

Condrotide[®]

A dedicated line for
the treatment of osteoarthritis



For a future on the move

The PDRN and PN-HPT® ORIGINATOR



Mastelli is a 70-year-old Italian company born in Sanremo, Italy, in 1952, whose distinctive element is the production and development of two molecules: Polynucleotide (PN) and Polydeoxyribonucleotide (PDRN). All Mastelli products are based on these natural substances which have interesting regenerative features



Mastelli is the originator company of DNA fractions usage in the world and produces internally a wide range of PN and PDRN based drugs and medical devices, with the full control of the supply chain, from the raw material source to the research, development, manufacturing and commercialization of the finished products, in line with the highest GMP and QA standards



Mastelli is the only company in the world that has developed over the years a wide range of solutions that integrate DNA fractions with other technologies, offering innovative protocols in several therapeutic areas (aesthetic medicine, orthopedics, gynecology, dermatology and wound care), and distributing in over 30 countries worldwide



From Mastelli's research: Polynucleotides with HPT® Technology

PN-HPT®(Polynucleotides - Highly Purified Technology) are natural origin products derived from fish intended for human consumption, obtained by means of a technology featuring a high degree of purification and safety

Features:

- Polymers of deoxyribonucleotides (DNA fractions)
- Trophic and stimulation action on the fibroblasts and chondrocytes
- Regeneration of damaged, atrophic and aging tissues

POLYNUCLEOTIDES-HPT® - Highly Purified Technology



MADE IN ITALY

70 YEARS OF RESEARCH

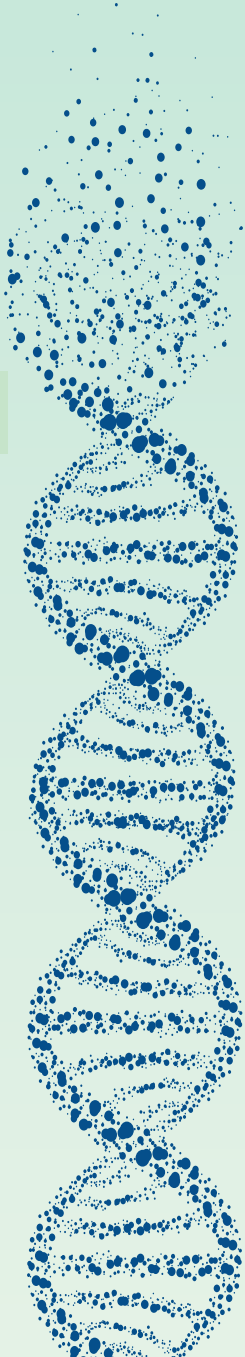
MASTELLI'S ORIGINAL EXTRACTION TECHNOLOGY

HIGH DEGREE OF PURIFICATION

TOTAL CONTROL OF THE SUPPLY CHAIN

HIGH SAFETY STANDARDS

MORE THAN 100 PUBLISHED STUDIES



Osteoarthritis

Osteoarthritis is a chronic joint disease characterised by:

- Degeneration of the articular cartilage
- Alterations of the physicochemical properties of the synovial fluid
- Changes in the joint¹

Osteoarthritis leads to:

- Pain
- Inflammation
- Joint stiffness

Osteoarthritis has a big impact on quality of life and healthcare costs², affecting mainly:

- Adults from 40s to 50s
- Menopausal women
- Sports people
- The elderly



1. Vanelli R et al. Efficacy of intra-articular polynucleotides in the treatment of knee osteoarthritis: a randomized, double-blind clinical trial. *Knee Surg Sports Traumatol Arthrosc* (2010) 18:901-907. <https://doi.org/10.1007/s00167-009-1039-y>

2. De Filippis L et al. Epidemiology and risk factors in osteoarthritis: literature review data from «OASIS» study. *Reumatismo* Jul-Sep 2004; 56(3):169-84. <https://doi.org/10.4081/reumatismo.2004.169>

PN-HPT® in Orthopedics

A two-fold action for complete effectiveness:

