open-ended free text question, which were coded into thematic groups. Ordered logistic regression modelling was used to look at the association between patients pre-operative expectations and baseline characteristics (age, sex, education, ASA status, K&L grade, obesity, medication use, WOMAC score, EQ5D score). The OMERACT-OARSI responder criteria were used to classify patients as improved/not improved 12-months after THR. Logistic regression modelling was used to explore whether pre-operative expectations predict response to THR, adjusting for baseline characteristics. **Results:** A greater number of recorded pre-operative expectations were associated with younger age, women, more education, lower ASA grade, obesity, greater medication use, and worse pre-operative pain and function (WOMAC score). Analyses identifying predictors of outcome, suggested that the more pre-operative expectations a patient had, the more likely they were to improve after surgery. Each individual expectation a patient had, was associated with a 26% increase in the probability of improvement (95%CI 1%-56%). Sensitivity analyses, using different methods to classify patients as responders to surgery, support this finding. Analyses within WOMAC subgroups suggest the association is strongest for stiffness and function. Other predictor variables were associated with improved patient outcomes. Educated people had greater improvement following surgery, as were those with worse baseline pain and function. Patients with less severe radiographic change had a better outcome. Patients with higher ASA grades were less likely to respond, as were obese patients. Age, sex and pre-operative medication use were not associated with outcome.

**Conclusions:** This study demonstrates variability in patients’ pre-operative expectations of THR surgery. Patients with a larger number of pre-operative expectations are more likely to have a good clinically important outcome 12-months post-THR. This appears to be driven more by stiffness and function, rather than pain. The majority of patients described expectations regarding function which is likely an artefact of how the expectation question was worded, asking patients what they would be “able to do”. These findings have implications for informed patient-clinician decision-making. As unfulfilled expectations are related to patients reporting poor outcomes of surgery and lower levels of satisfaction, some have suggested surgeons should attempt to moderate patients hopes of surgery when discussing the likely outcomes of surgery given their individual characteristics. An alternative point of view is that the patients greater expectations contributed to outcome by acting as a psychological contextual factor, which ultimately influences pain and function post-op (unconditioned “placebo”). Further research should address these two different causes of action.

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WORK DISABILITY AMONG PEOPLE WITH MILD TO MODERATE KNEE OSTEOARTHRITIS

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**Purpose:** To explore factors associated with work disability (absenteeism and presenteeism) in a cohort of people with symptomatic knee osteoarthritis (OA) participating in the long-term evaluation of Glucosamine Sulphate (LEGS) study.  

**Methods:** The LEGS study is a 2 × 2 factorial design randomised placebo-controlled clinical trial allocating participants to glucosamine sulphate (1500mg) and chondroitin sulphate (800mg) or matching placebo for two years (NCT00513422). All LEGS study participants are required to complete annual clinic assessments including questionnaires evaluating health-related quality of life (SF-12) and comorbidity. In addition, patients are required to complete a seven-day Participant Diary every two months. This Participant Diary requires daily reporting of knee pain at ‘its worst’ (0-10), current primary occupation, estimated daily work or usual activity capacity due to knee problems from 0% (unable to do usual work/activities) to 100% (fully functioning in usual role) (presenteeism), as well as days off work due to knee pain (absenteeism) over the past two months.

