

Your expert for minerals and nutraceuticals.



**OptiMSM®**

Deep Dive into  
Inner Beauty



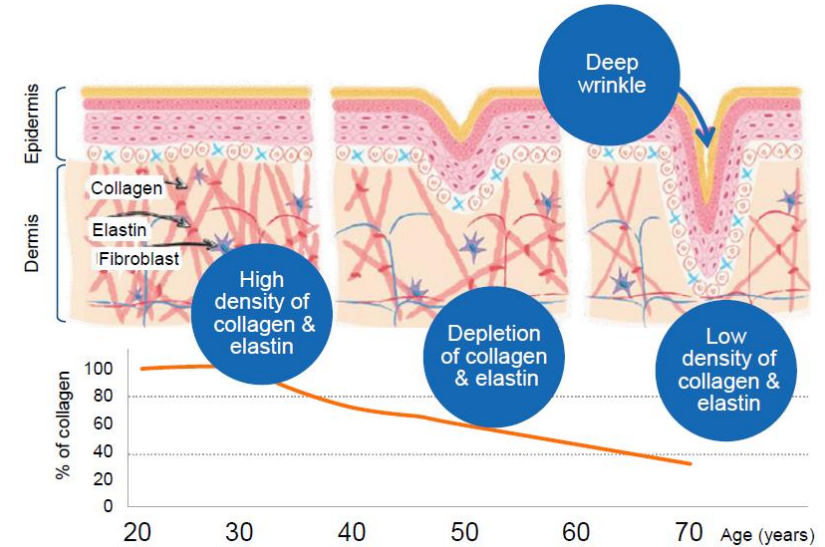
# Sulphur as Critical Component of Skin, Hair and Nails

Healthy skin, hair, and nails are made of a complex molecular network which is susceptible to oxidative stress.

Sulphur **supports healthy hair skin and nails** by:

- Acting as a key structural component of the building blocks of skin and hair, including:
  - Collagen
  - Dermatan sulphate
  - Hyaluronic acid
- Helping to form Glutathione, a critical player in one of the body's major antioxidant defence systems.

**Collagen density decreases with age**, partly due to oxidative stress.



Sources: Food and Nutrition Board, Institute of Medicine, 2005; Hewlings & Kalman, EC Nutrition 2019; 14.9: 785-791. Figure Adapted From: Reilly DM & Lozano J. Plast Aesthet Res 2021; 8:2.

# Sulphur is a Critical Component of Hair

Healthy skin, hair, and nails are made of a complex molecular network which is susceptible to oxidative stress.

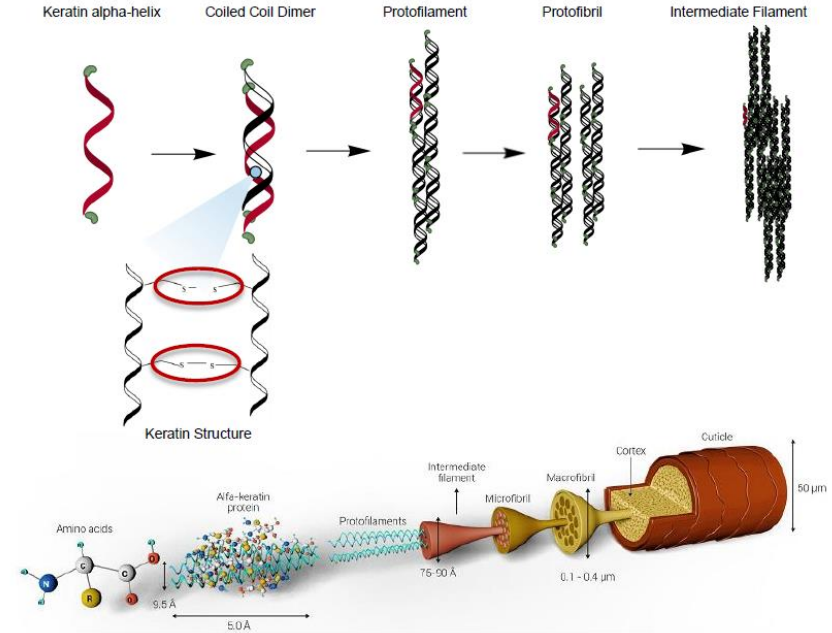
Sulphur **supports healthy hair** by:

