

***ABSTRACT: Advances In Skin & Wound Care Clinical Symposium, San Antonio, TX, October 2009***

**Title:**

**Controlling Wound Edema with Fuzzy Yarn Focused Elastic Compression in Direct Contact with Granulation Tissue Speeds Healing**

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**Behavioral Objectives:**

- Define advantages of mechanical control of wound surface edema in the face of lymphatic insufficiency, infection and skin ischemia due to arterial and venous insufficiency.
- Understand why lymphatic insufficiency and edema impairs cell division and healing.
- Understand new mechanical options to manage granulation tissue edema.

**Problem:**

Edema remains under appreciated as an enemy of healing. Edema resulting from over zealous major burn resuscitation with IV fluids was recognized to increase the depth of burn tissue injury. Burn paradigms changed. Negative Pressure Wound Therapy (NPWT) changed the wound healing paradigm by recognizing wound surface edema is treatable.(1 ) Landon observed that gauze dressings on the ulcer may create a zone of low tissue compression beneath circumferential garments decreasing lymphatic runoff in granulation tissue.(2) Can elastic compression, directly in contact with wound granulation tissue, control edema and increase wound healing similar to NPWT? Kozeny, in 2006, described the powerful effect that Longitudinal Yarn Compression (LYC)\* has on limb edema. Yarn Focused Compression\*\* (YFC) changes the topology of the skin surface. Fuzzy yarn under tension creates "cornrow furrows" with islands of uncompressed skin between each yarn.(3) This study applies Kozeny physiology to granulation tissue.

**Methods:**

Stasis ulcers were covered zinc oxide ointment (one patient) and nanoparticle powder \*\*\* (two patients). LYC stockinet, directly on wound granulation tissue, was the first layer of a three layer dressing. Dressings changed weekly.

**Results:**

Photos illustrate healing. End point was discharge from wound center with healed wound. Costs are discussed.

**Conclusion:**

LYC textile is unique in that elastic compression changes skin surface topology by creating “cornrow furrows” in granulation tissue beneath yarns. Elastic compression delivered by fuzzy yarn in direct contact alters granulation surface topology and appears to be safe and comfortable.

**References:**

- 1 Andros, George MD; Niezgoda, Jeffrey A. MD, FACHM, FACEP; et al, “Consensus Statement on Negative Pressure Wound Therapy (V.A.C.® Therapy) for the Management of Diabetic Foot Wounds”. Supplement, Ostomy Wound management, June 2006
- 2 Landon, L., et al; “Yarn Focused Compression Safely Enhances Wound Healing in Arterial Ischemia” poster presentation, Abstract in press, Symposium of Advanced Wound Care, Washington, DC, September 2009
- 3 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
- 4 Fitzgerald, R., Bharara, M., Mills, J., Armstrong, DG (2009); "Use of a Nanoflex powder dressing for wound management following debridement for necrotizing fasciitis in the diabetic foot." International Wound Journal, 6(2): 133-139

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

\*\*\* Altrazeal™ Uluru Corporation, Addison, Texas