compare mean change in knee function tests and KOOS subscales between the two visits. Spearman correlations were computed to compare the magnitude of change between objective knee function tests and self-reported questionnaire scores.

Results: Patients were on average 44 ± 13 years-old, BMI 27.2 ± 4.8, and 71% male. All performance-based knee function tests improved significantly (p < 0.05) 6 weeks after partial meniscectomy. Active and passive ROM improved the least, each with a 4% increase from preoperative measurements. The greatest improvement in performance was observed with stair descent (13%) and sit-to-stand (15%) activities. Similarly all KOOS subscales improved significantly following surgery. KOOS Pain scores improved 32%, Symptoms 32%, Activities of Daily Living 22%, Sports and Recreation 48%, and Quality of Life 65%. Correlations between the change in KOOS Activities of Daily Living and performance-based tests were weak (r ranging from 0 to 0.41).

Conclusions: This study demonstrates that all nine performance-based knee function tests are responsive to patients undergoing partial meniscectomy. The low degree of correlation between improvements in performance-based tests and questionnaires indicates that these two types of measures may reflect distinct information about actual joint mechanics versus patient perception of knee-related function. Performance-based tests could potentially provide information about knee function that is unique and complimentary to questionnaire data.

328 RADIOGRAPHIC FEATURES, BETTER THAN CLINICAL FEATURES, REPRESENT ACTUAL JOINT DEGENERATION AND INFLAMMATION: CONSIDERATIONS FOR TOTAL KNEE REPLACEMENT SURGERY

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Purpose: Clinically, osteoarthritis (OA) is characterized by joint pain, tenderness, limitation of movement, crepitus, occasional effusion, and occasional limitation of motion. All performance-based knee function tests improved significantly following surgery. KOOS Pain scores improved 32%, Symptoms 32%, Activities of Daily Living 22%, Sports and Recreation 48%, and Quality of Life 65%. Correlations between the change in KOOS Activities of Daily Living and performance-based tests were weak (p ranging from 0 to 0.41).

Conclusions: This study demonstrates that all nine performance-based knee function tests are responsive to patients undergoing partial meniscectomy. The low degree of correlation between improvements in performance-based tests and questionnaires indicates that these two types of measures may reflect distinct information about actual joint mechanics versus patient perception of knee-related function. Performance-based tests could potentially provide information about knee function that is unique and complimentary to questionnaire data.

329 PHYSICAL THERAPISTS WORKING IN EXPANDED ROLES IN ORTHOPAEDIC CLINICS: IMPACT ON NON-SURGICAL PATIENTS WITH ARTHRITIS

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Purpose: Specially trained physiotherapists known as advanced practice physiotherapists (APP) are working in orthopaedic clinics to improve access to orthopaedic services and support chronic disease management for patients with arthritis. Little attention has been paid to the potential impact APPs may have on management behaviours and self-efficacy in non-surgical patients. Our goal was to examine the short term impact of a specially trained physiotherapist consultation on non-surgical patients with hip or knee arthritis who visited orthopaedic clinics for consideration for total joint replacement surgery (TJR).

Methods: The study was a single group pre-post-test design embedded within a pilot program in the orthopaedic departments of two tertiary care urban teaching hospitals. In the orthopaedic clinic, patients referred for orthopaedic consultation for consideration for TJR were assessed by an APP. The APP performed a detailed history, musculoskeletal examination, and review of diagnostic imaging such as radiographs and magnetic resonance imaging, and made an assessment as to potential need for surgery. All patients assessed likely to need surgery received further care from an orthopaedic surgeon. For patients with hip or knee arthritis who were deemed non-surgical, our study sample, APPs provided education on various conservative management strategies, such as exercise, adaptive behaviours, use of assistive devices and weight management. Participants completed the adapted Stanford Exercise Behaviour Scale and the Chronic Disease Self-efficacy Scale at baseline and during a structured follow-up telephone interview six weeks later. At the six week follow-up patients also completed questions on recall of APP’s recommendations, use of management strategies and barriers to implementation of strategies.

Results: Seventy three patients with hip or knee arthritis who were deemed non-surgical participated in the study. Sixty patients had been referred for their knee, 12 for their hip and 1 for both hip and knee. Sixty percent of the sample were female (mean age 58.5). Seventy one percent of patients (52) reported that the APP recommended exercise during their clinic visit, of whom 83% (43) reported using exercise to manage their arthritis since the visit. Almost 50% reported an increase in time spent stretching and over 40% reported an increase in time spent walking or doing strengthening exercises at the six week follow-up. Common barriers to uptake of arthritis management strategies reported by participants were time (37%), cost (24.7%) and other health problems (24.7%). Mean chronic disease self-efficacy scores significantly improved at follow-up (p < 0.001); the effect size was 0.51.

Conclusions: The results suggest specially trained physiotherapists have a role in the management of non-surgical patients with arthritis referred for orthopaedic consultation, particularly for enhancing use of conservative management strategies such as exercise.

330 SEXUAL FUNCTION IN LOWER LIMB OSTEOARTHRITIS

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Purpose: Sexual activity is an important part of normal life and yet there seems to be little in the way of research to investigate how it is affected by arthritis of the hip and knee joint. Sexual function may be of increasing relevance bearing in mind changes to modern prosthetic design, surgical technique, rehabilitation, changing attitudes and younger demographics of those patients receiving hip or knee replacements. This sample was to establish if patients with hip and knee arthritis requiring surgery had impaired sexual function.

