

Niacinamide PC

*The multi-functional vitamin
for menopausal skin changes*



May 2025

Vitamins | Healthy foundations

dsm-firmenich 

Niacinamide_ the versatile vitamin

Multipurpose vitamin for multiple skin changes during menopause

The multi-change stage of menopausal skin aligns well with the multi-benefit properties of Niacinamide, making it an excellent ingredient for addressing various skin concerns during this transitional period.

During menopause, the hormonal decline takes its toll drastically on the skin. Skin becomes thinner, collagen is significantly degraded; deep wrinkles and age spots form and skin loses water and becomes dry. All these changes often lead to a sense of discomfort and diminished self-confidence as women contend with the visible alterations in their skin's texture and appearance.

Niacinamide offers significant benefits in counteracting the skin effects of menopausal hormonal changes.

The new *in vivo* study from dsm-firmenich shows that Niacinamide PC is an effective solution for menopausal skin concerns. It addresses issues such as dryness, sensitivity, fine lines, wrinkles by strengthening the skin barrier and protecting against collagen degradation. Its DNA repair properties and ability to fade hyperpigmentation make Niacinamide PC ideal for menopausal women skincare routines, enhancing overall skin health and resilience during this multi-change period.

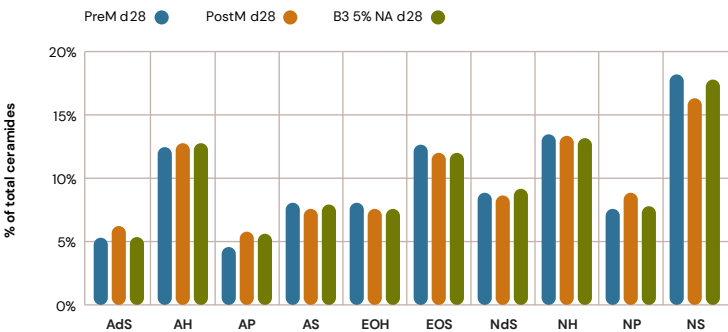


New Science on Niacinamide in post-menopausal skin

Re-balancing of Ceramides

Menopausal skin is subject to different ceramides' composition compared to pre-menopausal skin. Niacinamide PC treatment boost all endogenous ceramides (with highest increase around 30%, restoring the native distribution of pre-menopausal levels of different ceramide types in the skin, much better than with topical application

Change in percentage share of total ceramides
Relative content of ceramides on total ceramides content

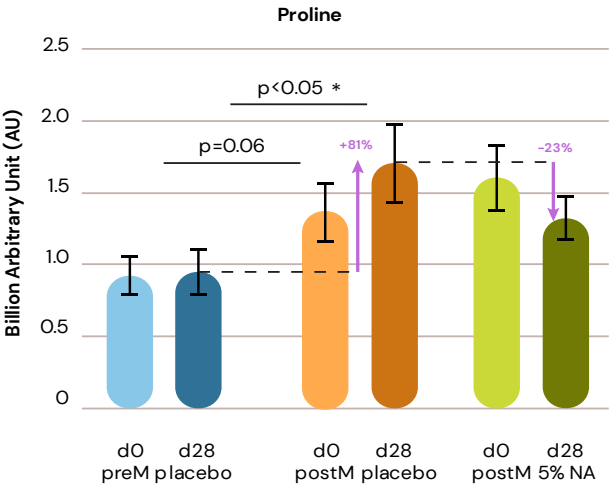


Niacinamide PC rebalances the ceramide distribution

Protection against Collagen degradation

Collagen synthesis is generally reduced during menopause. Treatment with Niacinamide PC resulted in lower levels of free proline and acetyl-proline, confirming its effectiveness in preserving collagen integrity and maintaining skin elasticity.

Free proline content

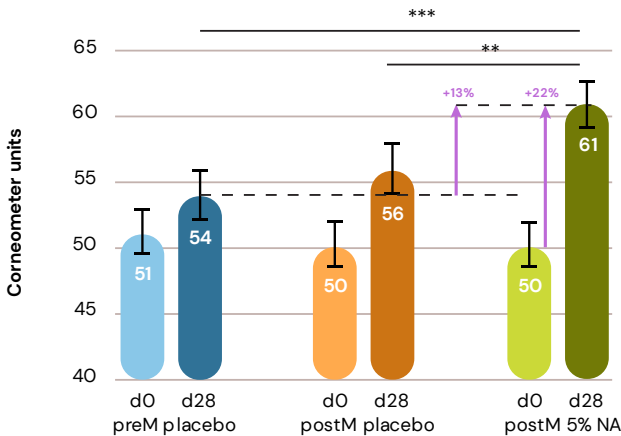


Significant increase of free proline by 80% and significant reduction of free proline by 24% after treatment by 5% Niacinamide PC vs placebo

Skin Hydration

Due to hormonal changes menopausal skin tends to become drier, giving the skin an itchy feeling. High level of Niacinamide is correlated with reduced trans epidermal water loss (TEWL) and consequent increase of skin hydration.

