Risk Factors For Athletic Pubalgia Development In Collegiate Football Student-Athletes: A Retrospective Cohort Study

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Summary:
Olympic weightlifting and playing a skilled position are strongly associated with the development of athletic pubalgia in collegiate football players.

Data:
BACKGROUND Athletic pubalgia is a common injury among student-athletes. The cause of this injury is multifactorial and poorly understood and has been associated with repetitive explosive movements that cumulatively injure the groin and surrounding tissues. Therefore, the aim of this study was to evaluate the effect of Olympic weightlifting, body mass index and position type (skilled vs non-skilled) in collegiate football players with respect to development of athletic pubalgia.

HYPOTHESIS The introduction of Olympic weightlifting and playing a skilled position will significantly increase a student-athlete’s risk of developing athletic pubalgia.

METHODS Football student-athletes at a single collegiate institution from January 2010 to December 2019 were included in the study. The primary outcome measure was athletic pubalgia surgery confirmed with magnetic resonance imaging. Odds of athletic pubalgia was determined using logistic regression with the dependent variable being whether or not the student-athlete received athletic pubalgia surgery. Independent variables included Olympic weightlifting exposure, skilled vs. non-skilled position and body mass index. Skilled positions were defined as quarterbacks, wide receivers, running backs, tight ends, linebackers, cornerbacks, and safeties, with these positions being subject to a high volume of running, cutting, and rapid change of direction. Non-skilled positions were defined as offensive linemen, defensive linemen, and specialists (punters, kickers, and long snappers), with these positions being subject to a low volume of running, cutting, and rapid change of direction.

Olympic weightlifting exposure occurred suddenly in January of 2015 when Olympic weightlifting was implemented in the weight training regimen where it was not previously present, therefore all student-athletes on the 2015 roster and later were deemed positive exposures. Previous core muscle injury or athletic pubalgia surgery excluded student-athletes from the study.

RESULTS A total of 1,154 student-athlete exposures met inclusion criteria, defined as any male football student-athlete who was listed on the active program roster and participated in football team activities from the 2010 through 2019 seasons. Of the 576 student-athlete exposures to Olympic weightlifting, 20 developed athletic pubalgia, whereas 7 student-athletes not exposed to Olympic weightlifting developed athletic pubalgia. Student-athletes exposed to Olympic weightlifting had a 2.86 (95% CI, 1.25-7.35; p = .018) times higher odds of developing athletic pubalgia as compared to those not exposed. Skilled position players had a 9.32 (95% CI, 1.71-63.96; p = .014) times higher odds of being diagnosed with athletic pubalgia compared to non-skilled position players. Body mass index was not associated with a significant risk for developing athletic pubalgia.

CONCLUSION Olympic weightlifting and playing a skilled position are strongly associated with the development of athletic pubalgia in collegiate football players. Skilled position players may benefit from modified training regimens to decrease this risk.

Category: Hip/Groin/Thigh

A Unique Cartilage Morphology of the Femoral Head-Neck Junction in Patients with Femoroacetabular Impingement

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Summary:
To investigate the clinical, histological, and genetic phenotype of superficially fissured cartilage on the femoral head-neck junction at the impingement site in patients with femoroacetabular impingement.

Data:
While an association between femoroacetabular impingement (FAI) and osteoarthritis (OA) has been reported, the mechanistic differences and transition between the two conditions is not fully understood. In FAI cartilage lesions at the femoral head-neck junction can sometimes be visualized during hip arthroscopy. In this study, we evaluated a unique cartilage pattern in FAI patients that we hypothesized may indicate risk for, or predict occurrence of, osteoarthritis. The purpose of this study was to describe a unique dimpled pattern of superficial fissured cartilage lesions on the femoral head-neck junction at impingement site in patients with FAI and to evaluate the clinical, histological and genetic phenotype of this cartilage. Methods Six hips (six patients) with dimpled or fissured cartilage were included among patients who underwent hip arthroscopy for treatment of symptomatic FAI from October 2020 through December 2021. This injured cartilage (dimple-pattern group) and normal cartilage (control group) on the femoral head-neck junction were collected from the same patients and evaluated for histological quantification by Mankin scores and expression of proteins related to cartilage degeneration, such as matrix metalloproteinases (MMP)-1, 2, 3, 10, and 12, tissue inhibitor of metalloproteinases (TIMP)-1 and 2, aggrecan neeoptepe CS846, and hyaluronic acid, by Milliplex Multiplex Assays. Results The mean age of the six hips included was 34.2 ± 12.9 years (range, 19-54), and all FAI subtypes were mixed. Mankin scores for the normal cartilage group and the dimple-pattern group were 0.67 ± 0.82 and 3.3 ± 0.62, respectively. Dimple pattern fissured cartilage showed a significant increase in Mankin score (p = 0.031) and a significant increase in protein expression of CS846 (p = 0.031) compared to normal cartilage. There were no significant differences in MMPs, TIMPs, or HA levels between the two groups. Conclusion The dimple pattern fissured cartilage, compared to normal cartilage, showed histologically significant cartilage degeneration and a significant increase in protein expression of CS846, a biomarker for early OA. This lesion serves as helpful visual indicator of extremely early degeneration of the cartilage of femoral head-neck junction caused by FAI. Keywords cartilage defect; femoral head; femoroacetabular impingement; hip arthroscopy

Category: Hip/Groin/Thigh

Ten-Year Outcomes Following Endoscopic Gluteus Medius Repair With Concomitant Hip Arthroscopy

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Summary:
This study evaluates 10-year patient-reported outcome (PRO) scores following endoscopic surgery for gluteus medius partial and full-thickness tears with concomitant hip arthroscopy for labral tears and/or femoroacetabular impingement syndrome (FAIS).

Data:
The purpose is to evaluate 10-year patient-reported outcome (PRO) scores following endoscopic surgery for gluteus medius partial and full-thickness tears with concomitant hip arthroscopy for labral tears and/or femoroacetabular impingement syndrome (FAIS). Methods: Prospectively collected data on patients followed for a minimum of 10 years after endoscopic gluteus medius repair with concomitant hip arthroscopy performed by a single surgeon were retrospectively analyzed. Patients with preoperative and 10-year follow-up for the following PROs were included: modified Harris Hip Score (mHHS), Nonarthritic Hip Score (NAHS), Hip Outcome Score-Sports Specific Subscale (HOS-SSS), and Visual Analog Scale (VAS) score for pain. Results: There were 13 patients eligible for inclusion, 11 (84.6%) of whom had 10-year follow up, with a mean of 127.6 months (range, 120.0-140.2 months). The group consisted of 10 females (90.9%) and one male (9.1%) with a mean age at surgery of 60.1 years (range, 46.2-74.8 years). PRO scores improved from preoperative to 10-year follow-up as follows: mHHS from 60.4 to 88.0 (p = .011); NAHS from 50.1 to 90.6 (p < .001); HOS-SSS from 37.5 to 85.1 (p = .001); and VAS from 4.8 to 1.2 (p = .006). Mean patient satisfaction rating was 8.3. Patients achieved PASS and MCID for mHHS and HOS-SSS at a rate of 81.8%. There was no significant decline in PROs or