



## Navigating the golden age of mobility:

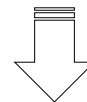
Discover the science-backed benefits of **Collavant n2** and **Mobilee®**



### What is mobility?



Think less “joint health” & more “**ALL-AROUND MOBILITY**”



**MOBILITY HEALTH =**  
bones + muscle + tendon + joint health

FMCG GURUS - MobilityHealth report, 2021

## Mobility and overall health

**67%**

of consumers worldwide recognise a direct link between mobility and overall health.

FMCG GURUS - MobilityHealth report, March 2021

Number of consumers that believe mobility has a positive impact on other health areas:



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## A golden age for mobility innovation

**36%** overall consumers plan to improve **MOBILITY** in the next 12 months

### Age segmentation

- 42% of aged 65+
- 39% of aged 35-44
- 31% of 25-34

FMCG GURUS - MobilityHealth Report, March 2021

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## Mobility in the context of active ageing



## The opportunity for mobility innovators



**OPPORTUNITY:**  
communicate benefits  
of good mobility for  
overall health

Stay one step ahead  
with **INNOVATIVE  
PRODUCTS**



Step into the **FUTURE** with  
Bioiberica's **BRANDED**  
**INGREDIENTS**

**Collavant**<sup>n2</sup>  
Native type II collagen

&

**Mobilee**<sup>®</sup>  
Hyaluronic acid matrix ingredient

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**Collavant**<sup>n2</sup>  
Native type II collagen

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## What is Collavant n2?

- Naturally-derived ingredient supplying **native (undenatured) type II collagen**
- **Supports joint health** at a low dose of **40 mg / day**
- Immune-mediated mechanism of action



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## The effect of Collavant n2

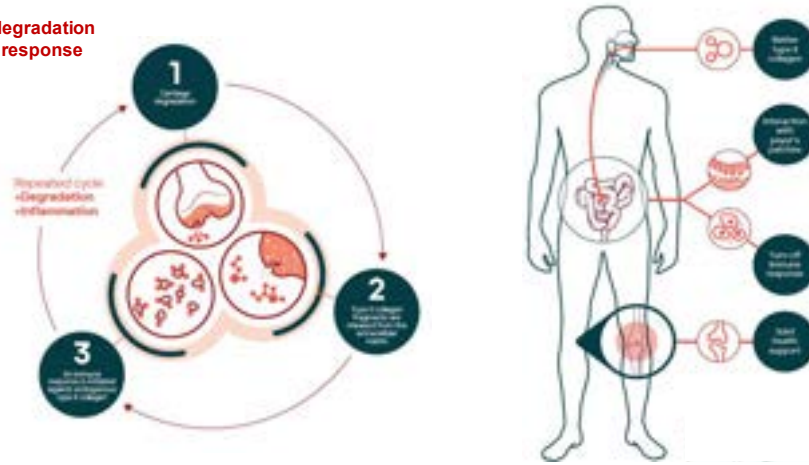
- Reduces **joint discomfort**
- Improves **mobility**
- Helps to control **inflammatory cytokines**
- Slowdown **collagen degradation**



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## Native type II collagen mechanism of action

Cartilage degradation & immune response



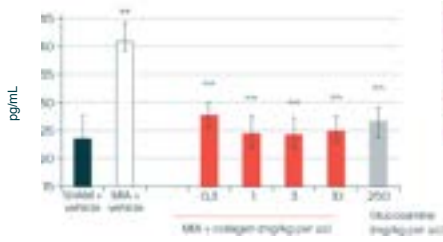
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## Reduces inflammatory cytokines & slows collagen degradation

Murine model of knee OA induced by MIA

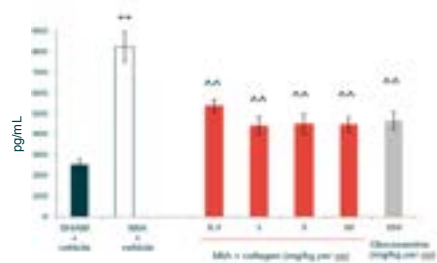
IL-1 $\beta$  plasmatic levels



Inflammatory infiltrate



C2C plasmatic levels



OA; osteoarthritis  
MIA, monoiodoacetate

Mannelli et al. Osteopor. Int. 2015

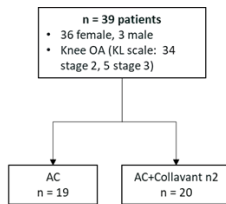
\*\*p < 0.01 vs vehicle + control (baseline animals)  
\*\*\*p < 0.001 vs MIA + vehicle (baseline animals)

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# Improves mobility & reduces joint discomfort

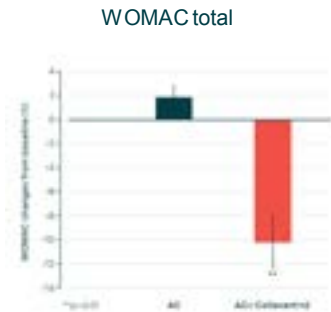
Randomised single-blind controlled clinical study with a three-month follow-up period



AC: Acetaminophen  
KL scale: Kellgren-Lawrence scale



VAS pain changes with Collavant n2 supplementation.



