



# Hyruan Plus<sup>®</sup> inj.

1% Sodium hyaluronate      3 Intra-articular injection

*A safe viscosupplementation treatment of osteoarthritis*



"Pain relief Plus joint flexibility"

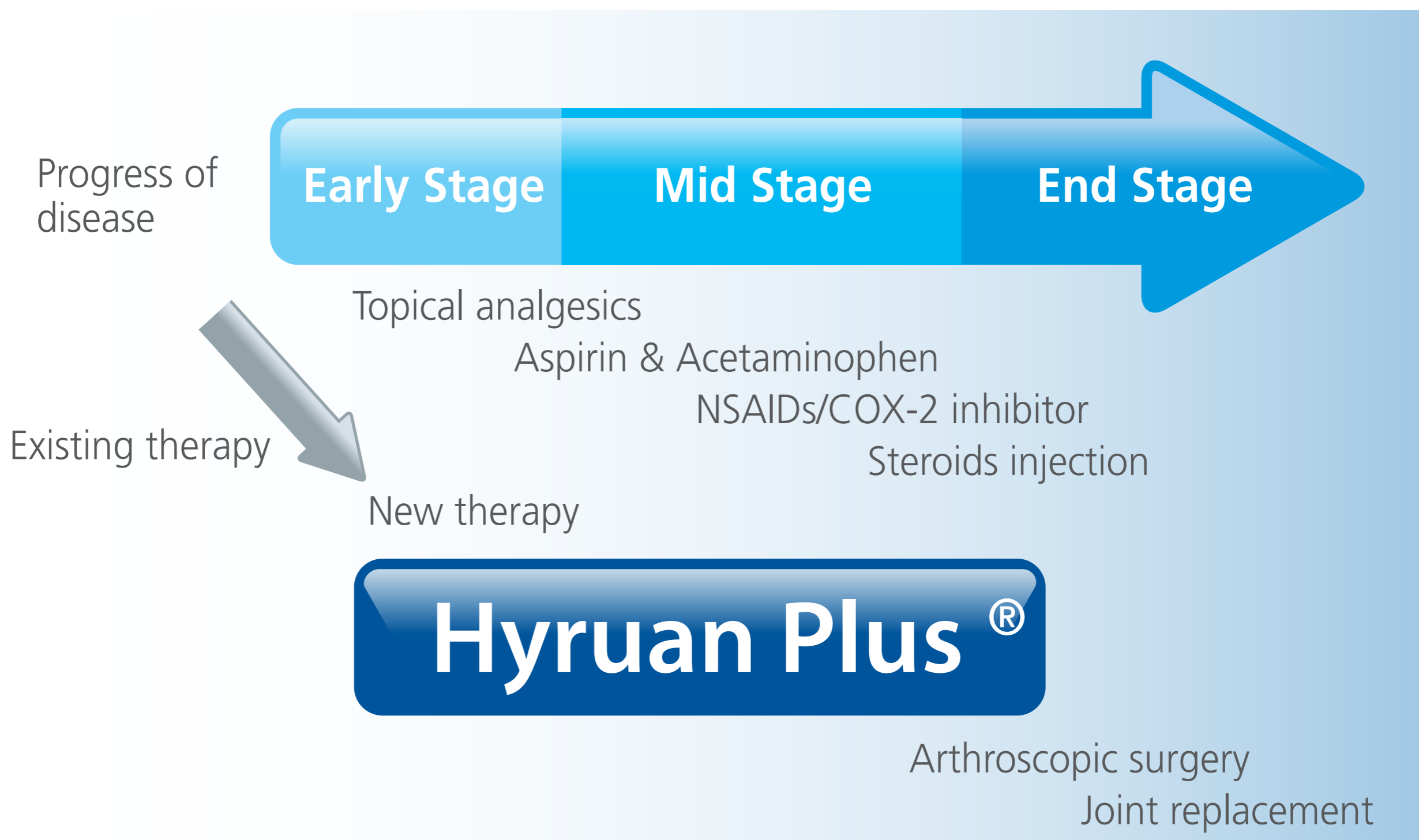
Hyruan Plus<sup>®</sup>



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# Management of Osteoarthritis(OA) of knee and periarthritits of shoulder



The common practice observed among patients with osteoarthritis (degenerative arthritis) is that they tend to give up the treatment in-between, after a series of ineffective treatments. To make the matter worse, practices like self-treatment and home remedy are prevalent, which further deteriorates the condition and sometime makes the patient miss the time for the right treatment at initial stages.

Intraarticular sodium hyaluronate inj. or HA injection is an effective, safe and well-tolerated therapy. It provides long lasting pain relief, improves joint function, and delays the need for knee replacement with almost no side effects unlike conventional therapy.

## Therapeutic effects of Hyaluronic Acid

- ▶ Assures free movement of joint through lubrication
- ▶ Minimizes joint pain and inflammation
- ▶ Sustains joint movement for a longer period of time

**Hyruan Plus<sup>®</sup>** is a high molecular weight HA, identical to healthy synovial fluid, injected once a week, 3 times per cycle for the treatment of osteoarthritis. It shows effective lubricating and cushioning function.

