



SINOVIAL[®] HL
SINOCEL[®]

Common FAQs from clinicians
for **Sinovial HL[®]** and **Sinogel[®]**



How are Sinovial HL[®] and Sinogel[®] different to other hyaluronic acid injection products in the UK market?

They are unique:

Sinovial HL[®] is a high concentration 3.2% of both high and low molecular weight hyaluronic acid (HA), combined and bound by hydrogen bonds in a patented molecular structure of a hybrid cooperative complex. Other UK products are either high, medium or low molecular weight HA only, in a linear or chemically cross-linked structure, with a total HA concentration ranging between 1- 2.2%.

More glycosaminoglycans: Sinogel[®] is a combination of high molecular weight HA (2.4%) and sodium chondroitin (SC 1.6%) and has been specifically designed for large weight bearing joints. It is bound in a hybrid cooperative complex via hydrogen bonds. There are no other products on the market that combine HA and SC, both of which are found in naturally occurring healthy synovial fluid. The combined concentration of HA and SC totals 4% of glycosaminoglycans.

Why does concentration matter? Is more better?

It replaces more of what we lose in OA or after joint injury:

It is widely accepted that HA is one of the most important molecules in natural synovial fluid, and there is a loss of this molecule in degenerative joints or joints post injury. It is a glycosaminoglycan molecule, which is essential in providing viscoelastic properties for shock absorption, lubrication during rest and under load, tissue hydration to articular cartilage and healing properties by dampening inflammatory mediators. By injecting a higher concentration of HA, there is greater restoration of the HA loss caused by injury or degeneration, within a smaller injection volume, increasing patient comfort post procedure.

What does intra-articular sodium chondroitin help with?

It is another glycosaminoglycan:

Sodium chondroitin when delivered directly to knee cells has been shown to dampen down the response of up to 24 inflammatory mediators in chondrocytes and 11 in synoviocytes when combined with high molecular weight HA after 48 hours. This was significantly higher than in comparison to high molecular weight HA only, inferring a synergistic effect of combining high molecular weight HA with SC in degenerative joint conditions.

What is the importance of a combination of high and low molecular weight?

It provides more than one function:

High molecular weight HA provides a shock absorption function when under load or stress. However, because of the viscosity of the molecule, it cannot provide lubrication at the same time, due to the stiffening of the fluid whilst under stress (as it a non-Newtonian fluid).

Low molecular weight HA provides lubrication for joint surfaces under load and at rest but does not provide shock absorption under load due to the lack of viscosity of the fluid.

Therefore, combining the molecules together provides both functions of shock absorption and lubrication whether the joint is under load or at rest, mimicking the natural synovial fluid of a healthy joint. Other UK products provide only one of these functions.

What does a hybrid cooperative complex do to the behaviour of the injection?

It behaves more like our own synovial fluid:

The patented hybrid cooperative complex was created in order to combine the HMW and LMW HA together, in a structure that is more closely related to the rheology of natural synovial fluid. That means, it behaves at rest and under load more like our healthy synovial fluid. It also allows for greater concentrations of HA to be delivered without increasing the viscosity of the fluid. In addition, as they are bound together in hydrogen bonds without chemical processing, this provides greater resistance to break down from hyaluronidase. Linear or cross- linked products either provide only one function of synovial fluid (shock absorption or lubrication) or have been chemically cross linked which changes the behaviour of the fluid (rheology) when under load or at rest, limiting the achievable concentration levels.

References:

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