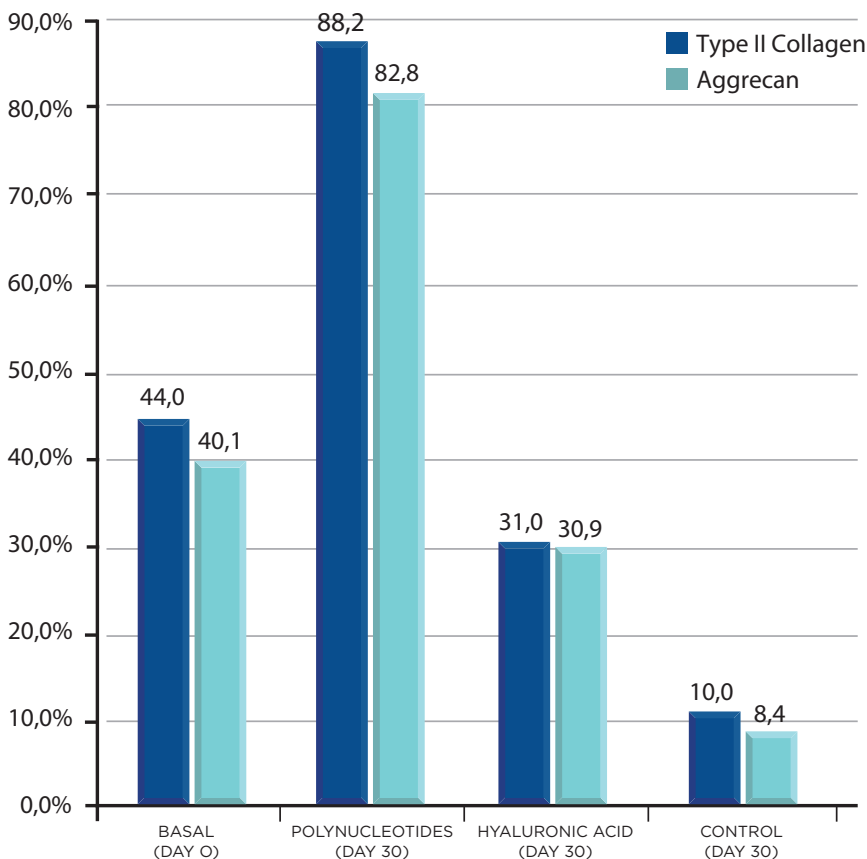
Early biomechanical action¹



Subsequent trophic action¹



Treatment with Polynucleotides increased the production of Type II Collagen and Aggrecan, while in the presence of Hyaluronic Acid they both decreased (after 30 days)³



Polynucleotides improved the trophism of the cartilaginous tissue, following³:

- direct action on the chondrocytes
- recovery of the atrophic tissues
- restoration of the physiological microenvironment typical of the intact cartilage
- increased deposition of Type II Collagen, of Aggrecan and of active matrix

1. Vanelli R et al. Efficacy of intra-articular polynucleotides in the treatment of knee osteoarthritis: a randomized, double-blind clinical trial. *Knee Surg Sports Traumatol Arthrosc* (2010) 18:901-907. <https://doi.org/10.1007/s00167-009-1039-y>

3. Gennero L. et al., Protective effects of polydeoxyribonucleotides on cartilage degradation in experimental cultures, *Cell.Biochem. Funct.* 2012; doi: 10.1002/cbf.2875.

Condrotide®

for the treatment of osteoarthritis in the knee, shoulder, hip and ankle with persistent pain

Therapeutic indications⁴

Painful joint diseases caused by degenerative or post-traumatic conditions or by modification of a joint⁴

Benefits

- Pain reduction
- Reduced use of FANS³
- Improvement of the quality of life³

Composition and package⁴

40 mg/2ml of polynucleotides; one sterile, non-pyrogenic pre-filled glass syringe, for single use⁴

Method of administration⁴

The product must be administered by intra-articular injection using a sterile 20G needle.

Protocol⁴

One intra-articular injection of 2.0 ml of product (40 mg of polynucleotides) once a week for 3-6 weeks.

