractures, intra-articular osteotomy, endoprosthetic knee replacement

Erstellt:	26. Mai 2023 09:38:48 MESZ
Bearbeitet:	26. Mai 2023 10:13:23 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

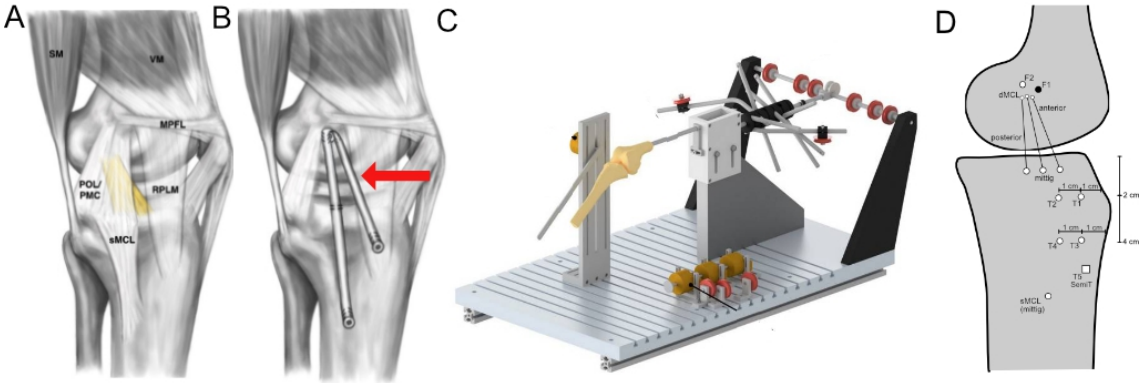
Erstautor:	Peter Behrendt
Präsentierender Autor:	Peter Behrendt
Einreichender Autor:	Peter Behrendt
Autorenliste:	Peter Behrendt[1], Elmar Herbst[2], Hendrik Steentorf[3], Michael Johannes Raschke[2], Andreas Seekamp[4], Mirco Herbort[5], Bodo Kurz[6], Christoph Kittl[2]
Institut/e:	[1] Sportorthopädie, Klinikum St. Georg, Hamburg, Anatomisches Institut, Christian-Albrechts-Universität, Kiel, Hamburg, Deutschland [2] Klinik für Unfall-, Hand- und Wiederherstellungschirurgie, Universitätsklinikum Münster, Münster, Deutschland [3] Anatomisches Institut, Kiel, Deutschland [4] Department of Trauma Surgery, UKSH, Campus Kiel, Kiel, Deutschland [5] OCM Klinik München, München, Deutschland [6] Department of Anatomy, University Kiel, Kiel, Deutschland
Thema:	Ligamentverletzungen

Inhalt Englisch

Titel: Length change patterns of the deep medial collateral ligament and related reconstructions for controlling anteromedial rotatory instability

interrogation: Biomechanically, anteromedial rotatory knee instability is mainly restored by an anteromedial reconstruction mimicking the anterior part of the deep medial collateral ligament (dMCL). The aim of this study was to examine length change patterns of the native dMCL and related reconstructions for anteromedial rotatory instability.

methodology: In eleven cadaveric knee specimens the dMCL was exposed by reflecting the distal tibial attachment of the superficial medial collateral ligament (sMCL). Its anterior, middle, and posterior attachment points were marked with pins and the sMCL was reattached. The knees were then mounted in a kinematic rig (



) with loaded quadriceps muscle and iliotibial band. Additional femoral pins were placed in the middle (F1) and posterior part (F2) of the sMCL attachment, points commonly used for MCL reconstructions. Four tibial pins were placed 2 and 4 cm below the joint line and 1 and 2 cm posterior from the anterior margin of the tibia (T1-4) as well as on the tibial semitendinosus attachment site (T5), to simulate anteromedial reconstructions. Length changes between the tibiofemoral pins were analyzed using a thread between each tibio-femoral combination connected to a rotary encoder across 0° - 100° of flexion.

results and conclusion: The three dMCL proportions had different length change pattern with the anterior part lengthening in flexion (12.7 % at 100°, p<.001). Compared to the anterior dMCL, the posterior fibers slackened with flexion reaching -12.9±4.8 % (p < .05 at ?30° of flexion) and the middle fiber region was almost isometric and slackened only 2.8 % at 100° knee flexion (p < .05 at ?40°). Significant (p< .05 at 50°) slackening of all dMCL proportions was reached with a posterior femoral placement. Only minimal changes (p >.05) were recorded between different tibial attachment points and F1 or F2, respectively, with F1 and F2 being significantly different at >50° knee flexion (p<.05). The most isometric

tibiofemoral combination was measured when using the F2 point (strain range F2-T1 3,7±1,5% vs. F1-T1 13,2±3,7%, p<0,001).
The length change pattern of anteromedial reconstructions is mainly influenced by changing the femoral attachment point with a posterior attachment leading to significant slackening of the entire dMCL proportions and related reconstructions. Different tibial attachment points appeared to have minimal effect on length change with the posterior sMCL position being more isometric.
In anteromedial reconstructions length change patterns have important implications to avoid excessive graft tensioning or medial over-constrainment.

Stichwörter: deep medial collateral ligament, length change, reconstruction, isometry, anteromedial rotatory instability

Erstellt:	26. Mai 2023 10:40:55 MESZ
Bearbeitet:	26. Mai 2023 16:13:23 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
Sonstiges:	Ja, mit diesem Abstract für den Nachwuchswissenschaftspreis bewerben.
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Nele Hammersdorfer
Präsentierender Autor:	Nele Hammersdorfer
Einreichender Autor:	Nele Hammersdorfer
Autorenliste:	Nele Hammersdorfer[1], Felix Ferner[2], Jan-Oliver Saß[1], Jessica Hembus[1], Christoph Lutter[1]
Institut/e:	[1] Universitätsmedizin Rostock, Orthopädische Klinik und Poliklinik, Rostock, Deutschland [2] Orthopädie und Unfallchirurgie Klinikum Lichtenfels , Lichtenfels, Deutschland

Thema: Osteotomie

Inhalt Englisch

Titel: Biomechanical assessment of additional contralateral stabilization techniques for distal femoral torsional osteotomies.

interrogation: Derotational distal femoral osteotomy is a common treatment in patients with femoral torsional deformity and a patellofemoral instability or patellofemoral pain syndrome. Fixation is achieved by unilateral internal plate fixator, whereas the rate of non-union is relatively high. Additional contralateral fixation techniques have been described to improve primary stabilization. We aimed to biomechanically evaluate primary stability of two additional stabilization techniques: additional contralateral plate and contralateral hinge screw.

methodology: Torsional osteotomies of 20° were performed in 15 human femur specimens. They were divided into 3 groups, all using a medial locking plate (Activmotion, Distal Femoral Osteotomy Plate, NEWCLIP TECHNICS): 1) no additional contralateral stabilization; 2) additional lateral hinge-screw (Initial K Hinge Screw, NEWCLIP TECHNICS) and 3) additional lateral angle stable plate (Activmotion, Distal Fibular Osteotomy Plate, NEWCLIP TECHNICS). Within biomechanical evaluation, axial loading of 150 N (partial weight bearing) or 800 N (full weight bearing) as well as internal and external rotation of 5 Nm with a frequency of 0,25 Hz was applied using a servo-hydraulic test machine. Relative movements between the distal and proximal part of the femoral osteotomy were recorded using optical 3D measurement. Subsequently, all specimens were tested to failure by linearly increasing external torsional loading by 0.25°/s up to 25°.

results and conclusion: During axial loading of 150 N, group 3 showed significant higher stability than group 1 and 2. This was reflected in less rotation around the femoral shaft (p=0.008) and smaller relative movements (p=0.032) as well as in all three spatial directions (medio-lateral direction: p=0.032; proximal-distal direction: p=0.008; anterior-posterior direction: p=0.008) during the measurements. Group 2 showed increased stability in comparison to group 1, which was reflected in smaller means of rotation around the femoral shaft and of relative movements, however, these differences were not significant (p=0,421 and p=0,538). Under axial loading of 800 N, no significant differences between tested groups were found. Additionally, all of the groups showed less rotation and smaller relative movements during axial loading of 800N in comparison to 150 N, but only the increased stability of group 1 during 800 N could be proven by statistical significance (p=0,016 and p=0,032).

Biomechanical analysis simulating partial weight bearing after distal derotational femoral osteotomy with additional contralateral stabilization using a locking plate shows better primary stability compared to unilateral plate fixator. Contralateral hinge screw shows better stability without significance. Hence, additional fixation should be considered in distal femoral torsional osteotomy as it results in the highest primary stability (partial weight bearing).

Stichwörter: osteotomy, derotation, knee, hinge, torsion, patellofemoral

Erstellt:	26. Mai 2023 11:49:55 MESZ
Bearbeitet:	29. Mai 2023 10:59:52 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
Sonstiges:	Ja, dies ist ein Case Report
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Erol Akalin
Präsentierender Autor:	Erol Akalin
Einreichender Autor:	Erol Akalin
Autorenliste:	Erol Akalin[1], Arne Johannes Venjakob[1]
Institut/e:	[1] St. Vinzenz Krankenhaus, Klinik für Sportorthopädie, Düsseldorf, Deutschland

Thema: Case Report

Inhalt Englisch

Titel: Combined surgery of complex patellofemoral malalignment - a case report

interrogation: A 30-year-old male patient presented with a complex patellofemoral pain syndrome with spontaneus lateral subluxation in flexion. The patient suffered from rightsided knee pain foremost in flexion for several years. During examination, the patient showed full extension but limited flexion of 120° due to pain. With a clearly lateralized Patella the j-sign was pronounced positive due to a contract ligament apparatus. Considering radiological imaging the MRI showed a trochlear dysplasia type D according to Dejour with retropatellar chondropathy grade II-III°. The tibial tuberosity posterior cruciate ligament distance measered 30mm, while the Caton-Deschamps-index was calculated with 1.3. Furthermore a pathological femoral antetorsion with an angle of 31° according to Murphy could be determined.

methodology: We decided to perform a combined one stage surgery of trochleaplasty, derotating femoral osteotomy and a medializing tuberositas tibiae-osteotomy to correct the complex bony malalignment. Lower extremity relief was determined for 8 weeks. Active flexion was restricted with a maximum of 90° for 6 weeks.

results and conclusion: Patellofemoral pain syndrome as well as patellofemoral instability requires a thorough diagnostical analysis to determine risk factors. The origin of both (patellofemoral pain syndrome, patellofemoral instability) is often multifactorial. The complexity grows if patients show several causes of patellofemoral pain and/or instability at once. It remains questionable which cause should be adressed. In contrast to step by step surgery combined intervention of trochleaplasty, derotating femoral osteotomy and tuberositas tibiae medialization may be an option in complex bony malalignment.
In this case surgery revealed excellent clinical outcome with full range of motion and no pain six months postoperatively. Screw and plate irritation of the proximal tibia and distal femur led to metallic implant removal 14 months after surgery.

Stichwörter: patellofemoral instability, knee, trochleaplasty, osteotomy

Erstellt:	26. Mai 2023 15:56:50 MESZ
Bearbeitet:	26. Mai 2023 17:10:48 MESZ
Status:	Eingereicht
Beitragsart:	Poster
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
Sonstiges:	Ja, dies ist ein Case Report
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Lukas Jost
Präsentierender Autor:	Lukas Jost
Einreichender Autor:	Lukas Jost
Autorenliste:	Lukas Jost[1], Benjamin Rufer[1]
Institut/e:	[1] Sonnenhofspital Bern, Bern, Schweiz

Thema: Case Report

Inhalt Englisch

Titel: Importance of Preop Assessment for TKA: Case Report of Chronic Osteomyelitis 40 Years after Trauma

interrogation:

Introduction:
There are only a few cases in the literature with a late infection relapse up to 30 years. We present a rare case of late onset chronic osteomyelitis with a reactivation due to a contusion of the affected femur over 40 years after initial fracture without any previous infection history.

methodology:

Case description:
A 64 old male patient admitted to our department due to persistent pain and progressive swelling of the left thigh 2 months after a blunt minor trauma/contusion of his left femur. Prior to this he reports slight weight-bearing dependent pain in his left knee. Radiologically knee osteoarthritis with joint space narrowing and moderate osteophytes. Normal range of motion with integrity of the ligaments, no effusion.
History revealed an open femur shaft fracture (Gustilo Type IIIA) sustained in a motorcycle accident 1977 which was initially treated by an intramedullary nail with two following revision osteosynthesis due to hardware failure but no reported infection. Hardware removal was done 1979. X-Ray and Further MRI was consistent with chronic osteomyelitis in the femur.

results and conclusion:

Results:
We performed a subvastus approach to the femur shaft. The bone defect of 10 x 1.5 x 2 cm was filled with sequestra, biopsies were taken. Extensive debridement of avital tissue. Filling of the defect with an antibiotic loaded cement spacer (vancomycin/gentamicin). Immediate antibiotic therapy was initiated with Co-Amoxicillin intravenous 4x 2.2g for 10 days followed by 3x1g orally for 12 Weeks postoperatively according to our infectiologist.
Cultures remained negative for microbial growth. Histology sections showed fibrosis and a focal granulating inflammation with no evidence of malignancy. Additional eubacterial PCR showed DNA of coagulase negative staphylococcus (4/5 probes).
Second Look operation was performed 4 Weeks later with cement spacer removal, debridement and placement of an antibiotic-loaded bone void filler (cerament vancomycin) into the dead space. The patient was successfully treated surgically by means of aggressive debridement and re-biopsies for eubacterial PCR remained negative

Conclusion:
Preoperative workup and assessment are an important part of total knee arthroplasty in patients with osteoarthritis. Especially with history of prior surgery or trauma. In doubt an infection must always be ruled out. In our case successful therapy remained an extensive local debridement of all avital tissue. Followed by pathogen directed antibiotic therapy and additional local resorbable antibiotic-carriers.
Late onset chronic osteomyelitis should be included in the differential diagnosis of patients presenting with new onset of pain and a history of fracture even after several decades.
After overcoming infection TKA can be planned safely.

Stichwörter: TKA, Total Knee Arthroplasty, Peroperative Workup, Assessment, Infection

Erstellt:	27. Mai 2023 06:54:49 MESZ
Bearbeitet:	28. Mai 2023 10:50:56 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Philipp W. Winkler
Präsentierender Autor:	Philipp W. Winkler
Einreichender Autor:	Philipp W. Winkler
Autorenliste:	Philipp W. Winkler[1], Armin Runer[2], Romed Vieider[2], Lukas N. Münch[2], Sebastian Siebenlist[2], Lukas Willinger[2]
Institut/e:	[1] Universitätsklinik für Orthopädie und Unfallchirurgie, Kepler Universitätsklinikum, Johannes Kepler Universität, Linz, Österreich [2] Sektion Sportorthopädie, Klinikum Rechts der Isar, TU München, München, Deutschland

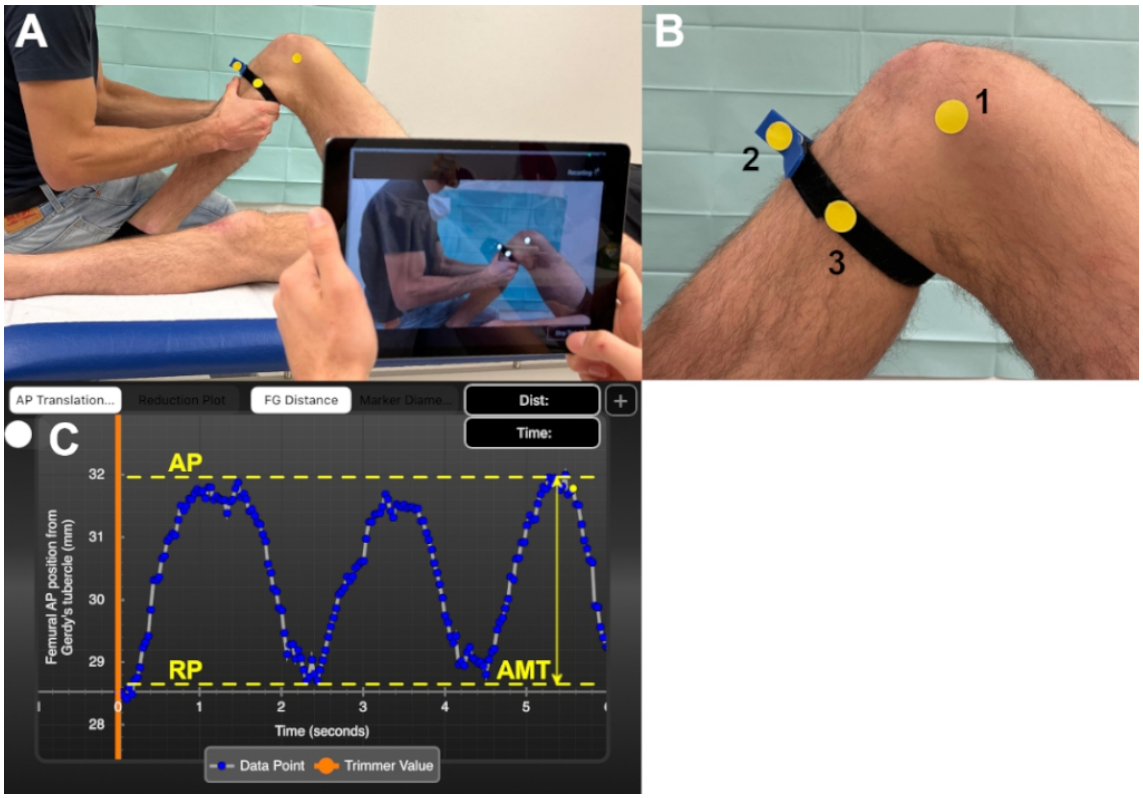
Thema: Ligamentverletzungen

Inhalt Englisch

Titel: Non-invasive and reliable quantification of antero-medial rotatory knee laxity

interrogation: The objectives of this study were first to quantify antero-medial rotatory knee laxity in healthy individuals using a non-invasive image analysis software and second to assess intra- and inter-rater reliability and equivalence in measuring antero-medial knee translation (AMT).

methodology: This was a prospective proof-of-concept study including healthy individuals aged 16-40 years with no history of knee injury or surgery. Three adhesive surface markers were placed on predefined landmarks on the medial side of the knee (Figure 1). Three independent investigators examined antero-medial rotatory knee laxity with an anterior drawer test in different tibial rotations (neutral, external, and internal tibial rotation). The entire examination of each knee was recorded and AMT including the side-to-side difference (SSD) was assessed using a freely available and validated image analysis software (PIVOT iPad application). Group comparisons were performed with a one-way ANOVA with Bonferroni-adjusted post-hoc analysis. Intraclass correlation coefficients (ICC) were calculated to assess inter- and intra-rater reliability of AMT measurements. Equivalence of measurements was assessed using the two-one-sided t-test (TOST) procedure.



Experimental setup (A). Right knee with attached surface markers (B). Screenshot of PIVOT iPad application showing quantitative output of three intervals of AMT. Maximum anterior position (AP) and resting position (RP) of the tibia (C).

results and conclusion:

Results: Antero-medial rotatory knee laxity was assessed in 30 knees of 15 participants (53% male) with a mean age of 26.2 ± 3.5 years. In all three raters, highest AMT was observed in neutral tibial rotation (range of means, 2.2-3.0mm), followed by external tibial rotation (range of means, 2.0-2.4mm), and internal tibial rotation (range of means, 1.8-2.2mm; $p < 0.05$). Intra-rater reliability of AMT (ICC, 0.88-0.96) and SSD (ICC, 0.61-0.96) measurements was rated good to excellent and moderate to excellent, respectively. However, inter-rater reliability was poor to moderate for AMT (ICC, 0.44-0.73) and SSD (ICC, 0.12-0.69) measurements. Statistically significant equivalence of AMT and SSD measurements was observed between and within raters for almost all testing conditions.

Conclusion: Antero-medial rotatory knee laxity can be quantified using a non-invasive image analysis software, with the highest AMT observed during neutral tibial rotation. Reliability and equivalence of measurements are excellent within raters and acceptable between raters. This simple, cost-effective, and readily available tool will support surgeons in surgical decision making regarding antero-medial knee instability.

Stichwörter: knee; mcl; laxity; digital; anteromedial

Erstellt:	27. Mai 2023 10:08:02 MESZ
Bearbeitet:	27. Mai 2023 10:15:39 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
Sonstiges:	Ja, mit diesem Abstract für den Nachwuchswissenschaftspreis bewerben.
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Yannick Ehmann
Präsentierender Autor:	Yannick Ehmann
Einreichender Autor:	Yannick Ehmann
Autorenliste:	Yannick Ehmann[1], Thekla Esser[2], Marco-Christopher Rupp[3], Romed Vieider[1], Julian Mehl[4], Andreas B. Imhoff[1], Sebastian Siebenlist[3], Philipp Minzlaff[2]
Institut/e:	[1] Sektion Sportorthopädie, Klinikum Rechts der Isar, TU München, München, Deutschland [2] Department of Orthopedic Surgery, Orthoclinic Agatharied, Hausham, Deutschland [3] Sektion Sportorthopädie, Klinikum Rechts der Isar, Technische Universität München, München, Deutschland [4] Abteilung für Sportorthopädie, Klinikum rechts der Isar, Technische Universität München, München, Deutschland

Thema: Osteotomie

Inhalt Englisch

Titel: Osteochondral Autologous Transfer combined with Valgus High Tibial Osteotomy: Preliminary results after 20-year and survivorship analysis

interrogation: Deep osteochondral defects of the medial femoral condyle in young and active patients are a severe condition, which might lead to early osteoarthritis of the knee joint. Concomitant varus malalignment most likely promotes this process due to overloading of the medial compartment. Purpose of this study was the evaluation of long-term results and analysis of survival rates (conversion to knee joint arthroplasty) after combined OAT and valgus HTO in young and active patients with symptomatic osteochondral defects of the medial femoral condyle and concomitant varus malalignment.

methodology: Between 1998 and 2008 combined OAT and valgus HTO was performed in 86 patients with deep osteochondral defects of the medial femoral condyle and concomitant varus malalignment > 2° without ligamentous instability, previous ACL or PCL reconstruction, additional meniscal-repair /-transplantation or general osteoarthritis. 57 patients were available for evaluation (preliminary follow-up rate 77% of 10 year follow up, evaluation ongoing until March 2023). The mean age at surgery was 37 years and the mean follow-up time was 21.4 years (14-25 years). Knee function was assessed using the Lysholm score and pain intensity was measured using the Visual Analogue Scale (VAS). The survival-rates of this combined procedure were evaluated. Failure was defined as conversion to knee joint arthroplasty during the follow-up period.

results and conclusion: Adjusted to follow-up time, the Lysholm score showed a mean increase of 31 points from 40 to 71 ($p < 0.001$) , representing a significant improvement compared to preoperatively. The VAS decreased by a mean of 4.7 points from 7.5 to 2.6 ($p < 0.001$); and 82% of the patients were satisfied with the results of the operation. The survival-rate at follow up was 86% years after surgery.
Combined OAT and valgus HTO are a promising option to treat patients with severe osteochondral defects of the medial femoral condyle and concomitant varus malalignment. Significant improved knee function, decreased pain intensity and a high survival-rate can often be expected after 20 years.

Stichwörter: High tibial osteotomy; HTO; osteochondral autologous transfer; OAT; varus malalignment, osteochondral defect

Erstellt:	28. Mai 2023 10:21:39 MESZ
Bearbeitet:	31. Mai 2023 19:41:54 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
Sonstiges:	Ja, mit diesem Abstract für den Nachwuchswissenschaftspreis bewerben.
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Stephan Oehme
Präsentierender Autor:	Stephan Oehme
Einreichender Autor:	Stephan Oehme
Autorenliste:	Stephan Oehme[1], Danko Milinkovic[1], Janne Callsen[1], Tobias Winkler[2], Torsten Diekhoff[3], Tobias Jung[1]
Institut/e:	[1] Charité Universitätsmedizin Berlin, Germany, Center for Musculoskeletal Surgery, Berlin, Deutschland [2] Charité - Universitätsmedizin Berlin, Centrum für Muskuloskeletale Chirurgie, Berlin Institute of Health, Berlin, Deutschland [3] Charité Universitätsmedizin Berlin, Germany, Department of Radiology, Berlin, Deutschland

Thema: Knorpel und Meniskus

Inhalt Englisch

Titel: Autologous chondrocyte implantation with spheroids combined with autologous bone grafting for treating osteochondral defects of the knee joint - radiological and clinical midterm outcome

interrogation: Osteochondral defects of the knee joint require complex treatment. In recent years, the combination of autologous bone grafting in combination with autologous chondrocyte implantation (ABCI) has become an established procedure for treating osteochondral defects of the knee joint. However, there is a lack of data regarding the postoperative outcome, particularly concerning the relationship between the radiological and clinical outcome.

methodology: 28 patients with ABCI on the femoral condyle (15m, 13f; mean age: 27.3 years, range: 18-55 years, mean follow-up: 3.2 ± 1.8 years, range: 1.1-7.3 years) have been included. The mean chondral lesion size was 3.8 cm2 ± 1.6. 3T magnetic resonance imaging (MRI) was used to evaluate cartilage thickness, T2 relaxation time measurements (T2), and the Magnetic Resonance Observation of Cartilage Repair Tissue 2.0 Knee Score (MOCART 2.0). The functional outcome was assessed with the IKDC score, KOOS Score, Lysholm score, the PROMIS 29 profile v2.0 score, and a patient satisfaction survey.

results and conclusion: All clinical scores showed significant improvement compared to the preoperative condition (IKDC: 54.1 ± 17.8 vs. 71.4 ± 13.0, p<0.01; Lysholm: 60.9 ± 17.7 vs. 71.3 ± 16.3, p<0.01; KOOS ADL: 77.7 ± 16.8 vs. 86.8 ± 14.1, p<0.01; KOOS Pain: 66.1 ± 18.6 vs. 80.1 ± 16.5, p<0.01; KOOS QoL: 39.4 ± 17.6 vs. 52.3 ± 22.6, p<0.01, KOOS Sport/Rec: 45,9 ± 27.8 vs. 63.0 ± 24.2, p<0.01, KOOS Symptoms: 65.4 ± 19.5 vs. 76.2 ± 15.4, p<0.01). The PROMIS 29 profile showed significant improvement in the categories pain intensity (5.2 ± 2.5 vs. 2.9 ± 2.2, p<0.01), physical function (44.0 ± 6.6 vs. 49.0 ± 6.1, p<0.01), pain interference (56.1 ± 6.2 vs. 50.5 ± 7.1, p<0.01) and social roles and activities (49.6 ± 8.0 vs. 53.8 ± 6.7, p=0.01). The patients reported a high satisfaction rate (92.6%). The mean MOCART 2.0 Score was 62.33 ±14.0. In MOCART 2.0 subscores, the volume fill of cartilage defect was 16.47± 3.8 out of 20 points, and integration into adjacent cartilage was 13.45± 3.3 out of 15 points. The mean cartilage thickness (3.3mm ± 0.9 vs. 2.9mm ± 0.5, p=0.07) and T2 (38.1 ± 10.3 vs. 41.3 ± 5.2, p=0.19) showed no significant differences from reference measurements. A high mean cartilage thickness was correlated with a high KOOS Quality of Life score (R 0.42, p=0.03) and a low pain intensity in the PROMIS 29 profile (R -0.39, p=0.04). The combination of autologous bone grafting with autologous chondrocyte implantation with spheroids for the treatment of osteochondral defects of the knee showed a significant improvement in all evaluated subjective scores and a high patient satisfaction rate. Radiological evaluation showed satisfying results with a correlation between cartilage thickness and pain intensity as well as the subjective quality of life.

Stichwörter: Cartilage surgery, autologous chondrocyte implantation

Erstellt:	28. Mai 2023 13:38:09 MESZ
Bearbeitet:	31. Mai 2023 16:55:44 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
Sonstiges:	Ja, mit diesem Abstract für den Nachwuchswissenschaftspreis bewerben.
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Johannes Christian Harmes
Präsentierender Autor:	Johannes Christian Harmes
Einreichender Autor:	Johannes Christian Harmes
Autorenliste:	Johannes Christian Harmes[1], Steffen Timo Ubl[1], Evamaria Koch[1], Bertil Bouillon[1], Daniel Günther[1], Thomas Rudolf Pfeiffer[1]
Institut/e:	[1] Ortho Unfall Sport, Krankenhaus Köln Merheim, Universität Witten/Herdecke, Köln, Deutschland

Thema: Ligamentverletzungen

Inhalt Englisch

Titel: Tibial Static Subluxation measured in MRI is Increased in Patients with Partial Anterior Cruciate Ligament Injury compared to Patients with Intact ACL

interrogation: The extent of rotatory knee instability subsequent to partial injury of the anterior cruciate ligament (ACL) has a significant influence on the treatment. However, quantification of rotatory knee instability is difficult. A potential possibility could be the measurement of the static tibial subluxation (TS) in relation to the femur on Magnetic Resonance Imaging (MRI). Therefore, aim of the study was to compare static subluxation in patients with complete ACL injury, partial ACL injury and intact ACL.

methodology: A retrospective analysis of 1350 patients who underwent surgical treatment of the ACL from 2016 to 2021 was performed. This sample was divided into two groups according to ACL status: partial (p-ACL-I) or complete ACL injury (c-ACL-I). The control group with intact ACL (i-ACL) underwent isolated meniscal surgery and was matched to p-ACL-I considering age, sex and BMI. ACL-status was verified during arthroscopy. Inclusion criteria were arthroscopic surgery at our institution and the availability of preoperative MRI. Sagittal T1-weighted MRI were utilized to measure anterior tibial plateau subluxation relative to the posterior lateral femoral condyle in the medial (MC) and lateral compartment (LC). Measurements were performed by two raters and intraclass correlation coefficients (ICC) were calculated for inter- and intrarater reliability. Pairwise t-test and multivariate logistic regression were used to identify differences between groups with significance set at $p < .05$.

results and conclusion: 136 patients, 30 with p-ACL-I (8 women, 27.9 ± 9.6 years, BMI 26.5 ± 4.6), 82 with c-ACL-I (26 women, 26.9 ± 11.4 years, BMI 25.8 ± 5.4) and 24 with i-ACL (6 women, 34 ± 10.5 years, BMI 27.5 ± 5.2) were included in the final analysis. No significant differences were found regarding age, sex, or BMI within all groups. MC TS was found to be greater ($t(111) = 5.5$; $p < .001$) in c-ACL-I (2.5 ± 0.3mm) compared with p-ACL-I (-0.6 ± 0.5mm). Moreover, LC TS was found to be greater ($t(111) = 7.02$; $p < .001$) in c-ACL-I (6.8 ± 0.4mm) compared with p-ACL-I (1.7 ± 0.5mm). These results were confirmed by regression analysis under consideration of age, sex and BMI ($t = 5,24$, $p < .001$). Mean anterior subluxation of the tibia was greater ($t(23) = -3.1$; $p = .005$) in p-ACL-I (-0.6 ± 0.5mm) compared with ACL-I-K in the MC (-4.1 ± 0.8mm). However, no significant difference ($t(23) = -.77$; $p = .452$) was found in the LC (ACL-I-K: 0.9 ± 0.7mm; p-ACL-I: 1.7 ± 0.5mm). Intra- and Interrater reliability analysis showed good to excellent agreement (ICC = .75 - .90).

