for scleroderma pathology reflecting autoimmunity, vasculopathy, inflammation and fibrosis. This mRSS signature needs to be validated in a larger set of SSc patients including assessment of change over time.

**References:**
[1] Mahoney et al. PLOS Computational Biology 2015: Vol 11; 1–20.

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**SATURDAY, 17 JUNE 2017**

## How diet influences musculoskeletal diseases

### OP0340 WEIGHT LOSS FOR OVERWEIGHT AND OBESE INDIVIDUALS WITH GOUT: A SYSTEMATIC REVIEW OF LONGITUDINAL OBSERVATIONAL STUDIES

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**Background:** Weight loss is a commonly recommended treatment for gout, but the magnitude of effect to expect has to our knowledge not previously been evaluated in a systematic review.
**Objectives:** The aim of this systematic review was to determine the benefits and harms associated with weight loss in overweight patients with gout.
**Methods:** Based on a pre-defined protocol (CRD42016037937), we searched six databases for longitudinal studies, quantitatively reporting the effect of weight loss in overweight gout patients. Risk of bias was assessed using the ROBINS-I tool. The quality of the evidence was assessed using GRADE.
**Results:** From 3,991 potentially eligible studies, 10 were included (incl. one RCT). Interventions included diet with/without physical activity, bariatric surgery, diuretics, metformin, or no intervention. Due to clinical heterogeneity of the included studies, data are presented for each study and synthesised separately. The effect on serum uric acid (sUA) ranged from -168 to 30 μmol/L, and 0% to 60% patients achieved sUA normalisation (i.e. sUA <360 μmol/L). Six out of eight studies (75%) showed beneficial effects on gout attacks. A dose-response relationship was indicated in two studies for sUA, sUA normalisation and gout attacks. At short term (<3 months) after bariatric surgery, one study showed temporary increase in sUA, and another showed temporary increased number of gout attacks. Other possible harmful effects, measured by proxies such as withdrawals due to adverse events and serious adverse events, were poorly reported.
**Conclusions:** The available evidence is in favour of weight loss for overweight gout patients, with low, moderate and low quality of evidence for an effect on sUA, sUA normalisation, and gout attacks, respectively. At short term, temporary increased sUA and gout attacks may occur after bariatric surgery. There is an urgent need to initiate rigorous prospective studies (preferably RCTs) to provide more trustworthy estimates of benefits and harms of weight loss in overweight gout patients.

**References:**
[1] Richette P, Doherty M, Pascual E, et al. 2016 updated EULAR evidence-based recommendations for the management of gout. Ann Rheum Dis 2016:1–14, doi: 10.1136/annrheumdis-2016-209707.

**Disclosure of Interest:** None declared
**DOI:** 10.1136/annrheumdis-2017-eular.2651

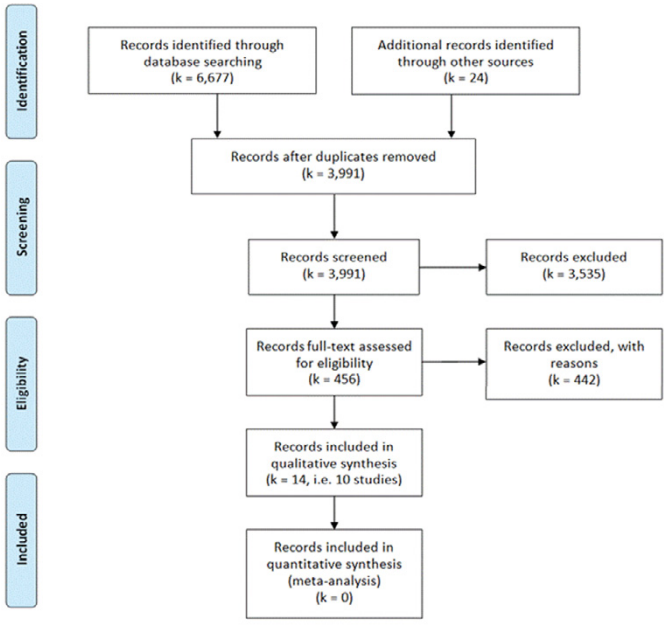


**Figure 1: PRISMA flow diagram**
ACR, American College of Rheumatology; CENTRAL, Cochrane Central Register of Controlled Trials; EULAR, The European League Against Rheumatism; ICTRP, the World Health Organization International Clinical Trial Registry Platform portal; pts, patients.

