

Resveratrol Concentrate

Summary of Scientific Evidence

MedSkin
Solutions

Dr. Suwelack



Agenda

Summary of Scientific Evidence Resveratrol Concentrate

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Resveratrol Concentrate

Our **Active Resveratrol Concentrate** is first and only water-based concentrate 2 % of solubilized, bioavailable trans-resveratrol.

At a Glance

Key Facts

- ✓ Bioavailable *trans*-resveratrol
- ✓ Actives: resveratrol, anti-aging matrikines
- ✓ pH: 4.8
- ✓ Leave-on
- ✓ Professional & Home usage
- ✓ Free of parabens, mineral oils, silicones & colorants
- ✓ 100% vegan & from sustainable sources
- ✓ Available with or without fragrance
- ✓ Suitable for even very sensitive skin

INCI:

AQUA (WATER), CAPRYLIC / CAPRIC TRIGLYCERIDE, DIMETHYL ISO-SORBIDE, 1,5-PENTANEDIOL, BUTYROS-PERMUM PARKII (SHEA) BUTTER, RESVERATROL, GLYCERIN, HYDROXYETHYL ACRYLATE/SODIUM ACRYLOYLDIMETHYL TAURATE COPOLYMER, PANTHENOL, SODIUM HYALURONATE, PALMITOYL TRIPEPTIDE-38, ETHYLENE BRASSYLATE, HYDROXYPROPYL CYCLODEXTRIN, CITRIC ACID, POLYSORBATE 60, CAPRYLYL GLYCOL, SORBITAN ISOSTEARATE, 3-HEXENOL, PROPANEDIOL, CAPRYLHYDROXAMIC ACID.



It's all about
the skin



Introduction

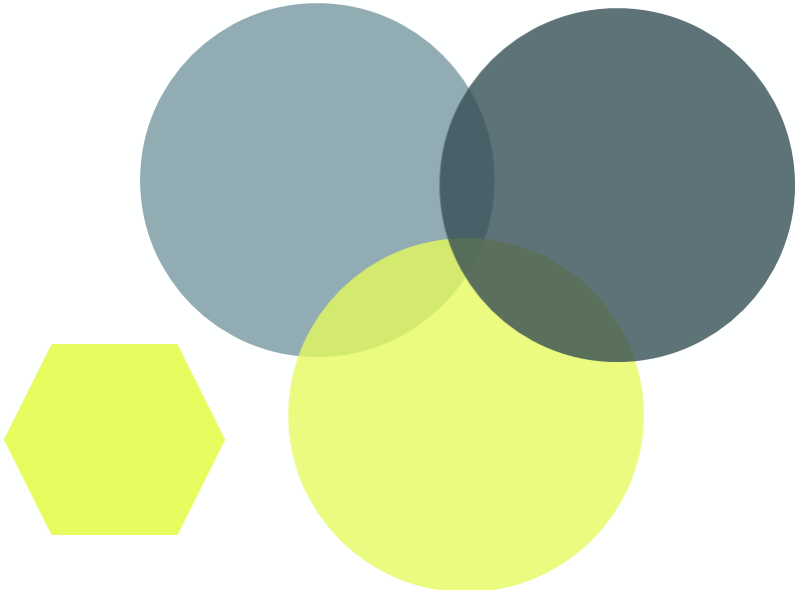
The skin is the largest organ and forms the barrier of the human body to the of its environment. Therefore, signs of aging are clearly evident in it and visible in many ways. In particular, external influences such as UV radiation, smoking and pollution have been described as one of the major causes.

The first signs of skin aging become visible in the form of facial expressions and wrinkles. The skin aging process is intensified with advancing age due to changes in muscle tissue, as well as continuously decreasing skin moisture and elasticity. Over time skin becomes more sensitive with increased skin redness.

These processes are a result of the increasing formation of reactive oxygen species (ROS) within of the skin. This is also referred to as oxidative stress. This formation takes place naturally through metabolic processes within the cells but is accelerated by external influences. Antioxidants serve as a natural protection and defense mechanism of the body. For this reason, anti-oxidants have already been established as anti-aging agents.



1. Dzubow L. The aging face. In: Coleman WP, Hanke W C, Alt T H, Asken S, eds. Cosmetic Surgery of the Skin, Philadelphia, PA:B.C. Decker Inc., 1991:1-12.
2. Gilchrest BA. Skin aging and photoaging: An overview. J Am Acad Dermatol. 1989;21: 610-613.
3.. Sander CS, Chang H, Salzmann S, Muller CS, Ekanayake-Mudiyanselage S, Elsner P. Photaging is assoicated with protein oxidation in human skin in vivo. J Invest Dermatol. 2002;118:618-25.

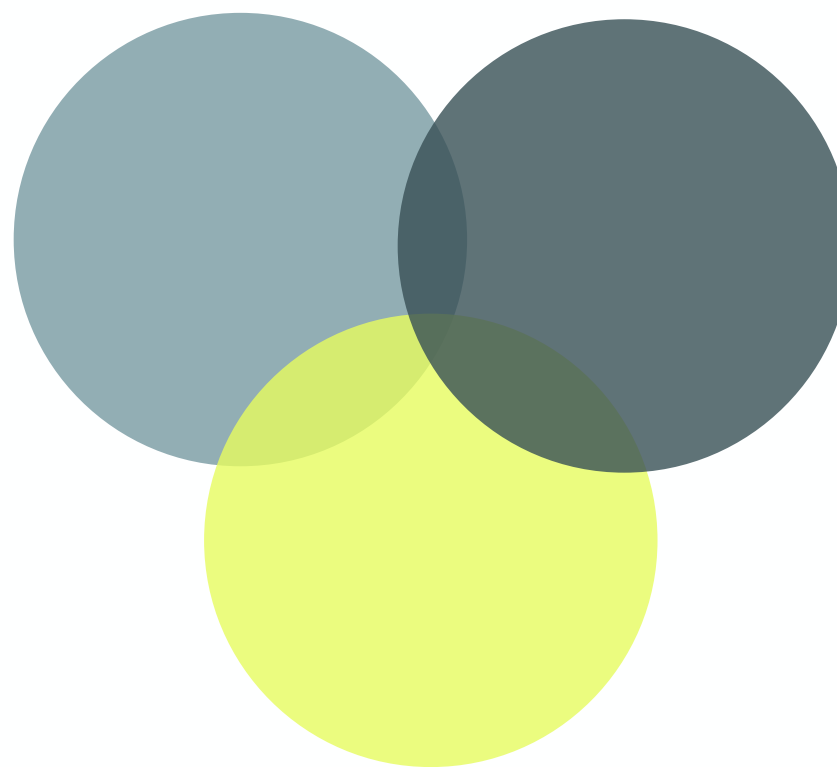


Main Ingredients explained in short

Ingredient	Function in cosmetic products	What that means
Resveratrol	Antioxidant	Supports the skin in essential functions and contributes to a healthy, beautiful skin
Sodium hyaluronate	Humectant	Preserves skin moisture
Caprylic/Capric Triglyceride	Emolient/Antioxidant	Helps smooth skin and binds ingredients together
Glycerin	Humectant	Preserves skin moisture
1,5-Pentanediol	Solvent	Moisturizing ingredient with good solubilizing properties
Butyrospermum parkii (Shea) Butter	Skin Conditioning	Sooths and softens skin
Dimethyl Isosorbide	Solvent	Solubilizing and reduces viscosity

Resveratrol

Hero active ingredient



Resveratrol

Hero Active Ingredient

A particularly potent antioxidant is the one obtained from plants, grapes and berries: Resveratrol. In the medical field, it is also known for its anti-inflammatory, anti-diabetic and heart-protecting properties. Resveratrol can be found in the cis or trans configuration, with the trans form being biologically active. In cosmetic products, resveratrol is used as an active ingredient having antioxidant and anti-inflammatory activity [1]. Resveratrol has been shown to be active in neutralizing and inhibiting the formation of ROS and is an effective neutralizer for synthetic radicals [2] under in vitro conditions.

