

Using a combination of Sodium Mannose Phosphate, *Porphyridium cruentum* Extract and Caffeine in a serum with anti-ageing and remodeling properties.

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Introduction

The most significant cutaneous changes during ageing take place in the dermis. Loss of molecular integrity of the reticular dermis leads to rigidity, decrease in elasticity and torsion extensibility. Visible signs of ageing are wrinkles, age spots and sagging skin. It has been observed previously that aging causes a decrease in epidermis thickness and a reduction in the activity of the melanocytes, which may lead to uneven skin tone. Previous results have shown that several active ingredients may help improve elasticity and firmness of the skin in the Y-zone (cheeks, chin, neck and décolletage) and restore a younger appearance.

The aim of the study was to investigate if the serum that contained Sodium Mannose Phosphate, *Porphyridium Cruentum* Extract and Caffeine will show anti-ageing and remodeling effect in a group of mature women with visible signs of ageing.

Methods

In this study, we combined three active ingredients to see if they may help in remodeling the Y-zone: Sodium Mannose Phosphate naturally derived from Mannose, *Porphyridium cruentum* Extract, and Caffeine in the serum 5820.

A skin patch test on 30 subjects with allergy-prone skin was performed to confirm the dermatological safety of the tested serum.

The *in vivo* study was performed in a group of 24 women aged 48-65 with dry, sensitive, and mature skin. The participants were asked to use the product two times a day for 3 weeks. All of them were instructed to apply the serum together with a special massage of the Y-zone. Instrumental skin evaluation was done at the baseline and after 3 weeks of product application. Skin elasticity and firmness (Cutometer, MPA-580), skin topography parameters (skin smoothness and anisotropy index, Visioscan), and Y-zone shape (FotoFinder,) were evaluated in the group of 13 volunteers. All testing was performed by experienced technicians, using a single device, in the same room and under the same environmental conditions. All the participants completed a satisfaction questionnaire after 1 day and 3 weeks of using the product.

Conclusion

The tested product containing an innovative combination of Sodium Mannose Phosphate, *Porphyridium cruentum* Extract and Caffeine showed excellent anti-ageing properties: improved skin elasticity and firmness, reduced wrinkles and smoothed the skin. It can be used as a noninvasive method to reshape face oval (Y-zone) and to restore a younger appearance. Dermatological patch test study indicated, that the tested serum showed any irritating or sensitizing properties.