Positioning⁴

Grade I, II, III and IV osteoarthritis

Regulatory status⁴

Class III Medical Device - CE 0373



doping free

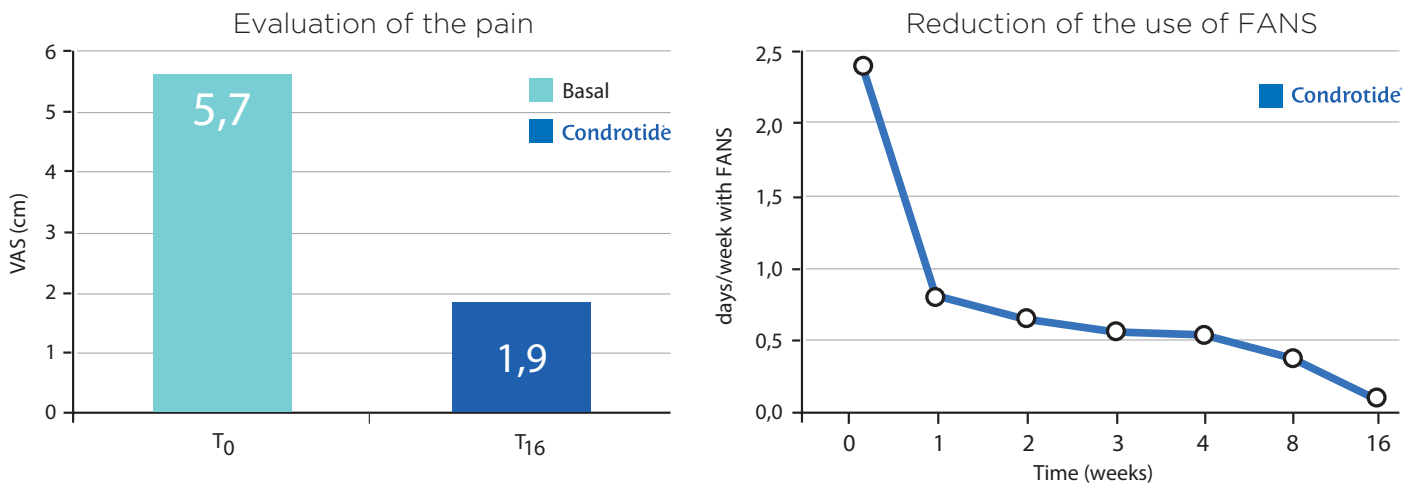
Mastelli, committed to fighting doping in the practice of all sports, sells PLAY SURE DOPING FREE certified products

3. Gennero L. et al., Protective effects of polydeoxyribonucleotides on cartilage degradation in experimental cultures, Cell. Biochem. Funct. 2012; doi: 10.1002/cbf.2875.

4. Condrotide®. Information leaflet

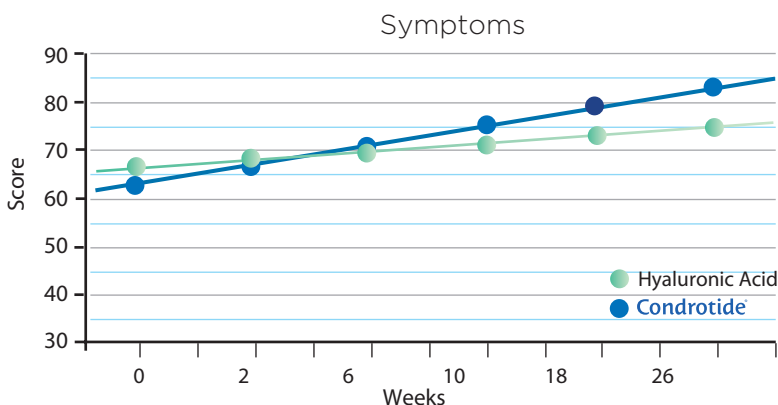
Clinical Studies

Double-blind randomized clinical study of 60 patients with osteoarthritis of the knee: **Condrotide®** determined a fast and considerable pain reduction, also proven by the reduced use of FANS and by the improvement of the quality of life¹



Evaluation of the pain and of the use of FANS. Double-blind randomized clinical study of patients with osteoarthritis of the knee treated with **Condrotide®**. Evaluation of the pain after 16 weeks¹