The antioxidant activity of resveratrol (95%) is higher than vitamin E (65%) and C (37%), respectively and has been shown to counteract lipid peroxidation and protein oxidation [3]



(1) Ratz-Lyko, A. and Arct, J. (2019) Resveratrol as an Active Ingredient for Cosmetic and Dermatological Applications: A Review. Journal of Cosmetic and Laser Therapy, 21, 84-90

(2) Miura, T., Muraoka, S., Ikeda, N., Watanabe, M. and Fujimoto, Y. (2000) Antioxidative and Prooxidative Action of Stilbene Derivatives. Pharmacology and Toxicology, 86, 203-208.

(3) Stojanovic, S., Sprinz, H. and Brede, O. (2001) Efficiency and Mechanism of the Antioxidant Action of Trans-Resveratrol and Its Analogues in the Radical Liposome Oxidation. Archives of Biochemistry and Biophysics, 391, 79-89.

Hero Active Ingredient

Resveratrol strengthens skin's anti-oxidative system [1]

Resveratrol supports the skin's antioxidative system via two different mechanisms. Firstly, Resveratrol is a **potent antioxidant**, naturally occurring in different plants to protect them from UV radiation. In skin, it neutralizes free radicals to **protect against** damage. Additionally, Resveratrol enhances the body's antioxidative capacity via binding to cell receptors and **increasing the building of body's own antioxidants**.

[1] Boo YC, Human Skin Lightening Efficacy of Resveratrol and Its Analogs: From in Vitro Studies to Cosmetic Applications. Antioxidants (Basel). 2019. 22;8(9).

Hero Active Ingredient

Resveratrol protects the production of collagen [1]

Oxidative stress increases the amount of MMP (matrix metalloproteinase), proteins leading to collagen breakdown. This breakdown occurs via two pathways, firstly via the direct effect on existing collagen structures but also on collagen production in the skin. Resveratrol directly **influences MMP activity** resulting in **protection of collagen**.

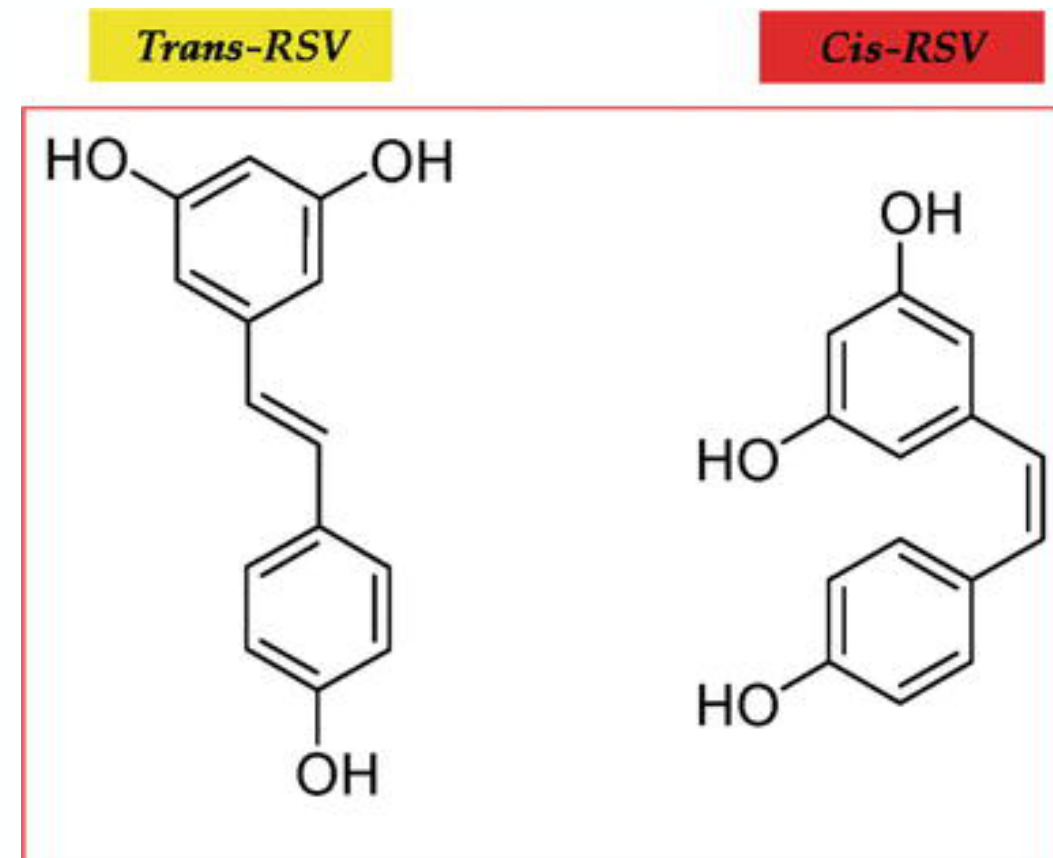
Resveratrol inhibits pro-irritating enzymes [1]

Resveratrol can suppress the expression of inflammatory factors by direct or indirect **inactivation** of proteins responsible for **pro-irritating processes** in the skin. This leads to reduced skin redness and irritations.

[1] Boo YC, Human Skin Lightening Efficacy of Resveratrol and Its Analogs: From in Vitro Studies to Cosmetic Applications. Antioxidants (Basel). 2019. 22;8(9).

The difference: *Trans* vs *Cis*-resveratrol

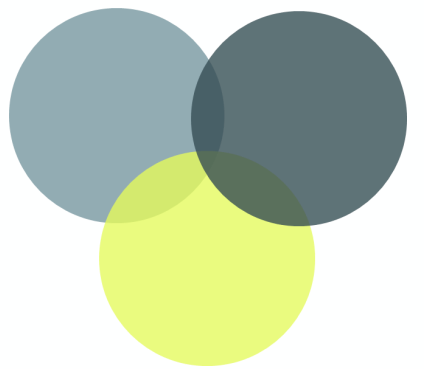
- Resveratrol can be found in the *cis* or *trans* configuration (isomer)
- **Only *trans*-resveratrol is biologically active:**
 - Only soluble *trans*-resveratrol shows sufficient skin penetration and antioxidant activity in the skin.
 - The *trans*- isomer of Resveratrol is the one which can act as a radical scavenger and is therefore able to act as an antioxidant. The *cis*-isoform is not able to do that.
- Through our patented special water-oil-based formulation the antioxidant active *trans*-Resveratrol is made bioavailable in the dermis



Isomers are two molecules with the same molecular formula but differ structurally. Therefore, isomers contain the same number of atoms for each element, but the atomic arrangement differs. Despite having the same molecular formula, the physical properties of each molecule may differ, particularly if the functional groups associated with each molecule are different. Isomerization is the process by which one molecule is converted into another molecule with the identical atoms. This may occur spontaneously or a reaction may be required to achieve this effect. (*Biology Dictionary.net*)¹⁹

