

A close-up photograph of a woman's face, focusing on her eyes and cheek. She has light blue eyes and is looking slightly to the left. Her hand is gently touching her right cheek. The background is plain white.

**More than collagen
peptides**

The logo for Cartidyss features a stylized DNA double helix structure composed of teal dots and lines, positioned above the brand name.

Cartidyss
for beauty within



Sustainability
engagement



Proved
by science



Natural &
Marine origin



Made in France
Premium quality

Abyss Ingredients combines **innovation, local upcycling economy and sustainability** to answer the needs of the ageing population with natural ingredients.

1/3rd of Abyss team is part of Research & Development team (including 3 PhDs)

They work in **collaboration with independent partners** (Universities and CRO experts in their field) to insure the efficacy and reliability of your final products.

Since 2019, many successes :



3 clinical studies achieved

1 clinical study ongoing

2 mechanistical studies achieved



1 patent

1 patent application



1 new product launched



6 publications of results

2 publications in progress

Outlook on the market

Nutricosmetic trends

- Global market estimated between \$ 6,8 B¹ and \$ 7,3 B² in 2021
- Average estimated growth at 9,4%^{1,2} until 2030

Collagen, a growing global demand

- \$ 3,6 billion in 2020
- Estimated growth : +8,3%/year on 2021-2027³
- Increasing demand for food and nutraceuticals sectors, especially on beauty applications



More than collagen

❖ A unique composition

- Low molecular weight **collagen peptides**
- GAGs: **chondroitin, glucosamin, hyaluronic acid**

} Similar to the human skin matrix

❖ Highly bioavailable¹

- Almost 88% hydroxyproline absorbed 140min after ingestion
- More than 24% chondroitin absorbed 140min after ingestion

❖ From locally collected marine by-products

❖ Through a gentle and eco-friendly process

❖ Clinically proven, at a low dosage



Clinical effects of Cartidyss® on aged skin after 90 days of supplementation

Study design:

- Placebo (maltodextrin) vs Cartidyss®
- 23 Caucasian women per group, aged from 45 to 59 years old
- Cartidyss® **500 mg/day** (1 capsule each morning) during 90 days
- Participants used the same photoprotective lotion every morning

Parameters studied:

- ✓ Wrinkles and aspect of the skin
- ✓ Thickness and density of the skin
- ✓ Hydration
- ✓ Morphology and dermal structure
- ✓ Perceived efficacy

❖ Clinical study of Cartidyss® effects on photoaged skin (2020) – Maia Campos *et al.* 2021

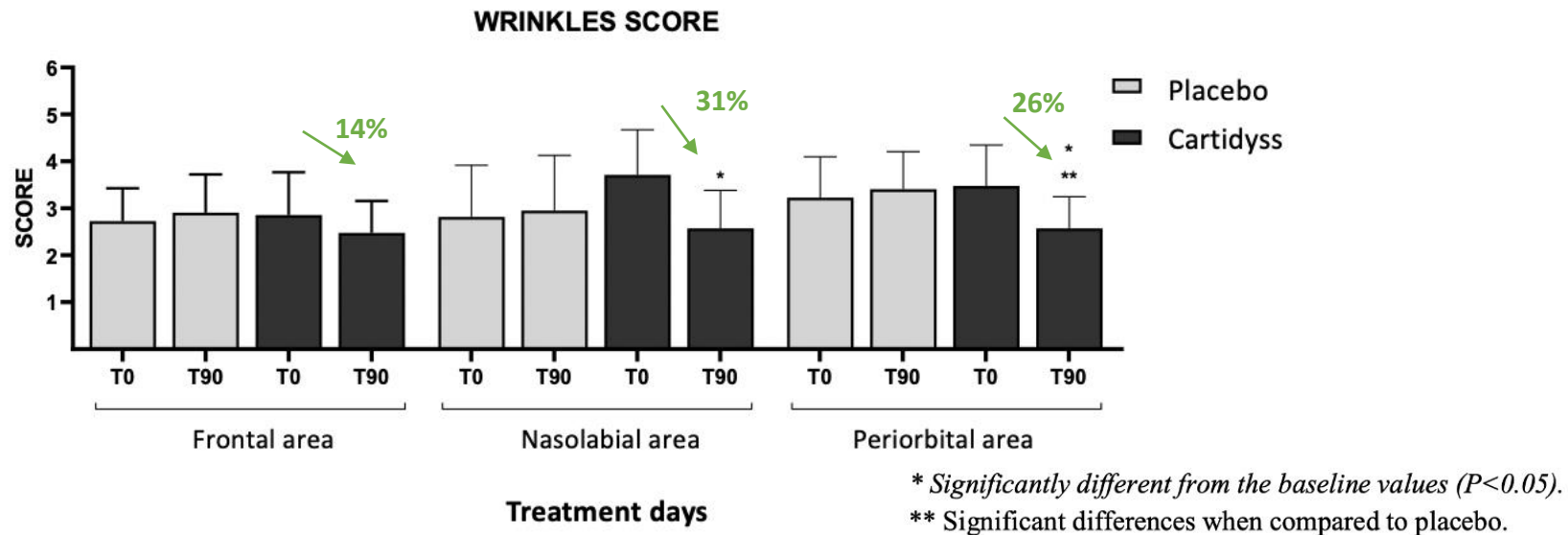
Significant reduction of wrinkles

Wrinkles analysis through a scoring method from 1 to 5 (Score 5 = deep wrinkles) - *Atlas Acervo NEATEC 2016*



Significant reduction of wrinkles

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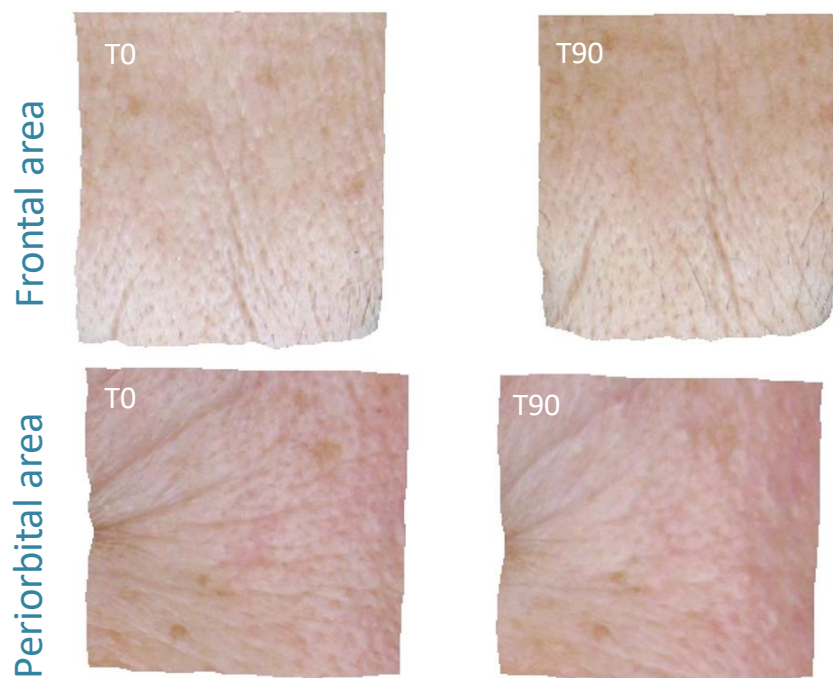


Cartidyss® reduces wrinkles by more than 25%
after 90 days on nasolabial and periorbital regions

Visible reduction of wrinkles

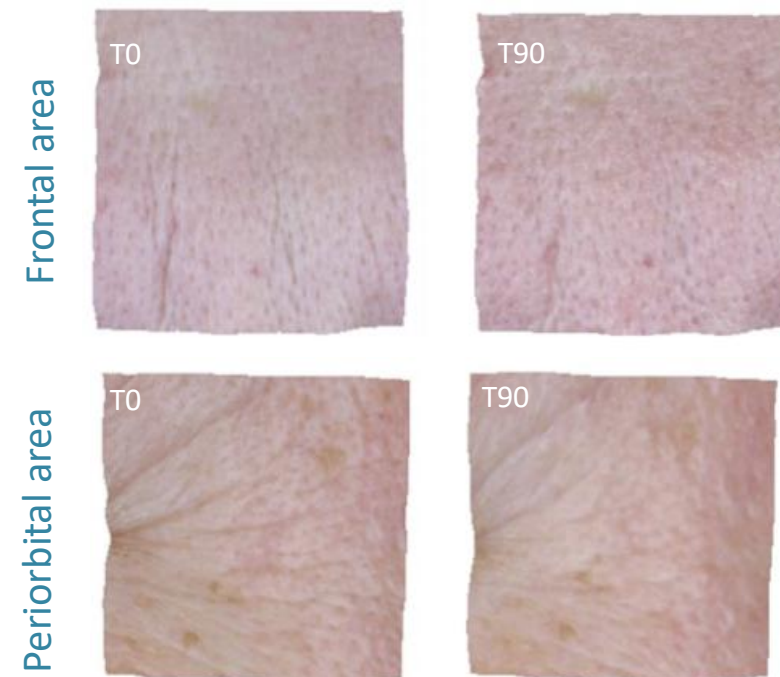
Comparative HD pictures of the skin before and after supplementation - Visioface Quick® software

PLACEBO



No improvement before/after supplementation

CARTIDYSS®



Significant reduction* of the wrinkles after supplementation

* Résultats significatifs sur la zone périorbitale

Reduction of the size of pores

Analyse of the pores through a scoring method from 1 to 5
(Score 5 = large pores) - Atlas Acervo NEATEC 2016