Results

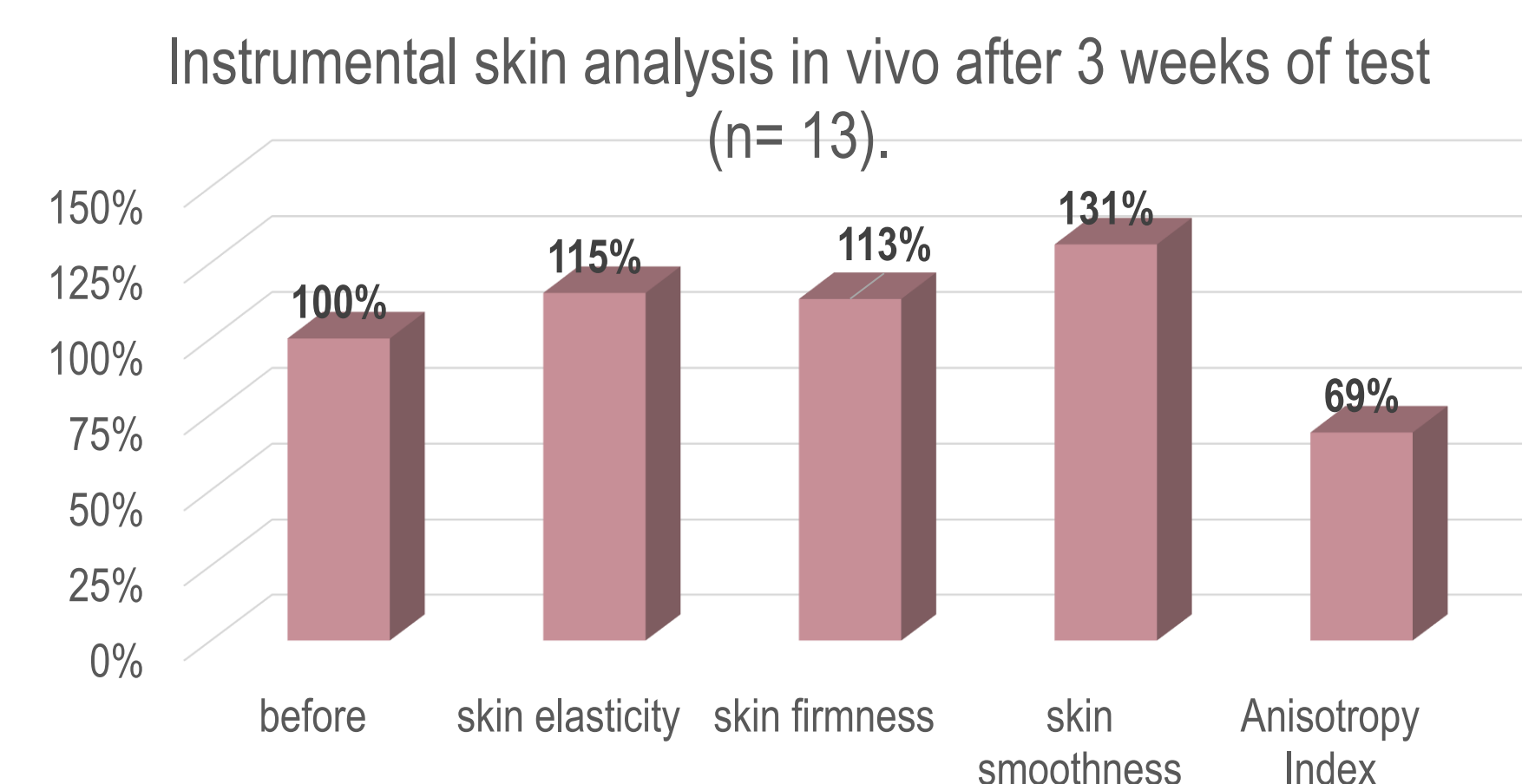


Figure 1. Instrumental skin analysis measured at baseline (before application) and after 3 weeks of serum use. Biometric measurements showed improvement in elasticity by 15%, firmness by 13%, smoothness by 31% and decrease in skin anisotropy by 31%.

