

The efficacy of a Non-Fractional IR Controlled Pulsed Light System for Stretch Marks

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Introduction

Stretch marks or striae distensae are a very common problem for which treatment remains a challenge. In the early stages, striae appear pink to red (striae rubra), which over time become atrophic and attain a white color (striae alba). On histopathology, striae distensae are very similar to scars with a thin, flattened epidermis, attenuation of the rete ridges, fraying and separation with orientation of collagen bundles in a horizontal plane, dilatation of blood vessels, and abundant clumped elastic fibres. Causes include mechanical stress, such as weight changes and weight lifting, corticosteroid therapy, Cushing's syndrome, infections, and hormonal factors such as puberty and pregnancy. Multiple treatment modalities have been tried with variable results. These include tretinoin glycolic acid, ascorbic acid pulsed dye laser CO₂ laser , infrared laser and the excimer lasers and light sources. The Non-Fractional IR Controlled pulsed light source has been shown to offer clinical improvement in collagen remodelling for patients with atrophic facial scars and fine wrinkles.

We tested this non-fractional infrared

broadband pulse light source (Novaplus ®) to see the efficacy in treatments of stretch marks, as these are dermal scars with epidermal atrophy.

This prospective study was performed in the treatment of stretch marks in patients with all skin types.

Material and methods

Study design:

Twenty subjects (20 females) aged 38 to 65 years (median 48.6 years) were recruited stretch marks of thighs , arms and abdomen. Standardized digital photographic documentation and three-dimensional in vivo optical skin imaging (3D-profilometry) was performed at baseline, at the fourth session and 3 months after the treatment. Stretch marks depth was measured by a 3d-profilometry attached computer software (Antiaging SD , Clinipro, Barcelona, Spain) Treatments were conducted at baseline, and every two weeks without use of any anaesthetics.

Patients were included in the study if stretch marks were white or normal skin colours, with less than 4 mm width.

Infrared light source:

A new concept of controlled spectrum of broadband light (Novaplus, Ultramed, Geneva, Switzerland) emitting at three different sections of the light spectrum: i) 800 to 1.800nm near infrared, for deep dermal heating and fibroblast stimulation; ii) 500 to 800nm, for the treatment of vascular lesions; iii) 600 to 1.000nm, for

hair removal and for improvement of pigmented lesions.

For stretch marks infrared light from 800 nm to 1.800 nm, the energy densities used was 31 J/cm². The light pulses may be applied in differently chopped modes at durations of 5 ms to 3.000 ms. All treatments were applied via single hand piece with a spot size of 6 cm² (40x15mm) with no need of filters. An aggressive active contact skin cooling at + 5°C is avoid any epidermal injury being in any skin photo types.

The particular burst mode, which can be modified by a simple operation on the software, chops the pulse into a series of mini pulses. Burst pulse widths are of 3 ms to 6 ms, with 20 ms interval between pulses at 0.5 Hz.

Preliminary results

On clinical examination and standardized photography we observe an improvement in width from 0 to 25 %.

Three-dimensional in vivo optical skin imaging assessed anisotropy of micro relief before and at the fourth session showed improved in depth and in micro relief from 25 to 50%.

Treatment satisfaction was graded good and excellent in 40% of patients with all SPT.

Side effects: we did not observe any side effects.

Conclusion

There has been huge demand for laser technology to treat stretch marks.

The results confirms on white stretch marks that Novaplus ® improves skin texture without any side effects on white stretch marks .Our observations on

collagen remodelling shows less depth and less atrophy after 4 treatments. Pain in Epidermis level is low due to aggressive and active skin cooling via the hand piece. This non-fractional pulse light technology is the first system to give objective results in white stretch marks.

