

Breast Cancer-Related Lymphedema and Exercise

What you should know for a smart, safe workout



BigStock

What is lymphedema, and how does it happen? / **Exercise** benefits and risks for lymphedema / **Guidelines** for safe exercise, including weight training; Pilates; cardio, core, and flexibility work; swimming; and yoga / **Resources** to learn more about breast cancer-related lymphedema

Step Up, Speak Out: *Together We Can Make the Difference in Lymphedema*

www.stepup-speakout.org

Copyright ©2013 Step Up, Speak Out · Revised 04.01.13

What is breast cancer-related lymphedema?

Breast cancer-related lymphedema (BCRL) is the build-up of lymphatic fluid (called 'lymph') in soft body tissues when the lymphatic system is damaged or blocked. This fluid build-up affects the arm, hand, and/or trunk, including the shoulder and back. Treatments that can damage or block the lymph system include surgery, such as lumpectomy or mastectomy; axillary node dissection, including sentinel node biopsy; and radiation therapy. Chemotherapy may also play a role. Up to 40% of breast cancer survivors will develop lymphedema during their lifetimes, most within three years of breast cancer treatment.

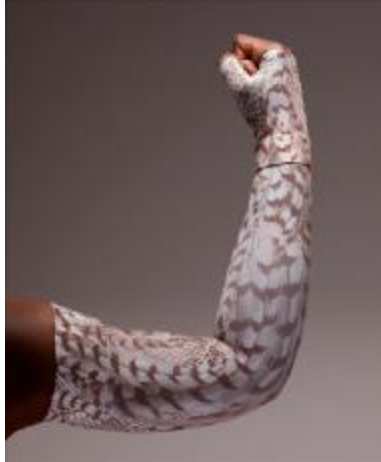


Photo courtesy LymphedIVAS,
www.lymphedeivas.com

BCRL can cause swelling, pain, a feeling of heaviness, and/or a tingling feeling in the affected areas. Diagnosed and treated early, BCRL can be readily managed. But even well controlled, lymphedema is a serious condition, with risk of severe swelling, permanent tissue damage, and infections that can be life-threatening.

BCRL treatment involves manually draining excess lymphatic fluid from swollen areas of the body, applying compression, and adhering to daily gentle exercise and skin care regimens. Manual lymph drainage (MLD) uses the hands to sweep excess fluid toward undamaged lymphatic vessels, and treatment can also include wrapping with special bandages. These bandages provide a firm support for muscles, whose contractions against the lymphatic vessels enhance lymph flow. Compression garments, such as the sleeve and gauntlet pictured at left, discourage subsequent fluid buildup.

Exercise: Benefits & risks to those with, or at-risk for lymphedema.

Besides the obvious benefits for health and wellbeing, exercise helps minimize and manage lymphedema in a few special ways: Muscle movements provide the pumping action that moves lymph through the lymphatic system, and deep breathing stimulates lymph flow. In addition, strong muscles help protect against a lymphatic response when a limb or torso must support unaccustomed weight, which the body interprets as a stress event. These are compelling reasons for breast cancer survivors to exercise and lift weights, but in a maddening contradiction, exercise and strength training can also create lymphedema risk. Exercise raises body temperature, stimulating lymph flow, and the very process of strength training—progressive resistance—loads the arm with unaccustomed weight that can trigger a lymphatic stress response. Yoga and Pilates movements that require the arm to support body weight can have the same effect.

Fortunately, recent research shows that women at risk or who already have BCRL can enjoy the health and quality-of-life benefits of exercise, including strength training, if you take certain precautions. The most rigorous research concerns safe strength training (the PAL Trial; see 'Studies' on the last page), and many of the weight training guidelines can be applied, using common sense, to other forms of exercise. This handout explains general guidelines for reducing lymphedema risk with exercise, including specific precautions that apply to weight training, cardio, Pilates, swimming and yoga.

General exercise guidelines if you have, or are at-risk for BCRL

Before you start an exercise program

If you have had recent surgery or radiation therapy, you should have a doctor's clearance to begin exercise. Keep in mind that you may need physical or occupational therapy to regain function before starting to exercise, depending on the scope of your surgery and other breast cancer treatment.