- Acting as a key structural component of the building blocks of a healthy scalp and strong hair, including:
  - Collagen
  - Keratin

**Collagen** is a component of healthy skin that contributes to the maintenance of healthy function of the scalp.

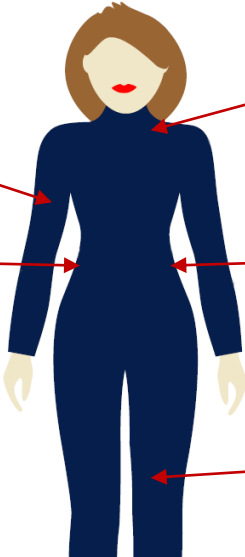
**Keratin is the primary structural component of hair**, and relies on sulphur to bind to other keratin proteins to stabilize its structure.

**This sulphur-sulphur bond** is the core backbone of hair structure.



Sources: Food and Nutrition Board, Institute of Medicine 2005; Pan X, et al., Curr Opin Cell Biol 2013; 25(1): 47-56. Wang B, et al., Prog Material Sci 2015; 76: 229-318.  
Figures Adapted From: Cosmetic Design 2021 Umbrella effect for realigning hair and controlling frizz;

# What do MSM & Sulphate do for Beauty from Within?

- Sulphur is a key component of healthy collagen<sup>1,2</sup>
  - MSM improves skin elasticity<sup>3</sup>
  - Sulphur is a building block of connective tissue which supports healthy hair, skin & nails<sup>1,2</sup>
  - MSM reduces fine lines and wrinkles<sup>3,4</sup>
  - MSM improves skin firmness<sup>3,4</sup>
  - MSM improves skin texture<sup>3,4</sup>
- 

Sources: 1) Food and Nutrition Board, Institute of Medicine, 2005;

2) Shoulders & Raines, Ann Rev Biochem 2009; 929-958;

3) Muizzuddin N & Benjamin R. Int J Vitam Nutr Res 2022; 92(3-4), 182-191;

4) Anthonavage M, et al., Nat Med J 2015; 7(11): 1-10

*These statements have not been evaluated by the Federal Drug Administration. This product is not intended to diagnose, treat, cure, or prevent any disease.*