MRI measurement of TS could help differentiate between intact ACL and partial ACL injury. Therefore, measurement of TS could be used as an adjunct to dynamic examination to assess knee instability. In particular, medial subluxation measured on MRI may help to identify patients with p-ACL-I with significant instability. However, cut-off values should be determined in further studies.

Stichwörter: MRI, Magnetic Resonance Imaging, ACL, Anterior Cruciate Ligament, Anterior Cruciate Ligament Injury, Complete ACL injury, Partial Anterior Cruciate Ligament Injury, Tibial static subluxation, Tibial subluxation, Rotational instability, Knee

Erstellt:	28. Mai 2023 17:35:50 MESZ
Bearbeitet:	31. Mai 2023 09:36:09 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Celine Mai
Präsentierender Autor:	Celine Mai
Einreichender Autor:	Philip P. Roessler
Autorenliste:	Celine Mai[1], Patrick Mai[2], Maximilian Hinz[3], Romain Seil[4], Thomas Tischer[5], Philip P. Roessler[6]
Institut/e:	[1] Klinik und Poliklinik für Orthopädie und Unfallchirurgie, Bonn, Deutschland [2] Department of Physical Performance, Norwegian School of Sport Sciences, Oslo, Norwegen [3] Sektion für Sportorthopädie, Technische Universität München, München, Deutschland [4] Orthopédie, Centre Hospitalier de Luxembourg, Luxemburg, Luxemburg [5] Universitätsmedizin Rostock, Orthopädische Klinik und Poliklinik, Rostock, Deutschland [6] Gelenkzentrum Mittelrhein, Koblenz, Deutschland

Thema:	Knorpel und Meniskus

Inhalt Englisch

Titel:	Gender Differences in Postoperative Outcomes of Meniscus Surgery - Data Analysis from the German Arthroscopy Registry (DART)
interrogation:	Historically, gender differences have been largely neglected in arthroscopic surgery. However, with increasing knowledge regarding the impact of sex and individual anatomy on injury patterns and rehabilitation, there has been a gradual shift in understanding the importance of gender-specific approaches to a variety of treatments. In light of this, the primary aim of this study was to investigate how gender affects patient-reported outcome measurements (PROMs) following meniscal surgery.
methodology:	Based on data from the German Arthroscopy Registry (DART), a retrospective cohort study design was employed, involving patients who had undergone meniscal surgery between 2017 and 2023. PROMs were assessed at various time points: before the surgery (baseline) and at 6, 12, and 24 months after the surgery, if applicable. The collected data were analyzed to compare male and female patients in terms of pre-existing conditions, types of meniscal lesions, surgical treatments, and PROMs, including the Knee Injury and Osteoarthritis Outcome Score (KOOS), the European Quality of Life Scale (EQ), and the Marx Activity Rating Scale (MARX).
results and conclusion:	A total of 818 female (35.4%) and 1495 male patients (64.5%) werde included in the study. Males were older than females (p< .05), but there were no significant differences in BMI, body mass, and symptom duration (p >.05). Females had higher rates of pre-existing diseases (e.g., thyroid disease, depression, asthma). Chondroplasty was the most commonly performed concomitant procedure for both genders, but more prevalent in females (p<.05). Females showed significantly more lateral degenerative meniscus lesions, while males showed more traumatic lateral meniscus lesions (p< .05). Frequencies of medial traumatic and degenerative lesions were similar (p >.05). Males had greater improvements in PROMs, such as higher absolute KOOS scores regardless of treatment or lesion type. Both genders improved in KOOS scores up to 12 months post-surgery (p< .05). Meniscus suture showed similar improvements in KOOS for both genders (p >.05), while meniscus resection resulted in higher absolute KOOS scores for males (p<.05) in the given timeframe. Males with traumatic lesions showed improvements in KOOS after 12 months (p< .05), while females did not (p >.05). Females with degenerative lesions showed continued improvements in KOOS beyond 6 months (p< .05), while males did not (p >.05). Males generally had higher EQ and MARX scores, with both genders improving at 6 months post-surgery (p<.05). Males continued to improve in MARX up to 12 months (p< .05), while females did not (p >.05). The present study highlights gender differences in meniscal lesion types, treatment, pre-existing conditions, and postoperative outcomes. Specialist surgeons should consider these differences in the development of treatment plans for meniscal injuries. Longer observational timeframes are needed to deepen understanding and optimize treatment strategies accordingly.
Stichwörter:	Meniscus; Registry; Gender; Arthroscopy; Patient-reported Outcome Measurement

Erstellt:	28. Mai 2023 18:25:34 MESZ
Bearbeitet:	28. Mai 2023 18:49:48 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Svenja Höger
Präsentierender Autor:	Svenja Höger
Einreichender Autor:	Svenja Höger
Autorenliste:	Svenja Höger[1], Jose Sanchez-Carbonel[1], Philipp Winkler[1], Phillip Schulz[1], Sebastian Siebenlist[1], Lucca Lacheta[1], Maximilian Hinz[1]
Institut/e:	[1] Sektion Sportorthopädie, Klinikum rechts der Isar, TU München, München, Deutschland

Thema: Sonstiges

Inhalt Englisch

Titel: Preliminary validation of a scale to measure the psychological readiness to return to sport following proximal hamstring tears

interrogation: The purpose of this study was to validate the existing Anterior Cruciate Ligament-Return to Sport after Injury (ACL-RSI) scale that measures the psychological readiness to return to sport for proximal hamstring tendon (PHT) tears. It was hypothesized that the PHT-RSI scale is a valid scale to measure athletes' emotions, confidence and risk appraisal when returning to sports after both non-operative or operative treatment of PHT tears.

methodology: Thirty-two participants who had undergone conservative or operative treatment of PHT tears who completed the PHT-RSI scale between 28- and 155-months following injury were included. Participants were assessed clinically with functional scores (PHT-RSI, Perth Hamstring Assessment Tool [PHAT], Lower Extremity Functional Scale [LEFS], EuroQol-5 Dimensions-5 Levels [EQ-5D-5L], [Modified] Harris Hip Score [mHHS], Tegner activity scale), visual analog scale (VAS) for pain, and instrumentally with Isobex digital strength analyzer. The internal consistency of the PHT-RSI scale was assessed using Cronbach's alpha. The ability to discriminate between patients who returned to sport and those who had not returned to sport was assessed using the Mann-Whitney U test.

results and conclusion: The PHT-RSI Score was shown to have excellent reliability for patients after non-operatively and operatively treated PHT tears (Cronbach's alpha = 0.99, resp.). Participants who did not return to previous sports levels scored significantly lower on the scale than those who had returned or were planning to return to sport ($p<0.05$).

This study demonstrated that the PHT-RSI scale is a valid tool for evaluating the psychological readiness for return to sports after both non-operatively and operative treatment of PHT tears. The PHT-RSI offers a standardized and objective guideline for both surgeons and athletes to determine when it is safe to resume sports activities following a PHT tear.

Stichwörter: proximal hamstring tendon, hamstrings, tear, avulsion, return to sports, RSI

Erstellt:	28. Mai 2023 18:51:43 MESZ
Bearbeitet:	29. Mai 2023 20:03:39 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Svenja Höger
Präsentierender Autor:	Svenja Höger
Einreichender Autor:	Svenja Höger
Autorenliste:	Svenja Höger[1], Armin Runer[1], Marco-Christopher Rupp[1], Jonas Pogorzelski[1], Maximilian Hinz[1], Matthias Cotic[1], Sebastian Siebenlist[1], Andreas B. Imhoff[1]
Institut/e:	[1] Sektion Sportorthopädie, Klinikum rechts der Isar, TU München, München, Deutschland

Thema: Endoprothetik

Inhalt Englisch

Titel: New trochlear implant for patellofemoral osteoarthritis with an enlarged, lateral expression eligible for patients with patellofemoral malalignment

interrogation: To prospectively evaluate clinical, radiological, and sports-related outcomes after isolated patellofemoral inlay resurfacing (PFIR) using a new trochlear implant with an enlarged, lateral expression for the treatment of patellofemoral osteoarthritis (PFOA) and eligible for patients with patellofemoral malalignment.

methodology: Consecutive patients who underwent patellofemoral arthroplasty (Hemi-CAP Kahuna Prosthesis [Arthrosurface, Franklin, MA, USA]) for the treatment of PFOA between 01/2017 and 07/2020 were eligible for participation. Patients were evaluated preoperatively and at a minimum of 24 months postoperatively. Patient-reported outcome measures included the Western Ontario and McMaster Universities Arthritis Index (WOMAC), Visual Analog Scale (VAS) for pain and Tegner Activity Scale. Pre- to postoperative changes in tibiofemoral osteoarthritis and patellar height were assessed using Kellgren-Lawrence grading and Caton-Deschamps Index.

results and conclusion: 18 patients (19 knees) were available 28±9 months postoperatively. Significant improvements in WOMAC (55.8 ± 16.0 to 77.2 ± 17.0; $p<0.001$) and in VAS for pain score (6.1 ± 2.3 to 2.7 ± 2.1; $p<0.001$) were seen in the patient cohort. Patients were able to return to their preoperative sporting activity level (Tegner Activity Scale: 2.5 ± 1.3 to 3.1 ± 1.3, $p=0.1$). No significant progression of tibiofemoral OA or changes in patellar height were observed. One patient (5.3%) required revision surgery due to aseptic component loosening.

PFIR using a new trochlear implant with an enlarged, lateral expression demonstrated significant improvements in knee function and pain relief in patients with patellofemoral malalignment. Patients returned to same level of sports activity 24 months after surgery. Progression of tibiofemoral arthritis and complications are low.

Stichwörter: Inlay; Knee; Patellofemoral; Patellofemoral arthroplasty; Patellofemoral osteoarthritis; Patellofemoral resurfacing; Retropatellar resurfacing; Trochlea; KAHUNA prosthesis

Erstellt:	29. Mai 2023 12:20:23 MESZ
Bearbeitet:	31. Mai 2023 10:03:27 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Maximilian Müller
Präsentierender Autor:	Maximilian Müller
Einreichender Autor:	Maximilian Müller
Autorenliste:	Maximilian Müller[1], Oliver Tenfelde[2], Jürgen Höher[2], Nico Hinz[1], Lena Eggeling[1], Stefan Breer[1], Tobias Drenck[1], Karl-Heinz Frosch[3], Ralph Akoto[4]
Institut/e:	[1] BG Klinikum Hamburg, Hamburg, Deutschland [2] Sportsclinic Cologne, Klinikum Köln-Merheim, Universität Witten/Herdecke, Köln, Deutschland [3] BG Klinikum Hamburg, Universitätsklinikum Hamburg-Eppendorf , Hamburg, Deutschland [4] BG Klinikum Hamburg, Universität Witten/ Herdecke, Klinikum Köln-Merheim, Hamburg, Deutschland

Thema: Ligamentverletzungen

Inhalt Englisch

Titel: Fluoroscopically controlled femoral tunnel positioning for precise anterior cruciate ligament reconstruction

interrogation: Malpositioning of the femoral tunnel is one of the most common reasons for failure of anterior cruciate ligament reconstruction (ACLR). There is evidence for an increased risk of nonanatomic tunnel positioning by less experienced surgeons. Intraoperative fluoroscopic control is a simple method to improve the precision of tunnel placement.

The purpose of this study is to investigate wether low-volume surgeons can achieve precise femoral tunnel placement under fluoroscopic control similar to experienced mid- and high-volume surgeons.

methodology: This study retrospectively included 126 randomly selected patients, who underwent primary ACLR in 2020-2022 and were prospectively enrolled in an in-clinic registry.
3 groups were defined:
- high-volume surgeon (>100 ACLRs/year) n= 53
- mid-volume surgeon (<50 ACLRs/year) n= 53
- low-volume surgeon (0-10 ACLRs/year) n= 20

The analysis of the femoral tunnel position was performed on the basis of the fluoroscopic images by determining the depth relation (DR) and height relation (HR) according to the quadrant method of Bernard and Hertel. The app "ACL-X" was used for the geometric measurements. The precision of the tunnel positioning was rated excellent with a standard deviation (SD) in DR/HR of 3.3%/6.0% (≈ 1.5mm), high with 4.3%/8% (≈2mm) and moderate with 5.4%/10% (≈2.5mm).

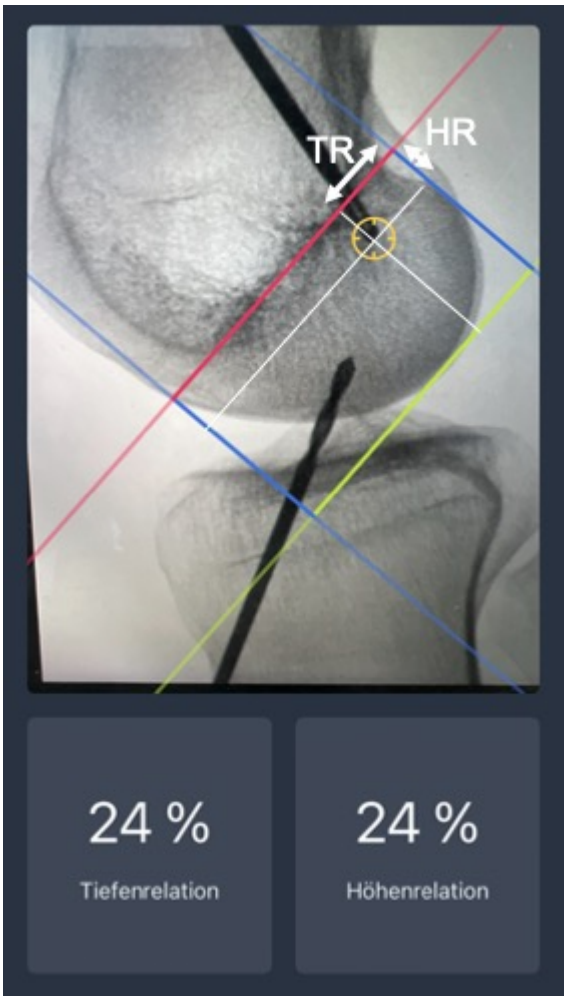


Fig. 1 Analysis of the DR and HR with the app "ACL-X"

results and conclusion:

The femoral tunnel positions of all included patients averaged 28.5% in DR and 17.14% in HR. All groups achieved high precision of femoral tunnel placement (SD DR: 3.5%≈ 1.62mm, HR: 5.76%≈ 1.44mm). The variances of the tunnel placements did not show significant differences between the 3 groups (Brown-Forsythe test, Pr>F: DR/HR 0.986/0.064; p=0.05). The precision of the high-volume surgeon (SD DR/HR 3.29%/4.96%) was almost identical compared with the low-volume surgeon (SD DR/HR 3.38%/4.74%), being slightly higher than the precision of the mid-volume surgeon (SD DR/HR 3.62%/6.35%).

	depth relation	**height relation**
high-volume surgeon n=53	29,21% SD=3,29%	15,38% SD=4,96%
mid-volume surgeon n=53	27,42% SD=3,62%	19,02% SD=6,35%
low-volume surgeon n=20	27,95% SD= 3,38%	16,85% SD=4,74%

Tab. 1: Mean and SD of the DR and HR divided into the 3 groups high-, mid- and low-volume surgeon

Conclusion
The fluoroscopically controlled tunnel placement results in high precision of femoral tunnel positioning, regardless of the surgeon's experience. Especially for surgeons with low case numbers, intraoperative fluoroscopic control is a simple way to improve the quality of care.

Stichwörter: anterior cruciate ligament reconstruction, femoral tunnel position, quadrant method, ACL-X

Erstellt:	29. Mai 2023 20:08:19 MESZ
Bearbeitet:	30. Mai 2023 02:57:24 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Svenja Höger
Präsentierender Autor:	Svenja Höger
Einreichender Autor:	Svenja Höger
Autorenliste:	Svenja Höger[1], Carla Barone[1], Julian Mehl[1], Sebastian Siebenlist[1], Armin Runer[1]
Institut/e:	[1] Sektion Sportorthopädie, Klinikum rechts der Isar, TU München, München, Deutschland

Thema: Sonstiges

Inhalt Englisch

Titel: Can patients recall their preoperative sports activity level 1, 5, and 10 years after surgery?

interrogation: The purpose of this study was to examine the ability of patients to recall their preoperative activity level measured using the Tegner Activity Score at one, five and ten years postoperatively. Is has been hypothesized, that patients can accurately recall their preoperative Tegner Activity Level (TAL).

methodology: Three groups of 20 patients with one, five and ten years of follow-up, respectively, were included in this study. Preoperative TAL was collected from all patients at time of surgery. At follow-up, all patients were asked to state their preoperative TAL again. Preoperatively and retrospectively obtained scores were compared using Wilcoxon rank-sum tests.

results and conclusion: There were no significant differences between the patients' retrospective TAL assessments and their preoperative self-reported TAL at one year and five years postoperatively but a statistically significant difference was observed after ten years (p=0.02). Among all patients, 55% (n=33) were able to recall their preoperative activity level accurately whereas 35% (n=21) and 10% (n=6) missed their preoperatively collected score by one and two points, respectively.

Patients are capable of accurately recalling their preoperative TAL after one and five years, but not after 10 years. This finding suggests that it is possible to obtain reliable pre-operative TAL from patients up to five years after surgery.

Stichwörter: patient reported outcomes, retrospective data collection, activity level, Tegner, postoperative

Erstellt:	29. Mai 2023 20:36:33 MESZ
Bearbeitet:	30. Mai 2023 18:04:50 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Armin Runer
Präsentierender Autor:	Armin Runer
Einreichender Autor:	Armin Runer
Autorenliste:	Armin Runer[1], Amit Meena[2], Guido Wierer[2], Elisabeth Abermann[2], Mirco Herbort[3], Christian Hoser[2], Christian Fink[2]
Institut/e:	[1] Sektion Sportortopädie, München, Deutschland [2] Gelenkpunkt - Sport- und Gelenkchirurgie, Innsbruck , Österreich [3] OCM Klinik München, München, Deutschland

Thema: Ligamentverletzungen

Inhalt Englisch

Titel: Bone- vs. Soft-tissue Quadriceps Tendon Autograft for Anterior Cruciate Ligament Reconstruction

interrogation: To compare patient reported outcome measurements (PROMs) and reoperation rates in patients treated with soft tissue quadriceps tendon autograft (S-QT) or quadriceps tendon autograft with bone block (B-QT) in anterior cruciate ligament reconstruction (ACL-R).

methodology: All ACL-Rs performed between January 2010 and December 2020 at a single specialized orthopaedic center were recorded in a prospectively administered Microsoft (MS) Access-based database. Patient-administered questionnaires including Visual Analogue Scale (VAS) for pain, Lysholm score and Tegner activity score were obtained preoperatively and at 6, 12 and 24 months postoperative as revision- and contralateral ACL-R were recorded. Preinjury physical activity level was measured with the Tegner Activity Scale and classified as low (< 3), medium (4 - 6), and high (>6). All patients were grouped into 4 age categories: < 15, 15-30, 31-45, >45 years. Besides ACL graft ruptures, concomitant injuries to cartilage and menisci were recorded.
Binary logistic regression was used to assess the influence of the following factors on the need to undergo revision surgery or ACLR on the contralateral limb: graft preparation technique, age group, preinjury Tegner activity level, sex, and additional surgical interventions. Additional Mann-Whitney U- and chi-square test were used for between group comparison.

results and conclusion: A total of 556 patients (45.6% female) with primary QT-A ACLR were included in the study. Out of those 49.5% (n=347) where treated with B-QT and 50.5% (n=345) with S-QT. Mean age was 29.1 ± 13.0 and 31.4 ± 12.2 (p=.04), respectively. Both groups did not differ preoperatively with regards to gender, sports activity level, time from injury to surgery or additionally performed interventions.
At final follow-up no statistical differences between both groups were observed in VAS for pain (median [range] B-QT: 0 [0-6]; S-QT: 0 [0-8] , Lysholm score (B-QT-BB: 87.5±20.9; S-QT: 88.2±17.6), Tegner activity level (median [range] B-QT: 6 [2-10]; S-QT: 6 [1-10]) and rate of return to preinjury Tegner activity level (B-QT: 67.6%; S-QT-ST: 67.2%).
Revision surgery- (B-QT: s2.8%, n=3; S-QT: 2.9%, n=3) or contralateral ACL reconstructions rates (B-QT: 2.8%, n=7; S-QT: 3.9, n=9) did not different between both groups.
Neither graft type, age, preinjury Tegner activity score, sex, age or additional surgical interventions had a significant value in predicting the need for revision- or contralateral ACL surgery.

Conclusion: There is no statistically significant difference in patient-reported outcome measurements, revision- or contralateral surgery between patients treated with bone- quadriceps tendon or soft-tissue-quadriceps tendon autograft. Neither graft type, age at time of surgery, preinjury Tegner activity level, sex or additional surgical interventions had a significant value in predicting the need for revision- or contralateral ACL surgery.

Stichwörter: ACL; quadriceps tendon; bone block; soft-tissue; knee instability

Erstellt:	29. Mai 2023 21:40:16 MESZ
Bearbeitet:	30. Mai 2023 08:48:05 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Markus Bormann
Präsentierender Autor:	Markus Bormann
Einreichender Autor:	Markus Bormann
Autorenliste:	Markus Bormann[1], David Bitschi[1], Claas Neidlein[1], Daniel Berthold[1], Wolfgang Böcker[1], Boris Holzapfel[1], Julian Fürmetz[2]
Institut/e:	[1] MUM - Muskuloskelettales Universitätszentrum München, München, Deutschland [2] BG Klinikum Murnau , Sporttraumatologie und Arthroskopische Chirurgie, Murnau am Staffelsee, Deutschland

Thema: Frakturen

Inhalt Englisch

Titel: Mismatch between clinical-functional and radiological outcome in tibial plateau fractures: A retrospective study

interrogation: The evaluation of tibial plateau fractures (TPF) encompasses the assessment of clinical-functional and radiological parameters. In 1970, Rasmussen et al. described a clinical-functional as well as a radiological outcome score (based on x-rays). Both scores are still used in the literature today.
This study compares short/mid-term clinical functional and radiological outcome of surgically treated intra-articular TPF.

methodology: In this retrospective monocentric, study conducted at a German level-I-trauma center, patients who underwent surgery between 01/2014 and 12/2020 due to a intraarticular TPF were included. Epidemiological data and information on treatment strategy were obtained from the hospital's internal documentation system. Postoperative rehabilitation was performed in the same standardized procedure. Based on the available preoperative CT imaging, classification according to Schatzker, AO and Moore was performed. Patients were invited to a voluntary follow-up examination (not earlier than 18 months postoperatively). A standardised questionnaire was used to determine the clinical-functional Rasmussen score before injury, one year postoperatively and at the time of voluntary follow-up. Additionally, the modified radiological Rasmussen Score was determined at the 1-year postoperative mark using conventional radiographs in two planes.

results and conclusion: A total of 50 patients were included in this study, comprising 40% (n=20) men and 60% (n=30) women, with an average age of 47 (±11.8) years. Among them, 52% (n=26) had simple fractures (classified according to Schatzker I-III), while 48% (n=24) had complex fractures (Schatzker IV-VI). A strictly arthroscopic treatment was performed in 6% (n=3), while 94% (n=47) were treated with ORIF (possibly with fracturoscopy). In 36% (n=18), additional refixation of ligamentous structures and/or meniscal suturing was performed. The mean follow-up was 3.9 (±1.6) years. The functional Rasmussen score, assessed before the injury and at follow-up, showed an "excellent" average result. However, there was a significant difference in the values of complex fractures compared to before the injury. One year postoperatively, both the clinical-functional score and the modified radiological score demonstrated a "good" average result. There was no agreement between the categories in both scores in 66% of the cases. The "excellent" category was significant more frequently observed in the functional score, while the "fair" category was more common in the radiological score.
The data from this retrospective study demonstrated that patients with TPF are able to achieve a nearly equivalent functional level in the mid term after a prolonged recovery period, comparable to their pre-injury state. However, it is important to note that the correlation between clinical-functional and radiological parameters is limited. In order to create a prospective outcome score, the complex joint injury TPF should therefore not be reduced exclusively to bony parameters.

Stichwörter: tibial plateau fracture (TPF), Rasmussen score, clinical outcomes, radiological outcomes

Erstellt:	29. Mai 2023 23:22:37 MESZ
Bearbeitet:	31. Mai 2023 22:51:25 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Jürgen Jürgen Höher
Präsentierender Autor:	Jürgen Jürgen Höher
Einreichender Autor:	Jürgen Höher
Autorenliste:	Jürgen Jürgen Höher[1], Dale Stranzenbach-Swart[2], Hendrik Kohlhof[3]
Institut/e:	[1] SPORTSCLINIC COLOGNE, Köln, Deutschland [2] Praxis für Sporttraumatologie , SPORTSCLINIC COLOGNE, Köln, Deutschland [3] St. Antonius Krankenhaus , Köln, Deutschland

Thema: Knorpel und Meniskus

Inhalt Englisch

Titel: Artificial Meniscal substitution may not serve as a viable therapeutic option in medial postmeniscectomy patients

interrogation: A synthetic interpositional meniscal substitute (Nusurface, Active Implants) was designed to serve as a therapeutic option to delay the necessity for partial or total knee replacement in early osteoarthritis of the medial compartment in a middle aged patient. The aim of the study was to follow the fate of the first series of consecutive patients using this novel approach

methodology: From January 2021 to July 2022 17 patients (M/F 5/12, age 56,9+-7,5, BMI 28,6+-3,9) were operated on in one institution. Routine preoperative patient selection included MRI evaluation by an independent radiologist, physical examination and Rosenberg views. Surgery time was 77 min +-18min and included arthroscopic total meniscectomy, followed by insertion of the implants via medial arthrotomy. In 10 patients MCL needling was necessary for arthroscopic evaluation.
Full weight bearing with crutches was normally achieved within 3- 6 weeks.

results and conclusion: There were no perioperative complications in all patients. In 6 patients the implant dislocated once and required revision. In 10 patients the implant ruptured and required removal and replacement of the implant. 10 patients required unicompartimental knee replacement as a definite procedure within the study period.

Although preliminary results were promising due to a high rate of rupture of the implant before 2 years of implantation this approach should be used with caution and thorough informed consent with the patient before surgery is strongly recommended.

Stichwörter: artificial meniscus, interpositional device, early osteoarthritis

Erstellt:	30. Mai 2023 06:49:06 MESZ
Bearbeitet:	30. Mai 2023 20:03:32 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Michael Worlicek
Präsentierender Autor:	Michael Worlicek
Einreichender Autor:	Jakob Hax
Autorenliste:	Michael Worlicek[1], Louis Leuthard[1], Stefan Preiss[1], Gregor Baumann[1], Vincent Stadelmann[1], Jakob Hax[1]
Institut/e:	[1] Schulthess Klinik, Zürich, Schweiz

Thema: Endoprothetik

Inhalt Englisch

Titel: Comparable clinical-radiological results after total knee arthroplasty using the ROSA Knee System compared to the conventional technique - a retrospective propensity-matched cohort study

interrogation: The aim of a total knee arthroplasty (TKA) is to restore the knee kinematics to the most physiological state possible. However, the conventional implantation technique (cTKA) can sometimes lead to deviations in accuracy with potentially poorer clinical results. Robot-assisted arthroplasty (RA-TKA) is becoming increasingly important for optimising accuracy. Robotic systems such as the ROSA Knee System (Zimmer Biomet, Warsaw, Indiana) should help to restore knee kinematics with high accuracy. The aim of this study is to evaluate clinical and radiological results of the ROSA system and to compare it to a cTKA group.

methodology: A retrospective propensity-matched cohort study was conducted between 2 groups after RA-TKA and cTKA. Inclusion of patients from the prosthesis register of the Schulthess Clinic Zurich (period RA-TKA: 2021-2022, cTKA: 2016-2020) with complete clinical (Oxford Knee Score, OKS) and radiological data sets. All operations were performed by one experienced surgeon (>200 prostheses/year). The groups were matched 1:1 according to age, sex, ASA class, BMI and OKS-preoperative. On the one hand, radiological evaluation of the achieved implant angles (varus/valgus femoral (alpha) and tibial (beta), femoral flexion (gamma), tibial slope (phi)) in the RA-TKA group compared to the preset angles in the ROSA system. On the other hand, to perform a matched-pair analysis RA-TKA vs. cTKA of the mentioned radiological parameters as well as OKS (preoperative, 6, 12 months postoperative).

results and conclusion: Total inclusion of 60 patients (RA-TKA n=30, cTKA n=30), female RA-TKA 63% (n=19) and cTKA 50% (n=15). According to matching, equal distribution of age (mean: 67 years), BMI (RA-TKA 27.4, cTKA 28.7 kg/m2) and ASA class. The mean preoperative OKS was 22 points in both groups. At 12 months postoperatively, there was an equal increase in both groups (RA-TKA 45.0, cTKA 44.5) with no significant difference ($p = 0.3$). Radiologically, there was a correlation between RA-TKA implant angles measured 6 weeks postoperatively and the preset ROSA system angles for alpha and beta. No correlation for gamma and phi. In the comparison of both groups, there was no significant difference with regard to alpha, beta and gamma. Only phi (mean: RA-TKA 6.2°, cTKA 7.35°) showed a significant difference ($p < 0.001$).

With regard to clinical and radiological results, no relevant difference was found between RA-TKA and cTKA. A higher accuracy of the preset angles in the ROSA system could be demonstrated for the ap-plane than for the slope. The accuracy of ROSA is comparable to the results of a high-performance surgeon. Thus, the ROSA knee system might be a reliable device especially for less experienced surgeons. Studies with long-term results are necessary to demonstrate a clear superiority of a method.