1

2

3

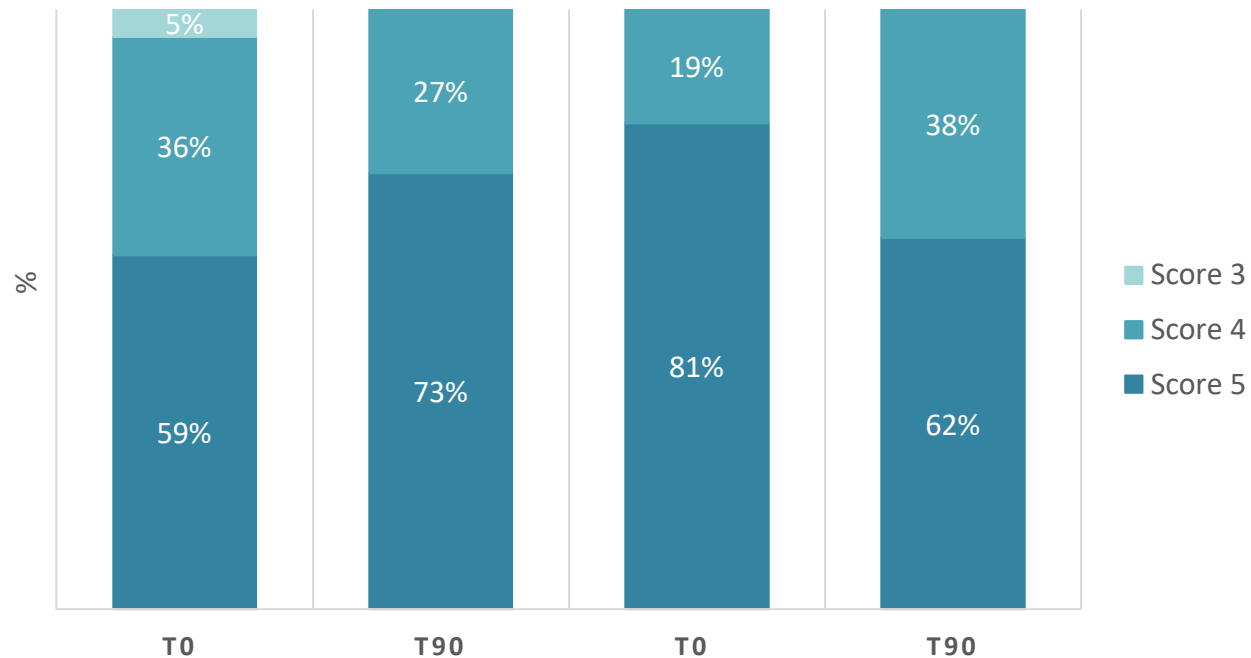
4

5

Score of pores

PLACEBO

CARTIDYSS®



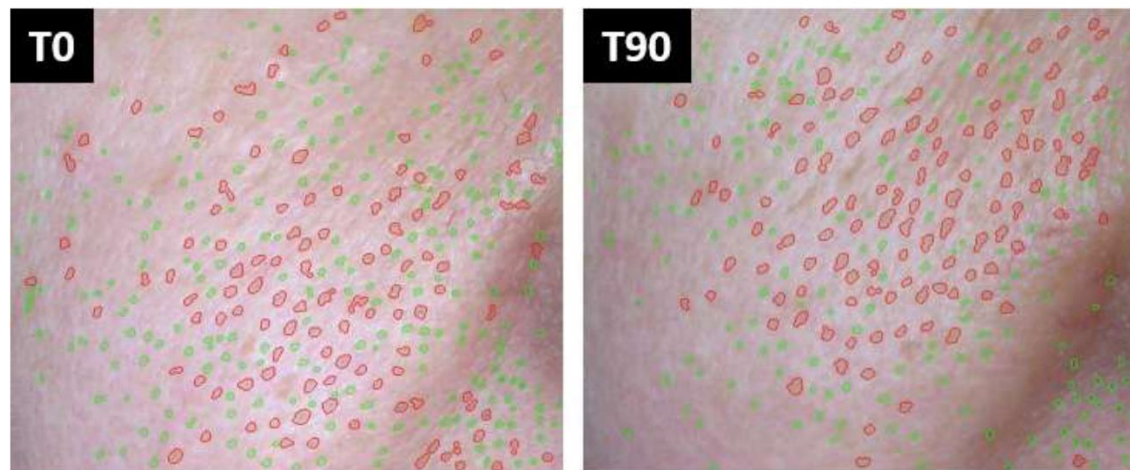
Cartidyss® tends to **smooth and firm up skin texture** (number of large pores is reduced) after 90 days, compared to basis and placebo.

❖ Clinical study of Cartidyss® effects on photoaged skin (2020) – Maia Campos *et al.* 2021

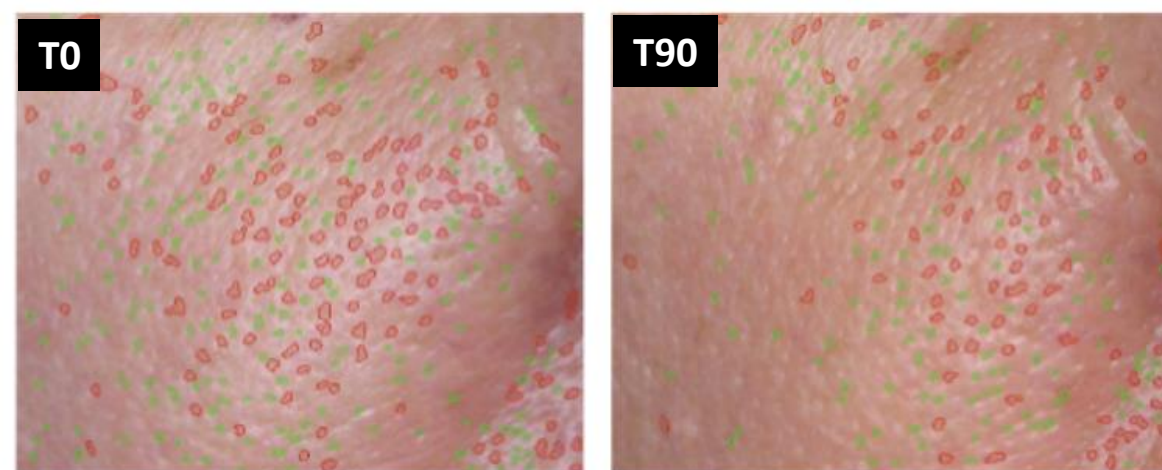
Visible reduction of the size of pores

Comparative HD pictures of the skin before and after supplementation

PLACEBO



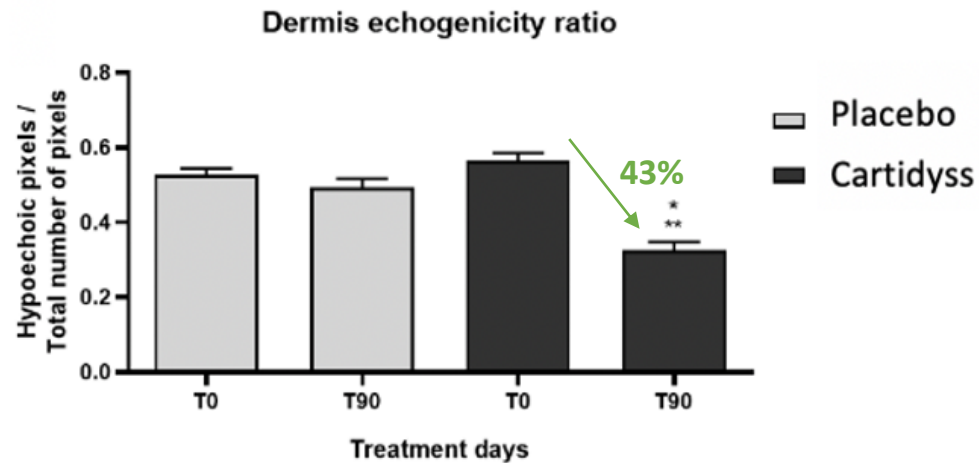
CARTIDYSS®



Cartidyss® tends to smooth skin texture

Significant improvement of dermis density

Comparison of dermis density after 90 days - echogenicity, Dermascan®



The less echo there is (-43% thanks to Cartidyss®), the greater the density.

** Significant differences when compared to placebo group

* Significant differences when compared to baseline values -T0 ($p < 0.05$).

Cartidyss® significantly improves dermis density and collagenic matrix

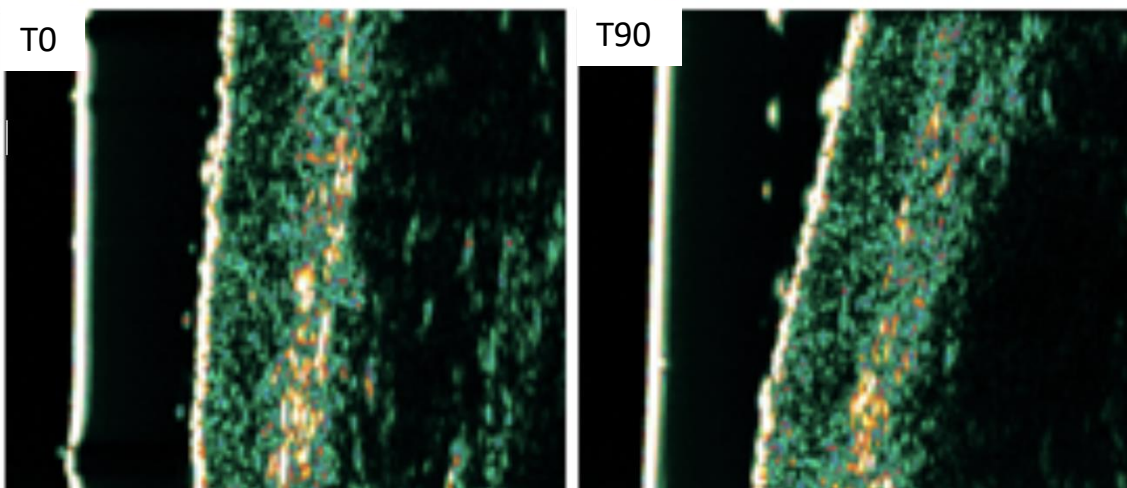
❖ Clinical study of Cartidyss® effects on photoaged skin (2020) – Maia Campos *et al.* 2021

