

Concerning to the cartilage defect localization we develop five different cartilage defect region groups. Group 1 (medial femoral, n = 15), Group 2 (lateral femoral, n = 10), Group 3 (trochlear, n = 10), Group 4 (retropatellar, n = 8) and Group 5 (combined defect regions, n = 9). The follow up examination shows in all five groups a significant rise concerning to the subjective and objective IKDC2000 score after ACT treatment ( $p < 0.001$ ). The subjective part of the IKDC2000 score shows significant poorly post-operatively results for the patients in the groups 4 and 5 than in the groups 1, 2, 3 ( $p < 0.001$ ), where as there is no significant difference between the 5 groups pre-operatively. Regarding to the objective part of the IKDC2000 score with a view to the chondral lesion area there are no significant differences between the pre and postoperative evaluated IKDC2000 score values ( $p < 0.001$ ).

**Conclusions:** The presented data indicate autologous chondrocyte transplantation as an effective and safe option for the treatment of large full thickness cartilage defects in knee joints with significant better subjective results for patients with cartilage defects in the medial or femoral condyle and trochlear region than in retropatellar or combined cartilage lesion regions.

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### IS RADIOLOGY A DETERMINANT OF PAIN, STIFFNESS AND FUNCTIONAL DISABILITY IN KNEE OSTEOARTHRITIS?

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**Purpose:** There is a widespread belief of discordance between clinical and radiological features of knee osteoarthritis (KOA). This discordance has been reported by many and the possible explanations have also been given. Much emphasis has been given to lack of uniformity and understanding of X-ray views and to patello-femoral arthritis being overlooked. Although many factors may be available for study on X-ray's, it is surprising to note that majority of studies citing discordance have studied only those radiological features which are incorporated in KL grades – viz. osteophytes, joint space width (JSW), subchondral sclerosis and tibio-femoral alignment (TFA). Radiological anomalies in KOA may not be limited to these four and other features in and around the joint also need to be studied before citing a definite comment on discordance or consonance between clinical and radiographic KOA.

We hypothesized that the discordance could be due to limited radiological variables studied. This study has essentially analyzed many more radiological features than in previous studies to seek an association between clinical and radiographic features

**Methods:** This cross-sectional study consists of men and women aged 40 years or more who fulfilled ACR clinical and radiographic criteria for KOA. For inclusion, patients were required to have knee pain of more than 6 months duration and at least one pain dimension of the WOMAC pain score above 20%. 180 cases of primary KOA could be enrolled for the study. VAS for knee pain and knee specific WOMAC index for pain, stiffness and disability were recorded. Five additional radiological features apart from those in KL grading system were recorded by two authors who were blinded to the clinical diagnosis. The variables significantly associated were analyzed by linear regression model.

**Results:** Pain was significantly associated with increasing KL Grades, physical function was nearly significant and stiffness was not. On analysis of individual radiological features, WOMAC-pain was significant with subchondral sclerosis, joint space width and Tibio-femoral alignment although the correlation was weak. VAS-pain was significant with later two and also with articular incongruity. Functional disability was associated with medial joint space narrowing, tibiofemoral alignment, loose bodies and juxtra articular osteopenia. However in linear regression model pain and stiffness were significantly associated with articular incongruity; functional disability and total clinical scores with juxtaarticular osteopenia

**Conclusions:** The causation of knee pain in OA has been extensively studied although discordance has been noted between its clinical and radiographic profile. This study was undertaken to resolve a much debated issue as to why clinical features do not correlate significantly with radiological. The discordance noted by many authors is primarily due to the limitations of outcome measures in their study. When the radiological variables were extended beyond those included in KL Grades, articular incongruity manifesting as diminished Medial-joint space width and Tibiofemoral alignment, was a truer representative of pain and

stiffness whereas juxtaarticular osteopenia correlated well with physical disability and clinical severity.

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### QUALITY OF LIFE'S IMPAIRMENT BY MOOD DISORDERS IN NECK OSTEOARTHRITIS PATIENTS

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**Purpose:** to assess the presence of mood disorders (MD) and its influence on neck osteoarthritis (NO) patients' symptoms.

**Methods:** design-descriptive and prospective. Inclusion criteria: NO patients diagnosed by grade I-II-III of the Kellgren-Lawrence X-Ray, score from the Institut Ferran de Reumatologia (Clínica CIMA, Barcelona) outpatient clinics from January 2008 to June 2009. We also collected the number of cervical spine levels impaired by X-Ray. Patients with major psychiatric disorders already diagnosed (Depression, Anxiety) were excluded. We collected the following data to assess NO symptoms and psychological symptoms (mood disorder symptoms): NECK score (neck pain and neck disability, quality of life (SF36), anxiety and depression (CES-D, Hamilton, STAI). Patient's follow-up lasted 12 months, and all data were collected at baseline and at the end of the study. SPSS v.17 was used to compare and correlate all means by t-Student, Wilcoxon and Spearman measures.