Methods: We recruited patients from the dual-centre Clinical Outcomes in Arthroplasty Study (COAST) undergoing hip and knee replacement (THR/TKR) surgery. Participants completed four non-validated basic questions at baseline about the impact of their condition on their sexual function: Are
you sexually active?; If no, please indicate which option best describes the reason - pain, restricted movement, decreased libido, NA or other; If yes, does your joint problem affect your sexual health - not at all, mildly, moderately, severely; extremely; If yes, please indicate which option best describes the reason that it is affected - joint pain, restricted movement, decreased libido, NA or other. The prevalence of patients whose problematic knee/hip impeded their sexual health was reported and the reason for the discomfort was provided. The two groups are compared using the two tail t-test for normal distributed data, Mann-Whitney test for non-normal data and the chi square test for categorical data. Each group’s responses to the sexual activity questions was also described and stratified by current marriage status (civil state).

**Results:** The TKR and THR groups had similar median (IQR) ages of 70.1 (60.5, 75.8) years and 68.2 (60.8, 75.67) years and body mass index (BMI) 29.3 (26.4, 33.9) and 28.8 (25.6, 31.5). THR’s had a slightly higher proportion of females (63.4%) than the TKR group (59.6%). Both groups had similar proportions married, 63.3% for THR and 64.4% for TKR. However the proportion of patients sexually inactive in each group was significantly different, 55.0% for TKR and 69.2% for THR, p=0.043. Of the TKR patients 3 (4.4%) reported that this was due to limited range of motion but none due to pain. In THR patients the figures were 8 (16.3%) and 5 (10.2%) respectively. In those who were sexually active, only 20.7% of TKR and 16.7% of THR reported that the arthritis did not affect their sexual function and 12% and 29.6% reported severe or extreme restriction (fig. 1).

**Conclusion:** Sexual activity is limited in patients with hip and knee arthritis awaiting joint replacement surgery. Patients with hip arthritis were less sexually active and reported more restriction in activity due to their arthritis than knee patients. This subject is deserving of more research and education for patients.

### 331 IBALANCE OSTEOTOMY IN EARLY TREATMENT OF OSTEOARTHRITIS.

**Purpose:** High tibial knee realignment, has proven to be successful for the relief of knee pain caused by unicompartamental osteoarthritis of the knee and also is an accepted standard procedure used to realign the knee due to medial osteoarthritis. Aim of this study was to evaluate this novel osteotomy technique concerning clinical results and safety aspects.

**Methods:** Thirty-four (34) patients with medial compartment osteoarthritis and varus malalignment, were included for this technique, and evaluated prospectively for 3.5 year. A standardized surgical technique and rehabilitation protocol was used for all patients who received an iBalance MOW-HTO.

**Results:** Data analysis were performed on Statistica software. Repeated measures of ANVOA and post hoc analysis (Tukey test) was performed. All results showed statistically significance. (p<0.05). The iBalance PEEK implants remained stable in the osteotomy and there were no signs of peri-implant resorption around the iBalance implant. KOOS Knee survey data showed that all iBalance patients experienced a significant improvement in knee pain and physical functioning after the surgery.

**Conclusions:** The iBalance System addresses these needs by providing a standardized, precise and repeatable procedure and simple approach to promote successful knee osteotomy and bone healing. It also maintain the desire correction with very good clinical results and significant improvement of quality of life and daily life activity.

### 332 CARTILAGE THICKNESS AND CHONDROCYTE DENSITY IN THE HUMAN OSTEOARTHRITIC KNEE.

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**Purpose:** Osteoarthritis (OA) is the most prevalent joint diseases and cartilage loss is a central event in pathogenesis. The degree of cartilage damage varies substantially in specific locations within the joint and this may depend on the degree mechanical and chemical stress. Moreover, there are similar regional variations in chondrocytes. However, the relationship between changes at the tissue and cellular level to the degree of exposure to mechanical load requires further investigation. The purpose of this study was to compare cartilage thickness and cellularity in a site-specific pattern in the femoral cartilage and to related these changes to mechanical stress based on the knee alignment.

**Methods:** Cartilage explants were taken from 8 patients who received total knee arthroplasty. The average age was 74.7 years and all patients had varus knee deformity. Cartilage explants were harvested from 6 locations on medial and lateral femoral condyle of anterior, middle and posterior side (Figure 1). Cartilage thickness of these explants was measured from surface to subchondral bone and the chondrocyte number and cell formation were determined by using H.E. staining. Immunohistochemical analysis was also performed for the progenitor cell marker STRO-1.

**Results:** Cartilage thickness was significantly decreased in medial middle and posterior condyle rather than lateral. The number of chondrocytes was lowest in medial middle condyle, which shows the most severe cartilage damage and is most affected the abnormal mechanical stress due to varus knee deformity. Chondrocyte clusters were located especially around degenerative area in the thin cartilage of medial condyle, whereas single chondrocyte was located in thick cartilage of anterior to posterior lateral condyle. Additionally, STRO-1 was expressed by many cluster chondrocytes but only in a few single cells.

**Conclusions:** Abnormally increased mechanical load due to varus deformity is associated with cartilage degradation in the medial conyle. Interestingly, the tissue damage caused by mechanical stress activates a cellular response that leads to proliferation of STRO-1 positive progenitor cells and cluster formation. On the other hand, thick non-degenerated cartilage in the lateral compartment that experiences reduced load due to varus deformity shows low density single chondrocytes that appear to have reduced proliferative and biosynthetic activity (Figure 2). Appropriate mechanical stress appears critical for maintaining cartilage homeostasis and early restoration of normal mechanical load in both compartments of the knee may prevent cell and tissue damage.