Stichwörter: knee; TKA; ROSA; robotics

Erstellt:	30. Mai 2023 09:04:28 MESZ
Bearbeitet:	30. Mai 2023 09:24:14 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
Sonstiges:	Ja, mit diesem Abstract für den Nachwuchswissenschaftspreis bewerben.
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Jonas Eck
Präsentierender Autor:	Jonas Eck
Einreichender Autor:	Jonas Eck
Autorenliste:	Jonas Eck[1], Jeanette Köppe[2], Michael Johannes Raschke[3], Elmar Herbst[4], Christoph Kittl[1], Johannes Glasbrenner[4]
Institut/e:	[1] Klinik für Unfall-, Hand und Wiederherstellungschirurgie, Universitätsklinikum Münster, Münster, Deutschland [2] Institut für klinische Forschung und Biometrie, Westfälische-Wilhelms Universität Münster, Münster, Deutschland [3] Universitätsklinikum Münster, Klinik für Unfall-, Hand- und Wiederherstellungschirurgie, Albert-Schweitzer-Campus 1, Münster, Deutschland [4] Klinik für Unfall-, Hand- und Wiederherstellungschirurgie, Universitätsklinikum Münster, Münster, Deutschland

Thema:	Ligamentverletzungen

Inhalt Englisch

Titel:	Posterior tibial slope is an individual risk factor for the occurrence of recurrent instability after ACL repair
interrogation:	The risk of recurrent instability after ACL repair is stated as up to 30% in the first five postoperative years. The aim of the present study was to investigate the correlation between posterior tibial slope (PTS) and the occurrence of recurrent instability after ACL repair. We hypothesized that an increased PTS would lead to an increased risk of recurrent instability.
methodology:	Prospectively collected data of 167 patients, who underwent ACL repair by dynamic intraligamentary stabilization (DIS) (Mathys, Switzerland) between 2013 and 2017 were retrospectively analyzed. The median observation time of the cohort was 60.9 months (IQR: 60.5 - 61.2). PTS was determined using the Bonnin and Dejour technique in preoperatively obtained lateral X-rays. The association between PTS and the occurrence of recurrent instability was analyzed by multivariable Cox regression with backward selection, including age, sex, BMI, preinjury Tegner score, smoking [yes/no], and intraoperative rupture classification as risk factors. A power analysis a priori had shown that with a significance level of 5% and the inclusion of 150 cases (standard deviation (SD) of PTS of 3.6°), a hazard ratio (HR) of 1.13 can be proven with a power of 1-ß = 83.9%.
results and conclusion:	The mean PTS of the total cohort was 10.9 degrees (SD 3.5°). Recurrence instability occurred in 28% of cases up to five years postoperatively. The PTS was observed as an individual risk factor for the occurrence of recurrent instability after ACL repair ($p < 0.001$), with a PTS of 12.7° determined as a critical value in the ROC analysis (HR 3.3). There was also a statistically noticeable association between the occurrence of recurrent instability after ACL repair and patient age ($p < 0.01$; HR 2.7 for age </= 25 years), rupture location ($p < 0.01$; HR 4.5 for non-femoral ACL rupture), and a trend without statistical significance for Tegner score ($p = 0.06$; HR 1.7 for Tegner >/= 5). Conclusion: Patients selection is an important factor for favorable outcome of ACL repair: in addition to patient's age, activity level and rupture pattern, posterior tibial slope in lateral standard X-ray should be included in the individual risk analysis.
Stichwörter:	ACL repair, posterior tibial slope, recurrent instability

Erstellt:	30. Mai 2023 10:22:03 MESZ
Bearbeitet:	31. Mai 2023 22:32:58 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Werner Labarre
Präsentierender Autor:	Werner Labarre
Einreichender Autor:	Werner Labarre
Autorenliste:	Werner Labarre[1], Gerald Zimmermann[1]
Institut/e:	[1] Theresienkrankenhaus und St. Hedwig-Klinik gGmbH, Mannheim, Deutschland

Thema:	Knorpel und Meniskus

Inhalt Englisch

Titel:	Adipose tissue preparations for applications to the Hoffa's Fat Pad in patients with cartilage damage of the knee - Concept and first experiences

interrogation:	Among the many treatment options for gonarthrosis, stem cell-based therapy is an area of growing interest. The number of publications in PUBMED has increased considerably. However, there are still only a few clinical studies available, which ultimately do not allow a final assessment of the therapeutic success. The production of stem cells and their application is done with different systems and also the application is very different. From autologous to allogeneic, with and without concentration, in combination with autologous plasma, with minor (e.g. mechanical) or major (e.g. enzymatic) manipulation or only intraoperatively with matrix. De facto, there is currently no approved drug ATMP (Advanced Therapy Medicinal Product)in Germany that allows treatment with allogeneic MSCs (Mesenchymal Stem Cells). Autologous stem cells are technically easier to obtain from the patient's fat than from bone marrow and have a higher concentration of relevant cells. While the use of laboratory-expanded stem cells classified as ATMP is strictly regulated in Europe, the stromal-vascular fraction (SVF) can be harvested from adipose tissue by minimal manipulation. The aim of this work was to present first experiences in the therapy of cartilage damage with SVF in the context of a pilot study.
methodology:	A total of 42 knees were treated with SVF and clinical follow-up was performed by repeated surveys of KOOS and VAS over one year. The number of injected cells and their viability was measured with a cell counter. Furthermore, a correlation between the number of injected cells and the number of injected cells was sought for a varying number of injected cells.
results and conclusion:	The number of publications dealing with this topic has increased significantly in recent years. Recent systematic reviews and meta-analyses conclude that treatment with MSC (Mesenchymal Stem Cells) is beneficial. Our own clinical results showed on average a significant clinical improvement in all subscores of the KOOS as well as the VAS. A significant correlation between the number of injected cells and the subscores ADL (activities of daily living) and QOL (quality of life) was observed. Therapy of gonarthrosis with SVF is a promising method with growing evidence. It is likely that the effectiveness of the therapy can be further increased by improving the current methods. Furthermore, the application and further development is hampered by the strong regulation of the European Medicines Agency.

Stichwörter:	MSC, cell therapy, ADSC, osteoarthritis, cartilage therapy, SVF

Erstellt:	30. Mai 2023 11:26:59 MESZ
Bearbeitet:	31. Mai 2023 22:28:10 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Peter Grathwol
Präsentierender Autor:	Peter Grathwol
Einreichender Autor:	Werner Labarre
Autorenliste:	Peter Grathwol[1], Werner Labarre[1], Gerald Zimmermann[1]
Institut/e:	[1] Theresienkrankenhaus und St. Hedwig-Klinik gGmbH, Mannheim, Deutschland

Thema: Sonstiges

Inhalt Englisch

Titel: Method for identifications of CD271bright and CD45dim MSCs in human bone -marrow concentrate

interrogation: Regenerative cell therapy is increasingly present in treating cartilage damage and osteoarthritis worldwide. Several studies about the use of cultured MSCs are available, but little is known about the use of minimally manipulated cells like bone marrow aspirate or stromal-vascular fraction from adipose tissue. Due to the immensely high costs involved with the cultivation of MSCs and strict governmental restrictions, minimally manipulated cells are highly interesting for the European market. Currently, only permissions for homogenous use are available in Germany, allowing the use of bone marrow aspirates to treat pseudoarthrosis but not for intraarticular injection. We had promising results in the application of stromal-vascular fraction (SVF) from adipose tissue in Hoffa's fat pad of the knee in patients with cartilage damage. The next logical step to establish regenerative cell therapy in Germany has to be the heterogeneous application. For this purpose, the cell products must be qualified as "advanced medical products," whereby it is essential to prove the consistent quality of the cell product. The study aims to demonstrate a constant proportion of the target cell population in the bone marrow concentrate and to design a stable experiment that a clinician can perform without requiring huge laboratory capacities. Several Studies have shown that CD45-/low CD271bright (CD271) cell populations represents the candidate BM-MSC population in vivo.

methodology: BMA (bone-marrow aspirate) was obtained from the proximal or distal femur or proximal tibia during elective knee or hip arthroplasty. After collection, density gradient centrifugation was used using a RegenExtracell tube (RegenLab, Brooklyn, NY, USA). The number of cells was determined using a nucleocounter. Then a positive selection for CD 271+ cells was performed using magnetic cell separation. In the next step, cell subsets were identified as CD271bright cells (CD45-/low CD271bright) and CD45bright cells. The population size was expressed as a percentage of the total population

results and conclusion: A total of 19 samples were taken from 12 patients. The percentage of CD271bright CD45-/low cells varied between 0.001 and 0.174451, with a median of 0.03 and a standard deviation of 0.06. The method showed reliable results. The variance in concentration of CD271bright CD45-/low cells was within the presumed range. The method is suitable for acquiring a larger dataset and adequate to obtain a more significant amount of data based on which further predictors for the proportion of the target population in BMA can be identified. Compared to stromal-vascular fraction from adipose tissue, the proportion of progenitor cells in bone marrow aspirates is very low. Clinical application studies should observe whether the number of progenitor cells can adequately correlate with the clinical outcomes.

Stichwörter: MSC, BMA, Cell therapy, osteoarthritis

Erstellt:	30. Mai 2023 12:39:46 MESZ
Bearbeitet:	31. Mai 2023 16:13:30 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Florian Wolf
Präsentierender Autor:	Florian Wolf
Einreichender Autor:	Florian Wolf
Autorenliste:	Florian Wolf[1], Fuhuan Chen[2], Kirsi Manz[3], Julian Fürmetz[4], Sebastian Gonser[1], Peter H. Thaller[1]
Institut/e:	[1] 3D-Chirurgie, Muskuloskelettales Universitätszentrum München (MUM), LMU Klinikum, München, Deutschland [2] Chinese Academy of Medical Sciences , Peking Union Medical College, Bejing, China, Volksrepublik [3] Institut für Medizinische Informationsverarbeitung , Biometrie und Epidemiologie (IBE), München, Deutschland [4] Sporttraumatologie und Arthroskopische Chirurgie, BG Unfallklinik Murnau, Murnau, Deutschland

Thema: Osteotomie

Inhalt Englisch

Titel: Patella position for quality assessment of long leg standing radiographs: A retrospective study of 741 cases

interrogation: Leg alignement should be evaluated by analysis of a long leg standing radiograph (LSR), which is to be considered the radiological gold standard. It is common opinion, that correctly conducted LSR should show a centered, forward facing patella position as well as a fibula head superimposition (FHS) of 1/3 of the area of the fibula head. Up to now, there are no quality levels for LSR defined. Aim of the study is the quantification of patella position and its correlation to fibula head superimposition for quality assessment of LSRs.

methodology: For the retrospective study, 741 LSRs of lower limbs were acquired from our patient collective. All of the LSR were conducted under direct supervision of a physician according to high quality standards. Two measurement techniques (M1 and M2), that use different landmarks, were developed for the analysis of the radiographs. We measured the patella position's deviation (PD) from the center of the knee joint with both techniques. FHS was detemined as the area of overlap of lateral proximal tibia and fibula head. To measure the inter-rater dependability in assessing PD and FHS, intraclass correlation coefficients were determined. The Bland-Altman approach was used to compare M1 with M2's performance. Based on the average amount of PD, we defined three quality groups.

results and conclusion: The mean PD was 3.5 mm for M1 and 4.1 mm respectively for M2. Three quality categories were created: group A for PD minor than 5 mm, group B for PD from 5 to 10 mm, and group C for PD of greater than 10 mm. In our collective 70.9% of the LSR are included in Group A. Interestingly, FHS in group A was 21.3%, rather than the usually assumed value of 1/3.
We conclude, that for a high quality LSR, patella's center should be within a 5 mm range and the fibula head should be covered from the tibia by 1/5. This study is the first to define quantitative metrics based on LSR analysis.

Stichwörter: Long Leg Standing Radiograph, deformity, malalignement, osteotomy, varus, valgus

Erstellt:	30. Mai 2023 13:26:08 MESZ
Bearbeitet:	30. Mai 2023 15:29:46 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Ahmed Yaseen
Präsentierender Autor:	Ahmed Yaseen
Einreichender Autor:	Ahmed Yaseen
Autorenliste:	Ahmed Yaseen[1]
Institut/e:	[1] University Hospital Innsbruck, Innsbruck, Österreich

Thema:	Endoprothetik

Inhalt Englisch

Titel:	Patient Education in Total Knee Arthroplasty
interrogation:	Total knee arthroplasty (TKA) is a successful and popular procedure. According to data reported by the German arthroplasty registry, there is a continues growing number of patients undergoing this procedure. While the overall results of TKA are favorable, studies showed 11%-20% of patients remain unsatisfied after surgery. This was suggested to be, at least partly, because of missing patient education as well as not meeting patients' expectations. We are currently conducting a project to determine, whether preoperative patient education focussing on patient's expectation, care pathway, pain management and expected discharge goals will improve patient's satisfaction.
methodology:	Data are being reviewed from Patients who are undergoing primary TKA at a single institution. The first group of patients of one surgeon are being enrolled in a preoperative education program. This group will be compared with a control group of patients who concurrently undergoing TKA at the same institution, but did not receive the same preoperative education program.
results and conclusion:	We are observing an improvement of patient satisfaction postoperatively in the group of patients who are receiving the preoperative education program.
Stichwörter:	Arthroplasty, Knee replacement, Patient education.

Erstellt:	30. Mai 2023 13:37:58 MESZ
Bearbeitet:	30. Mai 2023 14:11:20 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Grégoire Thürig
Präsentierender Autor:	Grégoire Thürig
Einreichender Autor:	Grégoire Thürig
Autorenliste:	Grégoire Thürig[1], Marc Barrera Uso[1], Elisabeth Alonso Domenech[1], Michael Matos[1], Raul Panadero Morales[2], Luis Filgueira[3], Daniel Petek[1]
Institut/e:	[1] Hôpital fribourgeois - HFR, Fribourg, Schweiz [2] INSTITUTO DE BIOMECÁNICA , VALENCIA, Spanien [3] University of Fribourg, Fribourg, Schweiz

Thema: Patellofemoral

Inhalt Englisch

Titel: Accuracy and Precision for Medial Patellofemoral Ligament Identification using CLASS: an Anatomic Confirmation

interrogation: Misplacement of the femoral tunnel during medial patellofemoral ligament (MPFL) reconstruction can cause increased medial pressure in the patellofemoral joint due to changes in isometry. Various methods have been proposed by different authors to locate the femoral MPFL footprint. However, more than a third of reconstruction failures are attributed to tunnel mispositioning, necessitating revision. In a previous study, the compressed lateral and anteroposterior anatomical systematic sequence (CLASS) demonstrated reliability and reproducibility for individual MPFL identification. This study aims to analyze the accuracy and precision of femoral MPFL footprint identification using the CLASS method under anatomical conditions.

methodology: Ten cadaveric knees were examined. Initially, an MRI scan of the natural knee joint was conducted. Subsequently, careful dissection was performed to identify and mark the anatomical MPFL femoral footprint. Another MRI scan was then carried out. Both MRI scans were independently processed using customized software (CLASS algorithm) that incorporated the predefined anatomical structures to generate a true lateral view of the knee, displaying the anatomical position of the marked structures. A true-lateral fluoroscopic view of the knee, with the anatomical femoral MPFL footprint marked, was obtained as the gold standard. The localization of all anatomical landmarks was compared to determine accuracy and precision.

Distances between the tunnel positions identified by the CLASS method and the true anatomical points were calculated, including means, standard deviations, and ranges. Friedman, paired Wilcoxon and one-Anova with Bonferroni correction were performed to compare the distances from the anatomical points between the CLASS and fluoroscopy groups, with a significance level set at p less than 0.05.

results and conclusion: There was no statistically significant difference between the CLASS and fluoroscopy groups. The CLASS method enabled precise and accurate identification of the femoral MPFL footprint when compared to the gold standard.

The CLASS method is a reliable and reproducible approach that accurately identifies the isometric femoral MPFL location on a reconstructed true lateral knee view. The CLASS algorithm can serve as a reliable template for accurately identifying the femoral tunnel in MPFL reconstructive surgery using fluoroscopy.

Stichwörter: MPFL, magnetic resonance imaging, femoral footprint, CLASS

Erstellt:	30. Mai 2023 15:35:07 MESZ
Bearbeitet:	30. Mai 2023 15:48:16 MESZ
Status:	Eingereicht
Beitragsart:	Poster
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Lorenz Pichler
Präsentierender Autor:	Lorenz Pichler
Einreichender Autor:	Lorenz Pichler
Autorenliste:	Lorenz Pichler[1], Thomas Sator[2], Georg Kaiser[2], Harald Binder[2], Stephan Payr[2], Marcus Hofbauer[2], Thomas Tiefenböck[2]
Institut/e:	[1] Charité - Universitätsmedizin Berlin, Centrum für Muskuloskeletale Chirurgie, Berlin, Deutschland [2] Medizinische Universität Wien, Universitätsklinik für Orthopädie und Unfallchirurgie, Klinische Abteilung für Unfallchirurgie, Wien, Österreich

Thema: Ligamentverletzungen

Inhalt Englisch

Titel: Functional outcome of an 'all-inside' technique in female anterior cruciate ligament reconstruction at long-term follow-up: A gender-sensitive analysis

interrogation: As the awareness towards gender specific therapies continues to increase amongst all fields of medicine so does the need for gender-sensitive evaluations of established surgical techniques. With a higher likelihood of anterior cruciate ligament (ACL) injury in women a critical assessment of the functional outcome of ACL reconstruction (ACL-R) regarding patient gender is indispensable. Almost all pre-existing literature on this subject is based on ACL-Rs carried out before 2008, when 'all-inside' techniques did not exist. This implicates the need to investigate this technique towards its differences in outcome between male and female patients.

methodology: All female patients who underwent ACL-R using an all-inside technique between 2011 and 2012 were examined for inclusion. Functional outcome parameters investigated included the Lysholm Knee Score, IKDC score, VAS score and the Tegner Activity Scale. All parameters were documented before surgery and at 3-, 6-, 12- and > 24 months follow-up. At 24 months follow-up anterior-posterior knee laxity was tested utilizing the KT-2000 arthrometer device. For comparison an equivalent group of male patients who underwent the same procedure was matched.

results and conclusion: Results
27 female patients were matched with 27 male patients. The average age was 29 years and a mean follow-up of 90 months could be achieved with 27 of patients reaching a follow up of >10 years. The evaluated scores showed no significant difference between female and male patients. Women presented with poorer functional outcome at 3- as well as 6- months follow up compared to men without reaching statistical significance. After 12 months no further differences could be found.

Conclusion
This study proved that an all-inside technique for ACL-R is able to produce the same functional outcome in female as in male patients at long term follow up. The results on short term outcome indicate the need for further research towards gender specific differences after ACL-R, their potential causes and potential of improvement.

Stichwörter: Women's Health; Gender Medicine; ACL; Arthroscopy, Sports Medicine;

Erstellt:	30. Mai 2023 18:04:13 MESZ
Bearbeitet:	31. Mai 2023 16:25:05 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Adrian Deichsel
Präsentierender Autor:	Adrian Deichsel
Einreichender Autor:	Adrian Deichsel
Autorenliste:	Adrian Deichsel[1], Henrike Mietz[1], Matthias Klimek[1], Christian Peez[1], Michael J Raschke[1], Christoph Kittl[1]
Institut/e:	[1] Klinik für Unfall-, Hand- und Wiederherstellungschirurgie, Universitätsklinikum Münster, Münster, Deutschland

Thema:	Ligamentverletzungen

Inhalt Englisch

Titel:	Ramp Lesions of Large Size Lead to Minor Additional Instability in Anterior Cruciate Ligament Deficiency, but not after Reconstruction: A Biomechanical Robotic Investigation.
interrogation:	Conflicting evidence is reported regarding the biomechanical relevance of ramp lesions, of different sizes, on knee kinematics. The purpose of this study was to evaluate the influence of ramp lesion defect size on knee kinematics in anterior cruciate ligament deficient knees, and after reconstruction.
methodology:	8 cadaveric knee specimens were tested in a validated 6 degrees-of-freedom robotic test setup. Determination of knee kinematics was performed with 200 N of axial compression in 0°, 30°, 60°, and 90° of flexion, applying 5 Nm internal / external rotation, 134 N anterior tibial translation, and an anteromedial rotation test consisting of 134 N anterior tibial translation in 5 Nm external rotation. After determining the native knee kinematics, the anterior cruciate ligament was cut at the tibial insertion, followed by a transosseous refixation, simulating a reconstruction. A ramp lesion was sequentially created with a length of 1, 2, and 3 cm. Each state of the ramp lesion was evaluated in the ACL-deficient and ACL-reconstructed state.
results and conclusion:	In the ACL-deficient state, only a ramp lesion of 3 cm length resulted in a significant increase of anterior tibial translation in 30° of flexion (0.73 mm; 95% confidence interval 0.36 - 1.1 mm). In the ACL-reconstructed state, there was no significant effect of a ramp lesion. When looking at external rotation, a ramp lesion significantly increased external rotation in full extension in the ACL-deficient state in 2 cm (0.9°; 95% confidence interval 0.08 - 1.7°) and 3 cm length (1.9°, 95% CI 0.6 - 3.3°). Furthermore, a ramp lesion of 3 cm size significantly increased internal rotation in 0° of flexion in the ACL-deficient state (1.9°; 95 % confidence interval 0.2 - 3.6°). No effect of ramp lesions on rotation in the ACL-reconstructed state was found. In conclusion, large ramp lesion results in a small increase in anterior tibial translation, external rotation, and internal rotation in ACL-deficient knees at early flexion angles. After ACL reconstruction, no significant influence of a ramp lesion was found, questioning the necessity for repair of small ramp lesions
Stichwörter:	Ramp Lesions, Anterior Cruciate Ligament, Biomechanics, Reconstruction, Knee, Ligaments

Erstellt:	30. Mai 2023 18:06:01 MESZ
Bearbeitet:	30. Mai 2023 18:29:34 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Armin Runer
Präsentierender Autor:	Armin Runer
Einreichender Autor:	Armin Runer
Autorenliste:	Armin Runer[1], Robert Ossendorff[2], Felix Öttl[3], Vincent Stadelmann[3], Stefan Schneider[4], Stefan Preiss[3], Gian M. Salzmann[3], Jakob Hax[3]
Institut/e:	[1] Sektion Sportortopädie, München, Deutschland [2] Universitätsklinikum Bonn, Klinik und Poliklinik für Orthopädie und Unfallchirurgie, Bonn, Deutschland [3] Schulthess Klinik, Zürich, Schweiz [4] OrthoCentrum Hamburg, Hamburg, Deutschland

Thema: Knorpel und Meniskus

Inhalt Englisch

Titel: Autologous Minced Cartilage Repair for chondral and osteochondral lesions of the knee joint - A retrospective five - year outcome study

interrogation: Minced cartilage (MC) is a one-step, autologous procedure with promising short-term results. The aim of the present study was to evaluate mid-term results in an patient cohort with chondral and osteochondral lesions in the knee joint treated with MC.

methodology: From February 2015 through December 2016, a total of 34 consecutive patients were treated with a single-step, autologous MC for knee chondral and osteochondral lesions. Numeric analogue scale (NAS) for pain and knee function were obtained prior to surgery and at 12, 24 and 60 months postoperatively. Secondary outcomes, including Lysholm score, Tegner activity score, and the International Knee Documentation Committee (IKDC) score were recorded at final follow up. MRI examinations of patients with unplanned radiological follow up were analyzed using the MOCART (Magnetic Resonance Observation of Cartilage Repair Tissue) score.

results and conclusion: Results: A total of 28 patients (44.1% females, age at surgery: 29.5 ± 11.5 years) were available at a mean follow up of 5.5 ± 0.3 years. Mean defect size was 3.5 ± 1.8 cm2. NAS for pain decreased from a median of 7 (range: 2 -10) preoperatively to 2 (0 - 8) postoperatively. NAS knee function improved from a median of 7 (range: 2 -10) to 3 (0 - 7) after five years, respectively. Satisfactory Lysholm (76.5 ± 12.5), IKDC (71.6 ± 14.8) and Tegner activity (4, range 3 - 9) scores were reported at final follow up. The average overall MOCART score for all postoperatively performed MRIs (n=23) was 62.6 ± 15.8. Four (14.2%) postoperative complications were directly linked to MC, one (3.5%) of which required revision surgery.

Conclusion: One-step, autologous minced cartilage repair of chondral and osteochondral lesions of the knee demonstrated good patient-reported outcomes and low complication rates at midterm follow up. Minced cartilage represents a viable treatment option to more traditional cartilage repair techniques.

Stichwörter: minced cartilage; cartilage lesion; knee;

Erstellt:	30. Mai 2023 18:15:56 MESZ
Bearbeitet:	30. Mai 2023 18:21:14 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Sebastian Schmidt
Präsentierender Autor:	Sebastian Schmidt
Einreichender Autor:	Sebastian Schmidt
Autorenliste:	Sebastian Schmidt[1], Alexander Zimmerer[2], Luis Alfredo Navas Contreras[3], Matthias Feucht[4]
Institut/e:	[1] Orthopaedische Klinik Paulinenhilfe, Diakonieklinikum Stuttgart, Stuttgart, Deutschland [2] Orthopaedische Klinik Paulinenhilfe, Diakonieklinikum Stuttgart, Universitätsmedizin Greifswald, Stuttgart, Deutschland [3] Orthopaedische Klinik Paulinenhilfe, Diakonie Klinikum Stuttgart, Stuttgart, Deutschland [4] Orthopaedische Klinik Paulinenhilfe, Diakonie-Klinikum Stuttgart, Stuttgart, Deutschland

Thema: Sonstiges

Inhalt Englisch

Titel: CT Evaluation on Femoral Tunnels in ACL Revision Surgery: Unveiling the Superiority of 3D CT regardless of surgical experience

interrogation: In revision anterior cruciate ligament surgery, correct tunnel placement becomes much more complex because of pre-existing tunnels from the initial surgery. In many cases, the assessment of the location of the femoral tunnel is only done by using plain radiographs, magnetic resonance imaging (MRI), or two-dimensional computed tomography (2D-CT). However, these different scans do not reflect the actual three-dimensional anatomy. So far, it remains unclear to what extent surgeons with different expertise can determine the location of the femoral tunnel using 2D CT images with 3-dimensionally reconstructed CT images (3D CT) as a reference.

This study aimed to determine whether the estimation of femoral tunnel location by orthopedic surgeons of different training levels based on 2D-CT data matched the actual location of the femoral tunnel on 3D-CT.

methodology: 32 patients who underwent revision ACL reconstruction were retrospectively identified. The average age of the participants was 37.8 (range: 23-60) years, with 40% of them being female. A group of three orthopedic surgeons with different expertise (no expertise in ACL surgery, 5 years of experience, more than 10 years of experience) independently assessed the location of the femoral tunnel using only 2D CT images and marked the assumed position on a standardized template. Subsequently, the actual location of the tunnel was documented based on the 3D CT and the positional deviation in the anterior-posterior (high-low) direction as well as in the distal-proximal (shallow-deep) direction was measured. Furthermore, the overlap of the actual tunnel and the imagined tunnel position was calculated, where an overlap of more than 80% was considered as complete overlap, 25%-80% as partial overlap and <25% as no overlap.

results and conclusion: The evaluation of the overlap between the expected and actual femoral tunnel locations revealed a trend towards increased congruence with greater surgeon expertise; however, the observed differences did not reach statistical significance.
The location of the femoral tunnel was estimated by all orthopedic surgeons to be further posterior (2.24mm  1.4mm) compared to the actual location. Assessment of location in the distal/proximal direction revealed significant differences between participants (p= .0043). While the participants with low or medium expertise estimated the position too far distally, the orthopedic surgeon with high expertise estimated the position slightly too far proximally.

Correctly assessing the location of the femoral tunnel in anterior cruciate ligament revision surgery using only 2D CT images proves to be a challenging task for surgeons, regardless of their level of expertise. Consequently, to overcome this limitation, the authors strongly advocate for the utilization of a 3D reconstructed CT model for evaluating the precise location of the tunnel.

Stichwörter: ACL revision surgery, 3D CT, knee, expertise, femoral tunnel

Erstellt:	30. Mai 2023 18:27:00 MESZ
Bearbeitet:	31. Mai 2023 16:19:20 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Adrian Deichsel
Präsentierender Autor:	Adrian Deichsel
Einreichender Autor:	Adrian Deichsel
Autorenliste:	Adrian Deichsel[1], Jana Rolf[1], Christian Peez[1], Matthias Klimek[1], Michael J Raschke[1], Christoph Kittl[1]
Institut/e:	[1] Klinik für Unfall-, Hand- und Wiederherstellungschirurgie, Universitätsklinikum Münster, Münster, Deutschland

Thema: Ligamentverletzungen

Inhalt Englisch

Titel: Differences Between Different Suture Anchors Attributable to Implant Design - A Biomechanical Comparison of Knotless, Titanium and All-Suture Anchors

interrogation: Different suture anchor types are available for fixation or refixation of peripheral ligaments of the knee. The purpose of this study was to compare different suture anchor designs regarding their biomechanical primary stability for ligament fixation and refixation in peripheral ligament knee surgery.

methodology: Primary stability of ligament fixation was assessed in a porcine model of medial collateral ligament fixation, utilizing a 5.5 mm titanium suture anchor (TSA, Twinfix Ultra with #2 Ultrabraid; Smith & Nephew), a 2.8 mm all-suture anchor (ASA, Y-Knot PRO RC with #2 Hi-Fi; Conmed) as well as a 5.5 mm PEEK knotless suture anchor (KLSA, SwiveLock with #2 FiberWire; Arthrex). Biomechanical testing was performed using a uniaxial material testing machine (Instron GmbH). Cyclic loading at 50 N and 100 N was applied for each 500 cycles, followed by a load to failure test, with a speed of 25 mm/min. Statistical analysis was performed with PRISM (Graphpad Software), utilizing a one-way ANOVA with Bonferroni correction.

results and conclusion: After 500 cycles at 50 N, KLSA (2.4 ± 0.3 mm) showed significantly ($P < 0.05$) reduced elongation in comparison to TSA (4.0 ± 0.9 mm) and ASA (3.6 ± 0.7 mm). Analogous, after 500 cycles at 100 N, KLSA (6.5 ± 1.4 mm) again showed significantly ($P < 0.05$) reduced elongation in comparison to TSA (11 ± 2.2) and ASA (12 ± 3.6 mm). However, KLSA (213 ± 27 N) showed significantly ($P < 0.05$) inferior ultimate failure load in comparison to TSA (300 ± 20 N) and ASA (348 ± 23 N). In comparison to TSA (113 ± 11 Nm) and ASA (113.6 ± 14.4 Nm), KLSA (150.7 ± 11.6 Nm) displayed the highest stiffness ($P < 0.05$). No significant differences were observable regarding yield load.