Visible improvement of dermis density

Comparative ultrasound pictures on the dermis density before/after supplementation- Dermascan®

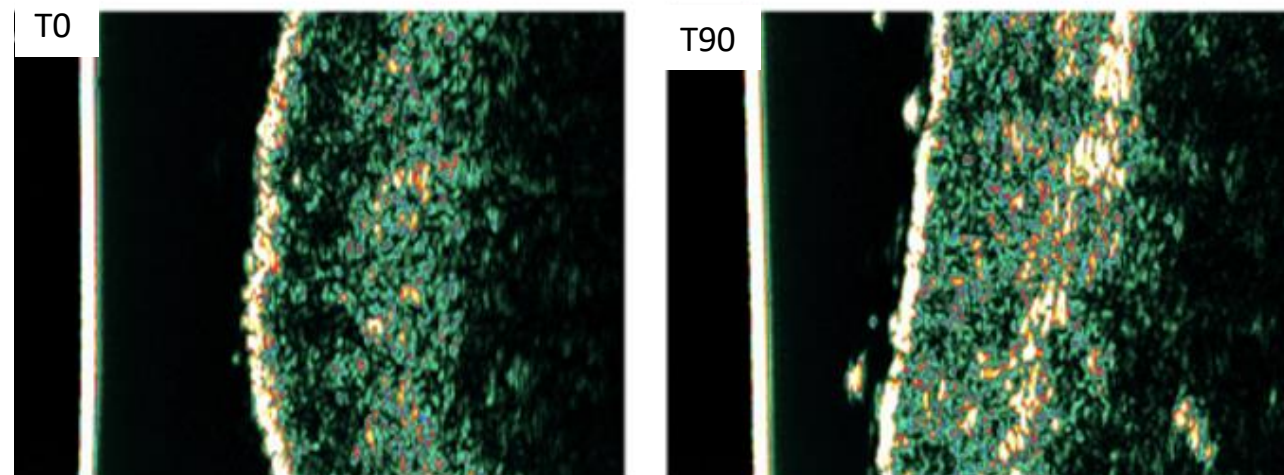
Colour scale of echogénicity : white > yellow > red > green > blue > black

PLACEBO



Almost no improvement in the placebo group

CARTIDYSS®

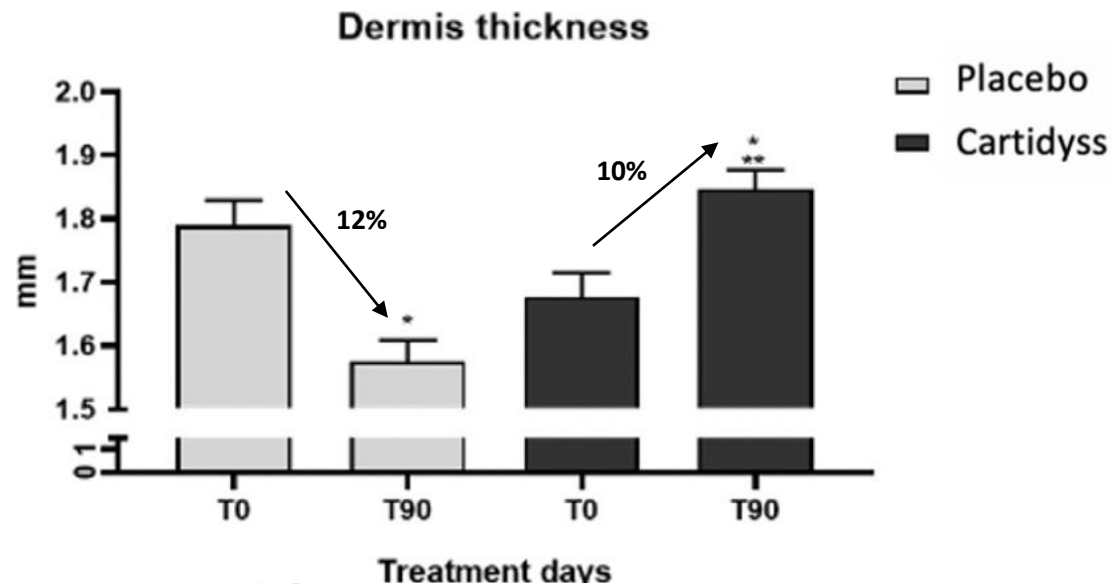


Cartidyss® improves the density by 43%

Cartidyss® improves dermis density by 38% compared to Placebo

Significant improvement of dermis thickness

Dermis thickness evolution in the nasolabial area - Dermascan®



After a 90 days supplementation, we observe a **significant improvement of dermis thickness** thanks to Cartidyss® compared to the baseline and placebo.

** Significant differences when compared to placebo group

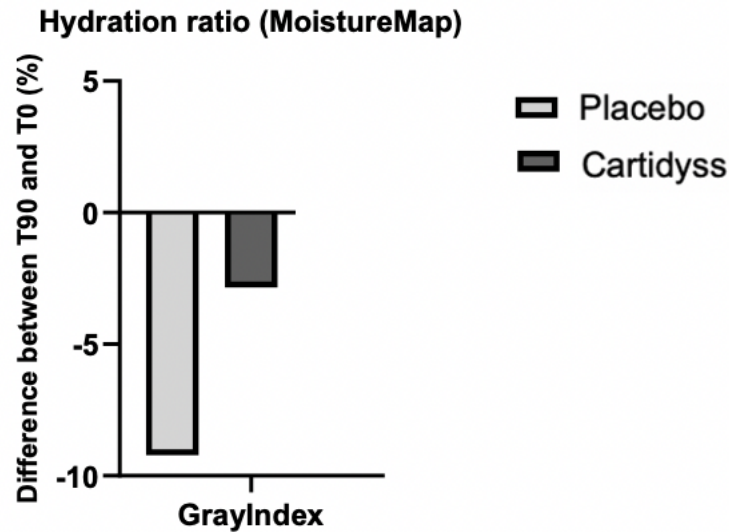
* Significant differences when compared to baseline values -T0 ($p < 0.05$).

Dermis thickness is directly linked to hydration. This results suggests that **Cartidyss® helps improving dermis hydration**

Hydration maintenance

Mapping 2D micro-topography and hydration on the surface of the skin - MoistureMap MM 100

The gray index evaluates the hydration repartition



Cartidyss® **avoids hydration loss**
compared to placebo

The hydration maintenance at the surface implies that **Cartidyss® maintains skin deeper layers hydrated**

Skin morphology and structure

Analyse of the characteristics of an aged skin – Confocale Microscopy (RCM)

Caractéristiques	Liées à	Placebo	Cartidyss®
Irregular Honeycomb pattern	Skin cellular structure	-50% *	-60% *
Low interkeratinocyte reflectance	Skin hydration	-48% *	-100% *
Huddled collagen structure	Collagen structure (disorganised on aged skins)	0	-100% *
Coarse collagen structure	Collagen structure (reticulated)	0	+20% *
Elastosis	Dry skin, thin and wrinkled due to sun exposure	0	-19% *

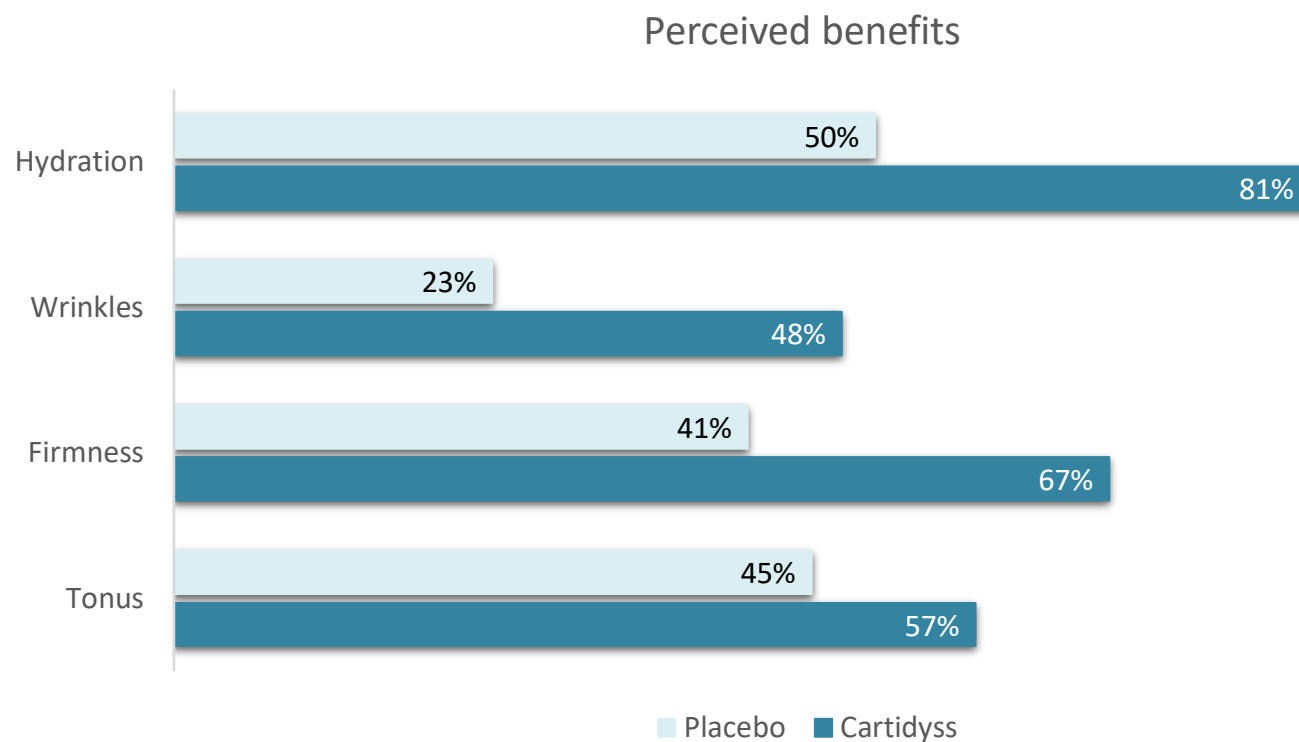
Cartidyss® significantly improves:

