

# BioleVox™ **HA**

Hyaluronic acid with proven  
clinical effectiveness



# Biolevox<sup>TM</sup>

## HA

### Hyaluronic acid for better mobility

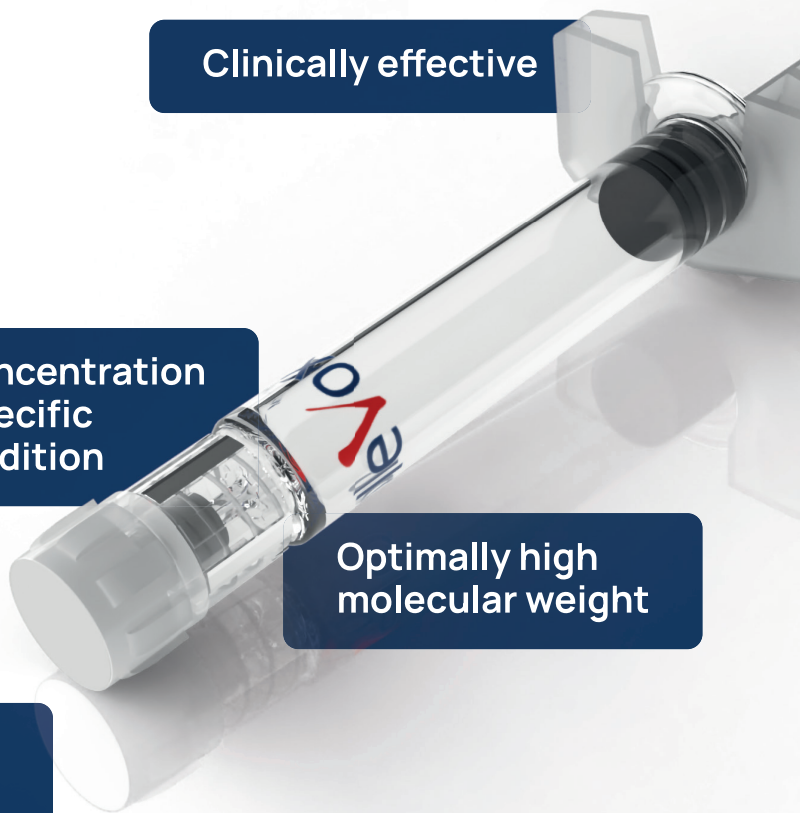
Viscosupplementation with Biolevox<sup>TM</sup> HA hyaluronic acid aims to supplement the natural synovial fluid, which may be insufficient in quantity or quality in patients with joint pathologies like osteoarthritis or after injuries.

Clinically effective

Tailored concentration for each specific clinical condition

Optimally high molecular weight

Optimally high viscosity



Different variants of Biolevox™ HA with carefully selected parameters of HA dedicated for targeted injection therapies.

**Biolevox™**  
**HA one**

single shot therapy

**Biolevox™**  
**HA 2.2%**

three injections therapy

**Biolevox™**  
**HA mini**

recommended for small joints

**Biolevox™**  
**HA tendon**

tendinopathies and enthesopathies

# Hyaluronic acid with perfectly selected parameters

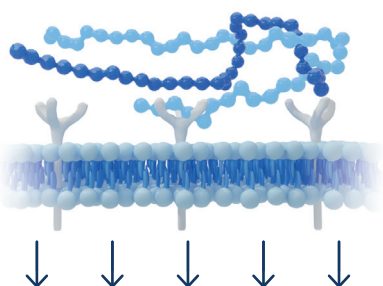
## Optimal HA concentration

Each Biolevox™ HA product has carefully selected concentration, dedicated for targeted application.

## Optimally high molecular weight

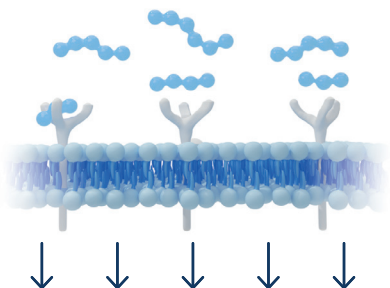
Each Biolevox™ HA product contains HA with optimal polymer chains length that can effectively bind and group many CD44 receptors, thus inducing anti-catabolic response in the joint cells<sup>1</sup>.