# MSM Has Proven Advantages for Beauty

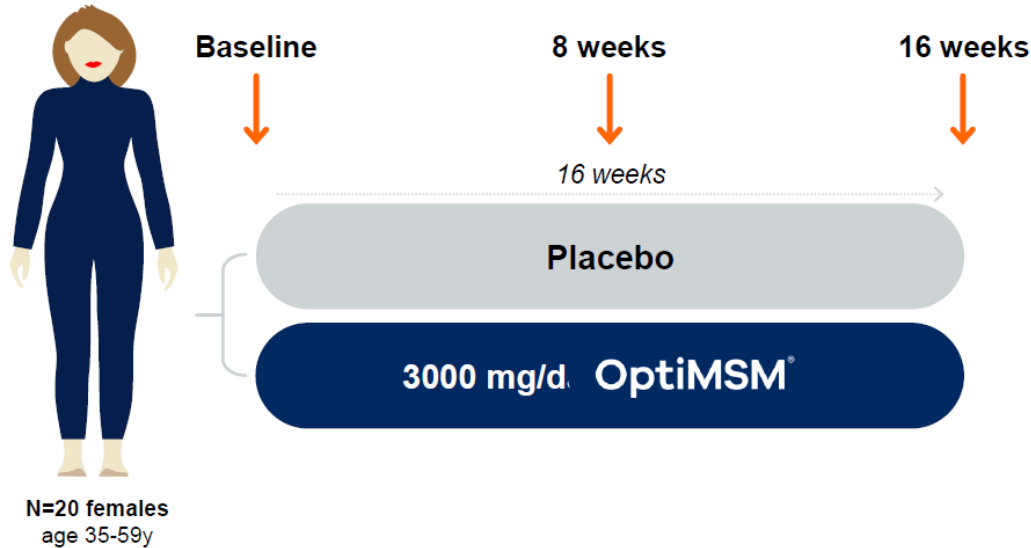
Author/ Publication	Study Design	Study Population	Duration/Dosage	Primary Outcome	Conclusions
Anthonavage M, et al., Nat Med J 2015; 7(11): 1-10.	Randomized, double-blind, placebo-controlled trial	N=20 F Age 35-59y	<b>16 weeks</b> • Placebo • 3000 mg/day <b>OptiMSM</b>	Skin wrinkles Skin firmness Skin texture	<ul style="list-style-type: none"> <li>MSM sig ↓ skin wrinkles</li> <li>MSM sig ↑ skin firmness</li> <li>MSM sig ↑ skin texture</li> </ul>
Guaitolini E, et al., J Clin Aesthet Dermatol 2019; 12(4): 40-45.	Randomized, single-blind, placebo-controlled trial	N=50 F, age 40-65y with skin chronoaging and / or photoaging	<b>60 days</b> • Placebo • Intervention (200 mg HA + 500 mg L-carnosine + 400 mg MSM/day)	Skin hydration Skin elasticity Sebometry	<ul style="list-style-type: none"> <li>Sig ↑ skin hydration</li> <li>Sig ↑ skin elasticity</li> <li>Sig ↓ sebaceous secretion</li> </ul>
Muizzuddin N & Benjamin R. Nat Med J 2019; 11(11): 1-8.	Double-blind clinical trial	N=63 F Age 35-59y	<b>4 months</b> • 1000 mg/day <b>OptiMSM</b> • 3000 mg/day <b>OptiMSM</b>	Hair condition assessment Nail condition assessment	<ul style="list-style-type: none"> <li>MSM sig ↑ hair condition grading</li> <li>MSM sig ↑ nail condition grading</li> </ul>
Muizzuddin N & Benjamin R. Int J Vitam Nutr Res 2022; 92(3-4), 182-191.	Double-blind, placebo-controlled trial	<b>Part I:</b> n=20 F, age 35-59y <b>Part II:</b> n=63 F, age 35-59y	<b>Part I:</b> 4 months • Placebo • 3000 mg/day <b>OptiMSM</b>  <b>Part II</b> 4 months • 1000 mg/day <b>OptiMSM</b> • 3000 mg/day <b>OptiMSM</b>	<b>Parts I &amp; II:</b> Facial wrinkles Skin roughness	<b>Part I</b> <ul style="list-style-type: none"> <li>MSM sig ↓ facial wrinkles</li> <li>MSM sig ↓ skin roughness</li> <li>MSM sig ↑ skin elasticity</li> </ul> <b>Part II</b> <ul style="list-style-type: none"> <li>Sig ↓ skin roughness in both groups</li> <li>Sig ↓ skin wrinkles in both groups</li> <li>Sig ↑ skin radiance in both groups</li> </ul>
Simpson P, Benjamin R. J Clin Exp Dermatol Res 2022; 13(5): 1000622.	Randomized, double-blind, placebo-controlled trial	N=58 F Age 41-65y	<b>12 weeks</b> • Placebo • 1000 mg/day <b>OptiMSM</b> • 1000 mg MSM + 2500 mg HRC/day	Skin wrinkles Skin elasticity	<ul style="list-style-type: none"> <li>Sig ↓ skin wrinkles in both groups</li> <li>Sig ↑ elasticity in combo group</li> </ul>
Benjamin R, et al., Nat Med J 2023; 15(10).	Single group intervention study	N=41 M/F, age 19-60y, with telogen effluvium hair loss	120 days 1000 mg/day <b>OptiMSM</b>	Hair count Hair diameter Self assessment	<ul style="list-style-type: none"> <li>Sig ↑ hair density</li> <li>Sig ↑ hair diameter</li> </ul>