If you have BCRL, you should consult with your lymphedema therapist before starting an exercise program, to ensure the exercise is compatible with your treatment plan and to verify baseline arm measures. Your lymphedema *should be stable* before starting any exercise program. Stable means that in the past few months you have had no cellulitis (infection) requiring antibiotics; no more than one 'flare' (swelling episode) requiring therapy; and no fluctuations in arm volume greater than ten percent. Make sure you have a properly fitting compression sleeve and gauntlet or glove, which you should wear during any exercise.

If you are a breast cancer survivor at risk of BCRL, you should learn about BCRL, including its risks and symptoms. If possible, get baseline arm measures from a qualified lymphedema therapist, who can also help you decide if you should wear a compression sleeve and gauntlet during exercise. Some lymphedema therapists suggest that at-risk women wear compression during and for at least an hour after completing a workout or yoga session.

Guiding principles for exercise

During exercise programs, always:

- Start conservatively.
- Add resistance / exertion slowly and in small increments, and only if there has been no new presentation or worsening of lymphedema symptoms after exercise to date.
- Avoid adding repetitions and resistance at the same time, which can apply not only to weight training, but any exercise where you repeatedly work against resistance, such as Pilates and yoga.
- Rest muscle groups in between sets.
- Stay well hydrated and if exercising outdoors, use sunscreen and insect repellent.
- Take periodic deep abdominal breaths, which facilitate lymphatic drainage.
- Avoid temperature extremes in the exercise venue.
- Modify moves to accommodate your own needs, even if you feel awkward in not following an instructor's precise directions.
- Include slow warm-ups and cool downs in your workouts, as well as post-workout stretching to minimize muscle soreness.

Before, during and after: watch for symptoms

You should know how to spot symptoms of lymphedema (or worsening of your lymphedema if you already have it), and to know how to respond. If possible, seek a certified lymphedema therapist for an education session. You will also find a comprehensive source of accurate information about breast cancer-related lymphedema at <http://stepup-speakout.org/>. Stop exercising and consult a qualified lymphedema therapist if any new/worse symptoms are noted following exercise. Keep in mind, too, that exercise does not need to hurt in order to provoke a lymphatic response that might cause swelling or pain in a person who has or is susceptible to lymphedema. Lymphedema may be triggered, or existing BCRL may worsen, hours or even a day or so after exercise that was too strenuous or repetitious.

Additional guidelines for weight training

Supervision, resistance and progression

Ask a qualified personal trainer to supervise the initial weeks of your strength training program. Proper form is important for anyone starting a weight-training program, but doubly so for women with or at risk of lymphedema. That is because poor form can lead to injury, and injury (even muscle soreness) can provoke a lymphatic response that may overwhelm a limb or torso whose lymphatic pathways have been compromised by breast cancer surgery and/or treatments.

Use dumbbells or weight machines instead of bodyweight exercises or resistance bands, so that you can know the exact amount of weight (resistance) you are lifting and you can increase it very small increments as you build strength.

Start with 1- to 3 pound dumbbells, or with the lightest possible weight if using machines.

Progress to a higher weight only:

- after 2-4 sessions of doing the exercise with proper form, under a trainer's supervision.
- if there have been no changes in your existing lymphedema, or no lymphedema symptoms if you are a breast cancer survivor at risk for lymphedema.

If a change in symptoms lasts a week or longer, stop upper-body training (and lower-body lifts that require holding weight in an affected or at-risk arm); you should see a certified lymphedema therapist to evaluate symptoms.

If you take an exercise break of one week or longer (for any reason), reduce the weight being lifted. After one month's absence from weight lifting, re-start with 1-3 pound weights and rebuild from there.

Before each workout, ask yourself: Do I have any new or unusual lymphedema symptoms? If so, put a hold on strength training until you have been evaluated by a qualified lymphedema therapist.

Key points to keep in mind...

There is no evidence that weight training prevents lymphedema. The research does demonstrate that performed safely, you can include weight training in your fitness program, to provide the benefits of strength training while minimizing its lymphedema risks.

It may be possible to eventually introduce bodyweight and resistance-band exercises to your fitness program, but you should wait until you are sure you have developed considerable strength through slowly progressive weight additions, and that your weight training has not triggered lymphedema symptoms or flare-ups.