Double-blind randomized clinical study of 72 patients with osteoarthritis of the knee: **Condrotide®** significantly improved the KOOS score with regard to the symptoms and to the quality of life after even only two weeks of treatment⁵



KOOS (Knee Injury and Osteoarthritis Outcome Score, based on a questionnaire investigating several parameters relating to osteoarthritis of the knee: symptoms, quality of life, pain, functional quality of daily activities). Double-blind randomised clinical study of 72 patients with osteoarthritis of the knee, treated with one intra-articular injection a week of **Condrotide®** or of Hyaluronic Acid for three weeks⁵

In the treatment of damage to rotator cuffs, **Condrotide®** significantly reduced the pain (VAS score down from 8.03 to the basal value of 2.07 after 30 days) and improved the degree of joint movement⁶

1. Vanelli R et al. Efficacy of intra-articular polynucleotides in the treatment of knee osteoarthritis: a randomized, double-blind clinical trial. *Knee Surg Sports Traumatol Arthrosc* (2010) 18:901-907. <https://doi.org/10.1007/s00167-009-1039-y>
5. Giarratana L.S. et al., A randomized double-blind clinical trial on the treatment of knee osteoarthritis: the efficacy of polynucleotides compared to standard hyaluronan viscosupplementation, *Knee* 2014; 21: 661-668.
6. Saggini R. et al., Viscosupplementation with hyaluronic acid or polynucleotides: results and hypothesis for condro-synchronization, *J. Clin. Trials* 2014; 4: 6.

Condrotide®HA*

an innovative formula for the treatment of osteoarthritis

In addition to viscosupplementation:
the synergy between PN-HPT® and HA

Therapeutic indications⁷

Joint diseases caused by degenerative or post-traumatic conditions or by joint alteration

Benefits⁷

- Improves the characteristics of the synovial fluid, has a protective action and improves the function of the joints
- Fast, considerable and durable pain reduction

Composition and package⁷

Pre-filled, sterile, non-pyrogenic syringes for single use
50 mg of functional ingredients in 2,5ml

- Mastelli Polynucleotides-HPT® 25 mg/2,5ml
- Hyaluronic acid 25 mg/2,5ml
- Mannitol

Method of administration⁷

The product must be administered by intra-articular injection using a sterile 20G needle

