



The importance of exercise as part of lymphedema treatment

Exercise with lymphedema can be safe and effective

By Joachim E. Zuther

Exercise represents an integral part in the treatment and management of lymphedema and is a cornerstone of Complete Decongestive Therapy (CDT), the recognized gold standard treatment for those individuals at risk of, or affected by lymphedema.

Especially in the area of lymphedema management, an exercise program should be customized to meet the patients' fitness level, age and individual goals. Just as in cancer treatment, a "one program fits all" approach will not work.

Properly performed exercises have profound benefits on a patient's general health, energy level, stress management, immune function, and weight management. The positive impact of exercises on limb flexibility, range of movement, and increased lymphatic and venous return are of particular importance for patients affected by lymphedema.

CDT consists of a combination of manual lymph drainage (MLD), skin care, compression therapy and exercise. Successful lymphedema management is performed in two phases; in the first phase, also known as the intensive or decongestive phase, individualized treatments are administered by trained lymphedema therapists on a daily basis, or as

often as required until the affected body part is decongested. The end of the first phase of CDT is determined by the results of measurements on the affected body part, which are taken by the therapist. Once measurements approach a plateau, the end of phase one is reached and the patient progresses seamlessly into phase two of CDT, also known as the self-management phase. In this phase the patient assumes responsibility for maintaining and improving the treatment results achieved in phase one.

Exercises in the intensive phase

In phase one of CDT, emphasis is placed on decongestive or remedial exercises, which have shown to be effective in supporting the decongestive effect by increasing lymphatic and venous return. Decongestive exercises should be performed under the guidance of a trained lymphedema therapist and are most effective if conducted while the patient wears compression

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bandages, which are also an essential component in the management of lymphedema.

The superficial lymphatic vessels are located between the muscle layer and the skin. With activity, the muscle contracts and relaxes against the skin, which increases lymphatic vessel activity and return of lymph fluid and venous blood. However, in most cases of lymphedema, the tissues affected by lymphedema are unable to provide adequate resistance against the musculature working underneath during exercise. The external compression provided by bandaging and garments provides the necessary resistance to improve lymphatic return.

Effective lymph flow depends on sufficient muscle and joint activity, especially if lymphatic system function is compromised. Ideally, decongestive exercise protocols are performed two to three times daily for about 10-15 minutes, and the patient should rest



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6 GENERAL RULES ON Exercising with lymphedema

- 1** Always discuss new exercises and activities with your doctor and exercise therapist, as he or she is able to provide proper guidance and feedback.
- 2** If you have any accompanying medical conditions (heart problems, pulmonary issues, diabetes, etc.), or if you are taking any medication that has side effects, these need to be taken into consideration with your doctor—with the exercise program adjusted accordingly.
- 3** Avoid movements that overstrain. Should you experience discomfort in the affected extremity, or an undesirable change in size, shape, texture, heaviness, or firmness, reduce the exercise activity or take a break and elevate your extremity. If a change persists for more than a few days, consult with your doctor or lymphedema therapist.
- 4** Elevate your extremity when you can, avoid prolonged standing, sitting or crossing legs (for lower extremity lymphedema).
- 5** Gradually increase the intensity and duration of any exercise to avoid sprains and injury to muscles. An exercise program should be followed by a warm-down of 10-15 minutes.
- 6** You may need to take brief rest periods during the exercise to allow your extremity to recover.



with the affected limb elevated for at least 10 minutes following the exercise program.

Properly performed breathing (diaphragmatic) exercises are another essential decongestive exercise component in phase one of CDT. The downward and upward movement of the diaphragm in deep abdominal breathing improves the return of lymphatic fluid and venous blood back to the bloodstream. Both arm and leg lymphedema patients benefit from an exercise program that includes diaphragmatic breathing exercises. The movement of the diaphragm, in combination with the outward and inward movements of the abdomen, ribcage, and lower back, also promotes general well-being and peristalsis.

Exercises in the self-management phase

Reinforcing the importance of good exercise habits in phase one of CDT assists individuals in the natural progression to the exercise regimen in phase two, the self-management phase. In this phase, additional emphasis may be placed on increasing flexibility, improving muscular strength, weight control and heart health. While there is broad consensus on the need and benefits of decongestive (also known as remedial) and breathing exercises during phase one of CDT, there is no real consensus on when the patient may start with additional exercises, how much exercise may be performed and what the type of exercise regimen should or should not be used by individuals affected by lymphedema.