In conclusion, knotless screw-in suture anchors display significantly reduced elongation, at the cost of reduced ultimate failure load, in comparison to titanium or all-suture anchors.

Stichwörter: suture anchors, knotless, all-suture, medial collateral ligament, refixation

Erstellt:	30. Mai 2023 19:59:14 MESZ
Bearbeitet:	30. Mai 2023 20:43:26 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Christoph Offerhaus
Präsentierender Autor:	Christoph Offerhaus
Einreichender Autor:	Christoph Offerhaus
Autorenliste:	Christoph Offerhaus[1], Sebastian Sebastian Leutheuser[2], Vera Vera Jaecker[3], Sven Sven Shafizadeh[1], Hilmar Wisplinghoff[4], Nathalie Jazmati[5]
Institut/e:	[1] Dreifaltigkeits-Krankenhaus Köln, Universität Witten-Herdecke, Köln, Deutschland [2] Dreifaltigkeits-Krankenhaus Köln, Köln, Deutschland [3] Klinikum Köln-Merheim, Universität Witten-Herdecke, Köln, Deutschland [4] Labor Wisplinghoff, Universität Witten-Herdecke, Köln, Deutschland [5] Labor Wisplinghoff, Universität zu Köln, Köln, Deutschland

Thema: Ligamentverletzungen

Inhalt Englisch

Titel: Evidence of bacterial metabolism in synovial fluid of patients with graft failure after ACL reconstruction. A microbiological comparison of primary ACL and hamstring tendon autograft ruptures.

interrogation: Presoaking the graft in vancomycin significantly decreases the rate of postoperative septic arthritis in anterior cruciate ligament reconstruction (ACLR). Some studies additionally observed a decrease of graft failure after ACLR with the use of local vancomycin. Consequently, low-grade infections of the graft are discussed as a possible cause of graft failure. The purpose of this study was to investigate whether the bacterial presence in a primary ruptured native anterior cruciate ligament (ACL) differs from that in a ruptured hamstrings ACL autograft and whether low-grade infections cumulatively can be detected in the case of graft failure. Furthermore, synovial fluid aspiration and PCR of the biopsies should be investigated for possible future biomarkers for a low-grade infection.

methodology: In a prospective case-control study, a total of 112 consecutive patients undergoing primary ACLR without history of previous surgeries to the affected knee (n=59) and revision ACLR after reconstruction with a hamstring tendon autograft (n=53) were recruited from one center. No patient had history or showed clinical signs of infection. Synovial fluid aspirates and tissue samples of failed ACL grafts were examined for evidence of bacterial colonization and compared to samples of the native ACL in primary ACLR using microbiological culture, 16S rRNA-PCR and histopathological examination. Furthermore, synovial fluid aspiration was investigated for possible future biomarkers for a low-grade infection.

results and conclusion: A total of 389 samples were analyzed by culture. Bacteria were detected in 9.4% of patients with a graft rupture (n=5/53) compared to 3.4% of patients with a primary ACL rupture (n=2/59). One patient with a "true" low-grade infection was found in our study population, resulting in a prevalence of 1.9% (1/53) in the graft group. The percentage of polymorphonuclear leukocytes (PMN%) as a highly sensitive marker for joint infections was significantly higher in aspirated synovial fluid of graft ruptures (27% ± 3% vs. 20% ± 4%, p=0.032), as well as glucose levels were significantly lower (83 mg/dl ± 2 mg/dl vs. 88 mg/dl ± 2 mg/dl, p=0.042).

Table 3: Comparison of microbiologcial and laboratory results of native ACL and graft samples

		all patients (n=112)				ACL graft (n=53)				native ACL (n=59)				p
		n	%	mean	SD	n	%	mean	SD	n	%	mean	SD	
Cultural analysis														
Culture biopsies (n=336)	sterile	327	97.3%			154	96.9%			173	97.7%			0.65
	growth	9	2.7%			5	3.1%			4	2.3%			
Culture synovial fluid (n=53)	sterile	50	94.3%			23	88.5%			27	100.0%			0.07
	growth	3	5.7%			3	11.5%			0	0.0%			
All cultured samples (n=389)	sterile	377	96.9%			177	95.7%			200	98.0%			0.19
	growth	12	3.1%			8	4.3%			4	2.0%			
PCR (16s RNA)	negative	96	99.0%			48	100.0%			48	98.0%			0.320
	positive	1	1.0%			0	0.0%			1	2.0%			
Pathology (n=109)	negative	108	99.1%			50	98.0%			59	100.0%			0.28
	positive	1	0.9%			1	2.0%			0	0.0%			
Synovial fluid analysis (others than culture)														
Glucose mg/dl		63		85	1	31		83	2	32		88	2	**0.04**
Lactate mg/dl		62		2.7	0.1	30		2.9	0.2	32		2.6	0.1	0.17
Protein g/dl		63		3.9	0.1	31		3.5	0.1	32		4.4	0.2	**<0.001**
Leukocytes/µl		64		467	160	31		583	326	33		359	61	0.12
PMN (%)		63		24	3	31		27	3	32		20	4	**0.03**
MN (%)		64		77	3	31		73	3	33		80	4	**0.020**
Low Grade Infektion	no	111	99.1%			52	98.1%			59	100.0%			0.29
	yes	1	0.9%			1	1.9%			0	0.0%			

PMN, polymorphonuclear leukocytes; MN, mononukclear leukocytes

Synovial fluid obtained before revision ACLR showed evidence of bacterial metabolism, demonstrating that the intra-articular milieu changes significantly after ACLR. Bacteria were detected more frequently in ACL grafts compared to samples of a native ACL. Moreover, tissue samples of ACL grafts revealed a low-grade infection in one case, although overall cultivable bacterial presence did not differ significantly when compared to samples of a native ACL.

Stichwörter: Anterior Cruciate Ligament, Low Grade Infection, Graft Failure, Synovial Fluid

Erstellt:	30. Mai 2023 20:44:14 MESZ
Bearbeitet:	30. Mai 2023 20:53:36 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Christoph Offerhaus
Präsentierender Autor:	Christoph Offerhaus
Einreichender Autor:	Christoph Offerhaus
Autorenliste:	Christoph Offerhaus[1], Sebastian Sebastian Leutheuser[2], Vera Vera Jaecker[3], Sven Sven Shafizadeh[1], Hilmar Wisplinghoff[4], Nathalie Jazmati[5]
Institut/e:	[1] Dreifaltigkeits-Krankenhaus Köln, Universität Witten-Herdecke, Köln, Deutschland [2] Dreifaltigkeits-Krankenhaus Köln, Köln, Deutschland [3] Klinikum Köln-Merheim, Universität Witten-Herdecke, Köln, Deutschland [4] Labor Wisplinghoff, Universität Witten-Herdecke, Köln, Deutschland [5] Labor Wisplinghoff, Universität zu Köln, Köln, Deutschland

Thema: Ligamentverletzungen

Inhalt Englisch

Titel: Semitendinosus tendons are commonly contaminated with skin flora during graft harvest for Anterior Cruciate Ligament Reconstruction

interrogation: Hamstring autografts in anterior cruciate ligament reconstruction (ACLR) were found to be more susceptible to postoperative deep knee infection compared to other auto- and allografts. The parameters that explain the vulnerability of hamstring grafts to infection have not been well studied yet. Bacterial contamination during retrieval and the preparation of the graft are the most accepted hypothesis
The purpose of this study was to investigate the rate of bacterial contamination of semitendinosus (ST) tendons during graft harvest in (ACLR), in order to precisely specify the underlying pathogens and obtain data on their susceptibility to potential antibiotics.

methodology: In a prospective study, a total of 59 consecutive patients undergoing primary ACLR were recruited from one center. No patient had history of previous surgery to the knee or showed clinical signs of infection. Four tissue samples of harvested ST tendons for anterior cruciate ligament (ACL) autografts (case group; ST) were examined for evidence of bacterial colonization and compared to four tissue samples of the native ACL as negative controls (control group; ACL). Three of the respective samples were subjected to cultural microbiological examination and one to 16S rRNA-PCR. Antibiotic susceptibility testing was performed for each pathogen that was identified.

results and conclusion: A total of 342 samples were analyzed by culture. Significantly more patients showed a positive culture of the ST (33.9%; n=20/59) compared to 3.4% of patients (n=2/59) with positive culturing of the ACL ($p < 0.0001$). Including 16S rRNA-PCR, in a total of 42.4% (25/59) of patients, bacteria were detected in at least one ST sample either by PCR and/or culture. All species found (n=33) belong to the typical skin flora with Staphylococcus epidermidis (39.4%; n=13/33) being the most common species, followed by Staphylococcus capitis (24.2%; n=8/33). All tested isolates (n=29) were susceptible to vancomycin (29/29, 100%), 69% (n=20/29) to oxacillin and 65.5% (n=19/29) to clindamycin.
ST autografts for ACLR were commonly contaminated with skin commensal bacteria during harvest. One third of the isolates showed resistance to typical perioperative intravenous antibiotics, whereas all isolates were sensitive to vancomycin. Therefore, routine prophylactic decontamination of all hamstring autografts before implantation should be recommended, preferably with topical vancomycin.

Stichwörter: Anterior Cruciate Ligament, Graft Harvest, Semitendinosus, Infection Prevention, ACL Contamination, Vancomycin, Antibiotic Resistance

Erstellt:	30. Mai 2023 21:32:58 MESZ
Bearbeitet:	31. Mai 2023 17:36:43 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Markus Bormann
Präsentierender Autor:	Markus Bormann
Einreichender Autor:	Markus Bormann
Autorenliste:	Markus Bormann[1], David Bitschi[1], Julius Watrinet[2], Robert Pätzold[3], Daniel Berthold[1], Wolfgang Böcker[1], Boris Holzapfel[1], Julian Fürmetz[2]
Institut/e:	[1] MUM - Muskuloskelettales Universitätszentrum München, München, Deutschland [2] BG Klinikum Murnau , Sporttraumatologie und Arthroskopische Chirurgie, Murnau am Staffelsee, Deutschland [3] BG Klinikum Murnau , Murnau am Staffelsee, Deutschland

Thema: Frakturen

Inhalt Englisch

Titel: Do we need a registry for tibial plateau fractures?

interrogation: Guidelines and Standard Operating Procedures (SOPs) are essential in improving the care of musculoskeletal patients. This is even more important when many different treatment strategies exist for one disease pattern. Treatment strategies for tibial plateau (TPF) fractures have increased in recent years, due to the introduction of new classification systems, establishment of 360° treatment and others.
The aim of this study is to evaluate the level of standardization in the treatment of complex tibial plateau fractures at trauma centers of different level.

methodology: Three complex tibial plateau fractures with thin-slice CT including 3D reconstruction were presented to consultants in traumatology/orthopedic surgery. Afterwards, a standardized survey on fracture morphology and treatment strategy was performed. The statistical test procedures used were the cohens kappa test, chi-square test and the Fischer exact test, with a significance level of $p<0.05$.

results and conclusion: A total of 23 surgeons from 7 hospitals (level of care 1-3) were included. 69.6% (n=16) of the participants had treated at least 50 tibial plateau fractures in their professional career.
Regarding the Schatzker and ten segment classification, fracture III showed the highest interrater consensus with 50%.
An additional preoperative MRI examination was requested by 30.4% for fracture I, 56.5% for II and 40% for III.
The same surgical position was chosen in 43% for fracture I (prone position with transfer to supine position), 52% for fracture II (supine position) and 70% for fracture III (prone position with transfer to supine position).
The most frequently chosen surgical approach for all three fractures was the combination of posteromedial and anterolateral approach (I: 39% kappa 0.23, II: 39% kappa 0.39, III: 50% kappa 0.41).
A double plate osteosynthesis was favored for the surgical treatment of all fractures (I: 65%, II: 87%, III: 60%). The most common plate combination is an anterolateral and posteromedial plate with 50% in fracture III.
In level 3 clinics, primary treatment was more often done with an external fixator (83.3% vs. 71.9%). Perioperative a 3D scan (62.5% vs. 37.5%) and/or fracturoscopy (37.5% vs. 9.4%) was used more frequently in addition to x-ray for reduction control in these clinics.
This study shows that tibial plateau fractures are treated in a variety of ways. The development of guidelines or SOPs requires standardized documentation of the treatment strategies used, including patient outcomes. Therefore we need a multicenter registry for TPF.

Stichwörter: Tibial plateau fracture, treatment strategy, standard of care, guidelines, SOP

Erstellt:	30. Mai 2023 21:39:20 MESZ
Bearbeitet:	30. Mai 2023 21:50:02 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Hasan Al Mustafa
Präsentierender Autor:	Hasan Al Mustafa
Einreichender Autor:	Wolf Petersen
Autorenliste:	Hasan Al Mustafa[1], Thomas Stoffels[2], Wolf Petersen[3]
Institut/e:	[1] Klinik für Orthopädie , Martin Luther Krankenhaus, Berlin, Deutschland [2] OC Stadtmitte, Berlin, Deutschland [3] Klinik für Orthopädie, Martin Luther Krankenhaus, Berlin, Deutschland

Thema:	Prävention und Rehabilitation

Inhalt Englisch

Titel:	The Lyshom score is an ideal "patient reported outcome measure" (PROM) for the early postoperative phases and is suitable as a measuring instrument for the progress of postoperative rehabilitation
interrogation:	Background: For results after operations, a minimum follow-up period of 2 years applies in most specialist journals. Therefore, most PROMs are designed to collect results during this period. For modern rehabilitation research (DIGA, AI, sensor technology), however, it is important to be able to fall back on reliable PROMs for the early rehabilitation phase. When comparing different PROMs, it was noticeable that the Lysholm score asks for different parameters that are highly relevant for these phases.
methodology:	The Lysholm score was recorded and evaluated in 75 patients after various operations on the knee joint (anterior cruciate ligament, patella, meniscus) in three time-defined rehabilitation phases (early phase I 2 weeks, middle phase II: 3 months, late phase III: 5 months). The recorded values were compared and correlated with the subjective pain perception (VAS) and with objectively recorded parameters (lower limb symmetry index (LSI) for mobility, coordination). These were evaluated as part of a sensor-based movement analysis.
results and conclusion:	The mean Lysholm score increased over the course of the different rehabilitation phases (phase I: 54+-11, phase II: 76 +-8, phase III: 88 +-9). The differences in the Lysholm score between the individual phases were statistically significant ($p<0.05$). The correlation coefficients between the Lysholm scores and the LSI ranged from 0.58 to 0.87 points. The Lysholm score is a reliable PROM to evaluate and monitor rehabilitation after knee injuries. These results are particularly relevant for the development of digital health applications, since therapy monitoring should be integrated into these systems.

Stichwörter:	Rehabilitation, digitalisation, diga, knee surgery

Erstellt:	31. Mai 2023 02:20:54 MESZ
Bearbeitet:	31. Mai 2023 02:29:16 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Marco-Christopher Rupp
Präsentierender Autor:	Marco-Christopher Rupp
Einreichender Autor:	Marco-Christopher Rupp
Autorenliste:	Marco-Christopher Rupp[1], Felix J. Lindner[1], Philipp Winkler[1], Lukas N. Münch[1], Julian Mehl[1], Andreas B. Imhoff[1], Sebastian Siebenlist[1], Matthias Feucht[2]
Institut/e:	[1] Sektion Sportorthopädie, Technische Universität München, Klinikum rechts der Isar, München, Deutschland [2] Orthopaedische Klinik Paulinenhilfe, Diakonie-Klinikum Stuttgart, Albert Ludwig Universität Freiburg, Stuttgart, Deutschland

Thema: Osteotomie

Inhalt Englisch

Titel: Clinical Effect of Isolated Lateral Closing Wedge Distal Femoral Osteotomy Compared to Medial Opening Wedge High Tibial Osteotomy for the Correction of Varus Malalignment: A Propensity Score-Matched Analysis

interrogation: While a medial open wedge high tibial osteotomy (mowHTO) has demonstrated clinical efficacy in the correction of tibial based varus malalignment, a mounting body of evidence questions its role in the correction of femoral based varus malalignment, due to the creation of a non-physiological, oblique knee joint line (KJL). However, the clinical effectiveness of alternatively performing an isolated lateral closing wedge distal femoral osteotomy (lcwDFO) in femoral based varus malalignment, that only leads to biomechanical unloading near full knee extension with limited effects during knee flexion, is yet to be confirmed prior to advocating a novel, patient specific osteotomy paradigm.
The aim was to compare clinical outcomes between patients undergoing varus correction via isolated lcwDFO or mowHTO, performed according to the location of the deformity, in a cohort matched for confounding variables.

methodology: Between 01/2010-10/2019, consecutive patients who underwent isolated mowHTO or lcwDFO according to a tibial- or femoral-based symptomatic varus deformity were enrolled in this retrospective cohort study of prospectively collected outcome data. Confounding factors including age at surgery, sex, body mass index, preoperative femorotibial axis, and postoperative follow-up were matched utilizing propensity score matching. The International Knee Documentation Committee (IKDC) Subjective Knee Form, Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC), Lysholm Score, Tegner Activity Scale, and visual analogue scale (VAS) for pain were collected preoperatively and at a minimum of 24 months postoperatively.

results and conclusion: Using propensity score matching, out of 535 cases assessed for eligibility, 50 patients (n=25 per group) were selected. Postoperatively, both the the lcwDFO group (IKDC: 49.4±14.6 vs. 66±20.1, p=.003; WOMAC: 25.2±17.0 vs 12.9±17.6, p=.003; Lysholm: 46.5±15.6 vs 65.4±28.7, p=.011; VAS: 4.5±2.2 vs 2.6±2.5, p=.001) as well as the mowHTO group (IKDC: 55.1±16.5 vs. 71.3±14.7, p<.001; WOMAC: 22.0±18.0 vs 9.6±10.8, p<.001; Lysholm: 55.2±23.1 vs. 80.7±16, p<.001; VAS: 4.1±2.4 vs 1.6±1.8, p< .001) had significantly improved at follow-up (80±20 vs. 81±43months) compared to preoperatively. There were no significant differences between the groups, neither at baseline nor at final follow-up nor regarding the amount of clinical improvement in any of the outcome parameters (p >.05; respectively).
If performed according to the location of the deformity in an effort to sustain a physiological joint line, performing both mowHTO or lcwDFO yields significant improvement in postoperative clinical outcomes in the correction of varus malalignment. In an effort to confirm the clinical effectiveness of this more patient specific osteotomy strategy, the results of this study serve an evidence-based rationale to recommend an isolated lcwDFO in femoral based varus malalignment, which is comparable to that of a mowHTO in the physiological correction of varus malalignment.

Stichwörter: High tibial osteotomy, distal femoral osteotomy, varus, osteoarthritis, patient specific

Erstellt:	31. Mai 2023 02:54:42 MESZ
Bearbeitet:	31. Mai 2023 03:00:47 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Marco-Christopher Rupp
Präsentierender Autor:	Marco-Christopher Rupp
Einreichender Autor:	Marco-Christopher Rupp
Autorenliste:	Marco-Christopher Rupp[1], Felix J. Lindner[1], Claudio E. von Schacky[2], Yannick Ehmann[1], Matthias Jung[3], Matthias Feucht[4], Sebastian Siebenlist[1], Rainer Burgkart[5], Nikolas Wilhelm[6]
Institut/e:	[1] Sektion Sportorthopädie, Technische Universität München, Klinikum rechts der Isar, München, Deutschland [2] Institut für diagnostische und interventionelle Radiologie, Klinikum rechts der Isar, Technische Universität München, München, Deutschland [3] Institut für Radiologie, Universitätsklinikum Freiburg, Albert Ludwig Universität Freiburg, Freiburg, Deutschland [4] Orthopaedische Klinik Paulinenhilfe, Diakonie-Klinikum Stuttgart, Albert Ludwig Universität Freiburg, Stuttgart, Deutschland [5] Abteilung für Orthopädie, Klinikum rechts der Isar, Technische Universität München, München, Deutschland [6] Abteilung für Orthopädie, Klinikum rechts der Isar, Munich School of Machine Intelligence, Technische Universität München, München, Deutschland

Thema: Osteotomie

Inhalt Englisch

Titel: Human-level accuracy and reliability of artificial intelligence for fully automated analysis of the mechanical alignment of the lower extremity - results from a multi-centric validation study

interrogation: While in the public perception, artificial intelligence (AI) is expected to change healthcare, to date few AI applications exist, that truly live up to the promise and relieve orthopedic surgeons (OS) of complex and repetitive clinical workflows. An analysis of the leg alignment is a time consuming process performed in high quantity in clinical practice. The purpose of this study was to develop a DL model for an automated assessment of the leg alignment on anterior posterior (a.p.) long leg radiographs (LLR) and compare the performance to OS in a multicentric validation study.

methodology: A high performance AI software capable of automatically analyzing leg alignment on a.p. LLR radiographs without any user input was developed. A radiographic dataset of 458 patients from a single institution with annotations of all relevant landmarks by orthopedic experts was utilized for training (n=399) and validation (n=59). A state of the art, high performance deep learning network, composed of 12 expert networks based on a COCO pretrained Mask-R CNN-ResNeXt-101 was built, capable of automatic measurements of the mechanical lateral proximal femur angle (mLPFA), lateral distal femur angle (mLDFA), medial proximal tibia angle (mMPTA), lateral distal talus angle (mLDTA), femorotibial angle (mFA-mTA), joint line convergence angle (JLCA), and anatomic mechanical femur angle (AMA) on a.p. LLRs. On an internal(n=136) as well as an external test dataset (n=143) of an independent institution, accuracy, reliability, and processing time of the AI were compared with the performance of three expert OS.

results and conclusion: For the AI, the accuracy of the measurements ranged from 0.16°±0.14° (mFTA) to 1.06°±1.3° (mLPFA). In comparison, human expert accuracy ranged from 0.13°±0.14° (mFTA) to 1.72° ± 1.96° (mLPFA). For the AI, the interreader reliability (IRR) of the measurements was moderate (0.73, JCLA) to excellent (1.0, mFTA). Human expert IRR was moderate (0.79 JCLA) to excellent (1.0, mFTA). Measurements within a clinically acceptable safety margin were accomplished in 87.0% (mLPFA) - 100% (mFTA) of the cases by the AI in comparison to human expert OS, for whom clinically acceptable safety ranged between 13.6% (mLPFA) to 100% (mFTA). Intrarater reliability was 1.0 for the AI, while it ranged from 0.83 - 1.0 for expert OS. The mean processing time of expert OS for a fully comprehensive analysis of the alignment using manual software ranged from 101±7 to 105±7 seconds, while it was 22±0.6 seconds for the DL model (p=0.01).
The developed DL model allowed for a comprehensive analysis of leg alignment on a.p. LLR with precision, reliability, and robustness comparable to that of OS, not failing on a single image during validation. By significantly and substantially outperforming human raters in terms of processing time for assessment as well as repeated measurement reliability, the AI developed yields potential to

accelerate and enhance clinical practice.

Stichwörter: Artificial intelligence, Machine learning, lower extremity malalignment, mechanical correction osteotomy, osteoarthritis

Erstellt:	31. Mai 2023 13:16:41 MESZ
Bearbeitet:	31. Mai 2023 13:34:17 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Sebastian Gebhardt
Präsentierender Autor:	Sebastian Gebhardt
Einreichender Autor:	Sebastian Gebhardt
Autorenliste:	Sebastian Gebhardt[1], Alexander Zimmerer[2], Peter Balcarek[2], Georgi Wassilew[1], Janosch Schoon[1]
Institut/e:	[1] Klinik für Orthopädie, Universitätsmedizin Greifswald, Greifswald, Deutschland [2] ARCUS Sportklinik, Pforzheim, Pforzheim, Deutschland

Thema: Knorpel und Meniskus

Inhalt Englisch

Titel: The influence of the arthroscopic shaver and autologous conditioned plasma on Chondrocytes during single-stage autologous cartilage implantation

interrogation: Single-stage autologous cartilage implantation (AutoCart, Arthrex), a development from the field of minced cartilage implantation (MCI) has gained increased interest. Randomised clinical studies proving the benefit of this therapy are lacking. Studies on other MCI procedures show an advantage of small cartilage fragments (mincing) and the use of a scalpel or a special device has been successfully tested, however fragmentation of cartilage by an arthroscopic shaver has been insufficiently investigated. Furthermore, platelet-rich plasma (PRP) in combination with MCI has not shown any benefit in animal studies. The aim of this study was to investigate the influence of arthroscopic shaver mincing and PRP on the in vitro outgrowth capacity, viability and proliferative capacity of chondrocytes from intraoperatively obtained cartilage samples.

methodology: During 12 applications of single-stage autologous cartilage implantation, 3 different cartilage samples were obtained in each case: Curettage from the marginal area of the cartilage defect (CR), fragmented cartilage directly after harvesting by arthroscopic shaver from the marginal area of the defect (MC), fragmented cartilage after harvesting by shaver and application of PRP (MCP). After 13-15 days of cell culture of all obtained samples, the adult chondrocytes were quantified and isolated. In the following in vitro experiments with isolated chondrocytes, proliferation capacity (DNA quantification), cell viability (resazurin assay) and the capacity for chondrogenic redifferentiation after TGF-ß stimulus were compared between the groups.

results and conclusion: Chondrocytes grew out of the cartilage tissue of all three groups in cell culture. The cell number of the isolated chondrocytes normalised to the sample weight and the proliferative capacity of isolated chondrocytes was not significantly different between the different groups. The viability of chondrocytes from the MC group was significantly higher compared to the CR- ($p<0.01$) and MCP group ($p<0.01$) at day 0 and significantly higher than the CR group at day 8 ($p<0.05$). Chondrogenic redifferentiation by stimulation using TGF-ß revealed a significantly higher proportion of specific proteoglycans relative to total protein content in the MCP compared to the CR group ($p<0.05$). There was a high correlation for cell number ($p<0.001$), proliferation ($p=0.007$ - <0.001) and metabolic activity ($p=0.04$ - 0.003) between chondrocytes from CR- and MC- or MCP samples, but no correlation for chondrogenic redifferentiation.
The results show that the harvesting and fragmentation of cartilage tissue with an arthroscopic shaver leads to preserved proliferation capacity and improved viability of chondrocytes compared to non-fragmented cartilage tissue. The addition of PRP to fragmented cartilage improves the capacity for chondrogenic redifferentiation and production of proteoglycans. Individual differences between patients significantly influence chondrocyte viability and proliferation.

Stichwörter: Minced cartilage, AutoCart, arthroscopic cartilage harvesting, platelet-rich plasma,

Erstellt:	31. Mai 2023 14:11:14 MESZ
Bearbeitet:	31. Mai 2023 15:21:18 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Sebastian Gebhardt
Präsentierender Autor:	Sebastian Gebhardt
Einreichender Autor:	Sebastian Gebhardt
Autorenliste:	Sebastian Gebhardt[1], Stefan Pohl[1], Matthias Mühler[2], Janosch Schoon[1], Georgi Wassilew[1]
Institut/e:	[1] Klinik für Orthopädie, Universitätsmedizin Greifswald, Greifswald, Deutschland [2] Institut für Diagnostische Radiologie und Neuroradiologie, Universitätsmedizin Greifswald, Greifswald, Deutschland

Thema: Knorpel und Meniskus

Inhalt Englisch

Titel: Clinical and radiological results two years after autologous minced cartilage implantation at the knee joint

interrogation: The advanced minced cartilage implantation (MCI) with the use of an arthroscopic shaver and autologous platelet-rich plasma (PRP) has established itself as an alternative treatment method for cartilage defects. Current recommendations classify MCI as a method with potential but lacking clinical evidence. The present case series is a prospective, clinical and radiological follow-up of MCI for focal cartilage defects of the knee joint.

methodology: Eleven patients (8 female; 12 surgeries) with focal cartilage defects of the knee joint (7 femoral, 3 patellofemoral, 2 retropatellar), were prospectively included in the study. Significant axial deviations, osteoarthritis, instabilities and infections were exclusion criteria. A sensor-based clinical follow-up (Orthelligent, Fa. OPED), as well as the KOOS Score was evaluated preoperatively and 6, 12 and 24 months postoperatively. The MOCART score was obtained in 11 patients and T2-Mapping could be eveluated in 8 patients at 24-month MRI follow-up. The data were tested for normal distribution using the Shapiro-Wilk test and tested for significance using a paired t-test and Wilcoxon test, respectively. The significance level was set at $p<0.05$.

results and conclusion: Of the 12 surgical interventions initially included, 11 could be evaluated after 24 months. One patient received a total knee arthroplasty after 23 months and was subsequently excluded. No complications occurred after MCI. The mean treated defect size was 3.1 ± 1.8cm², age 42.8 ± 11.3 years and BMI 30.6 ± 6.8 kg/m². The median pain of patients as documented by the visual analoge scale was reduced from 8 (range 0 - 10) to 2 (0-7, $p<0.001$) from pre- to 24-months-postoperatively. The mean knee flexion of the treated knee was 77 ± 35° after 6 weeks, 96 ± 22° after 3 months, and had converged to the opposite side after 12 months in all patients. The KOOS was improved in all categories and at all time points postoperatively. Statistically significant improvement was present in the KOOS-category of activities of daily living ($p=0.39$) after 24 months. The mean postoperative MOCART score at 24 months was 51.4 ± 22.0. In 8 out of 11 MRI investigated joints no regenerated cartilage was evident. For the 8 joints with evident regenerated cartilage the mean T2-Mapping-Index of regenerated cartilage was 0.72 ± 0.18.
MCI is a safe surgical method that shows significant improvement in pain and knee joint function 24 months after treatment of focal cartilage defects of the knee joint. The radiological results are heterogeneous. A comparative study is necessary to be able to classify the results. Furthermore, the development over a longer observation period will be crucial for assessing the potential of the novel method.

