What I tell my patients about short-stretch bandaging

This article explains how a short-stretch compression bandaging system (see Figure 1) will improve the swelling in your leg.

To begin with, a specialist nurse will carry out a full examination – including a Doppler test that measures the arterial blood supply to your lower legs – before any compression bandaging is applied. This is to check that the blood supply to your legs is adequate and to make sure that it is safe to apply the bandages.

The swelling in your leg, which worsens as the day goes on, the ulcer on your ankle or the itchy patches of skin around your ankle area may be caused by one of the following.

- **Lymphoedema** – this is a swelling in the leg(s) as a result of an infection or damage to the lymphatic system, due to surgery or radiotherapy. The swelling is an accumulation of protein-rich fluid within the skin and subcutaneous fluid which, if left untreated, leads to problems with skin breakdown, leakage of fluid, a heavy tired leg and a risk of recurring inflammation under the skin.

- **The valves in your leg veins are not working properly due to varicose veins or deep vein thrombosis.**

This swelling causes a build-up of fluid in your leg, leading to skin problems. The discolouration of the skin is due to fluid or blood seeping into the tissues instead of draining away in your circulation.

**How it works**

In a 'normal' leg with undamaged valves in the veins, or a 'normal' lymph system, blood and lymph fluid is kept in the circulation. When standing, walking or moving our feet, our calf and foot pump work continuously, pushing the fluid back up to the heart with no problem. Because of the swelling in your leg this does not happen. Your calf or foot pump may not work as they should due to an injury to your foot or ankle.

Your leg veins or lymph system can be helped by the application of two layers of bandages applied from your toes to your knee. The following description shows how it works.

When you walk around or move your feet, your calf muscle will expand. This meets resistance against the bandage, which forms a 'tubelike' structure around your leg. By wearing this bandage system the 'faulty' valves in your veins are able to work normally and your circulation is able to work more efficiently. This helps the fluid and blood return to your heart.

Once the nurse has applied the bandage (see Figure 2), you will notice an improvement in your leg: the swelling will reduce almost immediately, the condition of your skin will improve and your ulcer will begin to show signs of healing. The bandage will feel firm and supportive, and your leg will no longer ache or feel heavy, or painful when you put your foot to the ground on rising from a seated position.

If you have an ulcer, a dressing will be applied to prevent the bandage sticking to it. The dressing will control leakage and odour. It is safe to leave the bandage undisturbed for a week if there is no leakage. This helps the ulcer to heal by keeping it moist and at body temperature. If you have any leakage or if you develop a
lot of pain in your leg, please let the nurse know and your leg can be checked sooner.

Follow-up
Your leg will be washed weekly in a bowl of warm water with an emollient added, to prevent your skin from drying. Your leg will then be dried thoroughly and more emollient applied if necessary. The nurse will inspect your other leg from time to time to prevent any skin problems from arising there.

The bandage will normally be changed once a week, but it may be checked sooner after the first application, as the swelling will go down fairly quickly and the bandage may become loose, and therefore, uncomfortable.

One problem is that it is difficult to have a bath or shower unless you apply a waterproof cover to prevent the bandage getting wet.

Advantages
- The advantages of short-stretch bandaging are that it is not bulky, it is not as hot, and – due to low resting pressure – you will feel more comfortable. Moreover, you will be able to wear normal footwear and the bandage stays in place due to its cohesive properties.
- Another benefit is that you can be as active as you like. With the bandages in position you do not need to rest all the time but when you do sit down, you should put your leg up on a high stool so that your foot is higher than your hips.
- When you go to bed at night, there will be no compression on your leg, so you should have a good night's sleep without any pain.
- With this type of bandage you should see the benefits yourself very quickly, and your leg should feel more comfortable.

Footwear
Generally, sandals or lace-up shoes are better to wear with these bandages rather than a court shoe. Wearing a sock, stocking or pop sock over the bandage helps prevent the bandaging being pulled back when putting on your shoes, and becoming uncomfortable.

Foot exercises
If you are sitting for long periods of time, it is important to do foot exercises that make your circulation work more effectively. The specialist nurse will advise you which exercises you should incorporate into your daily regime. Here are a few suggestions, but you should always seek advice from the nurse before attempting these:
- When sitting or lying down, flex the foot – toe to knee, and back again. Do this five times.
- Rotate your ankle in a clockwise direction five times, and then anticlockwise five times.

