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Title:

Improved Skin Graft Maturation and Cosmesis with Yarn Focused Compression

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Introduction:

Elastic garments have been used since World War II to improve the late cosmetic appearance of grafted skin after burns. Physiologic mechanisms of external compression on skin graft maturation and cosmesis are poorly understood. All agree that collagen synthesis in grafts is suppressed by elastic compression. Controlling edema in grafts may be one mechanism that inhibits collagen synthesis. Compression garments occlude lymphatic vessels. Yarn focused compression (YFC) leaves patent lymphatic channels between fuzzy yarns. Non compressed lymphatic tissue acts as a low pressure sink for drainage, an effect observed by Kozeny et al, 2007. YFC may inhibit collagen scar by controlling edema.

Rooke has documented that faux sheepskin fuzzy textiles are beneficial for skin at risk from pressure and from ischemia. The mechanism of this beneficial fuzzy nexus with the skin is unknown. Longitudinal Yarn Compression (LYC) uses yarn to focus compression via a fuzzy nexus with the skin. Anecdotal observations in skin graft patients being treated for edema presaged our use of fuzzy yarn focused elastic compression as a dressing for grafted skin.

Methods:

Skin grafts and cultured epithelial cell "grafts" were managed with LYC in four patients. Follow up was 4 to 39 months. Photographs accompany the data.

Results:

Early skin graft maturation and late skin graft cosmesis appear to be improved by LYC dressings.

Conclusions:

Elastic compression delivered by LYC warrants further study in skin graft patients.

References:

1 Kozeny, D., Stott, K., "Longitudinal yarn compression textile: An innovative treatment for leg swelling." *Journal of Vascular Nursing*, Volume 25, Issue 3, Pages 62-62, September 2007

*, ** EdemaWear®, Compression Dynamics, LLC, Omaha, Nebraska