

# COMPARATIVE IN VIVO REVISCOMETER-RRTM AND ULTRASONOGRAPHY TECHNIQUES TO ASSESS THE ANTI-AGEING EFFICACY OF THE NOVEL MF III® OF SWITZERLAND BLUECELL EXTRACT SERUM GEL

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## ABSTRACT

The anti-ageing properties of a new facial care treatment, MF III® of Switzerland Bluecell Extract Serum Gel, were investigated using the shear wave propagation method (multi-angle measurements) and the high-frequency skin ultrasonography. A 2-month cosmetic efficacy study was conducted with 29 healthy female volunteers, aged between 30 and 64 (mean 52 years). Results showed continuous and statistically significant reductions of resonance running time (RRT) on the temples and volar forearms, which corresponded to skin firmness increases, and indicated a strong anisotropic situation, especially on the temples. In parallel to that, a continuous, statistically significant dermis density increase was assessed on the face by ultrasonography.

## INTRODUCTION

It has been shown in literature that classical cutometry measurements cannot always correctly describe skin elasticity and firmness changes [1,2]. As a valuable alternative, the shear wave propagation method can precisely assess about changes in firmness and present the angular anisotropic properties of skin, as related to Langer's lines [3]. Since the new MF III® of Switzerland Bluecell Extract Serum Gel was shown to be effective in improving certain aspects of ageing skin [4], it was interesting to compare the firming activity of this product in different skin areas and to relate it to the redensification of dermis, as measured by ultrasonography. RRT measurements were made on volar forearms (treated vs. untreated) and on the temples; ultrasound measurements were made on one cheek. The aim of the present work was to evaluate and compare the intensities of such anti-ageing effects according to the skin area.