**Results:** 15 NO patients were recruited (14 women). Mean age 55.6 years ( $\pm 7.18$ ). Symptomatology onset 46.93 years ( $\pm 7.47$ ), mean time of evolution at first evaluation visit 8.06 years ( $\pm 5.20$ ). 40% of patients had had sick-leave from work. The higher the levels of NO affected, the higher the rate of disability ( $p = 0.006$ ).

Higher (worse) scores of both mood disorder symptoms and quality of life in those patients who had higher intensity and duration of neck pain ( $p < 0.05$ ).

| Test    | X $\pm$ SD        |                          | P      |
|---------|-------------------|--------------------------|--------|
|         | Baseline visit    | 12-month follow-up visit |        |
| NECK    | 38.21 $\pm$ 14.75 | 22.36 $\pm$ 18.77        | 0.004* |
| HAD-A   | 7.64 $\pm$ 5.09   | 7.27 $\pm$ 4.12          | 0.809  |
| HAD-D   | 5.42 $\pm$ 5.38   | 4.27 $\pm$ 5.15          | 0.552  |
| CES-D   | 18.92 $\pm$ 12.30 | 16.81 $\pm$ 11.47        | 0.284  |
| STAI-E  | 53.75 $\pm$ 31.92 | 38.86 $\pm$ 30.63        | 0.047* |
| SF36 DC | 45.50 $\pm$ 17.23 | 56.54 $\pm$ 26.77        | 0.017* |
| SF36 RF | 67.85 $\pm$ 37.24 | 59.09 $\pm$ 42.23        | 0.474  |
| SF36 SM | 59.14 $\pm$ 24.21 | 71.27 $\pm$ 23.37        | 0.024  |

**Conclusions:** the aim of our study was to enhance the importance of NO in our community. It reflects a painful condition that can affect quality of life, work and mood. In our study, we observed minor anxious and depressive symptoms in NO patients. It exists an association between the intensity and duration of NO symptoms and the presence of mood disorder symptoms. Disability and work interference is associated with the presence of pain and the higher number of NO levels impaired, but not to the presence of mood disorder symptoms. The low amount of patients was due to the strict inclusion criteria, and larger group of patients will be needed in order to confirm these preliminary data.

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### THE RELATIONSHIP BETWEEN OBESITY AND FOOT PAIN IS RELATED TO FAT MASS AND FAT DISTRIBUTION BUT NOT MUSCLE MASS

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**Purpose:** To examine the relationship between obesity, body composition and foot pain as assessed by the Manchester Foot Pain and Disability Index (MFPDI).

**Methods:** 136 subjects aged 25–62 years were recruited as part of a study examining the relationship between obesity and musculoskeletal health. Foot pain was defined as current foot pain and pain in the last month, and an MFPDI score of  $\geq 1$ . Body composition (tissue mass and fat distribution) was measured using dual energy x-ray absorptiometry.

**Results:** The body mass index (BMI) in this population was normally distributed around a mean of 32.1 kg/m<sup>2</sup>. The prevalence of foot pain was 55.1%. There was a positive association between BMI and foot pain (odds ratio (OR) 1.12, 95% CI 1.06, 1.17). Foot pain was also positively associated with fat mass (OR 1.05, 95% CI 1.02, 1.08) and fat mass index (FMI) (OR 1.16, 95% CI 1.06, 1.28) adjusted for age, gender, strenuous physical activity, and skeletal muscle mass or fat-free mass index (FFMI) respectively. When examining fat distribution, positive associations were observed for android/total body fat ratio (OR 1.40, 95% CI 1.08, 1.81) and android/gynoid fat ratio (OR 28.18, 95% CI 2.04, 389.70), though gynoid/total body fat ratio was inversely related to foot pain (OR 0.83, 95% CI 0.74, 0.94). Skeletal muscle mass and FFMI were not associated with foot pain when adjusted for fat mass or FMI respectively.

**Conclusions:** Increasing BMI, specifically android fat mass, is strongly associated with foot pain and disability. This may imply both biomechanical and metabolic mechanisms.

