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The full report is titled “Viscosupplementation for Osteoarthritis of the Knee. A Systematic Review and Meta-analysis.” It is in the 7 August 2012 issue of *Annals of Internal Medicine* (volume 157, pages 180-191). The authors are A.W.S. Rutjes, P. Jüni, B.R. da Costa, S. Trelle, E. Nüesch, and S. Reichenbach.

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## Viscosupplementation for Knee Osteoarthritis

### What is the problem and what is known about it so far?

Knee osteoarthritis is a common condition in which changes in the knee joints lead to pain. Nonsteroidal anti-inflammatory drugs, such as aspirin, ibuprofen, and naproxen, are the most commonly prescribed agents for this condition, but they do not always work and can have adverse effects. An alternative treatment strategy called *viscosupplementation* uses injections of hyaluronic acid to improve knee function. Hyaluronic acid occurs naturally in the joint fluid and acts as a lubricant and shock absorber, but people with osteoarthritis have less-than-normal amounts of it in their joints.

### Why did the researchers do this particular study?

To summarize information about the efficacy and adverse effects of viscosupplementation for knee osteoarthritis.

### Who was studied?

Adults with symptomatic knee osteoarthritis who participated in 89 trials of viscosupplementation.

### How was the study done?

The authors reviewed clinical trials that randomly assigned adults with symptomatic knee osteoarthritis to receive viscosupplementation or a “control” intervention. The authors used a statistical method called *meta-analysis* to combine the results of the separate studies to estimate the effect of the therapy on knee pain intensity and physical function. They also used meta-analysis to estimate the safety of the therapy, including the occurrence of “flare-ups” (a hot, painful, swollen knee within 24 to 72 hours after an injection) and effusions (excessive joint fluid inside the treated knee after an injection).

### What did the researchers find?

The authors identified 177 reports describing 89 trials in 12,667 patients with knee osteoarthritis. When combined and analyzed, large, high-quality studies suggested that viscosupplementation had a small, clinically irrelevant effect on pain and no effect on function. Conversely, the authors found an association between viscosupplementation and an increase in adverse events, including flare-ups and effusions, and also life-threatening events or events resulting in hospitalization or disability.

### What were the limitations of the study?

The analysis was limited by the poor quality of many of the trials. In particular, many did not provide adequate data on adverse events.

### What are the implications of the study?

Viscosupplementation may provide little if no pain relief or function improvement in patients with symptomatic knee osteoarthritis. It also seems to increase the risk for adverse events. On the basis of these findings, the authors discourage the use of viscosupplementation for knee osteoarthritis.

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