### Too long chains



non-effective anti-catabolic response

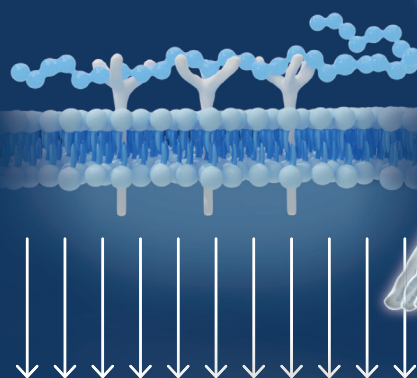
### Too short chains



non-effective anti-catabolic response



### Optimal chains length



HA with optimally high molecular weight can induce effective anti-catabolic effect.



# HA biological action

## Anti-inflammatory effect

- HA contained in Biolevox™ HA can inhibit the activation of key pro-inflammatory cascade factors (COX-2 and iNOS) in cartilage cells<sup>2,3</sup>.
- HA contained in Biolevox™ HA can restore collagen type II production under pro-inflammatory conditions.



## Chondroprotective effect

- HA provides a supportive environment for the growth of chondrocytes<sup>4</sup>.

## Antinociceptive effect

- HA reduces nerve impulse activity<sup>5</sup>.

## Induction of endogenous HA production

- Intra-articular injection of HA increases endogenous HA production<sup>6</sup>.

# Direct benefits for patients

## Reduced pain

- Sustained relief from joint pain and discomfort<sup>7</sup>.
- Greater pain reduction after HA injection compared to corticosteroids<sup>7</sup>.

## Improved joint function

- HA injections enhance joint lubrication, leading to improved mobility and reduced stiffness.



# Biolevox™ HA one

Sodium hyaluronate: 120 mg in 4.8 ml

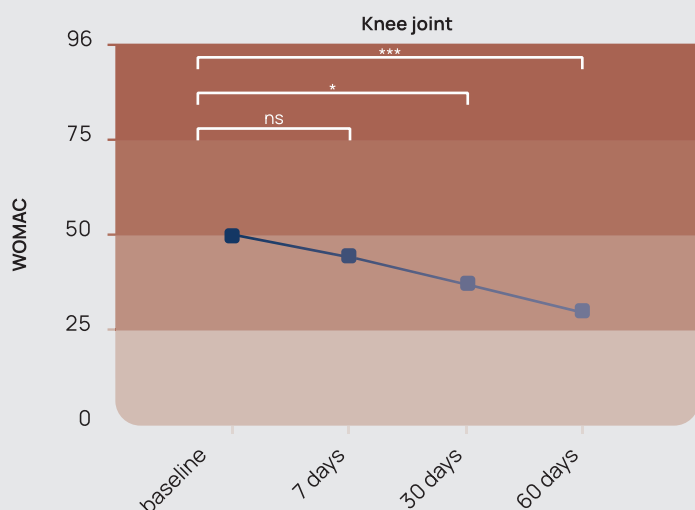
Molecular weight: 1800-3200 kDa

Viscosity: 350-650 Pa·s

The highest amount of HA  
in a single injection – 120 mg



## Clinically confirmed effectiveness after single injection of Biolevox™ HA ONE



- Single injection with Biolevox™ HA ONE reduced pain, stiffness and improved mobility of patients.
- Therapy enhanced joint function and patient's overall physical condition.

Fig. Functional status of OA patients treated with Biolevox™ HA ONE (\*\*\*) -  $p < 0.001$ , \* -  $p < 0.05$ )<sup>9</sup>.



## Single injection of Biolevox™ HA ONE improved joint motion quality in patients with OA

Based on recording the vibroacoustic signal during movement of articular surfaces.

