

Introduction

Ostenil® hyaluronan injections is a new treatment for the symptoms of osteoarthritis and joint inflammation.

It can be used in any joint in the body that is classified as 'synovial'.

This leaflet gives you some basic information about hyaluronan injections for the Knee and Ostenil®.

If you have any questions after you have read the leaflet, please ask Mr Jari.

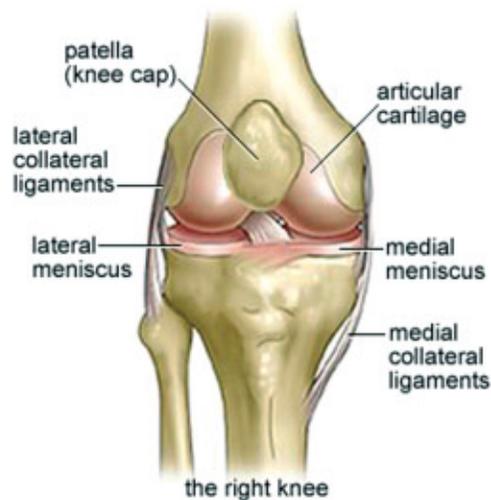
The Knee

The knee is really a series of three joints linked together by bones, muscles and ligaments. The most commonly affected knee joints are the tibiofemoral joint and the patellofemoral joint.

The above knee joints are lined by a synovial membrane, which produces synovial fluid. The synovial fluid in the joint has five important functions:

1. It keeps the articulations slightly apart, protecting their coverings from wear and tear.
2. It absorbs shock.
3. It lubricates the joint, helping it to work freely and easily.
4. It acts as a filter, letting nutrients reach the tendons and cartilage, but blocking the passage of harmful cells and substances.
5. It eliminates harmful inflammatory proteins, reducing pain and swelling when the joint is injured.

The most important component of synovial fluid is a substance called Hyaluronan. It is this substance that lets synovial fluid perform its different functions all at the same time.



Hyaluronan injections

The principles behind Hyaluronan Injections are to decrease pain and improve function in patients with joint pain. Hyaluronan injections have been shown to have the following beneficial effects on joints:

1. They replace some of the normal ingredients found in synovial fluid (hyaluronans) improving the lubricating ability.
2. They help to stimulate the joint lining (the synovium) manufacture more normal synovial fluid.
3. The Hyaluronan coats the lining of the damaged joint surfaces, covering pain nerve endings. This reduces pain and protects the joint surfaces from joint inflammation.
4. Hyaluronans also act directly to reduce inflammation in a joint, like a steroid, but without the harmful side-effects of steroids.

Ostenil

Ostenil (TRB Chemedica), is a high molecular weight derivative of hyaluronic acid. In this form, the majority of the hyaluronic acid is in a gel-like state which improves the ability of this hyaluronan to remain in the joint for a longer period of time.

Ostenil is delivered through a series of injections into the joint. The number of injection differs according to the reason for the injection and the joint to be injected.

Usually for arthritis or damage to the articular cartilage of the knee joint, a weekly course of three to five injections is recommended. In our experience five injections are required for the knee, where the injection works as an adjuvant to exercise and physiotherapy.

After your injection

Mr Jari who will give you the injection will have checked your medical history to ensure that you are at minimal risk of any adverse reaction.

Ostenil is a very pure product which is made by a process called fermentation. It contains no animal proteins (unlike some other hyaluronans available) which means adverse reactions are extremely unusual with Ostenil injections, but if you notice any of the following symptoms: swelling, redness or warmth around the injection site, or you feel generally unwell, please contact your GP, casualty or Mr Jari.

It is important that you attend your review appointment so that Mr Jari can assess the effects of the injection and provide you with additional advice as appropriate.

Clinical research

Hyaluronan injections have been found to be a very effective way to decrease pain and improve function in patients with knee joint articular cartilage damage and inflammation. A large amount of research has demonstrated its benefits since the 1980s.

Ostenil is a very effective tool to treat:

1. Patients with localised damage to the lining surface of the joint (localised chondral defect).
2. Patients with early stage arthritis who wish to decrease their pain and increase their function.
3. Patients with more advanced arthritis who would like to postpone the need for a total joint replacement.
4. "Athletes" involved in impact sports (running, jumping, twisting) that overload the articular cartilage of the knee. There is some evidence (Roos et al) that this can lead to increased breakdown of the lining articular cartilage. This could be one of the mechanisms pre-disposing to the accelerated development of osteoarthritis in the "athletes" at a younger age. Ostenil can & is used as one of the treatment modalities in "athletes" with early arthritis of the knee. Whether hyaluronan therapy has any effect to reduce damage to the articular cartilage that is repeatedly overloaded (as in running jumping sports) is as yet unknown, but may be possible.