Figure 3. Various stocking applicators
- Keep your toes on the ground and raise your heels five times.

Future management
When your ulcer is healed or the swelling is reduced in your leg, the bandages will be removed and you should wear compression hosiery to prevent problems recurring. There are many different types, colours, and materials available to suit everyone.

The nurse will measure you for the correct size to make sure they are comfortable for you. There are many devices available (see Figure 3) to help you apply the stocking yourself and make the process easier.

Key points
- When you are wearing a bandage it forms a ‘tube-like’ structure that provides resistance for your calf muscle as you walk around.
- Meeting resistance from the bandage helps leg valves to work normally.
- The bandages are an aid to help your circulation work more efficiently and reduce the swelling in your legs.
- If there is any leakage through the bandage, you must inform the nurse, who will check the bandage for you.
- You can help to make the bandage more effective by taking care not to get it wet, wearing comfortable shoes and doing exercises recommended to you by the nurse.
Demystifying short-stretch compression bandaging

Venous ulceration is caused by chronic venous hypertension and venous insufficiency. In order to reverse these effects, graduated compression bandaging remains the mainstay treatment.1,2 A choice of compression bandage can be made from a selection of multilayer and short-stretch systems. By being aware of the most effective systems and best practice, nurses can allow the patient to choose what they feel most comfortable with and ensure treatment has a positive effect.3 Short-stretch bandaging has been shown to be a cost-effective and successful method of reversing venous hypertension. It is an effective alternative to multilayer bandaging in the management of patients with chronic venous ulceration, in patients with ulcers of mixed aetiology and a proven treatment for lymphoedema patients.2–7 Compression should only be applied following a full holistic assessment and ABPI measurement, ensuring a satisfactory arterial bloodflow. Actico® (Activa Healthcare Ltd, UK) should only be used after specialist referral and under strict supervision for patients with diabetes or an ABPI <0.8.

How it works

The Actico cohesive bandage is applied at full stretch with 50% overlap, using a spiral technique over a layer of orthopaedic wool padding, ensuring a graduated shape, keeping the bandage as close to the leg as possible. The cohesive nature of this bandage prevents the slippage previously noted in other short-stretch bandages.4 The bandage creates a firm ‘tube-like’ structure. When the calf muscle contracts, it rebounds against the wall of the ‘tube’ (working pressure). The bandage stays in place when the muscle expands – directing fluid back into the veins and lymphatics. This ensures high compression when the patient is active, and very low compression when the patient is inactive (resting pressure).

If the patient is sitting down for long periods of time, foot exercises should be encouraged to ensure calf and foot pump activity, which aid venous return. If the patient is only able to weight bear, this is sufficient to work the calf and foot pump and make the bandage effective.5

Application instructions

• Before application, position the foot at a 90 degree angle.

• Assess the shape of the limb and ensure sufficient padding is used to protect vulnerable areas and to provide a graduated compression.

• Measure the ankle circumference both before, and after, applying the padding layer.

• For ankle circumferences <18 cm, you will need to apply enough padding to bring the ankle measurement to >18 cm.

• Hold the Actico bandage at tension and keep it close to the limb.

• You can bandage in either direction if one Actico bandage is applied.

Ankle circumference 18–25 cm:

• **STEP 1** Apply the padding with two turns at the base of the toes. Spiral with 50% overlap to one finger below the knee crease.

• **STEP 2** Apply compression from the toes. Hold the Actico with tension and apply two turns from the base of the toes, pulling the bandage on the second turn if there is oedema in the foot. (Apply an extra turn for a long foot.)

• **STEP 3** Enclose the ankle and heel with a figure of eight.

• **STEP 4** Start to spiral up the leg with a 50% overlap. Pull the Actico at the back of the leg to ensure a full stretch. Maintain tension as the Actico is brought around the front of the limb.

• **STEP 5** Finish the Actico two fingers below the knee crease. Cut off the excess bandage and tape if necessary. Bond the layers together by applying gentle pressure along the length of the limb.

Ankle circumference >25 cm with padding:

• **STEP 6** Apply the second Actico in the opposite direction. Secure with two turns over the ankle and spiral as before to the knee. Cut the Actico, tape and bond the layers together.

References