Total WOMAC evolution of knee function with and without Collavant n2 versus baseline.

Bakilan et al. Eurasian J Med. 48: 95-101, 2016

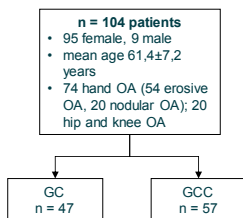
\*\*P<0.01 vs AC group  
^^P<0.01 vs baseline

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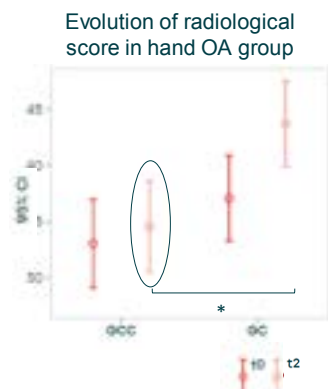
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# Slows collagen degradation

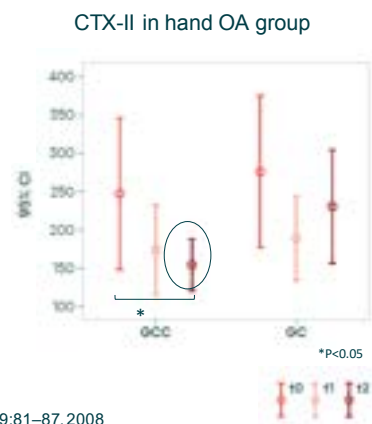
Observational retrospective one-year follow-up study



GCC: Glu+CS+Native type II collagen  
GC: Glu+CS  
t0: baseline  
t1: 6 months  
t2: 1 year



Scarpellini, et al. J Orthopaed Traumatol. 9:81-87, 2008



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## Why Collavant n2?

- **New generation collagen**
- **Low daily dose:** only 40 mg /day
- **Science-backed:** efficacy demonstrated in 6 scientific studies
- **100%** sourced and manufactured in **Europe**



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**Mobilee®**  
Hyaluronic acid matrix ingredient

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## What is Mobilee®?

- ✓ Mobilee® is a **hyaluronic acid matrix ingredient** extracted from rooster comb containing a high concentration of **hyaluronic acid** (60-75%) and other components, including **polysaccharides** and **collagen**.
- ✓ Thanks to the **synergistic effect** of these **naturally-occurring components**, Mobilee® supports the development of cutting-edge mobility products that simultaneously target joint *and* muscle health.

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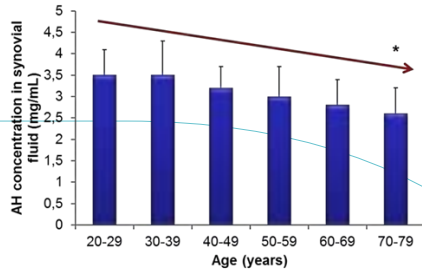
## The effects of Mobilee®

- ✓ **Increases** the endogenous **synthesis of hyaluronic acid** by synovial cells
- ✓ **Lowers** the **inflammatory cytokine**, prostaglandin E2 (PGE2)
- ✓ **Reduces** synovial effusion and **joint discomfort** after three months
- ✓ **Supports** muscle strength

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## Hyaluronic acid (HA) in synovial fluid



❖ In patients with **osteoarthritis** the **concentration and molecular weight of HA** in synovial fluid is significantly **reduced**

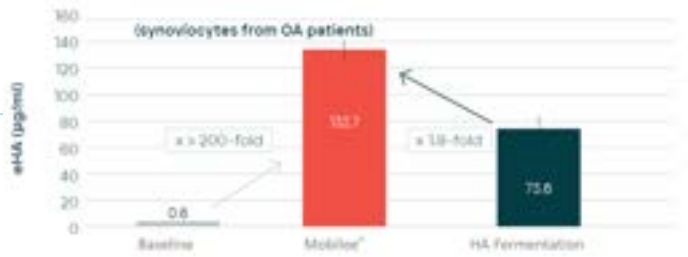
Nakayama et al 2002. Arthritis & Rheum. 46, 2015-2018