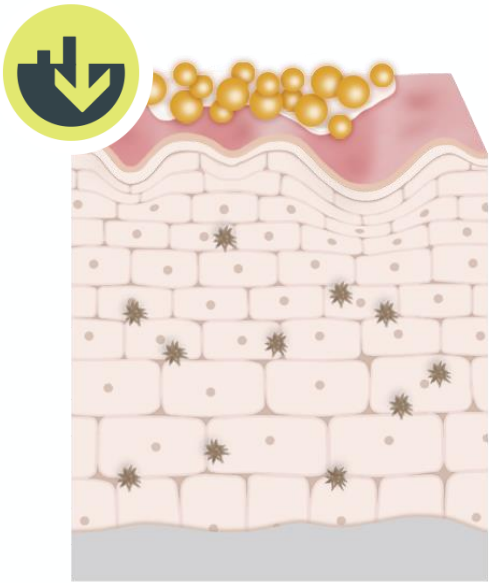
Mode of Action





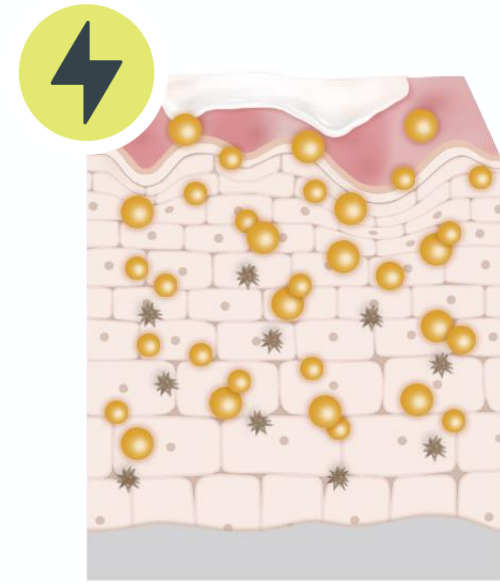
Mode of Action

Application & penetration



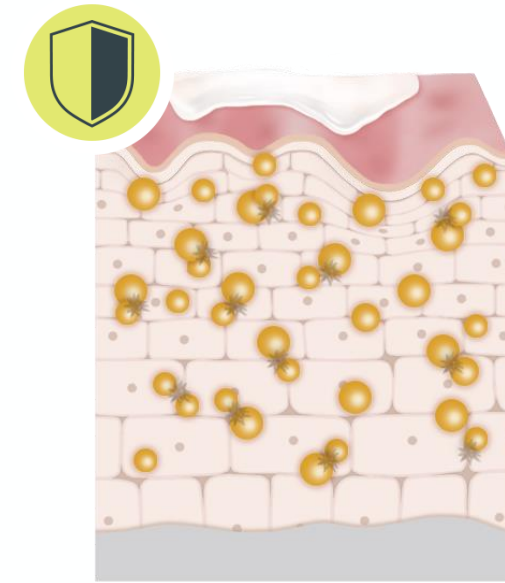
- **Application** of *trans*-resveratrol on to skin
- **Penetration** of active *trans*-resveratrol into deeper skin layers.

Boosting of anti-oxidant levels



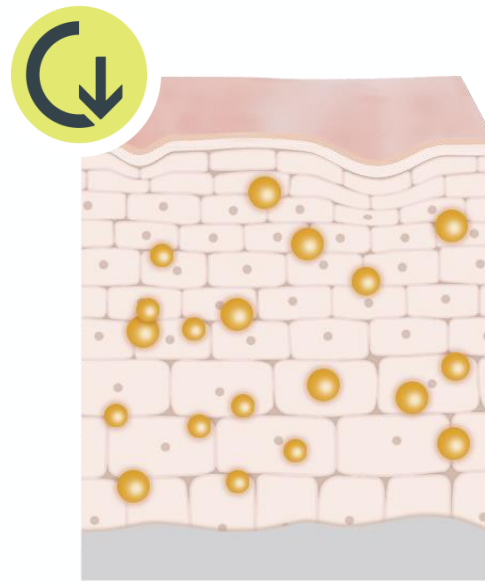
- **Neutralizes** and **inhibits** the formation of free radicals
- **Increases** the building of body's own antioxidants
- Skin anti-oxidative defense system is **strengthened**

Protection of cells and collagen production



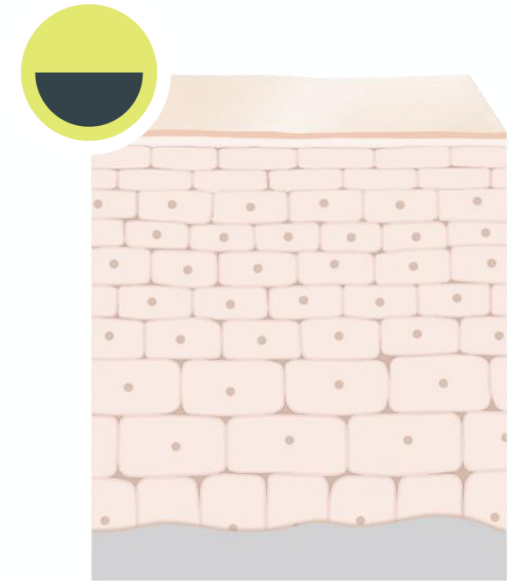
- **Protects** cells against damage from free radicals
- Protects and **stimulates** collagen production
- **Slows down** initiation of cell death

Minimizes skin inflammation and redness



- Helps to **repair** the skin
- Helps **improve** overall skin health and appearance
- **Reduces** skin irritations and redness

Multi anti-aging skin benefits



- Skin is **firmed and smoothed**
- **Reduction** of line and wrinkle depth
- **Provides** an even skin tone



Resveratrol



Radicals

Benefits

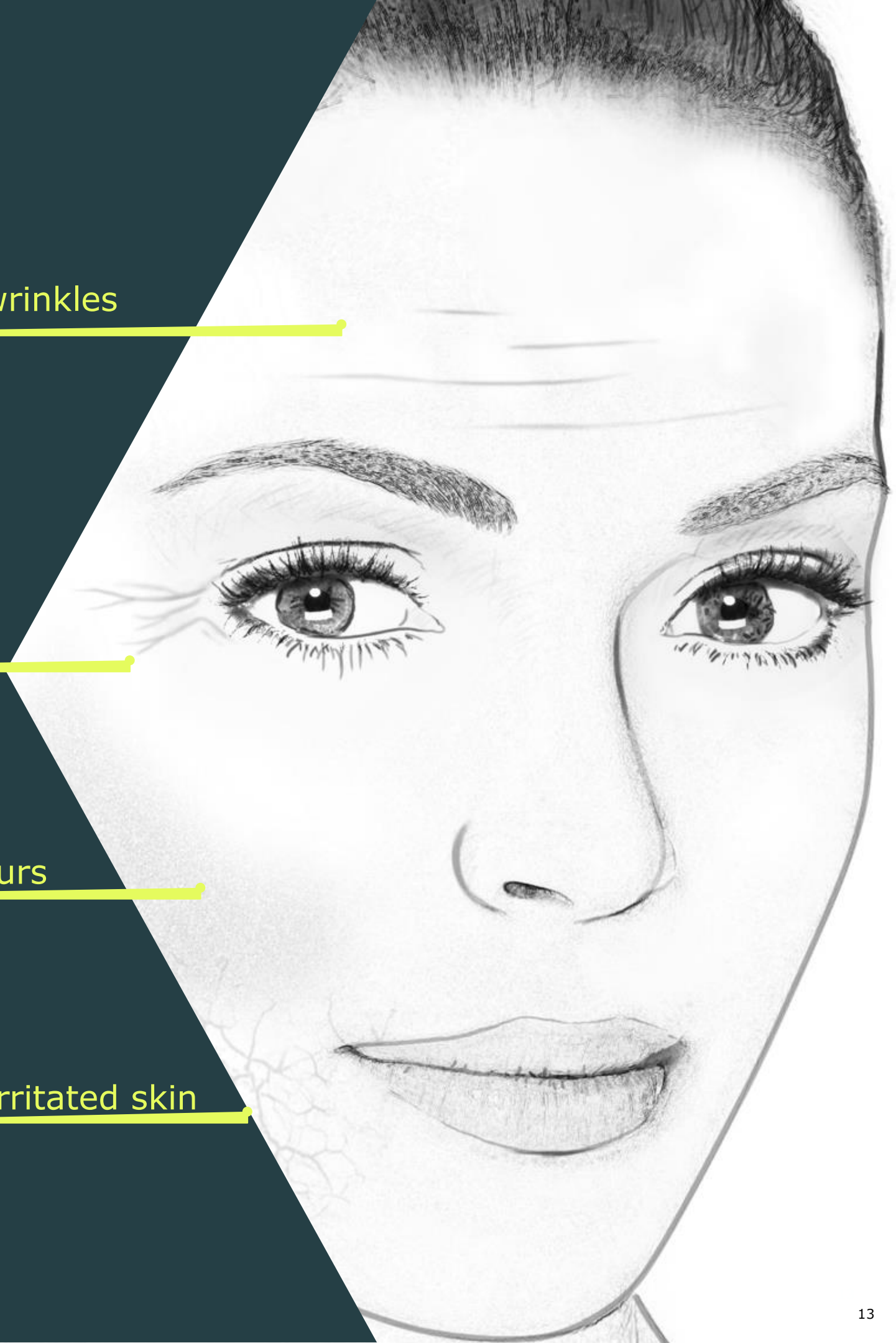
- Smoothens lines and wrinkles
- Improves skin's elasticity & firms skin contours
 - Reduces redness
 - Improves skin barrier function
- Strengthens skin's anti-oxidative defence system
 - Protects the production of collagen