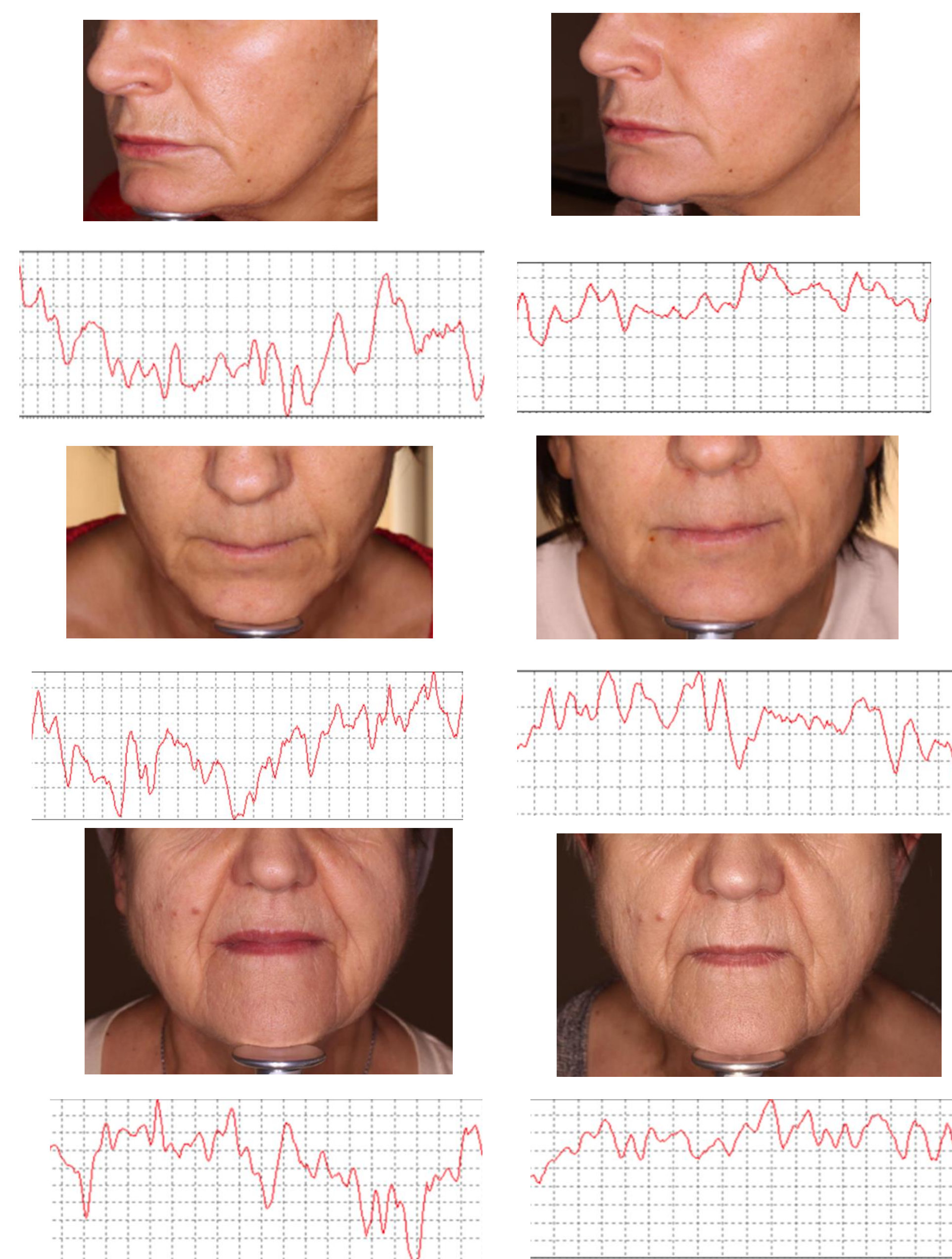


Figure 2. Visual assessment of the face shape and skin profiles. Images taken at the baseline (left side) and after 3 weeks of serum use (right side) show improvement in the face shape.

Using the subjective 10- point scale (1- no visible reduction, 100- total reduction of visibility), the participants reported reduction in the size of the double chin by 79% on average (data not shown).

