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FUNCTION AND ACTIVITY LEVELS CORRELATE WITH LOCATION OF TISSUE LOSS FOLLOWING MENISCECTOMY

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Purpose: We determined, prospectively, the anatomic location of partial medial meniscectomy and then correlated the anatomic location with function and activity levels two years post-meniscectomy. We hypothesized that loss of the posterior third of the meniscus would result in more compromised clinical function and activity levels than loss of the middle or anterior third.

Methods: In a prospective randomized controlled multicenter clinical trial (Level of Evidence I), 120 patients (18 to 60 years) underwent partial medial meniscectomy and served as controls. There were 74 acute (no prior meniscus surgery) and 46 chronic (1 to 3 prior meniscectomies on the involved meniscus) patients. At index surgery, location of meniscus removed was documented on a standard grid. Locations were categorized as posterior, middle, or anterior third. Patients were followed clinically for a minimum of two years after meniscectomy. All patients completed validated questionnaires including Lysholm and Tegner scores to assess function and activity.

Results: Seventeen patients had isolated posterior third meniscectomies, 83 had combined posterior/middle thirds, 10 had isolated anterior, and 10 had combined anterior/middle/posterior thirds partial meniscectomies. Patients with isolated posterior third meniscectomies had significantly lower Lysholm scores (78) compared to all other patients (88) (p=0.01) and also had significantly lower Tegner scores (3.5) compared to all other patients (4.5) (p=0.03) at a minimum of two years after the index partial meniscectomy. Based on actual measurements, the isolated posterior third meniscectomy group had an average of 41% meniscus removed, well below the 50% loss level that has been previously reported as a predictor of decreased function and activity levels.

Conclusions: Function and activity levels were significantly decreased two years after surgery in patients who had isolated posterior third meniscectomies compared to all other patients with meniscus loss in other anatomic locations of the meniscus. This decrement of function and activity occurred even though less than 50% of the meniscus was removed. This study confirms the importance of preserving the posterior portion of the meniscus. It also supports the potential positive benefits that may be achieved by replacing or regrowing lost meniscus tissue. Our hypothesis was affirmed.

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FACTORS ASSOCIATED WITH IMPROVEMENTS IN FUNCTION FOLLOWING PARTIAL MENISCECTOMY

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Purpose: Meniscectomy is the current standard of care for the torn meniscus that is not suitable for repair. The purpose of this study was to determine what factors influence how long improvements in function and activity levels persist following meniscectomy.

Methods: Six hundred forty (640) knees were identified from a clinical database. One hundred ninety-three (193) knees had partial lateral meniscectomy, 342 had partial medial meniscectomy, and 105 had partial medial and lateral meniscectomy. The average age was 52 years (range, 15 to 79) with 207 females and 433 males. Patients were excluded if they had concurrent ACL reconstructions or microfracture for chondral defects. Lysholm function and Tegner activity scores were collected.

Results: For all knees, the Lysholm scores improved significantly from preoperative (54) to 1 year postoperative (76) (p<0.001). The Lysholm score did not change from year 1 to year 5. At year 6, average Lysholm score decreased to 69, and by year 8, the score decreased further to 63. When comparing the degenerative knees to the non-degenerative knees, the non-degenerative group had greater improvement and maintained it longer. The medial meniscus patients maintained their improvement at 6 and 7 years while the lateral meniscus group showed less improvement and decreased at years 6 and 7. Geographic location of the meniscus tear (anterior, middle or posterior thirds) was not associated with changes in improvement of Lysholm or Tegner scores. Tegner activity levels improved significantly from preoperative (3.6) to 1 year postoperative (4.7) (p<0.001). This improvement was maintained at years 2, 3, and 4. There was no significant difference between preoperative Tegner and year-5 Tegner scores (4.0) (p=0.05). This same finding was also seen at years 6, 7, and 8. In the degenerative knee, there was less improvement, and the levels declined at year 6.

Conclusions: Patients who undergo partial meniscectomy can expect 4 to 5 years of improved function and activity levels. Knee function continues to improve up to 5 years, but it decreases as activity levels decrease. Patients who delay treatment or have degenerative changes experience decrease in function and activity sooner. Meniscectomy provides a short term improvement in function and activity levels, but long term improvement seems unlikely. Our findings confirm that factors such as anatomic location (medial or lateral) of meniscectomy, chronicity of the tear, and preexisting degenerative changes may effect how long improvements persist.