Balazs. Arthritis Rheum. 10:357-376, 1967

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## Increases the endogenous synthesis of hyaluronic acid



**Mobilee®** increases endogenous HA secretion by **more than 200-fold** vs baseline and **1.8-fold** vs pure HA from fermentation origin

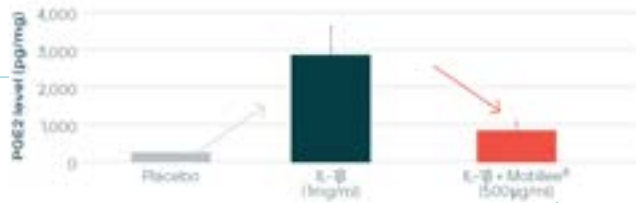
Effect of Mobilee® on endogenous synthesis of HA in human osteoarthritic synoviocytes after 24h

Torrent et al. Osteoarthritis and Cartilage. 7:S278-279, 2009

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## Lowers prostaglandin E2 (PGE2), which is linked to inflammation



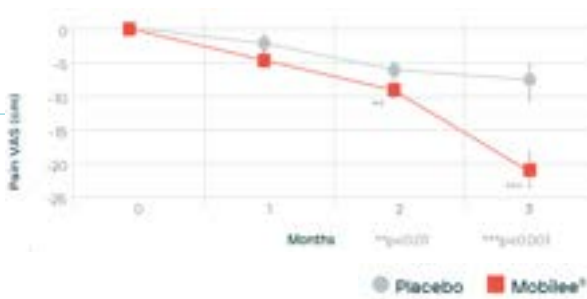
**Mobilee®** lowers PGE2 levels, which plays a key role in the **inflammatory response**.

*Effects of Mobilee® on PGE2 levels (pg/ mg of total protein) induced by IL-1β in human dermal fibroblast cells*  
Torrent et al. *Osteoarthritis and Cartilage*. 18:S246-247, 2010.

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## Reduces joint discomfort



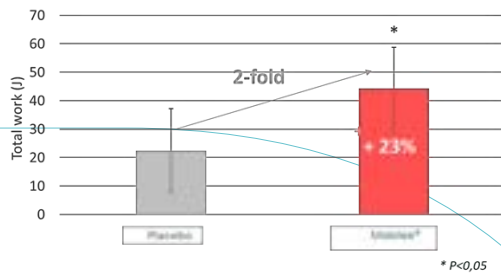
In individuals with mild joint discomfort, daily consumption of a yoghurt supplemented with 80mg **Mobilee®** significantly **reduced pain intensity** from the **second month** of intake, compared to the placebo group.

*Time evolution of the pain reduction (VAS).*  
Sanchez et al. *Ann Nutr Metab*. 63:538, 2013

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## Supports muscle strength



Increase in total work (J) compared to baseline for knee flexion at 180°/s  
Moriña et al. Food Funct. 9:3244-3253, 2018

Three months oral administration of a yoghurt product containing 80mg **Mobilee®** in healthy individuals with knee discomfort provided improvements in **muscle function**.

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## Why Mobilee®?

- **Patented** hyaluronic acid matrix ingredient
- Three naturally-occurring components
- **Synergistic** effect
- For **joint and muscle health**
- **Low daily dose:** only 80 mg / day
- **Science-backed:** efficacy demonstrated in 13 scientific studies
- **Easy formulation**



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## Key takeaways

**Collavant n2**  
Native type II collagen

&

**Mobilee®**  
Hyaluronic acid matrix ingredient

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## Collavant n2 and Mobilee®

Complementary effects for a comprehensive approach to mobility

	Mobilee®	Collavant n2
<b>Ingredient</b>	Hyaluronic acid matrix	Native (undenatured) type II collagen
<b>Target Tissues</b>	Synovial fluid Muscle	Cartilage
<b>Mechanism of Action</b>	↑ Hyaluronic acid synthesis ↓ Inflammatory cytokines ↑ Muscle function	↓ Immune-mediated collagen destruction ↓ Inflammatory markers

**Target Consumers**



Seniors 65+



Sporty people



Menopause



Adults (45-65)

- With joint discomfort
- Aiming to improve muscle strength

## CONSUMERS

Are striving to take an active approach to ageing by optimising mobility and health at every age



## OPPORTUNITY

Develop efficacious products that target mobility



# Thank You

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