**SATURDAY, 17 JUNE 2017**

## Can targeting disease activity in hand osteoarthritis improve our treatment in the 21st century

### OP0341 CAN PAIN IN HAND OSTEOARTHRITIS BE ASSOCIATED WITH MRI COLLATERAL LIGAMENT ABNORMALITIES?

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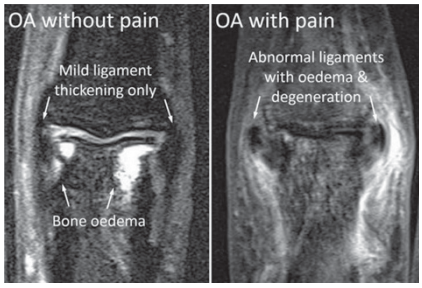
**Background:** Many patients with hand osteoarthritis (OA) have little symptoms. Bone oedema and synovitis have been associated to pain in OA, but inflammation involving ligaments has not been studied, likely limited by inadequate MRI resolution. We have previously found significant ligament pathology in early and established hand OA (HOA) [1].
**Objectives:** We hypothesise that the well innervated ligaments are key to a better understanding of the relationship between joint structure and pain in HOA. This

**Abstract OP0341** – Table 1

| Abnormality | Joints % (n) | | | Median score (IQR) | | Difference* (90% CI) |
|---|---|---|---|---|---|---|
| | HC (n=10) | OA no pain (n=11) | OA pain (n=15) | OA no pain (n=11) | OA pain (n=15) | |
| Fluid | 30 (3) | 73 (8) | 67 (10) | 2 (0, 4) | 1 (0, 2) | 0 (-2, 1) |
| Capsulitis/synovitis | – (0) | 36 (4) | 60 (9) | 0 (0, 1) | 1 (0, 2) | 0 (0, 2) |
| Extracapsular oedema | – (0) | 45 (5) | 73 (11) | 0 (0, 2) | 2 (0, 3) | 1 (0, 2) |
| CL thickening | 50 (5) | 100 (11) | 100 (15) | 2 (2, 4) | 2 (2, 4) | 1 (-1, 2) |
| CL oedema | 40 (4) | 91 (10) | 87 (13) | 2 (1, 3) | 3 (2, 4) | 1 (0, 3) |
| CL degeneration | 40 (4) | 91 (10) | 100 (15) | 3 (1, 5) | 4 (2, 6) | 1 (-1, 3) |
| Proximal joint bone oedema | – (0) | 9 (1) | 20 (3) | 0 (0, 0) | 0 (0, 0) | 0 (0, 0) |
| Distal joint bone oedema | – (0) | 27 (3) | 20 (3) | 0 (0, 1) | 0 (0, 0) | 0 (0, 0) |
| Proximal joint bone cyst | – (0) | 27 (3) | 47 (7) | 0 (0, 2) | 0 (0, 2) | 0 (0, 1) |
| Distal joint bone cyst | 10 (1) | 27 (3) | 7 (1) | 0 (0, 1) | 0 (0, 0) | 0 (0, 0) |

*Accounting for clustering of joints within patients. CI = confidence interval; HC = healthy controls; IQR = inter-quartile range; CL = collateral ligaments.

