



**DECREASE JOINT PAIN  
IMPROVE JOINT FUNCTION**

Treatment of Osteoarthritis  
with OSTENIL®

PATIENT - INFORMATION

**ostenil®**  
**ostenil®**  
*mini*



## What is osteoarthritis?

Osteoarthritis is a degenerative joint disease that mainly occurs due to the progressive wear and tear of the joint cartilage.

It occurs mostly in weight bearing joints such as the knee and hip. Other joints such as the hands, feet, shoulders and the vertebral column may be affected.

## What is the role of cartilage?

Cartilage is a connective tissue that covers the extremities of the bones involved in a movable joint. It protects the joint extremities from shock during movement and allows friction-free and pain-free movement.



Representation of the knee joint

## What are the symptoms of osteoarthritis?

Osteoarthritis often manifests itself by pain and stiffness in the affected joint, leading to a decrease in joint mobility.

- Activity such as walking, going up or down stairs, and changing positions become difficult.
- The duration of joint stiffness increases in the morning on getting out of bed, or after remaining seated for a long period of time - for example during a long meal or a long car journey.

**These symptoms lead to a decrease in your quality of life.**

## Who is affected?

Nearly 15% of the population in Europe suffers from osteoarthritis. It mainly affects the elderly with a higher incidence in females, especially after menopause.<sup>1</sup>

About 18% of women and 10% of men over 60 years of age suffer from osteoarthritis.<sup>2</sup>

## What are the risk factors?

Besides age and gender, the risk factors include:

### **Overweight**

Overweight increases the load on the joints during movement thus increasing the compression of the cartilage. This eventually leads to cartilage degradation. Obesity is often linked to osteoarthritis of the knee and the hip, the large weight-bearing joints.

### **Heredity**

A genetic predisposition plays a role in certain types of osteoarthritis (e.g. osteoarthritis of the hands).

### **Joint trauma**

Joint trauma, due to an injury or an accident, could result in osteoarthritis in that joint a few years after the event; for example after surgery of the meniscus, or the lesion of a tendon or ligament in the affected joint.



1. Dr Marina Carrère d'Encausse/Dr Michel Cymes. L'arthrose. Editions Marabout. 2006.
2. Website WHO - Department of Chronic Diseases and Health Promotion - Chronic Rheumatic conditions - 2009 ([www.who.int/chp/topics/rheumatic/en/](http://www.who.int/chp/topics/rheumatic/en/))



## How does the synovial fluid protect the joint?

Joint tissues are protected by the **synovial fluid**; a viscoelastic fluid due to its content of hyaluronic acid. **Hyaluronic acid** confers the following properties to the synovial fluid:

### It acts as a shock absorber:

It helps to cushion the joint during function. During joint movement (e.g. running or jumping), the hyaluronic acid in the synovial fluid is compressed, acting as a shock absorber (Figure 1).

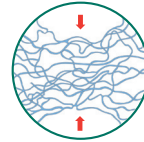


Figure 1: Under sudden loading, hyaluronic acid in the synovial fluid is compressed, acting like a shock absorber.

### It acts as a lubricant:

Hyaluronic acid forms a coating over the cartilage. It thus acts as a lubricant, reducing the friction between the cartilage surfaces resulting in smooth, friction-free joint movement (Figure 2).

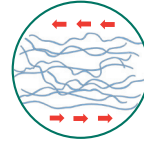


Figure 2: During joint movement, hyaluronic acid in the synovial fluid acts as a lubricant.

### It acts as a filter:

Due to its complex structure, hyaluronic acid allows the passage of nutrients to the cartilage, but prevents the passage of harmful substances and pro-inflammatory cells (Figure 3).

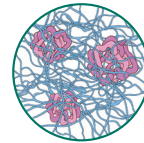
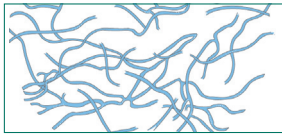


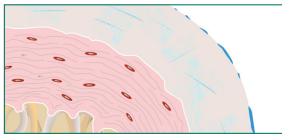
Figure 3: Hyaluronic acid acts as a filter preventing the movement of harmful substances to the cartilage.