- ✓ Skin hydration
- ✓ Collagen structure
- ✓ Age visible effects

* Significant differences between T₀ and T₉₀

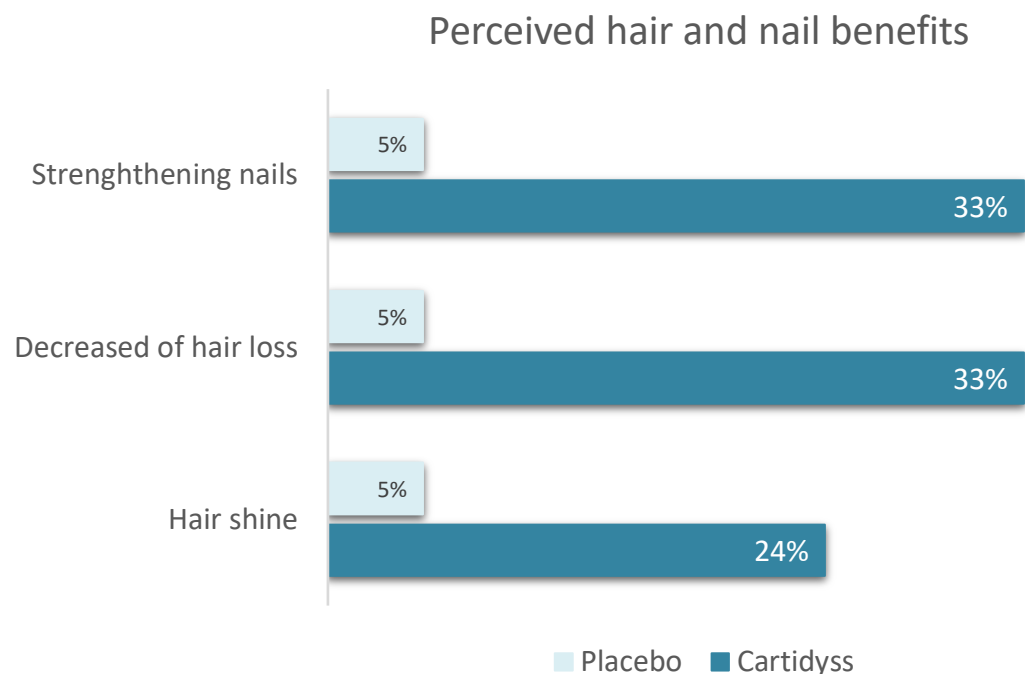
Perceived efficacy (after 90 days of supplementation)

100% of the participants answered this questionnaire



Perceived efficacy (after 90 days of supplementation)

57% and 55% of the participants answered to this questionnaire, respectively for Cartidyss® and Placebo



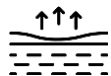
It's proven, claim it:

“Cartidyss® visibly reduces wrinkles and plumps the skin”*

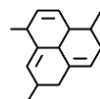
Significant clinical results observed after 3 months at
only 500mg/day:



-25% Wrinkles



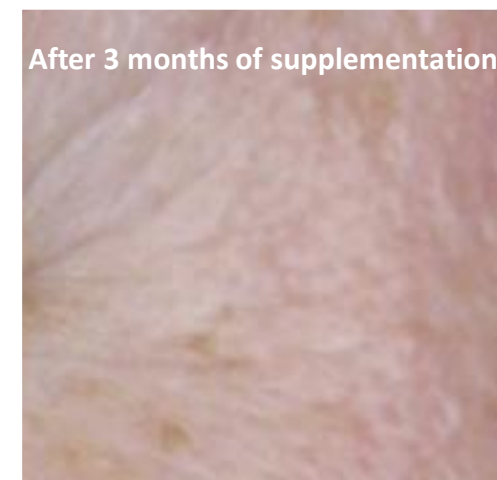
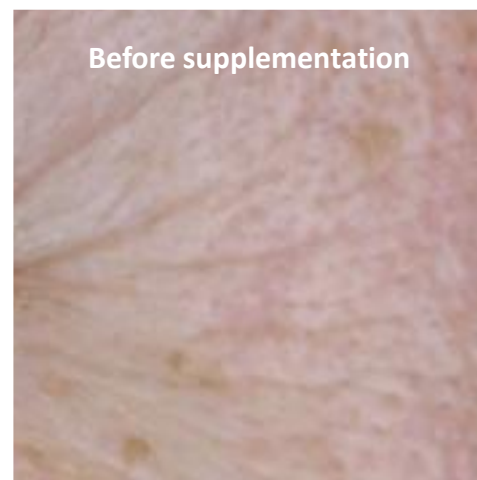
+38% density
+10% dermis thickness



Significant **improvement**
of dermis structure



81% of the participants perceived an
improvement on their skin hydration

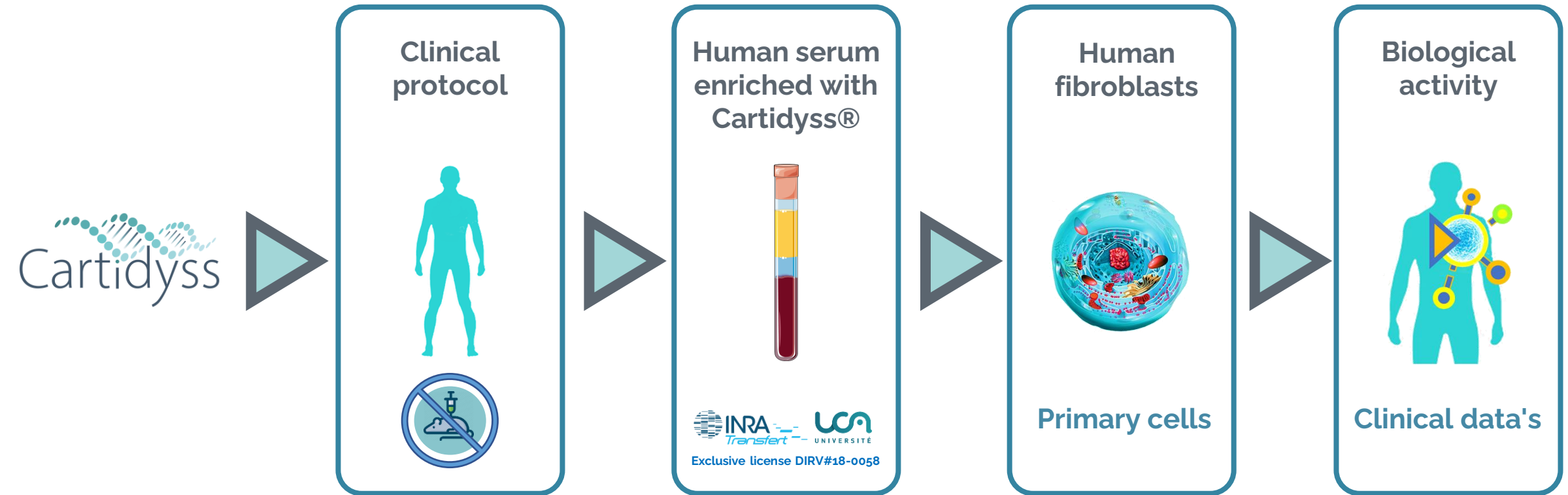


*Cartidyss® redensifie de derme, ce qui a un effet visible sur la peau.
La peau est repulpée et les rides visiblement réduites.*

❖ Biological activity of Cartidyss® enriched serum (2022) – Wauquiez *et al.* 2022

Innovative study design to evaluate:

- Kinetic absorption of Cartidyss® active molecules on human model
- Cartidyss® metabolites effects on fibroblasts (dermis cells)



❖ Biological activity of Cartidyss® enriched serum (2022) – Wauquiez *et al.* 2022

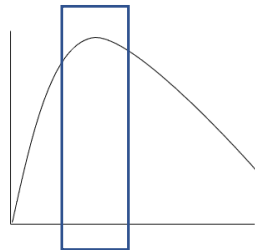
Innovative protocol



10 healthy volunteer men

Cartidyss
12g in 200 mL of water

Phase 1
Determination of the absorption peak



Blood sampling

Kinetics from T0 to T240 min

Phase 2

Serum collection: naive and enriched with Cartidyss®



Blood sample

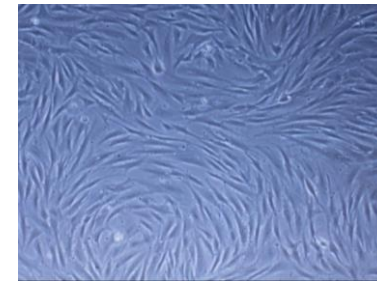
T0 & at absorption peak



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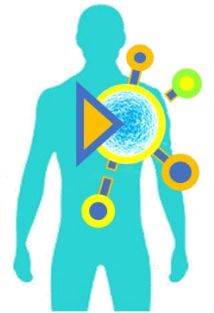
Phase 3

Incubation with targeted cells (fibroblasts) (24h-48h)



