



# 2<sup>nd</sup> SCAR Meeting

## **SCAR MANAGEMENT 2008: THE TURNING POINT**

*Clinical Management of Hypertrophic Burn Scars with Silon<sup>®</sup>  
Technology and Pressure Modalities in Rehabilitation*

Faculty of Medicine  
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# Clinical Management of Hypertrophic Burn Scars with Silon<sup>®</sup> Technology and Pressure Modalities in Rehabilitation.<sup>1</sup>

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The rehabilitation of hypertrophic burn scars is a paramount focus for the burn therapist as part of their treatment for individuals who suffer a burn injury or other significant trauma to the epidermis. Effective rehabilitation and management of these scars requires a comprehensive approach to treatment that incorporates the use of durable silicone materials and modulated pressure therapy to enhance both functional and cosmetic outcomes.<sup>4</sup> Pressure therapy has long been a mainstay in the management of hypertrophic scars and more recently, the advances in silicone materials have significantly enhanced the ability of the rehabilitation professional to successfully address diverse hypertrophic scar sequelae.<sup>1,3</sup> Although the exact mechanism of action still remains elusive, clinical intervention provides significant evidence that the use of these materials reduce the adverse effects of immature scars.<sup>1,2</sup>

At the 2008 Second Scar Club symposium entitled: *Scar Management 2008: The Turning Point*, a poster and oral presentation were given on the clinical rehabilitation experiences utilizing a host of scar management materials with a proprietary silicone technology platform (Silon<sup>®</sup>) that allow for enhanced combinations of silicone and pressure to address the demands of hypertrophic burn scar contracture. The objectives of this presentation are to examine the recent history and theory related to pressure and silicone treatments specifically related to the applications provided by the burn clinician and how they impact hypertrophic burn scar behavior and to discuss technological advancements in silicone materials (Silon<sup>®</sup>) and how these improvements have assisted in the management of difficult scar deformities, particularly those affecting the face and hands.<sup>2,3</sup> Case presentations will be provided that demonstrate effective minimization of long-term hypertrophic scars and increased functional recovery through the clinical use of these materials as part of a comprehensive scar management practice.

## References

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<sup>1</sup> [abstract] In: Proceedings of the 2<sup>nd</sup> Scar Meeting – Scar Management: The Turning Point; 2008 Sept 25-27; Montpellier, France p.51.

# Silon® Technology Enhances the Clinical Management of Hypertrophic Burn Scars



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## Introduction

Hypertrophic burn scars pose unique challenges to the Occupational and Physical Burn Rehabilitation Specialists. The goals of rehabilitation include maintaining an optimal functional range of motion, preparation for return to school/work and creating an aesthetically pleasing appearance post injury or surgery.<sup>1,5,6</sup>

To effectively manage these types of scars, the clinician routinely employs a combination of silicone gel and pressure modalities. The use of silicone gel<sup>4,7</sup> and pressure modalities<sup>3,5,7</sup> have been widely documented in the literature as the preferred treatment to inhibit hypertrophic scar development as part of a comprehensive rehabilitation program.

However, the use of these materials is not without limitation. One of the major deficiencies that the majority of the conventional silicone gel products share is limited durability. This increases the frequency of replacement and further inhibits both the compliance and comprehensive management of these difficult hypertrophic burn scars.<sup>1</sup>

In an effort to enhance durability, a composite material was developed - Silon®. This patented formulation created an Interpenetrating Polymer Network (IPN) that enhanced both the durability and made unique treatment combinations possible<sup>2,3</sup>(Figure 1). These applications include a silicone bonded high temperature and low temperature thermoplastic; a silicone bonded textile sheeting; a self-adhesive silicone bonded to a foam as well as clear and fabric lined self adhesive silicone sheeting.

A review of the clinical applications of Silon® material utilized in hypertrophic burn scar management will be presented.

## Methods (Literature Review and Clinical Experience)

**Silicone bonded High Temperature Thermoplastics (Silon-GTS®)**  
Sitzg et al (1997) found a marked improvement resulting in decreased scar height, decreased vascularity and increased scar pliability. Bradford et al (1998) found that the material provided a thinner contact medium, increased durability and a better fit as compared to conventional non-silicone material.

Dougherty et al (2006) found an improved cosmetic outcome, increased conformability and compliance as compared to conventional treatment applications (Figure 2, Figure 3).

Forbes-Duchart (2007) found that this material offered many advantages including excellent conformity and increased durability for chin and neck orthotics (Figure 4).

Alley et al (2008) found that increased contact to the face was achieved with this material and this was statically significant when compared to non-silicone thermoplastics. This team also demonstrated that blood flow perfusion decreases with silicone lined orthotics (Figure 5).

### Silicone bonded Textile Sheeting (Silon-TEK®)

O'Brien et al (2006) found that this material significantly increased performance of daily tasks and the quality of life of individuals with a burn injury to the hand in conjunction with pressure garment wear.

Wright et al (2008) found that both patient compliance and clinical effectiveness were significantly improved when incorporating this material into pressure garments.

### Silicone Self-Adhesive Sheeting (Oleeva® Fabric)

Berman et al (2007) found that this IPN structure has greater durability and retains good adhesion to the skin (Figure 6).

## Results

Based upon combined clinical experiences and publications, we have found that Silon® technology offers many advantages over non-silicone lined high temperature material, low temperature splint material, pressure garments, or silicone gel sheeting used in isolation:

1. Excellent conformability, allowing greater contact of material to the scar, therefore minimizing scar compression (Figure 3)
2. Silicone lining creates softer edges, therefore increasing patient comfort requiring less time to modify devices or insert applications.
3. Silicone works without pressure; therefore ensuring treatment of areas where firm contact is undesirable, scar cosmetics can still be effective.
4. Transparent material allows the therapist to observe scar blanching, the desired effect of pressure therapy. Additionally, cosmetics is improved, potentially increasing patient acceptance.
5. The silicone lining allows for improved patient comfort, increasing patient tolerance especially with ROM deficits.
6. Enhanced durability – The silicone layer lasts the life of the splint or textile insert and can be modified without affecting silicone.
7. Combination therapy, via pressure therapy and silicone gel, are incorporated into a single, comprehensive treatment modality.

## Conclusions

With over 10 years of clinical scar management experiences, the use of Silon® Technology demonstrates unmatched versatility and durability.

This technology can be used as a direct intervention (adherent & non-adherent sheeting), in recessed areas (foam), permanently incorporated into pressure garments (textile sheeting) or as splints (thermoplastic material) to provide a comprehensive system to effectively manage hypertrophic scars over the entire body.

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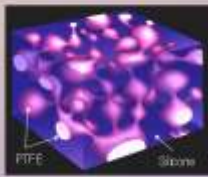


Figure 1. Silon® IPN interpenetrating network with Polyethylene Glycol (PEG) lining.



Figure 2. Hypertrophic burn scar without Silon treatment.



Figure 3. Hypertrophic burn scar after management with the Silon-TEK splint showing increased cosmetic and appearance for the scar.



Figure 4. Visible blanching of scar showing centimeter width of the Silon-GTS splint.

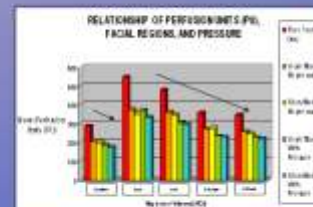


Figure 5. Silon-GTS® demonstrating increased contact and decreased blood perfusion rates.