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The website for the answer to all your Orthopaedic Questions

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## Viscosupplementation for osteoarthritis

**David P Johnson MD FRCS**

**Consultant Orthopaedics Surgeon, Bristol, UK**

<http://www.bristol-knee-clinic.co.uk/>

Osteoarthritis is the most common form of arthritis in the world, affecting huge numbers of people and is a major cause of disability. As industrialized populations become older and live longer, the effects of osteoarthritis (OA) will become more marked.

New treatments are continually being developed as the understanding of OA moves forward rapidly.

### Introduction

The synovial fluid is the fluid secreted by the lining of the knee and other synovial joints. This fluid provides a useful function in the life of our knees. One of the main constituents of synovial fluid, hyaluronic acid, gives viscosity and elasticity to the fluid, allowing it to improve the way joints function. In OA this viscosity and elasticity is reduced, and this may contribute to the abnormal functioning of the joint.

Viscosupplementation has been developed to replenish the hyaluronic acid part of the synovial fluid. This has shown some promise in improving the pain and abnormal function of osteoarthritic knees. Experiments have shown that adding hyaluronic acid to the cells in human synovial membrane stimulates them to produce hyaluronic acid themselves. Hyaluronic acid as a lubricant and shock absorber in the synovial fluid. It is not toxic when injected, has few side effects and has a rapid onset of action.

The concentration and molecular weight of hyaluronic acid in osteoarthritic joint fluid is reduced. Normal viscosity of the synovial fluid is vital to joint lubrication and is thought to have protective effects on the joint cartilage.

### Technique

The technique involves the injection of 2 ml of high concentration hyaluronic acid into the joint. This is usually repeated at weekly intervals for three weeks. This increases the concentration and molecular weight of the hyaluronic acid inside the joint. It also has an analgesic effect on the pain mediators in the synovium. The increased viscosity of the synovial fluid also has the effect of increasing joint lubrication, improve the nutrition of the chondrocyte cells in the articular cartilage, and control swelling of the joint.

### Research work

Injection of hyaluran preparations has shown significantly greater pain relief than injection of a placebo; the effect is as good as taking anti-inflammatory medications. There is better pain relief than injection of steroids, and although the effect takes longer to develop it also lasts much longer than a steroid injection. The the average time of pain relief is seven months. However 10% of people did not get any real pain relief. There are few complications to its use and these are usually mild and temporary.

### Summary

OA costs enormous amounts of money and if this treatment reduces or puts off the need for arthroscopic surgery or total knee replacement, there could be a considerable cost saving. This treatment seems to be developing into an important treatment for OA joints.

### Links:

**V Bobic: Viscosupplementation for the osteoarthritis of the knee**  
ISAKOS Current Concepts 2003.

[Arthritis Care](http://www.arthritis-care.org.uk) www.arthritis-care.org.uk

[Complementary Medicine Association](http://www.the-cma.org.uk) www.the-cma.org.uk

[National Ankylosing Spondylitis Society](http://www.nass.co.uk) www.nass.co.uk

Ankylosing Spondylitis is one of the commonest arthritic diseases, especially amongst young men. Although not usually severely disabling, it can have a big effect on a person's life.

[National Osteoporosis Society](http://www.nos.org.uk) www.nos.org.uk

[Arthritis Research Campaign](http://www.arc.org.uk) www.arc.org.uk

The ARC is the fourth largest medical charity in the UK and had an annual income of £26m in 2001-2. It funds research into all the different kinds of arthritis and provides information for professionals and the public.

[Arthritis Researchalot.com](http://ArthritisResearchalot.com). Resource site for everything to do with arthritis. Full of newsletters, articles, links and other resources - ALL FREE - in one easy to navigate site to save time and money.

[Arthritis Resources. Comprehensive information](http://www.arthritis.edu). A comprehensive site devoted to arthritis and degenerative joint disease. www.arthritis.edu

[www.allaboutarthritis.com](http://www.allaboutarthritis.com)

[www.orthogate.org/patient-education/knee/viscosupplementation-for-osteoarthritis-of-the-knee.html](http://www.orthogate.org/patient-education/knee/viscosupplementation-for-osteoarthritis-of-the-knee.html)

[www.hss.edu](http://www.hss.edu)

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