

# In vivo effects of cosmetic formulations containing thermal spring water, retinaldehyde, hyaluronic acid fragments, pro-tocopherol, glycyglycine and glycoleol on skin physiology after 12 weeks

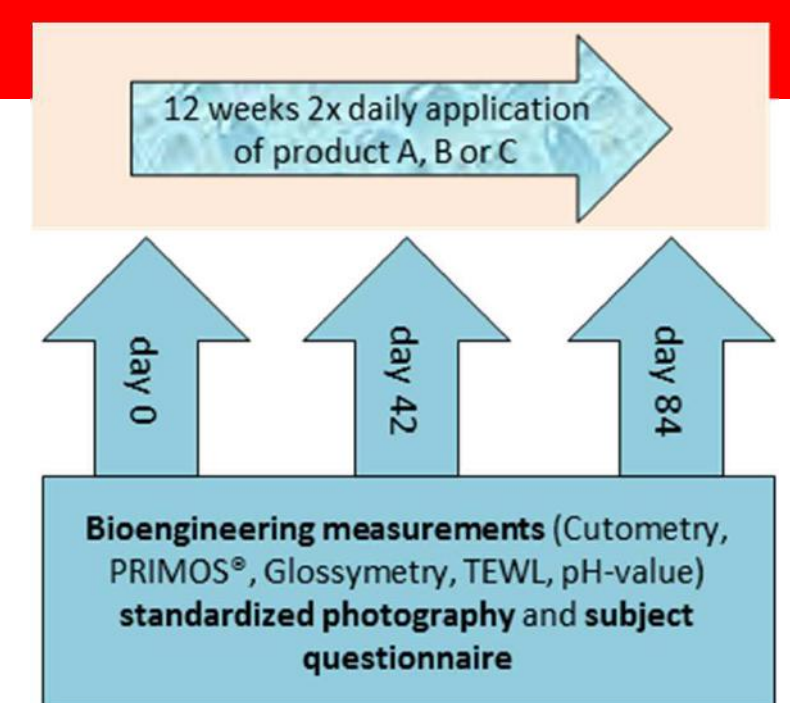
University of Hamburg, Department of Chemistry, Division of Cosmetic Science  
STREKER M, DAVIDS M, NIELSON N, BERNHÖFT K, BUNTROCK H, KERSCHER M

## Background and Objective

As youth and perception of beauty are considered to be of great importance, an individualized dermatocosmetic treatment regimen seems to be one important step within patient care. Aim of the presented study was the evaluation of in vivo effects of three formulations containing thermal spring water, retinaldehyde, hyaluronic acid fragments, pro-tocopherol, glycyglycine and glycoleol in different and individualized compositions on physiology of aged skin.

## Methods

60 healthy female subjects aged 30-65 years were included in this observational study. Subjects treated their facial skin with one of the three formulations for 12 weeks. One of the three products (A, B, C) was applied twice a day; products were selected due to age and skin aging signs. Changes of skin parameters were investigated at baseline, after 42 and 84 days using subject questionnaire, standardized photography and bioengineering measurements: PRIMOS (wrinkle severity), cutometry (skin elasticity), glossymetry (skin glow), evapometry (transepidermal waterloss, TEWL) and pH-value.

