

THE REPAIRING EFFECT OF DERMOCOSMETICS CONTAINING PANTHENOL AND MADECASSOSIDE IN SUBJECTS WITH SENSITIVE SKIN WEARING MEDICAL MASKS

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INTRODUCTION

During the COVID-19 pandemic, it was key to use personal protective equipment including facial medical masks to limit the spread of the virus. However, wearing a medical mask over a prolonged period has been reported to cause damage to the skin.¹

Skin reactions such as contact dermatitis, acne, itch and rash as well as irritation and dryness from wearing medical masks have been frequently reported.²⁻⁴

The objective of this study was to evaluate the benefit of a dermocosmetic (DC) balm and mask containing panthenol and madecassoside in subjects with sensitive skin wearing a facial mask.

MATERIAL & METHODS

A single-center, controlled, randomized study was conducted in 64 women, aged between 18 and 40 years. All subjects wore medical masks for 4 hours (T₀).

Group 1 (32 subjects): applied a dermocosmetic (DC) balm on one half-side of the face with an immediate analysis of the benefit

Group 2 (32 subjects): applied a combination of a DC mask for 20 minutes and the DC balm to be applied one hour after the mask on one half-side of the face, while no products was applied on the other half-side which served as a control. Evaluation were made at 1 hour after mask application compared to the control side, and then after the subsequent application of DC balm on top of the DC mask

Clinical assessments included the grading of dryness, transepidermal water loss (TEWL), as well as redness.

RESULTS

Medical mask wearing period (both groups)

At baseline (T₀), the mean skin dryness score was 5.52±0.18, the mean TEWL was 22.94±0.64 g·m⁻²·h⁻¹ and the redness ratio was 53.60±0.04%;

50% in subjects self-reported sensitive skin.

Four hours after wearing a medical mask, skin dryness had increased by 0.13 points to 5.66±0.17, TEWL by 0.91 units to 23.86±0.55 g·m⁻²·h⁻¹ and the redness ratio of 4.17% to 57.77 ±0.04%, corresponding to an increase of 2.40%, 3.97% and 7.78%, respectively. Increases were statistically significant (p<0.05).

Application of the DC balm (Group 1)

At T_{imm} (after a single application of the DC balm), skin dryness, TEWL and redness on the balm-treated side had significantly (mean change: -1 point, -2.95 g·m⁻²·h⁻¹ and -4.78%, respectively; p<0.05) decreased compared to T₀.

Differences in skin dryness and TEWL reduction (T_{imm}-T₀) were significant (p<0.05) compared to the control side (Figure 1).

No significant between-group difference was observed for redness.

Group 2:

• Application of the DC mask

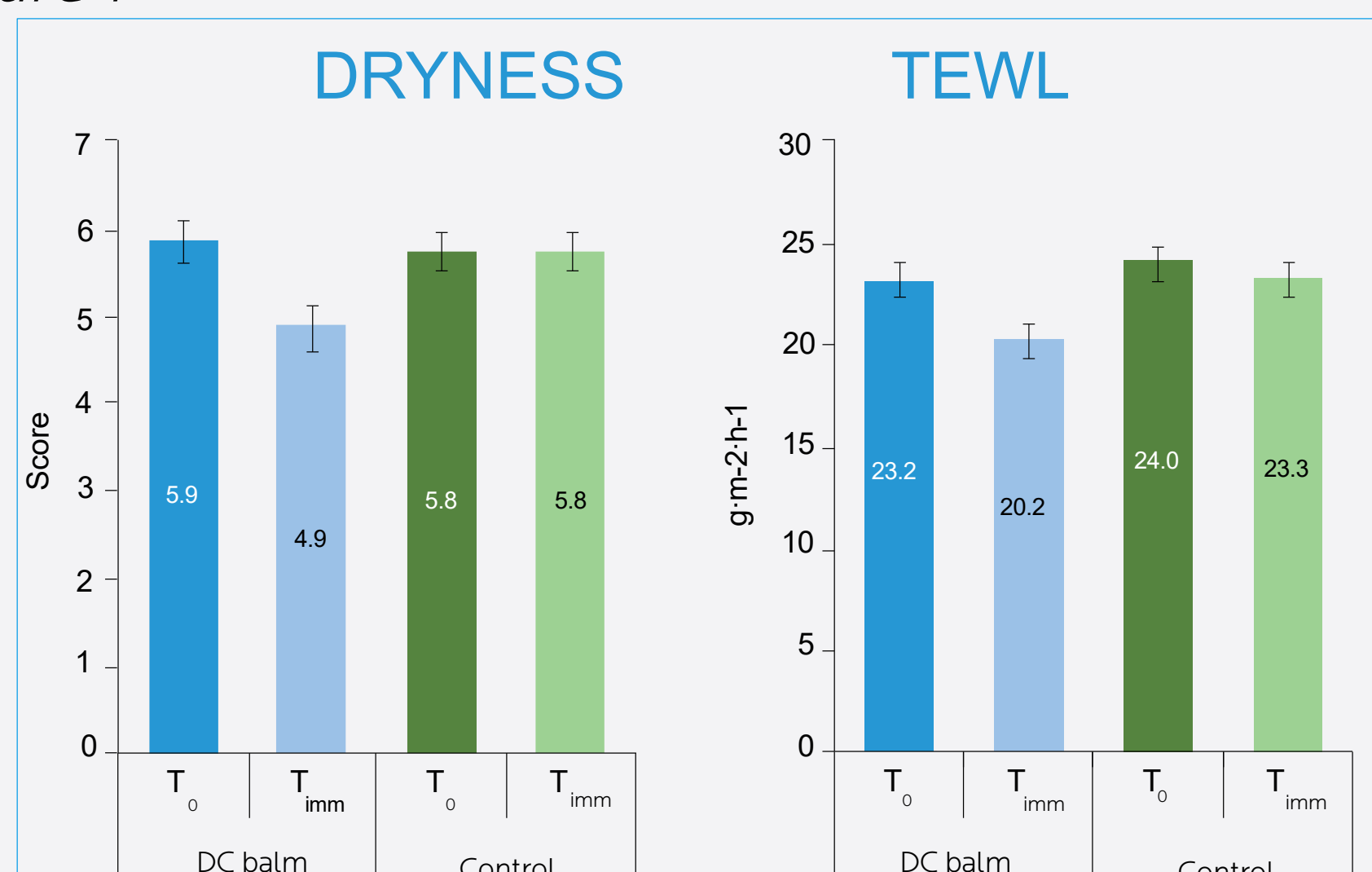
One hour after the application (T_{1h}) of the DC mask, skin dryness, TEWL and redness on the half-face having received the DC mask had significantly (p<0.05) decreased compared to T₀ by -0.63 points, -3.46 g·m⁻²·h⁻¹ and -14.25%, respectively with significant (p<0.05) differences for skin dryness and TEWL improvement in favour of the DC mask (Figure 2). No significant between-group difference was observed for redness.

• Application of the DC mask and balm

At T_{syn} (after the combined application of the mask and balm), skin dryness and TEWL on the DC side had significantly (p<0.05) improved (-0.94 points, -4.67 g·m⁻²·h⁻¹ and -13.85%, respectively) compared to baseline with a significant improvement of skin dryness and TEWL compared to the control side (Figure 3). No significant between-group difference was observed for redness.