For the majority of patients at risk for, or affected by lymphedema, an exercise regimen typically includes some combination of aerobic exercises, flexibility and stretching exercises and resistance (strength) training.

There has been much controversy and misinformation regarding strength-training exercises for those with lymphedema. However, recent studies^{1, 2, 3} indicate that resistance exercises are safe to perform



as long as common sense is applied and certain guidelines are followed. The exercise regimen should be started upon physician clearance and under the guidance of a trained lymphedema therapist or other health care professional with knowledge in the management of lymphedema.

Resistance (strength) exercises improve muscular power, increase the strength in ligaments, tendons and bones, and contribute to weight control. Resistive exercises are typically performed in a repetitive fashion against an opposing load. Gradual progression is crucial and exercise programs should be tailored to the patient's fitness level.

Although research has shown that strenuous exercises can be undertaken by those individuals at risk of, or already having lymphedema without negative effects, it is advisable that not all precautions be thrown to the wind. The exercise regimen should be started slowly, to avoid the risk of increased swelling, strains and injury to muscles. This allows the individual to observe how the edematous extremity responds to exercise. The Position Statement on Exercise⁴ of the National Lymphedema Network (NLN) incorporates recent research and should be consulted when developing an individualized exercise plan.

Exercise is an important part in the management of lymphedema and should certainly not be avoided by the patient. Research has shown that the transport of lymph fluid and proteins from swollen areas increases during and after exercise. Studies indicate that lymph flow increased fivefold in the first 15 minutes and two to three fold during the remaining time of a two-hour exercise protocol^{5, 6}. Some long-term benefits of aerobic exercises (walking, swimming,

cycling) include decrease in resting heart rate, improved muscular strength, weight control and increased return of venous and lymphatic fluids. Aerobic exercises assist with weight loss and encourage deep breathing, which in turn supports lymphatic and venous return.

Of particular benefit for individuals affected by lymphedema are aquatic exercises (water aerobics). The buoyancy effect water has on the musculoskeletal system makes movement more comfortable, and in addition to a number of other benefits, aquatic exercises have muscle strengthening effects. Range of motion and flexibility are increased when in a warm water pool, and the cardiovascular system is working more effectively. Additionally, the hydrostatic pressure of the water acts like a “full-body garment” helping to reduce edema, and water exercise can reduce emotional stress. The optimal water temperature for water aerobics is about 82F/28C⁷.

In short, the movements in the water are resistive, assistive/supportive, compressive, massaging, relaxing and comforting.

An effective flexibility-training program

can also improve physical performance and help to reduce the risk of injury. By improving range of motion, the body requires less energy to make the same movements; it also contributes to more flexible joints and ligaments thus lessening the likelihood of injuries. Mild yoga may be especially helpful to promote both flexibility and relaxation.

Conclusion

Especially in the area of lymphedema management, an exercise program should be customized to meet the patients’ fitness level, age, individual goals and phase of treatment. Just as in cancer treatment, a “one program fits all” approach will not work. [LP](#)

References

- Schmitz K, Ahmed R, Troxel A, et al. Weight lifting for women at risk for breast cancer-related lymphedema: a randomized trial. *JAMA*. 2010; 304: 2699-2705
- Brown J, Schmitz K. Weight Lifting and Physical Function Among Survivors of Breast Cancer: A Post Hoc Analysis of a

Randomized Controlled Trial. July 1 2015 issue of the *Journal of Clinical Oncology* (Vol. 33, No. 19)

- Kwan M, Cohn J, Armer J, Stewart B, Cormier J. Exercise in patients with lymphedema: a systematic review of the contemporary literature. *J Cancer Surviv*. 2011;5: 320-336.
- Position Statement of the National Lymphedema Network on Exercises: <http://lymphnet.org/pdfDocs/nlnexercise.pdf> (accessed December 2015)
- Havas et al (2000). Albumin clearance from human skeletal muscle during prolonged steady-state running. *Exp. Physiol* 85(6):863-8
- Lane et al (2005). The effects of a whole body exercise programme and dragon boat training on arm volume and arm circumference in women treated for breast cancer. *Eur J Cancer Care (Engl)* 14(4): 353-8
- Johansson et al (2004). Controlled physical training for arm lymphedema patients. *Lymphology* 37 (suppl):37-9.

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