

## Self-Bandaging Techniques for The Lower Extremity

The goal in self-bandaging in the self-management phase, or phase two of CDT is to maintain and improve the success achieved in the first phase of treatment. Further reduction and softening of fibrotic tissue in the affected area is the main focus. To achieve these goals, most patients have to continue to wear bandages at night. Even patients who do not experience an increase in extremity volume during the nighttime, and do not have any areas of fibrotic tissue, may experience fluctuation in limb volume at times (lifestyle, during menstrual period, weight gain, climate, etc.). It is therefore imperative for long-term success that every patient learns appropriate self-bandaging techniques while under the care of an experienced and properly trained lymphedema therapist.

To support patient compliance, it is essential to keep the self-bandaging techniques as simple and the least time consuming as possible. It should not and cannot be expected that a patient use the same techniques and material quantities as the lymphedema therapist during the intensive phase of the therapy. The use of high-density foam without the supervision of the clinician is not advisable. Bandages in the self-management phase are primarily worn at nighttime, when the patients either sit or lie down. Much less bandage pressure is needed to achieve the beneficial effects of compression therapy. The quantity of materials is therefore much lower than during the intensive phase of therapy, during which the compression bandages are worn 22-23 hours a day.

Following is a list of recommended materials for applying a compression bandage on the lower extremity during the self-management phase of Complete Decongestive Therapy (phase II). The quantities listed below represent two sets of compression bandages, which is recommended for hygienic reasons (one to wear and one to wash):

- 1 bottle of skin lotion
- 1 box of stockinette (tubular bandage) in the appropriate size
- If toe bandages are necessary: 1-2 boxes of gauze bandages (4cm width)
- 2 high-density foam pieces kidney-shape
- 3-5 padding bandages (10cm); soft foam bandages or synthetic nonwoven padding bandages
- 2-4 padding bandages (15cm); soft foam bandages or synthetic nonwoven padding bandages
- 4-6 short stretch bandages 10cm, or 2 double-length (11 yards) 10cm rolls
- 4-6 short stretch bandages 12cm, or 2 double-length (11 yards) 12cm rolls

Tape to secure the bandages If necessary: additional foam pieces provided by the therapist

### Step-by-Step Instructions in Self-Bandaging for Lower Extremity Lymphedema

Bandages are generally applied with an even pre-stretch of about 30-40% and an overlap of about 50% to 70%. All materials should be on the table in the order in which they are applied; two to three strips of tape per compression bandage (about 5 inches long) should be prepared. Padding bandages are not taped.

To bandage the foot and the lower leg, the patient should be in the sitting position with the foot of the affected leg resting on another chair, or the knee of the other leg. Bandages from the knee up to the groin are applied standing.

**Skin Care:** appropriate skin care products are applied thoroughly, without causing redness on the skin.

**Stockinette:** the tubular bandage should be cut to a length that allows for an overlap of about 5" on the upper end of the extremity. This overlap is used to extend over and cover the complete compression bandage on the upper border (Fig. 4-1).



**Fig 4.1**

**Toe Bandages (if necessary):** start the first gauze bandage with a loose anchoring turn around the foot, and then proceed to bandage the big toe. Enter the toe from the back of the foot, apply 2-3 circular turns and leave the toe again over the back of the foot. Avoid sliding or rolling of the bandages in the web space area. The tips of the toes remain unbandaged. Proceed to bandage the remaining toes (except the 5th toe, which generally is not involved in the swelling) in the same manner. One 4 cm bandage (usually folded to half width) is generally sufficient to cover the toes. Any unused part of the gauze bandage should be wrapped spirally (not circular) around the foot. Upon completion, the tips of the toes should be checked for proper circulation.

**Padding Materials:** 2-3 rolls of non-woven synthetic padding, or 1-2 rolls of soft foam (Rosidal Soft®, CompriFoam®) are applied on the foot and lower leg (Fig. 4-2).



**Fig 4.2**

Komplex® foam kidneys are secured between the medial and lateral anklebone and the Achilles tendon with the padding bandages. Synthetic padding bandages may be doubled over the shin area to provide additional protection.

**Short stretch Bandages:** starting a 10cm wide bandage with a loose anchoring turn around the foot, the foot is bandaged down to the web spaces with 3-4 circular turns (Fig. 4-3).



**Fig 4.3**

The same bandage proceeds to cover the heel in a criss-cross fashion. During the application of compression bandages on the heel, the ankle is in approximately 70-90 degrees of flexion (Fig. 4-4, 4-5).



**Fig 4.4**



**Fig 4.5**

Secure the bandage with tape. The next bandage (10cm) starts above the ankle with a loose anchoring turn in the opposite direction of the previous bandage (applying compression bandages in opposite direction to each other prevents bandaging the foot in a non-functional position, e.g. it provides for a functional bandage and adds durability). The goal is to cover the lower leg up to the knee using circular turns (Fig. 4-6, 4-7).



**Fig 4.6**



**Fig 4.7**

Secure the bandage on the lower leg with tape. If a double-length bandage is used, the foot as well as the lower leg may be bandaged using the same roll.

The remaining compression bandage is applied standing up and the body weight should be shifted to the extremity being bandaged, with the knee slightly bent. Padding materials using non-woven synthetic padding or soft foam rolls are applied on the knee and thigh (Fig. 4-8)



**Fig 4.8**

When using synthetic padding bandages, the layers may be doubled in the back of the knee to provide additional protection. The knee and thigh should be bandaged using two (to three) rolls of 12cm wide short stretch bandages (or one double-length roll). The first bandage starts with a loose anchoring turn below the knee, proceeding to cover the knee and parts of the thigh using circular techniques (Fig. 4-9).



**Fig 4.9**

The remaining thigh is bandaged with the next bandage roll. Secure the bandage with tape and fold the overlap of the stockinette over the bandage (Fig. 4-10).



**Fig 4.10**