NOVAight™ Plus
MULTI-CENTRE STUDY*
 Marseille, Graz, Florence, Cambridge

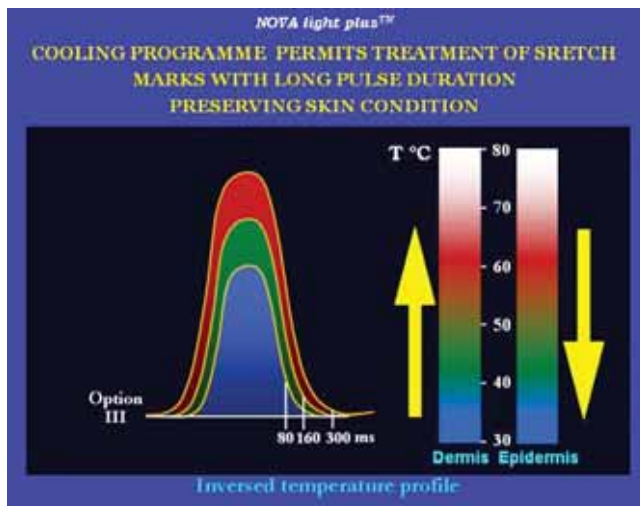
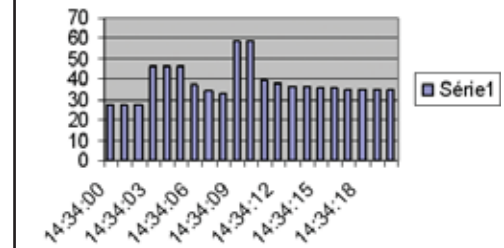
Stretch Marks PROTOCOL

20 areas each Centre
 Option 1: IR Medium 31 J/cm², 3 stacked pulses

Controls

1st 2 weeks 2 weeks 2 weeks Preliminary assessment

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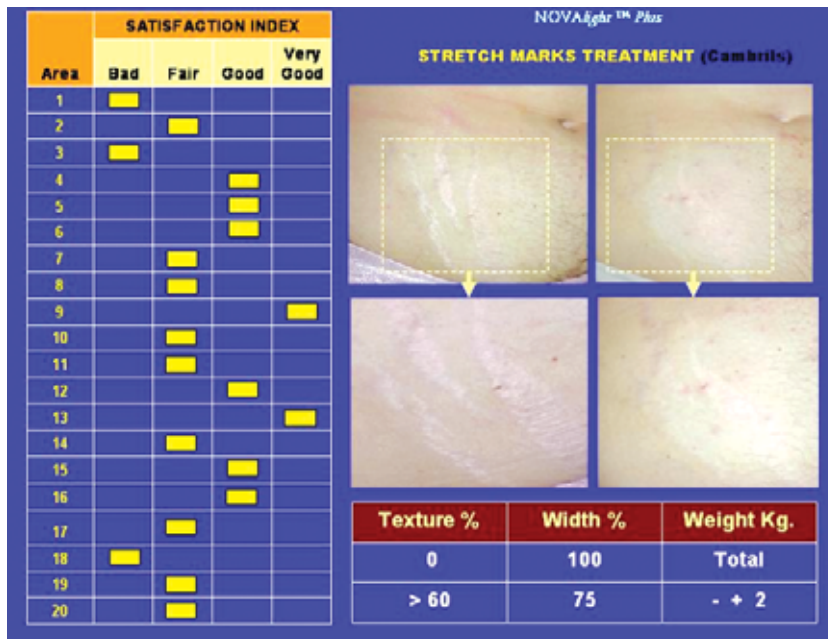


NOVAight™ Plus
STRETCH MARKS (20 areas)

INDEX OF MEASUREMENT

	STARTING POINT (Basal)	ASSESSMENT (3 months)
Weight	X	+ 1 kg
Width measurement	100%	10-20%
Skin texture	50%	80%
Photography control	0	> 30 %
Patient satisfaction	Bad	0
	Fair	0
	Better	0
	Much better	0

Programme stretch marks: Option 3, 31 J/cm², second option pulse, 3 passes



before



after

Stretch of a patient before treatment