HA = hyaluronic acid | HFC = hydrolysed fish collagen

# How Does OptiMSM® Support Skin Health?

## Study Goal

To assess the effectiveness of **OptiMSM®** on skin health



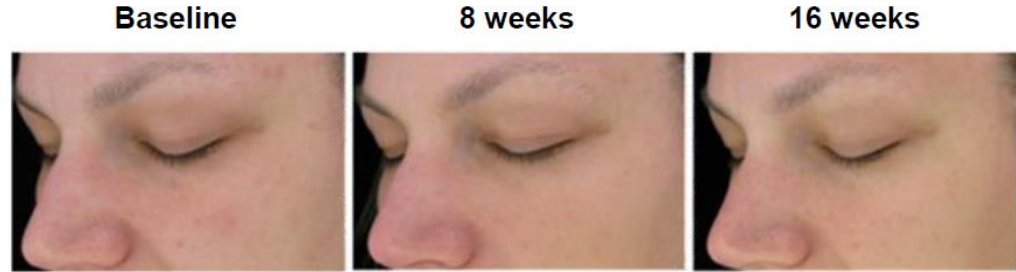
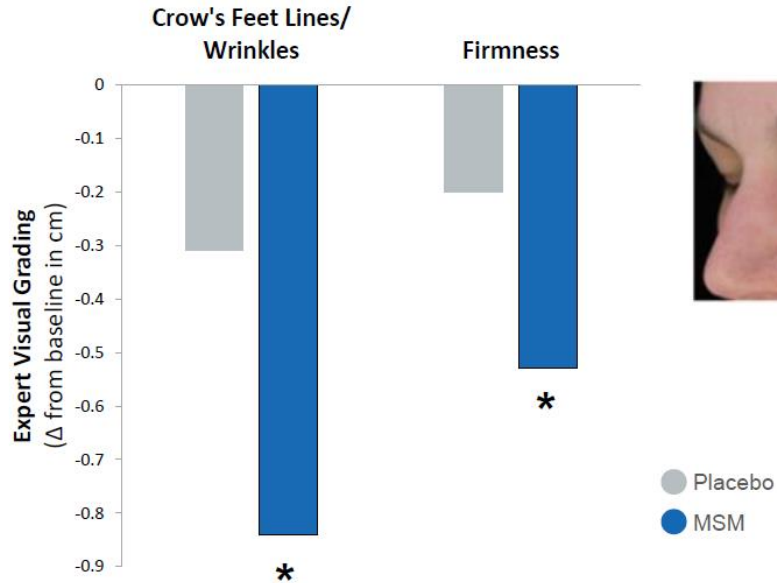
## Skin Appearance Grading

- Expert Grading (VAS)
- **Wrinkles**  
“None” → “numerous lines/ wrinkles”
- **Firmness**  
“Firm, tight” → “loose w/ poor recoil”
- **Clarity pro imaging**
  - Global assessment
  - Crow’s feet analysis

# OptiMSM® Supplementation Improves Measures of Skin Health

## OptiMSM® supplementation:

- Significantly decreases the appearance of crow's feet, fine lines, and wrinkles
- Significantly improves skin firmness



Adapted From: Anthonavage M, et al., Nat Med J 2015; 7(11): 1-10.