Reduces fine lines and wrinkles

Reduces fine lines and wrinkles

Improves elasticity & contours

Reduced red & irritated skin



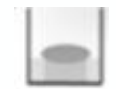
Scientific Studies



Scientific Studies



Scientific Evaluation of Resveratrol Penetration



Scientific Evaluation of Anti-oxidative Potential



Controlled Dermatological Study



Ophthalmological Examination



Patch Test

Penetration of Resveratrol



Study title: Ex-vivo definition of the penetration of resveratrol

Study Center: Dr. Mörgelin, Lund, Sweden,

Parameter: Determination of Penetration Level of Resveratrol

Proven Penetration of Resveratrol

Background:

- The effectiveness depends on the penetration of the product

Method:

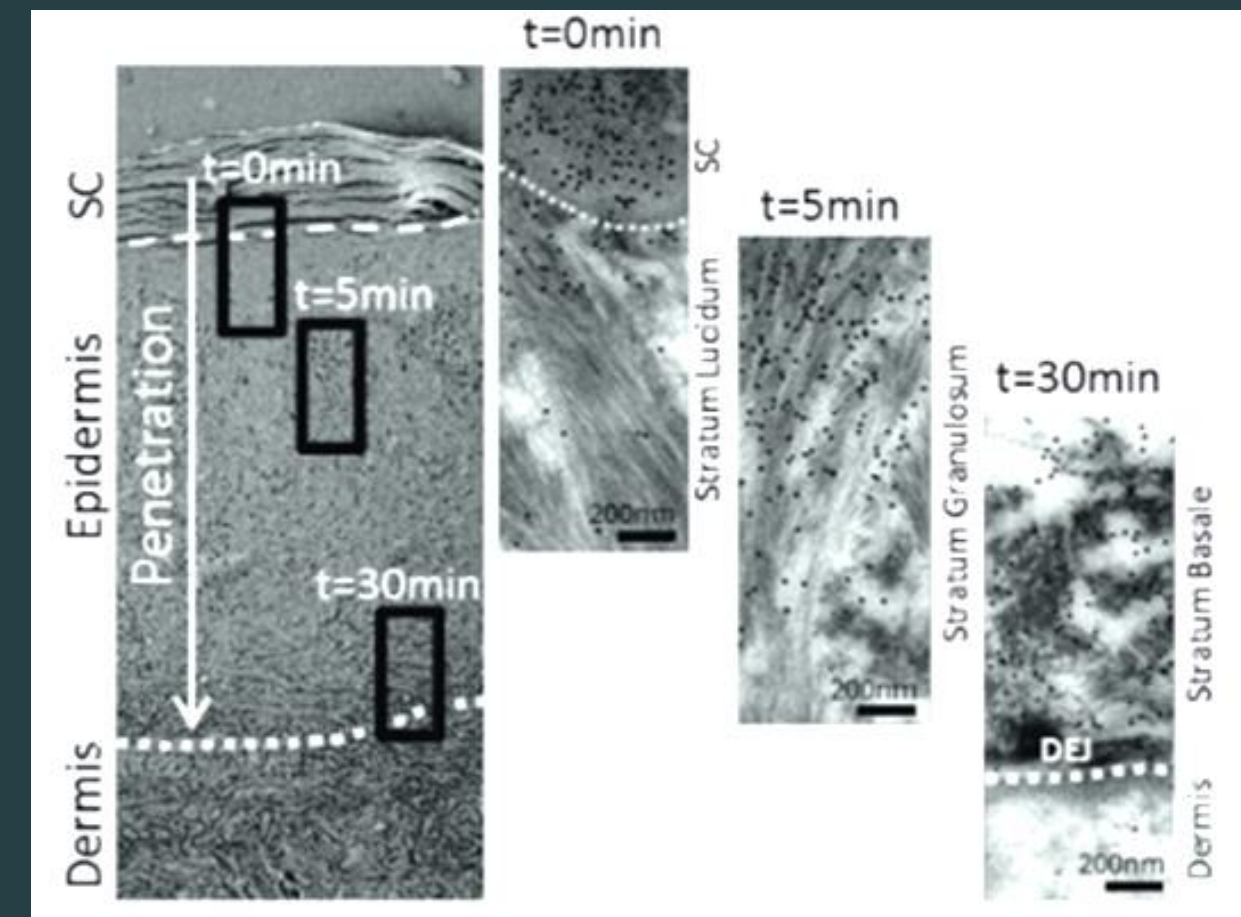
- Penetration of labeled Resveratrol in skin explants was analyzed via Scanning Electron Microscopy (SEM) after different time points.

Results:

- Resveratrol Concentrate penetrates deep into the skin
- Retains a reservoir in the stratum corneum for a long-term availability

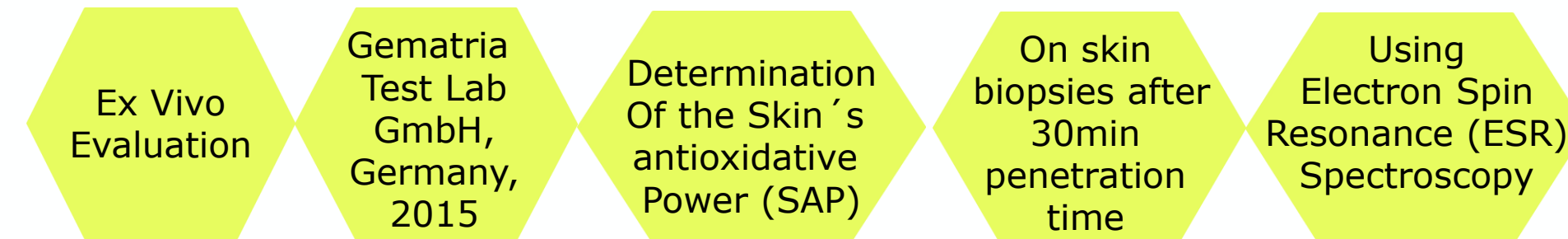
What does this mean:

- Reservoir formation: Resveratrol Concentrate protects the skin from harmful environmental factors.
- Deep penetration: optimal activity



SEM analysis; magnification 250x, black dots = labeled Resveratrol

Proven Anti-oxidative Potential of Resveratrol



Study title: Determination of the Skins Antioxidative Power (SAP) of cosmetic products.

Study Center: Gematria, Germany, 2015

Parameter: Determination of Skin Antioxidative Power (SAP)

Proven Skin's Anti-oxidative Defense System

Background:

- Resveratrol neutralizes free radicals.