Protocol⁷

3 infiltrations of 2,5ml. The time between each infiltration is 1 to 3 weeks

Positioning⁷

Grade II and III osteoarthritis

Regulatory status⁷

Class III Medical Device - CE 0373

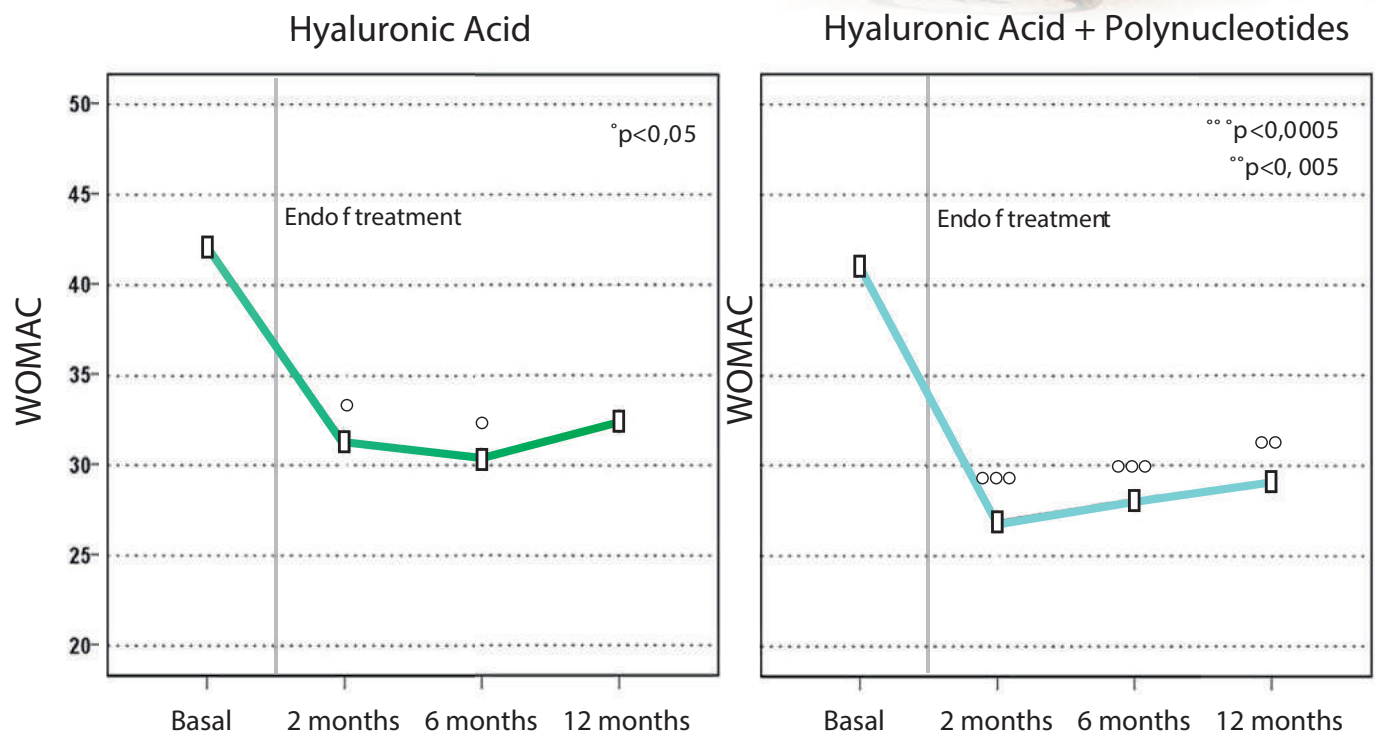


A UNIQUE AND
ORIGINAL FORMULA:
**PN-HPT® + HA
+ MANNITOL**

Clinical study: efficacy of intra-articular polynucleotides associated with HA vs HA alone⁸

Intra-articular infiltration with Hyaluronic Acid improves the lubrication of the joint

Associating **CondrotideHA®** acts also on trophism of the cartilage, further reducing the pain and improving the quality of life⁸



WOMAC (Western Ontario and McMaster University) pain score in 100 patients with knee osteoarthritis, treated for three weeks with one intra-articular injection of Hyaluronic Acid or of Hyaluronic Acid plus Polynucleotides⁹

8. Dallari D. et al., Efficacy of intra-articular polynucleotides associated with hyaluronic acid versus hyaluronic acid alone in the treatment of knee osteoarthritis: a randomized, double blind, controlled clinical trial, Clin. J. Sport Med. 2018; doi: 10.1097/JSM.0000000000000569.

Condrotide®Moveo*

oral chondroprotector enriched with nucleotides

Therapeutic indications⁹

Food supplement that contains the main components of the joints to protect and help to maintain the cartilage functionality

Can be used alone to treat early stage osteoarthritis or in association with **Condrotide®** or **CondrotideHA®** for advanced stage osteoarthritis

Benefits⁹

Maintains the physiological lubrication and elasticity of connective tissues

Composition and package⁹

Innovative formula thanks to the presence of:

- Nucleotides
- Glucosamine of vegetable origin 415 mg
- Chondroitin sulfate 100 mg
- Hyaluronic acid 30 mg
- Type II native collagen 10 mg

