## Hyaluronic Acid Joint OS Pain Injection Therapies

Managing your Arthritic Joint Pain

## FREEDOM TO BE ACTIVE

community@eosactive.co.uk

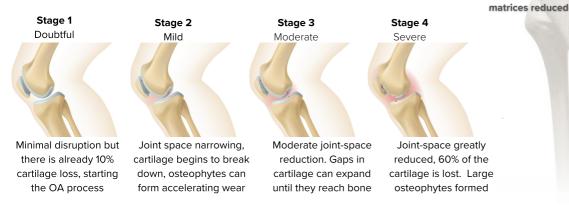
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### **Osteoarthrtis and Hyaluronic Acid**

Although 'joint wear' and 'cartilage thinning' help to explain the mechanical process of osteoarthritis, there is also a painful negative biology within the joint which is important to address alongside the mechanical problems.

These changes in the joint's local biology, combined with mechanical stresses form a painful cycle. This combination of factors can increases the severity of the arthritis over time.

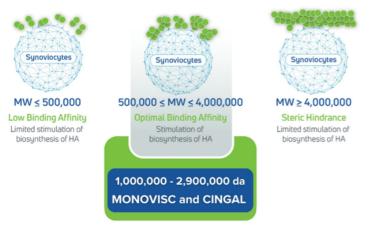
Mechanically, the OA stages start to look like this:



#### A healthy joint produces the perfect Hyaluronic Acid (HA)

The HA produced within your own healthy joint nourishes the synovial fluid. It is an important component for maintaining healthy cartilage and an overall healthy environment within the joint.

The breaking down of cartilage and increase in inflammation which occurs in OA, all contribute to the reduction of natural hyaluronic acid within the joint. This is because the process attacks the cells that make the HA. To correct this in-balance we want to restore the joints capability to produce it's own HA, allowing for a longer lasting therapeutic effect.



Only the right molecular weight can stimulate the cells in the joint to produce HA again

A healthy joint is one that is active, but in order to stay active, continue physiotherapy, or develop a good active routine, the biology in the joint may need a helping hand.

Mechanical stress on cartilage

**Hvaluroinic Acid** 

production reduced

Pain and

inflammation

Synthesis of

extracellualr

PGE2

released

Inflammatory

cytokines

released

Low MW

hyaluronic acid

fragments

Cartilage

degradation

Monovisc and Cingal are two successful injection therapies that have been developed from scientific studies. They not only give initial mechanical support with cushioning and lubrication, but also stimulate the cells in the joint to once again produce their own HA. This gives a longer lasting effect which is proven in extensive clinical evaluations with large numbers of patients studied.

### **Clinically Proven Injection Therapies**

Cingal<sup>®</sup> - For those who demand rapid and long-lasting relief from associated OA knee pain

#### **FAST ACTING**

**NGAL** 

59% Pain reduction in week 1 89% Responder rate at week 1

#### LONG LASTING

72% Pain reduction in week 26

92% Responder rate at week 26

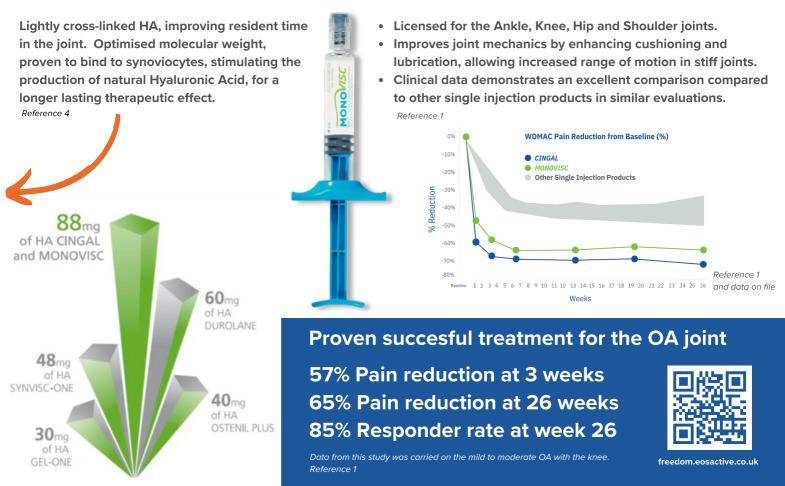
#### THE BENEFITS OF A STEROID, WITHOUT THE CONCERN

Cingal (STEROID + HA) demonstrates an anti-inflammatory and chondro-protective effect. It diminishes side effects associated with steroid supplementation alone.

Cingal combines Triamcinolone Hexacetonide steroid, with ultra pure optimal MW HA - Monovisc. Triamcinolone Hexacetonide is a highly effective, safe and rapid antiinflammatory steroid/agent of sustained duration. Monovisc is high concentration, optimal molecular weight HA with a long successsful heritage for helping patients manage joint pain caused by OA

see below

#### Monovisc°- A proven, pure HA injection therapy for multiple joints





#### **Study and Data References**

 Hangody L, et al. Intraarticular Injection of a Cross-Linked Sodium Hyaluronate Combined with Triamcinolone Hexacetonide (Cingal) to Provide Symptomatic Relief of Osteoarthritis of the Knee: A Randomized, Double-Blind, Placebo-Controlled Multicenter Clinical Trial.
Bauer, C.; Moser, L.B.; Jeyakumar, V.; Niculescu-Morzsa, E.; Kern, D.; Nehrer, S. Increased Chondroprotective Effect of Combining Hyaluronic Acid with a Glucocorticoid Compared to Separate Administration on Cytokine-Treated Osteoarthritic Chondrocytes in a 2D Culture.
Stephens M., et. al. Musculoskeletal Injections: A Review of the Evidence. Am Fam Physician.
Independent study: The synthesis of hyaluronic acid by human synovial fibroblasts is influenced by the nature of the hyaluronate in the extracellular environment. M M Smith 1, P Ghosh

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