

Activity is one of the cornerstones of care in the management of lymphoedema. It has a role in treatment regardless of the patient's age, ability or the severity of their condition. It should be part of the intensive phase of lymphoedema management and should also be incorporated into the patient's self-management programme in the maintenance phase. In the case of patients with paralysis, passive exercise is recommended as it is believed that this will increase the contractions of the intrinsic pump.

Most patients are able to engage with beneficial activity if time is taken to explore what is meaningful and enjoyable for them and what can be built into their daily routine, especially if supported by visual material - written and pictorial leaflets, videos or Apps. Being able to direct people to helpful online/mobile apps and resources will support engagement (see thebbs.com).

Traditionally, those with, or at risk of, lymphoedema were strongly advised to avoid weightlifting or strenuous exercise. However, a systematic review found no evidence of harm from several forms of exercise, including aerobics, resistance, yoga, qigong and pilates. It also reported a wide range of benefits in quality of life, strength, Body Mass Index, mental health, reduced pain and lymphatic swelling (Panchik et al 2019).

What is the physiological basis of exercise?

Rhythmical activity involving movement and stretching improves joint movement, posture and lymph drainage. Variations created in interstitial tissue pressure influences propulsion of lymph, helping to transport fluid and proteins (which cause inflammation) from the swollen limb/area. The physiology and molecular biology of exercise suggests that it activates multiple signalling pathways of major health importance. An anti-inflammatory environment is produced with each bout of activity, and long-term anti-inflammatory effects are mediated via an effect on abdominal adiposity (Pedersen 2019).

Deep breathing exercises may be as important as limb exercises due to the effects on the lymphatic and venous systems and variations in intrathoracic pressure (Shields 1980). The effects of breathing on lymph flow have been documented (Bachmann et al 2018).

The value of activity in conjunction with a controlled diet to prevent or reduce obesity, which is known to be a contributing factor to lymphoedema development (Wu et al 2019) is also to be highlighted.

How do I encourage those with lymphoedema to increase activity?

There is a lack of robust literature regarding the use of specific evidence-based exercise programmes for lymphoedema, with any studies based mainly on breast cancer-related lymphoedema. However, the following general principles can be drawn:

- To maximise concordance, choice of activity/exercise is determined by the affected area and the individual's limitations and preferences.
- Advise those beginning any activity programme to start slowly and gradually build up repetitions and

intensity. Always advise to ease off or stop if any activity appears to be causing worsening of swelling, and to seek guidance from their therapist. As fitness improves, physical activity may be increased.

- Encourage to be active on a regular basis, incorporating activities / exercises into their daily routine and lifestyle. It is best if the activities / exercises are straightforward to do, interesting and enjoyable. Involvement of family members or carers is of great support and encouragement.
- If a prescribed compression garment is worn, it is generally best to wear this during activity and exercise to improve lymphatic drainage and discourage temporary swelling due to increased physical exertion (Johansson et al 2004). However, some patients report being more comfortable wearing reduced compression with no increase in swelling or slight increase that settles very quickly. Also, compression is not required for water-based activities.
- Provide guidance for those wishing to participate in water-based activities due to the possibility of infection risk and the need for good hygiene. Swimming may be contraindicated if they have a wound or previous experience of cellulitis following swimming.
- Consider group activities as these may be more fun, supportive and motivating. Supervised therapist-led exercise programmes may be more beneficial than individual home-based programmes for improving symptoms in breast cancer-related lymphoedema (Schmitz et al 2019).
- Exercise does not increase risk of lymphoedema developing in at risk groups – see BLS Lymph Fact sheet *What information, advice and support should be provided for those at risk of lymphoedema?*

What type of activity is recommended?

Regardless of the site of lymphoedema the following may be recommended:

- Deep breathing exercises or activities involving this, e.g. singing
- Swimming or aqua aerobics
- Yoga and pilates
- Tai chi and qi gong
- Nordic walking and any other type of brisk walking
- Set programmes of muscle pumping and strengthening exercises
- Gym work
- Any additional preferred activity for general fitness, e.g. dancing.

Specifically recommended if the lower limb(s) affected are walking, jogging, running, and cycling. Pelvic floor exercises are recommended for both men and women if there is risk of genital swelling.

Those with head, neck or facial swelling will benefit from range of movement exercises using a beaded collar and facial stretches.

References

Bachmann SB, Detmar M, Proulx ST. 2018 Visualization and Measurement of Lymphatic Function In Vivo. In: Oliver G, Kahn M. (eds) *Lymphangiogenesis. Methods in Molecular Biology*, vol 1846. Humana Press, New York, NY

Johansson K, Tibe K, Kanne L, Skantz H 2004 Controlled physical training for arm lymphedema patients. *Lymphology* 37(suppl): 37-9

Panchik D, Masco S, Zinnikas P, Lauder T, Suttman E, Chinchilli V, McBeth M, Hermann W 2019 Effect of Exercise on Breast Cancer-Related Lymphoedema: What the Lymphatic Surgeon Needs to Know *J Reconstr Microsurg* 35(1):37-45. Doi:10.1055/s-0038-1660832

Pedersen BK. 2019 The Physiology of Optimizing Health with a Focus on Exercise as Medicine *Annual Review of Physiology* 81:1, 607-627

Schmitz K, Troxel A, Dean L et al 2019 Effect of Home-Based Exercise and Weight Loss Programs on Breast Cancer-Related Lymphedema Outcomes Amongst Overweight Breast Cancer Survivors. *JAMA Oncol*. Published online August 15, 2019. Doi:10.1001/jamaoncol.2019.2109

Shields J 1980 Central Lymph Propulsion. *Lymphology* 13: 9-17

About the British Lymphology Society (BLS)

The BLS is a membership charity run by and for its members who share its mission: -

To actively promote professional standards and the study, understanding and treatment of lymphoedema/chronic oedema.

Through support of its membership, the Society seeks to achieve high standards of care and equitable access to treatment across the UK, raise awareness of the condition, promote early detection and intervention with supported self management. We work with other stakeholders, advise government, NHS and other professional bodies and organisations to effect change and influence practice.

See <https://www.thebls.com> for helpful resources and the benefits of membership.

About Lymph Facts

Lymph Facts are a series of documents produced, reviewed and monitored by BLS Members. Please feel free to use these to support your education/awareness raising activities. Every effort is made to ensure the content of Lymph Facts is accurate, up-to-date and appropriately acknowledged or referenced. We would be very grateful to receive feedback on anything that seems inappropriate or incorrect. Please see the website for the full range of Lymph Facts available. We would also welcome offers of contributions to extend the range of Lymph Facts.

BLS gratefully acknowledge the contribution of Jill Lorimer in the production of this Lymph Fact Sheet.

Accepted for publication on: January 2020

Review Date: January 2023

Best Practice, Leadership, Support