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THE IMPACT OF PAIN-RELATED FEAR AND PAIN CATASTROPHIZING ON PHYSICAL AND PSYCHOLOGICAL FUNCTIONING IN OVERWEIGHT, OSTEOARTHROPSIS PATIENTS

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Purpose: Pain-related fear and pain catastrophizing are salient predictors of pain disability and can be more predictive of pain experiences than pain intensity and disease status. Pain-related fear (e.g., kinesiophobia) refers to the fear of movement and injury due to consequent pain. Pain catastrophizing refers to the tendency to misinterpret pain as more threatening than it is and to underestimate one’s ability to deal with pain. Pain self-efficacy, the belief that one has the capability to manage pain, has been shown to have positive effects on physical functioning and psychological functioning. This study aimed to examine how pain-related fear and pain catastrophizing differentially impact physical and psychological functioning in overweight patients with osteoarthritis of the knee.
Methods: Overweight patients with osteoarthritis of at least one knee (N = 67) were administered the Tampa Scale for Kinesiophobia to assess fear of movement and pain, the Arthritis Self Efficacy Scale to assess pain self-efficacy, and the Coping Strategies Questionnaire to assess catastrophizing. All patients underwent a gait analysis. Statistical analyses included Pearson correlations and mediation testing with Sobel tests of significance.

Results: Pain-related fear, but not pain catastrophizing, was associated with poorer physical functioning including velocity, stride length, and knee range of motion (p's < 0.05). Self-efficacy for pain control was related to higher velocity (p < 0.05). Pain-related fear and pain catastrophizing were associated with higher levels of psychological distress and lower levels of pain self-efficacy (p's < 0.05). Pain catastrophizing mediated the relationship between pain fear avoidance and psychological distress (z = 2.50; p = 0.01). Pain related fear mediated the relationship between pain self-efficacy and velocity (z = 2.91; p < 0.01).

Conclusions: These findings suggest that pain-related fear uniquely impacts physical functioning in osteoarthritis patients, while both pain-related fear and pain catastrophizing are related to psychological aspects of osteoarthritis pain. Self-efficacy for pain control had a positive influence on physical osteoarthritis outcomes (e.g., velocity); however, the presence of pain-related fear partially negated the positive impact of pain self-efficacy on velocity. Findings also suggest that pain catastrophizing is more closely linked to psychological distress than pain-related fear. These results suggest that intervening to reduce pain-related fear may positively influence both physical functioning and psychological functioning, while targeting pain catastrophizing may be most helpful in addressing psychological components of the pain experience.

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INTERNET-BASED SELF-ADMINISTERED ESTIMATION TOOL FOR FUNCTION AND PAIN OUTCOMES AFTER TOTAL HIP REPLACEMENT

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Purpose: To develop an internet-based self-administered tool for the estimation of function and pain outcome after THR surgery.

Methods: We used prospective data of 504 consecutively recruited patients age 50 years and older with severe hip OA undergoing THR surgery (Swiss Qualitouch registry). Assessments included the WOMAC score for function and pain before surgery, at 3 (n = 504) and 12 (n = 200) months after surgery. Gender, age, height (quartiles), weight (quartiles), and number of co-morbidities with drug treatment (Sangha Comorbidity Score: 0, 1, 2+) were assessed in all individuals. To identify 3 key function and 2 key pain questions, we used stepwise regression considering all WOMAC questions from the 2 subscales. Then quartiles of the 0-100 score (100 = best function, no pain) from these questions were added to a general linear model including additional significant independent predictors.

Results: For function, the estimated 3-month post-surgery scores varied between 62 among individuals in the lowest quartile of function (< 17) and height before surgery with 2 or more co-morbidities, and 90 among individuals in the top quartile of function (> 50) and height before surgery without co-morbidities. For the same extremes, scores varied between 66 and 95 at 12 month follow-up based on our model. For pain, the estimated 3-month post-surgery scores varied between 75 among individuals in the lowest quartile of pain (≤ 25) with 2 or more co-morbidities, and 90 among individuals in the top quartile of pain (> 50) without co-morbidities. For the same extremes, scores varied between 79 and 93 at 12 month follow-up based on our model.

We validated our models using the full WOMAC score subscales: estimates for the extreme function and pain quartiles using our short tool compared to the classic WOMAC subscales including the same additional independent predictors, had very high agreement with a 1-2 points score difference.

Conclusions: The Qualitouch outcome prediction tool - HIP may help patients predict their outcome after THR at 3 and 12 months after surgery.