

Below Knee Stump Bandaging

G F Lamb, NZ Artificial Limb Board



Successful shaping of a stump by bandaging requires:

- effective bandage material – I prefer Seton Elset 'S'
- effective bandage size – 10 cm for shorter BK stumps or 15cm for larger
- the bandaging to extend above the knee joint to provide low tension suspension
- learning to keep the bandage always applied to the leg; lifting it off creates bad tension lines
- all tensioning turns to be long spirals
- a conical pressure gradient on the stump
- the avoidance of congestion in the stump; congestion causes swelling and PAIN
- fixation of the bandage with 2 safety pins, NOT adhesive tape.

1 **START** the bandage at the *lateral* side of the thigh clear of the knee joint which should be 30-40° flexed.



2 Anchor the bandage by carrying it across the front of the thigh and complete 1.25 turns (360° + 90°). There are now two thicknesses of bandage across the front of the thigh, one posteriorly. The bandage should thus arrive at the medial side of the thigh travelling towards the back.



3 From the popliteal fossa change direction to spiral down across the back of the stump to reach the lateral side of the stump tip.



4 Take an *untensioned* turn around the stump and then travel up by a long oblique to the medial side of the thigh above the knee. The purpose of this untensioned turn is to provide a better surface for the subsequent tensioning turns to slide upon.



5 The next is an important stage. The bandage, once having reached its high point on the thigh, changes direction sharply and that point needs to be stabilised with a finger of one hand until caught by the next anchoring turn around the thigh. That anchoring turn **must not** be tensioned and travels 360° + 90° (=1.25 turns) so that the bandage is retracing 2.



6 Now the tensioning begins. The next turn spirals down from the inner side of the knee across the stump to the lateral side as in 3, but as it travels the bandager lets out less bandage than the distance travelled so that tension is applied. It is important that the bandage *stays applied to the limb throughout this manoeuvre so that tension is applied evenly.*



- 7** At the tip of the stump only about 2/3 of the bandage should be covering the stump, the rest overhanging the end.



- 8** The spiral turn continues around the distal part of the stump, round the lateral aspect still under tension, continuing to the antero-medial aspect of the thigh again where again it changes direction sharply as in 4 and 5.



- 9** The bandage is now effectively travelling in figure of eight fashion with long spiral tensioned turns around the stump and circular **untensioned** anchoring turns around the thigh. As bandaging proceeds the tensioning turns should vary their position a little in order to ensure that the desired shape is being achieved.

It is not necessary to cover every bit of skin with bandage – oedema around the knee is usually minimal and does not need to be pressured out so if bits of skin in that area are visible it does not matter. The elastic bandages tend to close in over the end of the stump and there is no need specifically to bandage the end provided the turns in that region use only 2/3 of the bandage width on the stump itself.

When all the bandage has been used (in very large stumps it may be necessary to use two lengths of bandage as for an AK stump) it needs to be secured with safety pins.

Adhesive strapping does NOT hold it properly. Two pins are needed, one through the **full** thickness of the bandage at the place of direction change in 3 and one at the point of cross over just below the medial side of the knee.



- 10** **CHECK** that the bandage tension is graded, maximal distally and reducing from there proximally. **CHECK** that the bandaging has shaped the stump as intended. **CHECK** that the thigh anchoring turns are loose enough to get a hand under comfortably (most important). **CHECK** that the knee is free to move from full extension to 90°.



- 11** Tell the amputee that their bandage should feel firm but **never painful**.

**PAIN = CONGESTION, so
TAKE THE BANDAGE OFF.**

If the bandage has been properly applied it will tend to slide off because the tension gradient is conical and this is why stump bandages need to be reapplied three or four times a day. If the amputee is physically able and has the cognitive capacity to do their own bandaging they can be taught how and encouraged to do it, achieving a consistent bandaging pattern and also accustoming them to handling their stump.