Method:

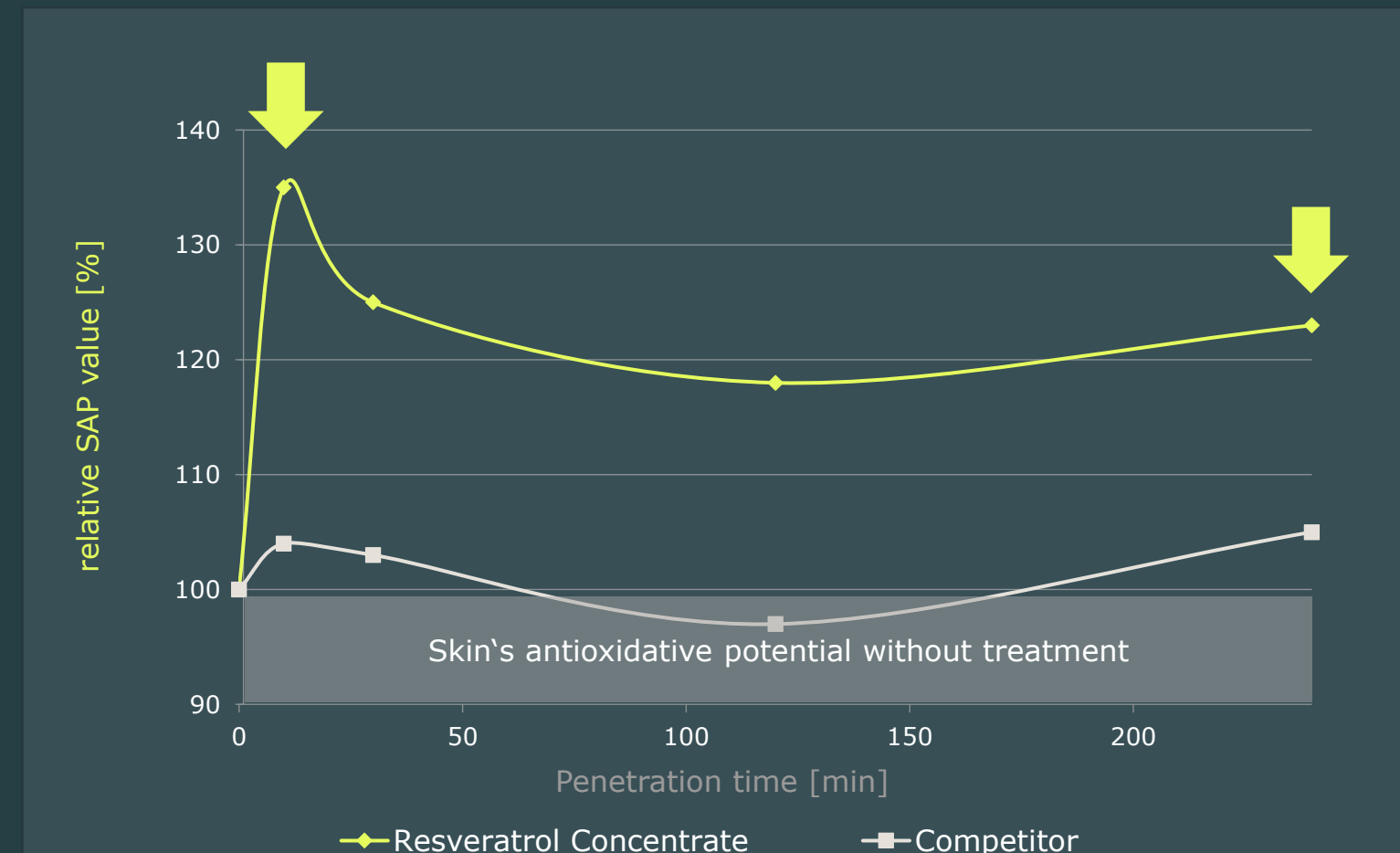
- Determination of the Skin's Antioxidative Power (SAP) resveratrol on skin biopsies after 30 min penetration time using Electron Spin Resonance (ESR) Spectroscopy.

Results:

- 35 % increase of skin's antioxidative potential by Resveratrol Concentrate treatment after 10 minutes penetration time.
- 23 % increase of skin's antioxidative potential by Resveratrol Concentrate treatment after 4 hours penetration time.

What does this mean:

- Skin's anti-oxidative defense system is strengthened.
- Skin is protected against premature aging



*The SAP value, expressed in percentage, is a quantitative determination of the antioxidant and anti-radical activity inside the epidermal and dermal layers of the skin.

Controlled Dermatological Study



Study title: Evaluation of effectiveness and tolerability of a 2% Resveratrol Emulsion

Study centre: University of Hamburg, 2017

Publication: Schulte to Brinke et al., Skin Anti-Aging Benefits of a 2% Resveratrol Emulsion, Journal of Cosmetics, Dermatological Sciences and Applications, 2021, 11, 155-168

Parameter: Ultrasound for skin density + VISIA Scan +



skin elasticity
Cutometer



Expert Evaluation
Visual Analog Scale



User Satisfaction
Questionnaire

Increased Skin Density

Background:

- Resveratrol balances enzymes involved in collagen synthesis

Method:

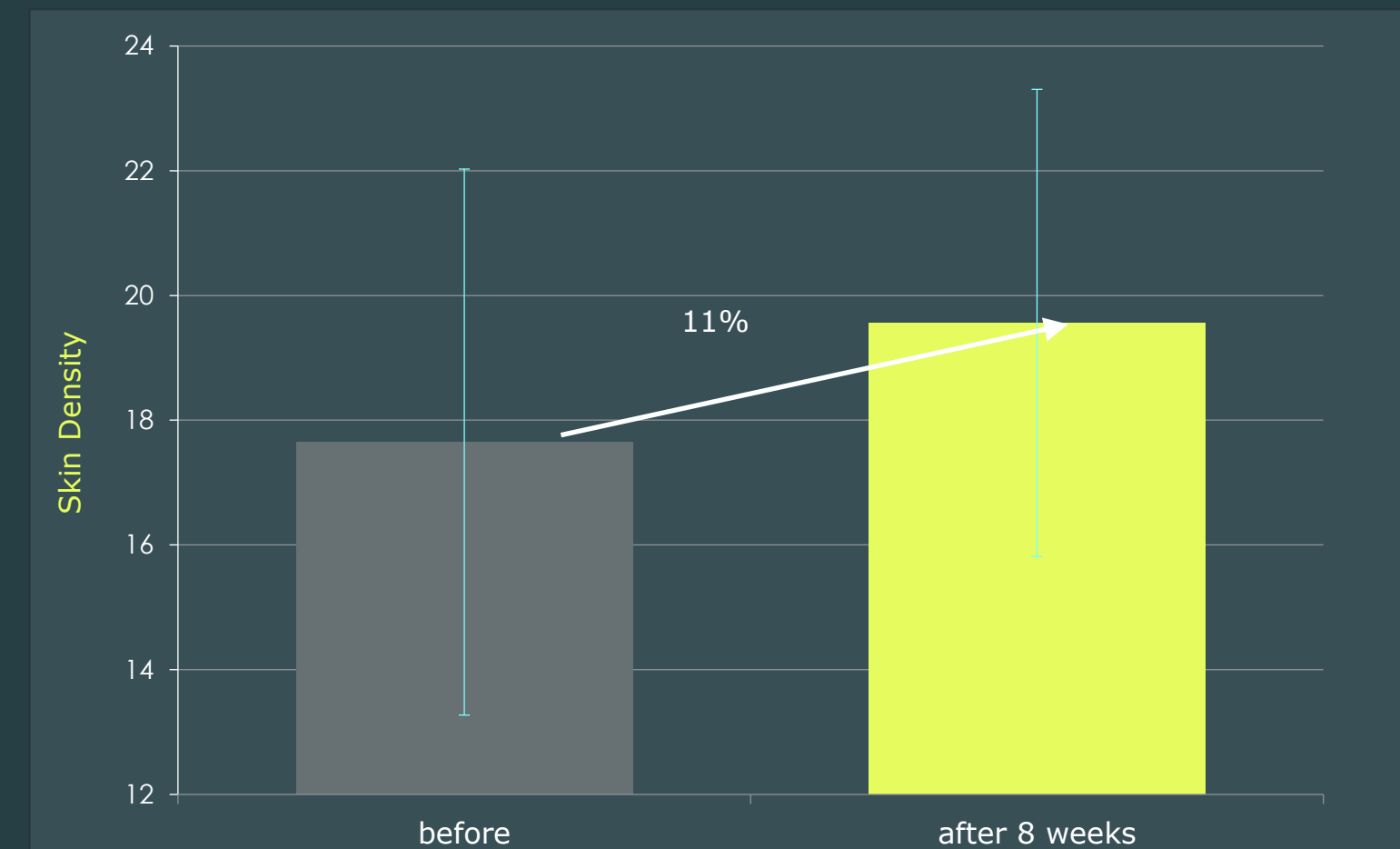
- Ultrasound measurements before and after 8 weeks

