pain (VAS). Dancers were excluded if they were unwilling to participate, had a previous hip condition (i.e. hip dysplasia [lateral-center-edge angle (LCEA) < 18°]), underwent previous surgery on ipsilateral hip, or had a Tönnis osteoarthritis grade > 1. The minimal clinically important difference (MCID), patient acceptable symptomatic state (PASS), and maximum outcome improvement satisfaction threshold (MOI) were used to evaluate patient postoperative satisfaction and improvement. Results: Fifty-two hips (49 dancers) (82.5%) had minimum 5-year follow-up. The average age of the cohort was 30.0 ± 17.1 years, and all patients were female. The average follow-up time was 79.1 ± 23.2 months. Dancers significantly improved in all PROMS (p < 0.001). Additionally, they had a high rate of satisfaction of 8.4 ± 2.1 at minimum 5-year follow-up. They achieved high rates of MCID for the mHHS, NAHS and VAS for pain, 83.3%, 85.7% and 85.7%, respectively and high rates of PASS for the mHHS, and iHOT-12, 90.5% and 81.0%, respectively. Six dancers (14.3%) underwent revision hip arthroscopy and three dancers (5.8%) converted to total hip arthroplasty. The rate to return to dance was 79.1%. At minimum 5-year follow-up 89.7% of dancers continued to dance and 57.7% dancers were able to return at the same or higher level prior to surgery. Conclusion: Primary hip arthroscopy in dancers was successful as they experienced favorable PROMS, and achieved high rates of MCID for the mHHS, NAHS, and VAS and high rates of achievement for the MCID and PASS. Dancers experienced a high rate of 89.7% of continuing to dance at least 5 years after surgery with 57.7% returning to the pre-injury or higher performance level.

Category: Hip/Groin/Thigh

Hip Sport Test as a Measure of Functional Strength and Range of Motion Prior to Hip Arthroscopy

Abstract ID# 22081
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Summary:
Will a standardized hip sport test have a correlation with pre-op hip strength, ROM and PRO?

Data:
Purpose As the field of hip arthroscopy continues to develop, functional measures and testing become increasingly important for patient selection, managing patient expectations prior to surgery, and physical readiness for return to athletic participation. The Hip Sport Test (HST) was developed to assess strength, coordination, agility, and range of motion prior to and following hip arthroscopy as a functional assessment. However, the relationship between HST and hip strength, range of motion, and hip-specific patient reported outcome (PRO) measures have not been investigated. The purpose of this study was to evaluate the correlation between the HST scores and measurements of hip strength and range of motion prior to undergoing hip arthroscopy. Methods Between September 2009 and January 2017, patients aged 18-40 who underwent primary hip arthroscopy for the treatment of femoroacetabular impingement with available pre-operative HST, dynamometry, range of motion, and functional scores (mHHS, WOMAC, HOS-SSS) were identified. Patients were excluded if they were < 18 or > 40 years old, had a Tegner activity score < 7, or did not have HST and dynamometry evaluations within one week of each other. Muscle strength scores were compared between affected and unaffected side to establish a percent difference with a positive score indicating a weaker affected limb and a negative score indicating a stronger affected limb. Correlations were made between HST and strength testing, range of motion, and PROs. Results: A total of 350 patients met inclusion criteria. The average age was 26.9 ± 6.5 years, with 34% females and 36% professional athletes. Total and component HST scores were significantly associated with measure of strength most strongly for flexion (rs = -0.20, p < 0.001), extension (rs = -0.24, p < 0.001) and external rotation (rs = -0.20, p < 0.001). Lateral and diagonal agility, components of HST, were also significantly associated with muscle strength imbalances between internal rotation versus external rotation (rs = -0.18, p = 0.01) and flexion versus extension (rs = -0.12, p = 0.03). In terms of range of motion, a significant correlation was detected between HST and internal rotation (rs = -0.19, p = 0.01). Both the total and component HST scores were positively correlated with pre-operative mHHS, WOMAC, and HOS-SSS (p < 0.001 for all rs). Conclusion The Hip Sport Test correlates with strength, range of motion, and PROs in the preoperative setting of hip arthroscopy. This test alone and in combination with other diagnostic examinations can provide valuable information about initial hip function and patient prognosis. Keywords

Category: Hip/Groin/Thigh

How Long Do Patients Take To Regain Their Baseline Strength Following Arthroscopic Treatment For Femoroacetabular Impingement?

