

Nutrihyl

Nutritional grade Hyaluronic acid

INCI: Sodium hyaluronate

 SUITABLE FOR VEGETARIANS/VEGANS



Hyaluronan in joints

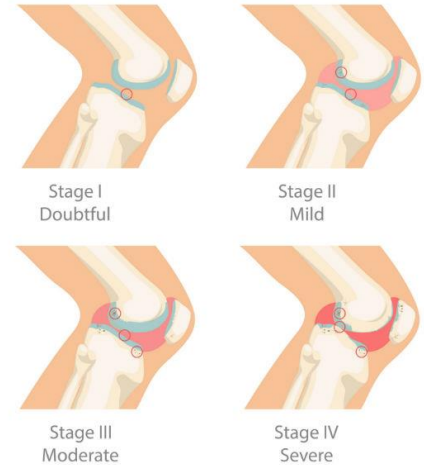
Naturally occurring polysaccharide present in all connective tissues

Especially concentrated in knees, hips and other moving joints (in high MW form)

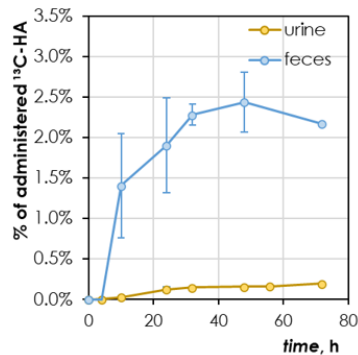
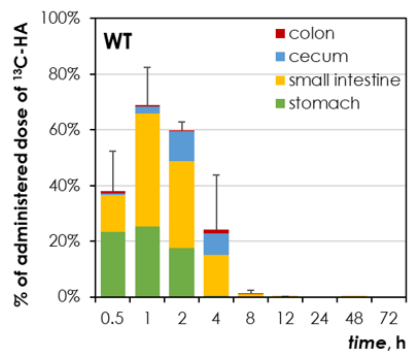
A major component of both cartilage and the synovial fluid, binding to water to create a thick, gelatinous substance that lubricates and protects the cartilage

In joints affected by arthritis, HA levels are extremely low (also degraded to lower MW), causing the synovial fluid to become less viscous and the cartilage less cushiony

Stages of knee Osteoarthritis



Hyaluronan pharmacokinetics



In 48 hours, all HA is eliminated

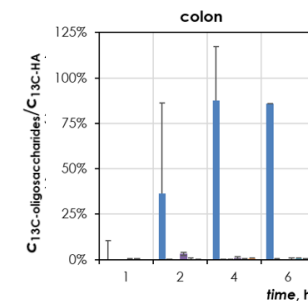
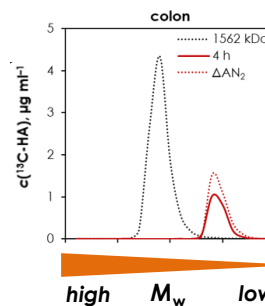
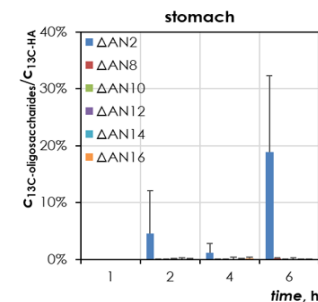
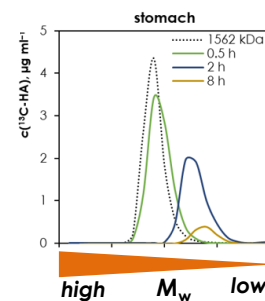
Only 2.2% excreted in feces/urine