**Results:** From the 605 randomised participants, 577 (95.4%) completed the baseline Participant Diary after the baseline clinic assessment. This cohort had a mean (sd) age of 60.3 (8.2) years and BMI of 28.9 (5.8), with over half currently in paid employment (58%) (Table 1). Only 75 participants (12%) reported days off work (absenteeism) due to knee problems in the last two months (range 0.5 – 60 days; median 4). However, only 131 (23%) participants reported fully functioning (100%) at their paid employment or required usual daily activities over the seven day reporting period (Table 1). The average productivity of the remaining majority of this cohort (n=434) was 77%. For further analyses, the smallest four occupational groups were combined into one (Technicians/Trade,Sales, Machinery Operators/Drivers, Laborers). Univariate analysis indicated a significant association with absenteeism (days off work) and presenteeism (% work capacity) with each of the examined variables (p < 0.01): age, sex (not for absenteeism), BMI, comorbidity score, occupational group, maximum knee pain (left and right) SF-12 PCS and SF-12 MCS. Examining absenteeism (Poisson) and presenteeism (linear) using a multivariate regression models, all variables retained their significant association (p < 0.01), except right knee pain for absenteeism, with the dependent variable. The multivariate models explained 43% of the variance in presenteeism. A restricted multivariate model using only the variables maximum knee pain (left and right), SF-12 PCS, SF-12 MCS and occupational group explained a similar 44% of the variance in presenteeism.

**Table 1. Participant Diary: Occupations and Presenteeism**

<table>
<thead>
<tr>
<th>Primary Occupation</th>
<th>N (%)</th>
<th>% Work capacity Mean (sd)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Retired</td>
<td>105 (17)</td>
<td>84 (16)</td>
</tr>
<tr>
<td>Home Duties</td>
<td>118 (20)</td>
<td>78 (19)</td>
</tr>
<tr>
<td>Unemployed</td>
<td>11 (2)</td>
<td>62 (21)</td>
</tr>
<tr>
<td>Managers/Professionals</td>
<td>154 (26)</td>
<td>92 (12)</td>
</tr>
<tr>
<td>Community/Personal Services</td>
<td>66 (11)</td>
<td>85 (15)</td>
</tr>
<tr>
<td>Administrative/Clerical</td>
<td>64 (11)</td>
<td>89 (14)</td>
</tr>
<tr>
<td>Technicians/Trade, Machinery Operators</td>
<td>15 (3)</td>
<td>83 (18)</td>
</tr>
<tr>
<td>Sales</td>
<td>17 (3)</td>
<td>77 (27)</td>
</tr>
<tr>
<td>Machinery Operators/Drivers</td>
<td>11 (2)</td>
<td>90 (10)</td>
</tr>
<tr>
<td>Laborers</td>
<td>10 (2)</td>
<td>87 (10)</td>
</tr>
</tbody>
</table>

**Conclusions:** Even mild to moderate knee OA is associated with lost work productivity due to knee problems. This loss is partly associated with knee pain, physical disability and general psychological well-being. However, there is a need to examine other aspects of work productivity such as change in employment, job demands and job satisfaction.

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THE ASSOCIATION OF ANTHROPOMETRIC MEASUREMENTS AND KNEE OSTEOARTHRITIS IN NON-OBSE SUBJECTS

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**Purpose:** Obesity and Knee OA show a strong association, but lacks evidence as to whether the association is due to biomechanical factors alone or in combination with metabolic mechanisms. Till date no study has been done on non-obese subjects to negate the systemic and metabolic effects of obesity and to look for association between BMI and other anthropometric measurements and KOA. The purpose of the present study was to examine the validity of the contention that BMI and other anthropometric measurements have a significant relationship with the incidence and severity of osteoarthritis knee in non-obese subjects.

**Methods:** 180 Subjects were recruited from outpatient clinic with the diagnosis of KOA according to the criteria of American College of Rheumatology (ACR). OA was radiologically graded according to Kellgren-Lawrence (KL) grades. Knee joint space width (JSW) and relevant radiological features were recorded by standard weight bearing antero-posterior radiography with the knees in full extension. Body Mass Index (BMI), mid upper arm circumference (MUAC), Waist/hip ratio (WHR) and Triceps skin fold thickness (TSFT) were recorded by standard procedures and location.

**Results:** A Strong association was found between anthropometric measurements and in incidence and severity of primary KOA in non-obese subjects. In spite of high prevalence of osteophytosis in KOA, BMI and all other anthropometric measurements were inconsistently associated. The results provide direct evidence that increasing weight (BMI) may not induce osteophyte formation even in those who are free from KOA. Pain scores of WOMAC index, JSW of TMC and varus aligned knees were found significantly associated between preobese/overweight and normal subjects suffering with KOA. There is a strong association between anthropometric measurements (BMI, MUAC and TSFT) and severity of KOA evaluation by Tibio femoral alignment (TFA).