Stichwörter: Minced Cartilage, AutoCart, KOOS, MOCART, clinical results, radiological results

Erstellt:	31. Mai 2023 14:17:14 MESZ
Bearbeitet:	31. Mai 2023 14:28:48 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Elmar Herbst
Präsentierender Autor:	Elmar Herbst
Einreichender Autor:	Elmar Herbst
Autorenliste:	Elmar Herbst[1], Lukas Willinger[2], Tobias Gensior[3], Johannes Glasbrenner[4], Philipp Niemeyer[5], Wolf Petersen[6]
Institut/e:	[1] Klinik für Unfall-, Hand- und Wiederherstellungschirurgie, Universitätsklinikum Münster, Münster, Deutschland [2] Abteilung für Sportorthopädie, Klinikum rechts der Isar, Technische Universität München, München, Deutschland [3] OPND Neuss & Düsseldorf, Neuss, Deutschland [4] Universitätsklinikum Münster, Münster, Deutschland [5] OCM | Orthopädische Chirurgie München, München, Deutschland [6] Martin-Luther-Krankenhausbetrieb GmbH, Klinik für Orthopädie und Unfallchirurgie, Berlin, Deutschland

Thema:	Sonstiges

Inhalt Englisch

Titel:	The importance of social media amongst orthopaedic surgeons
interrogation:	The objective of this survey was to analyze the importance and personal impact of social media amongst orthopaedic surgeons.
methodology:	An online-survey consisting of 14 questions was performed via SurveyMonkey amongst members of German speaking musculoskeletal societies including the German Knee Society. The survey was distributed via the board of directors of all musculoskeletal societies in Germany.
results and conclusion:	25 orthopaedic surgeons completed the survey. 76% of the participants were within the age of 40 and 60 years, and 83.3% were male. 88% used social media on a regular basis. Most of the participants used Instagram (70.8%) followed by Facebook (54.2%) and LinkedIn (54.2%). Of these, more than two thirds stated that social media are used for professional reasons. Interestingly, of those using social media for professional reasons, 64.7% were active users rather than passive consumers. Commonly posted contents included news for courses and symposia (80%), recruitment of personnel, scientific posts, news related to the own private practice (60% each). Those, who used social media passively would prefer to see scientific content (78.6%), updates related to courses and symposia (71.4%) and surgical techniques (64.3%). Those participants, who followed various social media channels of societies, asked for more society news and updates related to clinical guidelines (81% each) and recent clinical studies (71.4%). This survey highlights the importance of social media in orthopaedic surgery, not only for the generations Y and Z. Instagram, Facebook and LinkedIn were the mostly used platforms. While active users posted scientific content, updates related to societies as well as their own private practice, passive users preferred to see news and updates regarding symposia and courses, surgical techniques, guidelines and clinical research. Considering this survey, societies should expand their social media presence and interact more on these platforms with their members.
Stichwörter:	social media, instagram, Facebook, linkedin, public relations, orthopedics

Erstellt:	31. Mai 2023 14:27:27 MESZ
Bearbeitet:	1. Juni 2023 09:30:18 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
Sonstiges:	Ja, mit diesem Abstract für den Nachwuchswissenschaftspreis bewerben.
AV-Ausstattung:	Mikrofon, Laptop, Beamer

Erstautor:	Felix Ruhl
Präsentierender Autor:	Felix Ruhl
Einreichender Autor:	Felix Ruhl
Autorenliste:	Felix Ruhl[1], Luise M. Hägerich[1], Matthias Klimek[1], Christian Peez[1], Johannes Glasbrenner[1], Christoph Kittl[1], Michael Johannes Raschke[1], Elmar Herbst[1]
Institut/e:	[1] Universitätsklinikum Münster, Klinik für Unfall-, Hand- und Wiederherstellungschirurgie, Albert-Schweitzer-Campus 1, Münster, Deutschland

Thema:	Ligamentverletzungen

Inhalt Englisch

Titel:	The influence of lower limb alignment on Medial Collateral Ligament strain - a preliminary report

interrogation:	To analyze, how lower limb alignment affects the strain within the Medial Collateral Ligament (MCL).
methodology:	For this study 12 human cadaveric knees (average age 80 years) were tested. Before biomechanical testing of the knees, long leg standing radiographs of the lower limbs of the full human body donors were obtained to assess lower limb alignment. Then, knee joints and surrounding tissues were harvested and dissected, preserving muscles and ligaments. Specimens were then mounted on a testing rig enabling the modification of knee flexion and lower limb alignment. Mounted specimens were radiographed again at 0° knee flexion. MCL maximum unloaded length in the anterior, middle and posterior regions was measured using a 3D optical tracking system (Aramis, GOM, Braunschweig). Valgus alignment was simulated to reach a valgus angulation of 8° or the ligament's elastic limit, examining axis-dependent strain behavior within the MCL at 2° intervals. Simulating weight-bearing conditions, cycles were conducted bearing 20 kg and 40 kg load.
results and conclusion:	At full extension and 6° of valgus, the ligament strain was 2.6%, 3,6%, and 3,9% in the anterior, middle and posterior portion of the sMCL with 20 kg of weight bearing. With 40kg weight bearing, the corresponding strain was 3,1%, 4,0%, and 4,5%, respectively. At 30° of flexion and 8° valgus, MCL elongation was 3.9%, 4.3%, and 4.5% with 20 kg weight bearing and 4.2%, 4.5%, and 4.6% with 40 kg. The findings indicate that knees with a higher initial valgus alignment exhibit a greater MCL strain during valgus stress and could therefore be more prone to injury or failure following reconstruction. Strain levels associated with microdamages to the ligament of more than 5% were observed at 5 - 6° of valgus. Thus, in subjects with a medial sided injury and a valgus alignment of > 5°, a realigning osteotomy should be considered if a MCL reconstruction is performed.

Stichwörter:	Lower limb alignment, Medial Collateral Ligament, MCL, Valgus alignment

Erstellt:	31. Mai 2023 14:35:41 MESZ
Bearbeitet:	31. Mai 2023 15:21:39 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
Sonstiges:	Ja, dies ist ein Case Report
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Daniel P. Berthold
Präsentierender Autor:	Daniel P. Berthold
Einreichender Autor:	Daniel P. Berthold
Autorenliste:	Daniel P. Berthold[1], Fabian Gilbert[1], Christoph Gassner[1], Wolfgang Böcker[1], Boris Holzapfel[1], Markus Bormann[1]
Institut/e:	[1] MUM - Muskuloskelettales Universitätszentrum München, München, Deutschland

Thema: Case Report

Inhalt Englisch

Titel: Partial Tear of the Medial Gastrocnemius Head: A Case Report of Meniscal Symptoms in a 32-Year-Old Recreational Athlete

interrogation: Isolated tears of the medial gastrocnemius head are particularly rare. There is a paucity of literature documenting this specific injury, emphasizing its uncommon occurrence. Most gastrocnemius injuries typically occur at the musculotendinous junction, predominantly manifesting as strains during activities. This case report aims to contribute to the limited body of knowledge surrounding partial tears of the medial gastrocnemius head, particularly in the context of meniscal symptoms, by presenting the clinical findings of a 32-year-old male recreational athlete.

methodology: We present the case of a 32-year-old male recreational athlete who sought medical attention for knee pain. The patient reported experiencing intermittent knee pain during daily activities, particularly after prolonged periods of sitting. He engaged in recreational sports activities approximately 2-3 times per week.The patient denied any history of significant trauma to the knee, previous injections or surgeries. The onset of his knee symptoms was insidious (4-5 months), without any specific triggering event.The pain was primarily localized to the medial aspect of the joint. Upon physical examination, the patient exhibited tenderness over the medial joint line. The McMurray test, as well as other medical meniscus tests, yielded positive results. Stability testing of the knee ligaments was negative with normal ROM. A 3 Tesla Siemens MRI was conducted,

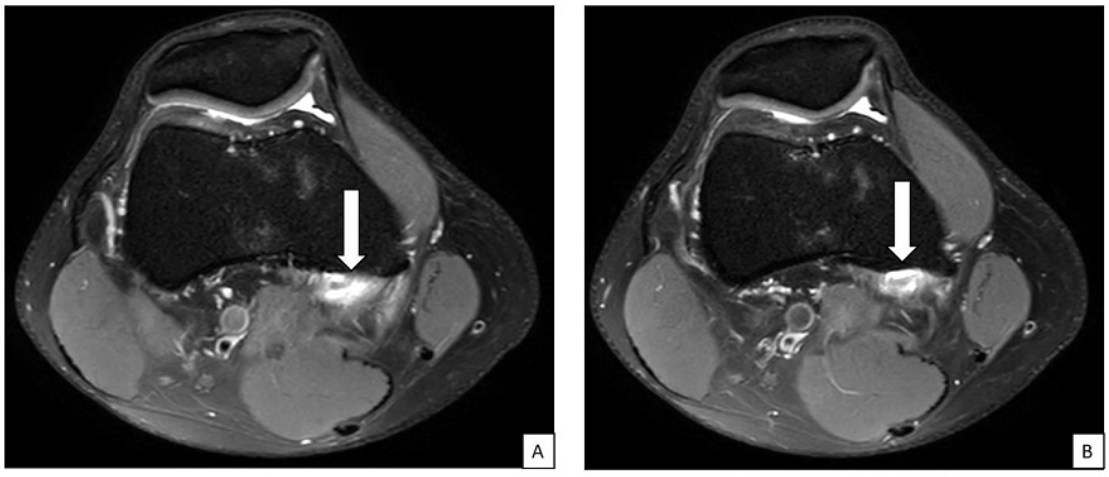


Figure 1. A. and B. axial images indicating the partial tendon rupture of the medial gastrocnemius head

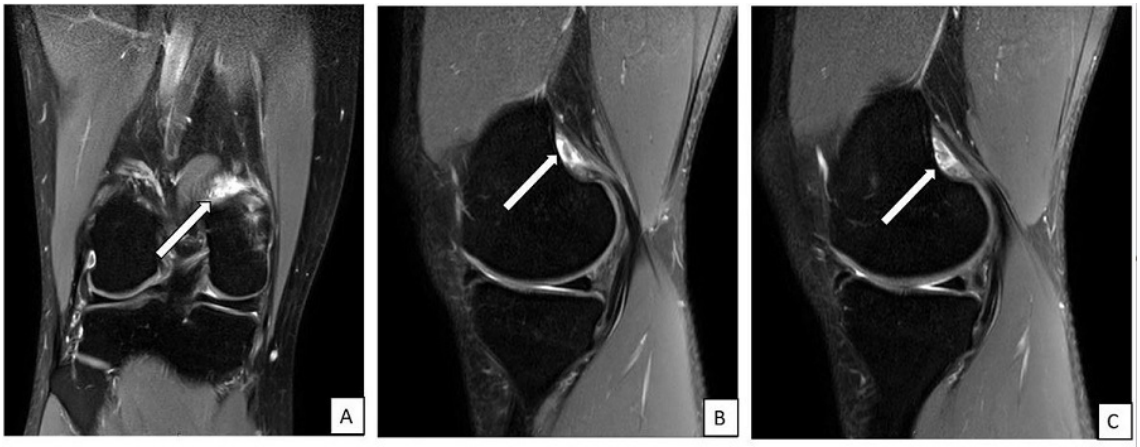


Figure 2. **A.** Coronar and **B./C.** sagital images indicating the partial tendon rupture of the medial gastrocnemius head with surrounding bone marrow edema

confirming the presence of a partial tear at the insertion site of the medial gastrocnemius head, with associated bone marrow edema, while ruling out any significant abnormalities in the medial and lateral compartments, menisci, collateral ligaments.

results and conclusion: Isolated tears of the medial gastrocnemius head are relatively rare and can pose diagnostic challenges due to their uncommon occurrence and overlapping clinical presentations with other knee pathologies, particularly medial meniscal tears. This case report highlights the significance of considering such uncommon injuries when evaluating patients presenting with knee pain and meniscal symptoms, especially in the absence of significant trauma or previous injuries.

Stichwörter: Medial gastrocnemius head, partial tear, meniscal symptoms, recreational athlete, magnetic resonance imaging (MRI), conservative treatment

Erstellt:	31. Mai 2023 15:40:57 MESZ
Bearbeitet:	31. Mai 2023 19:25:46 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Julius Watrinet
Präsentierender Autor:	Julius Watrinet
Einreichender Autor:	Julius Watrinet
Autorenliste:	Julius Watrinet[1], Josef Brunner[2], Yannick Ehmann[3], Fabian Stuby[4], Peter Augat[5], Maximilian Jörgens[6], Steffen Schröter[7], Jörg Harrer[8], Julian Fürmetz[1]
Institut/e:	[1] BG Unfallklinik Murnau , Murnau, Deutschland [2] Ludwig-Maximilians-Universität München, München, Deutschland [3] Abteilung für Sportorthopädie, Klinikum Rechts der Isar, TU München, München, Deutschland [4] Berufsgenossenschaftliche Unfallklinik Murnau, Murnau, Deutschland [5] Berufsgenossenschaftliche Unfallklinik Murnau, Institut für Biomechanik, Murnau, Deutschland [6] Universtiätsklinikum Balrgist, Zürich, Schweiz [7] Diakonie Klinikum GmbH Jung-Stilling-Krankenhaus, Unfall-und Wiederherstellungschirurgie, Siegen, Deutschland [8] Klinik für Orthopädie und Unfallchirurgie, Helmuth-G.-Walter Klinikum Lichtenfels, Frensdorf, Deutschland

Thema: Osteotomie

Inhalt Englisch

Titel: Changes in tibial tuberosity - trochlear groove distance after medial closing wedge distal femoral osteotomy

interrogation: Background: Medial closing wedge distal femoral osteotomy (MCW-DFO) is an effective treatment option for valgus deformity and patellar instability of the knee. However, the changes in tibial tuberosity - trochlear groove distance (TT-TG) are unknown. The aim of this study was to quantify the effect of MCW-DFO on TT-TG.

methodology: Methods: Three-dimensional (3D) surface models of sixteen lower extremities with a valgus hip-knee-ankle (HKA) angle were analyzed by simulating MCW-DFO with a stepwise increase of one degree of varisation (0°-15°). Six of the extremities had a TT-TG (>= 15 mm) and ten lower extremities with a valgus HKA and a normal TT-TG (< 15 mm). This resulted in 240 simulations. The mean TT-TG values pre- and postoperatively and the stepwise changes were analyzed and compared.

results and conclusion: Results: The mean preoperative HKA was 5.2 ± 2.6° valgus (range 1.6 - 10.8°). Mean TT-TG decreased from 13.6 ± 3.8 (range 5.0 - 19.8) preoperatively to 6.3 ± 3.7 mm (range -0.8 - 11.4) postoperatively ($p<0.001$). TT-TG decreased approximately linear by 1.0 ± 0.1 (range 1.1 - 0.7) per 1° varisation with a high negative correlation (r -0.99 ; $p<0.001$) between 0° and 15°.

Conclusion: MCW-DFO results in a linear decrease in TT-TG ranging from 0° to 15° with an average change of -1.0 mm per 1° varisation. In patients with increased TT-TG and valgus deformity, DFO could be a valuable treatment option. If a simultaneous tibial tubercle osteotomy (TTO) is to be performed, the risk of overcorrection after TT-TG-reducing MCW-DFO must be considered.

Stichwörter: TT-TG, MCW-DFO, osteotomy

Erstellt:	31. Mai 2023 15:47:05 MESZ
Bearbeitet:	31. Mai 2023 16:08:42 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Jürgen Höher
Präsentierender Autor:	Jürgen Höher
Einreichender Autor:	Caroline Schmidt-Lucke
Autorenliste:	Jürgen Höher[1], Isabella Ostner[2], Anne Schraplau[3], Caroline Schmidt-Lucke[4], Oliver Tenfelde[1]
Institut/e:	[1] Sportsclinic Cologne, Köln, Deutschland [2] Technische Universität München, School of Engineering and Design, Medical Engineering and Assistance Systems, Garching bei München, Deutschland [3] MEDIACC (Medico-academic consultings), Berlin, Deutschland [4] MEDIACC (Medico-academic consultings), Charité Universitätsmedizin Berlin, Berlin, Deutschland

Thema:	Prävention und Rehabilitation

Inhalt Englisch

Titel: Eligibility of a novel sensor-based medical device quantifying single-leg vertical jump height in the early rehabilitation of patients post anterior cruciate ligament reconstruction -a digital decentralized clinical trial

interrogation: The single-leg vertical jump (SLVJ) measured by a novel sensor-based medical device was validated as functional test to assess rehabilitation outcome after anterior cruciate ligament reconstruction (ACL-R). The aim of these analyses was to provide standardised values of SLVJ height, its determinants and the reliability in the early rehabilitation phase after ACL-R as prerequisite for a suitable endpoint parameter in clinical and scientific practice.

methodology: First, primary data of a sensor-based medical device from a decentralized, digital, nationwide registry (A, n=138) obtained in a home-based setting were analysed for confidence to perform SLVJ in the early rehabilitation period. Second, data obtained in an outpatient-setting of a monocentric observational study (B, n=143) were analysed for SLVJ height at 3 and 6 months postoperatively and for limb symmetry index (LSI, ratio injured:non-injured leg). In a regression analysis, possibly influencing variables for SLVJ height of the injured leg were assessed.

results and conclusion: In a home-based setting (A: median age group 26-30 years, m/f 63/37%) 85% of patients showed confidence to perform the SLVJ with the injured leg nine weeks postoperatively. Three months postoperatively, the SLVJ height of the injured leg (B: age mean 26.6±8.9 years, m/f 66/34%) was lower (13.5±5.5 cm) compared to the non-injured leg (22.9±6.2 cm; $p < 0.01$; LSI=59.6%). After 6 months, the SLVJ height of the injured leg (18.4±6.9 cm) improved by 44.1% ($p<0.001$) compared to the 3-month follow-up, but was still lower than the SLVJ height of the non-injured leg (23.2±7.0 cm, $p<0.001$; LSI=79.6%). With the injured leg, men had significantly higher SLVJ height than women but LSI was similar at 3 (59.6 vs. 59.5%) and 6 months (80.6 vs. 77.8%), and younger patients (cut-off 30 years) had higher SLVJ height (3 months postoperatively 14.3±5.5 vs. 11.4±4.9 cm; 6 months postoperatively, 19.5± 6.9 vs. 15.5±6.0cm, $p<0.001$). Regression analysis showed SLVJ height of the non-injured leg as main independent influencing variable of SLVJ height of the injured leg (ß=0.776, T=51.506, $p<0.001$). Measurement of SLVJ height after ACL-R with the sensor-based medical device in the early rehabilitation phase thus is objective, valid and reliable for individual follow-up and group comparison. This technique will now be used in a nationwide digital multicentre randomised controlled confirmatory clinical trial to evaluate SLVJ height and jump quality nine weeks post ACL-R to assess the medical benefit of an innovative medical app to improve rehabilitation outcome.
The sensor-based medical device is a cost-effective, easy-to-implement, reliable and validated mobile measurement tool for SLVJ jump height allowing for remote data collection and monitoring rehabilitation status in multicentric clinical trials and daily practice. Assessing SLVJ height of the non-injured leg serves as independent predicting variable for SLVJ height post-surgery.

Stichwörter: ACL reconstruction; functional testing; rehabilitation; digitisation; single-leg vertical jump

Erstellt:	31. Mai 2023 15:58:57 MESZ
Bearbeitet:	31. Mai 2023 16:09:30 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
Sonstiges:	Ja, mit diesem Abstract für den Nachwuchswissenschaftspreis bewerben.
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Philipp Mayer
Präsentierender Autor:	Philipp Mayer
Einreichender Autor:	Philipp Mayer
Autorenliste:	Philipp Mayer[1], Philipp Schuster[1], Michael Schlumberger[1], Stefan Michalski[1], Wouter Beel[1], Janina Leiprecht[1], Jörg Richter[1], Micha Immendörfer[1]
Institut/e:	[1] Orthopädische Klinik Markngröningen, Sportorthopädie und Arthroskopische Chirurgie, Stuttgart, Deutschland

Thema: Osteotomie

Inhalt Englisch

Titel: Measuring the proximal anatomical axis on short lateral x-rays for screening of pathological tibial slope misses out to identify all pathologic changes

interrogation: Alignment in sagittal plane, as described by the posterior tibial slope (PTS), has an important influence on the outcome and survival of anterior and posterior cruciate ligament reconstruction. Therefore, this study aims to evaluate the accuracy of the measurement of the posterior tibial slope on plain lateral radiographs for two common techniques (mechanical axis (MA), proximal anatomical axis (PAA)) and weather it is necessary to measure on long x-rays of the whole tibia in a lateral view.

methodology: In a retrospective analysis, 196 sagittal long x-ray of the whole tibia were reviewed. X-Ray were taken in a standing position with a straight lateral beam path.
The PTS was measured using the MA and PAA as references. The data obtained was analyzed for differences in PTS configuration according to the different measurement techniques.
For parametric data a two tailed t-test was used to test for significant differences, after testing the data for normal distribution. A linear Correlation analysis (Pearson correlation) was applied to detect differences in-between the measurement methods. Additionally, Sensitivity and Specificity of the PAA for screening of a pathologic PTS was determined. Therefore, four subgroups with different pathologic thresholds for the MA were defined (Group 1: PTS with MA>10°; Group 2: PTS with MA >10.5°; Group 3: PTS with MA>11°; Group 4: PTS with MA>11,5°).

results and conclusion: The mean PTS measured with the MA was 9.44° (SD ± 3.77°), mean PTS according to the PAA was 10.49° (SD ± 3.48°). The mean difference of PTS between the PAA and MA was 1.04° (SD ± 1.16°). With increasing PTS values measured with the MA the difference between the PAA and the MA decreased. A negative correlation could be identified, using a Pearson correlation with r=-0,39.
In Group 1 Sensitivity for prediction of a pathologic PTS using the PAA was 73%, Specificity was 98%.
In Group 2 Sensitivity for prediction of a pathologic PTS using the PAA was 84%, Specificity was 97%.
In Group 3 Sensitivity for prediction of a pathologic PTS using the PAA was 87%, Specificity was 93%.
In Group 4 Sensitivity for prediction of a pathologic PTS using the PAA was 95%, Specificity was 89%.
X-rays with an overlapping of the posterior tibial condyles of 7mm or more and <7mm showed significant difference in the mean delta of PTS values between PAA and MA (p=0.001).

Conclusion:
The measurement of the PTS with the PAA fails to identify all patients with conspicuous findings. The number of patients missed out depends on the pathologic threshold value defined for the MA. Therefore, the measurement of the MA on long lateral x-rays of the whole tibia is recommended to determine PTS values. Care has to be taken, when lateral x-rays are showing an overlapping of the posterior tibial condyles of 7mm or more, as this indicates malrotation of the tibia leading to a measuring inaccuracy.

Stichwörter: Slope, anterior cruciate ligament, ACL insufficiency, ACL rupture

Erstellt:	31. Mai 2023 16:03:31 MESZ
Bearbeitet:	31. Mai 2023 16:17:30 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
Sonstiges:	Ja, dies ist ein Case Report
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Thomas Rauer
Präsentierender Autor:	Thomas Rauer
Einreichender Autor:	Thomas Rauer
Autorenliste:	Thomas Rauer[1]
Institut/e:	[1] UniversitätsSpital Zürich, Klinik für Traumatologie, Zürich, Schweiz

Thema: Case Report

Inhalt Englisch

Titel: Treatment of a Moore type V tibial plateau dislocation fracture with attention to ligament stability - Case Report

interrogation: Tibial plateau fractures represent 1-2% of all fractures. Only about 15-20% of all tibial plateau fractures are dislocation fractures. The most complex type of dislocation fracture, Moore type V, is a devastating injury with usually an unfavorable prognosis for the patient and presents an exceptional challenge to the surgeon.

methodology: We present the case of a 37-year-old athletic patient who sustained a complex Moore's type V tibial plateau dislocation fracture as monotrauma in a fall from a height of 2 meters while bouldering. Diagnostic imaging (X-ray, CT, MRI) revealed a four-part fracture of the tibial plateau consisting of: multi-fragmentary medial and lateral fracture of the tibial plateau, a multi-fragmentary eminentia fracture with avulsion fractures of both the anterior cruciate ligament (Meyers and McKeever type 2, extended type) and the posterior cruciate ligament (Meyers and McKeever type 4), an undislocated fibular head fracture, a lesion of the deep leaf of the medial collateral ligament, a compromise of the posterolateral corner with distension of the tendon of the M. popliteus without injury to neurovascular structures.
After soft tissue conditioning and inconspicuous compartment monitoring, plate osteosynthesis of the medial and lateral tibial plateau was performed on the 7th day after the accident via a postero-central approach using a special plate (Wave Proximal Posterior Tibial Plate) with additive suture augmentation of the posterior cruciate ligament to the plate.
Five days later, arthroscopic transosseous FiberTape reinsertion of the anterior cruciate ligament was performed with additive retrograde screw osteosynthesis. The undislocated fibula head fracture as well as the compromise of the posterolateral corner and the lesion of the deep leaf of the medial collateral ligament were treated conservatively.

results and conclusion: Following functional knee bracing by using a PCL brace, 15 kg partial weight bearing for 6 weeks and a subsequent structured rehabilitation program, the patient was able to resume his sports training without restrictions after 3 months. 1 year postoperatively, the patient showed laterally equal mobility, an inconspicuous gait pattern and was able to pursue his multiple sports activities without restrictions.

Moore's type V tibial plateau dislocation fractures are very serious knee injuries, which are associated with a high likelihood of neurovascular and ligamentous concomitant injuries. These fractures often lead to a significant reduction in the patient's quality of life. Decisive for an adequate outcome is a soft tissue-adapted early surgical treatment taking into account both the osseous and the ligamentous injuries with reconstruction of the joint surface without steps as far as possible, correct alignment of the tibial axis and simultaneous reconstruction of the ligamentous stability, if necessary.

Stichwörter: Tibial plateau dislocation fracture; ligamentous concomitant injuries; treatment options

Erstellt:	31. Mai 2023 16:05:22 MESZ
Bearbeitet:	31. Mai 2023 16:13:24 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Adrian Deichsel
Präsentierender Autor:	Adrian Deichsel
Einreichender Autor:	Adrian Deichsel
Autorenliste:	Adrian Deichsel[1], Thorben Briese[1], Wenke Liu[1], Alina Albert[1], Michael J Raschke[1], Christoph Kittl[1]
Institut/e:	[1] Klinik für Unfall-, Hand- und Wiederherstellungschirurgie, Universitätsklinikum Münster, Münster, Deutschland

Thema: Ligamentverletzungen

Inhalt Englisch

Titel: The Role of Fibers of the Femoral Footprint of the Posterior Cruciate Ligament in Resisting Posterior Tibial Displacement - A Biomechanical Robotic Study

interrogation: Similar to the anterior cruciate ligament, the femoral footprint of the posterior cruciate ligament (PCL) is composed of different fiber areas, possibly having distinct biomechanical functions. The purpose of this study was to determine the role of different fiber areas of the femoral footprint of the posterior cruciate ligament in resisting posterior tibial displacement, to possibly improve tunnel positioning in PCL reconstruction.

methodology: A sequential cutting study was performed on eight fresh-frozen human knee specimens, utilizing a six degrees of freedom robotic test (KUKA Robotics) setup. The femoral attachment of the PCL was divided into 15 areas (Fig. 1). The PCL ﬁber areas were sequentially cut away from the bone in a randomized order. After determining the native knee kinematics (89 N posterior tibial translation) in 0 - 90° of flexion, a position-controlled protocol was performed replaying the native displacements, while constantly measuring the necessary force. The reduction of restraining force or moment was measured after each cut. Statistical analysis was performed with PRISM (GraphPad Software) utilizing mixed linear models.

results and conclusion: The complete PCL was found to contribute 24 % (in full extension) to 59 % (in 90° flexion) to restraining a posterior tibial force translation. Two areas of the femoral PCL footprint (Fig. 1, areas 9 and 12) were found to significantly contribute to restraining posterior tibial force in all flexion angles ($p < 0.05$). Together these areas contributed 44 - 47 % of the resistance of the total PCL. No clear assignment of the areas to either the anterolateral or posteromedial bundle was possible. Overall, the proximal fibers of the PCL footprint (Fig. 1, areas 3, 6, 9, 12, 15) contributed significantly more to restraining posterior tibial translation than the intermediate (areas 2, 5, 8, 11, 14) and distal (areas 1, 4, 7, 10, 13) fiber areas ($p < 0.05$).

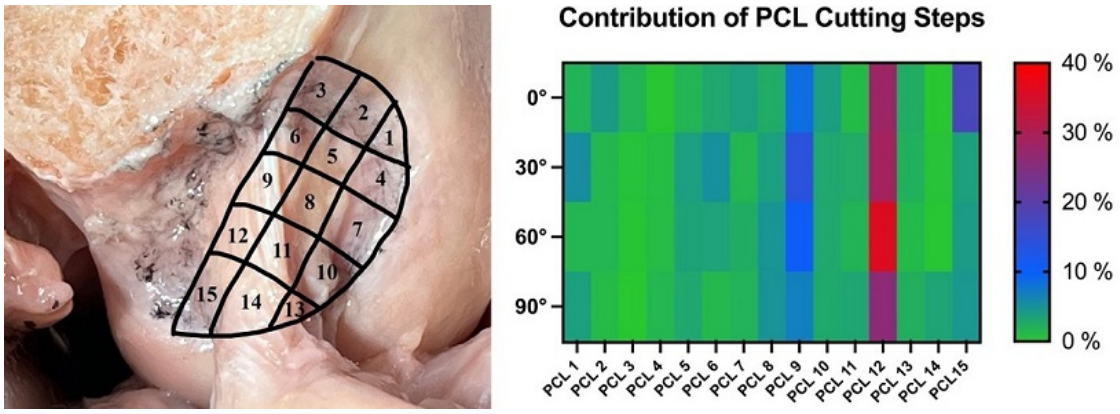


Figure 1 Left: Partitioning of the femoral footprint of the posterior cruciate ligament into 15 areas, which were cut sequentially. Right: Area 9 and 12 contributing over 45 % of the total restraining force of the posterior cruciate ligament.

In conclusion, an area towards the proximal and posterior part of the femoral PCL footprint was found to be the most important restraint to a 89N posterior tibial drawer force. This area might be the optimal insertion area for a single bundle PCL reconstruction, which has to be evaluated in further studies.