### 3 Times Injection

- Good patient compliance
- Pharmacoeconomical
- Equieffective as that of 5 times injection
- Decrease the chance of infection due to less frequency of injection

### High Molecular Weight

- 3 times higher molecular weight (3M Dalton) than low molecular weight HA
- Higher viscosity : 110,000 cP
  - Long-lasting treatment effect



### Identical to Healthy Synovial Fluid

- Molecular weight 3M dalton (Normal synovial fluid 3-4M dalton)
- Helps to restore normal joint function (viscoelasticity and lubrication)

### Highly Purified

- Microbially fermented with *Streptococcus zooepidemicus*
- Less antigen response due to low protein contents compared to rooster comb source

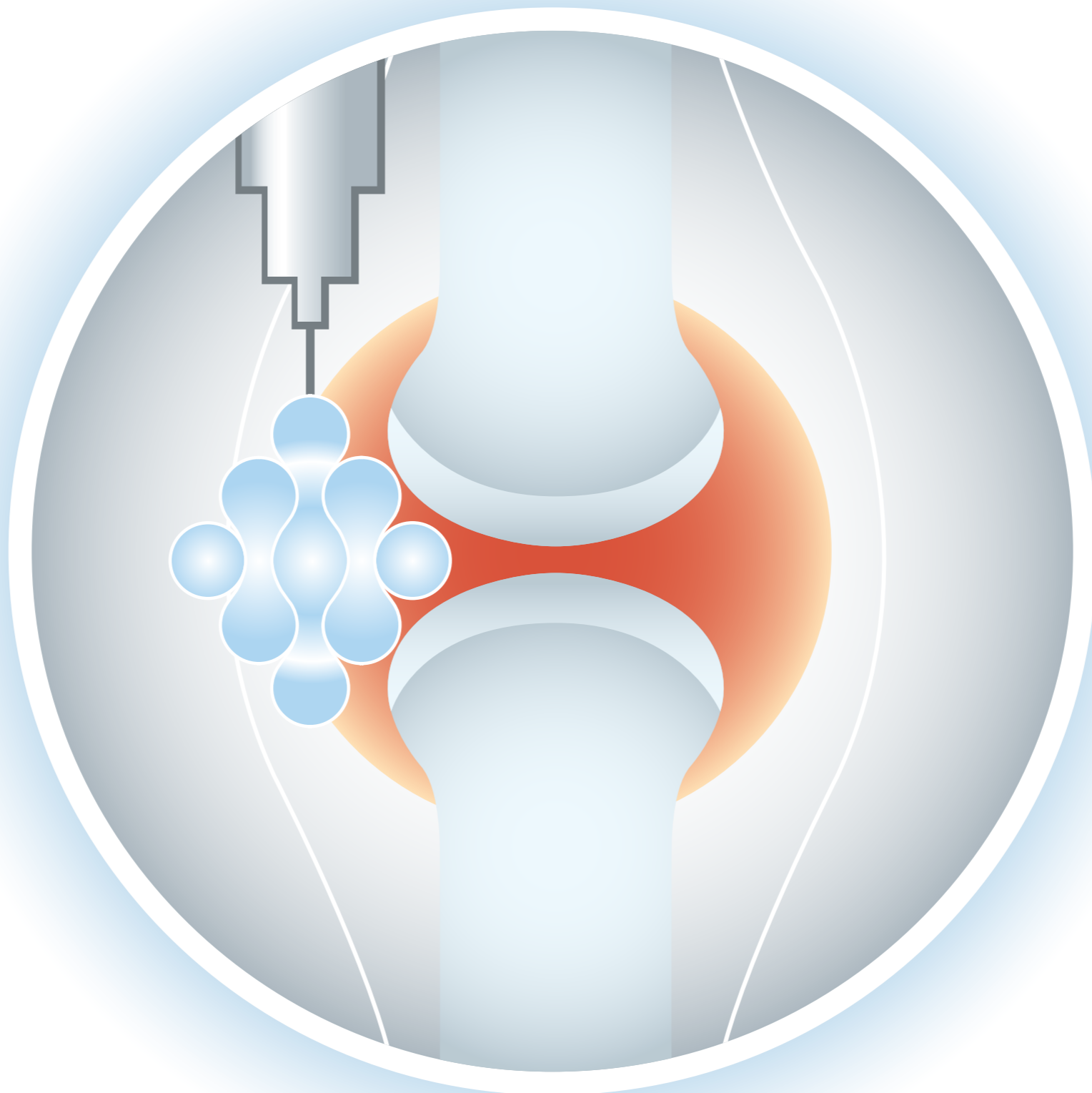
# What happens inside the joint after Hyruan Plus treatment?

## Anti-inflammatory effect

- Cytokine Actions ↓
- Prostaglandin Synthesis ↓
- Joint Inflammation ↓

## Analgesic effect

- PGE2 Synthesis ↓
- Bradykinin Level ↓
- Nociceptive Reaction ↓
- Joint Pain ↓



## Cartilage protective effect

- Proteoglycan Aggregates ↑
- TIMP\* Activity ↑
- Chondrocyte Synthesis ↑
- Cartilage Degradation ↓

## Elasticity Improvement effect

- Endogenous Production of HA
- Recovery of Function

\* TIMP: Tissue Inhibitor Metaloproteinase





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