Skin hydration by cutometer



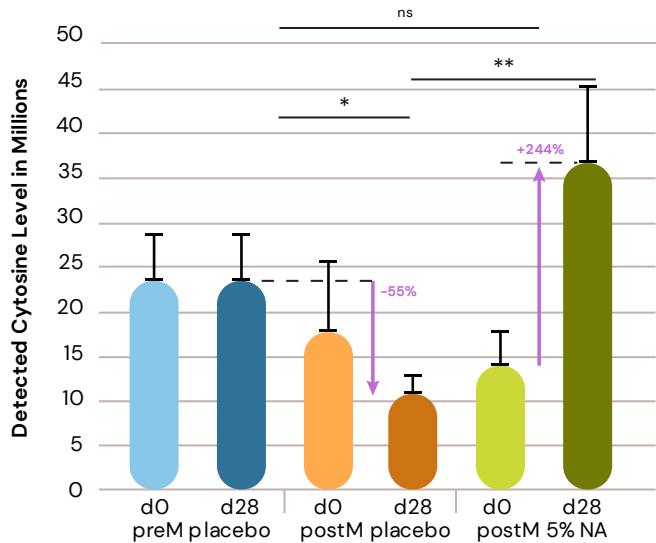
Significant increase of skin hydration by 22% vs TO and by 13% vs Post Menopause group

New Science on Niacinamide in post-menopausal skin

DNA Repair

Post-menopausal skin is prone to DNA damage and more subject to UV-induced DNA damage compared to pre-menopausal skin. Treatment with Niacinamide PC shows significant increase of cytosine level (+244%), confirming the ability of Vitamin B3 to enhance DNA repair.

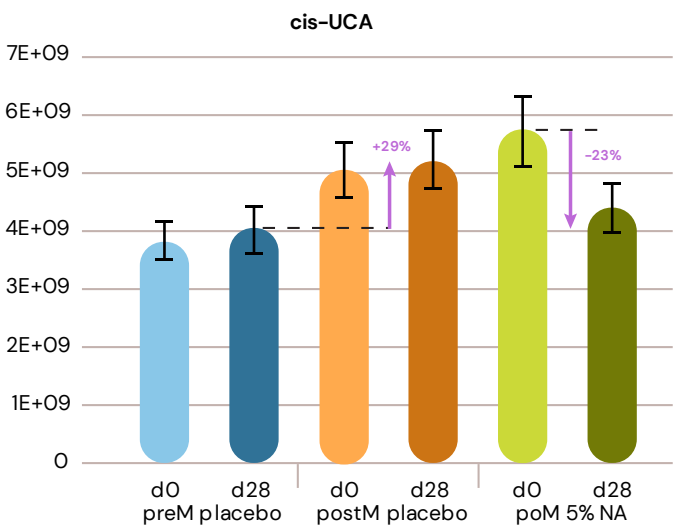
Cytosine level before and after treatment



Photoprotection

UV-stress markers such as cis-urocanic acid can be found at increased level in post-menopausal skin. Treatment with Niacinamide PC show a decrease of 28% in cis-urocanic acid content vs placebo. By promoting different catabolic pathways, Niacinamide PC provides biological protection from UV damage in postmenopausal skin.

Cis-urocanic acid

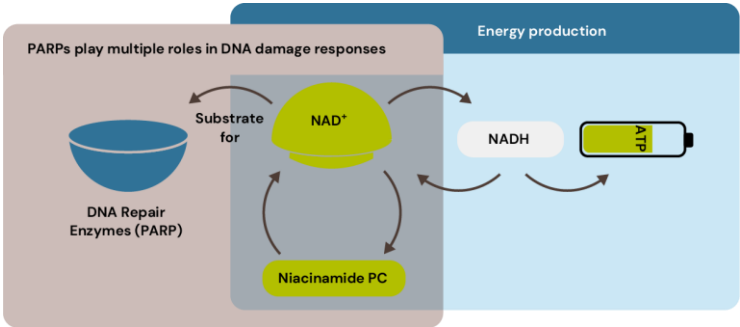


Results show clear tendency (ns).