**Conclusions:** This study validates the contention that weight (BMI) and other anthropometric measurements have a significant association in the
incidence and severity of the KOA. The study favors the biomechanical theory of axial loading and local factors being predominantly responsible for cartilage degeneration and onset of the disease. This study disproves the notion of the possibility that the person who were overweight gained weight after developing osteoarthritis because of their knee pain and sedentary level of activity.

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PREDICTABILITY OF INTERMITTENT HIP/KNEE OA PAIN

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Purpose: In people with painful hip/knee osteoarthritis (OA), focus groups identified the predictability of the pain as a key determinant of the pain impact. This study evaluated the relationship between pain predictability and a new measure of hip/knee OA pain, the OARSI-OMERACT Intermittent and Constant Osteoarthritis Pain (ICOP) Measure, which evaluates ‘constant’ (5 items) and ‘intermittent’ (6 items) hip or knee pain. Item response options are on a 5-point scale from ‘not at all’ to ‘extremely’. Subscale and total scores are standardized to 0 to 100; higher scores indicate worse pain.

Methods: In the context of a cohort study of hip and knee OA, participants completed the ICOP and were asked to identify how often their pain ‘comes that goes’ comes on ‘without warning’ (unpredictable pain) or ‘after a specific trigger’, e.g. an activity (predictable pain) (0, never, to 4, very often) for each symptomatic hip and knee. Analyses were performed by joint. The proportions with one or both of pain without warning and after a trigger were calculated (at least sometimes versus never/rarely).

Results: The mean age of the 210 participants was 78.9 years (68.8 to 100.4), 74.6% were female and 18.7% had < high school education; the numbers with complete data for ICOP right hip, left hip, right knee and left knee were: 95, 98, 138, and 132, respectively. 76.2% reported pain without warning in at least one hip versus 71.2% in at least one knee. For pain after a trigger, the proportions were 75.2% versus 79.4%, respectively. Approximately half (53.3%-61.3%) reported both pain types, while 9.0%-20.0% reported only pain without warning and 13.3%-20.0% reporting only pain after a trigger. In bivariate analyses, ICOP intermittent scale scores were significantly and positively related to the frequency of both unpredictable (p<0.0001 for all joints) and predictable pain (p<0.01 for all but left hip). Adjusting for unpredictable pain, predictable pain remained significantly associated with ICOP intermittent scores only for the right hip (p=0.01). For all joints, a higher frequency of unpredictable joint pain was significantly associated with higher scores on all ICOP intermittent item scales (knees 0.685-0.79; hips 0.62-0.66), with the strongest relationships noted with impact on quality of life. Item correlations with frequency of predictable pain were less strong (knees 0.32-0.39; hips 0.19-0.48), but linear regression was used to examine the relationships between pain type and ICOP intermittent scale scores. Spearman correlations were calculated between each type of pain and ICOP intermittent item scores.

Conclusions: More than half of participants with chronic painful hip/knee OA reported intermittent pain that occurred without warning and after a trigger; these proportions were similar for symptomatic hips and knees. Compared with pain that was predictable, unpredictable joint pain was associated with a worse pain experience. Studies are needed to identify potentially modifiable risk factors for unpredictable hip and knee OA pain in order to develop and test interventions to relieve this complaint.

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VALIDATION OF SELF-REPORTED OSTEOARTHRITIS IN A POSTMENOPAUSAL POPULATION AND ITS ASSOCIATION WITH BODY WEIGHT

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Purpose: Osteoarthritis (OA) is not well-defined and it is uncertain whether self-reported OA gives a valid estimate of the disease. The validity may depend on the population being studied. The aim of this study was to validate self-reported OA in a postmenopausal population.

