

SCARSCIENCE™

Scar Management Programme

The prevention of exaggerated scarring has remained an unsolved problem. Many methods have been tried, including pressure dressings, splints, gel sheeting, steroid injections, radiotherapy, but all have had limited success and, at times, unwanted side effects.

An immature scar, if put on intermittent stretch, remains immature and many may become hypertrophic (thickened) and irregular. A preferred scar is one that has matured rapidly without contracture, thickening or irregularity and without forming more collagen than is necessary for its strength. Exaggerated scarring can also be aggravated by the presence of sutures (stitches), which cause a foreign body reaction, typified by excess inflammation and subsequent tissue thickening and irregularity.

How then do we accelerate cosmetic scar maturity in a controlled manner?

After years of researching "contact media" (materials, that by their contact with a scar, reduce both the maturation time of a scar and improve its cosmetic appearance),⁽¹⁾ four critical factors have been isolated as major culprits in wound healing modulation:

1. Tension on scar tissue will result in a broader scar and will be responsible for a more extensive inflammatory reaction in the scar.⁽²⁾ Therefore, longitudinal (along the line of the scar) support of the scar is necessary to prevent the development of hypertrophic and irregular scarring. The use of microporous paper tape has consistently been proven effective in preventing hypertrophic scars, by control or elimination of the multitude of stretch forces on the scar.⁽³⁻⁶⁾
2. Hydration (increased moisture) has been shown to be the principle mode of action of the silicone family of molecules. Hydration significantly inhibits excess fibroblast proliferation (which then produce excess collagen).⁽⁷⁾ Hydration is believed to reduce water vapour loss and restore homeostasis (balanced healing environment) to the scar.⁽⁸⁾

The most consistently successful hydrating agent used in scar management to date has been silicone, either in the form of sheeting or various topical applications, which include dimethicone. Countless clinical trials and laboratory studies have confirmed that the hydrating, occlusive effect of silicone on scars results in superior, optimised healing of these scars.^(4, 9,10)
3. An ideal contact medium would be one that not only hydrates but hastens scar maturity too. Centella asiatica has long been recognised for its promotion of scar maturation via collagen homeostasis.⁽¹¹⁻¹⁵⁾

The ScarScience™ management programme contains the leaf sap of *Bulbine frutescens*, which is widely used for the treatment of wounds, burns and also has antiplogistic properties. This healing effect is likely to be due mainly to glycoproteins, such as aloctin A and B. *Bulbine frutescens* is indigenous to South Africa and is grown and harvested organically.⁽¹⁶⁾ The combination of *Centella asiatica* and *Bulbine frutescens* shows great synergy and its effect on collagen restructuring.

4. Unwanted and often inappropriate inflammation often accompanies surgically-induced scars. Suture materials (stitches) are frequently and unavoidably associated with this phenomenon. Phenols extracted from olive oil^(11,19) have known, anti-inflammatory properties. When used at low doses, helpful inflammation is unaffected, whereas exuberant inflammation, typical of foreign body reactions, can be downregulated/ modulated. Oleuropein has these properties and the ScarScience™ scar management programme includes this extract in the formula.^(17,18,19)
5. The ScarScience™ combination pack of gel formula and microporous tape ensures that all four critical requirements for cosmetic scar management are fulfilled. ScarScience™ represents a major breakthrough in new generation combination scar modulators and should, under professional supervision, enhance the cosmetic outcome of an age-old problem of exaggerated scarring.

The aim of the Scar Management Programme is to produce a scar that is favourable in appearance and texture. It is important to note that it is impossible to make a scar disappear, but it is possible to improve its cosmetic outcome. Scar appearance depends on the surgeon's expertise, the patient's inherent potential for good or poor scarring, often genetically determined, and the management of the scar following surgery. ScarScience's™ Scar Management Programme is ideally formulated to influence cosmetic scar outcome providing unique advantages to the patient's long-term scar appearance.

INSTRUCTIONS FOR USE

Presentation and Indications

ScarScience™ Gel – 50ml tube + 10m medical tape (24mm width). Indicated for scars from extensive surgical wounds or injuries.

ScarScience™ Gel – 15ml tube. Indicated for smaller scars from surgical wounds/ excisions or injuries and facial scars.

Tape

When utilising tape, apply the microporous tape to the surface of the scar, in the same direction as the scar following suture removal (if applicable). The tape should overlap the scar by at least 0.5 cm to each side. The patient should bathe or shower with the tape in place.

The tape should be left in place until it separates by itself, or for 5 days, whichever comes first. After separation, a new tape should be replaced over the scar immediately. Scars take, on average, about 6 weeks to gain initial strength. Use of tape following that period is often not required. Thus, after about 6 weeks, the gel alone should be used until scar maturation (see below). Tape should be used if the scar is anticipated to undergo stress, such as occurs with sports or repetitive use of the affected area.