**Hyaluronic acid plays a vital role in keeping a synovial joint healthy and mobile.**

## How does osteoarthritis develop?



In osteoarthritis, the quantity and concentration of the hyaluronic acid in the synovial fluid decreases. The synovial fluid thus becomes less viscous and loses its protective, lubricating, shockabsorbing and filtering properties.

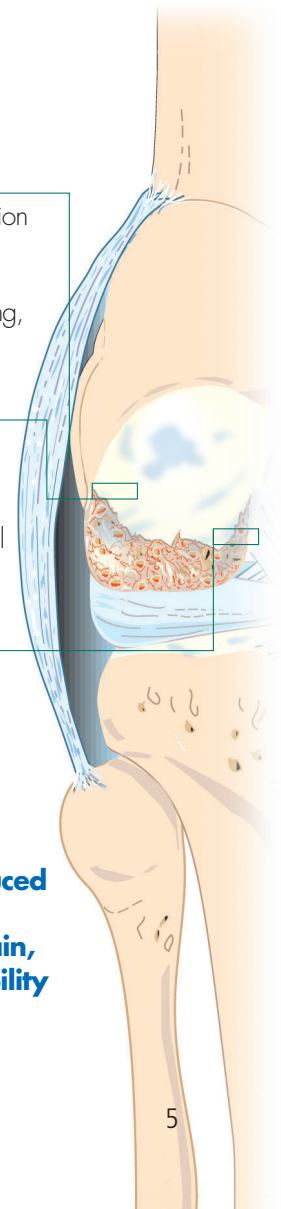


The protective layer of hyaluronic acid on the joint surface is progressively destroyed leaving the underlying cartilage and synovial membrane open to mechanical and inflammatory damage.



As a result, the cartilage is progressively destroyed.

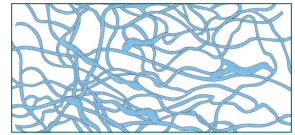
**In osteoarthritis, the amount of hyaluronic acid in the joint is reduced and its protective properties are diminished. Symptoms such as pain, inflammation and decreased mobility appear.**





## What are the beneficial effects of hyaluronic acid?

The administration of hyaluronic acid (OSTENIL®, OSTENIL® mini) progressively increases the viscoelasticity of the synovial fluid.



Thus, the administration of OSTENIL® or OSTENIL® mini:

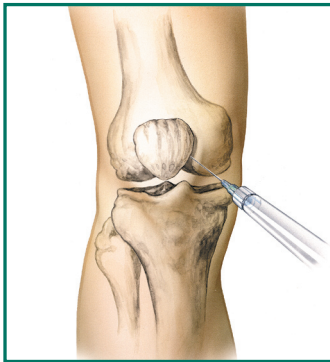
- re-establishes the protective layer of hyaluronic acid on the surface of the joint,
- protects the cartilage from mechanical damage,
- decreases inflammation,
- relieves pain.



**With OSTENIL® and OSTENIL® mini, joint balance is progressively restored resulting in improved joint mobility and pain relief.**

## What is the treatment scheme with OSTENIL® or OSTENIL® mini?

OSTENIL® and OSTENIL® mini have been specifically developed for the treatment of osteoarthritis. They contain a solution of hyaluronic acid for intra-articular administration. The recommended treatment scheme is as follows:



- A treatment cycle of 3 to 5 injections of OSTENIL®, at weekly intervals, in osteoarthritis of the knee, hip and shoulder.
- A treatment cycle of 1 to 3 injections of OSTENIL® mini, at weekly intervals, in osteoarthritis of the small joints (e.g. fingers, toes, vertebrae).

## What are the adverse reactions of treatment with OSTENIL® or OSTENIL® mini?

Rarely, a transient local discomfort of the treated joint such as pain and inflammation may appear. The application of an ice pack on the treated area for 5 to 10 minutes will reduce the incidence of these effects. OSTENIL® and OSTENIL® mini are highly purified products and contain no animal proteins, which are often the source of allergies.



## How long will the favourable benefits of OSTENIL® or OSTENIL® mini last?

A series of intra-articular injections with OSTENIL® or OSTENIL® mini can provide rapid pain relief and the beneficial effects of treatment generally persist for several months.

Treatment with OSTENIL® and OSTENIL® mini can be repeated if necessary.

**OSTENIL® and OSTENIL® mini have already been used in Europe for several years and several million patients have benefited from treatment with these products.**




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Doctor's stamp