Abstract ID# 22399
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Summary:
Treatment of FAI with hip arthroscopy requires post-operative rehabilitation. Most patients can expect to return to their baseline strength levels by one year post-operatively following diligent rehabilitation as guided by a physiotherapist. Objective: It has been well-established that arthroscopic treatment of femoroacetabular impingement (FAI) yields favourable outcomes compared to conservative treatment. Most patients follow a rigorous post-operative rehabilitation protocol following surgery, however it is unclear how long it takes for patients to regain their strength or exceed their baseline strength post-operatively. The objective of our study was to assess post-operative improvements in strength in patients who received arthroscopic treatment of FAI. Methods: Patients who underwent hip arthroscopy for FAI between 2019 and 2021 with a minimum clinical radiological follow-up of one year were included. Primary outcomes included strength measurements (flexion, extension, abduction, and internal/external rotation) as measured using a handheld dynamometer pre-operatively and at regular intervals post-operatively until the one-year post-operative time point. Secondary outcomes included International Hip Outcome Tool (iHOT-33) scores. Results: Fifty patients were evaluated with a mean age of 38.2 ±16.4 years at the time of the surgery. The mean duration of follow-up was 1.58 ±0.41 years. At the 6-month follow-up, 58% of met baseline flexion strength and 92% of patients met baseline extension strength measures. Only 58% of patients met baseline strength with internal/external rotation. By the one year mark, over 70% of patients met baseline strength measures for flexion, extension, and internal and external rotation. Interestingly, only 57% of patients met baseline strength for abduction. All patients improved post-operatively with respect to their iHOT-33 scores (p<0.001). Conclusions: Treatment of FAI with hip arthroscopy requires post-operative rehabilitation. Most patients can expect to return to their baseline strength levels by one year post-operatively following diligent rehabilitation as guided by a physiotherapist. Abduction strength is the slowest strength outcome to return to baseline and rehabilitation programs may need to be tailored accordingly.

Category: Hip/Groin/Thigh

Clinical Outcomes Among Individuals with Global Acetabular Retroversion who Underwent Hip Arthroscopy for FAI with Minimum 5-Year Follow-Up

Abstract ID# 23558
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Summary:
The purpose of this study was to compare patient-reported outcomes (mHHS, NAHS) and clinical threshold achievement rates (MCID, PASS, SCB) of patients with radiographic signs of global acetabular retroversion, including ischial spine, posterior wall, and crossover signs who underwent hip arthroscopy for FAI with minimum follow-up of 5 years.

Data:
OBJECTIVE The purpose of this study was to compare functional outcomes and clinical threshold achievement rates of patients with radiographic signs of global acetabular retroversion who underwent hip arthroscopy for FAI with minimum follow-up of 5 years. METHODS Patients were identified from a single-surgeon prospectively-collected database who underwent primary hip arthroscopy for treatment of FAI. Patients completed patient-reported outcome (PRO) surveys at both baseline and 5-year follow-up. Demographic data was collected including age, sex, BMI at time of surgery, and patient-reported symptom length. Intra-operative findings were recorded, including the Outerbridge grade, presence of

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labral tears, chondral delamination, spine impingement, cam lesions, pincer lesions, and mixed-type FAI. Global acetabular retroversion was assessed on AP and lateral views. Other radiographic measures included alpha angle measured on three views (AP, 45°, 90° Dunn view). A baseline comparison demonstrated no significant differences between groups in age, sex, BMI, preoperative symptom length, Troisier grade, outerbridge grade, and preoperative mHHS or NAHS (p > 0.05). At 5-year follow-up, patients reported significant improvement in both mHHS (mean 50.4 to 82.7, p < 0.001) and NAHS (49.4 to 85.5, p < 0.001). Achievement rates were high for MCID (90.3%), SCB (80.7%), and PASS (79.0%) for the mHHS. Three-way frequency comparison of acetabular retroversion signs found that all three signs tended to be present together (40 patients, 32.3%) or absent together (31 patients, 25.0%). Pairwise comparisons with tetrachoric correlation testing found all three signs to be significantly correlated with one another: ischial spine sign versus posterior wall (rtet = 0.65, corrected p < 0.001), ischial spine sign versus crossover sign (rtet = 0.74, corrected p < 0.001), and posterior wall sign versus crossover sign (rtet = 0.51, corrected p < 0.001). Multivariable analysis did not find any of the three signs to be significant independent predictors of 5-year improvement in mHHS or NAHS (p > 0.05). Posterior wall sign was associated with lower odds of achieving the MCID (OR = 0.25, 95% CI [0.06 to 1.09]) but this did not achieve significance (x² = 3.39, p = 0.07). Overall, achievement rates for MCID, SCB, and PASS did not significantly differ between the cohorts with respect to each sign (p > 0.05). CONCLUSIONS Clinical outcomes and achievement rates at 5-year follow-up demonstrated no significant differences among patients with respect to each sign of acetabular retroversion based on mHHS, NAHS, MCID, SCB and PASS. Surgeons should be reassured that these patients regain function at a rate similar to the greater FAI population.

Category: Hip/Groin/Thigh

Ten-Year Survivorship and Patient-Reported Outcomes in Patients Aged 40 And Over Following Primary Hip Arthroplasty for Femoro-Acetabular Impingement: A Propensity-Matched Analysis With A Benchmark Control Group

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Summary: This study collected survivorship and patient-reported outcome scores (PROs) at minimum ten-year follow-up in patients aged > 40 years following primary hip arthroplasty with labral repair.

Data: Background: Arthroscopic labral repair has been shown to result in favorable short- and mid-term outcomes. Yet, the durability of outcomes in older patients remains controversial. Purpose: To report prospectively collected survivorship and patient-reported outcome scores (PROs) at minimum ten-year follow-up in patients aged > 40 years following primary hip arthroplasty with labral repair.