Functional assays leading to the characterization of the cell behaviour

Biological activity determination



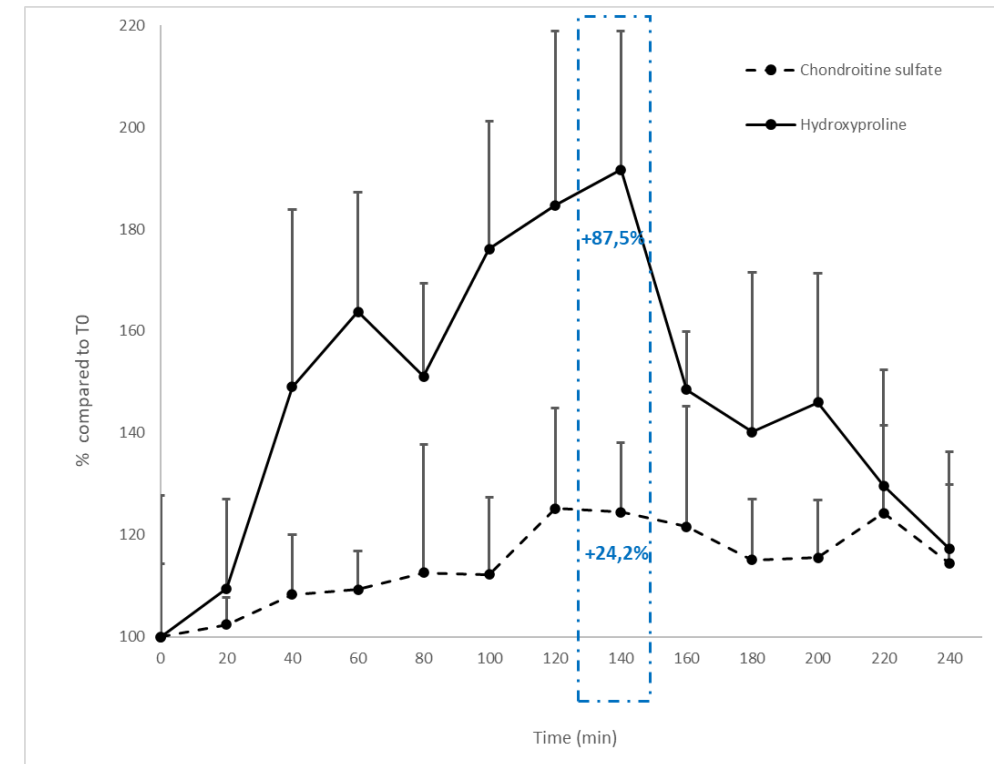
Clinical datas

Absorption kinetics of Cartidyss® active molecules

- **Hydroxyproline** kinetics (a collagen biomarker)
Hydroxyproline concentration in serum **increases by 88%** 140min after ingestion.
- **Chondroitin sulphate** (CS) kinetics
CS concentration in serum **increases by 24%** 140 min after ingestion

Cartidyss® active molecules are highly assimilable by human body

Kinetics of Cartidyss® active molecules

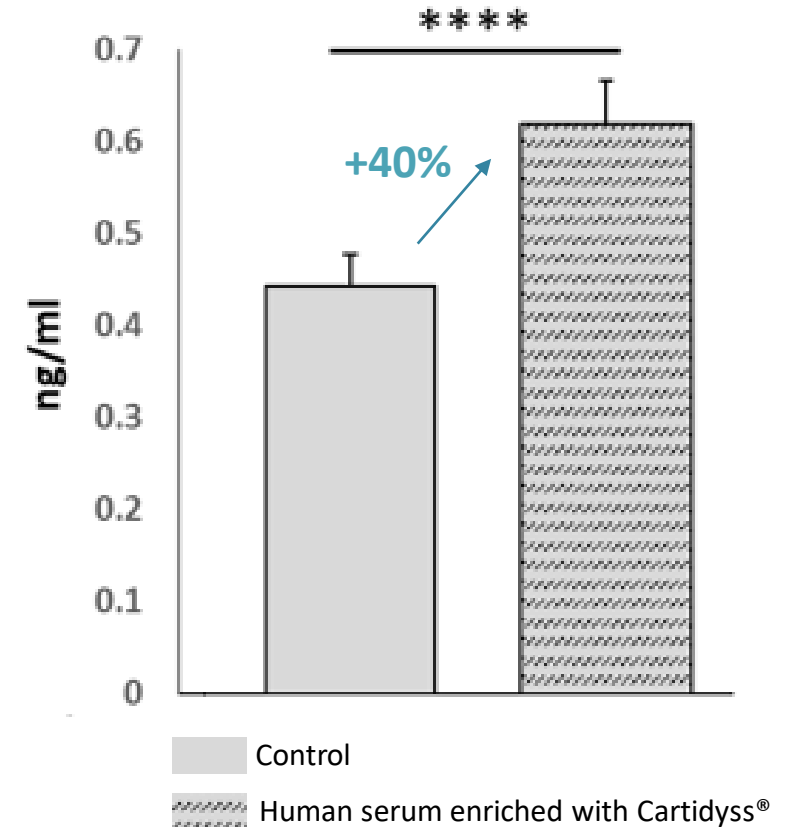


Effects of Cartidyss® metabolites on fibroblasts (dermis cells)

➤ Elastin & extracellular matrix construction

Elastin is a protein described as an **actor of extracellular matrix construction**, responsible of the **resistance** and **elasticity** of our skin (that we lose when ageing !)

On a human fibroblast model, **Cartidyss® metabolites significantly stimulate elastin production (+40%)**, suggesting a beneficial action on **elasticity and firmness of the skin**.

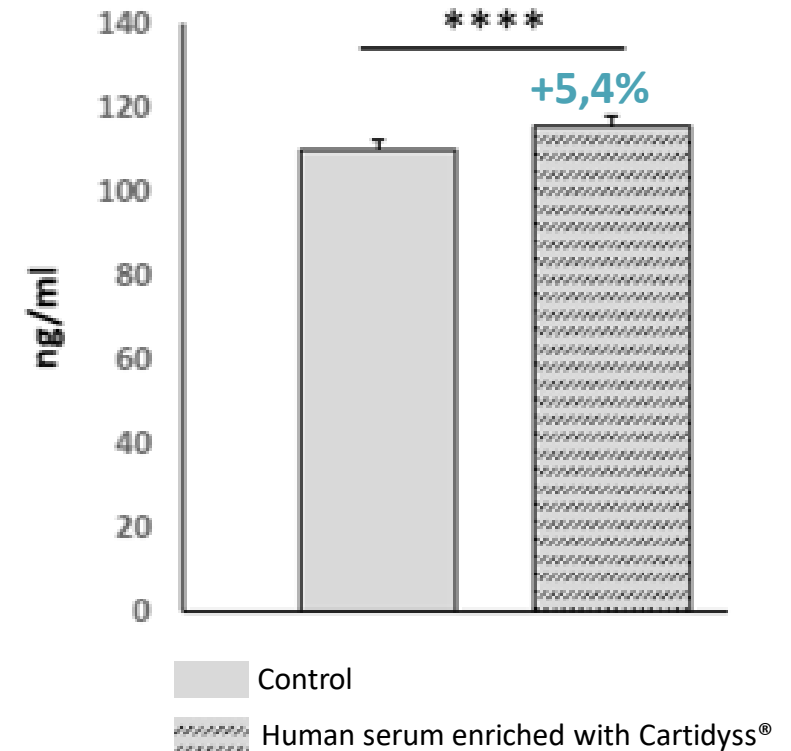


Effects of Cartidyss® metabolites on fibroblasts (dermis cells)

➤ Hyaluronic acid & hydration

Hyaluronic acid is a **GAG** described as an **actor of tissues hydration**. Its « tank capacity » allows the maintenance of skin deep hydration.

On a human fibroblast model, **Cartidyss® metabolites significantly stimulate hyaluronic acid production (+5,4%)**, suggesting a beneficial action on skin hydration.

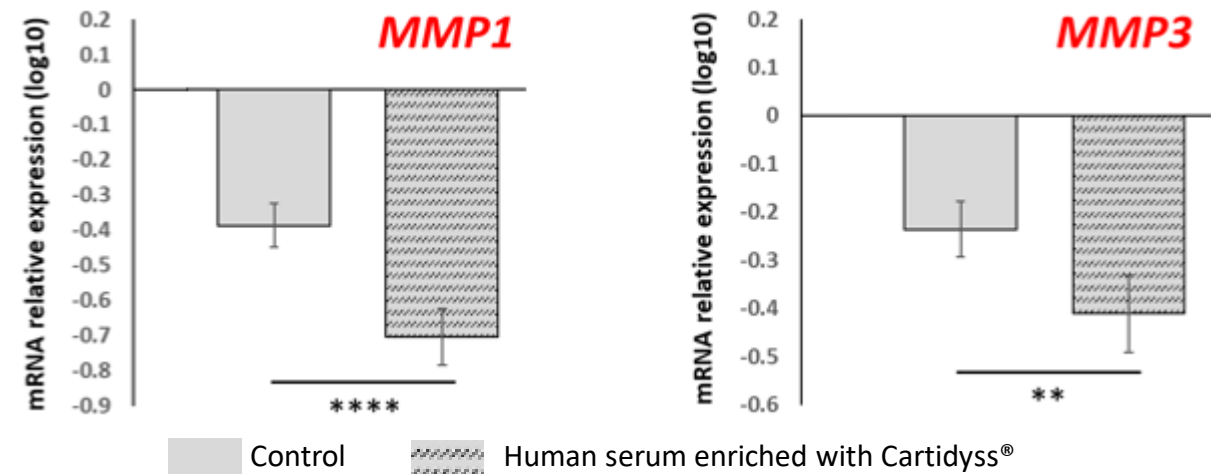


Effects of Cartidyss® metabolites on fibroblasts (dermis cells)

➤ Matrix metalloproteinases (MMPs) & collagenic matrix degradation

The **MMPs** are **enzymes** that become more and more active as we age. And their activity is **responsible of our skin collagenic matrix degradation**.