SKIN BARRIER PARAMETERS BEFORE AND AFTER THE APPLICATION OF A DC BALM

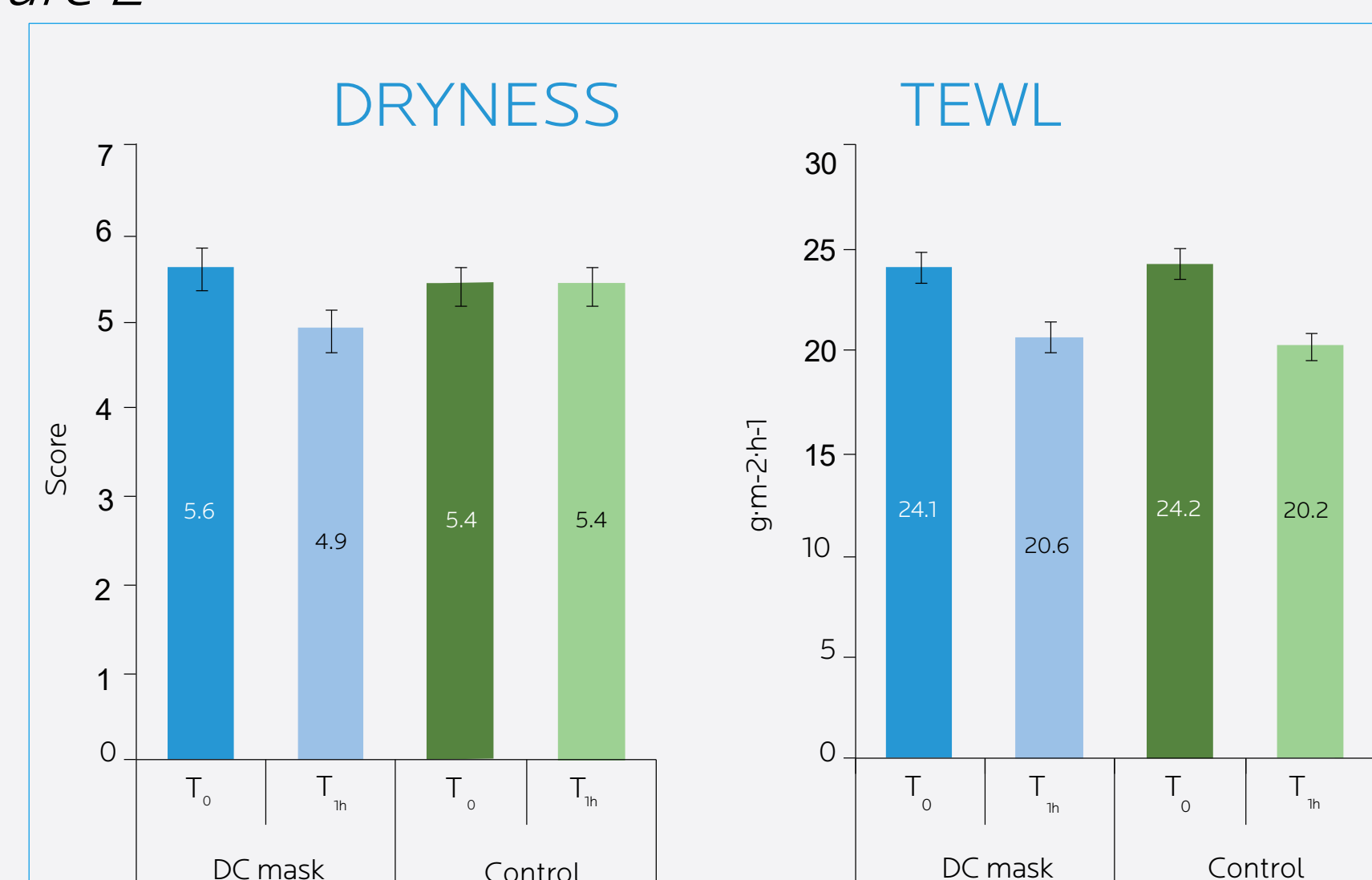
Figure 1



At T_{imm}, differences in skin dryness and TEWL reduction were significant (p<0.000) compared to the control side in favour of the DC balm.