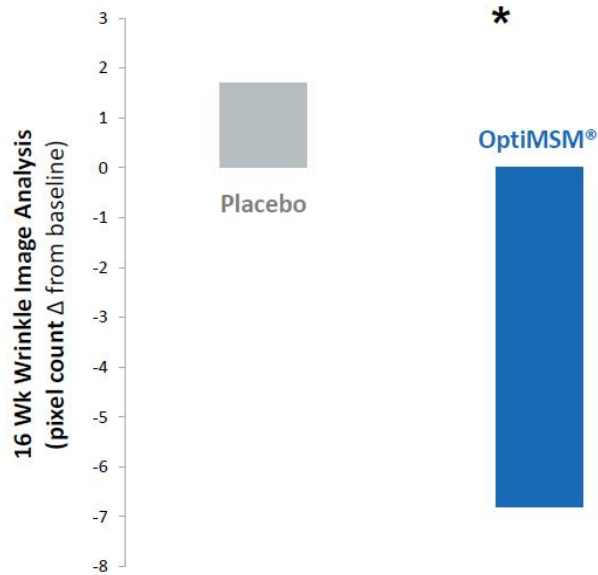
\*Significant difference from baseline,  $p \leq 0.05$



# OptiMSM® Supplementation Improves Measures of Skin Health

## OptiMSM® supplementation

Significantly decreases the appearance of wrinkles



Adapted From: Anthonavage M, et al., Nat Med J 2015; 7(11): 1-10.

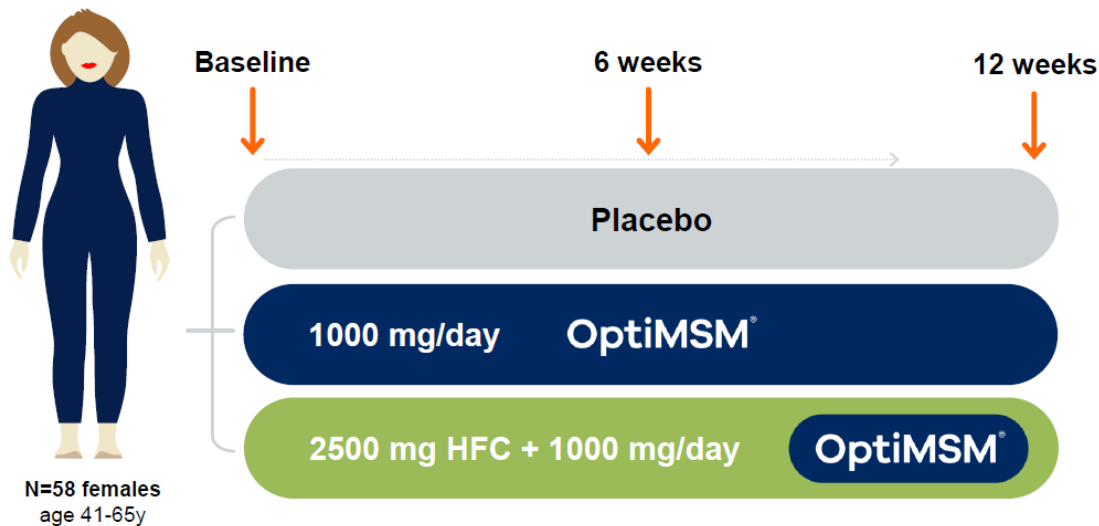
\*Significant difference from baseline,  $p \leq 0.05$