On a human fibroblast model, **Cartidyss® metabolites significantly inhibit the expression of MMP1 and MMP3**, suggesting a **protective action** on collagenic matrix.

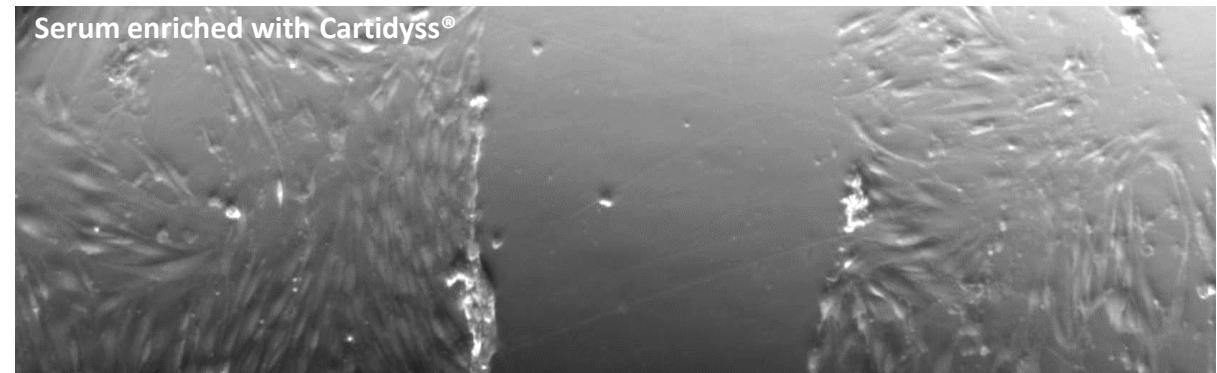
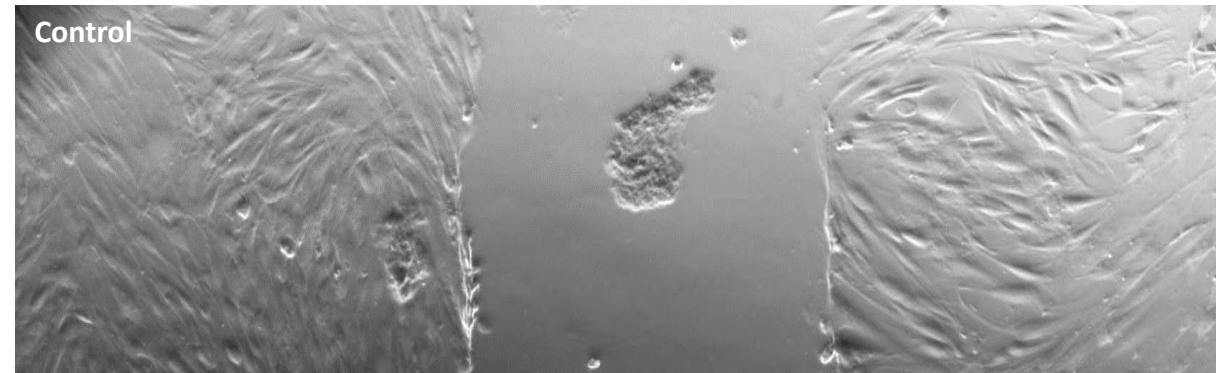


Effects of Cartidyss® metabolites on fibroblasts (dermis cells)

➤ Anti-inflammatory cytokine (TGFβ) & wound healing

TGFβ is a signal molecule for the inhibition of the MMPs expression¹ and the proliferation of fibroblasts and keratinocytes^{2,3} (skin cells) and could **play a role in tissue repairment**.

On a “scratched” human fibroblast model, **Cartidyss® metabolites speed up wound healing**. It could be explained by the huge increase of TGFβ production.

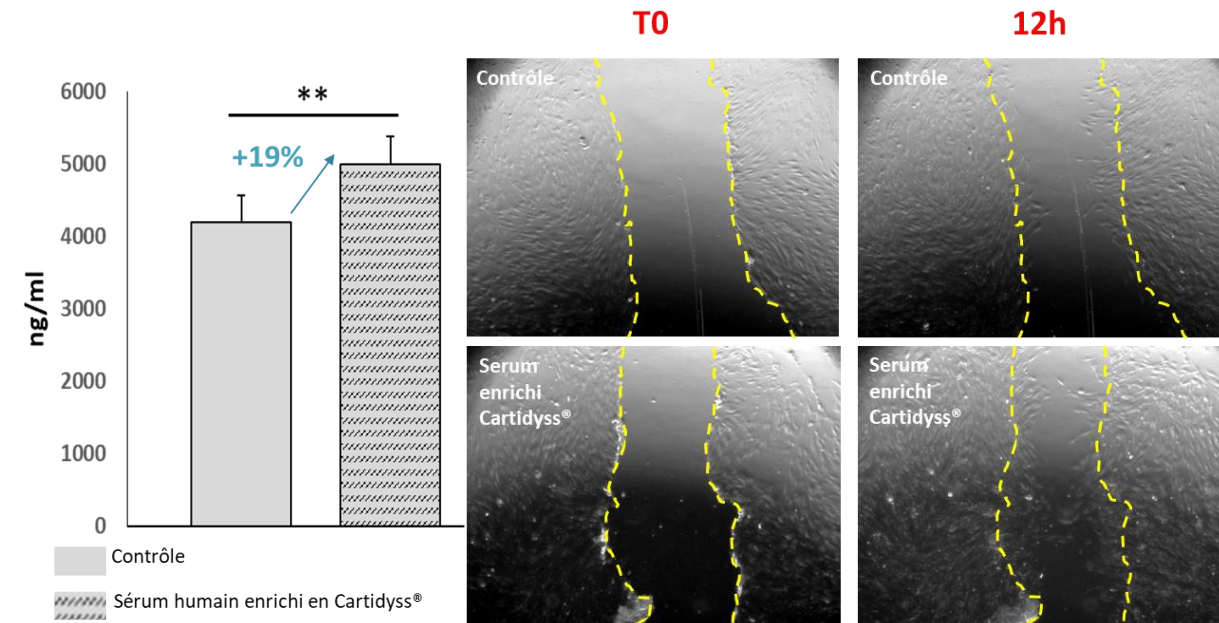


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THE beauty-from-within solution

“Cartidyss® visibly reduces the wrinkles and plump the skin”*

Visible effects

👉 After 3 months at **only 500mg/day**

- 👤 Wrinkles -25%
- 👤 Dermis density +38%
- 👤 Smoother skin texture



Action at the heart of the cells

- **Boosting elastin and hyaluronic acid production** ensuring firmness, elasticity and deep hydration of the skin
- **Preventing from the natural degradation of collagen**, improving dermis density and limiting wrinkles apparition

Evaluation of perceived efficacy on nails, hair and skin beauty

Study design:

- 1 capsule (**500mg**) each morning for 3 months
- 75 women aged from 25 to 50 y/o living in France
- Online questionnaires at D0, D30, D60, D90 and D120 (1 month after the end of the supplementation)
- Participants are willing to improve their hair, nails and skin beauty



HAIR	100%
Dull hair	72,0%
Hair loss	69,3%
Breaking hair	64,0%
Slow growing hair	52,0%
Split ends	49,3%



NAILS	100%
Breaking nails	84,0%
Soft nails	49,3%
Duplicating nails	45,3%
Slow growing nails	41,3%
Striped nails	28,0%



FACE	100%
Lack of firmness	73,3%
Dull complexion	69,3%
Fine lines	68,0%
Wrinkles	52,0%
Black spots	52,0%
Dry face skin/ tugged	41,3%



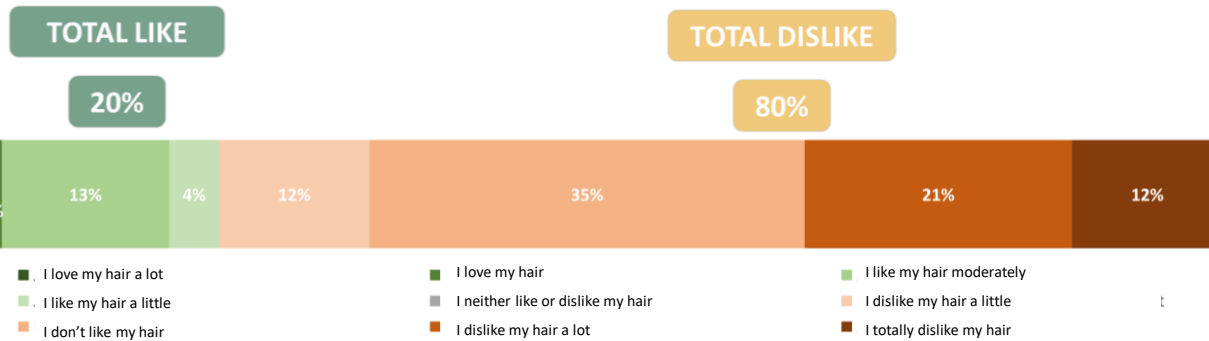
BODY	100%
Lack of firmness	81,3%
Dry skin	78,7%
Orange skin / cellulite	68,0%
Bad wounding	17,3%
Pigment marks	17,3%

Q: Is there some parts of your body you would like to enhance ?

