(0.45mm) CT scans. Cortical bone thickness (mm) and trabecular bone density (Hounsfield units, HU) were measured with an automated algorithm. Osteophytes were excluded. Afterwards, wxRegSurf v18 was used for surface registration. Registration data was used for bone shape measurements. MATLAB R2020a and the SurfStat MATLAB package were used for data analysis and visualization. Two-tailed F-tests were used to calculate changes over time. Two separate linear regression models were used to show the influence of baseline Kellgren-Lawrence grade and sex on the changes over time. Statistical significance was calculated with statistical parametric mapping; a p-value <0.05 was considered statistically significant. Bone shape changes were explored visually using vertex by vertex displacements between baseline and follow-up. Patients were separated into two groups based on whether their most affected compartment (MAC) was medial or lateral. Only patients with axial CT scans at both time points available for analysis were included for evaluation.

**Results:** 3 Patients did not have complete CTs and in 1 patient the imaged femur was too short, leaving 16 patients for tibial analyses and 15 patients for femoral analyses. The MAC was predominantly the medial side (medial MAC n=14; lateral n=2). Before treatment, the MAC cortical bone was compared to the rest of the joint (Figure 1). One year after treatment, MAC cortical thickness decreased, although this decrease of up to approximately 0.25 mm was not statistically significant. The trabecular bone density was also higher before treatment in the MAC, and a decrease was seen throughout the entire joint, although statistically significant only for small areas on mostly the MAC where this decrease was up to approximately 90 HU (Figure 1). Female patients and patients with a higher Kellgren-Lawrence grade showed a somewhat larger decrease in cortical bone thickness. Trabecular bone density decreased less for patients with a higher Kellgren-Lawrence grade, and female patients showed a higher density decrease interiorly while male patients showed a higher decrease exteriorly. None of this was statistically significant. The central areas of both compartments showed an outward change, while the outer ring showed inward changes.

**Conclusion:** MAC cortical bone thickness shows a partial decrease after KJD. Trabecular bone density decreased on both sides of the joint, likely as a direct result of the bicompartamental unloading. For both subchondral bone parameters, MAC values became more similar to the LAC, indicating (partial) subchondral bone normalization in the most affected parts of the joint. The bone shape changes may indicate a reversal of typical OA changes, although the inward difference that was seen on the outer edges may be a result of osteophyte-related changes that might have affected the bone segmentation. In conclusion, KJD treatment shows subchondral bone normalization in the first year after treatment, and longer follow-up might show whether these changes are a temporary result of joint unloading or indicate more prolonged bone changes.

**Disclosure of Interests:** None declared.

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SYNOVITIS IS FACTOR OF OSTEOARTHRITIS KNEE PROGRESSION IN PATIENTS WITH LESS THAN 5 YEARS OF DISEASE DURATION

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Background: There are many studies about investigation of risk factors (RF) of knee osteoarthritis (OA) radiologic progression. Especially, in patients with small disease duration. At the moment, there are ambivalent of results of previous studies, lead to uncertain role of synovitis.

Objectives: The aim of study is to investigate relationship between knee OA synovitis and progression risk in patients with small disease duration during a follow-up period of 5 years.

Methods: Eligible patients had knee OA based on ACR criteria with x-ray confirmation; baseline (BL) disease duration less than 5 years. Patients were evaluated at BL and at 5-year follow-up, using the questionnaire, clinical examination, knee joints pain by visual analog scale (VAS), musculoskeletal ultrasound and X-ray. Unadjusted p-values are presented.

Results: Among 52 adults with knee OA (mean age ± standard deviation, 59.11 ± 8.95 years; 100% female) had the proportion of patients at BL 42.3% (n=22), 46.2% (n=24), 11.5% (n=6) by disease stage 1,2 and 3, respectively. Patients were categorized into 2 groups by progression in 5 years from BL based on changes of radiological stage. After 5-years follow-up period the progression of knee OA was established in 14 patients (1 group) and in 38 patients (2 group) the progression by radiological stage was absent. BL patients’ characteristics were similar across 1st and 2nd groups: mean age 58.29±7.68 vs 56.05±8.74, p>0.05; disease duration 3.43±1.34 vs 3.47±1.33, p=0.05. Individuals with knee OA progression had worse knee joints pain during walking (60.36±18.33 vs 48.71±17.81, р=0.043), higher BMI (34.45±4.60 vs 28.92±4.92, p<0.01); higher frequency of knee synovitis by clinical examination (42.9% vs 18.4%, RR=1.3, 95%CI 1.06-1.65, p=0.03), frequency of knee synovitis by X-ray. Unadjusted p-values are presented.

Conclusion: Among 52 adults with knee OA (mean age ± standard deviation, 59.11 ± 8.95 years; 100% female) the proportion of patients at BL 42.3% (n=22), 46.2% (n=24), 11.5% (n=6) by disease stage 1,2 and 3, respectively. Patients were categorized into 2 groups by progression in 5 years from BL based on changes of radiological stage. After 5-years follow-up period the progression of knee OA was established in 14 patients (1 group) and in 38 patients (2 group) the progression by radiological stage was absent. BL patients’ characteristics were similar across 1st and 2nd groups: mean age 58.29±7.68 vs 56.05±8.74, p>0.05; disease duration 3.43±1.34 vs 3.47±1.33, p=0.05. Individuals with knee OA progression had worse knee joints pain during walking (60.36±18.33 vs 48.71±17.81, р=0.043), higher BMI (34.45±4.60 vs 28.92±4.92, p<0.01); higher frequency of knee synovitis by clinical examination (42.9% vs 18.4%, RR=1.3, 95%CI 1.06-1.65, p=0.03), frequency of knee synovitis by X-ray. Unadjusted p-values are presented.

Disclosure of Interests: None declared.

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FOOD SOURCES OF DIETARY FIBRE AND RISK OF TOTAL KNEE REPLACEMENT RELATED TO SEVERE OSTEOARTHRITIS, THE SINGAPORE CHINESE HEALTH STUDY

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Background: Although fibre intake was inversely associated with the risk of symptomatic knee osteoarthritis (KOA) in a US study, this association was partially confounded by lower body mass index (BMI) in those with higher fibre intake.

Objectives: We evaluated the association between fibre intake and its food sources, and the risk of total knee replacement (TKR) due to severe KOA.

Methods: We used data from the Singapore Chinese Health Study, a prospective cohort study that recruited 63,257 participants aged 45-74 years from 1993 to 1998. At baseline, we assessed diet using a validated 165-item semi-quantitative food frequency questionnaire, together with BMI and lifestyle factors. Incident TKR cases were identified via record linkage with nationwide hospital discharge database through 2017. We used multivariable Cox regression models to compute hazard ratio (HR) and the corresponding 95% confidence interval (CI) for risk of TKR.

Results: There were 2,816 cases of incident TKR due to severe KOA. Total fibre intake at baseline was not associated with risk of TKR after adjustment for confounders. Among the food sources of fibre, higher intake of legumes was associated with lower risk of TKR in dose-dependent manner; compared with those having the lowest quartile intake, HR (95% CI) was 0.86 (0.76, 0.96) for the highest quartile (p for trend = 0.004). This association was consistent after including BMI in the model, and homogenous across BMI categories. The consumption of other fibre sources, namely grain products, nuts and seeds, soy food, fruits and vegetables, was not associated with risk of TKR.

Conclusion: Intake of legumes, but not total fibre, was associated with a reduced risk of TKR. Further research is needed to replicate our findings, and to evaluate possible biological mechanisms that could explain the effect of dietary legumes in pathogenesis or progression of KOA.

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