

# To Pump or Not to Pump

By Guenter Klose

**Pneumatic Compression Devices (PCDs)**, also known as “pumps,” have been utilized in the treatment of lymphedema since the early 1950s. The initial devices used single-chamber pressure cuffs that applied a uniform level of compression to the entire limb. “New generation” PCDs use improved technology and are equipped with multiple chambers that provide calibrated, gradient-sequential inflation.

In the early 1990s, PCDs fell out of favor with practitioners after Complete Decongestive Therapy (CDT) was established as the standard of care for the treatment of lymphedema. Adverse effects were cited among some patients who used the device at unreasonably high pressure, and some people were using PCDs without medical supervision. However, the benefits of a properly used modern-day PCD device may make it a valuable component of a home-care regime.

**Q I have Stage 2 lower extremity primary lymphedema. Should I use a pump to control my lymphedema at home?**

**A** Initially, it is best to have your lymphedema condition assessed and treated by a Certified Lymphedema Therapist (CLT). The number of treatment visits required will depend on the severity of your lymphedema. Once a maximum level of reduction is achieved, it may be beneficial to obtain a PCD to assist with your in-home maintenance. This device will not eliminate the need for daytime compression garments, nightly bandaging or any other items of self-care your therapist recommends.



**Guenter Klose, MLD/CDT Certified Instructor, CLT-LANA** is the Founder of Klose Training and Consulting LLC, located in Lafayette, Colorado. He received initial Complete Decongestive Therapy training in 1984 at the Foeldi Clinic in Germany. Guenter has lectured extensively in the United States and abroad.

Nevertheless, when used in conjunction with other daily self-care measures and weight loss (if indicated), a pump may lead to further limb volume reduction, improved range of motion, a decrease in subjective complaints such as heaviness and aches, and ultimately, an improved quality of life.

**Q What advice do you give to patients with lymphedema who are interested in purchasing a pump?**

**A** Always consult with your Primary Care Physician (PCP) and/or CLT for advice on whether a PCD is right for you. Most patients with lymphedema will benefit from a PCD that is equipped with multiple chambers and provides calibrated, gradient-sequential inflation. Since lymphedema often affects the adjacent trunk quadrant (chest and back in upper extremity lymphedema and buttock and groin region in lower extremity lymphedema) it is preferable to choose a PCD that includes a garment that also treats these core body areas. If the patient’s lymphedema only involves the distal areas of the limb—and there is no reason to believe that proximal areas will become congested—a PCD that only covers the extremity may be sufficient.

**Q What is the optimal pressure setting and what are the potential side effects of using a pump?**

**A** Because every patient’s lymphedema and response to treatment is unique, there is no universal pressure setting that works for all. Also, there are no established guidelines for the optimal pressure value.



A recent systematic literature review published in the *Journal of Lymphology* (2012) stated: “A peak inflation pressure of 25–50 mmHg might be sufficient for most patients in the absence of significant fibrosis.” As a Certified Lymphedema Therapist and Instructor, I usually recommend approximately 40 mmHg pressure for patients with upper extremity lymphedema and 50 mmHg for patients with lower extremity lymphedema, with an upper limit of 50 mmHg and 60 mmHg, respectively.

To ensure safe and effective treatment, patients using a pump should be advised to discontinue use of their PCD and contact their PCP or CLT if any of the following is observed: a new occurrence or increase in proximal swelling, swelling of the genital or breast regions, discomfort and pain in the affected limb or redness and increased swelling with or without fever. [▶](#)

## References

*Lymphology*. 2012 Mar; 45(1):13-25. Intermittent pneumatic compression therapy: a systematic review. Feldman JL, Stout NL, Wanchai A, Stewart BR, Cormier JN, Armer JM.

## Glossary

**Distal:** area of the body that is remote from the trunk (hand and forearm of the upper extremity, and foot and lower leg of the lower extremity).

**Proximal:** an area of the body close to the trunk including the adjacent trunk quadrant.

**Fibrosis:** medical term to describe build up of connective tissue and hardening of the skin within the affected extremity.