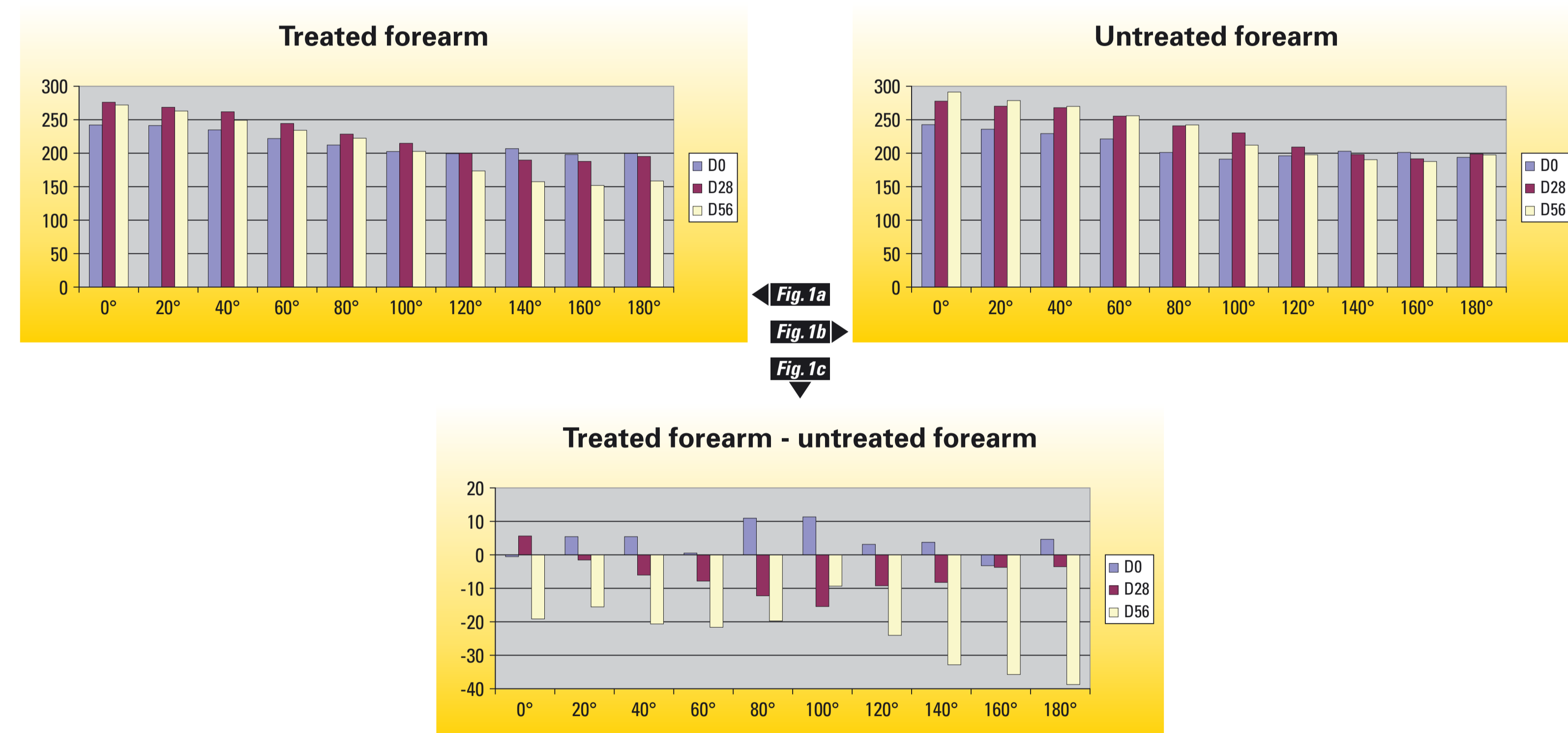


Figure 1 – RRT evolution on volar forearms, during twice daily treatment with the test product (RRT units): (1a) Treated (1b) Untreated (1c) Treated-untreated.

## RESULTS

29 healthy female volunteers with Caucasian skin type (ages 30-64) participated in a 2-month open efficacy study, applying the MF III® of Switzerland Bluecell Extract Serum Gel twice daily on the whole face and on one volar forearm. RRT measurements, using the Reviscometer® RVM 600 (Courage & Khazaka, Germany), were made in two skin areas, the volar forearms (VF) and the temples. In each of them 10 RRT values were recorded with angle increments of 20°, thus covering an angular field of 180°; the 0° reference angle was set in the vertical axis from foot to head. High-frequency ultrasonography measurements on the left cheek were made using a 20-MHz DermaScan® C device (Cortex Technology, Denmark), set on B-mode. VF: differences after-before and treated-untreated indicated continuous and statistically significant decreases of RRT. After 2 months of treatment the strongest RRT reduction was observed at 180°: -21.9%, and the lowest one at 0°: -7.6%, both assessing about a firming effect; untreated forearms gave non-significant results. Temples: after 2 months results were -57.9% RRT at 180° and +20.2% RRT at 0°; the most important firming effect was seen on the temples. Ultrasonography: on the cheek a statistically significant average increase of 8.5% dermis density was obtained after 2 months of treatment.

## DISCUSSION

During the 2-month treatment period significant and constant increases in firmness were measured on the treated VF and the temples. A particularly strong anisotropy in the data was observed for the temples (Fig. 2), as compared to VF (Fig. 1a-1c). On the temples, especially between 140° and 180°, important RRT decreases between 30% and 40% were observed after 1 month, and decreases between 55% and 70% were obtained after 2 months (Table 1). Comparatively, results obtained between 0° and 40° were not significant (Fig. 2, [4]). The important firmness observed in high angles is correlated with the improved density measured on the face. On VF a firming effect was also evidenced, but it appears that the skin substructure of the VF area was less subject to a firming effect than temples (max. 24%, Table 1). Hence, important differences in anisotropy and firming evolution between VF and facial skin (temples) must be outlined. Obviously, however, it appears that the active ingredients of the MF III® of Switzerland Bluecell Serum Gel help successfully fighting against ageing signs such as laxity and loss of dermis density, especially on the face.

	140°		160°		180°	
	(a)	(b)	(a)	(b)	(a)	(b)
Temples	-36.7% **	+60.9% ***	+41.0% **	+60.7% ***	-33.1% **	+57.9% ***
Treated forearm	-8.2% ns	+23.8% **	+5.1% ns	+23.3% **	+1.7% ns	+20.1% *
Untreated forearm	-2.4% ns	+6.2% ns	+4.8% ns	+6.8% ns	-2.5% ns	-1.8% ns

Table 1 – Comparative evolution of firmness on volar forearms and temples. 3 selected angles with highest response. Percentage differences to baseline, RRT units [(a) = (D28-D0)/D0; (b) = (D56-D0)/D0; \* significant, \*\* very significant, \*\*\* extremely significant, ns non-significant].