SKIN BARRIER PARAMETERS BEFORE AND AFTER APPLICATION OF THE DC MASK

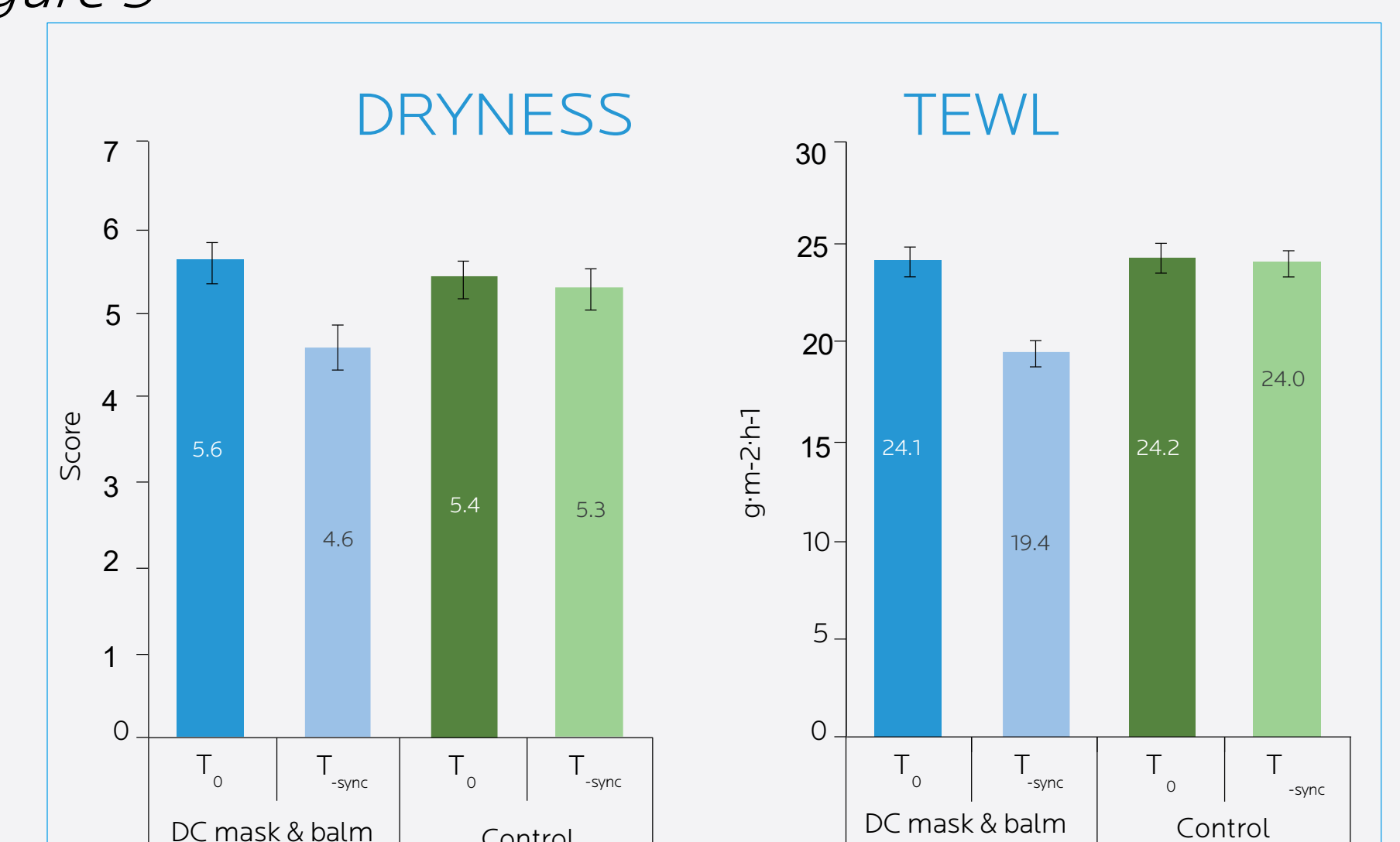
Figure 2



At T_{1h}, differences in skin dryness and TEWL reduction (T_{1h}-T₀) were significant (p<0.000) compared to the control side in favour of the DC mask.

SKIN BARRIER PARAMETERS BEFORE AND AFTER THE APPLICATION OF A COMBINATION OF THE DC MASK AND BALM

Figure 3



At T_{syn}, differences in skin dryness and TEWL reduction were significant (p<0.000) compared to the control side in favour of the combined use of the DC mask and balm.

CONCLUSION

The application of a DC balm and mask containing ingredients with skin repairing properties significantly enhances the skin barrier recovery and reduces skin dryness and transepidermal water loss induced by the prolonged use of facial masks.

Funding:



References:

- Hua et al. Short-term skin reactions following use of N95 respirators and medical masks. Contact Dermatitis. 2020;83(2):115-21.
- Foo et al. Adverse skin reactions to personal protective equipment against severe acute respiratory syndrome--a descriptive study in Singapore. Contact Dermatitis. 2006;55(5):291-4.
- Yu et al. Occupational dermatitis to facial personal protective equipment in health care workers: A systematic review. Journal of the American Academy of Dermatology. 2021;84(2):486-94.
- Al Badri F. Surgical mask contact dermatitis and epidemiology of contact dermatitis in healthcare workers. Current Allergy and Clinical Immunology. 2017;30:183-8.