Stichwörter: posterior cruciate ligament, PCL, direct fibers, biomechanics, robot

Erstellt:	31. Mai 2023 16:41:45 MESZ
Bearbeitet:	31. Mai 2023 21:08:21 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Erol Akalin
Präsentierender Autor:	Erol Akalin
Einreichender Autor:	Erol Akalin
Autorenliste:	Erol Akalin[1], Thomas Probst[1], Aris Giannouchos[1], Christoph Schnurr[1]
Institut/e:	[1] St. Vinzenz Krankenhaus, Klinik für Orthopädie, Düsseldorf, Deutschland

Thema: Endoprothetik

Inhalt Englisch

Titel: Robotic assisted knee arthroplasty in residency? Effects on surgical Duration and outcome

interrogation: So far, there have been few publications on the extent to which tutorial surgery influenced patient outcome using assistance through robotic technology.
The question of our study was therefore: What influence does the switch from navigated to robotic surgical technology have on surgical duration and the outcome of surgery performed by residents? Does the use of robotic technology enable residents to achieve an outcome comparable to that of experienced surgeons?

methodology: Retrospectively, all robotic assisted total knee arthroplasties (MAKO/Triathlon, Stryker) implanted by residents from 9/20 to 9/21 were identified. The surgeries performed by senior surgeons in the same period served as a comparison group. Surgical duration and outcome (complications, 1 year PROMS/KOOS) were compared.
In addition, a historical group of the last navigated tutorial surgeries was formed (Brainlab/Nexgen, ZimmerBiomet).

results and conclusion: When switching from the navigated to the robotic surgical technique, an average increase in the duration of the residents' surgical procedures in the first 10 robotic interventions by 11 minutes (138 min vs. 127 min) was shown, with a downward trend over the course of the year; finally, the surgical time of the robotic assisted procedures was shorter than that of the navigated comparison group. Compared to experienced surgeons the surgical duration of robotic assisted surgery within the resident group was 16 minutes (124 min vs. 108 min) higher.
Mechanical axis outliers >3° varus/valgus occurred in 2% of the robotic surgeries by residents, in 3% of the robotic surgeries by experienced surgeons and in 9% of the navigated resident surgeries. In the robotic resident group due to left behind cement, revision surgery had to be performed. Wound healing disorders at the tibial pin entry points could be treated conservatively, but manifested themselves regardless of the type of surgeon.
The analysis of the 1-year PROMS showed no significant difference between training and specialist surgery.
The study shows that the robotic surgical technique is very well suited for training interventions: after an initial learning curve, the surgical times are shorter than those of the navigated technique. Residents seem to achieve the same outcomes as experienced surgeons with robotic surgical technology. It remains unclear how manual skills such as free handling of a saw can be trained as robotic saws become more widespread.

Stichwörter: knee replacement, robotic surgery, resident training

Erstellt:	31. Mai 2023 16:53:01 MESZ
Bearbeitet:	31. Mai 2023 21:46:25 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
Sonstiges:	Ja, mit diesem Abstract für den Nachwuchswissenschaftspreis bewerben.
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Danko Dan Milinkovic
Präsentierender Autor:	Danko Dan Milinkovic
Einreichender Autor:	Danko Dan Milinkovic
Autorenliste:	Danko Dan Milinkovic[1], Sebastian Schmidt[2], Julian Flügel[3], Felix Zimmermann[4], Peter Balcarek[3]
Institut/e:	[1] Charité - Universitätsmedizin Berlin, Berliin, Deutschland [2] ViDia Kliniken Karlsruhe, Klinik für Orthopädie, Karlsruhe, Deutschland [3] Arcus Sportklinik, Pforzheim, Deutschland [4] BG Klinik Ludwigshafen, Ludwigshafen, Deutschland

Thema: Patellofemoral

Inhalt Englisch

Titel: Preoperative subjective disease-specific quality-of-life and knee joint function are the only parameters that influence whether the minimal clinically important difference will be achieved following surgery for recurrent patellar instability

interrogation: Recognizing the complex nature of recurrent patellar instability (PI), a personalized surgical approach has emerged as the gold standard for its treatment. Nevertheless, it has been reported that some patients do not reach subjective satisfaction postoperatively. Evaluation of the patients' quality of life (QOL) has primarily relied on various patient-reported outcome measures (PROMs), which are often reported in terms of statistical significance. Yet, interpreting these measures an individual plane can be challenging. To address this, the concept of Minimal Clinically Important Difference (MCID) was developed to provide a patient-relevant understanding of outcome measures. Therefore, the purpose of this study was to establish the MCID for the Banff Patellofemoral Instability Instrument 2.0 (BPII 2.0) as a disease-specific QOL measure in patients with recurrent PI and to evaluate which factors exert a predictive value for not reaching the MCID postoperatively. We hypothesized that the presence and magnitude of certain risk factors or their combination would have a negative predictive value for achieving MCID after surgery.

methodology: A retrospective analysis was conducted on a cohort of 237 consecutive patients (71 male, 166 female; mean age 22.4±6.8 years) with a history of PI who underwent a tailored treatment based on their individual pathoanatomic risk factor profile. The evaluation encompassed the BPII 2.0, and subjective rating of function and pain (0-10) from pre- to postoperatively. Gender, age, body mass index, nicotine abuse, presence of psychiatric disease, cartilage status (AMADEUS score), and various pathoanatomic factors were assessed for each patient. Univariate logistic regression analysis was employed to assess potential predictors for reaching the MCID, and variables with level of significance of $p \leq 0.1$ were incorporated into a decision tree analysis ($p \leq 0.05$).

results and conclusion: The study determined the MCID for the BPII 2.0 to be 9.5 points. 209 patients achieved the MCID after 34.9 ± 13.4 months of follow-up, while 29 did not. Analysis revealed that only the preoperative joint function and BPII 2.0 score were significant predictors of postoperative MCID attainment. Notably, a preoperative BPII 2.0 threshold of 65.2 points emerged as optimal, with 93.6% of patients below this threshold achieved the MCID, compared to 54.1% of patients above. Similarly, a preoperative function threshold of 7 showed optimal discrimination, as 91% of patients below reached the MCID, as opposed to 41.2% of patients above it. Age should be considered for patients with a preoperative BPII 2.0 > 62.5. Specifically, 70.8% of patients < 24 years with a BPII 2.0 > 62.5 achieved the MCID, while only 21.4% of patients older than 24 years with the same BPII score reached the MCID. The results demonstrate that only the preoperative assessment of disease-specific QOL and function determines the probability of achieving MCID postoperatively, while this is partly influenced by age as well.

Stichwörter: Patellar instability; disease-specific quality of life; patient-reported outcomes, MCID

Erstellt:	31. Mai 2023 17:55:00 MESZ
Bearbeitet:	31. Mai 2023 18:22:31 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Sebastian Gebhardt
Präsentierender Autor:	Sebastian Gebhardt
Einreichender Autor:	Sebastian Gebhardt
Autorenliste:	Sebastian Gebhardt[1], Marcus Vollmer[2], Georgi Wassilew[1]
Institut/e:	[1] Klinik für Orthopädie, Universitätsmedizin Greifswald, Greifswald, Deutschland [2] Institut für Bioinformatik, Universitätsmedizin Greifswald, Greifswald, Deutschland

Thema: Knorpel und Meniskus

Inhalt Englisch

Titel: Current indications for Matrix Induced Chondrogenesis in the treatment of focal cartilage lesions of the knee joint - evaluation of data from the German Cartilage Registry (DGOU KnorpelRegister)

interrogation: The scientific evidence supporting the use of Matrix Induced Chondrogenesis (Matrix-BMS) to treat focal cartilage lesions of the knee has recently increased. Accordingly, treatment recommendations suggest the use Matrix-BMS to treat cartilage lesions of the knee measuring from 1.0 to 4.5 cm². However, at the same time the Autologous Chondrocyte Implantation (ACI) remains standard of care for cartilage lesions of the knee measuring from 2 cm². The aim of the present analysis of data from the German Cartilage Registry was to evaluate independent factors that contribute to the decision to use Matrix-BMS or ACI for the treatment of cartilage lesions of the knee measuring from 2 to 4.5 cm².

methodology: The present analysis was carried out by evaluation of data from the German Cartilage Registry, that was collected between October 1st 2013 and June 30th 2021. Data screening and statistical analysis was conducted with R version 4.2.0. Summary measures include mean and standard deviation or median with quartiles for continuous variables and counts for categorical variables with row or column percentages. Appropriate statistical tests were conducted depending on the variable type. Multivariable logistic regression was calculated to investigate independent factors for the choice ACI vs. Matrix-BMS in defect sizes between 2 and 4.5 cm². An AIC-based stepwise procedure was used for variable selection in a complete case analysis. Collinearity of independent factors was checked using variance inflation factors. Odds Ratios (OR) were computed with 95% confidence intervals for each regression coefficient. Type III likelihood ratio tests were used to test each predictor variable in general for statistically significant effects on the therapy choice. An alpha-level of 5% was used.

results and conclusion: A total of 1673 treatments (1454 ACI and 219 Matrix-BMS) of cartilage defects measuring from 2 to 4.5 cm² were included in the present analysis. The median age (43 vs 33 years, $p<0.001$) and the mean BMI (27.0 vs 26.2 kg/m², $p=0.015$) was higher in the Matrix-BMS compared to the ACI-group. The median lesions size was smaller in the Matrix-BMS (3.00 cm²) compared to the ACI-group (3.75 cm², $p<0.001$). Logistic regression revealed that in cases with damaged corresponding cartilage grade III or higher (OR 0.46, $p=0.03$), accompanying meniscus therapies (OR 0.40, $p=0.008$), accompanying osteotomies (OR 0.54, $p=0.024$) and patient age above 45 years of age (OR 0.83 per year, $p<0.001$) the Matrix-BMS was preferred. The ACI was preferred in cases with bigger lesions within the given limit (OR 2.10, $p<0.001$), three or more (OR 3.84, $p=0.003$), two (OR 2.66, $p=0.003$) and one previous surgery at the joint (OR 1.74, $p=0.017$).
In current practice the Matrix-BMS is not regarded as an equivalent alternative to ACI for the treatment of small and middle-sized cartilage defects of the knee, but is preferred in older patients and in context with degenerative changes and concomitant meniscus surgery and osteotomies.

Stichwörter: Cartilage Repair Surgery, Matrix Induced Chondrogenesis, Autologous Chondrocyte Implantation, German Cartilage Registry, Deutsches Knorpelregister (DGOU)

Erstellt:	31. Mai 2023 18:37:51 MESZ
Bearbeitet:	1. Juni 2023 23:51:33 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
Sonstiges:	Ja, mit diesem Abstract für den Nachwuchswissenschaftspreis bewerben.
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Carolin Flieser
Präsentierender Autor:	Carolin Flieser
Einreichender Autor:	Carolin Flieser
Autorenliste:	Carolin Flieser[1], Paola Kappel[2], Daniel Günther[3], Bertil Bouillon[3], Thomas Pfeiffer[3]
Institut/e:	[1] Universität Witten/Herdecke, Kliniken der Stadt Köln, Klinik für Orthopädie und Unfallchirurgie, Köln, Deutschland [2] Kliniken der Stadt Köln, Universität Witten/Herdecke, Klinik für Orthopädie und Unfallchirurgie, Köln, Deutschland [3] Kliniken der Stadt Köln gGmbH, Klinikum Köln-Merheim, Klinik für Unfallchirurgie, Orthopädie u. Sporttraumatologie, Universität Witten/Herdecke, Köln, Deutschland

Thema: Patellofemoral

Inhalt Englisch

Titel: High Prevalence of Risk Factors for Recurrent Patella Instability in Patients with Flake Fractures Consequent to Patellar Dislocation: A Retrospective Analysis

interrogation: Flake fractures of the patella and trochlea, often seen in cases of patellar dislocation, are typically attributed to trauma, which might result in a lack of thorough risk analysis for patellar instability. However, it appears crucial to conduct this analysis and tailor the therapy accordingly to prevent recurrent dislocations and the persistence of symptoms. Therefore, the aim of this study was to describe the prevalence of the risk factors including torsional deviation for patella instability within a consecutive series of patients who experienced flake fractures of the patella and trochlea in the context of patellar dislocation.

methodology: A retrospective analysis of 54 consecutive patients who underwent surgical treatment of flake fractures of the patella or lateral trochlea in the setting of patella dislocation from 01/2020 to 02/2023 was performed. Information on age at the time of surgery and contralateral instability was obtained from the stored examination data. Standard imaging (radiographs in 2 planes, patella tangential and MRI) was used to categorize trochlear dysplasia according to Dejour, and to determine tibial tuberosity trochlear-groove (TT-TG), patella height according to Insall-Salvati, and patella tilt. The Patella-Instability-Severity (PIS) Score was calculated based on these results. Leg axis was measured in a whole-leg standing radiograph. Patients with clinical indicators of torsional deformity also underwent torsion-angle computed tomography. Presence of a bony risk factor for patella dislocation was defined: TT-TG >16mm, Trochlea-Dysplasia >Dejour Type A, femoral antetorsion >20°, tibial external torsion >30°, Valgus >2°.

results and conclusion: 41 patients (76%) with a complete data set (29 men (70,7%)) with mean age of 19.0 ± 8.3 years were included in the study. Patients showed a mean TT-TG distance of 15,5 (± 4,6mm), a mean Insall-Salvati-Index of 1,26 (± 0,23), a mean Patella-Tilt of 15,8 (± 5,5°). The mean PIS-Score was 3,2 (± 1,2). The mean deviation of leg axis of 1,3 ± 2,4° valgus. A normal distribution was determined only for the TT-TG and the patellar inclination. In 4% the PIS Score was at least 4. In 56% clinical indicators for torsional deformity was apparent. In these cases, the mean femoral antetorsion was 20,8 ± 10,4° and a tibial external torsion of 32,9 ± 9,5°. And a torsional deformity of femur and/or tibia existed in 82.6%. Adding knee valgus deformity, Trochlea Dysplasia, TT/TG distance 90.2% of all patients had at least one osseous risk factor, 39.0% more than 3 risk factors.
Bony risk factors for patellofemoral instability were present in 90% of all cases of a flake fracture in the context of patella dislocation. There is also a high risk of recurrent patella dislocation as determined by the PIS score. This should be considered in the treatment of flake fractures and an extensive analysis of the risk factors should be performed in all patients with flake fractures for prevent recurrent dislocations and persistent symptoms.

Stichwörter: flake fractures, patella dislocation, Patella instability, bony morphology

Erstellt:	31. Mai 2023 18:38:07 MESZ
Bearbeitet:	31. Mai 2023 22:40:15 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
Sonstiges:	Ja, mit diesem Abstract für den Nachwuchswissenschaftspreis bewerben.
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Annika Siebe
Präsentierender Autor:	Annika Siebe
Einreichender Autor:	Annika Siebe
Autorenliste:	Annika Siebe[1], Alexander Hundeshagen[1], Carolin Flieser[1], Thomas Pfeiffer[1], Bertil Bouillon[1], Daniel Günther[1]
Institut/e:	[1] Kliniken der Stadt Köln gGmbH, Klinikum Köln-Merheim, Klinik für Unfallchirurgie, Orthopädie u. Sporttraumatologie, Universität Witten/Herdecke, Köln, Deutschland

Thema: Ligamentverletzungen

Inhalt Englisch

Titel: Influence of medial and lateral tibial slope on the risk of developing knee dislocations, isolated injuries of the cruciate ligaments, and anterior cruciate ligament re-ruptures compared to a degenerative medial meniscus tear control group

interrogation: High tibial slope (TS) leads to increased forces on the anterior cruciate ligament (ACL). Low TS leads to increased forces on the posterior cruciate ligament (PCL). The influence of TS on multiligament injuries involving both cruciate ligaments has not been determined. Most studies perform measurements of TS using lateral radiographs, not distinguishing between medial and lateral TS. The aim of this study was to determine medial and lateral TS on MRI in knee dislocations ≥ KD III, isolated ACL injuries, isolated PCL injuries, and ACL re-ruptures and to compare the results with a degenerative medial meniscus tear control group.

methodology: The study is a retrospective case-control study. An a-priori power analysis revealed that the minimum sample size of 45 participants in all groups is required to obtain a power of 0.80. Lateral and medial TS measurements were taken in 50 patients per group with knee dislocations ≥ KDIII, isolated ACL ruptures, isolated PCL ruptures, ACL re-ruptures, and degenerative medial meniscus tears (control group). Measurements were performed according to Hudek et al. on T1 weighting MRIs. To determine inter- and intra-rater agreements all measurements were performed twice by two blinded raters at two different timepoints. Data normality was confirmed by Shapiro-Wilk-Test. A t-test was used to compare each study group with the control group. Significance was set at $p<0.05$.

results and conclusion: Lateral TS was significantly decreased in ≥ KDIII (4.2°±3.5°), isolated ACL ruptures (4.5°±3.6°), and isolated PCL ruptures (3.5°±3.6°) compared to the control group (6.7°±2.7°). Medial TS was significantly decreased in ≥ KDIII (3.7°±3.8°) and isolated PCL ruptures (3.5°±3.2°) compared to the control group (5.3°±2.4°). In isolated ACL ruptures (4.1°±4.2°), medial TS was not different compared to the control group. In ACL re-ruptures lateral TS (6.4°±3.1°) and medial TS (4.9°±3.0°) were not different compared to the control group. Interestingly, among the 50 patients with ACL re-ruptures, no patient had a medial TS ≥ 12°, and only 2 patients had a lateral TS ≥ 12°.

Based on the results of this study, decreased medial and lateral TS are associated with an increased risk of ≥ KDIII injuries and isolated PCL ruptures. In contrary to the literature, decreased lateral TS was associated with an increased risk of isolated ACL rupture. Medial TS did not influence the risk of isolated ACL rupture. Medial and lateral TS did not influence the risk of ACL re-rupture, although it might be relevant in individual cases. The results of this study compared to current literature suggest, that especially the risk of ACL re-rupture might be multifactorial. Coronal and axial alignment, shape of the femoral condyle, and related injuries must be considered to create more valid predictions on injury patterns.

Stichwörter: tibial slope; knee dislocations; anterior cruciate ligament rupture; posterior cruciate ligament rupture

Erstellt:	31. Mai 2023 18:40:07 MESZ
Bearbeitet:	31. Mai 2023 18:54:28 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
Sonstiges:	Ja, mit diesem Abstract für den Nachwuchswissenschaftspreis bewerben.
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Romed Peter Vieider
Präsentierender Autor:	Romed Peter Vieider
Einreichender Autor:	Romed Peter Vieider
Autorenliste:	Romed Peter Vieider[1], Julian Mehl[1], Phillip Schulz[1], Moritz Brunner[1], Peter Raab[1], Lorenz Fritsch[1], Sebastian Siebenlist[1], Max Hinz[2]
Institut/e:	[1] Sektion Sportorthopädie, Klinikum Rechts der Isar TU München, München, Deutschland [2] Sektion Sportorthopädie, Klinikum Rechts der Isar, München, Deutschland

Thema: Osteotomie

Inhalt Englisch

Titel: Knee rotation in lateral radiographs result in overestimated posterior tibial slope measurements in clinical practice

interrogation: The aim of this study was to investigate whether significant measurement deviations arise from knee rotation in clinical practice when measuring the posterior tibial slope (PTS) on lateral radiographs. The hypothesis was that PTS measurement differ in true lateral radiographs (TLR) vs. malrotated radiographs (MRR).

methodology: All patients who underwent knee joint surgery at our institution from 06/01/2022 to 01/31/2013 and received preoperative, as well as intraoperative or postoperative lateral radiographs (LR) of the knee joint were eligible for this study. Patients were excluded if they had any kind of tibial fractures, showed an excessively short tibial shaft axis on radiography, or had undergone osteotomies. Sample size calculation revealed the necessity of 46 measurement pairs (d = 0.4; beta = 0.8). The radiographs of all included patients were measured by 2 raters for lateral (LPTS) and medial posterior tibial slope (MPTS) on preoperative and intraoperative, or if not available, postoperative imaging. In addition, malrotation was determined as the difference between the medial and lateral posterior femoral condyles in millimeters (PFKD, mm) on LR. Group comparisons were performed using paired t-test. Intraclass correlation coefficients (ICC) were calculated to evaluate the inter- and intra-rater reliability of all measurements. Significance was set at $p < 0.05$.

results and conclusion: A total of 92 radiographs (46 right/ 46 left) from 46 patients (32 male/14 female) were included. Mean LPTS and MPTS values on TLR were 9.8 ± 3.5° and 9.7 ± 3.5°, respectively. Measurement on MRR resulted in 10.5 ± 3.2°for MPTS and 10.6 ±3.7° for LPTS. Mean difference between TLR and MRR for MPTS was 1.9 ± 1.5° and 2.0 ± 1.8° for LPTS. Mean PFKD in MRR was 6,2 ± 4.1 mm. The difference of MPTS and LPTS measured on TLR versus MRR was statistically significant (medial: p= .046; lateral p= .032). There was no significant correlation of MPTS (p= .181) but a significant correlation between LPTS and PFKO (p= .016). IRR showed acceptable results for all measurements (Cronbachs alpha = .71).

Conclusion:
In clinical practice, malrotated lateral radiographs of the knee had a significant impact on the measurement of medial and lateral PTS. Especially, in case of borderline PTS values resulting in indications for surgeries, attention should be paid to a strictly lateral image.

Stichwörter: Posterior tibial slope; posterior tibial slope measurement, PTS, measurement PTS, rotation of lateral xrays, knee

Erstellt:	31. Mai 2023 18:42:13 MESZ
Bearbeitet:	31. Mai 2023 18:53:20 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Hasan Al Mustafa
Präsentierender Autor:	Hasan Al Mustafa
Einreichender Autor:	Wolf Petersen
Autorenliste:	Hasan Al Mustafa[1], Martin Häner[2], Wolf Petersen[2]
Institut/e:	[1] Klinik für Orthopädie , Martin Luther Krankenhaus, Berlin, Deutschland [2] Klinik für Orthopädie, Martin Luther Krankenhaus, Berlin, Deutschland

Thema: Prävention und Rehabilitation

Inhalt Englisch

Titel: Evaluation of an AI-supported image analysis for the detection of movement restrictions

interrogation: Restricted movement of the knee can be associated with various diseases and injuries. Accurate recording is of particular relevance for monitoring rehabilitation.
The aim of this study was to compare an AI-supported image analysis system for recording knee mobility with the conventional goniometer test and to examine the practicability of this system in everyday practice.

methodology: In a prospective study, knee mobility was examined in 15 patients with an AI-supported image analysis system (Orthelligent VISION, OPED) and compared with the conventional goniometer method and a marker method (innovea). The Pearson correlation coefficient was calculated for statistical analysis.
The knee mobility was recorded with the Orthelligent VISION with a camera that was set up at a defined distance to the side of the knee.
The primary outcome measure was knee mobility. The secondary outcome measure was application time.

results and conclusion: There was a high degree of agreement between the different assessment methods for assessing knee extension, knee flexion, and range of motion. The Pearson correlation coefficient for the comparison of the goniometer vs. Orthelligent VISION was 0.98 and for the comparison of the marker system to marker-less AI-supported image analysis was also 0.98.
However, the spread of the Orthelligent VISION was significantly lower than the conventional goniometer method.
With regard to the application time, the AI-supported image analysis was significantly superior to the marker method ($p<0.05$).

The results of the present study show that markerless AI-supported image analysis systems are suitable for capturing movement data at the knee joint. They show the same reliability but higher precision than the goniometer method. In terms of practicability, this system is superior to the marker method.
In the future, AI-supported image analysis systems will replace conventional methods of motion detection. Further studies are necessary to investigate their efficiency in more complex movement sequences with higher speeds (e.g. jump tests) or smaller deviations (e.g. dynamic leg axis analysis).

Stichwörter: Knee, artificial intelligence, image analysis, rehabilitation, range of motion, arthrofibrosis

Erstellt:	31. Mai 2023 19:26:26 MESZ
Bearbeitet:	31. Mai 2023 20:21:55 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Julius Watrinet
Präsentierender Autor:	Julius Watrinet
Einreichender Autor:	Julius Watrinet
Autorenliste:	Julius Watrinet[1], Philipp Blum[1], Michael Maier[2], Rolf Schipp[2], Peter Augat[3], Julian Fürmetz[4], Wolfgang Reng[2]
Institut/e:	[1] BG Unfallklinik Murnau , Murnau, Deutschland [2] endogap, Klinikum Garmisch Partenkirchen, Garmisch-Partenkirchen, Deutschland [3] Berufsgenossenschaftliche Unfallklinik Murnau, Institut für Biomechanik, Murnau, Deutschland [4] Murnau, Deutschland

Thema: Endoprothetik

Inhalt Englisch

Titel: Undersizing of tibial components in unicompartmental knee replacement type Oxford increases periprosthetic fracture risk

interrogation: Tibial periprosthetic fractures (TPF) in unicompartmental knee arthroplasty (UKA) type Oxford are a rare condition with an incidence of approximately 1%. Described risk factors for TPF include age, gender, BMI, decreased bone density and are driven by surgical technique and prosthesis design. This study investigates whether 'undersizing' of the tibial implant component causes an increased risk of TPF.

methodology: In this retrospective study, 1542 patients with cemented (n = 363) and cementless (n = 1179) medial UKA were reviewed over a 6-year period. The risk variables of mismatching, age, sex, BMI, and implantation technique were examined using binary logistic regression with respect to TPF rate. In addition, the distance of the keel of the tibial component relative to the width of the medial tibial plateau was measured on the postoperative radiograph and examined by T-test. Undersizing was defined as a smaller tibial component relative to the femoral implant as shown in Table 1.

Femoral Komponenten Größe	XS	S	M	L
Tibiale Komponenten Größe	AA	A / B	C / D	E / F

Table 1

results and conclusion: The mean follow-up was 5.0 ± 1.7 years. Fourteen patients sustained TPF after a mean of one month with an overall fracture rate of 0.9%. The undersizing of the tibial implant component positively influenced the TPF rate with an odds ratio of 3.2 (p=0.03). In addition, advanced age (OR 1.085, p=0.01) and female gender (OR 6.5, p=0.02) were identified as significant risk variables, while BMI (p=0.75) and implantation technique (cemented vs. press-fit, p=0.19) had no significant effect on fracture rate. On radiograph, the relative distance of the keel to the medial cortex in relation to the width of the medial tibial plateau was significantly smaller in cases with TPF (0.47% vs. 0.52%, t-test p < 0.001). Revisions for TPF were performed using open reduction and internal fixation (ORIF, n=12) or conversion to total knee arthroplasty (TKA, n=2).

TPF is more likely with 'undersizing' of the tibial component and this might be explained by a reduced distance of the implant keel to the medial cortex resulting from undersizing. Additionally, the indication for medial UKA should be made with great care when other risk factors are present, especially in< older, female patients. Revision treatment of TPF in medial UKA can be successfully treated by ORIF or conversion to TKA.

Stichwörter: Knee, unicompartmental, joint replacement, oxford, periprosthetic fracture, implant positioning

Erstellt:	31. Mai 2023 19:27:16 MESZ
Bearbeitet:	31. Mai 2023 21:19:38 MESZ
Status:	Eingereicht
Beitragsart:	Poster
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Benjamin Bartek
Präsentierender Autor:	Benjamin Bartek
Einreichender Autor:	Benjamin Bartek
Autorenliste:	Benjamin Bartek[1], Sarah Hellwig[1], Lara Biedermann[1], Tobias Jung[1], Yannick Palmowski[1]
Institut/e:	[1] Charité - Universitätsmedizin Berlin, Centrum für Muskuloskeletale Chirurgie, Klinik für Orthopädie, Berlin, Deutschland

Thema: Patellofemoral

Inhalt Englisch

Titel: An evaluation of a novel method for the MRI-based assessment of Caton-Deschamps index of patellar height

interrogation: The radiographical assessment of patellar height has historically been performed using X-Ray. However, in clinical practice measurements are often made on the basis of MRI imaging, the reliability of of this assessment is poorly established. The aim of this study was to evaluate a new method for the assessment of patella height using MRI and to assess the correlation with the classical X-Ray based assessment.

methodology: The study included patients (n=159) who underwent either ACL or MPFL reconstruction and who had both lateral radiographs and MRI images of the knee. Parameters measured included traditional radiographical CDI, MRI-based CDI, and TT-TG distance. On the basis of the TT-TG, the patients were divided into a group with TT-TG < 15mm and one with TT-TG > 15mm. Two different methods were used to assess CDI using MRI: the usual technique, using a single slice image, and an alternative technique using two different cross-sectional images. All radiological parameters were measured independently by two examiners. The mean value of both measurements was used for statistical evaluation. The correlation of the two measurement methods in the MRI with the measurements in the X-ray was assessed using Pearson's correlation coefficient. In addition, for each of the two measurement methods, the intraclass correlation coefficient (ICC) was determined from the measurements of the two investigators.

results and conclusion: The average TT-TG distance was 11.6mm (±4.6), with 118 patients having a TT-TG Distance < 15mm and 41 patients having a TT-TG Distance >15mm. In patients with a TT-TG <15mm, both measurement methods for assessing CDI on MRI showed comparable correlation with measurements on X-ray ($r = 0.497$, $p < 0.001$ for measurement in the single slice image and $r = 0.521$, $p < 0.001$ for measurement with cross-sectional images). In patients with a TT-TG of >15 the the new cross-sectional imaging method showed higher correlation with traditional X-Ray assessment compared to CDI assessment using the traditional single slice method ($r = 0.594$, $p < 0.001$ vs. $r = 0.302$, $p = 0.055$).

The described method also showed a high interrater reliability, which was comparable to that of X-ray measurements (ICC = 0.823, $p < 0.001$ vs. 0.866, $p < 0.001$ for TT-TG < 15 mm and ICC = 0.901, $p < 0.001$ vs. 0.841, $p < 0.001$ for TT-TG > 15mm, respectively).

The assessment of CDI on MRI using a cross-sectional imaging method has a better correlation with traditional X-Ray assessment of CDI than single-slice assessment. This is particularly true in patients with elevated TT-TG and as such should be preferentially used in the assessment of Patellar height in this cohort.

Stichwörter: patellar instability, patellar height measurement

Erstellt:	31. Mai 2023 19:49:56 MESZ
Bearbeitet:	1. Juni 2023 19:00:34 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Leslie von Negenborn
Präsentierender Autor:	Leslie von Negenborn
Einreichender Autor:	Leslie von Negenborn
Autorenliste:	Leslie von Negenborn[1], Dennis Vogt[2], Christian Willy[2]
Institut/e:	[1] Berlin, Deutschland [2] Bundeswehrkrankenhaus Berlin, Klinik für Unfallchirurgie und Orthopädie, Berlin, Deutschland

Thema: Osteotomie

Inhalt Englisch

Titel: Role of the TCVO (tibial condylar valgus osteotomy) in medial (and lateral) osteoarthritis of the knee

interrogation:

Purpose:
The TCVO (Tibial Condylar Valgus Osteotomy) developed in Japan in 1990 to treat painful advanced medial osteoarthritis of the knee is rarely used in Germany [1]. The first 5-year results using locking plates were presented in 2017 [2]. The technique primarily aims to stabilize the secondary instability or subluxation associated with joint wear. The proportion of the axis deviation caused by the joint wear can exceed the axis deviation purely caused by the bones and lead to a considerable incongruity of the joint surfaces that are normally in parallel contact. The aim of the TCVO is to compensate for the instability and restore joint congruence with improved load absorption on the other - supposedly healthier - joint half. In addition, a similar technique was implemented for the lateral compartment.

methodology:

Methods:
From January 2020 to March 2023, 12 patients with a total of 13 osteotomies (OT) of this type were treated. The recording was retrospective and purely descriptive.

results and conclusion:

Results:
The average age of the all-male collective was 50 years. Monofocal medial 5 OT, monofocal lateral 2 OT, bifocal tibial 2 OT and bifocal tibial + femoral 4 OT were performed. 4 patients have a follow-up of more than 3 years.

