

## How to put on compression stockings with short arms.

This paper deals with how to put on compression socks with short arms.

While putting on normal socks with the help of the feet generally does not present any problem for thalidomiders with short arms ...

<https://www.youtube.com/watch?v=-FGmp-ot3ys&feature=youtu.be>

... putting on tight compression stockings is already a general problem for people with long arms. With short arms, it is barely possible without the aid of special devices.

### Why compression stockings at all?

Compression stockings are made of elastic fabric and exert a pressure against the underlying tissue. The therapeutic effect consists in diminishing diameter of underlying venous vessels, thus enhancing blood flow velocity and preventing edema and thrombosis.

Wearing compression stockings is an extremely effective post surgical therapy which prevents deep vein thrombosis and is therefore generally prescribed as a prophylactic approach.

Furthermore, wearing compression stockings prevent the development of dilation of superficial veins (varicosis).

Compression stockings are usually made to measure depending on patients individual anatomy.

### Deep vein thrombosis

Thrombosis means „blood clot“. While blood clotting is an effective natural reaction to tissue damage in order to prevent blood loss, intravascular clotting of venous blood means that the delicate balance between clotting and liquefying parameters has been disturbed.

There are 3 mechanisms, which enhance excessive clotting in the venous system.

- 1.) reduced blood flow e.g. in impaired movement due to immobilisation
- 2.) Change in blood composition due to exsiccosis or increase of thrombogenic factors
- 3.) Injury of blood vessel wall exposing collagen which is a strong thrombogenic factor

Thalidomiders with short arms are bound to suffer long immobilisation periods after surgery of the lower limbs because mobilisation on crutches may prove difficult.

When intravenous blood flow is impaired by thrombosis, the member distal of the blood clot starts swelling. A blood clot in the knee region leads to swelling of the lower leg.

Deep vein thrombosis may lead to a potentially fatal complication: the pulmonary embolism.

### Pulmonary Embolism

In case of a pulmonary embolism, the blood clot of the deep vein system which was adherent to the vessel wall comes loose and will travel unimpeded (blood vessels towards the heart)

increasing in diameter) with the blood flow into the right chambers of the heart and is then pumped out through the pulmonary arteries into the lung where it gets stuck immediately with the diameter of the pulmonary blood vessels rapidly decreasing with blood flow.

This is a life-threatening condition. The symptoms are chest pain and difficulty in breathing. Each year approx. 30.000 People in England sustained a pulmonary embolism. It is assumed that 30-40% of these patients do not survive this condition.

This is the main reason why doctors lay so much emphasis on thrombosis prophylaxis.

The prophylactic / therapeutic approach of compression stockings consists in compressing the superficial veins and thus forcing the blood into the deep vein system, enhancing blood flow velocity there and thus preventing deep vein thrombosis.

There are other indications for compression stockings: Prevention of lymphedema after cancer surgery (cancer surgery often leads to injury of lymphatic system)

#### How to put on these very tight long stockings with short arms:

As mentioned above, the compression stockings need to be very tight to exert pressure on the underlying tissue.

This leads to difficulty in putting these stockings on, the most critical part is the heel, where the length of the heel adds to the diameter of the foot and the often rough skin of the heel effectively prevents the stocking to slide over it.

Stockings with open toe area can be easily put on with the use of special light bags (e.g. made from parachute silk) which are put on the foot prior to putting on the compression stockings and which are afterwards been pulled out from the toes. (The compression stockings glide over those silk bags a lot easier than over skin).

Most astoundingly, it is not general knowledge with health care providers that thin nylon socks have the exact same gliding effect.

Since they are too thin to hinder compressive force of the compression stockings, they do not need to be pulled out from under the compression stockings which makes them ideal for all closed compression stockings where you cannot pull anything out from the toes due to – well – they are closed.

Compression stockings that are open at the toes should be the solution of choice for thalidomiders with short arms since they often use their toes instead of the fingers.

Furthermore, there are mechanical dressing devices which basically consist of a solid wire construction which is „preloaded“ with the compression stocking, thus giving the stocking a functionality of a flexible boot instead of a limp sock.

Patients can relatively easy „step into“ such a compression stocking like in a boot and provide 2 handles to hold on to and pull with the arms. Lengthening these handles with ropes may help thalidomiders to use their arms or their neck to exert a pulling motion on the construction in order to pull the compression stocking into place.

There is a variety of stocking aids available via the internet.



Stocking aid: Source: Wikipedia

### **Take home message:**

Compression stockings are not a cosmetic but a therapeutic device. If your doctor suggests you wear one, do not let the fact that you cannot reach them with short arms prevent you from using them! Putting these stockings on is not easy, even with long arms. Talk with your doctor or health care provider. There is always a solution for this. Compression stockings save lives.

Alternatives:

- 1.) Subcutaneous heparine injections:  
Very effective as prophylactic approach against deep vein thrombosis but can lead to severe side effects. Not effective against chronic dilation of superficial veins leading to varicosis which is effectively prevented only by compression stockings.
- 2.) Oral anticoagulation by coumadin or sintrome: same therapeutic effect as heparin with respect to prevention of thrombosis but side effects may be more severe and finding the correct dose may be a problem. As with heparine, this does not prevent the development of varicosis.
- 3.) Direct inhibition of coagulation factor Xa: A new drug from Bayer is used as prevention of deep vein thrombosis. The name is xarelto. Whether it is better than conventional oral anticoagulation and has lesser side effects remains to be elucidated. As with heparine and oral anticoagulation, this does not prevent the development of varicosis.
- 4.) Raising lower end of the bed 3 -4 inches helps to enhance blood flow in the direction of the heart and prevents venous blood from pooling in the lower extremities. Is considered an additional method for prevention of deep vein thrombosis. Not effective against development of varicosis.

update 2.7.16

In the recent years, great effort was done to enhance the easyness of putting on compressive stockings. My colleagues and their patients are very happy with a new device that allows, at first very easy to roll up the compression stocking and then "unroll" them on the leg. If the device is manageable with short arms, I do not know, but it also provides fan immense help for the people helping to put on the stockings. Doubtlessly, it is worth to try the device.

The device is called "Doff N' Donner" and is sold / manufactured in Switzerland by Sigvaris.

Available in a large Internet shop that started with books and are now selling almost anything.

Here is a link to see how it works:

<https://www.youtube.com/watch?v=csXEqOBHgMU>

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