Wilkens P, Scheel IB, et al. Effect of Glucosamine on Pain-Related Disability in Patients With Chronic Low Back Pain and Degenerative Lumbar Osteoarthritis. JAMA 2010; 304(1):45-52.

Design: Randomized clinical trial

Population/sample size/setting:

- 250 patients (121 women, 129 men, mean age 48) treated for chronic low back pain at a university orthopedics department in Norway
- Eligible if they were over 25, had at least 6 months of lumbar pain (greater than concomitant leg pain, if any), with Roland-Morris Disability Questionnaire (RMDQ) score of at least 3 out of 24
- Also required MRI signs of degenerative disease on 1 axial and 2 sagittal views: either disc signal intensity change, reduced disc height, facet joint changes, Modic changes, or high intensity zones
- Exclusion criteria were previous lumbar surgery, use of glucosamine within 1 year, symptomatic intervertebral disc herniation or spinal stenosis, and psychiatric or somatic disease potentially influencing a patient's pain

Main outcome measures:

- Randomized to 500 mg glucosamine tid (n=125) or identical appearing placebo (n=125) for 6 months
- Outcome data were collected at 6 weeks, 3 months, 6 months, and 1 year
- A 3 point reduction in the RMDQ was defined as treatment success, and was the primary outcome measure
- Secondary outcome measures included low back and leg pain intensities, health-related quality of life (QOL) measures, and a global perceived effect on a 7 point Likert scale (1=completely recovered, 7=much worsened)
- Approximately half of patients in both treatment groups had success as defined by a 3 point reduction in RMDQ at 1 year; no group differences were seen
- Similarly, the groups did not differ in the secondary outcomes at 6 weeks, 3 months, 6 months, and 1 year
- Attrition was 7% overall, and withdrawals were equally distributed between groups
- Use of analgesic medication (over-the-counter and prescription) was similar in the two groups
- Adverse effects were mostly mild gastrointestinal symptoms, and were equally distributed between groups

Authors' conclusions:

- Glucosamine is not associated with a reduction in low back pain or pain-related disability
- The study may have attracted patients with a certain type of personality trait that could affect the outcome

- The physiology of chronic degenerative low back pain may differ from that of osteoarthritis of the knee, where glucosamine may act differently

Comments:

- Conduct of the trial controls most important sources of potential bias; concealment of allocation, low attrition, and blinding of outcome assessment make it unlikely that a clinically important advantage of glucosamine was overlooked
- Glucosamine is not available over the counter in Norway; the preparation was prescription grade, making it unlikely that a non-prescription preparation would have an effect not seen in this study
- Table 3 reports frequency of prescription medication use during the study, but it is not clear whether these included opioids, or in what amount

Assessment: High quality for an evidence statement that glucosamine is unlikely to reduce disability in chronic degenerative low back pain