Pronounced quadriceps weakness with quadriceps tendon graft compared to patellar or hamstring's tendon graft for anterior cruciate ligament reconstruction

David Holmgren*, Shiba Noony, Eva Moström, Hege Grindem, Anders Stålman, Tobias Wörner. Department of Molecular Medicine and Surgery, Stockholm Sports Trauma Research Center, Karolinska Institutet, Sweden; †Capio Astro Clinic, FIFA Medical Centre of Excellence, Sophiahemmet Hospital, Vallhällsvägen 91, Sweden; ‡Oslo Sport Trauma Research Center, Norway; †Department of Health Sciences, Lund University, Sweden

Introduction Impaired quadriceps muscle function following ACL reconstruction (ACLR) is associated with worse clinical outcomes and risk of re-injury. Yet, we know very little about quadriceps muscle function in patients reconstructed with quadriceps tendons (QT), a graft with increasing popularity worldwide. The purpose of this study was to describe and compare isokinetic quadriceps strength in patients undergoing ACLR with QT, hamstring tendon (HT) or patellar tendon (BPTB) autograft.

Materials and Methods In this cross-sectional study we included QT-patients (n=104) and matched them to BPTB patients (n=104) and HT-patients (n=104) according to age, gender, and associated meniscus surgeries (Mean time from ACLR [SD]: 7 months [1]). Data were collected through clinical follow up routines and the Swedish ACL registry. Isokinetic strength was measured at 90°/seconds and expressed through leg symmetry index (LSI). Group differences were assessed by analysis of variance with post-hoc pair wise comparison.

Results QT patients had significantly lower peak knee extension torque than BPTB- (Mean LSI difference [95%CI]: -6.9% [-11.2 to -2.7], p = <0.01) and HT-patients (Mean LSI difference [95%CI]: -17.4% [-21.7 to -13.2], p = <0.01). None of the graft groups reached a mean LSI in peak knee extension torque of >90% [Mean LSI [95%CI]: QT = 67.5% [64.8–70.1]; BPTB = 74.4% [72–76.9]; HT = 84.9% [82.4–87.4]].

Conclusion Seven months following ACLR, patients operated with QT-grafts present with significantly worse isokinetic quadriceps strength than patients operated with BPTB- and HT grafts. None of the three groups reached an LSI of >90% in quadriceps strength.

Using biomechanics to assess the countermovement jump as a tool to measure male and female adolescents with ACL injury

Joana Hornestam, Blake Miller, Sasha Cansen, Daniel Benoit*. 1University of Ottawa, Faculty of Health Sciences, Canada; 2Lunds Universitet, Faculty of Medicine, Sweden

Introduction Adolescent anterior cruciate ligament (ACL) injuries have increased substantially over the last two decades and some 25% will experience a re-injury following surgery, with injury rates highest among females. As such, improved return to activity metrics are imperative. Vertical jump performance is a commonly used tool, however performance standards and the role of the injured or non-injured limb in achieving jump height is unknown for adolescent males and females. As such, the purpose of this study was to (1) assess performance in ACL injured and uninjured adolescents, and (2) assess limb contributions to this performance.

Materials and Methods Thirty-one ACL injured and thirty-eight control female adolescents, and fifteen ACL injured and twenty-five control male adolescents performed a counter-movement jump (CMJ) task while whole body 3D kinematics were recorded. Maximum jump height and the maximum sagittal hip, knee, and ankle velocities were calculated. Females and males were analysed separately, while contrasts were made between limbs and injury status.

Results Jump height was 13% lower in the ACLi compared to CON, while the ACLi contralateral limb also produced greater hip, knee and ankle angular velocities compared to their injured limb in females. No difference was found in jump height between ACLi and CON, however the contralateral limb of the ACLi males had greater hip and knee extension angular velocities. Neither male nor female controls had inter-limb differences.

Conclusion ACLi adolescents shielded the injured limb to achieve similar jump performance. This leads to asymmetrical joint loading and may explain injury risk.