research aims to see if small joint collateral ligament abnormalities are worth exploring further in relationship to pain in HOA.
**Methods:** High-resolution contrast enhanced MRI of 26 joints in 15 patients (mean (SD) age 58.3 (8.2), 13F:2M) and 10 in 5 healthy controls (age 38 (5.6); 4F:1M) were scanned using a microscopy MRI coil. 15 joints in 8 patients were painful [median (IQR) pain VAS 4 (3, 7)). Joints were scored blinded to clinical data for joint fluid, capsule/synovitis, extracapsular oedema, collateral ligament thickening/oedema/degeneration, extensor and flexor tendons, bone oedema and cysts. All structures were graded 0–3 for normal, mild, moderate, severe, as defined in OMERACT HOAMRIS where available [2]. Proportions of joints with any level of abnormality (score>0) were calculated according to pain status (present/absent).
**Results:** All OA patients with and without pain had ligament abnormalities. Substantive differences in proportion of joints between healthy controls and OA patients were seen for all pathologies except tendons (no tendon abnormalities were found in all groups). Proportions of joints with capsular/synovium, extra capsular changes and proximal cysts differed between OA joints with and without pain but no substantive differences in pathology score were found. Of painful joints, 93% (14) had both ligament and capsular/synovium or extracapsular abnormality present, compared to 45% (5) of non-painful joints.




**Conclusions:** Modifiable abnormalities involving capsular/synovium and extra-capsular areas may be more frequently seen in painful OA joints. The presence of collateral ligament abnormalities in HOA joints, whether painful or not, suggest that the severity of ligament abnormalities in small joint OA and the degree of pain may be an important area to investigate further.
**References:**
[1] Tan AL, et al. Ann Rheum Dis. 2006 Oct;65(10):1267–72.
[2] Haugen IK, et al. J Rheumatol. 2014 Feb;41(2):386–91.
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## OP0342 ASSESSMENT OF STRUCTURAL DAMAGE OF THE THUMB BASE IN PATIENTS WITH HAND OSTEOARTHRITIS: COMPARING THE NEWLY DEVELOPED OMERACT MAGNETIC RESONANCE IMAGING SCORING SYSTEM WITH STANDARD RADIOGRAPHY

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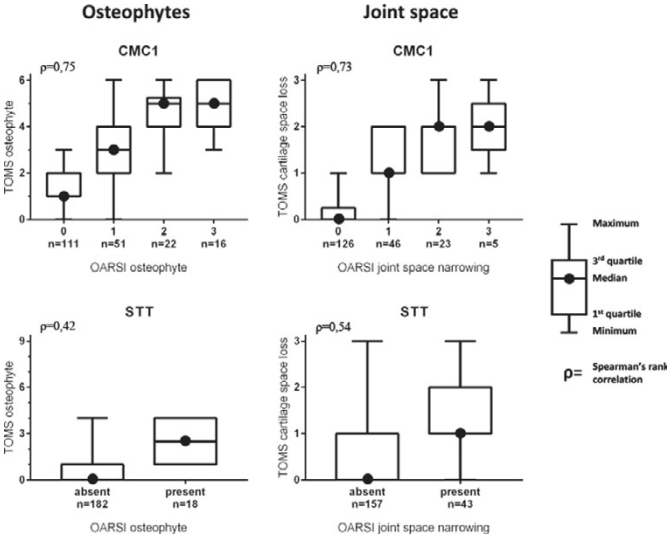
**Background:** The thumb base is frequently involved in patients with hand osteoarthritis (OA), resulting in osteophytes and cartilage loss. Radiography is the most commonly used imaging modality to evaluate structural OA signs, however it is insensitive especially due to overprojection. Magnetic resonance imaging (MRI) could be a valuable alternative, however a standardized scoring method for thumb base MR images did not exist until recently OMERACT developed the thumb base OA MRI scoring system (TOMS)[1].
**Objectives:** Our aim was to investigate the validity of the new TOMS by comparing TOMS scores with radiographic scores.
**Methods:** Two hundred consecutively included patients (83.5% women, median age 60.5 years) diagnosed with primary hand OA in secondary care, who had both a dorsopalmar radiograph of the right hand and a MRI scan of the right thumb base taken at baseline, were studied. T1- and fat suppressed T2-turbo spin weighted sequences were performed in axial and coronal planes on a 1.5 Tesla extremity MRI unit. Radiographs of the first carpometacarpal (CMC1) and scaphotrapeziotrapezoid (STT) joints were scored using the OARSI atlas (osteophytes and joint space narrowing [JSN] in CMC1: 0–3 and STT: absent/present) by one reader with good intra-reader reliability, blinded for clinical and MRI data. MR images were scored using TOMS (osteophytes in CMC1: 0–6 and STT: 0–9; cartilage space loss [CSL] for both joints: 0–3) by two readers, blinded for clinical and radiographic data, with good intra- and inter-reader reliability. For further analysis we used the average of both readers, rounded down to the nearest integer. To study validity, the distribution of the TOMS scores for osteophytes and CSL were compared for the different radiographic stages for osteophytes and JSN, respectively.
**Results:** On MR images osteophytes were detected in the vast majority of thumb bases (CMC1 n=172; STT n=102). The score of TOMS increased with more severe radiographic stages (see figures). However, the number of patients without any osteophytes in both CMC1 and STT was considerably lower for TOMS (n=19) than for the OARSI (n=106) scoring. A similar difference was apparent for absence of CSL (n=82) versus JSN (n=108) in both CMC1 and STT. Patients with isolated STT osteophytes were quite rare for both TOMS (n=9) and the OARSI (n=5) scoring. The most prominent discrepancy between TOMS and OARSI sensitivity was found for osteophytes: an additional 168 joints (CMC1 n=84; STT n=84) were found positive with TOMS, while only 1 OARSI-positive CMC1 scored negative with TOMS.