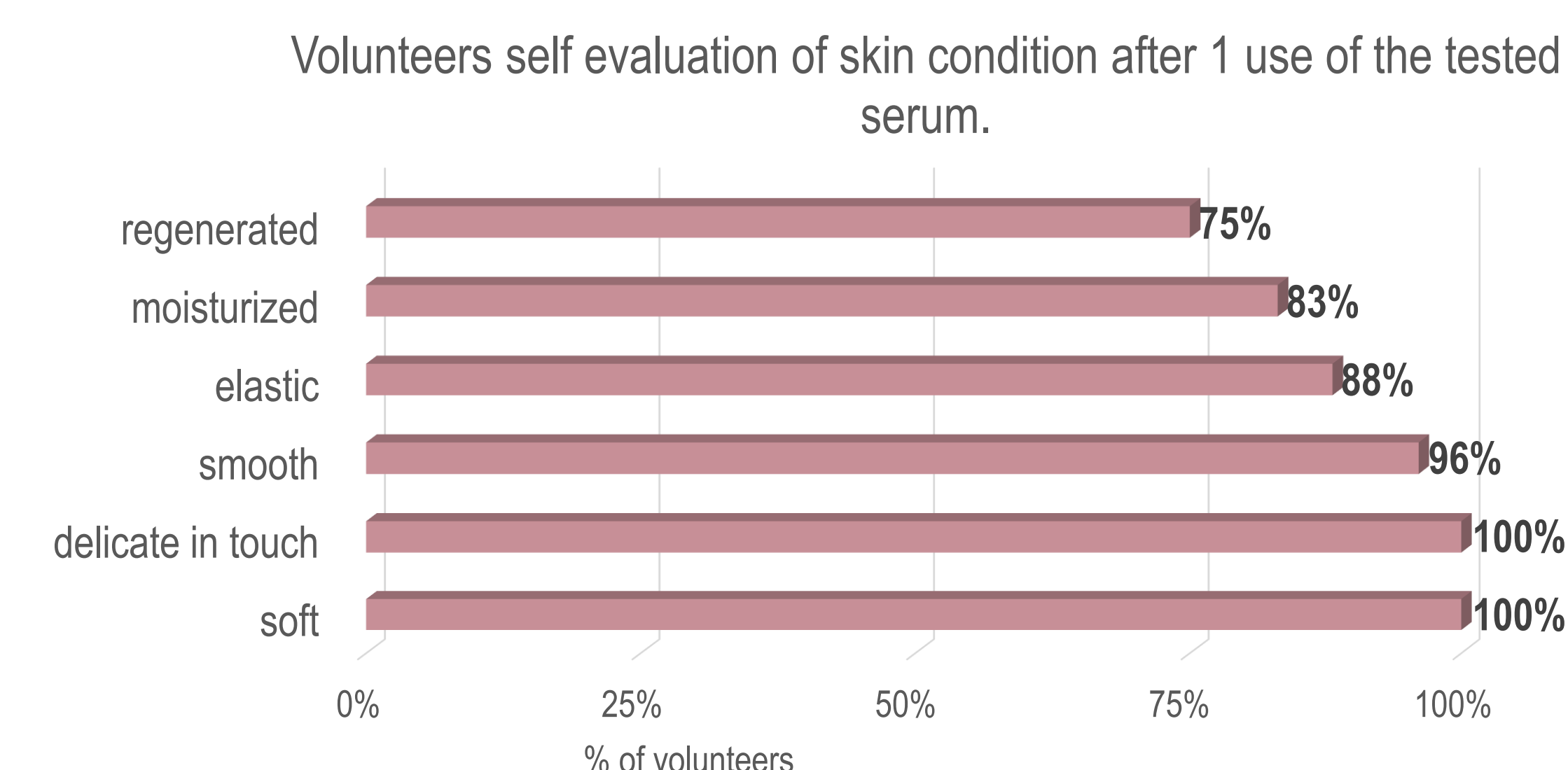


Figure 3. Volunteers self-assessment taken after first usage of tested serum. After the first use of the product volunteers noticed that their skin become: soft and delicate in touch (100%), smooth (96%) more elastic (88%), moisturized (83%) and regenerated (75%).

Self- evaluation of respondents	% subjects
improving skin elasticity	100%
improving skin softness	100%
skin become more firm and tense	96%
the skin is properly moisturized	88%
I feel the skin is intensively smoothed	83%

Figure 4. Volunteers self-assessment taken after 3 weeks of tested serum use. Study participants reported improvement in skin elasticity and softness, in their opinion skin becomes more firm and tense, properly moisturized and intensively smoothed.

Self-evaluation of respondents	% subjects
reduces the visibility of transverse wrinkles on the neck resulting from incorrect posture and head position	67%
regular use of the serum makes the face within the so-called Y zones (cheeks, chin, neck) are rejuvenated (improving the contour of the face, reducing laxity, reducing the visibility of wrinkles)?	83%

Figure 5. Self-evaluation taken after 3 weeks of the test. Respondents reported a reduction in the visibility of the horizontal wrinkles on the neck and improvement in Y-zone condition (improvement in the face contour, reducing laxity, reducing the visibility of wrinkles).