Energy Boosting

NAD+ is a key molecule of cellular energy metabolism, and it appears to be in lower level in aged skin. As precursor of NAD+, Niacinamide is a building block to boost energy production at cellular level.

Simplified pathway of cellular energy production (ATP production) with niacinamide and NAD+



Multipurpose vitamin for multiple skin changes during menopause

Niacinamide: the versatile vitamin

Menopause skin changes	What happens in the skin		Niacinamide Treatment	
Epidermal barrier dysfunction	↓	Different distribution of Ceramides	↑	Re-balance ceramides composition to pre-menopausal level Restores hydration Reinforces Epidermal barrier
Loss of hydration	↓	Hydration	↑	
	↑	TEWL	↓	
Sensitive skin	↑	Skin homeostasis and NMF disruption: release of imidazole compounds	↓	Helps to relieve sensitive skin
Reduced energy availability	↓	NAD+ ¹	↑	Supports cellular energy metabolism
Slower skin repair ability	↓	DNA protection and repair	↑	Enhances skin repair
	↓	Cytosine level (marker of DNA protection)	↑	
Reduced skin elasticity, promotes wrinkles	↓	Collagen protection	↑	Boosts skin elasticity, reduced wrinkles
	↑	Free proline (marker of collagen degradation)	↓	
	↓	Collagen production	↑	
Increased UV induced skin damage and photoaging effects	↑	Upregulating histidine degradation (marker of skin homeostasis disruption):	↓	Protects against UV-induced skin damage and photoaging
	↑	release of markers of UV skin damage	↓	

1: NAD⁺ oxidized form of Nicotinamide Adenine Dinucleotide

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We bring progress to life

Niacinamide PC – new clinical data

Study Design

Participants: healthy, Caucasian female volunteers*

Age: 48–65

Length of the study: 1 month

Application: Twice a day

Tested Skin Parameters:

- TWEL (tewameter)/hydration (corneometer)

Omics Technologies (on D-Squame tape strips):

- Metabolomics
- Lipidomics (Ceramides)



Research listed at Top 10 finalists for the Basic Research Award at IFSCC Conference.

*Pre-menopausal was defined by whether menstrual cycles were regular and Post-menopausal by the last menstrual period that occurred at least 12 months ago. Perimenopausal individuals were excluded from this study.