# How Does OptiMSM® Support Skin Health?

## Study Goal

To assess the effectiveness of **OptiMSM®** on skin health



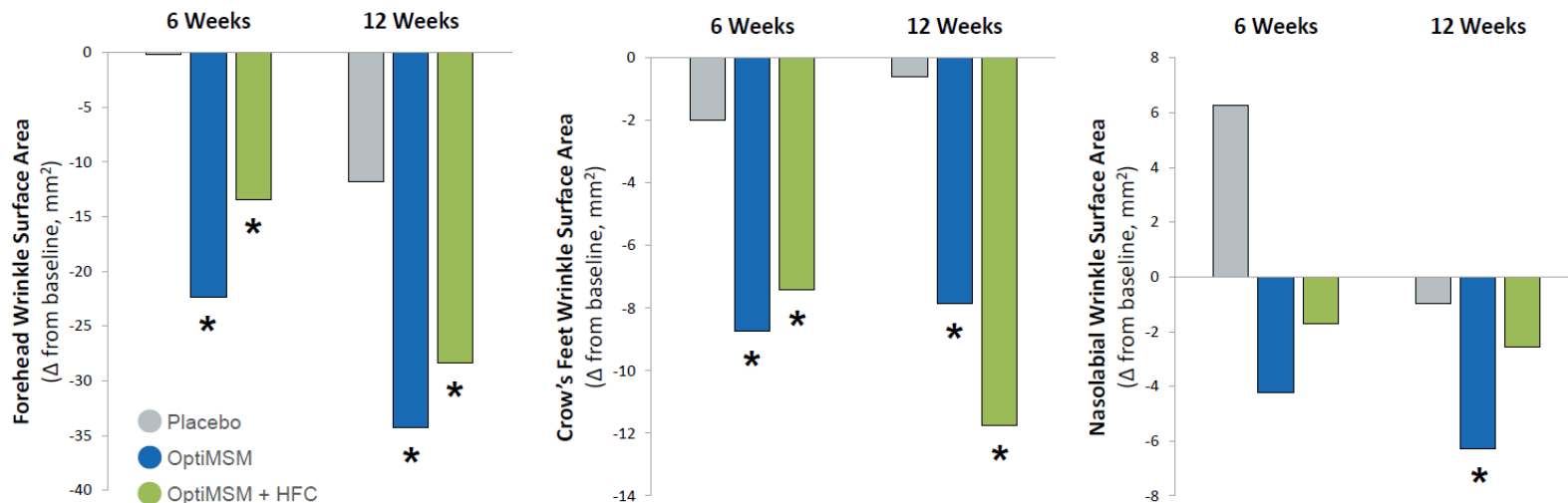
## Skin Appearance Grading

- Clarity Pro Imaging
- Dermatologist Grading
- Subject Self-Assessment

# OptiMSM® Supplementation Improves Measures of Skin Health

## 1g /day of OptiMSM® supplementation:

Significantly decreases the appearance of facial wrinkles, including crow's feet and forehead wrinkles as early as 6 weeks after use



Simpson P, Benjamin R. J Clin Exp Dermatol Res 2022; 13(5): 1000622;  
Unpublished data; \*Significant difference from baseline,  $p \leq 0.05$

# Research Continues to Demonstrate Skin Health Benefits of OptiMSM®

**One gram** of OptiMSM® is effective in reducing visual signs of skin aging in as little as **4 weeks!**

OptiMSM® effect on skin conditions was evaluated by:

## Instrument Analysis

**23%** ... experienced improved hydration

Skin elasticity improved by... **20%**



## Expert Visual Grading

**21%** ... improvement in luminous and radiant skin

Less facial wrinkles and skin texture improved by ... **24%**

## Self Assessment

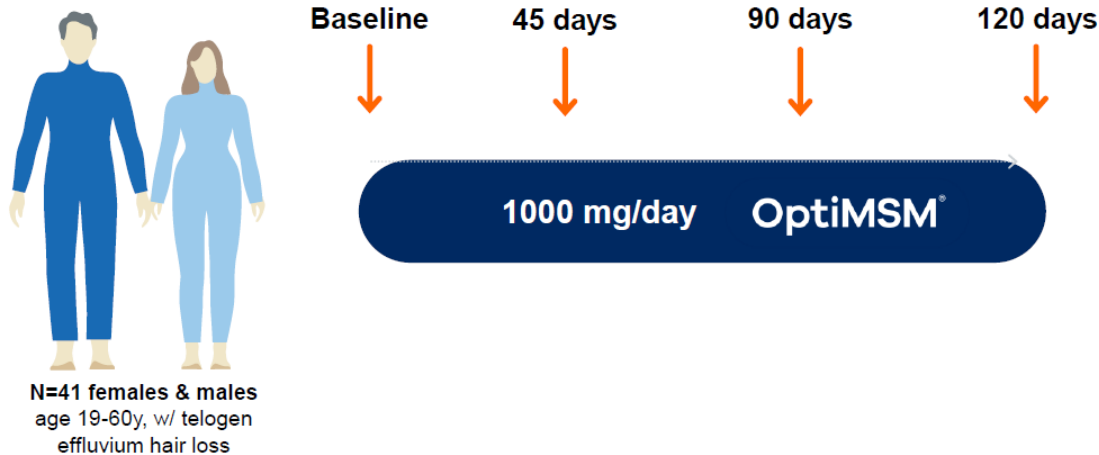
**81%** ... of participants reported improvement in skin radiance and hydration

