

# Smith & Nephew

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## ANDRIESEN CONSULTANTS

Anneke Andriessen & Co, BV, Clinical Innovators Medical Tissue Repair

### LITERATURE MULTI-LAYER BANDAGE SYSTEMS

*Compression forces should be the greatest at the lower portion of the limb decreasing to the upper portion of the limb while avoiding localized areas of imbalance which would create a tourniquet effect. So called 'Graduated Compression' 1*

1. Christopoulos DC, Nicolaidis AN, Belcaro G, Kalodiki E. Venous Hypertensive Microangiopathy in Relation to Clinical Severity and Effect of Elastic Compression. 1991 Elsevier Science Publishing Co, Inc.

*'Compression increases ulcer healing when compared to no compression'*

*'Multi-layered systems are more effective than single-layered systems'*

*'High compression is more effective than low compression...'* 2,3

2. Cullum N, Nelson EA, Fletcher AW, Sheldon TA. Compression for venous leg ulcers. Cochrane Systematic Review. Cochrane Library Document
3. J Hafner, A Comparison of Bandage Multilayer Bandage Systems During Rest, Exercise and over 2 Days Wear Time, Arch Dermatol, Vol 136, July 2000

LaPlaces Law  $4 P = T N \times \text{constant}$   
C W

Assumes:

Limb is cylindrical

Uniform bandage tension

Incremental contribution of additional layers

4. D Wertheim, Measurement of forces associated with compression therapy, Med. Biol. Eng. Comput., 1999, 37, 31-34

*Venous ulcers will fail or be slow to heal without the application of sustained graduated compression*

*Sustained graduated compression is applied to counteract ambulatory venous hypertension, to stop reflux and reduce fluid leakage from accumulating in the tissues.*

*For effective VLU management, 25 to 45mmHg sustained compression is required at the ankle*

*In choosing a compression system, how the compression is delivered should be taken into consideration (passive versus active) Theoretical laws eg LaPlace, are a good predictive tool, but are difficult to prove 5,6,7,8*

5. Cullum N, Nelson EA, Fletcher AW, Sheldon TA. Compression for venous leg ulcers. Cochrane Systematic Review. Cochrane Library Document.
6. Blair SD, McCollum CN et al. Sustained compression and healing of chronic venous leg ulcers. BMJ 1988; 297:1159-1161
7. Partsch H et al. Inelastic Leg Compression is More Effective to Reduce Deep Venous Refluxes than Elastic Bandages. Dermatol Surg 1999; 25:695-700
8. Sibbald G WOCN 32nd Wound Ostomy continence conference Toronto Ontario Canada June 2000

*Additional information:*

9. Franks PJ, Moffatt CJ et al. Quality of Life in Venous Ulceration: A Randomised Trial of Two Bandage Systems. Phlebology (1999); 14:95-99
10. Franks PJ, Moffatt CJ et al Community Leg Ulcer Clinics: Effect of Quality of Life. Phlebology (1994); 9:83-86

150102 Anneke Andriessen

Zwenkgras 25 6581 RK Malden the Netherlands Tel: + 31 24 3587086 Fax: + 31 24 388 0155  
E-mail: [anneke.a@tiscali.nl](mailto:anneke.a@tiscali.nl) KvK 09123348