**Conclusions:** Scores of osteophytes and cartilage loss assessed on MR images by TOMS were correlated with radiographic scores, indicating good validity of the TOMS. Furthermore, the frequencies of joints with osteophytes and cartilage loss assessed on MR images were higher compared to those on radiographs, suggesting high sensitivity for the TOMS.
**References:**
[1] Kroon FPB, Conaghan P, Foltz V, et al. Development and reliability of the OMERACT thumb base osteoarthritis MRI scoring system. J Rheumatol. 2017; in press.
**Disclosure of Interest:** None declared
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# Why we do develop autoimmunity

## OP0343 THE INTESTINAL INVOLVEMENT IN SYSTEMIC SCLEROSIS IS CHARACTERIZED BY A PECULIAR GUT MICROBIOTA

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**Background:** Gastrointestinal involvement is recognized as a major cause of morbidity and mortality in Systemic Sclerosis (SSc) and its pathophysiology is still unclear. Few data on composition and function of gut microenvironment in SSc are reported in the literature but there is a growing body of evidences supporting the hypothesis of a relation between gut microbiota and the host immune system.
**Objectives:** The goal of this study was to characterize fecal microbiota in SSc patients compared to healthy subjects to investigate whether specific microbial species may be responsible of dysbiosis in SSc. Furthermore, we investigated the composition of microbiota in the different clinical subsets of SSc.
**Methods:** Faecal samples were obtained from 17 healthy controls and 39 SSc patients including subjects with different skin involvement (Diffuse and Limited) and disease duration. The BMI was normal and the mean age was similar both in SSc and controls groups. The composition of microbiota was determined through 16S rRNA pyrosequencing performed using the GS Titanium technology. Rarefaction was used to uniform abudance data. $\alpha$-diversity was defined by the main indexes while $\beta$-diversity was determined according to Bray-Curtis and UniFrac, represented trough Principal Coordinate Analysis (PCoA) and compared using PERMANOVA test on distance matrices. Linear Discriminant Analysis Effect Size was used to identify taxa that showed differential expression between the groups.
**Results:** At genus level SSc patients showed a differential expression in 12 taxa compared to controls with higher levels of *Ruminococcus*, *Streptococcus*,