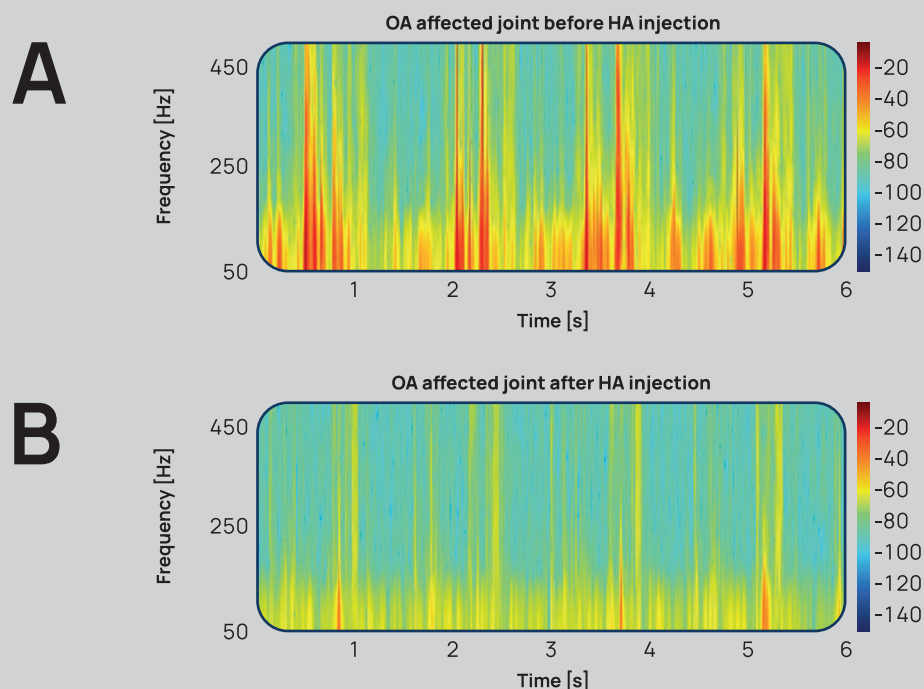


Fig. Vibroacoustic signal characteristic for OA affected knee joint: A - before HA injection, B - after HA injection.

# Biolevox™

## HA 2.2%

Sodium hyaluronate: **44 mg in 2 ml**

Molecular weight: **1400-2400 kDa**

Viscosity: **200-380 Pa·s**



## The most versatile hyaluronic acid

- The therapy consists of three intra-articular injections administered at weekly intervals.
- Biolevox™ HA 2.2% can be administered to different joints e.g. knee, elbow, shoulder joint.

**Clinically effective in patients after arthroscopic procedures - proved in clinical trial<sup>8</sup>**

- Intra-articular injections significantly improved the function of patients after arthroscopy and reduced pain levels.
- The effect of HA therapy improved joint mobility, which is important during the recovery period after arthroscopy, acting synergistically with rehabilitation.



