of 46.8 and 43.7 (p=0.37). While 23 ultimately decided against weight loss surgery, we are collecting post-operative data on the 153 patients (40 RYGB=26%, 93 sleeve=61%, 20 LAGB=13%). Improvement in average KOOS and WOMAC scores over baseline has been observed at all intervals (67, 71, 65, and 42 responses at 1,3,6,12 month visits), with more improvement farther after surgery. At 6 months post-op, mean KOOS scores available thus far improved 29 points for pain, with mean WOMAC pain and index improving by 6 and 22 points. The %EWL correlated with knee symptoms at each interval and for all followups combined, as the smallest and largest %EWL quartiles (4-29%, 54-92%) showed mean improvements of 18 and 31 points (p=0.03) in KOOS pain - mirrored across KOOS and WOMAC scores. RYGB and sleeve yielded higher %EWL than LAGB (44%, 43% vs. 37%) across all intervals, and greater improvement in mean KOOS and WOMAC scores (e.g. mean KOOS pain increased by 28, 29 and 8). Neither presence nor severity of KOA severity affected knee pain improvement from weight loss.

Conclusions: These data suggest that bariatric surgery improves patients' KOA pain proportional to percent excess weight loss, with durability over time. RYGB and sleeve gastrectomy have more impact on knee symptoms than LAGB. While patients with worse KL grades report more baseline pain and disability, as expected, x-ray severity did not impact the response to surgical weight loss.

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OBJECTIVELY MEASURED PHYSICAL ACTIVITY AND ONE-YEAR CHANGE IN SYMPTOMS AMONG INDIVIDUALS WITH RADIOGRAPHICALLY CONFIRMED KNEE OSTEOARTHRITIS

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Purpose: Physicians typically recommend exercise to patients with knee osteoarthritis (OA) to improve symptomatology. The purpose of this study is to quantify the effect of physical activity measured by accelerometer on changes in symptoms among people with knee OA. We hypothesized that greater daily minutes of physical activity would be associated with improvements in symptoms of the knee over the subsequent one-year period among individuals with OA.

Methods: Using publicly available data from the Osteoarthritis Initiative, we examined changes in symptoms of the knee in the 12 months following an assessment of physical activity based on accelerometry data. Participants with radiographically confirmed knee OA at the 48 months visit and complete outcomes were included (N=1,059). Physical activity was assessed using GT1M ActiGraph uniaxial accelerometers at the 48 month follow-up visit. Outcome measures were one-year change in symptoms of the knee between the 48 month and 60 month follow-up visits measured by Western Ontario and McMaster Universities (WOMAC) scales including pain, stiffness, and physical function. Higher scores indicate worse symptoms of the knee or knee-related function. Two variables categorizing physical activity were constructed: 1) tertiles of daily light activity; and 2) tertiles of daily moderate to vigorous activity. Descriptive characteristics and objectively measured physical activity and WOMAC scores were calculated and tested for linear trend according to tertiles of average daily minutes in light physical activity. Multivariable linear models estimated the relationship between tertiles of physical activity and changes in knee symptoms, adjusting for socioeconomic, health factors and other potential confounders. Separate models were used for light and moderate to vigorous physical activity. Stratified analyses were performed based on the disease severity measured by Kellgren-Lawrence (K-L) Grading Scale.

Results: Approximately 12% of participants met 2008 U.S. Department of Health and Human Services (DHHS) physical activity guidelines for 150 minutes per week engaging in moderate to vigorous physical activity. Compared to the participants in the lowest tertile of daily time in light activity, those with higher daily minutes were more likely to be younger, women and have higher summary scores of SF-12 physical component. Relative to those in the lowest tertile of average daily minutes in light activity, those in the highest tertile had similar changes in pain and stiffness, but worse physical function (adjusted β: 1.90; 95% CI: 0.42 to 3.38); p trend = 0.01). Higher tertiles of time spent in moderate to vigorous activity was associated with worsening pain and physical function (p trend = 0.01 and 0.02, respectively), but not stiffness. Analyses stratified by K-L grade revealed that worsened symptoms associated with physical activity were limited to participants with K-L grade 4. Among those with K-L grade 4, participants in the highest tertile of light activity and participants in the highest tertile of moderate/vigorous activity experienced worsened pain, stiffness, and function relative to the lowest light activity tertile and lowest moderate/vigorous activity tertile, respectively. No association between physical activity and changes in symptoms were present for participants with K-L grade 2 or 3.

Conclusions: Few community dwelling adults with OA achieved DHHS recommendations for physical activity. Greater time spent in objectively measured physical activity was not associated with one-year improvements in patient-reported knee symptoms among community dwelling adults with knee OA, and was associated with worsening symptoms among those with severe OA as measured for both light and moderate to vigorous objectively measured physical activity. Further research on the role of physical activity as either helpful or harmful for knee OA symptom progression based on the severity of knee OA is needed.

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RELATION OF SHOE STABILITY TO RISK OF WORSENING CARTILAGE DAMAGE IN PERSONS WITH MEDIAL KNEE OSTEOARTHRITIS: THE MOST STUDY

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Purpose: Clinical guidelines recommend that "every patient with knee osteoarthritis (OA) should receive advice concerning appropriate footwear", yet the recommended content of this advice is not specified. Some studies suggest that highly flexible shoes can protect the medial knee against excessive load during gait, while other studies underscore the importance of stable or supportive shoes as a means of providing external support to protect the knee against disease-related joint instability. The purpose of this observational study was to determine, among persons with radiographic medial knee OA, the relationship between the stability characteristics of a person's usual walking shoe and the 2-year risk of worsening cartilage damage in the medial knee compartment.

Methods: The Multicenter Osteoarthritis Study (MOST) includes middle aged and older adults that have or are at risk of knee OA. Subjects with prevalent medial knee OA on semi-flexed knee x-ray, as evidenced by a Kellgren and Lawrence grade > 2 with medial > lateral joint space narrowing score, were asked to bring their usual walking shoes to the 60-month clinic visit. Adapting the methods of Barton et al., trained examiners scored the sagittal, torsional, and heel counter stability of each subject's shoe as 0= flexible or 1= stable / supportive (kappa > 0.69). A Composite Shoe Stability Score (0-3) was calculated as the sum of the three component test scores. 1.0T MRIs were obtained at the 60 and 84-month exams, and one knee per subject was scored using Whole Organ MRI Scores (WORMS) to indicate the extent of cartilage damage (0-6) in each of 5 sub-regions of the medial knee compartment (kappa > 0.63). Using logistic regression with generalized estimating equations to account for non-independent sub-regions, we estimated the relative odds of worsening knee cartilage damage in categories of increasing shoe stability, while adjusting for covariates.

Results: One knee from each of 305 subjects with radiographic medial knee OA (mean +/- sd age 66.0 +/- 7.7 yrs, BMI 30.7 +/- 4.9 kg/m2; 61.6% female, 91.2% white) contributed 1140 sub-regions to the analysis of worsening cartilage damage risk in the medial knee compartment. A majority of shoes (63.9%, 67.2%, and 55.0%, respectively) were scored as stable / supportive during sagittal, torsional, and heel counter stability tests, with 47.2% obtaining the maximum Composite Shoe Stability Score of 3 and only 25.9% obtaining the minimum score of 0. Relative odds of worsening cartilage damage in the medial knee compartment did not change across categories of increasing shoe stability (p > 0.05 for all comparisons), and results were unaltered within separate gender strata.