> 97% of applied HA is metabolized in the body

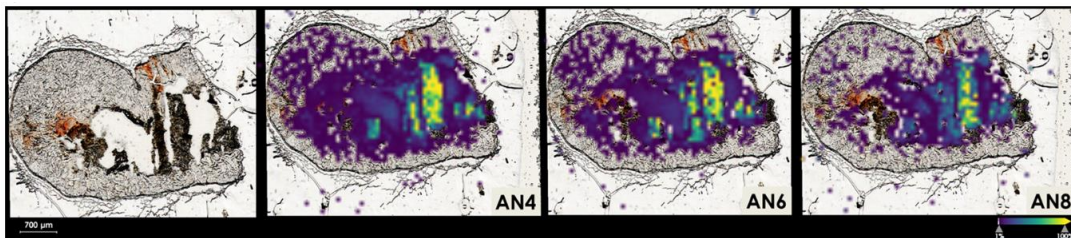
HA is degraded by the acidic pH in stomach to low MW

Further degradation in colon by microbiom

Only small fragments of HA (<3 kDa) can penetrate the intestinal wall



MALDI-MS imaging



Hyaluronic acid as a food supplement

- * Joint and bone support
- * Osteoporosis prevention
- * Skin and hair support
- * Inhibit endogenous collagen degradation
- * Stimulation of endogenous hyaluronic acid production



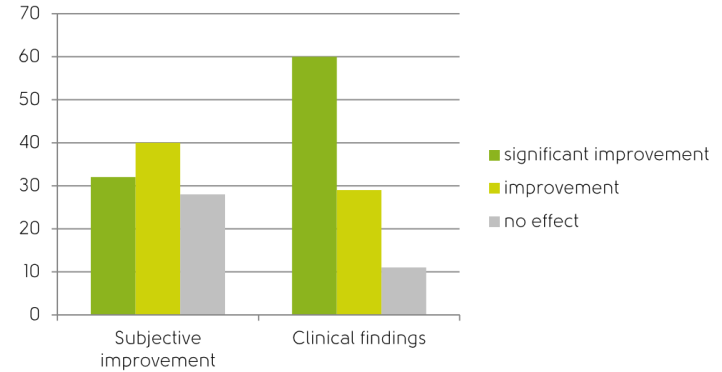
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- Ma, J., Granton, P. V., Holdsworth, D. W., & Turley, E. A. (2013). Oral administration of hyaluronan reduces bone turnover in ovariectomized rats. *Journal of agricultural and food chemistry*, 61(2), 339-345. <https://doi.org/10.1021/jf300651d>

JOINTS IMPROVEMENT

60%

SIGNIFICANT IMPROVEMENT

Clinical study by university orthopaedic clinic in Prague



27 patients, age 17-76, 90 days

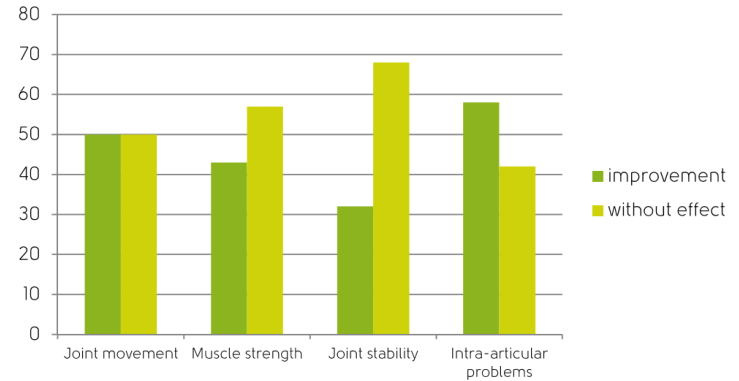
More than 70 percent of patients subjectively found significant improvement or improvement in swelling and joint painfulness and movement capability.

Clinical findings were even better, 60 and 28 percent of patients showed significant improvement or improvement in evaluated parameters.

INTRA-ARTICULAR PROBLEMS

57%
IMPROVEMENT

Clinical study by Musculoskeletal Institute in Prague



Study with 24 ice-hockey players (age 18-36) of the premier league was focused on joint movement, muscle strength, joint stability and intra-articular problems. The group was treated for 90 days (30mg of HA per day) during the sport season, the disposition of the sportsmen was evaluated before and after the treatment by a doctor. The overall results showed improvement between 30-60 percent in all evaluated parameters.

SKIN IMPROVEMENT

26%

WRINKLE REDUCTION AFTER 40 DAYS

J Evid Based Complementary Altern Med. 2017 Oct; 22(4): 816–823.