# Biolevox<sup>TM</sup>

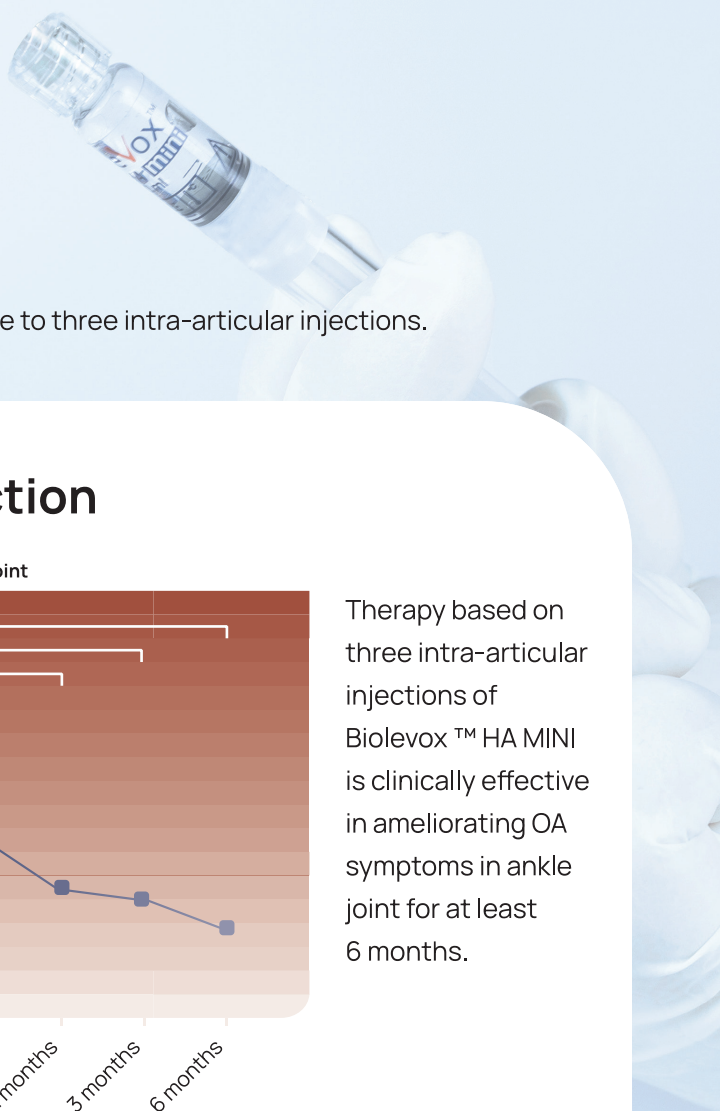
## HA mini

Sodium hyaluronate: **16 mg in 1 ml**  
Molecular weight: **1200-1400 kDa**  
Viscosity: **60-100 Pa·s**

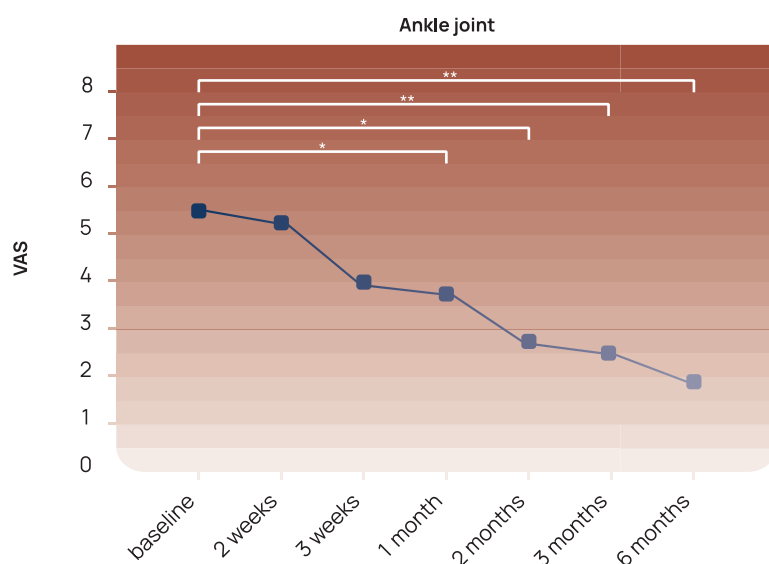
## HA parameters designed for precise injections - tailored for small joints

- Facet joint
- Metatarsophalangeal joint
- Carpometacarpal joint
- Temporomandibular joint
- Interphalangeal joint
- Ankle joint

The therapy consists of a series of one to three intra-articular injections.



## Effective pain reduction



Therapy based on three intra-articular injections of Biolevox<sup>TM</sup> HA MINI is clinically effective in ameliorating OA symptoms in ankle joint for at least 6 months.

Fig. Pain measured on VAS scale in OA patients treated with 3 injections of Biolevox<sup>TM</sup> HA MINI (\*\* -  $p < 0.01$ , \* -  $p < 0.05$ )<sup>8</sup>



