

Fuzzy Wale Longitudinal Elastic Compression* as a Tool in Reducing Lower Extremity Edema and Accompanied Fluid Accumulation.

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Key point:

On average 1.2 liters of fluid was removed from the lower extremity after two weeks of use with Fuzzy Wale Longitudinal Elastic Compression

Introduction:

Elastic stocking compression has been used for controlling edema in patients with up to moderate amounts of edema. To this point the author was interested in understanding the level of lower extremity circumferential reduction using fuzzy wale longitudinal elastic compression*. The author, moreover, is looking to understand if this type of compression would reduce the amount of edema in a uniform manner along the lower extremity. Elements related to compression dressing comfort (such as the absence of pain and skin reactions) are also an important aspect assessing the usability of any compression dressing.

Methods:

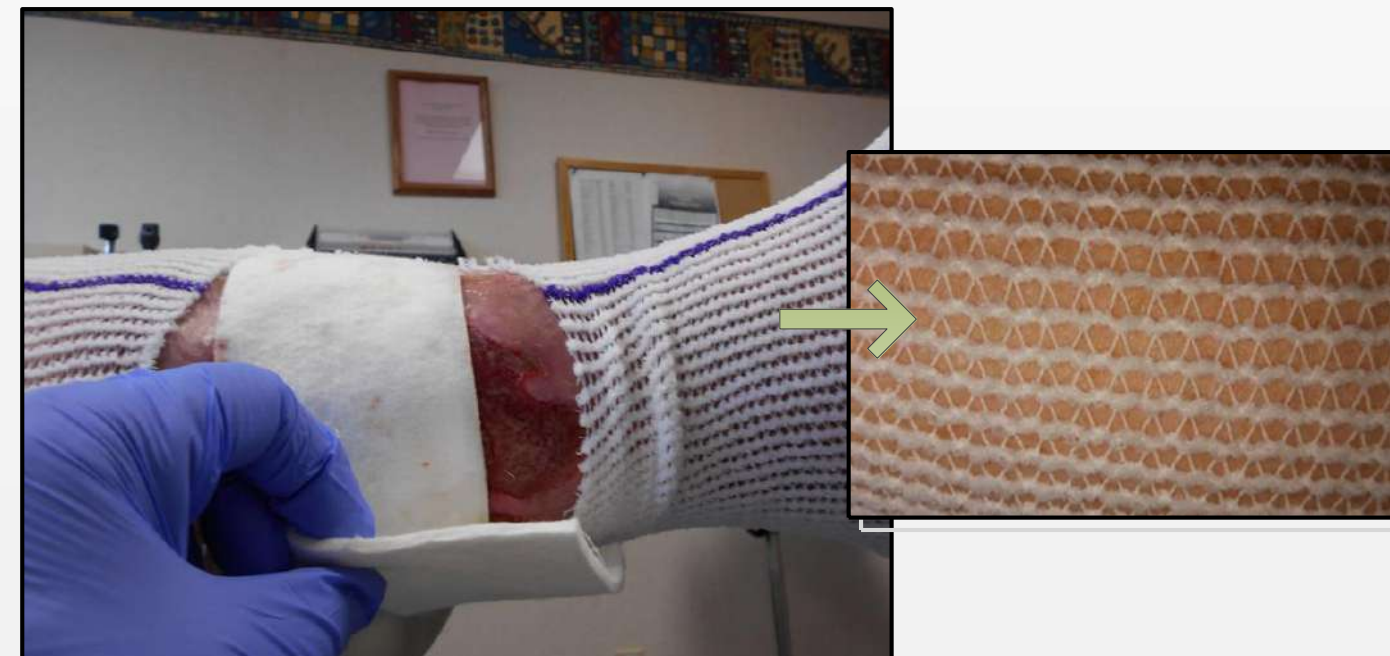
Seven patients were enlisted in this case series which used fuzzy wale longitudinal elastic compression as the device for reducing edema. Only patients with deep pitting edema were selected for the study. Each of the patients wore this compression for 14 days (+/- 1 day). At the endpoint of the study the circumference (in centimeters) of the patient's calf, narrow ankle, wide ankle and foot were measured. Total volume of fluid loss was calculated based on the beginning and ending calf measurement. A pain survey and a skin assessment of the extremity was also conducted to observe for any skin reactions or pain.

Mode of Action:

Fuzzy wale longitudinal elastic compression creates downward pressure along multiple linear "furrows" in the subcutaneous tissue. Increasing the interstitial tissue pressure assists in transferring interstitial fluid into the adjacent tissues which are non-compressed. Interstitial fluid is subsequently returned back into the blood stream via local then larger veins (1,2,3).



"Cornrow" furrows in the skin of this patient with refractory venous leg ulcers, are the result of fuzzy wale elastic compression stocking*. Fuzzy wale textile was specifically engineered to move water out of subcutaneous fat. Skin furrows result from water moving out of compressed fat into open veins and lymphatics in adjacent non-compressed fat. A physiologically effective pressure gradient exists over a large area of skin, between fat under fuzzy wales and fat that is not compressed.



Lite, fuzzy wale elastic compression stocking seen here on a patient with a refractory venous leg ulcer. Observe the longitudinal fuzzy wales linked together with Lycra spandex yarn that are visible between the wales. The sub cutaneous fat between the wales contain open veins and lymphatics that act as a low pressure sink for venous blood and lymphatic fluid runoff .

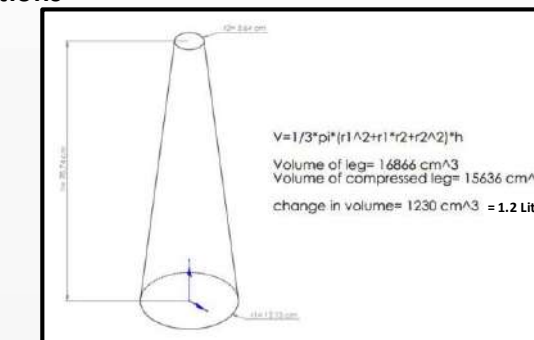
Results:

All six of the patients completed the case series at 14 days (+/- 1 day). On average there was a reduction in circumference of the calf by 1.95 cm, Ankle (narrow) by 0.80 cm, Ankle (wide) by 0.90 cm, and foot by 1.50 cm. The average reduction in fluid loss from the calf area was 1.2 liters. None of the patients presented with any type of a skin reaction or pain related to the compression dressing.

Summary Table

	Patient 1	Patient 2	Patient 3	Patient 4	Patient 5	Patient 6	AVERAGE
Calf size Reduction	.63 cm	4.4 cm	1.9 cm	2.5 cm	1.3 cm	.63 cm	1.9 cm

Calculations



Discussion

There are multiple compression therapy products and each has a certain advantage depending on the condition of the patient. There is a subset of patients with edema that can either not tolerate or don't require higher levels of compression. The author believes that the average amount of fluid removed from patients in this cohort justifies the use of fuzzy wale longitudinal elastic compression in this circumstance. Moreover, the author is looking to expand the research of this product to understand its benefits with dual etiology venous insufficiency and peripheral arterial disease patients.

References

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3. Refractory Wound Lymphorrhea responds to Longitudinal Yarn Elastic Compression: yarn focused compression preserves patent subdermal lymphangions to decrease lymphatic hypertension. Laura Wisnieski, Winkler, M., Science Poster, 2011, Symposium Advanced Wound Care, http://www.compressiondynamics.com/compress_links/Poster_Refractory_Wound_Lymphorrhea_responds_to_EdemaWear_April_2011.pdf

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