Despite the invasive biplanar technique, no nerve- or vascular-associated complications were observed. There was n=1 early revision due to suspected infection in a one-stage bifocal tibial osteotomy to a TCVO plus dome osteotomy. Delayed bony healing or pseudarthrosis were not recorded. To date, no patient has been treated with an endoprosthesis. Everyday stress was easily restored, and the consumption of painkillers was almost completely reduced across the entire collective. The majority of patients are very satisfied with the result.

Conclusion:
TCVO is a proven technique for the symptomatic treatment of medial (lateral) osteoarthritis of the knee with associated secondary instability. In particular, the clinical success of the stabilizing technique points to the influence and proportion of instability on the overall symptoms in medial (lateral) osteoarthritis of the knee. In contrast to the high tibial osteotomy (HTO), the stability can be influenced in a more targeted manner. When performing HTO, the joint congruence cannot be reconstructed. In many cases, a bifocal technique is required for total axis correction. Joint replacement procedures are a good alternative for this age group or are usually preferred in the case of advanced wear and tear. In terms of differential therapy, however, it must be considered that a not insignificant proportion of patients are not satisfied. A prospective study comparing the procedures is planned.

Stichwörter: TVCO, osteoarthritis of the knee, osteotomy

Literaturverzeichnis:

1. Chiba, G, New tibial osteotomy for severe osteoarthritis of the knee with teeter effect., 1992, 798, J Jpn Orthop Assoc 66

2. Ko Chiba, Tibial condylar valgus osteotomy (TCVO) for osteoarthritis of the knee: 5-year clinical and radiological results, 2017, 137(3): 303-310, Arch Orthop Trauma Surg

Erstellt:	31. Mai 2023 19:56:39 MESZ
Bearbeitet:	31. Mai 2023 20:08:09 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Julius Watrinet
Präsentierender Autor:	Julius Watrinet
Einreichender Autor:	Julius Watrinet
Autorenliste:	Julius Watrinet[1], Matthias Tasser[2], Julian Fürmetz[1], Philipp Ahrens[2]
Institut/e:	[1] BG Unfallklinik Murnau , Murnau, Deutschland [2] OrthoPlus, München, Deutschland

Thema: Knorpel und Meniskus

Inhalt Englisch

Titel: Mid-term clinical outcomes after autologous cartilage replacement procedures with synovial coverage for patellar cartilage damage

interrogation: This case series investigated the medium-term clinical outcome of patients undergoing an autologous cartilage replacement procedure with synovial coverage. It was hypothesized that the use of minced cartilage in combination with synovial membrane cover would lead to good outcomes in terms of clinical outcome scores.

methodology: In this retrospective case series, patients with an Outbridge 4 patellar cartilage defect with a defect size of at least 15mm^2 were included from 2020 to 2021. PROMS (VAS at rest and exertion, IKDC, Tegner and KOOS scores) to objectify clinical knee function were collected at the follow-up time point.

results and conclusion: Seven patients could be included in the study. These were predominantly male (85.7%) with a mean age of 33.7 ± 14.9 years. The follow-up was 1.8 ± 0.3 years. The mean IKDC score was 78.0 ± 10.4 and the Tegner score was a median of 5 [2-7]. Patients had little pain at the Follow Up time point (VAS at rest 0.3 ± 0.5, VAS on movement 1.3 ± 1.3, KOOS Pain 87.3 ± 11.9) and had little to no impairment in daily function (KOOS ADL 92.7 ± 14.5). However, patients reported persistent symptoms (KOOS Symptoms 66.8 ± 19.5), which limited sports activity level (KOOS Sports 66.4 ± 27.3) and quality of life (KOOS QOL 50.9 ± 22.9).

This case series demonstrates that autologous cartilage replacement with synovial coverage is a surgical treatment for Outbridge 4 patellar cartilage defects with good midterm clinical outcomes. Recovery of pain-free knee joint function is possible in the medium term, even if knee function cannot be fully restored. Whether the autologous cartilage replacement procedure with synovial coverage also shows good long-term results remains to be seen.

Stichwörter: autologous, Outbridge, cartilage replacement procedure, synovial, IKDC, Tegner, KOOS, rehabilitation

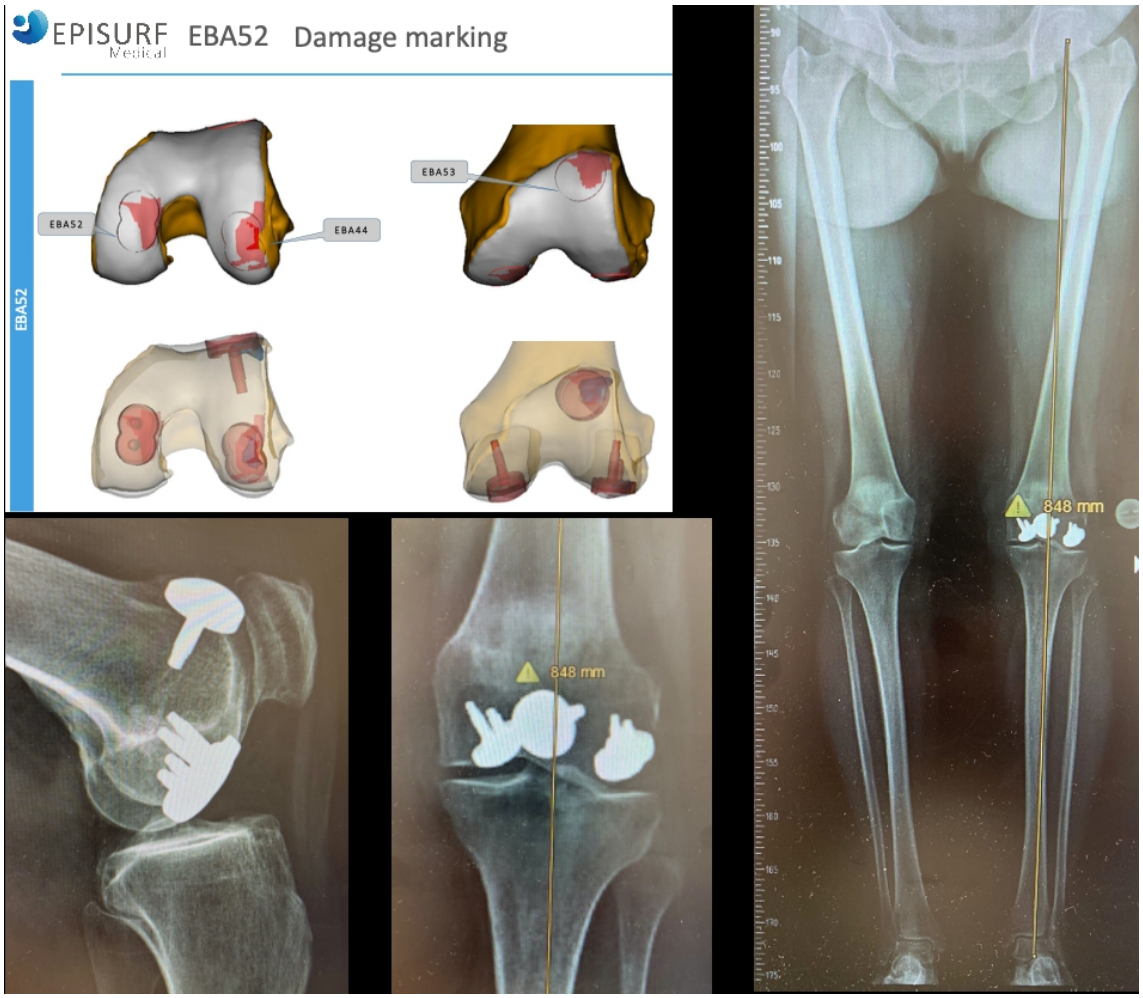
Erstellt:	31. Mai 2023 20:15:18 MESZ
Bearbeitet:	31. Mai 2023 20:44:18 MESZ
Status:	Eingereicht
Beitragsart:	Poster
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Clemens Kösters
Präsentierender Autor:	Clemens Kösters
Einreichender Autor:	Clemens Kösters
Autorenliste:	Clemens Kösters[1], Allaeldin Elbadawi[1], Daniel den Toom[1]
Institut/e:	[1] Maria-Josef-Hospital Greven, Klinik für Orthopädie, Unfall- und Handchirurgie, Greven, Deutschland

Thema:	Knorpel und Meniskus

Inhalt Englisch

Titel:	Tricompartmental patient-specific focal femoral cartilage resurfacing in middle-aged patients
interrogation:	Focal (osteo-) chondral lesions of the femur are a challenge in middle-aged patients. Oftentimes, neither biological repair, nor partial knee arthroplasty represent an adequate treatment. Patient specific mini-metal implants are an option to close this treatment gap. Nevertheless, despite the lower treatment response with increasing age, biological repair is still considered the golden standard for these patients. This study compares the clinical results of tricompartmental implantation of patient specific mini-metal implants at a minimum follow-up of 24 months after treatment.
methodology:	16 patients with focal (osteo-) chondral lesions were included in this retrospective study. All patients were treated with the implantation of 3 patient specific mini-metal implants ("Episealer", Fa. Episurf, Stockholm, Sweden)(Figure01).



59 years old patient. MRI showed damage to the medial, lateral, and anterior regions of the femur. Postoperative x-rays at 52 months follow-up.

Exclusion criteria were varus or valgus malalignment of more than 3°, obesity, advanced damage of the opposing tibial cartilage and loss of more than 50% of the ipsilateral meniscus.
In addition to the demographic data, the visual analogue scale (VAS) for pain and the Knee Injury and Osteoarthritis Outcome Score (KOOS) were collected.

results and conclusion:

The mean age at operation was 52 years (SD 9).
Corresponding tibial cartilage lesions were ruled out before the intervention via arthroscopy and a damage-report that was compiled from special MRI-data.
No signs of loosening or infection were found after 24 months. No revisions were reported.
The VAS for pain improved from 59 preoperatively to 21 24 months postoperatively, the aggregated KOOS increased from 48 to 83.

To our knowledge this is the first study to evaluate the clinical results after tricompartmental implantation of focal patient specific metal implants in middle-aged patients. The patient collective showed improvement in the clinical scores and pain. Therefore this procedure seems to be a valid option for elected patients in the treatment of focal cartilage lesions in middle-aged patients. However, future studies with higher patient numbers will have to compare this treatment to total knee arthroplasty and evaluate the long- and mid-term results of this treatment.

Stichwörter:

patient specific implants; middle-aged patients; focal cartilage lesions

Erstellt:	31. Mai 2023 20:28:10 MESZ
Bearbeitet:	31. Mai 2023 20:51:03 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Johannes Weishorn
Präsentierender Autor:	Johannes Weishorn
Einreichender Autor:	Johannes Weishorn
Autorenliste:	Johannes Weishorn[1], Johanna Wiegand[1], Severin Zietzschmann[1], Tilman Walker[1], Tobias Renkawitz[1], Yannic Bangert[1]
Institut/e:	[1] Orthopädische Universitätsklinik Heidelberg, Heidelberg, Deutschland

Thema: Knorpel und Meniskus

Inhalt Englisch

Titel: Long-term Results of third-generation Autologous Chondrocyte Implantation for focal Cartilage Defects in the Knee

interrogation: Autologous Chondrocyte Implantation (ACI) is an established procedure for the treatment of focal chondral defects of the knee. While the evidence base for the short to medium term interval is good, the long term results after 3rd generation ACI have not been sufficiently investigated.
The aim of this study was therefore to,
1) determine long-term survival and patient-reported outcomes (PRO) after third-generation ACI
2) to identify patient- and surgeon-related factors that influence outcome after ACI.
This abstract is a preliminary analysis of the first 25 patients from a total cohort of 135 patients.

methodology: The preliminary analysis of this prospective cohort study includes 25 patients who underwent matrix-associated ACI (Novocart 3D ®) for focal cartilage damage of the knee joint between 01/2012 and 12/2018. Concomitant procedures were performed when necessary. Demographic data, complications, revisions and PROMs were collected at 1, 2 and more than 5 years postoperatively. Functional outcome was assessed using IKDC and KOOS scores. Long-term survival was calculated using Kaplan-Meier analysis based on revisions, clinical failure and conversion procedures.
Preliminary analysis of 25 patients showed an even gender distribution (56% women/44% men; age 31.9 [14.3; 50.9] years) with a median follow-up of 8.1 years. The median defect size was 5.1 [2.2;9.0] cm2. Defects were located on the medial femoral condyle in 56%, the lateral femoral condyle in 20%, and the patellofemoral condyle in 24%. 36% patella, 19% trochlea). 9 patients (44%) had undergone previous surgery and 14 (56%) had undergone concomitant procedures.

results and conclusion: Post-operative complications in the form of graft hypertrophy occurred in only one patient (4%). This patient underwent chondroplasty. In another case, conversion to a unicondylar surface replacement was necessary (4%). In the current follow-up period, 22% of patients showed a final ROM limitation with no indication for revision surgery.
Patients showed good long-term results 5-11 years after ACI (Tegner: 5.0 ± 2.4; pain VAS: 3.1 ± 1.8; KOOS-4: 60.6 ± 17.7; IKDC: 66.0 ± 17.2; satisfaction with surgery: 80%). Kaplan-Meier analysis with revision surgery as the endpoint showed a survival rate of 88% at 9 years and 73% at 10 years.

The present study shows that ACI is an effective treatment option for femorotibial and patellofemoral cartilage defects, with a high long-term survival rate and a low conversion rate, as well as good long-term results in terms of knee function and satisfaction. Postoperative complications requiring revision surgery are rare.

Stichwörter: Knee, Cartilage, Cartilage Repair, PRO, Long-term Results

Erstellt:	31. Mai 2023 20:29:12 MESZ
Bearbeitet:	31. Mai 2023 23:58:50 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
Sonstiges:	Ja, dies ist ein Case Report
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Jonas Klippel
Präsentierender Autor:	Jonas Klippel
Einreichender Autor:	Jonas Klippel
Autorenliste:	Jonas Klippel[1], Kai Fehske[1]
Institut/e:	[1] Johanniter Waldkrankenhaus Bonn, Bonn, Deutschland

Thema: Case Report

Inhalt Englisch

Titel: Prosthetic treatment of a knee dislocation - A case report

interrogation: Knee dislocation is a rare but fulminant injury to the knee, which usually happens in the context of a high-energy trauma. In almost 12% of cases, a knee dislocation can occur as part of an ultra low velocity (ULV) trauma. The mostly overweight patients had a minor trauma with low speed but high energy impact to the knee. If the knee can be stabilized after successful reduction and without indications for an immediate surgical intervention, a patient-specific therapy plan should be established. Depending on the type of dislocation, certain ligament reconstructive procedures can be used. All of theses different procedures result in a complex and demanding postoperative treatment.

Is a linked knee prosthesis a alternative option after knee dislocation?

methodology: We report about a 66-year-old, mentally retarded, overweight patient (BMI 39.2) who slipped in the shower and twisted her right knee. The patient suffers a dislocation of the right knee, the tibia was dislocated ventrally and malpositioned in external rotation.
After closed reduction and stabilization of the knee in a Mecron splint, further vascular and nerve injuries could be excluded. The MRI detects a Schenk type IV knee dislocation with a rupture of both cruciate ligaments and ruptures of the lateral and medial collateral ligaments.
Due to the patient's lack of compliance, we decided against a reconstructive procedure with it's complex postoperative treatment and decided for the implantation of a coupled knee prosthesis.
After stabilization in a Mecron splint, the knee joint dislocated again during the MRI. A femoral and tibial cemented, shaft-anchored, linked Genu X® monoblock total knee endoprosthesis was implanted.
Physical therapy was started with a pain-adapted full weight bearing on the right leg in a movable orthosis (Donjoy® 4titude). Because of the complex internal damage, the flexion of the knee was limited to 30° and from the 2nd postoperative week to 60°.
The last check-up showed a fully resilient, stable knee (ExtFlex 0/0/100°). Due to the patients mental retardation functional scores could not be meaningfully collected.

results and conclusion: ULV can lead to extremely unstable knee dislocations. The initial treatment should be done immediately, at least with an external fixation, in order to prevent of vascular and nerve damages.
Using a linked knee prosthesis appears to be a alternative treatment for aged, overweight patients with a limited compliance to the complex postoperative treatment of a ligament reconstruction.

Stichwörter: -

Literaturverzeichnis:

1. Lachman, J.R., S. Rehman, and P.S. Pipitone, Traumatic Knee Dislocations: Evaluation, Management, and Surgical Treatment, 2015
2. Schenck, R.J., Classification of knee dislocation, 2003
3. Georgiadis, A.G., S.T. Guthrie, and A.D. Shepard, Beware of ultra-low-velocity knee dislocation, 2014

Erstellt:	31. Mai 2023 20:35:49 MESZ
Bearbeitet:	31. Mai 2023 20:38:44 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Stefan Schneider
Präsentierender Autor:	Stefan Schneider
Einreichender Autor:	Stefan Schneider
Autorenliste:	Stefan Schneider[1], René Kaiser[2], Ansgar Ilg[2], Johannes Holz[2]
Institut/e:	[1] OrthoCentrum Hamburg, Hamburg, Deutschland [2] OrthoCentrum Hamburg, Parkklinik Mannhagen, Hamburg, Deutschland

Thema:	Ligamentverletzungen

Inhalt Englisch

Titel:	Clinical Outcomes after ACL Reconstruction with quadriceps tendon autograft versus hamstrings autograft in suspensory cortical fixation and closed socket drilling. A prospective study with a minimal 5-years follow-up.
interrogation:	The aim of this study was to compare the clinical outcome and complications of all-inside single bundle ACL reconstruction with free quadriceps tendon autograft versus hamstring tendon autograft using the same fixation and drilling technique.
methodology:	A total of 100 patients were included in this prospective study with a at least 5-years follow-up. A total of 50 patients who received a quadriceps tendon (QT) autograft for a primary ACL reconstruction were compared with 50 patients who received a hamstring tendon (HT) autograft. The QT autograft was harvested in a minimally invasive technique. A suspensory flip button was attached to both ends. The semitendinosus tendon for the HT patients was harvested in a standard manner. The tendon was quadrupled, and a suspensory flip button was attached to both ends. The closed socket drilling on femoral and tibial side were performed all-inside and the graft inserted through the anteromedial portal. The Tegner activity level, the KOOS-Jr. Score, the VAS Pain-scale were collected preoperatively, and 6 weeks, 3, 6, 12 and 24 months and 5 years postoperatively. Complications were documented.
results and conclusion:	There was no significant difference in functional or pain scores between the two groups in the first year after treatment. Between one and two years, patients in the QT group reported a better but not significant ($p>0.05$) result compared to the HT group to return to physical activity. However, patients in the HT group showed a higher score (3.7 HT / 3.3 QT) at 6 months, which equalized again at 12 months. The SANE Score shows a similar curve like Tegner. In the first 6 months, the HT group had a higher score (58.9) than the QT group (49.7). After 12 and 24 months and 5 years, these scores equalized. After 5 years the Tegner score was 4.73 HT vs. 5.1 QT and the KOOS was 83.79 HT vs. 85.23 QT. No significant differences were found. The re-rupture rate after 2 years was 1.2%. The mean time to re-rupture since the treatment was 0.9 +/- 0.6 years. No infections were documented in either group. No significant difference between the QT and the HT groups were reported in this 5-years follow-up. Both grafts showed reliable, comparable, and acceptable results.
Stichwörter:	Knee, ACL reconstruction, quadriceps tendon, semitendinosus tendon

Erstellt:	31. Mai 2023 20:51:44 MESZ
Bearbeitet:	31. Mai 2023 21:30:18 MESZ
Status:	Eingereicht
Beitragsart:	Poster
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Felix Reinecke
Präsentierender Autor:	Felix Reinecke
Einreichender Autor:	Felix Reinecke
Autorenliste:	Felix Reinecke[1], Roman Müller-Heck[1], Thomas Albrecht[2], Wiebke Guder[2], Arne Streitbürger[2], Marcel Dudda[1], Jendrik Hardes[2], Bastian Mester[1]
Institut/e:	[1] Unfall-, Hand- und Wiederherstellungschirurgie UK Essen, Essen, Deutschland [2] Klinik für Tumororthopädie und Sarkomchirurgie UK Essen, Essen, Deutschland

Thema: Sonstiges

Inhalt Englisch

Titel: Recurrence rate, quality of life, and functional outcome after arthroscopic versus open synovectomy for PVNS of the knee joint

interrogation: Pigmented villonodular synovitis (PVNS; synonym: tenosynovial giant cell tumor) is a rare mesenchymal neoplasm originating in the synovium of joints and tendon sheaths. Depending on the growth pattern, a nodular form is distinguished from a diffuse form. Generally classified as benign, PVNS can exhibit local aggressive growth and lead to pain, loss of function, and secondary osteoarthritis.
Overall, there is no consensus regarding adequate surgical therapy for PVNS of the knee joint (active observation versus surgery, arthroscopic versus open synovectomy). Persistently high recurrence rates up to 38% especially for the diffuse form are shown in the literature. The aim of this study is to evaluate recurrence rate and functional outcome after arthroscopic versus open synovectomy for diffuse and nodular PVNS.

methodology: For this retrospective study, digital database analysis was used to identify patients with PVNS of the knee joint who underwent joint-preserving surgery between 06/2019 and 02/2023. The diagnosis of PVNS was confirmed histopathologically.
In addition to collecting baseline demographic data and treatment-associated parameters (incision-suture time, inpatient length of stay, adjuvant therapies, complications), differentiation of nodular versus diffuse PVNS and arthroscopic versus open surgery was performed.
Recurrence rate, quality of life (SF-36), pain (NRS) and functional outcome (Lysholm, UCLA) will be evaluated in a follow-up study.

results and conclusion: To date, n=41 patients (female:male = 23:18, age 50.0 ± 20.5 years, min 10, max 65) could be included in the study. Diffuse form was diagnosed in 22 patients (53.7%), nodular form in 19 (46.3%). Recurrence of previously known PVNS was present in 26.8% of cases.
All of them underwent partial/total synovectomy adapted to the local findings, which was performed openly in 20 patients (48.8%) and arthroscopically in 21 (51.2%). The incision-suture time was 87 ± 50 minutes across all patients (min 10, max 223).
During arthroscopic treatment, a total of 18 concomitant intra-articular pathologies (of which 72.7% were meniscal lesions) were diagnosed in 11/41 cases, which were addressed additively arthroscopically in more than 90%. PVNS of the knee joint represents a challenge for the treating surgeon due to the locally aggressive growth. Depending on the localization and extension of the PVNS, an open or arthroscopic approach can be chosen, a clear superiority of either procedure could not be shown so far. Possibly, the results of the pending follow-up study can provide further evidence in this regard. A possible advantage of arthroscopy seems to be the detection and addressing of intra-articular concomitant pathologies, especially in the nodular form of PVNS.

Stichwörter: knee arthroscopy; PVNS; Pigmented villonodular synovitis; tenosynovial giant cell tumor

Erstellt:	31. Mai 2023 21:26:15 MESZ
Bearbeitet:	31. Mai 2023 21:40:58 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Johannes Holz
Präsentierender Autor:	Johannes Holz
Einreichender Autor:	Johannes Holz
Autorenliste:	Johannes Holz[1], Rene Kaiser[2], Ansgar Ilg[2], Stefan Schneider[2]
Institut/e:	[1] OrthoCentrum Hamburg, Medical School Hamburg, Paracelsus Klinik Henstedt-Ulzburg, Hamburg, Deutschland [2] OrthoCentrum Hamburg, Park-Klinik Manhagen, Hamburg, Deutschland

Thema: Patellofemoral

Inhalt Englisch

Titel: Clinical and radiographic outcome at two years after arthroscopic minced-cartilage treatment of severe chondral lesions of the patello femoral joint

interrogation: In this study the clinical and radiographic outcome of arthroscopic minced-cartilage technique for the treatment fourth-grade chondral lesions of the patella femoral joint was determined

methodology: The Clinical and MRI data from 76 patients (32 Trochlea, 40 Patella and 4 Both surfaces) at one year and 32 patients at two years who underwent arthroscopic minced cartilage technique were analyzed postoperatively. In this technique, cartilage chips were removed from the defect rim or from non-loaded areas of the joint using a special adapter for the shaver handpiece. These were injected with a PRP (Platelet Rich Plasma) to provide the best possible autologous nutrition. Autologous thrombin was also obtained using a special adapter into which PRP was also injected. This thrombin was used to fix the cartilage cells. All patients had ICRS Grade 3 or 4 with a mean lesion size of 1.7 cm^2 (lowest: 0.4 cm^2, highest 6.0 cm^2). The follow-up time was 24 months. Magnetic resonance imaging of the cartilage repair tissue (MOCART) 2.0 was used to analyze the cartilage tissue. The Tegner, KOOS-Jr. Score, VAS Pain Score were collected preoperatively, 6, 12 and 24 months postoperatively.

results and conclusion: Complete repair with defect filling was achieved in all patients. Patients achieved a mean MOCART 2.0 score of 72.1 (±8.9, n = 25) at 12 months and 81.5 (±9.4, n = 24) at 24 months from an initial score of 89.0 (±8.8, n = 10). All clinical data showed improvement over 2 years. Functional and pain scores (KOOS) improved significantly ($p<0.01$) from 62.1 ± 10.9 to 79.5 ± 12.6 at one year in the Trochlea, from 65.3 ± 19.2 to 73.2 ± 12.6 in the Patella and when both surfaces were treated from 49.8 ± 6.7 to 59.0 ± 11.8, at two years 74.0 ± 18.4 (Trochlea), 75.3 ± 13.9 (Patella) and 61.6*(Both, one case). Leisure and work activity (Tegner) returned to baseline after 1 year in the Patella group (3.9 to 4.1) and Both group (2.7 to 2.8), and exceeded baseline after 2 years in the patella group (4.4) and Both group (3.0, one case). Pain levels decreased significantly ($p<0.01$) over the first 12 months from 3.3 ± 2.6 to 1.7 ± 2.0 (Trochlea), 3.7 ± 2.5 to 2.4 ± 1.7 (Patella) as well as 4.7 ± 2.3 to 4.7 ± 2.0 (Both). After 2-years the groups Trochlea and Patella groups remained at this level after two years.
In conclusion the arthroscopic minced cartilage technique is a valuable alternative procedure for regenerative cartilage reconstruction in the patello-femoral joint. Very good clinical improvement, satisfactory scores and defect filling were achieved in all patients. However, further studies with long-term results are needed to confirm the potential of this arthroscopic cartilage repair technique.

Stichwörter: cartilage lesion, patello femoral, minced cartilage, Mocart 2.0

Erstellt:	31. Mai 2023 21:42:31 MESZ
Bearbeitet:	31. Mai 2023 21:53:47 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Johannes Holz
Präsentierender Autor:	Johannes Holz
Einreichender Autor:	Johannes Holz
Autorenliste:	Johannes Holz[1], Rene Kaiser[2], Ansgar Ilg[2], Stefan Schneider[2]
Institut/e:	[1] OrthoCentrum Hamburg, Medical School Hamburg, Paracelsus Klinik Henstedt-Ulzburg, Hamburg, Deutschland [2] OrthoCentrum Hamburg, Park-Klinik Manhagen, Hamburg, Deutschland

Thema:	Endoprothetik

Inhalt Englisch

Titel: The preferable treatment for severe cartilage lesions of the medial condyle - unicompartmental versus mini metal implant - a matched pair analysis

interrogation: The treatment of focal chondral lesions in middle-aged patients can be challenging. This retrospective study examines the outcomes of patients with severe cartilage lesions of the medial femoral condyle treated with a customized mini metal implant compared to patients who received a unicompartmental medial arthroplasty. The aim of this study is to highlight differences and similarities in patients subjective perceptions for future treatment decisions.

methodology: We compared 82 patients retrospectively over three years. 41 patients received a standardized partial medial knee replacement. The other 41 were treated with a customized mini metal implant. The groups to be compared were matched for age at treatment, BMI, sex, and the side of the leg treated. The mean age was 54.3 ± 7.3 years, the mean BMI was 29.9 ± 4.2, and the sex distribution was 49.4% male to 50.6% female. We recorded our clinical outcomes using a web-based registry. VAS (Visual Analogue Scale), KOOS Jr. (Knee Injury and Osteoarthritis Outcome Score Joint Replacement) and OKS (Oxford Knee Score) were measured preoperatively and at 6, 12, 24, and 36 months postoperatively. Data were statistically analyzed using RStudio.

results and conclusion: Both groups reported significantly less pain at 12 months. In the mini-implant group (G1), the VAS score decreased by 2.1 points from 4.9 ± 2.5 to 2.8 ± 2.7, while in the standardized partial denture group (G2) the score decreased by 3.8 points from 5.6 ± 2.1 to 1.8 ± 2.1. There was a significant difference in the VAS between the groups at 12- and 24-months, but not at 36 months. The KOOS Jr. score was significantly different between groups at one year ($p < 0.01$), with G2 having better knee function than G1. After 3 years, the groups converged in the KOOS Jr. score (G1 = 75.2 ± 15.2, G2 = 73.9 ± 13.5). The difference in the OKS was also significant between 6 months and 3 years postoperatively ($p < 0.01$).

In conclusion both treatments resulted in a significant improvement in pain scores. There were differences between the groups in the subjective knee function outcomes in the first two years after surgery. The differences decreased in the following years. In further analysis, we were able to look at the reasons for these differences in the first two years.