# BioleVox™ HA tendon

Sodium hyaluronate: **32 mg in 2 ml**

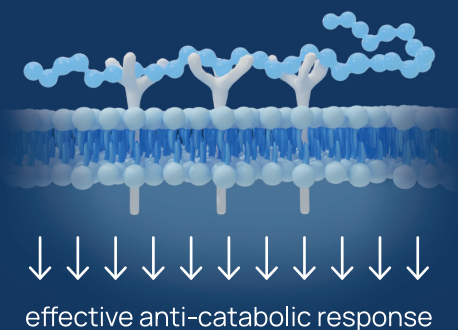
Molecular weight: **1400-1600 kDa**

Viscosity: **70-200 Pa·s**

## Precisely selected optimally high molecular weight - assurance of biological response

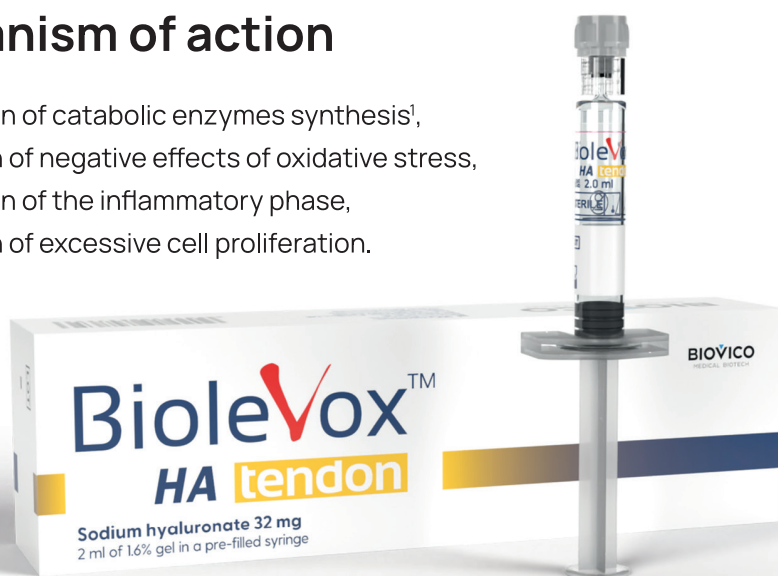
Biolevox™ HA TENDON is characterised with optimal polymer chains length to effectively bind and group many CD44 receptors, that leads to the induction of efficient anti-catabolic cell response.

Optimal chains length



## Mechanism of action

- Reduction of catabolic enzymes synthesis<sup>1</sup>,
- Inhibition of negative effects of oxidative stress,
- Reduction of the inflammatory phase,
- Inhibition of excessive cell proliferation.





## Effective and long lasting pain reduction in multiple indications

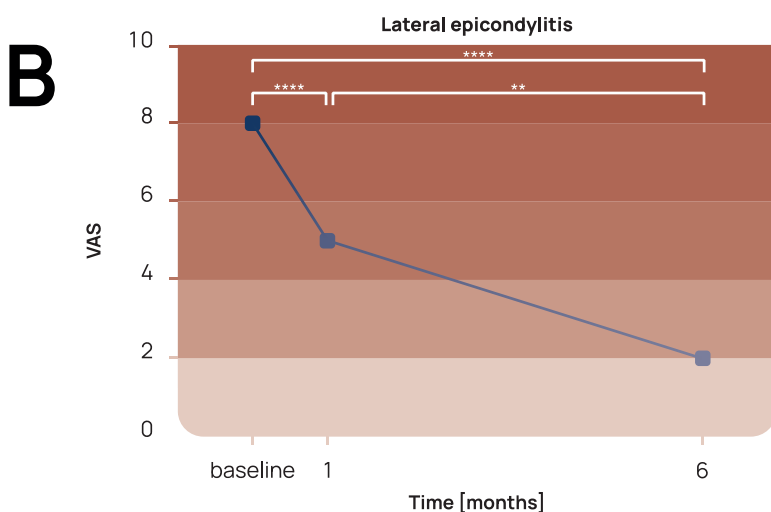
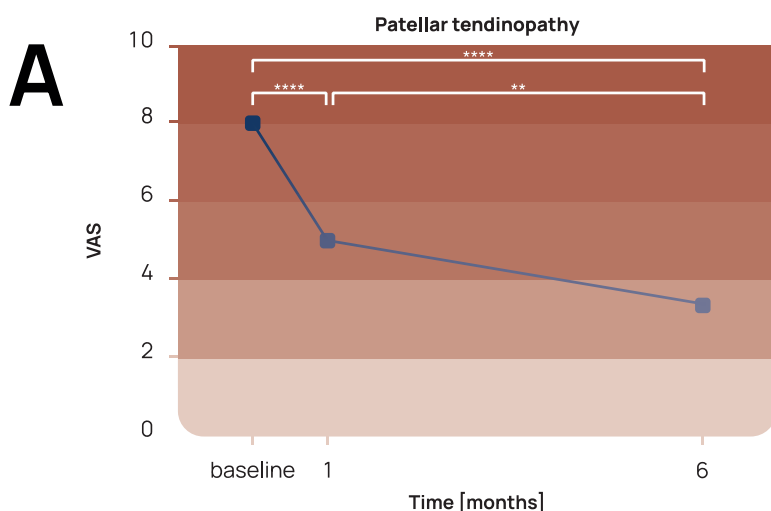


Fig. Pain measured on VAS scale in patients with: A - patellar tendinopathy, B - lateral epicondylitis treated with Biolevox™ HA TENDON (\*\*\*\* -  $p < 0.0001$ , \*\* -  $p < 0.01$ )<sup>§</sup>.



# Advanced medical devices

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