ScarScience™ Gel

To use the gel with the tape, apply the gel onto the surface of the tape once it's in place. Gently apply sufficient gel evenly onto the surface of the tape. The gel should be applied twice a day with approximately a twelve-hour interval. The use of gel should continue until scar maturation takes place, as manifested by a flat white scar without any redness. This could take up to six weeks, depending on the size and location of the scar.

For smaller excisions or facial wounds, the gel can be used with or without the tape. If the gel is used without the tape, apply the gel directly to the surface of the wound twice a day until scar maturity.

Adverse Effects:

Tape

Occasionally, an allergic reaction to the tape adhesive may occur as manifested by an itch and/or skin reaction (such as a rash, new redness, peeling). If this occurs, the tape should be removed immediately and a physician consulted. Usually the gel may be continued without tape usage in these cases.

ScarScience™ Gel

ScarScience™ contains natural active products in a proprietary base with no petrolatum-related ingredients. No adverse effects have been documented, to date. If any skin reaction does develop, cease using the product and consult your physician. Do not allow contact with eyes (if eye irritation does occur, wash gently with water and refrain from rubbing). Do not apply to open wounds or abrasions. Wash your hands before and after use.

STORAGE INSTRUCTIONS:

Store below 25°C (77°F) in a dry place

WARNINGS:

Use product only as directed. Do not use this product if you are allergic to any of the ingredients. Consult your physician if you are unsure.

KEEP OUT OF REACH OF CHILDREN

Ingredients (as on box)

Aqua dest, poloxamer, Bulbine frutescens gel, Glycerol-polyethylene glycol oxystearate, Propylene glycol, Dimethicone, Oleuropein (olive leaf extract), Triterpenic fraction from Centella asiatica (consisting of Asiaticoside, Madecassoside and Asiatic Acid), Phenoxyethanol, Methylhydroxy-benzoate, Microporous Tape (25mm width; manufactured by 3M, Inc.).

REFERENCES:

1. Larson DL et al. Techniques for decreasing scar formation and contractures in the burned patient. *J Trauma* 11, 10, 1992.
2. Hogstrom H et al. Tension leads to increased neutrophil accumulation and decreased laparotomy wound strength. *Surgery* 107, 215, 1990.
3. Reiffel R. Prevention of Hypertrophic Scars by long term use of paper tape application. *Plast Reconstr Surg* 96, 7, 171-5, 1995
4. Niessen FB. Letter: Effectiveness of Silicone Sheets in the Prevention of Hypertrophic Breast Scars. *Ann Plast Surg* 54, 1997.
5. Soderberg J Treatment of keloids and hypertrophic scars with adhesive zinc tape. *Scand J Plast Surg* 16, 261, 1982.
6. Atkinson JM, McKenna KT et al. A Randomized, Controlled Trial to Determine the Efficacy of Paper Tape in Preventing Hypertrophic Scar Formation in Surgical Incisions that Traverse Langer's Skin Tension Lines. *Plastic Reconstr Surg* 116, 6, 2005.
7. Sawada Y, Sone K. Hydration and occlusion treatment for hypertrophic scars and keloids. *Br Joun Plast Surg* 45, 599, 1992.
8. Chang et al. Hydration, not silicone, modulates the effects of keratinocytes on fibroblasts. *J Surg Res* 6, 59, 705, Dec 1995.
9. International clinical recommendations on scar management. *Plast Reconstr Surg* 2002 Aug; 110(2):560-71. Review.
10. Dave et al. Adhesive contact media - an update of graft fixation and burn scar management. *Burns* 17,313. 1991.
11. El Hefnawi H. Treatment of Keloid with Asiaticoside. *Dermatologica* 125, 1962.
12. Rosen H et al. Effect of Asiaticoside on Wound Healing in the Rat. *PESEM* 125, 1967.
13. Bonte F et al. Influence of Asiatic Acid, Madecassic Acid, and Asiaticoside on human Collagen 1 Synthesis. *Planta Med* 60, 1994.
14. Clore JN et al. Quantitative assays of types 1 and 111 collagen synthesized by keloid biopsies and fibroblasts. *Biochem Biophys Acta* 586, 1979.
15. Bosse JP et al. Clinical Study of a new Antikeloid Agent. *Annals Plast Surg* 3. 1979.
16. Ben-Erik van Wyk et al. 1997. Medicinal plants of South Africa, First edition, Briza, South Africa.
17. Widgerow, AD, Chait, LA, Stals, R, Stals, PJ. New innovations in scar management. *Aesthetic Plast Surg* 2000 May-Jun; 24(3):227-34.
18. Beauchamp KI et al. 1. Phytochemistry: ibuprofen-like activity in extra-virgin olive oil. *Nature* 437, 45-46 (1 September 2005).
19. De la Puerta R, Martinez-Dominguez E et al. Effect of minor components of virgin olive oil on topical anti-inflammatory assays. *Z Naturforsch* 2000 Sep-Oct; 55 (9-10):814-9.

Manufactured in South Africa by Bioceuticals (Pty) Ltd.
7 Malibongwe Drive, Fontainebleau, Randburg, 2194