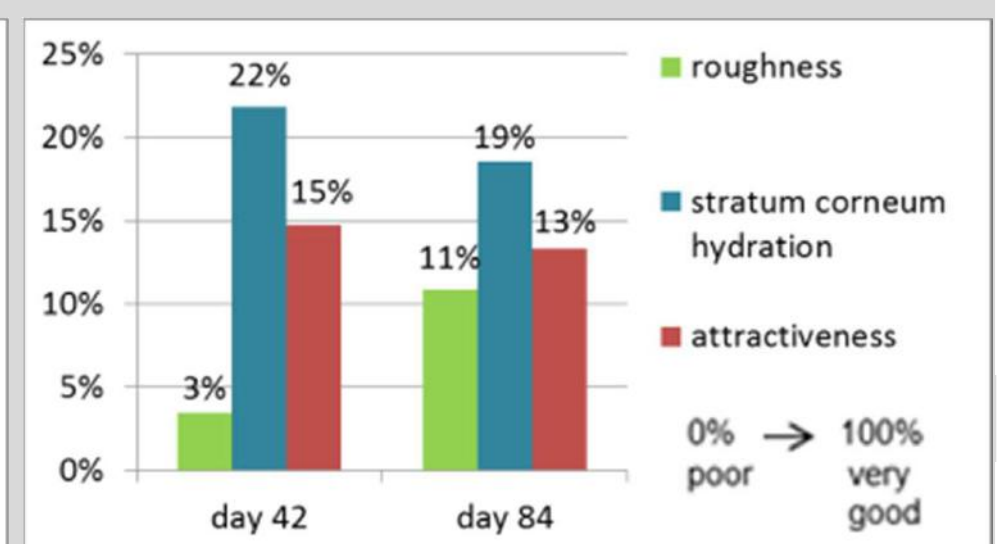
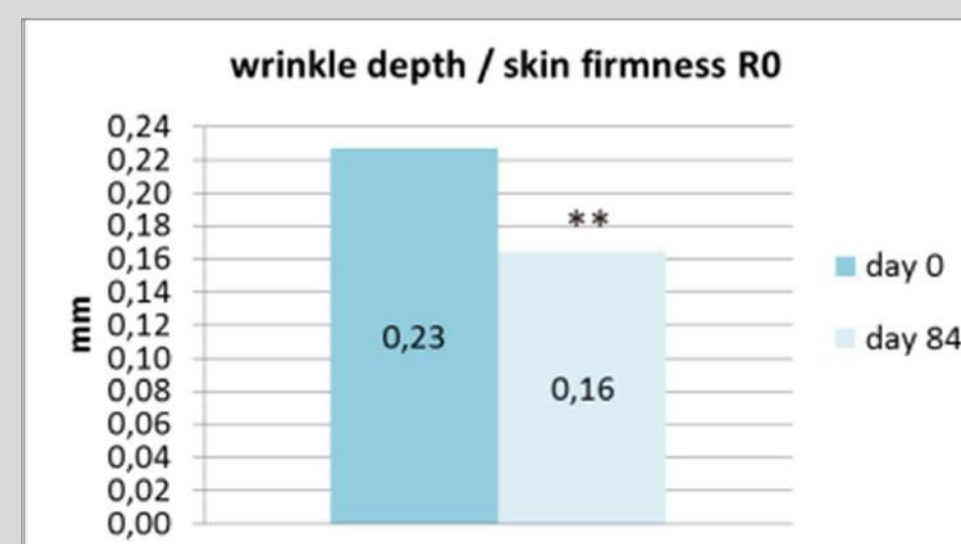


## Results

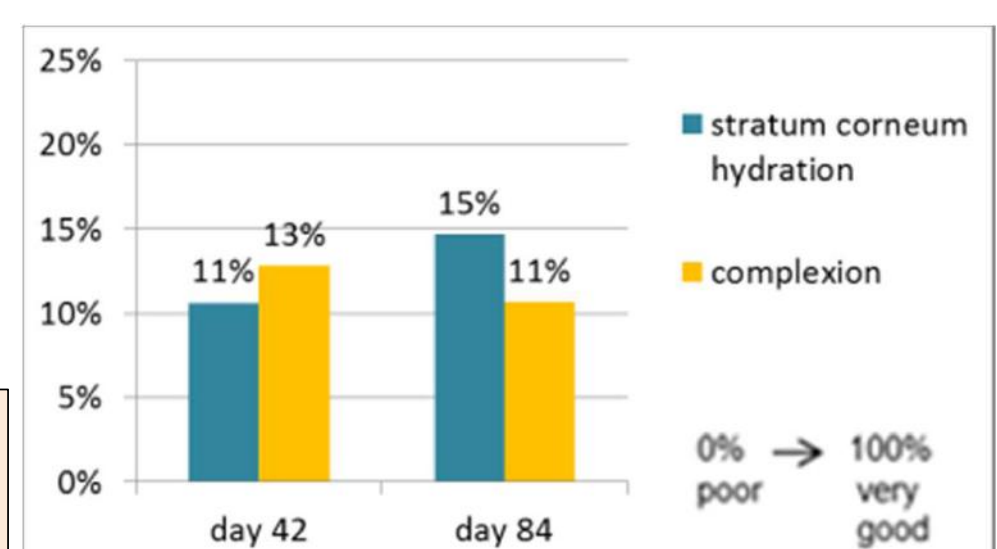
The mean age of subjects was in group A: 54 years, group B: 45 years and group C: 33 years.