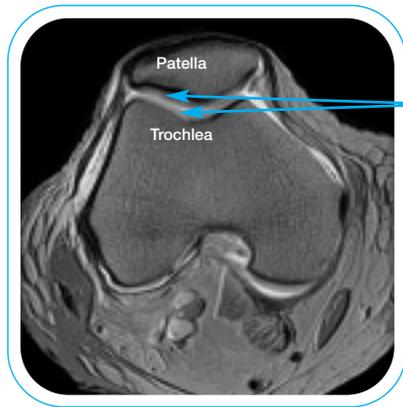
For more information and full research data please see:

www.thekneedoc.co.uk

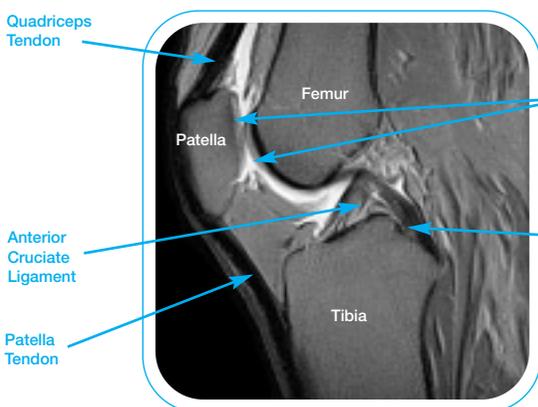
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Research references

1. Abatangelo G., O'Regan M. Hyaluronan: Biological role and Function in Articular Joints *European Journal of Rheumatology and Inflammation* 1995; 15: 9-16
2. Simon LS. Viscosupplementation therapy with intra-articular hyaluronic acid – fact or fantasy? *Rheum Dis Clin N Am*. 1999. 25(2): 345-357.
3. Roos H et al. Markers of cartilage matrix metabolism in human joint fluid and serum: the effect of exercise. *Osteoarthritis & Cartilage* 1995; 3(1): 7-14.
4. Vad VB, Bhat AL. The athlete with early knee arthritis. *Phys Med Rehab Clin N Amer* 2000; 11(4): 881-894.



Articular Cartilage



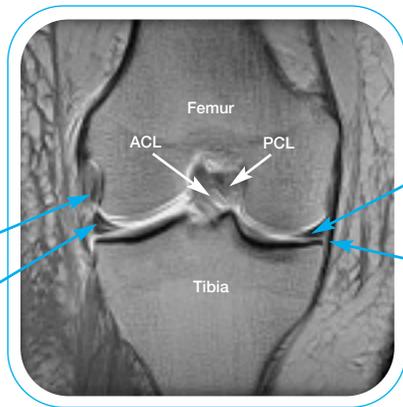
Quadriceps Tendon

Anterior Cruciate Ligament

Patella Tendon

Articular Cartilage

Posterior Cruciate Ligament

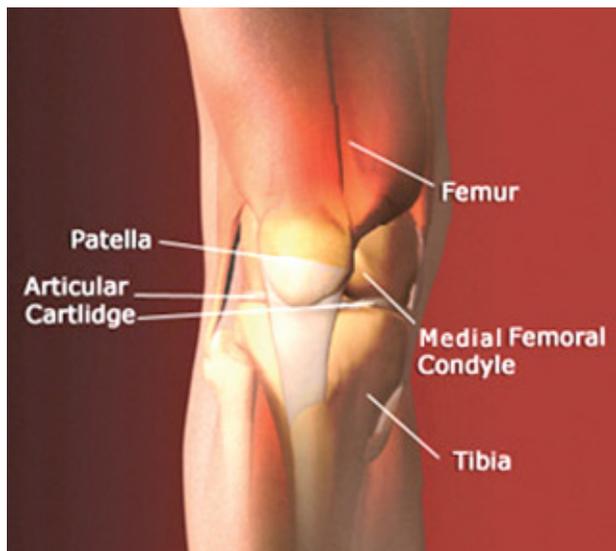


Popliteus Tendon

Lateral Meniscus

Medial Meniscus

Medial Colateral Ligament



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