20 divisible tablets - net weigh 29 g

Method of administration⁹

Swallowed with water

Protocol⁹

1 tablet a day

Positioning⁹

Grade I, II, III and IV osteoarthritis

Regulatory status⁹

Food supplement



9. Condrotide® Moveo. Information leaflet

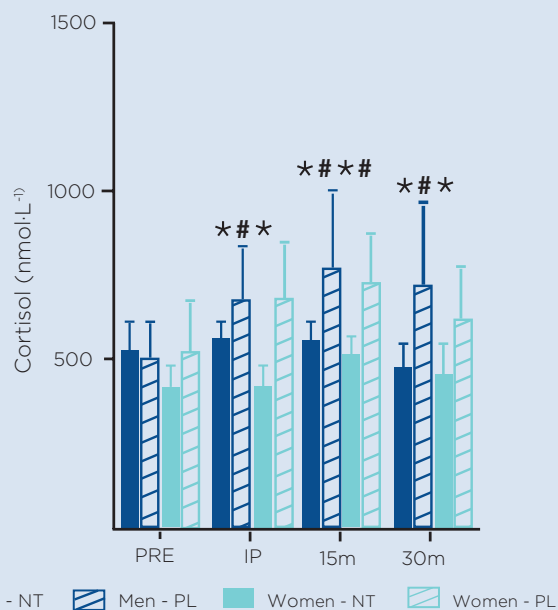
* Name not yet registered

Clinical study: physiological effects of nucleotide supplementation on resistance exercise stress in men and women¹⁰

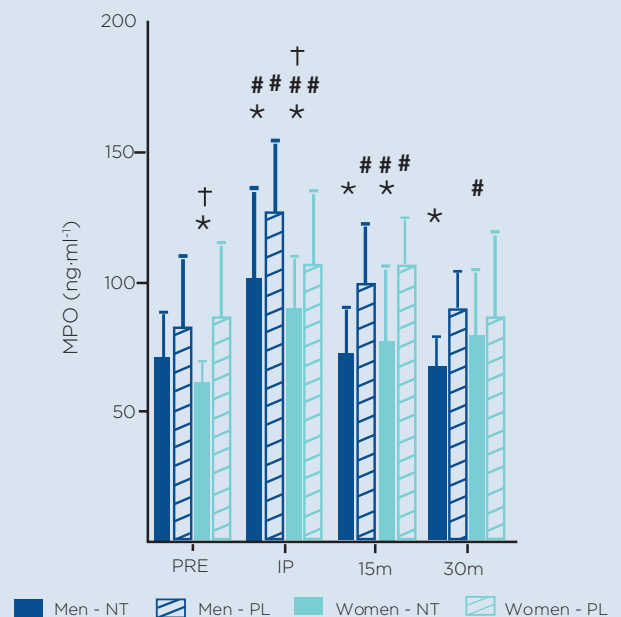
Double-blinded, crossover, mixed methods design with 10 men and 10 women
Each subject completed a familiarization visit followed by 2 supplementations with 2 capsules of dietary nucleotides daily. Testing cycles were separated by a 1-week washout period

At the beninning of the third week, an acute heavy resistance exercise protocol (AHREP) was completed

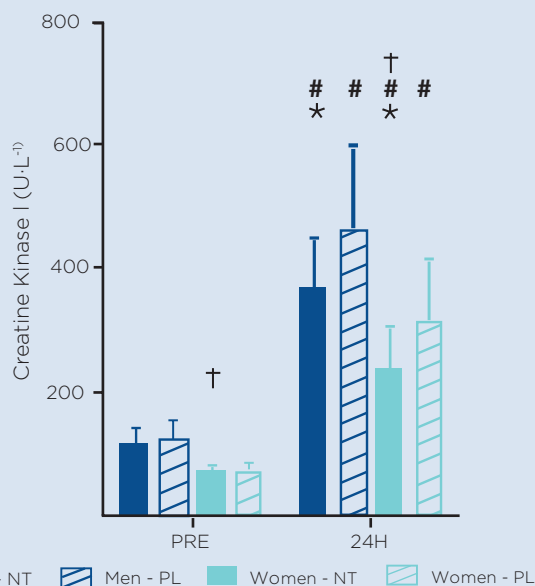
Cortisol decrease



Myeloperoxidase (MPO) decrease



Creatine kinase (CK) decrease



Nucleotide supplementation resulted in significant (p # 0.05) decreases in cortisol and myeloperoxidase (MPO) immediately after the AHREP, and significantly lower Creatine Kinase (CK) values 24 hours later

*Significantly different from the corresponding placebo condition. #Significantly different from the corresponding PRE value. †Significantly different from men in the corresponding condition. Significance set at p # 0.05.

An innovative line in support of persistent joint pain

DNA fractions at the core of osteoarthritis treatments

Demonstrated efficacy in the treatment of knee, shoulder, hip and ankle osteoarthritis



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