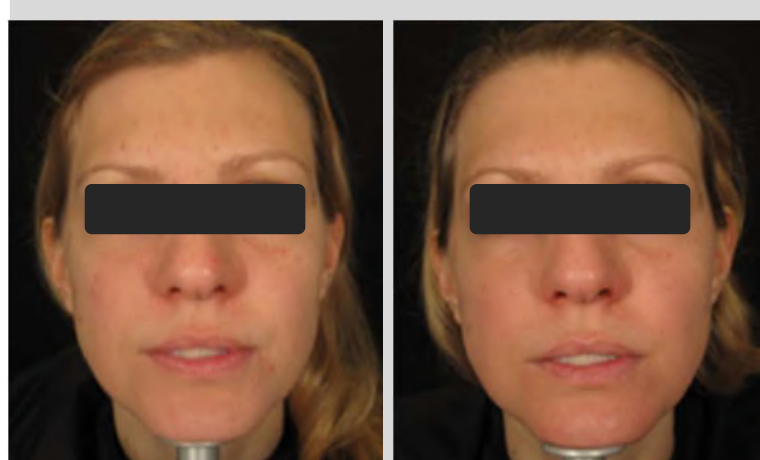
Clinical evaluation shows in **group A** (53% thermal spring water, hyaluronic acid fragments, pro-tocopherol and glycoleol) a clear improvement in wrinkle depth and skin firmness ( $p=0,01$ ) as well as improved skin glow. Subjects rated a significantly by 22% increased stratum corneum hydration ( $p=0,013$ ) and significantly improved attractiveness ( $p=0,01$ ).



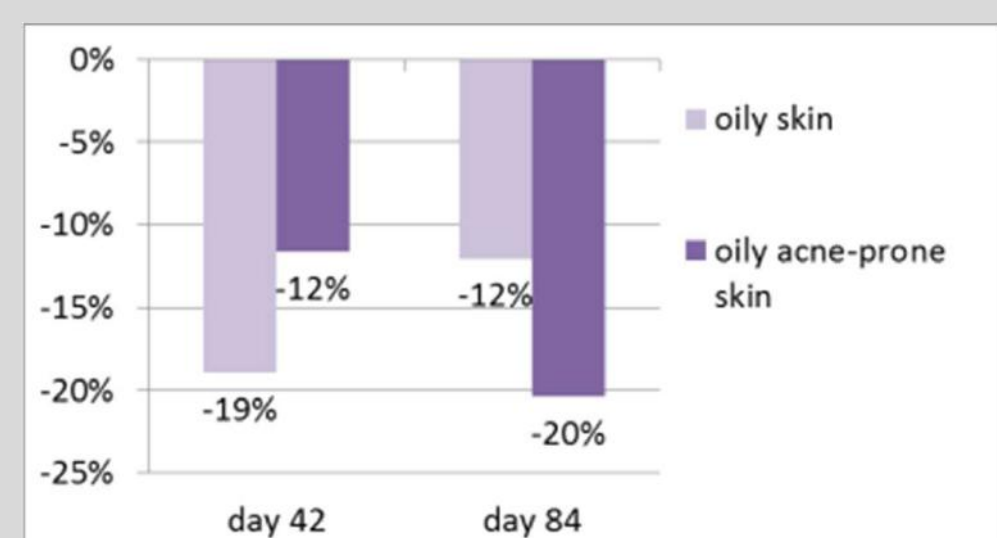
In **group B** (5% thermal spring water, retinaldehyde and hyaluronic acid fragments) subjects questionnaire showed a significant increase in stratum corneum hydration ( $p=0,037$ ) and by 13% significantly improved complexion as well as attractiveness ( $p=0,016$ ).



Skin-pH-value and TEWL remained with all products throughout the entire study period within the physiological range.



Moreover, in **group C** (60% thermal spring water, retinaldehyde, pro-tocopherol and glycyglycine) subjects rated a significant decrease in oily skin and oily acne-prone skin (about -20%).



## Conclusion

No Conflict of Interest for all authors.

In summary, the present results show for the formulation of 53% thermal spring water, hyaluronic acid fragments, pro-tocopherol and glycoleol a clear effectiveness regarding reduction of wrinkles and improvement of skin firmness over three months. According to patient's self-assessment the cream-based formulation also exerts a significant positive influence on the stratum corneum hydration as well as the physical attraction. Significant cosmetic improvements of the skin as well as a high tolerability could be shown for all three formulations.