

# Self-Management with Compression in Lymphoedema

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## Abstract

Lymphoedema is a progressive, chronic disease as a result of primary or secondary damage to the Lymph system with consecutive increase and change in the interstitial tissue fluid, characterized by an alteration of tissues. It is not the result of reduced reabsorption into the venous system as we learned it from the Starling principle years ago. Nowadays there is the revised Starling equilibration that tells us, that in homeostasis the whole liquid in the interstitium has to be transported back by the lymphatics, there is no reabsorption. The treatment of Lymphedema involves 2 phases and 5 columns, such as Phase of edema reduction and Phase of optimizing and maintenance and manual lymphatic drainage, manual lymphatic drainage, skin care, hygiene, Compression, exercises and self-management respectively.

## The effects of compression

Compression therapy is recognized as an effective treatment in the management of venous and lymphatic disease since thousands of years. Due to the enhanced tissue pressure from outside by the compression, a reduction of the capillary fluid filtration follows as result, thereby less lymphatic water load results. It reduces the venous reflux by compressing the veins and narrowing the venous valves, there is an improvement of the venous pumping function due to high resistance for the pumping of the muscles, it reduces the ambulatory venous hypertension, increases the arterio-venous pressure gradient and improves the lymphatic drainage by reduction of micro-lymphatic hypertension, promotion of rhythmic lymph-pulsation, improving of the function of local lymphatics and softening of hard tissue.

## Objectives

Ideal goal of therapy is to normalize the lymphatic transport. Due to the chronic nature of lymphedema the therapeutic goal is to return the disease in the latent stage (limited transport capacity without lymphedema) or at least in the stage I and thereby achieve sustainable relief from the discomfort.

## Methods

As in most of the countries all over the world we do not have enough experienced doctors and therapists that can do a qualified job on their patients. So, we have to educate our patients in compression, skin care and exercises. In the phase of reduction, we achieve the best results with a short-stretched bandaging. The stiffer the material is the better is the reduction. We need high working pressure which means that the bandage has to give a hard resistance to the muscle for better shifting of blood and lymph liquid to the heart. After about 5 hours the bandage will slip because the edema is reduced.

Therefore, the patient has to learn to bandage himself. Problem is, that nobody knows the pressure that is applied. A study from K. Protz showed that even well-educated nurses were not able to apply the right pressure, so how can the patient know that the pressure he put on with the bandages is right?

So we changed to JuxtaFit from CircAid for self management, a stiff bandage with velcro closures and a BPS Guide what means: Built in Pressure System. The compression pressure is controlled with a card and two markers on each stripe of the device. The patient can apply this velcro bandage very easily it fixes itself with velcro stripes. Each stripe has two marks where the patient is able to control the pressure with the BPS card. In case when the device slips down- as sign that the edema reduces, the patient has to open the velcro stripes and readjust it in a few seconds.

The same procedure with a normal bandage will take 3 times longer. He has to take off the whole bandage and start to do it again. In phase two we need compression hosiery to keep the reduced edema firm. This should be a stiff material and, in most cases, we have to use made to measure stockings in flat knitted kind. During night time the patient can use the velcro device again to keep the result. In case that the edema starts to swell again, he goes back to the bandaging with velcro.

## Results

Velcro device takes less time and the patient can adjust it after a few hours to control the necessary compression and there is a better reduction due to higher stiffness.

The patient is able to do the compression by himself and we know that we have the right compression for the corresponding disease.

## Conclusion

Compression therapy and movement is the most important column of the treatment. Velcro devices are useful in phase one for reduction and phase two for optimizing.