

Compression Garments with an Ultra-Low Friction Interface for Patients with Burns

Jon Gayken, MD
Hennepin County Medical Center

National Pressure Ulcer Advisory Panel
March 2-3, 2018, Las Vegas

Abstract

Purpose: Burned and grafted skin often requires compression garments to facilitate effective healing. Patients can have problems with pain and skin integrity on elbows, high-risk areas for friction and shear forces. This can be a barrier to patient compliance with compression garment wearing schedules, typically recommended 23 hours/day, 7 days/week. Friction and shear forces are known extrinsic factors that can contribute to a pressure injury. The addition of an ultra-low friction interface in high-risk areas can reduce the harmful shear forces.

Methods: Clients who are measured and fit for custom compression garments to treat burns, are provided a low-friction fabric in the high-risk areas, such as the elbows and axillary areas.

Results: Three clinical examples are provided in this poster. They show findings of providing low-friction fabric into a custom compression garment that add to improved skin integrity, reduced pain, and better tolerance of compression garments.

Conclusions: The addition of a low-friction fabric in areas that are high risk for skin irritation and injury, may provide benefit, including reduced pain, improved skin integrity, and better tolerance for wearing the compression garment as recommended. The benefits of adding a low-friction interface to compression garments in high risk areas should be considered. Further research is recommended.

Case #1

History:

An adult woman sustained extensive burns 07/2016 to her back and left upper extremity. Her elbows are prone to recurrent injuries, her axillary areas are painful, and she reports limited mobility of the left arm which she attributes to the compression vest itself. This client stopped wearing her compression garments because of pain and injury to her skin, as well as limitations in arm and shoulder mobility when she wore the compression vest.



Intervention:

Strategic friction reduction in compression vest with low-friction addition to elbows, axillae, and left scapula.

Clinical Findings:

This client's elbow skin irritation and pain resolved. Her functional arm/shoulder mobility improved so she could participate in work-related activity while wearing the garment, and she reported being fully compliant with her garment wearing schedule.

When a later garment was made without the low-friction interface in the scapular area, she stopped wearing it at night. When it was added later, she resumed her recommended wearing schedule.

Patient Comments:

"I have observed excellent results on minimizing scar development using the burn compression garments. The (strategic friction reduction fabric) makes it possible for me to function comfortably while wearing the burn compression garments. I would not be wearing burn compression garments without (strategic friction reduction)!"



Case #2

History:

An 8 year old boy sustained a burn 10/2016 that covered his chest, stomach, and arms. He has received multiple skin grafts and laser therapy.

Intervention:

Custom compression vest with strategic friction reduction, low-friction fabric in the areas of the elbows and axillae.



Clinical Findings:

This client initially received a custom compression vest with ultra-low friction fabric (in black) in the areas of his elbow only. The axillary areas were painful and the skin was open. The client was not tolerating wearing the garment, so his mother cut the vest to improve comfort and wearing tolerance. The low friction interface was added to the axillary areas. The low-friction interface improved the comfort, skin integrity, and reported wear-time of the compression garment.



Case #3

History:

An adult male sustained a work-related electrical burn injury to his upper body, arms and hands.

Intervention:

Compression vest with strategic friction reduction, including low-friction fabric on the elbows. Client also wears low-friction sleeves worn under his compression sleeves.



Clinical Findings:

This client reports that the low-friction fabric in his compression garment and underneath the sleeves of his garment are helpful with better skin integrity, improved comfort, and that it makes it less challenging to wear his compression garments for the recommended schedule.



References

International review. Pressure ulcer prevention: pressure, shear, friction and microclimate in context. A consensus document. London: Wounds International, 2010.

Thies Berke, C. Pathology and Clinical Presentation of Friction Injuries. Case Series and Literature Review. 2015 J Wound Ostomy Continence Nurs. 42(1):47-61.

Lippenkott Williams & Wilkins Linder-Ganz E, Gefen A. The effects of pressure and shear on capillary closure in the microstructure of skeletal muscles. 2007 Ann Biomed Eng. Dec;35(12):2095-107

Acknowledgement

Thank you to Nancy Petran, Custom Compression Specialist at Handi Medical Supply for her contributions.

No external funding was received for this research. Low friction fabric, GlideWear®, was provided by Tamarack Habilitation Technologies, Inc. and by Jobskin/Torbot Group, Inc.