Stichwörter: Medial Osteoarthritis knee, partial knee replacement, mini metal implant

Erstellt:	31. Mai 2023 21:55:35 MESZ
Bearbeitet:	31. Mai 2023 22:15:11 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Johannes Holz
Präsentierender Autor:	Johannes Holz
Einreichender Autor:	Johannes Holz
Autorenliste:	Johannes Holz[1], Rene Kaiser[2], Ansgar Ilg[2], Stefan Schneider[2]
Institut/e:	[1] OrthoCentrum Hamburg, Medical School Hamburg, Paracelsus Klinik Henstedt-Ulzburg, Hamburg, Deutschland [2] OrthoCentrum Hamburg, Park-Klinik Manhagen, Hamburg, Deutschland

Thema: Patellofemoral

Inhalt Englisch

Titel: Treatment of osteoarthritis of the Patellofemoral Joint - a retrospective study of 71 patients comparing the outcome of Inlay Patellofemoral Implant and Customized mini metal Trochlea Implant

interrogation: Treating focal cartilage lesions of the patella femoral joint in patients can be challenging. This retrospective study examines the outcomes of patients with severe cartilage lesions of the patella femoral joint with a customized mini-metal implant compared to patients who received a inlay design metal implant patello femoral arthroplasty.
The aim of this study is to highlight differences and similarities in the subjective perception of patients for future treatment decisions.

methodology: We compared 71 patients retrospectively over five years. 44 patients received a standardized partial inlay prosthesis of the patella femoral joint with patella resurfacing(PFJ). 27 patients were treated with a custom-made mini-implant for the Trochlea(SPF). The mean age was 58 ± 10.2 years for PFJ and 49 ± 7.6 and SPF, the mean BMI was 28.5 ± 5.1(PFJ) and 27.0 ± 3.7(SPF) , the gender distribution was 37.2% male to 62.8% female in PFJ and 66.6% male to 33.3% female in SPF. We recorded our clinical outcomes using a web-based registry. VAS (Visual Analogue Scale), KOOS Jr. (Knee Injury and Osteoarthritis Outcome Score Joint Replacement) were measured before the procedure, as well as 6,12, 24, and determined 60 months after the intervention. The data was statistically evaluated using RStudio.

results and conclusion: Both groups reported significantly less pain after twelve months. In the specific-implant group (SPF), the VAS score decreased from 5.80 ± 2.1 (SD) to 1.6 ± 2.1 (SD), while in the standardized patella femoral implant group (PFJ) the value decreased from 5.10 ± 2.1 (SD) to 2.20 ± 1.90 (SD). There was no significant difference in the VAS between the groups at the time points at 60 month tested. In the KOOS Jr., the groups differed significantly after one year (p = 0.04), SPF rated knee function better than PFJ. After five years, the groups were converging in KOOS Jr. total (SPF = 78.30 ± 37.2, PFJ = 67.80 ± 17.9). One revision was documented in the SPF group after 4 years. The prosthesis was changed to a total knee prosthesis

In conclusion both treatments resulted in significant improvements in the pain scores and function. Differences between the groups in subjective knee function endpoints were evident at both the 1-year and 5-year follow-up. While mini metal implants are used to treat focal osteochondral lesions, PFJ acts as a metal-based trochlear prothesis and offers a treatment solution as well for patello femoral pathologies such as trochlear dysplasia. The differences between the two groups narrowed within the five year follow up .

Stichwörter: Osteoarthritis patello femoral joint, Inlay partial patello femoral jont replacement, mini metal trochlea implant

Erstellt:	31. Mai 2023 21:59:57 MESZ
Bearbeitet:	31. Mai 2023 22:22:33 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Romed Peter Vieider
Präsentierender Autor:	Romed Peter Vieider
Einreichender Autor:	Romed Peter Vieider
Autorenliste:	Romed Peter Vieider[1], Andrea Achtnich[1], Moritz Brunner[1], Luca Grüning[2], Matthias Cotic[3], Sebastian Siebenlist[1], Maximilian Hinz[1]
Institut/e:	[1] Sektion Sportorthopädie, Klinikum Rechts der Isar TU München, München, Deutschland [2] Paracelsus Medizinische Privatuniversität, Salzburg, Österreich [3] Sektion für Sportorthopädie, Technische Universität München, München, Deutschland

Thema: Osteotomie

Inhalt Englisch

Titel: Clinical and functional longterm outcome including psychological readiness for return to sports after derotational distal femoral osteotomy in patients with patellofemoral instability and increased femoral antetorsion

interrogation: This study aimed to assess the clinical and functional longterm outcome with a special focus on return to sports in patients that underwent derotational distal femoral osteotomy (DFO) for the treatment of recurrent patellofemoral instability and associated increased femoral antetorsion.

methodology: Patients that underwent derotational DFO as well as concomitant procedures (based on patient-individual risk factor analyses) between 2007 and 2016 were previously investigated at a mean/median follow-up of 3.6 ± 2.25 months. The same patient cohort was eligible for participation in order to evaluate the longterm outcome. Patient-reported outcome measures (PROMs; Visual Analog Scale [VAS] for pain, Tegner Activity Scale [TAS], Kujala score Banff Patellofemoral Instability Instrument [BPII] 2.0, Patellofemoral Instability-Return to Sport after Injury scale [PFI-RSI] were evaluated of which VAS for pain and TAS were compared to the results of the previous study. Finally, return to sport and work rates were assessed. Finally, complications were evaluated with a special focus on revision surgery and patellar instability recurrence.

results and conclusion: Of 44 patients who were enrolled in the previous study, a total of 25 patients (56.8%/68.0% female; 17 female/8 male) were included at a mean follow-up of 8.9 ± 2.6 years. VAS for pain and TAS did not change significantly: VAS (2.2 vs. 1.5; p= .13) and TAS (3.5 vs. 4.1; p= .117). Good knee function (Kujala Score 78.3 ± 16.9), knee-related quality of life (BPII 2.0: 67.5 ± 22.6) and psychological readiness to return to sporting activity (PFI-RSI: 65.9 ± 27.7) were observed at final follow-up. The majority of patients returned to work (76.0%) and their previous sporting activity level (84.0%). In total, three patients (12.0%) suffered a patellar dislocation during follow-up. There were 3 patients (12%) who suffered a patella dislocation in the postoperative FU.

Conclusion:
Derotation DFO is an effective treatment for patellofemoral instability associated with increased femoral antetorsion. Favorable clinical and functional outcomes were observed at a mean follow-up of almost ten years.

Stichwörter: Derotational DFO, Osteotomie, Patellofemoral Instability, Long Term follow up

Erstellt:	31. Mai 2023 22:05:37 MESZ
Bearbeitet:	31. Mai 2023 23:49:28 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Stefanie Donner
Präsentierender Autor:	Stefanie Donner
Einreichender Autor:	Stefanie Donner
Autorenliste:	Stefanie Donner[1], Stephanie Kirschbaum[2], Clemens Gwinner[3], Carsten Perka[4]
Institut/e:	[1] Centrum für Muskuloskeletale Chirurgie, Charité Universitätsmedizin Berlin , Julius Wolff Institut (JWI) , Berlin, Deutschland [2] Charité - Universitätsmedizin Berlin, Centrum für Muskuloskeletale Chirurgie, Berlin, Deutschland [3] Charité Universitätsmedizin Berlin, Centrum für Muskuloskeletale Chirurgie, Berlin, Deutschland [4] Orthopädische Klinik, CMSC, Charité Berlin, Berlin, Deutschland

Thema: Endoprothetik

Inhalt Englisch

Titel: Extremitätenerhalt durch Individualendoprothetik des Kniegelenks

interrogation: Die Revisionsendoprothetik nach multiplen Voroperationen am Kniegelenk bleibt eine Herausforderung. Aufgrund ausgeprägter Knochendefekte können Standardimplantate eine metaphysäre und diaphysäre Verankerung im 3-Zonen Konzept nach Morgan-Jones häufig nicht gewährleisten, so dass eine Arthrodese bzw. Amputation der Extremität diskutiert werden. Ziel dieser Fallserie ist es, die klinischen Ergebnisse sowie Komplikationsrate für patientenspezifische Revisionsimplantate (PSRI) am Kniegelenk zu evaluieren.

methodology: In dieser retrospektiven Studie wurden alle Patienten zwischen 2014-2022 eingeschlossen, die sich im Rahmen eines einzeitigen aseptischen Wechsels einer uni- und/oder bifokalen Knieendoprothesenrevision mittels PSRI unterzogen, welches individuell anhand von präoperativen CT Daten angefertigt wurde. Vor der Indikationsstellung wurde die Standard-Infektdiagnostik (Punktion des Kniegelenks)
durchgeführt. Bei allen Patienten wurden demographische Daten sowie prä- und postoperativ der Schmerz [VAS], die
Gehstrecke [min], Oxford Knee Score (OKS) (max=12 P., min=60 P.) KOOS (min=0% max=100%), KOOS Subanalyse Funktion und Alltagsaktivität (min=0% max=100%) und der Bewegungsumfang [Grad] erhoben.

results and conclusion: Insgesamt konnten 12 konsekutive Patient*innen (6 weiblich/ 6 männlich) mit einem Durchschnittsalter von 71 Jahren (range 56-80 Jahre) eingeschlossen werden. Bei 8 Patient*innen wurde die femorale Komponente, bei 2 die tibiale und bei 2 Patient*innen sowohl die femorale als auch die tibiale Komponente revidiert. Das durchschnittliche Follow-up betrug 2,5 Jahre. Schmerzen auf der VAS: prä-op vs. 7,8 post-op 3,1 ($p<0,05$). KOOS ges. prä-op: 31% vs. post-op: 51%, ($p<0,05$), KOOS Funktion/ Alltagsaktivität: prä-op 25% vs. post-op 50% ($p<0,05$). OKS prä-op: 47
vs. post-op 33 ($p<0,05$). Gehstrecke prä-op 8 min, post-op 26 min ($p<0,05$).
Komplikationen: 1x periprothetische Fraktur (OP Konsequenz: Plattenosteosynthese mit Konsolidierung), 1x Bruch des modularen Konus der Femurkomponente (OP Konsequenz: Wechsel der Femurkomponente), 1x Infektrezidiv (aktuell noch in Behandlung). In der radiologischen postoperativen Analyse zeigte sich bis zum Datum des letzten Follow-ups keine Lockerung der Komponenten.
Auf die Frage der Wahlmöglichkeit einer Amputation als Alternative - auch retrospektiv - wählten alle Patienten den Prothesenwechsel und lehnten die Amputation ab.
Die Ergebnisse dieser Studie zeigen, dass der selektive Einsatz von patientenspezifischen Revisionsimplantaten auch bei ausgeprägten Knochendefekten eine Gelenkfunktion erhalten kann. Insbesondere die Funktion und Alltagsaktivität konnte bei den Patienten zufriedenstellend gesteigert werden.

Stichwörter: Individualendoprothetik, Knierevisionsendoprothetik, Extremitätenerhalt

Erstellt:	31. Mai 2023 22:16:17 MESZ
Bearbeitet:	31. Mai 2023 22:27:06 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Johannes Holz
Präsentierender Autor:	Johannes Holz
Einreichender Autor:	Johannes Holz
Autorenliste:	Johannes Holz[1], Rene Kaiser[2], Ansgar Ilg[2], Stefan Schneider[2]
Institut/e:	[1] OrthoCentrum Hamburg, Medical School Hamburg, Paracelsus Klinik Henstedt-Ulzburg, Hamburg, Deutschland [2] OrthoCentrum Hamburg, Park-Klinik Manhagen, Hamburg, Deutschland

Thema:	Endoprothetik

Inhalt Englisch

Titel: Anatomic knee arthroplasty design with preservation of both cruciate ligaments versus anatomic and non anatomic posterior stabilized arthroplasty - a retrospective study of 332 patients.

interrogation: Preservation of ligamentous structures in endoprothetic treatment of the knee joint is essential to achieve the natural motion and joint feeling. The aim of this study was to evaluate the clinical outcomes of a kinematic prosthesis with preservation of both cruciate ligaments (XR) compared to a technical prothesis (PS) and a kinematic prosthesis with replacement of both cruciate ligaments (BCS).

methodology: In our retrospective study, we compared 52 patients with preservation of both cruciate ligaments and a kinematic prosthesis design (XR = bi-cruciate retaining), with 252 patients with removal of both cruciate ligaments and a technical design (PS = posterior stabilized), and with 28 patients who also received a kinematic full prosthesis with replacement of both cruciate ligaments (BCS = bi-cruciate stabilized). We documented our clinical outcomes using a web-based registry. VAS (Visual Analogue Scale of Pain), KOOS Jr. (Knee Injury and Osteoarthritis Outcome Score Joint Replacement), and Tegner Activity Level were assessed preoperatively and at 12 and 24 months postoperatively.

results and conclusion: At 1 and 2 years, 44 and 30 patients in the XR group, 232 and 199 patients in the PS group and 21 and 17 patients in the BCS group completed questionnaires with the following results: The VAS was 1.8 and 2.1 for XR, 1.7 and 1.8 for PS and 1.6 and 1.9 for BCS. There were no significant differences between the groups (p = 0.596 / p = 0.667). Knee function improved in all subgroups. The KOOS Jr. in each group was 72.7 | 74.2 | 78.9 (XR|PS|BCS) at 12 months and 73.0 | 75.8 | 77.4 (XR|PS|BCS) at 24 months. There was no significant difference between the groups at 24 months (p=0.384). The Tegner increased in all 3 groups and exceeded the initial values at 6 months (BCS) and 12 months (XR, PS) (not significantly). On the individual questions, between 40 and 50% of patients were unable or unwilling to kneel at 12 months. Climbing stairs was also a problem for 10 to 20% of patients at 12 months. Bending down and standing up was still difficult for 15 to 20% of patients.

In conclusion significant reductions in symptoms and functional improvements were achieved in all groups at 12 months. The BCS group had the best pain reduction, functional gain, and activity level, although not significantly better than the other two groups. Surprisingly, the XR patients had the greatest problems climbing stairs. The number of cases differed between the groups. In a further analysis, which is still pending, the groups will be matched to improve the comparability of the endoprosthesis systems used and to reduce the ceiling effects of the scores used.

Stichwörter: Osteoarthritis knee, bi-cruciate preserving, bi-cruciate stabilized, posterior stabilized, arthroplasty

Erstellt:	31. Mai 2023 22:23:30 MESZ
Bearbeitet:	31. Mai 2023 23:20:44 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Julian Flügel
Präsentierender Autor:	Julian Flügel
Einreichender Autor:	Julian Flügel
Autorenliste:	Julian Flügel[1], Felix Zimmermann[2], Danko Milinkovic[3], Sebastian Gebhardt[4], Peter Balcarek[1]
Institut/e:	[1] ARCUS Sportklinik, Pforzheim, Deutschland [2] Unfall-chirurgie und Orthopädie , BG Klinik Ludwigshafen, Ludwigshafen, Deutschland [3] Centrum für Muskuloskeletale Chirurgie , Charité Berlin, Berlin, Deutschland [4] Zentrum für Orthopädie, Unfallchirurgie und, Rehabilitationsmedizin, Universitätsmedizin Greifswald, Greifswalfd, Deutschland

Thema: Patellofemoral

Inhalt Englisch

Titel: Correlation of a single assessment numeric evaluation (SANE) rating with the Banff Patellofemoral Instability Instrument ? the question is what matters!

interrogation: The Banff Patellofemoral Instability Instrument 2.0 (BPII 2.0) is an established and valid tool to assess patellar instability-related patients? disease-specific quality of life (QoL). Although comprehensive, the implementation of this multi-item tool in clinical practice is limited by length and complexity, influencing patients? compliance and response rate. To overcome such limitations, single-item measures such as the single assessment numeric evaluation (SANE) rating have been developed. The purpose of this study was to investigate whether a single-item question could be used interchangeably with BPII 2.0. We hypothesized that the complex nature of patellar instability cannot be displayed by the SANE rating.

methodology: Ninety patients with patellofemoral instability were prospectively enrolled in this study. All patients were assessed for their disease-specific quality of life using the BPII 2.0. Patients were additionally randomized into 3 groups, 30 patients each, for SANE rating. SANE Group (SG)-1 was asked: ?How do you rate your knee joint if a completely stable kneecap means 100%?? SG-2 was asked: ?How do you rate your knee joint if complete satisfaction means 100%?? SG-3 was asked: ?How do you rate your knee joint if complete normal function means 100%?? Correlation between BPII 2.0 and SANE questions were analysed using Pearson r correlation coefficient, and Bland?Altman plots were used to visualize agreement of two rating scales.

results and conclusion: Overall, the mean baseline BPII 2.0 score value was 41.9 ? 17.8 points, and the ratings of SG-1, SG-2, and SG-3 averaged 49.0% ? 26.5, 43.5% ? 23.2, and 45.2% ? 18.0, respectively. A high correlation was found for BPII 2.0 and SG-1 (r= 0.81; 95% CI 0.64 - 0.9; p<0.0001), but no significant correlation was found for BPII 2.0 and SG-2 (r= 0.35; 95% CI -0.01 ? 0.63; p= 0.06) or for BPII 2.0 and SG-3 (r= 0.31; 95% CI -0.06 ? 0.60; p= 0.1). Using Bland?Altman analysis, BPII 2.0 and SG-1 showed similar results on average, and the bias (difference between the means) was only 0.32 (SD of bias 16.03). Although not significantly correlated, BPII 2.0 and SG-2 demonstrated comparable results on average (bias -1.55; SD of bias 23.2), whereas BPII 2.0 and SG-3 revealed a bias of -8.0 (SD of bias 18.7), indicating that patients rate their knee function on average 8 percentage points better than BPII 2.0 (figure 1).
For a practicable and simple recording of patients? disease-specific QoL, the SANE question ?How do you rate your knee joint if a completely stable kneecap means 100%?? can be used interchangeably with the BPII 2.0.

Stichwörter: -

Erstellt:	31. Mai 2023 22:36:55 MESZ
Bearbeitet:	31. Mai 2023 23:22:09 MESZ
Status:	Eingereicht
Beitragsart:	Poster
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
Sonstiges:	Ja, dies ist ein Case Report
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Daniel den Toom
Präsentierender Autor:	Daniel den Toom
Einreichender Autor:	Clemens Kösters
Autorenliste:	Daniel den Toom[1], Clemens Kösters[1]
Institut/e:	[1] Maria-Josef-Hospital Greven, Klinik für Orthopädie, Unfall- und Handchirurgie, Greven, Deutschland

Thema: Case Report

Inhalt Englisch

Titel: Bicompartmental meniscal allograft transplantation

interrogation: In case of total meniscectomy meniscal allograft transplantation is the only way to restore the meniscal function. A meta-analysis on meniscal allograft transplantation reported a significant improvement of functional outcome scores and a delay of osteoarthritis progression of about 10.5 years. This case reports presents a bicompartmental meniscal allograft transplantation in a 22 year old woman.

methodology: A 22 year old woman underwent a bicompartmental subtotal meniscus resection after several unsuccessful meniscus refixations. Mechanical malalignment was ruled out prior to the operation in standing x-rays and the anterior cruciate ligament was reconstructed prior to the transplantation. Two staged bicompartmental meniscal allograft transplantation was performed using meniscal allografts provided by the German Institute for Cell- and Tissuereplacement (Deutsches Institut für Zell- und Gewebeersatz gemeinnützige GmbH, DIZG).
In addition to the demographic data, the Knee Injury and Osteoarthritis Outcome Score (KOOS) was collected. During follow-up, ultrasound was used to measure the extrusion of the menisci.

results and conclusion: During the operations and the early course no complications occurred. During the second operation about 9 months after first surgery the anterior horn of the medial allograft meniscus needed osseous refixation. No further complications were detected in the follow-up.
The aggregated KOOS improved from 54 preoperatively to 73 24 months postoperatively.
After 24 months no increased medial and lateral extrusion was detected.

After bicompartmental meniscal allograft transplantation our patient showed improvement in the clinical scores and function. Nevertheless, complications in this complex procedure have to be considered and postoperative follow-up examinations seem mandatory. The need to refix the torn anterior horn of the medial allograft during the second meniscal allograft transplantation demonstrates that the risk for complications should not be underestimated. However, future follow-up of our patient will evaluate the mid- and long-term results of this treatment.

Stichwörter: meniscal allograft transplantation; arthroscopy; meniscectomy

Erstellt:	31. Mai 2023 23:13:08 MESZ
Bearbeitet:	31. Mai 2023 23:25:22 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Grégoire Thürig
Präsentierender Autor:	Grégoire Thürig
Einreichender Autor:	Grégoire Thürig
Autorenliste:	Grégoire Thürig[1], Vladislav Raykov[2], Alexander Heimann[1], Luis Filgueira[3], Moritz Tannast[4], Daniel Petek[1]
Institut/e:	[1] Hôpital fribourgeois - HFR, Fribourg, Schweiz [2] LKH Bludenz, Bludenz, Österreich [3] University of Fribourg, Fribourg, Schweiz [4] Hôpital Fribourgeois - HFR, Fribourg, Schweiz

Thema: Patellofemoral

Inhalt Englisch

Titel: Accuracy and Precision of Femoral MPFL Footprint Identification using Augmented Reality: A Cadaveric Study

interrogation: Background: Incorrect positioning of the femoral tunnel during medial patellofemoral ligament (MPFL) reconstruction can result in increased pressure in the patellofemoral joint. This can lead to complications and the need for revision surgery. Magnetic resonance tomography has shown promise in identifying the femoral MPFL footprint, but its practical application is challenging. This study aims to evaluate the accuracy and precision of using Augmented Reality to identify the femoral MPFL footprint under anatomical conditions.

methodology: Methods: Ten cadaveric knees were examined. An MRI of the knee joint was conducted, followed by careful dissection to identify and mark the anatomical MPFL femoral footprint. A true-lateral fluoroscopic view of the knee, with the marked anatomical femoral MPFL footprint, was used as the gold standard. A 3D model of the knee, including the femoral MPFL footprint, tubercle adductor, and medial femoral epicondyle, was created using Materialise Mimics. The 3D model was then projected onto the cadaveric knee using Hololense 2 and the Holoma software. The marked MPFL footprints were compared to determine accuracy and precision. The Wilcoxon signed-rank test was performed to compare distances between the anatomical and projected points in fluoroscopy, with a significance level of p less than 0.05.

results and conclusion: Results: There was no statistically significant difference between the projected and anatomical femoral MPFL footprints. Augmented Reality, when compared to the gold standard, allowed for precise and accurate identification of the femoral MPFL footprint.
Conclusions: Individual identification of the femoral MPFL location using the Holoma software for Augmented Reality offers a precise and accurate alternative. This technique has the potential to be a safe and radiation-free option for individual MPFL reconstruction.

Stichwörter: MPFL, magnetic resonance imaging, femoral footprint, augmented reality, Holoma

Erstellt:	31. Mai 2023 23:15:39 MESZ
Bearbeitet:	31. Mai 2023 23:33:43 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Markus Siegel
Präsentierender Autor:	Markus Siegel
Einreichender Autor:	Markus Siegel
Autorenliste:	Markus Siegel[1], Philipp Maier[1], Elham Taghizadeh[2], Thomas Lange[1], Hans Meine[2], Andreas Fuchs[1], Hagen Schmal[1], Kaywan Izadpanah[1]
Institut/e:	[1] Universitätsklinikum Freiburg, Freiburg, Deutschland [2] Fraunhofer Institute for Digital Medicine MEVIS , Bremen, Deutschland

Thema: Patellofemoral

Inhalt Englisch

Titel: Joint Kinematics after Isolated MPFL Reconstruction - does one Kinematic Parameter Provide Particular Potential to infer Patellofemoral Cartilage Contact Area? A prospective 3D MRI study

interrogation: The medial patellofemoral ligament (MPFL) is considered one of the most important stabilizing structures of the patella, especially in low degrees of knee flexion (0-30°). Therefore, isolated MPFL reconstruction (MPFLr) is considered the gold standard of surgical therapy, especially for low flexion patellofemoral instabilities (PFI) and for recurrent patellar dislocation in the absence of concomitant pathologies. Little is known about the effect of MPFLr on patellofemoral kinematics in vivo. This study investigates the effect of MPFLr on kinematic parameters of patellofemoral articulation using a semiautomated 3D in vivo MRI analysis in different flexion and loading positions, and analyzes the correlation of the parameters to the patellofemoral cartilage contact area (CCA).

methodology: In this prospective, matched-pair cohort study, parameters of patellofemoral kinematics of 15 patients with low flexion PFI were compared with 15 knee-healthy patients both preoperatively and postoperatively after MPFLr. MRI images were obtained at 0°, 15°, and 30° in unloaded and loaded situations (50N) using a custom-designed pneumatic loading device. A special established moiré phase tracking system via a prepatellar fixed tracking marker was used to reduce motion artifacts. Based on semi-automatic cartilage and bone segmentation, 3D bone and cartilage meshes were created, which were used to calculate the patellar shift, tilt, and patellar rotation. Subsequently, these parameters were analyzed for correlation with the patellofemoral cartilage contact area.

results and conclusion: MPFLr reduced the patellar shift in all degrees of flexion, statistical significance was only reached at 15° flexion ($p = 0.006$) in unloaded situations. Under load, the difference was also significant at extension ($p = 0.048$, $p = 0.017$ at 15° flexion). The patellar rotation showed a significant reduction under load in extension after MPFLr ($p = 0.005$). After MPFLr, the patellofemoral tilt tended to approach the values of knee-healthy patients and showed a statistically significant reduction in all investigated positions without and with axial load, except for the loaded position at 15° flexion (all p-values < 0.009). There was no correlation of the parameters to the patellofemoral CCA across the different positions (extension, 15° flexion and 30° flexion) and loading situations (0N and 50N).

Isolated MPFLr resulted in a modulation of patellofemoral kinematics both with and without muscle activation, which was particularly evident in patellar shift and tilt. However, none of the parameters tested showed a strong correlation to the patellofemoral CCA across the different flexion and loading situations. Consequently, a singular kinematic parameter couldn't provide reliable inferences about the patellofemoral CCA.

Stichwörter: Patellofemoral instability, MPFL reconstruction, Cartilage contact area, Dynamic MRI evaluation.

Erstellt:	31. Mai 2023 23:52:29 MESZ
Bearbeitet:	31. Mai 2023 23:59:28 MESZ
Status:	Eingereicht
Beitragsart:	Vortrag
Abstractsprache:	Englisch
Präsentationssprache:	Deutsch
Sonstiges:	Ja, dies ist ein Case Report
AV-Ausstattung:	Laptop, Beamer, Mikrofon

Erstautor:	Stefanie Donner
Präsentierender Autor:	Stefanie Donner
Einreichender Autor:	Stefanie Donner
Autorenliste:	Stefanie Donner[1], Per-Ulf Tunn[2], Carsten Perka[3], Maya Niethard[4]
Institut/e:	[1] Centrum für Muskuloskeletale Chirurgie, Charité Universitätsmedizin Berlin , Julius Wolff Institut (JWI) , Berlin, Deutschland [2] HELIOS Klinikum Berlin-Buch, Klinik für Tumororthopädie, Sarkomzentrum Berlin-Buch, Berlin, Deutschland [3] Orthopädische Klinik, CMSC, Charité Berlin, Berlin, Deutschland [4] Klinik für Tumororthopädie, Sarkomzentrum Berlin-Brandenburg, HELIOS Klinikum Berlin-Buch, Berlin, Deutschland

Thema:	Endoprothetik

Inhalt Englisch

Titel:	Metallose bei einliegeder Tumorendoprothese mit Indikation zur Oberschenkelamputation
interrogation:	Im Rahmen der Falldarstellung wird diskutiert, welche lokalen und systemischen Auswirkungen der Metallabrieb von Kniegelenksendoprothesen mit höherem Kopplungsgrad auf die lokale Gewebesituation und weitere Organsysteme haben.
methodology:	Falldarstellung von klinischem Verlauf, Operationsmethode, psychologischer Untersuchung und laborchemischem Verlauf der Metallionen Werte.
results and conclusion:	Bei einem 38 jährigen Patienten wurde im Rahmen der klinischen, radiologischen und laborchemischen Diagnostik die aseptische Lockerung eines proximalen Tibiaersatzes (Typ MUTARS/Fa. Implantcast, Legierung: Cobalt/Chrom/Molybdän) festgestellt. 1998 wurde nach Diagnose eines Osteosarkoms der rechten proximalen Tibia und multimodaler Therapie die Implantation eines proximalen Tibiaersatzes durchgeführt. Im Verlauf kam es zu einer progredienten periimplantären Ergussbildung mit lokaler Schwarzfärbung der Haut. 2016 erfolgte bei aseptischer Lockerung mit metalloseinduzierten femoralen Osteolysen das Debridement und die Erweiterung auf einen kombinierten proximalen Tibia- und distalen Femurersatz. Die Indikation zur Oberschenkelamputation wurde bei multidirektionaler Instabilität, Osteolyse der tibialen Schaftverankerung und Perforation des progredienten periimplantären Ergusses gestellt. Die präoperative mikrobiologische Untersuchung (Synovia, Blutkultur) zeigte keinen Keimnachweis. Die bestehende Fistel deutete auf einen Infekt hin. In der laborchemischen Kontrolle der Synovia waren Chrom/Cobalt und Molybdän mit und19,4 ug/l massiv erhöht. Im EDTA Vollblut lagen erhöhte Werte für Cobalt (19,5ug/l, Normwert <1,21ug/l) und Chrom (13,8 ug/l, Normwert 0,14 - 0,5ug/l) vor. Analyse der Synovialflüssigkeit: Chrom 508,Kobalt 157ug/l. Normwerte für Metallionen existieren aktuell noch nicht. 6W. nach Amputation zeigte sich ein Rückgang des EDTA Cobalt Wertes auf 11,6 und des Chrom Wertes auf 7,9. 1 Jahr postop. hatte sich der Kobalt Wert normalisiert (0,45ug/l), der Chromwert lag nach wie vor trotz Amputation bei 3,4 ug/l. Die intraoperativen Gewebeproben erbrachten keinen Keimnachweis (SLIM: Krenn Typ 1/ abriebinduziert) 2016 fiel der Patient mit schwerer Angstsymptomatik und depressiven Symptomen auf. Zum Amputationszeitpunkt wurden diese psychologisch quantifiziert (HADS-A: Angstskala: 19 HADS-D-Depressionsskala: 12, 1 Jahr post-op: HADS-A: 5 P, HADS D:2) Eine Metallose, die im Rahmen einer implantierten Knieendoprothese höheren Kopplungsgrades sowohl lokale als auch systemische Auswirkungen zeigt sollte intensiv klinisch, radiologisch und laborchemisch untersucht und beachtet werden. Die systemischen Werte in Kombination mit einer erhöhten lokalen Konzentration in der Synovia deuten auf eine Revisionsindikation bei einer bestehenden ARMD (adverse reaction to metal debris) hin. Patienten mit einliegenden Knieendoprothesen höheren Kopplungsgrades sollten regelmäßig eine

Laboruntersuchung der Mertallionen durchführen lassen.

Stichwörter: Metallose periprothetische Infektion Amputation