New in vivo study

dsm-firmenich own study

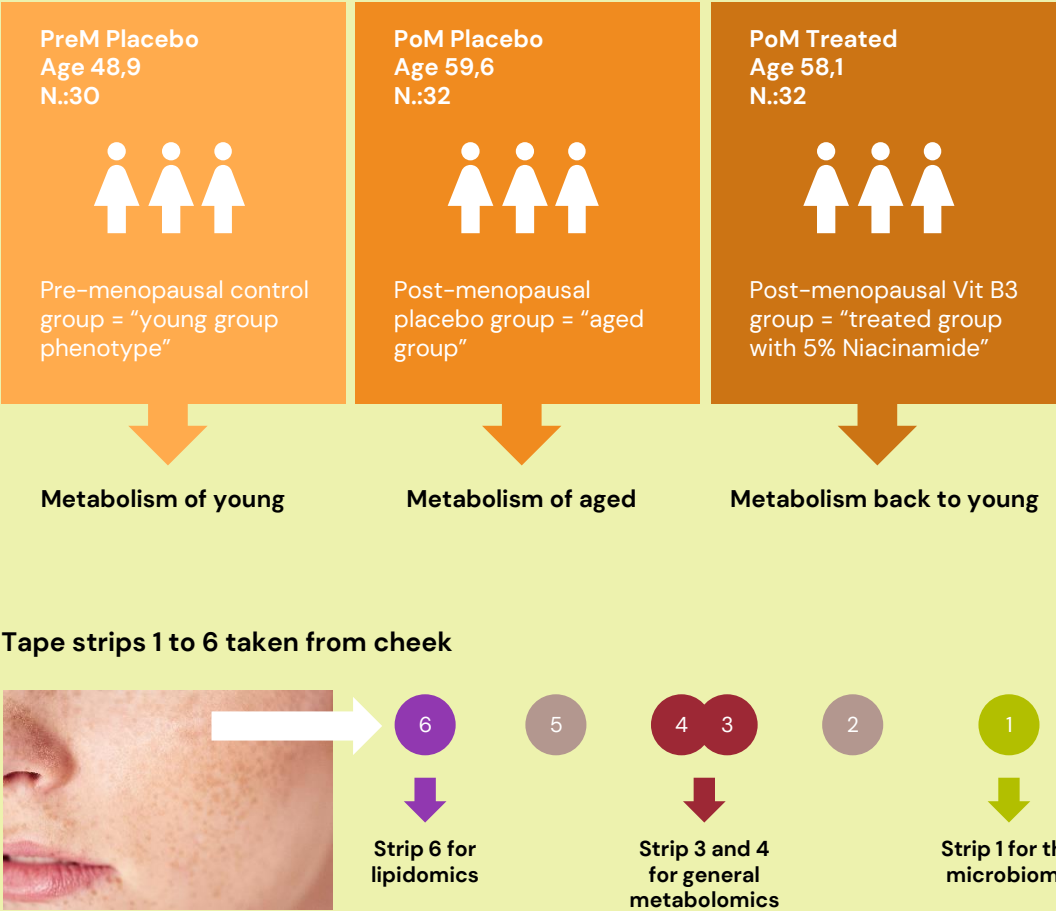


Figure 1. Six D-Squame tape strips were taken from the same spot on the cheek. N.1 used for microbe analysis (no clear conclusion due to variability of the group), n.3 and n.4 for metabolomics and n.6 for lipidomics.

Niacinamide PC:

Rebalances the histidine catabolic pathway for better skin health

NEW: *in vivo* study

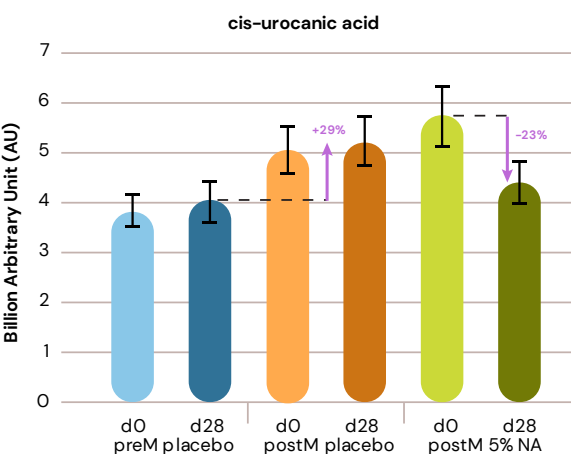
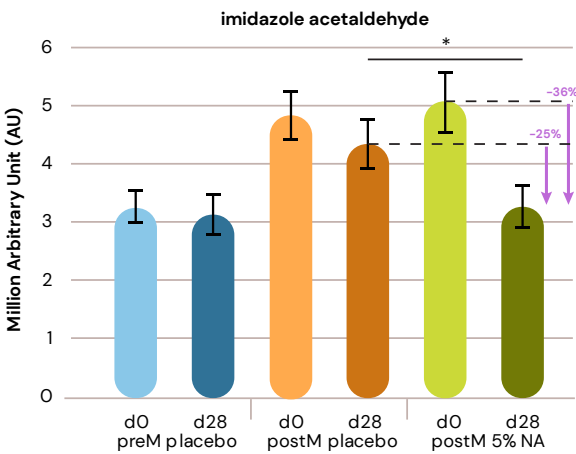
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Niacinamide PC helps reducing sensitive skin (redness and itching):

- Significantly downregulates imidazole-acetaldehyde by 36% vs baseline, and 25% vs placebo indicating reduced histamine activity.

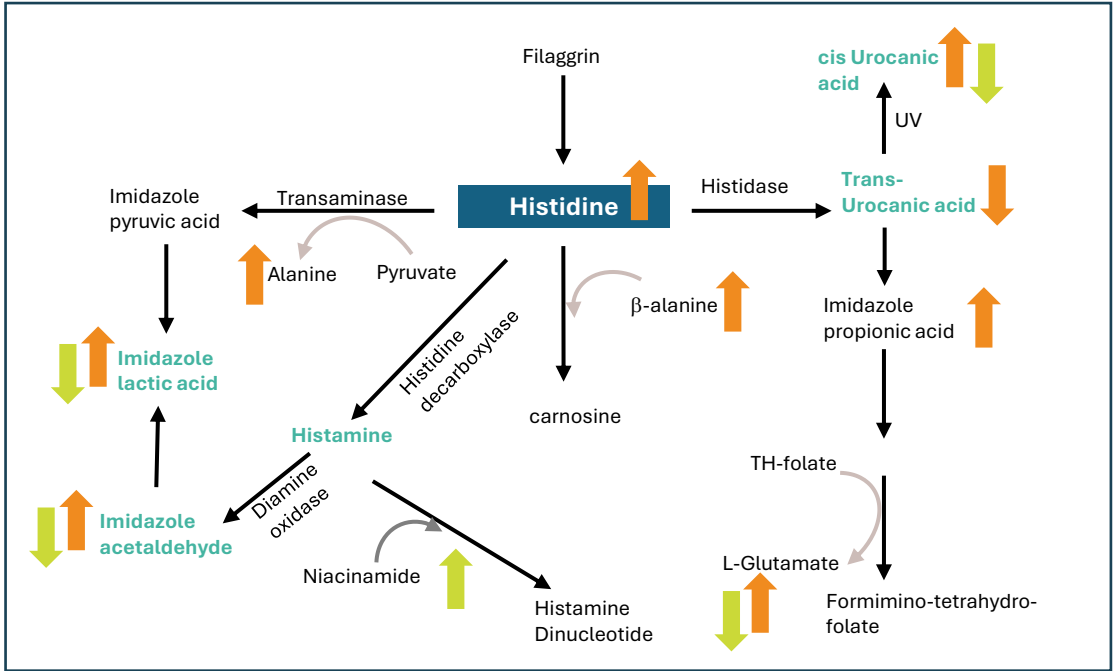
Niacinamide PC provides protection from UV damage in postmenopausal skin:

- Niacinamide PC rebalances key metabolites: UV-stress markers such as cis-urocanic acid can be found at increased level in post-menopausal skin. Treatment with Niacinamide PC show a decrease of 23% in cis-urocanic acid content vs TO.



*: p value <0.05

Histidine catabolic pathway comparing niacinamide treatment at Day 28 in post-menopausal skin



↓ ↑ Metabolite has been detected at lower/higher levels in post-menopausal panel compared to the pre-menopausal

↑ ↓ Metabolite has been detected at lower/higher levels after four weeks of B3 treatment compared to placebo post menopausal

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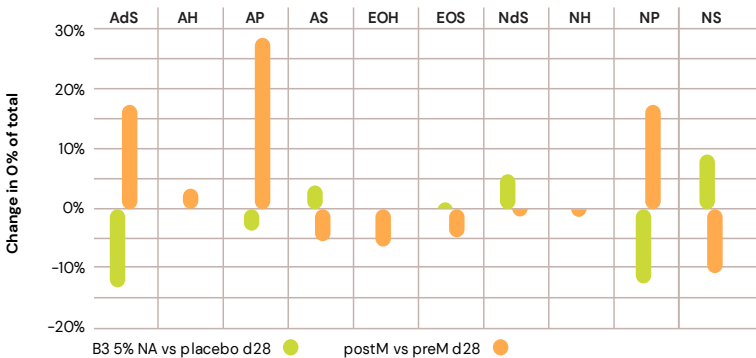
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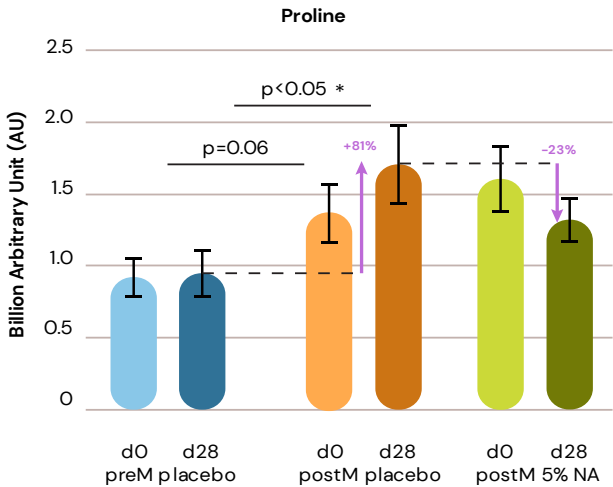


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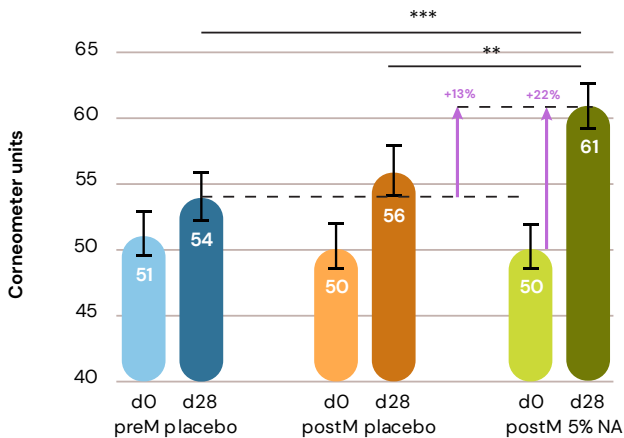


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