

COMPRESSION: APPLYING SHORT-STRETCH BANDAGES

Jackie Stephen-Haynes is Consultant Nurse and Senior Lecturer in Tissue Viability, Worcestershire Primary Care Trust and University of Worcester

Bandages need to be correctly applied in order to achieve the necessary gradient of pressure. This article gives a step-by-step guide to the simple, spiral technique of applying short-stretch bandages within clinical practice.

Ulceration in the lower limb is most frequently associated with vascular disease due to chronic venous insufficiency (CVI), and/or peripheral arterial disease. Indications for venous ulceration are listed in *Table 1*. It is frequently accompanied by skin scaling and brown pigmentation called haemosiderin (Scottish Intercollegiate Guidelines Network [SIGN], 1998; Royal College of Nursing [RCN], 2006). Accurate assessment and differential diagnosis is essential before applying any compression therapy.

Treatment of leg ulcers involves management of the ulcer as a chronic wound, together with management of venous hypertension using compression therapy. Many patients with venous ulcers develop allergies to dressings and topical medicaments (Baron et al, 2007) and so compression bandaging should be the mainstay of treatment (see *pp. 52–61* in this publication), with dressings being kept to a minimum. Some patients may require referral for further investigations (*Table 2*).



Figure 1. Measuring of limb and observing leg shape.

Table 1.

Indications for venous ulceration

- ▶▶ Pre-existing varicose veins
- ▶▶ Previous deep vein thrombosis (DVT)
- ▶▶ Phlebitis
- ▶▶ Previous fracture, trauma or surgery
- ▶▶ Family history of venous disease
- ▶▶ Symptoms of venous insufficiency (e.g. pain/heaviness in legs, eczema)
- ▶▶ Multiple pregnancies with heavy babies

Table 2.

Referral indications

- ▶▶ Suspected malignancy
- ▶▶ Arterial/mixed ulcers
- ▶▶ Diabetes mellitus
- ▶▶ Sepsis-cellulitis, fever, leucocytosis
- ▶▶ Absent pulses with impaired ankle brachial pressure index (ABPI)
- ▶▶ Failure to heal or deterioration
- ▶▶ Underlying comorbidity
- ▶▶ Recurrent ulceration
- ▶▶ Where there is a need for surgery

Short-stretch bandaging

Short-stretch inelastic bandages should be applied at full stretch to provide a rigid circumferential cylindrical cuff around the limb that creates a high resistance to stretch when muscles contract during exercise or movement. This is referred to as 'working pressure' which, by improving the effect of the calf muscle pump, helps venous return. Short-stretch bandages offer a



Figure 2. The layer of padding begins at the base of the toes, secured with two turns. The bandage should not be applied too firmly as the compression is required from the ankle up. Any foot oedema can be managed with an increase in compression over the forefoot.



Figure 3. The second turn is around the mid-foot to the heel, including the Achilles' tendon. An additional turn may be required for those with feet larger than a UK size 5.

high working and a low resting pressure.

In the UK short-stretch bandages are usually applied in a simple, spiral technique with a 50% overlap from toe to knee. It is essential that the limb is fully padded and re-shaped if necessary. As Moffatt (2007) observes, European practitioners employ a variety of application techniques (e.g. the Sigg and Gustav Puetter techniques), which may be used by the more experienced practitioner but are best avoided by the novice.

Several layers of short-stretch bandaging may be used depending on the size of the limb.

Application of a 10cm short-stretch bandage in a spiral technique

Before application, healthcare practitioners should measure the patient's leg above the ankle to determine the number of layers of bandages required (Figure 1). The condition of the skin and shape of the limb should also be observed.



Figure 4. An additional turn is needed to secure the plantar area of the heel.



Figure 5. One turn will then lead to the area above the malleoli.



Figure 6. The bandage is then applied in a spiral with a 50% overlap, taking the bandage to the tibial tuberosity.

It is important to ensure that the patient is comfortable, with the limb supported.

Figures 2–9 demonstrate the application of a 10cm short-stretch bandage using a simple spiral technique. **WE**

Barron GS, Jacob SE, Kirsner RS (2007) Dermatologic complications of chronic venous disease: medical management and beyond. *Ann Vasc Surg* 21(5): 652–62

Moffatt C (2007) *Compression Therapy in Practice*. Wounds UK, Aberdeen

Royal College of Nursing (2006) *The nursing management of patients with venous leg ulcers*. RCN, London

Scottish Intercollegiate Guidelines Network (1998) *The care of patients with chronic leg ulcer. Guideline No 26*. SIGN, Edinburgh

Glossary

Short-stretch bandages: Generally made of cotton without elastomers, extension 40–90%

Working pressure: An intermittent pressure exerted by the active muscle against the resistance of the bandage

Resting pressure: A continuous force exerted externally from the bandage towards the tissue

(Moffatt, 2007)



Figure 7. The bandage should be applied consistently to achieve even pressure. Short-stretch bandages should be applied with a short length of bandage, rolling the bandage around the limb, with the aim of applying the bandage as a rigid cuff.



Figure 8. Healthcare practitioners should check the bandaging for 'windows', i.e. areas of the bandage where the 50% overlap has not been achieved. If left, these will allow oedema to accumulate in this area. Tape may be used to secure the bandage.



Figure 9. Compression on one limb. It is important to note the colour and movement of the toes, and to advise the patient about tingling and numbness.