Methods: Questionnaires requesting information about OA were sent out in February 2007 to a subset of women (n=752) from the Aberdeen Prospective Osteoporosis Screening Study (APOSS). Half the women had self-reported osteoarthritis (OA) in 1998-2000 and were matched (according to weight and body mass index [BMI]) with women who had self-reported absence of OA. In total, 618 questionnaires (82%) were returned of which 602 were correctly completed. Of the remaining 16 questionnaires, 14 were returned blank, one was incorrectly completed and one was incomplete. OA was confirmed by radiological report for 602 women.

Results: For the women that answered ‘yes’ to OA in 2007 (n=269), 179 were confirmed by radiological records but for 90 there was no evidence of OA. For the women that answered ‘no’ to OA (n=298) there was no radiological evidence of OA for 219 but for 79 women there was a radiological record indicating presence of OA. Of the 35 women who responded that they were unsure whether they had OA or not, 23 had radiological evidence of OA and 12 did not. Sensitivity was 69% and specificity 71%. Positive predictive value (PPV, the probability that a subject who self-reports having OA has OA, confirmed by radiological report) was 66% and negative predictive value (NPV, the probability that a subject who states that they do not have OA is free of OA) was 73%. For the subset of women who had also reported OA in 1998-2000, PPV was 78% and for the women who reported that they did not have OA in 1998-2000 the NPV was 83% (Table 1).

Table 1. Confirmation of OA that was self-reported at two time points

<table>
<thead>
<tr>
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<tbody>
<tr>
<td>No evidence of OA</td>
<td>52 40</td>
</tr>
<tr>
<td>Radiological OA</td>
<td>56 138</td>
</tr>
<tr>
<td>No evidence of OA</td>
<td>4 11</td>
</tr>
</tbody>
</table>

Based on the self-report of OA in 1998-2000, the OA and OA-free groups had been well-matched with identical mean height (160.3 cm), weight (70.2 kg) and BMI (27.3 kg/m²) and similar mean age (54.6 y OA, 55.4 y OA-free). Where the presence or absence of a radiological report confirmed the 2007 self-report (n=179 OA, n=219 OA-free), the women with OA were noted to be heavier in 1998-2000 compared to those without OA (mean [SD] 71.9 [12.5] kg and 69.0 [10.0] kg, respectively, p=0.020), and the weight difference was even more marked at their previous visit in 1990-93 (68.4 [11.9] kg, 64.6 [10.3] kg, P<0.001). Where the self-report did not agree with the radiologically confirmed OA (n =90, self-reported but not confirmed; n=77, confirmed but not self-reported) there was no difference in weight between the groups.

Conclusions: Reasons that could explain why women would report OA when they did not have OA include health professionals suggesting ‘wear and tear’ but without an x-ray diagnosis, or the volunteer misunderstanding the word ‘osteoarthritis’. Conversely, OA may be detected on an x-ray but the woman had not been made aware of this. Nevertheless, 66%-73% of self-reports were correct. The predictive value of self-reported OA appears to improve when the same answer is given on two separate occasions. The study highlights the link between body weight and OA, but whether the heavier weight in OA is due to limited physical activity because of painful joints or whether it is part-causal is unclear.

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ANALYSIS OF PERI-ARTICULAR OSTEOPHYTES IN THE MAJOR JOINTS OF A SKELETAL POPULATION: EXTRACTION AND CHARACTERIZATION OF SEVERE-OSTEOPHYTE-FORMED-SKELETONS

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Purpose: The formation of peri-articular osteophytes is one of the most representative changes of joint degeneration. By analyzing the distribution of these minor degenerative and proliferative phenomena in general skeletal systems, much information on physiological and/or pathological ageing, and the outline of generalized osteoarthritis (OA) might be derived. However, few studies have epidemiologically analyzed these osteophytes in human skeletons. In this study, the peri-articular osteophytes that formed around major joint surfaces of the upper and the lower extremities were...