Published online 2017 Dec 4. doi: [10.1177/2156587217743640](https://doi.org/10.1177/2156587217743640)

PMCID: PMC5871318

PMID: [29228816](https://pubmed.ncbi.nlm.nih.gov/29228816/)

Ingestion of an Oral Hyaluronan Solution Improves Skin Hydration, Wrinkle Reduction, Elasticity, and Skin Roughness: Results of a Clinical Study

[Imke Göllner](#), PhD,¹ [Werner Voss](#), MD,¹ [Ulrike von Hehn](#),² and [Susanne Kammerer](#), MD³

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Abstract

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Intake of oral supplements with the aim of a cutaneous antiaging effect are increasingly common. Hyaluronic acid (HA) is a promising candidate, as it is the key factor for preserving tissue hydration. In our practice study, we evaluated the effect of an oral HA preparation diluted in a cascade-fermented organic whole food concentrate supplemented with biotin, vitamin C, copper, and zinc (Regulatpro Hyaluron) on skin moisture content, elasticity, skin roughness, and wrinkle depths. Twenty female subjects with healthy skin in the age group of 45 to 60 years took the product once daily for 40 days. Different skin parameters were objectively assessed before the first intake, after 20 and after 40 days. Intake of the HA solution led to a significant increase in skin elasticity, skin hydration, and to a significant decrease in skin roughness and wrinkle depths. The supplement was well tolerated; no side effects were noted throughout the study.

Keywords: hyaluronic acid, hydration, wrinkle reduction, elasticity, skin roughness

Göllner I, Voss W, von Hehn U, Kammerer S. Ingestion of an Oral Hyaluronan Solution Improves Skin Hydration, Wrinkle Reduction, Elasticity, and Skin Roughness: Results of a Clinical Study. J Evid Based Complementary Altern Med. 2017 Oct;22(4):816-823. doi: 10.1177/2156587217743640. Epub 2017 Dec 4. PMID: 29228816; PMCID: PMC5871318.

link to the study: <https://www.ncbi.nlm.nih.gov/pmc/articles/PMC5871318>

Production of HA in Contipro

SUSTAINABLE BIOTECH PRODUCTION

Our HA is made by fermentation of a non-haemolytic microbial strain *Streptococcus equi*.

ENVIRONMENTAL FRIENDLY

Everything we make is biodegradable. We have our own solar power plant and wastewater treatment plant. Our buildings are heated with residual energy from our production operations.

NATURAL PRODUCT

Contipro's HA has natural index 1 (according to ISO 16128-1:2016 and 16128-2:2017)



Nutrihyl: Collected technical data

- **INCI name:** Sodium Hyaluronate
- **Supplied form:** powder
- **Samples:** 1 g
- **Minimal ordering quantity:** 1 kg
(If ordering smaller quantities, price can increase due to handling fees)
- **Shelf-life:** 36 months
- **Recommended daily dosage (mg):**

	Human	Horse	Dog
Osteochodrial deffects	20 – 90	50 – 250	30 – 150
Osteoporosis	20 – 90	50 – 250	30 – 150
Skin and hair support	35 – 70		

- **Nutritional values:**

Nutrient	Content (per 100g)
Dry matter	93.7g
Proteins	≤ 1g
Fat	0.2g
Saccharides	80.9g
Energy	1400kJ

- **Source:** fermentation of a non-hemolytic microbial strain *Streptococcus equi*.
- **Compatibility and processing:** incompatible with cationic substances.

Sensitive to heat. Heating to 90°C for 45 min. can lead to the molecular weight decrease up to 20%.

- **Solubility:** Fully soluble in water. Speed of dissolving depends on molecular weight.
Insoluble in solvents which are non-miscible with water.



Who We Are

*World leader in research
and manufacturing
of hyaluronic acid.*

*Innovator in biotechnologies
since 1990.*

*Reliable partner of **successful
brands.***



We Are Here to Help You

ZUZANA JENÍKOVÁ

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for active ingredients*

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