#READYTOPLAY: Injury and Illness Surveillance in Women’s Premier League Football in Norway – A 2-Year Prospective Cohort Study

Solveig Thorarinsdottir*, Roar Amundsen, Markus Vagle, Thor Einar Andersen, Merete Møller, Ben Clarsen, Bahr Roald. Oslo Sports Trauma Research Centre, Sognsveien 220, Norway; Department of Sports Medicine, Aspetar Orthopedic and Sports Medicine Hospital, Sports City Street, Qatar; *The Norwegian FA Medical Centre, Ekebergveien 101, Norway; †Department of Sports Medicine, Aspetar Orthopedic and Sports Medicine Hospital, Sports City Street, Qatar; ‡The Norwegian FA Medical Centre, Ekebergveien 101, Norway; †University of South-Eastern Norway, Department of Sports, Physical Education and Outdoor Studies, Norway; ‡Department of Sports Science and Clinical Biomechanics, University of Southern Denmark, Campusvej 55, Denmark; †Department of Disease Burden, Norwegian Institute of Public Health, Norway

Introduction Previous epidemiological studies in women’s football have used methods inappropriate to capture overuse injuries and illnesses. The aim of this study was to describe...
the injury and illness patterns in women’s premier league football.

Materials and Methods During the 2020 and 2021 seasons players in the women’s premier football league in Norway reported all health problems (acute injuries, overuse injuries and illnesses) weekly, using the Oslo Sports Trauma Research Centre Questionnaire on Health Problems. We calculated incidence, average weekly prevalence, and burden (the cross-product of incidence and severity) of all health problems reported.

Results We included 294 female football players (22±4 years, range: 16–37) in the study. The average response rate to the weekly questionnaire was 79% (SD: ±9%). On average, 32% (95% CI, 31% to 33%) of the players reported at least one health problem at any time and 22% (95% CI, 21% to 23%) reported a health problem negatively affecting their training volume or performance. Acute injuries caused the greatest burden of all health problems (68% of the total burden), followed by overuse injuries (25%) and illness (8%). Thigh was the most common injury location (n=143, 26% of all cases), followed by overuse injuries (25%) and illness (8%). Thigh injuries represented the most burdensome health problem. Thigh injuries were most frequent while knee injuries caused the greatest time-loss.

Conclusion One in five players in the women’s premier league in Norway had a health problem negatively affecting their training volume or performance at any time. Acute injuries reported a health problem negatively affecting their training volume or performance. Acute injuries represented the most burdensome health problem. Thigh injuries were most frequent while knee injuries caused the greatest time-loss.

Introduction Patellofemoral pain (PFP) is one of the most common knee conditions across the lifespan. An essential question from patients is “what is the expected course/outcome”? Currently, there are no comprehensive syntheses of current evidence to inform clinical practice on prognosis for those living with PFP. This systematic review aims to investigate the long-term (defined as ≥ 12 months) prognosis of knee pain and knee function in adults and adolescents with PFP.

Materials and Methods A systematic search was performed in PubMed, Embase, the Cochrane Central Register of Controlled Trials (CENTRAL), Web of Science, OpenGrey.eu. This was supplemented with a hand search, including recent International Patellofemoral Research Retreat abstracts. Prospective studies investigating long-term prognosis (≥12 months) in people with PFP aged < 40 years were included. Retrospective studies and studies with < 20 participants were excluded. Identified studies were screened and data was extracted on knee pain and self-reported knee function (all done by at least two independent reviewers). The systematic review was pre-registered on OSF.io (DOI: 10.17605/OSF.IO/WD4T3).

Results 17723 records were identified. After removal of duplicates 12203 were screened with 185 studies assessed by full text for eligibility. 66 studies were included. Of these, 15 were randomised control trials and 51 were prospective cohort studies.

Conclusion We will present the results for the long-term prognosis for people living with PFP at the Sportskongres 2022. Our results will provide clinicians and patients with a potential answer to one of the most frequently asked questions.