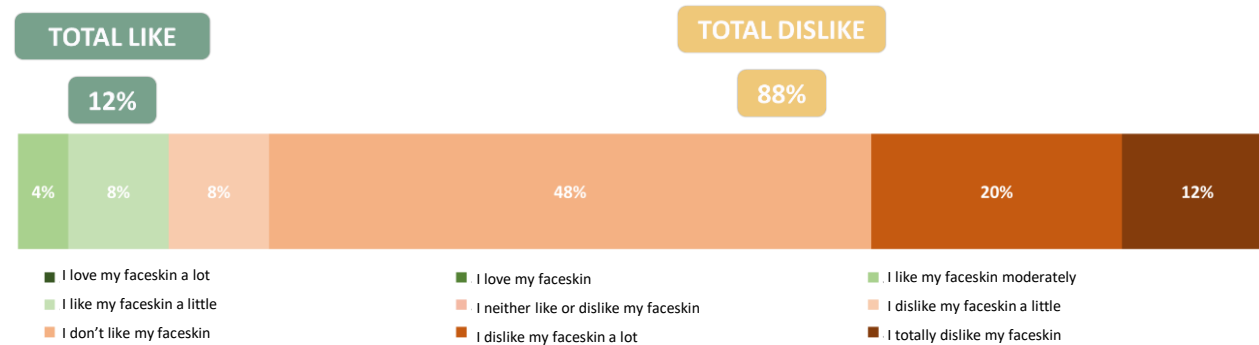
Evaluation of perceived efficacy on nails, hair and skin beauty

Review at D0

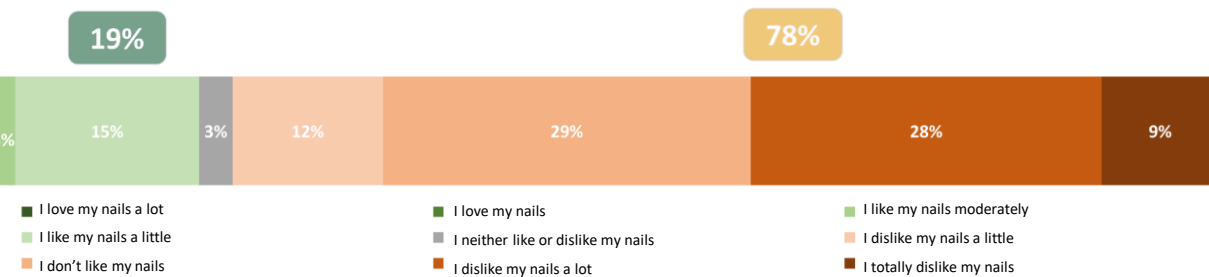
➤ Participants are **globally unsatisfied** with their hair, nails and skin beauty



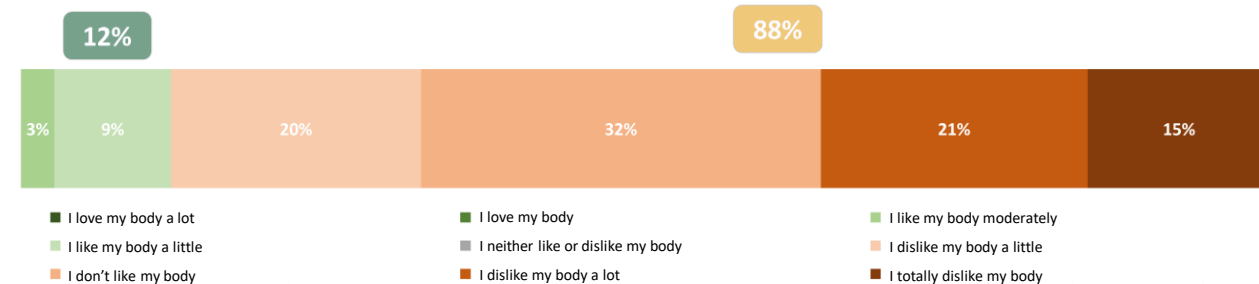
Q: What would you say on your hair ?



Q: What would you say on your faceskin ?



Q: What would you say on your nails ?



Q: What would you say on your body ?

Evaluation of perceived efficacy on nails, hair and skin beauty

From the 1st month of supplementation :

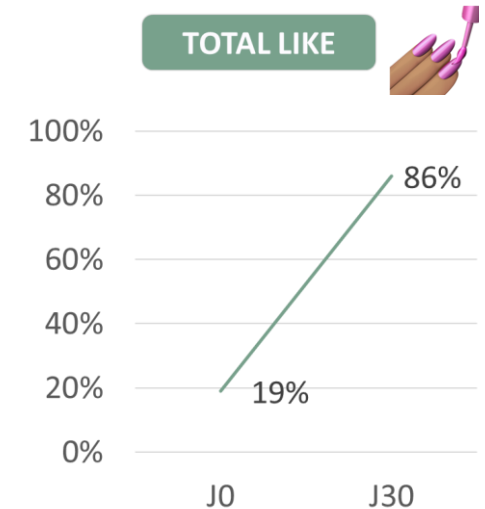
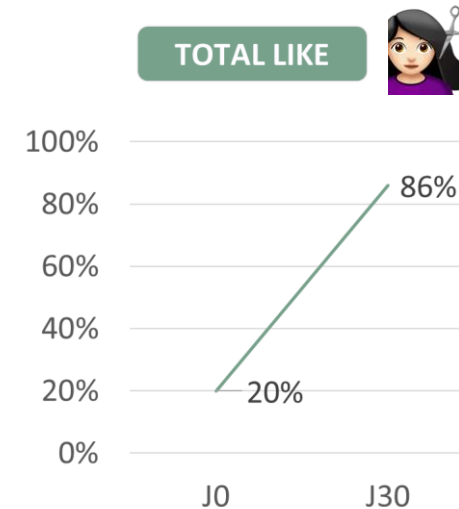
- Great global product satisfaction at 1 month: about **86% participants have a positive opinion** on the product
- About **3 on 4 participants are satisfied with Cartidyss®** and more than 50% would recommend it
- Significant improvement of **hair and nails satisfaction**
- **Several claims validated**

After 30 days of Cartidyss®, hair are brighter, less dry and less brittle.

Cartidyss® reduces hair loss from 30 days of supplementation.

After 30 days of Cartidyss®, nails are stronger, less brittle.

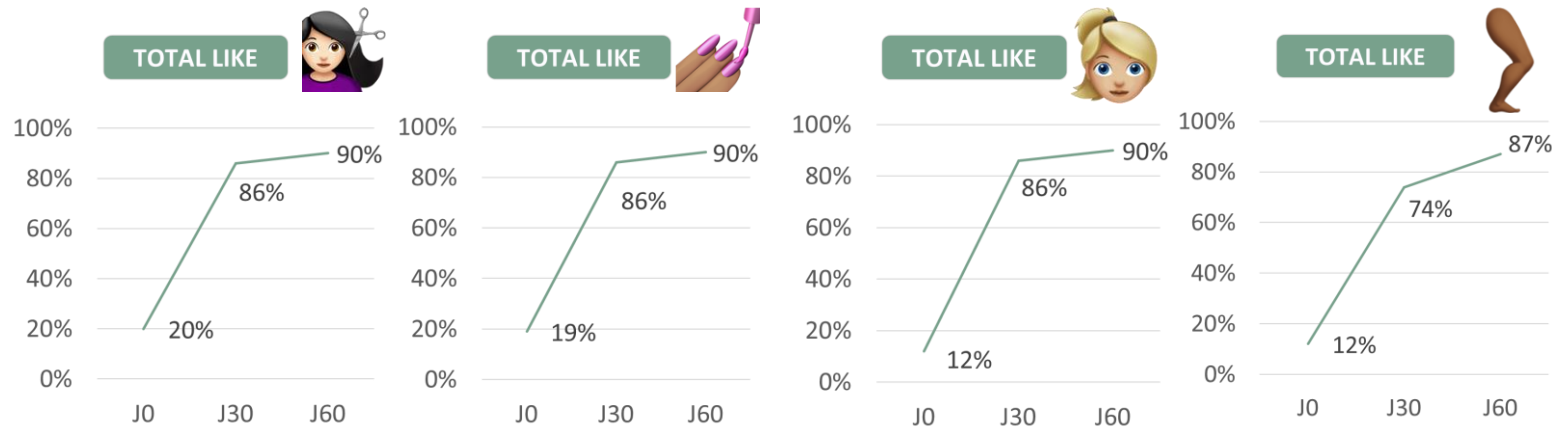
Cartidyss® improves complexion from 1 month of usage.



Evaluation of perceived efficacy on nails, hair and skin beauty

After 2 months of supplementation:

- Cartidyss® is much appreciated: **96% of the participants are satisfied with the product**
- More than **4 out of 5 participants satisfied** and **3 on 4** would recommend it
- Hair, skin and nails appreciation continues to improve
- **New claims validated**



After 2 months of Cartidyss®, nails are brighter, grow quicker and duplicate less.

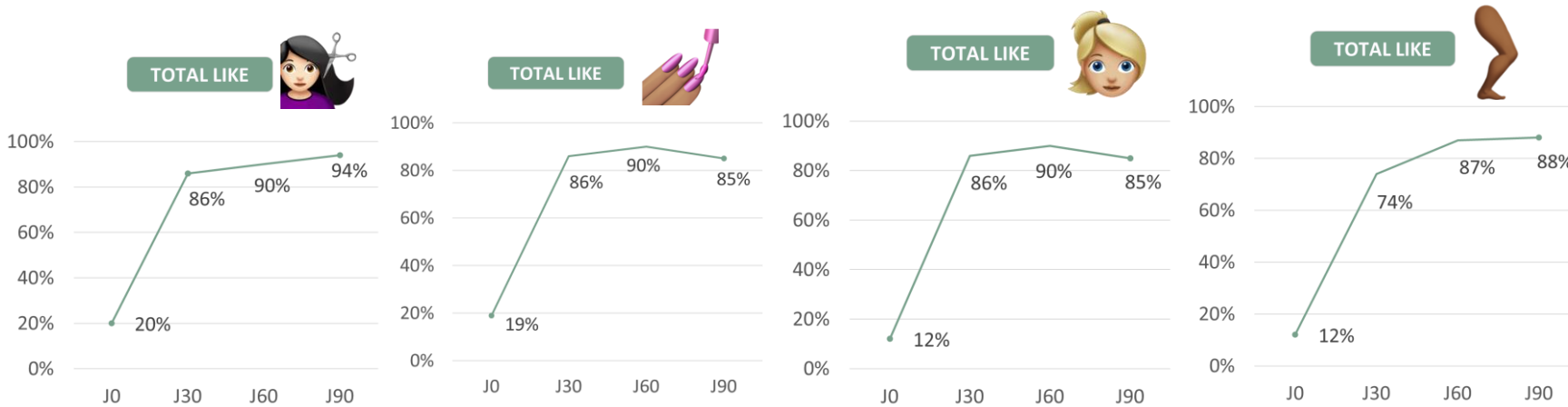
After 2 months of Cartidyss®, the skin is less dry.