Improved skin texture noted by ... **78%**  
**63%** ... reported better skin elasticity and firmness

# How Does OptiMSM® Support Healthy Hair?

## Study Goal

To assess the effectiveness of **OptiMSM®** on mitigating hair loss and improving overall hair appearance.



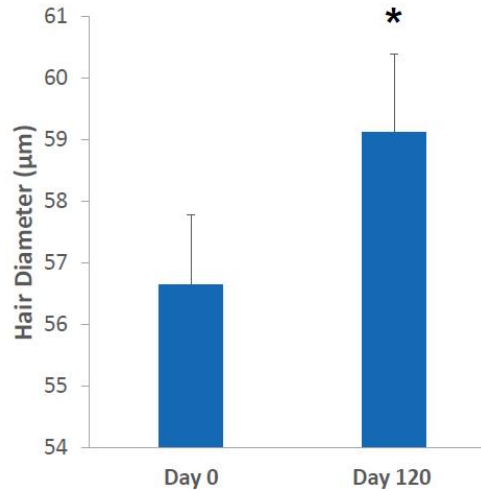
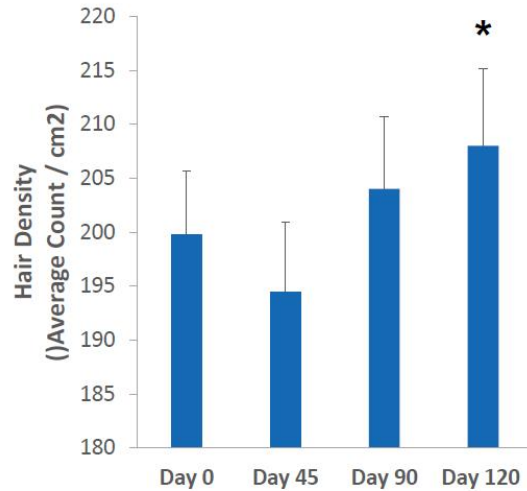
## Hair Growth Analysis

- Phototrichogram Analysis
  - Hair Count
- Micrometer
  - Hair diameter assessment

# OptiMSM® Supplementation Improves Measures of Healthy Hair

## OptiMSM® supplementation:

- Significantly improved hair density in clinical testing
- Significantly improved hair diameter



Adapted From: Benjamin R, et al., Nat Med J 2023; 15(10).

\*Significant difference from baseline,  $p \leq 0.05$ ; Mean  $\pm$  SEM

# Importance Of OptiMSM® For Skin, Nails And Hair

**OptiMSM®** is a source of sulphur, therefore:

- It is a key component of healthy hair, skin, & nails<sup>1,2</sup>
- Helps to maintain healthy hair, skin, & nails<sup>1,2</sup>

**OptiMSM®** supplementation has been shown to:

- Decrease the appearance of wrinkles<sup>3,4</sup>
- Improve skin firmness<sup>3,4</sup>
- Improve skin texture<sup>3,4</sup>
- Improve skin elasticity<sup>3</sup>

Sources: 1) Food and Nutrition Board, Institute of Medicine, 2005; 2) Shoulders & Raines, Ann Rev Biochem 2009; 929-958; 3) Muizzuddin N & Benjamin R. Int J Vitam Nutr Res 2022; 92(3-4), 182-191; 4) Anthonavage M, et al., Nat Med J 2015; 7(11): 1-10





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