(2) To perform a sub-analysis comparing survivorship and outcomes for patients aged > 40 years and patients aged < 40 years. Methods: Data were prospectively collected and retrospectively reviewed on all patients who underwent primary hip arthroplasty between February 2008 and December 2011. Patients aged > 40 years who underwent labral repair were included. Preoperative and minimum ten-year follow-up for the modified Harris Hip Score (mHHS), Non-Arthritic Hip Score (NAHS), Hip Outcome Score-Sports Specific Subscale (HOS-SSS), and Visual Analog Scale (VAS) for pain were collected. Exclusion criteria were prior ipsilateral hip surgery/conditions, Troisier grade > 1, hip dysplasia, or worker’s compensation. Propensity-score matching was utilized to compare patients aged > 40 years to patients < 40. Rates of achieving the minimal clinically important difference (MCID), patient acceptable symptomatic state (PASS) and hip joint survival from conversion to total hip arthroplasty (THA) were reported. Results: Of the 113 hips eligible for analysis, 91 hips (80.5%) had minimum ten-year follow-up. There were 64 females (70.3%) and 27 males (29.7%) with mean age and BMI of 47.8 years and 25.8 kg/m², respectively. The ten-year survivorship for patients aged = 40 years was 75.8%, and there was significant improvement in all PROs and VAS from baseline to minimum ten-year follow-up. Patients achieved MCID/PASS at high rates for all PROs and VAS. Sixty-nine patients aged > 40 years were propensity matched to 107 patients < 40 years. Patients aged = 40 years demonstrated lower survivorship (78.3% vs. 91.6%), but lower rates of secondary hip arthroplasty (2.9% vs. 14.0%). Conclusion: Patients aged > 40 years who underwent primary hip arthroplasty with labral repair demonstrated a survivorship of 75.8%, significant improvement in PROs, and achieved MCID/PASS at high rates at minimum ten-year follow-up. Sub-analysis revealed comparable PROs, but patients = 40 years demonstrated lower survivorship and lower rates of secondary hip arthroplasty compared to patients < 40 years.

Category: Hip/Groin/Thigh

Low Rates of Five-Year Secondary Surgery and Postoperative Complications after Primary Hip Arthroplasty in Over 30,000 Patients

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Summary: In this large national study of primary hip arthroplasty, 90-day adverse events were low at 1.28%, and the five-year secondary surgery rate was 4.9%; age less than 20 years, female sex, and obesity were risk factors for secondary surgery, suggesting the need for increased surveillance in these patient groups.

Data: Background: Hip arthroplasty is frequently used to treat femoroacetabular impingement (FAI) and labral tears. However, large cross-sectional studies documenting rates and predictors of revision surgery at midterm follow-up after primary hip arthroplasty are lacking. Purpose: To evaluate 90-day complications, five-year secondary surgery rates, and risk factors for secondary surgery following primary hip arthroplasty performed for FAI and/or labral tears using a large national dataset. Methods: A retrospective analysis was conducted using the PearlDiver Mariner151 database. Patients with International Classification of Diseases (ICD)-10 diagnosis codes for FAI and/or labral tear undergoing primary hip arthroplasty with femoroplasty, acetabuloplasty, and/or labral repair between 2015 and 2021 were identified. Those with concomitant ICD-10 codes for infection, neoplasms, or fracture were excluded, as were patients with a history of prior hip arthroplasty or total hip arthroplasty (THA), or age >70 years. Rates of complications within 90 days of surgery were assessed. Five-year rates of secondary surgery—revision hip arthroplasty or conversion to THA—were determined by Kaplan-Meier analysis, and risk factors for secondary surgery were identified by multivariate logistic regression. Results: A total of 31,623 patients underwent primary hip arthroplasty from October 2015-April 2021, with annual volumes ranging from 5,340 to 6,343 surgeries per year. Femoroplasty was the most frequent surgical procedure (performed in 81.1% of surgical encounters), followed by labral repair (72.6%) and acetabuloplasty (33.0%). Ninety-day postoperative complication rates were low, with 1.28% of patients experiencing any complication. The five-year secondary surgery rate was 4.9% (N = 915 patients). Multivariate logistic regression identified age ≤ 20 years (OR, 1.50; P < 0.001), female sex (OR, 1.33; P = 0.001), class II/III obesity (BMI 30-34.9 kg/m²; OR, 1.30; P = 0.04), and class II/III obesity (BMI ≥ 35.0 kg/m²; OR, 1.29; P = 0.02) as independent predictors of secondary surgery. Conclusion: In this study of primary hip arthroplasty, 90-day adverse events were low at 1.28%, and the five-year secondary surgery rate was 4.9%. Age less than 20 years, female sex, and obesity were risk factors for secondary surgery, suggesting the need for increased surveillance in these patient groups.

Category: Hip/Groin/Thigh

Timing From Symptom Onset to Hip Arthroplasty for Treatment of Femoroacetabular Impingement in Adolescent Patients

Abstract ID# 22087
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