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#### EVALUATION OF SHOULDER PERIARTICULAR TISSUES IN PATIENTS WITH OSTEOARTHRITIS USING THE TENDON INDEX OF THE SHOULDER JOINT

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**Purpose:** To determine the feasibility of using the tendon index of the shoulder joint to assess the destruction of periarticular tissues of the shoulder joint in patients with osteoarthritis

**Methods:** The study involved 20 patients with osteoarthritis complained of pain in the shoulder joint. To assess pain were used VAS in quiescent state, in motion, and palpation. Assessment of the shoulder joint was carried out on the Constant Score. To evaluate the objective status used the tendon index of the shoulder joint, which included assessment of pain on a scale (0–3) during movements, causing the tension of the rotator cuff tendons (rotator cuff) and the long head biceps (Long head of the biceps tendon). Statistical data was carried out using Spearman's test.

**Results:** there was a marked correlation between the tendon index of the shoulder joint and VAS after palpation ( $r = 0.4$ ), between the tendon index of the shoulder joint and VAS after joint motion ( $r = 0.3$ ) as well as between the tendon index of the shoulder joint and the Constant Score ( $r = -0.6$ ).

**Conclusions:** The tendon index of the shoulder joint can be used to assess the pathology of periarticular tissues of the shoulder joint in patients with osteoarthritis.

Table: Correlation between the tendon index of the joint and VAS and Constant Score

|                                    | VAS after palpation | VAS after joint motion | Constant Score       |
|------------------------------------|---------------------|------------------------|----------------------|
| Tendon index of the shoulder joint | $r = 0.4, p < 0.05$ | $r = 0.3, p < 0.05$    | $r = -0.6, p < 0.05$ |

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#### EARLY LEARNING EXPERIENCE WITH A NECK STABILIZED THA STEM FOR TREATING OSTEOARTHRITIS

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**Purpose:** Total hip arthroplasty is one of the most effective orthopaedic procedures with a very high success rate as measured by pain relief, improved function and patient satisfaction. However, since the introduction of total hip arthroplasty in the 1940s, a range of design philosophies for femoral components have demonstrated variable clinical results. Aseptic loosening, joint dislocation, thigh pain, bone resorption and femoral component failure have been some of the complications that plague this procedure. The past few years has seen an influx of so-called short stems with very little clarification as to design features, required surgical technique and long-term clinical outcomes. Most devices, meet with some level of learning curve and most systems do little in the way of warning new surgeons as to the pearls and pitfalls during the initial surgical phase. This paper is designed to review the lessons learned

with a new neck stabilized implant stem during the first year of surgical experience.

**Methods:** Three surgeons at different centers implanted 200 stems. Two surgeons used the anterior single incision and one surgeon used a small posterior surgical approach. All stems were of a novel modular neck stabilized stem design concept. All were implanted with cementless acetabular components of four different designs and three different bearing surfaces. Intraoperative x-rays were taken on all patients undergoing the posterior approach and half of all anterior approach patients had intraoperative fluoroscopy or plain x-rays taken. FEA studies were evaluated to determine best stem orientation and instrumentation designed and developed for surgical preparation of femoral stem.

**Results:** One stem has been revised due to sepsis and no stems have been revised due to aseptic loosening. One modular neck was adjusted due mechanical impingement with the acetabular component.

Surgical evaluation clearly demonstrates that there is no difficulty for access to the socket or proximal femur in utilizing a neck sparing stem design.

Radiographic review demonstrates 20° of internal rotation is needed for proper measurement of femoral offset and medial neck curve.

Intraoperative evaluation demonstrated the need for a smaller stem size in small profile female patients.

Surgical technique demonstrated three unique learning aspects of utilization of a curved small neck stabilized stem design. One: level of neck resection. Two: angle of neck resection. Three: rasping not broaching the proximal medial curve.

**Conclusion:** The initial first year results of a novel modular neck stabilized curved stem design clearly demonstrates that this approach can be used as a main stream treatment for the osteoarthritic patient.

The advantage of neck sparing stabilized stems saves tissue, both hard (bone) and soft tissue as compared to conventional cementless total hip stem designs. This new approach has the potential benefit of less blood loss, quicker rehabilitation and if necessary easier removal and restoration of revision surgery. We are encouraged with our initial clinical/surgical impression and believe the potential advantages warrant further evaluation of this new approach to THA.



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#### BONE MINERAL DENSITY IS CROSS SECTIONALLY ASSOCIATED WITH CARTILAGE VOLUME IN HEALTHY, ASYMPTOMATIC ADULT FEMALES: GEELONG OSTEOPOROSIS STUDY

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**Purpose:** The association between osteoporosis and osteoarthritis is controversial. Whilst previous studies have shown an association between bone mineral density (BMD) and cartilage volume to be positively associated, and some data exist of the relationship between local BMD and knee structures, the association between distant site-specific measures of BMD and other knee structures is unknown. The aim of this study was to determine the associations between BMD and