After 2 months of Cartidyss®, hair grow quicker

Evaluation of perceived efficacy on nails, hair and skin beauty

After 3 months of supplementation :

- Cartidyss® is still well appreciated : **94%** of the participants have a positive opinion on the product
- Almost **4 out of 5 participants** are satisfied and **70%** would recommend it
- Perceived efficacy continues to improve
- **New claim validated**

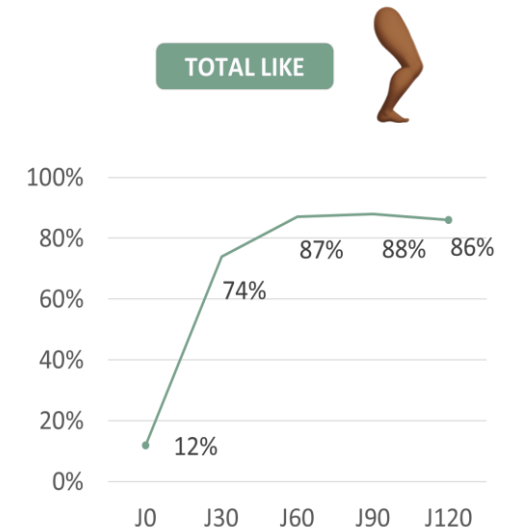
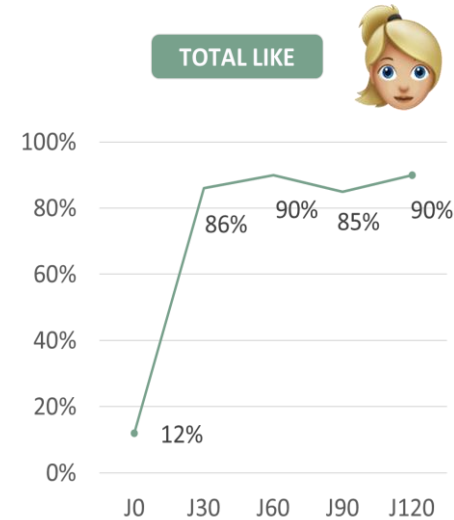
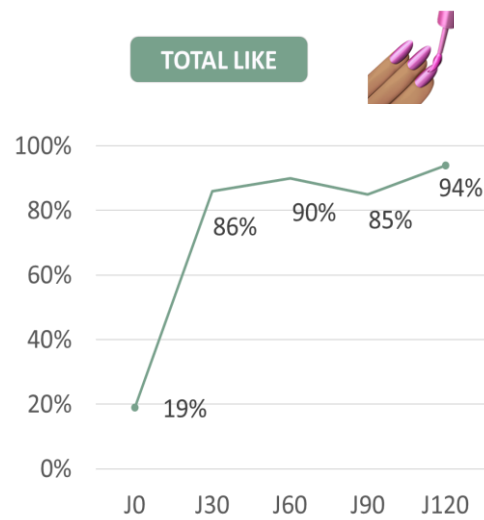
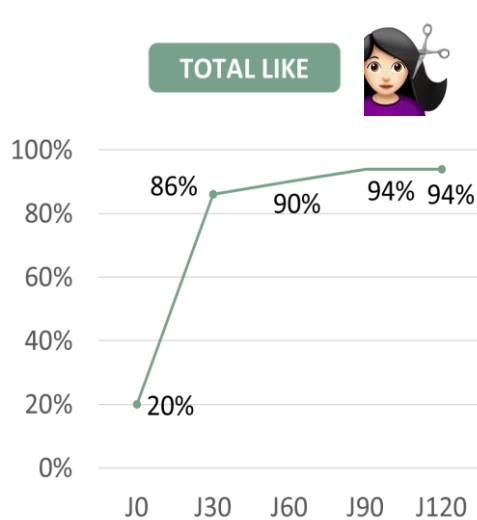


After 3 months of using Cartidyss®, split ends are reduced.

Evaluation of perceived efficacy on nails, hair and skin beauty

1 month after the end of supplementation:

- Almost **3 on 4 participants** would recommend Cartidyss®, which demonstrates the product satisfaction
- Participants remain satisfied of their hair, nails and skin despite the perceived effects tend to decrease



Evaluation of perceived efficacy on nails, hair and skin beauty

Globally, Cartidyss® has been **very well esteemed by consumers**.

We observe a performance peak at 2 months.

Several claims are validated, and most of these criteria continue to improve during the supplementation.

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Cartidyss® reduces hair loss from 30 days of supplementation

After 30 days of Cartidyss®, nails are stronger, less brittle.

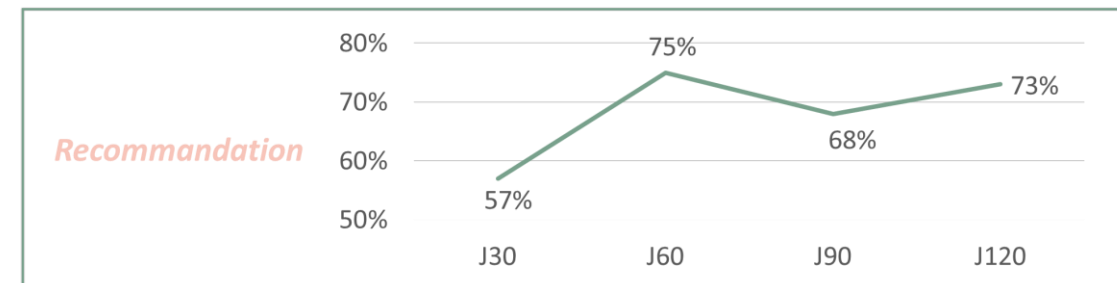
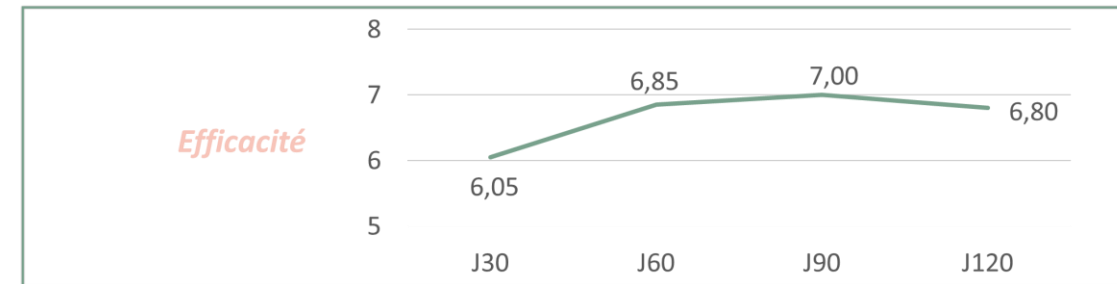
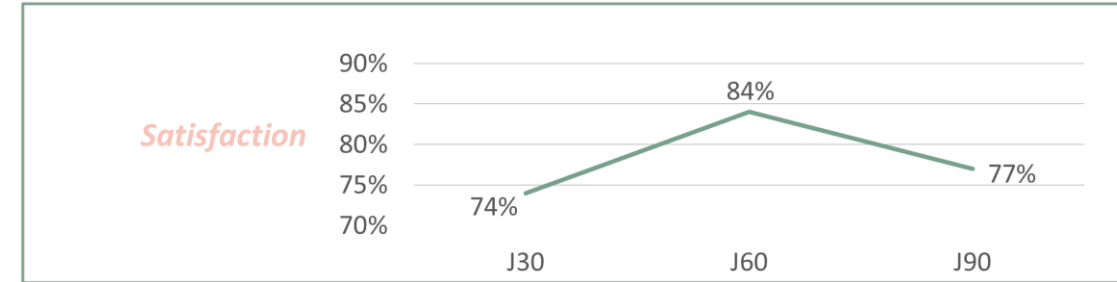
Cartidyss® improves complexion as from 1 month of usage.

After 2 months of Cartidyss®, nails are brighter, grow quicker and duplicate less.

After 2 months of Cartidyss®, the skin is less dry.




After 2 months of Cartidyss®, hair grow quicker

After 3 months of using Cartidyss®, split ends are reduced.



THE beauty-from-within solution

Visible clinical effects

-  -25% wrinkles
-  +38% dermis density
-  Smoothes skin texture

Our cells, in the middle of the action

- Cartidyss® **boosts elastin and hyaluronic acid production** insuring firmness, elasticity and deep hydration of our skin
- Cartidyss® **prevents from collagen age-related natural degradation**, which improves dermis density and limits wrinkles apparition

« Feel-good » effect

- Cartidyss® is very well-appreciated by consumers: after 2 months of supplementation, about **96% of participants have a positive opinion**
- More than **4 on 5 participants are satisfied** by Cartidyss® and 3 on 4 would recommend it

“Cartidyss® visibly reduces wrinkles and plumps the skin”

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