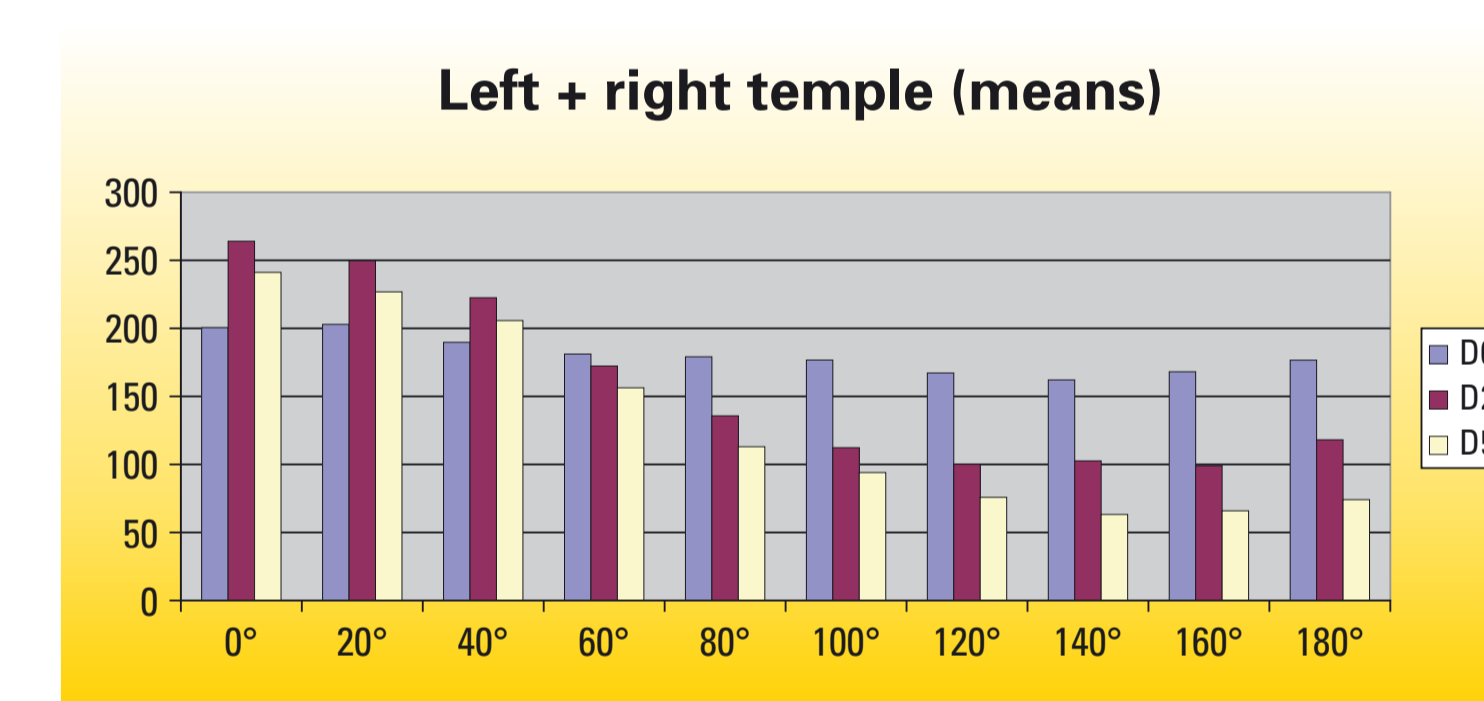


Figure 2 – RRT evolution on temples, during twice daily treatment with the test product (RRT units).

## CONCLUSIONS

This study showed that an important and continuous skin firming effect was delivered by the test product during 2 months, and was evidenced on the temples by RRT measurements. A strong anisotropy was outlined there. Ultrasonography measurement, showing dermis density increases, confirmed these results. RRT measurements on VF showed that firmness increases represent max. 1/3 of the values observed on the temples, and that anisotropy was much less important. As a matter of fact VF skin can be considered as representative of facial skin for surface parameters (e.g. moisture or TEWL); internal skin parameters (e.g. firmness or viscoelasticity) reveal important differences with facial skin, thus showing that VF are not entirely representative of facial skin, in such cases.

## REFERENCES

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