Results:

- Skin density is increased after 8 weeks.
- Increased skin density comes from increased collagen

What does this mean:

- Skin contours are firmed
- Lines and wrinkles are smoothed.



Skin is Firmed

Background:

- Resveratrol balances enzymes involved in collagen synthesis

Method:

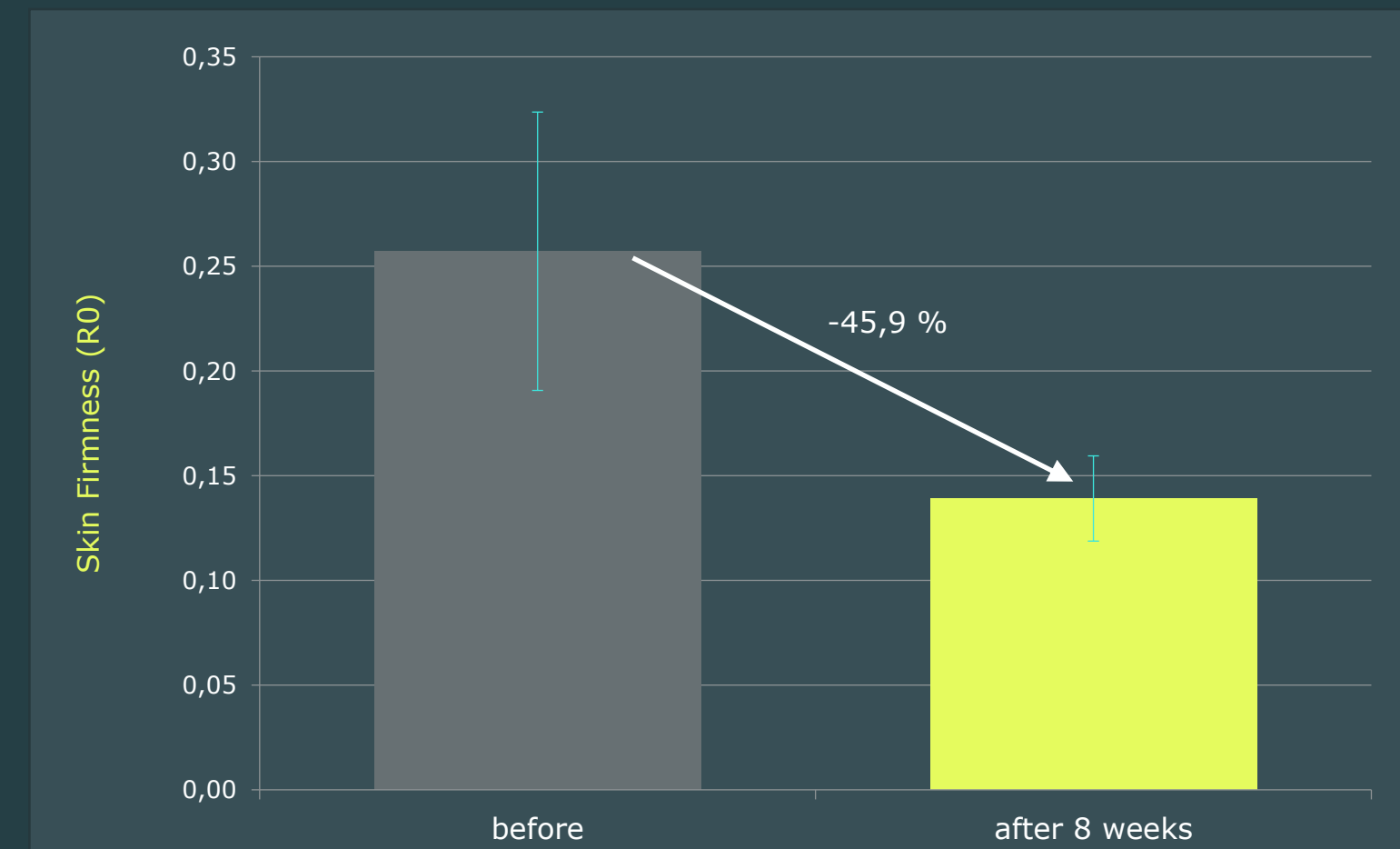
- Cutometer measurements for skin firmness

Results:

- The smaller the value the firmer the skin.
- 45.9 % improvement in skin firmness within 8 weeks of daily use¹.
- This indicates a up to 10 years younger looking².

What does this mean:

- Skin contours are firmed



¹. Schulte to Brinke et al, Skin Anti-Aging Benefits of a 2% Resveratrol Emulsion, Journal of Cosmetics, Dermatological Sciences and Applications, 2021, 11, 155-168

². Luebberding et al. Mechanical properties of human skin in vivo: a comparative evaluation in 300 men and women, Skin Research an Technology 2014; 20: 127-135.

Younger Looking Skin

Method:

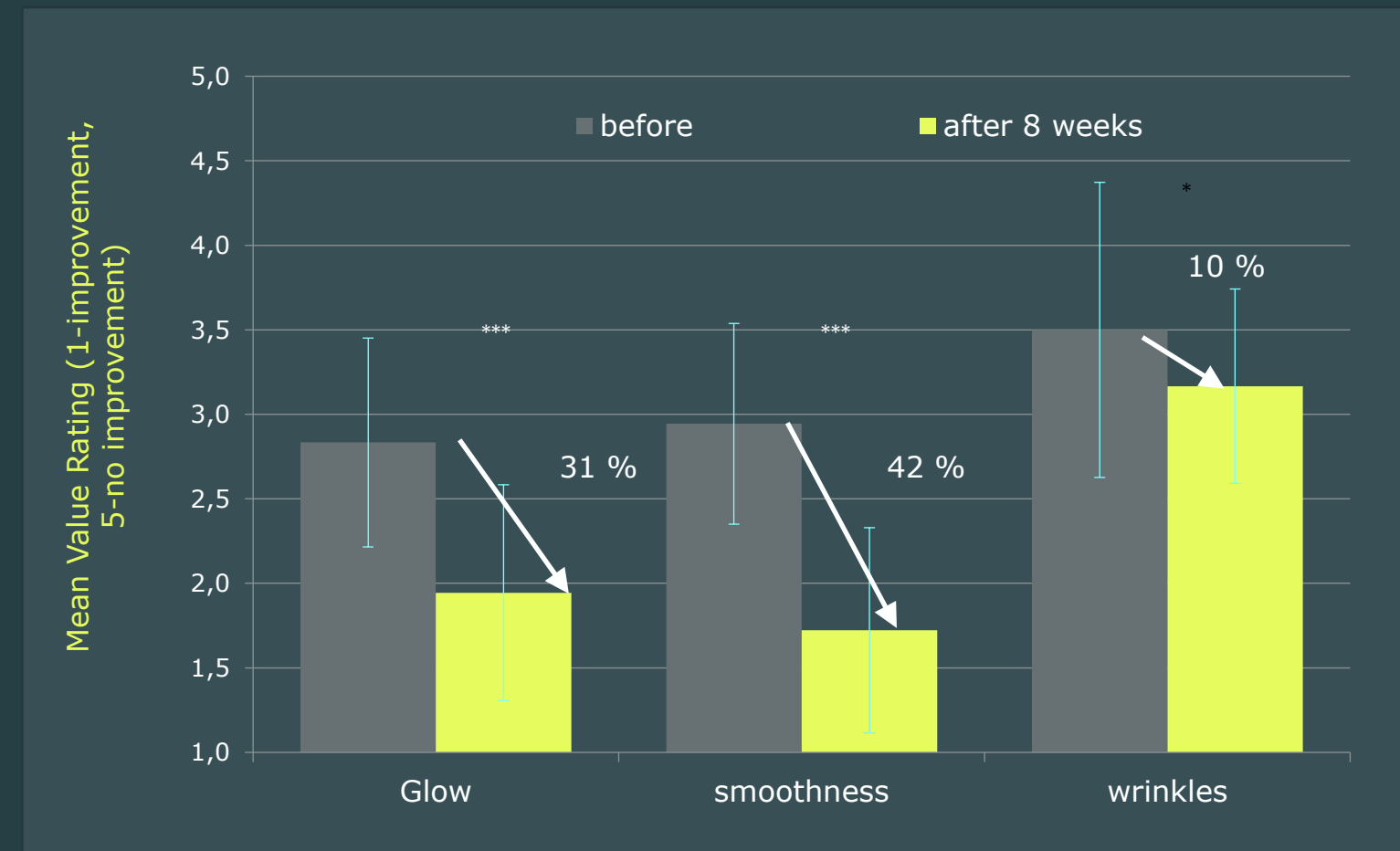
- Expert rating by visual analogue scale

Results:

- Significant improvement of skin glow by 31 %
- Significant improvement of skin smoothness by 42 %
- Significant improvement of wrinkles by 10 %

What does this mean:

- Fine lines and wrinkles are smoothed
- Your skin as a younger glow.



Schulte to Brinke et al, Skin Anti-Aging Benefits of a 2% Resveratrol Emulsion, Journal of Cosmetics, Dermatological Sciences and Applications, 2021, 11, 155-168

Skin redness is reduced

Background:

- Resveratrol inhibits pro-irritating enzymes

Method:

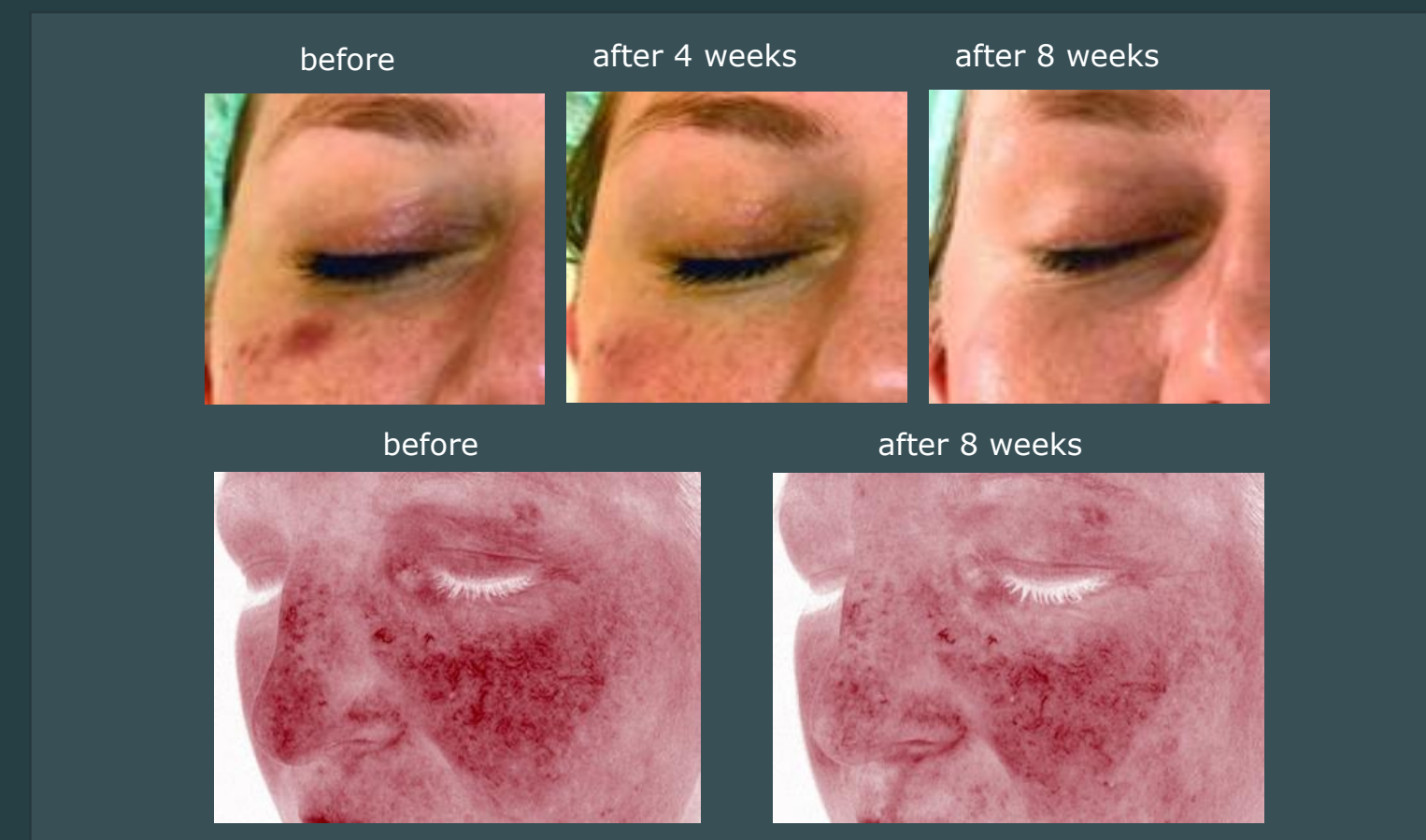
- Visia Scan for skin redness before and after 8 weeks
- Dermatological expert evaluation with pictures before, after 4 and 8 weeks*

Results:

- Skin irritations are soothed, pro-irritating processes are inhibited
- Skin redness is reduced

What does this mean:

- Skin redness is reduced
- Skin irritations are reduced



Schulte to Brinke et al, Skin Anti-Aging Benefits of a 2% Resveratrol Emulsion, Journal of Cosmetics, Dermatological Sciences and Applications, 2021, 11, 155-168

* Prager and Partner dermatological evaluation (2018) on 9 volunteers

Skin feeling and Appearance

Methods:

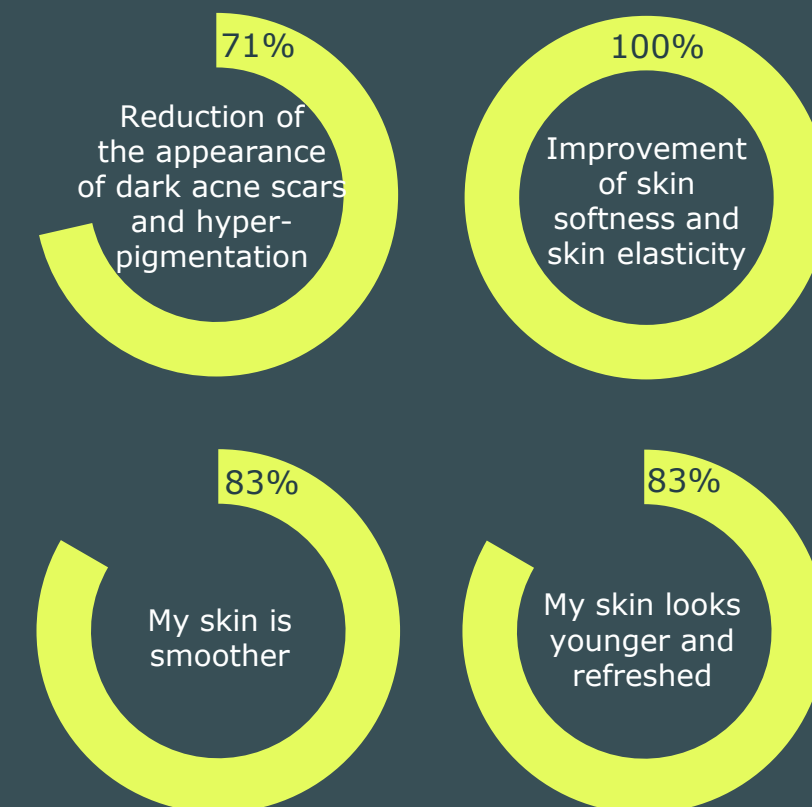
- Participant questionnaire on user satisfaction

Visible results:

- Skin feeling and appearance is rated superior by customers

What does this mean:

- Skin contours are visibly firmed.
- Lines and wrinkles are smoothed.



Schulte to Brinke et al, Skin Anti-Aging Benefits of a 2% Resveratrol Emulsion, Journal of Cosmetics, Dermatological Sciences and Applications, 2021, 11, 155-168

Visible results



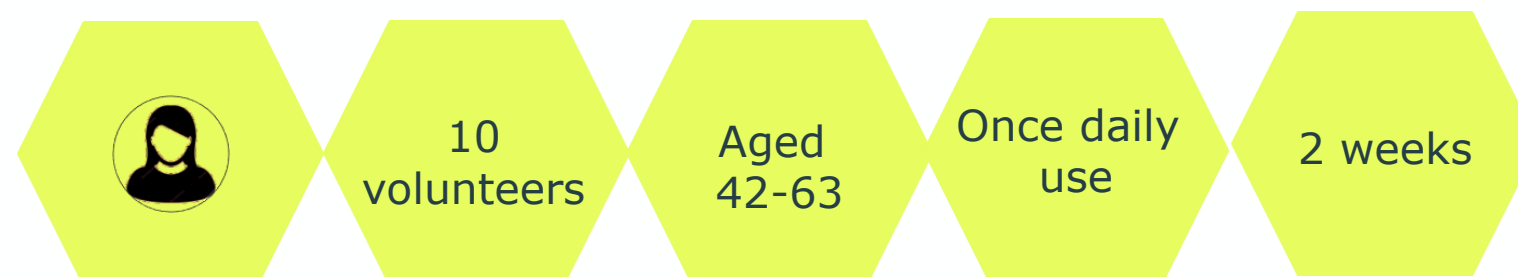
before

after

Schulte to Brinke et al, Skin Anti-Aging Benefits of a 2% Resveratrol Emulsion, Journal of Cosmetics, Dermatological Sciences and Applications, 2021, 11, 155-168



Ophthalmological Examination



Study title: Controlled User Test of the Product - Ophthalmological test

Study centre: Derma Consult GmbH, Germany, 2016

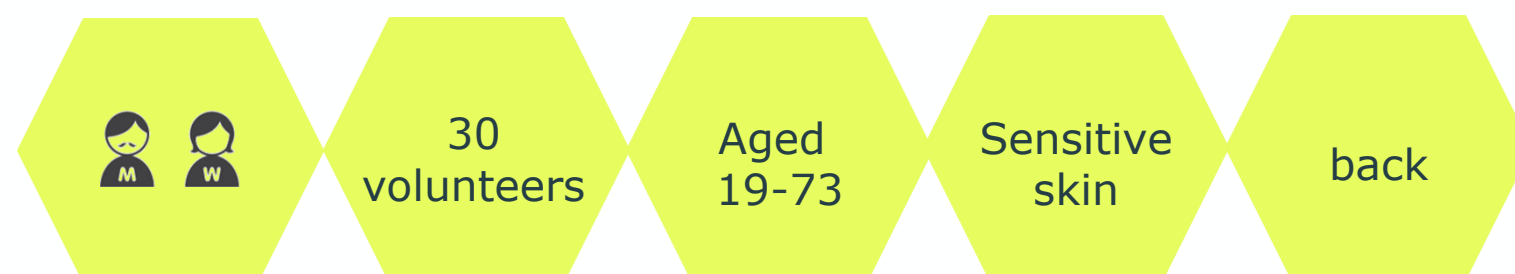
Protocol: Product applied once daily in the evening for 2 weeks;
Examination of the eye and eye region by an ophthalmologist

Result: None of the subjects showed any signs of pathological changes in the area of the conjunctiva, the cornea, the eyelids or the tear ducts which could have been brought about by the application. There were also no influencing factors or impairment of the vision during the time of application, the visual acuity of some test persons varied due to the wear of glasses or contact lenses at the different dates. The product was tolerated very well.





Patch Test



Study title: Test for primary skin irritation and hypersensitivity of human subjects after single application

Study centre: Dermatest GmbH, Germany, 2016

Protocol: Application of the product for 24, 48 and 72 hours under occlusion



Result: Evaluation of the test areas 30 min after completion of the occlusion
The product did not lead to toxic-irritative intolerance reactions in patch testing carried out in accordance with international guidelines. The preparation can therefore be declared as dermatologically tested.

Proven Performance – for a 10 years younger look

Improvement of Skin Firmness

46% Within 8 weeks of use

Improvement of Skin Density

11% Within 8 weeks of use

Improvement of Skin Parameters

31% Glow

42% Smoothness

10% Wrinkles

Improvement of Skin Feeling and Appearance

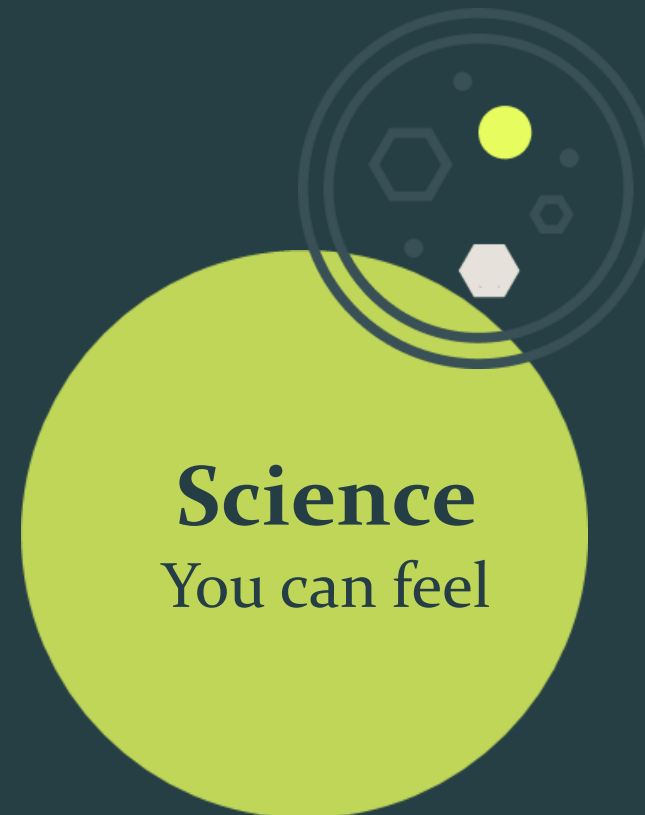
100% Skin Elasticity

83% Fresher and younger skin looking

83% Smoother skin



Thank you for your attention



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