Working with a trainer will help ensure that your weight-lifting program helps you avoid both injury and muscle soreness. This is important because pain can trigger a lymphatic response. Appropriate warm-up and cool down, gentle stretching, slow resistance progression, proper form, ending the session with aerobic exercise, and hydration are strategies to avoid injury and soreness.

To learn more, read about the PAL Trial, a weightlifting research study that is the basis for recommendations on this page. There is a link to a PAL article in the references at the end of this handout.



BigStock

Additional guidelines for Pilates

There are special considerations when working in a Pilates program.

Pay close attention to the amount of exertion and resistance that you place on your arms and upper body when participating in a Pilates program. Consider the amount of weight you lift and the amount of grip strength you use during a typical day, and use caution in figuring out a safe starting point for each load-bearing Pilates exercise. Pilates can be similar to a gym workout, and therefore safe weightlifting guidelines apply directly. You can read those guidelines on the prior page.

- When starting a Pilates mat or equipment program, limit your upper body movement to few repetitions with little to no weight or spring resistance. If a class uses weights, including toning balls, begin without the weights to learn form and work on range of motion, and then add the lightest weight possible, and not more than one pound. Resistance bands and upper body weight bearing and planking should be avoided at first, because progression or resistance is difficult to assess.
- Take care to alternate exercises so that arms and torso have rest periods between sets.
- Keep in mind that some Pilates exercises are too rigorous at first when you are recovering from mastectomy.

Examples are mat work that includes weight bearing on arms such as planks/push-ups and side planks. Mat movements such as swan, swimming, and double leg kick are important to promote back strength and improve posture, and you can modify them by placing your arms in a diamond position in front of you. Alternately, use the arc barrel or foam roller, placing your upper back on it with your arms behind your ears, and extend your chest to the ceiling. This exercise will promote lung capacity, back extension and shoulder and chest flexibility.

- Reformer exercises to limit are any upper body work that uses strap resistance, including but not limited to: hundred, rowing series, hug a tree, salute, pulling straps, kneeling arms. In addition, use caution with reformer upper weight-bearing exercises such as long stretch series, swan and side stretch series. Be sure you know how to change springs, in order to avoid injury.
- Lower your affected (or at-risk) arm when performing side-lying exercises, such as side leg lifts or side kicks. If this is not comfortable, the exercise should be eliminated from your program.
- Avoid any exercise that requires upper body exertion to which you are unaccustomed. Limit repetitions to a comfortable point, and never to the point of pain. Keep in mind that pain triggers a lymphatic response that can cause swelling.
- Progress gradually and do not increase repetitions at the same time as an increase in spring resistance. Move to more repetitions and light spring resistance only after 2-4 sessions of doing the exercise with proper form, and if there have been no changes in lymphedema symptoms.
- Practice vigilant self-surveillance to monitor for any adverse changes in the hours and days following a Pilates session.

These guidelines are consistent with findings of the PAL Trial, a weightlifting research study that is the basis for many of the recommendations on this page. There is a link to a PAL article in the references at the end of this handout.

Additional guidelines for cardio, core, & flexibility work

In addition to the general exercise guidelines, keep the following in mind:

- Be especially aware of the effects of exercise on body temperature: Restrict outdoor exercise in hot seasons/climates.
- Avoid repetitive arm motions. Do not allow the arm to hang down unsupported while walking; put affected hands in pockets, or use Nordic walking poles to support the hands and arms.
- Be very careful with planks or other core strengthening exercises that require arms or torso to support body weight. If you have not developed arm and torso strength following guidelines for slowly progressive strength training, you may be at particular risk of triggering a lymphedema event if you place bodyweight on your arms, shoulders, and torso. Many survivors cannot wait to get back to planks! However, please do so mindful of your lymphedema risks. Ask your instructor about modifications, such as wall planks.



BigStock

Additional guidelines for swimming

The general guidelines apply, as well as additional suggestions and precautions unique to water exercise:

- Avoiding repetitive arm motions is difficult when swimming, but it is best to change strokes frequently if swimming laps. Be sure to have a lot of variety in any pool exercises.
- To receive any potential benefit from water pressure, your arms must be in the water. Therefore, the crawl or breast stroke is possibly more beneficial than the butterfly stroke.
- Precautions for slowly progressive resistance apply to swimming. For example, the butterfly stroke places great force on the arms. As with other forms of resistance exercise covered in this guide, it is certainly possible that with slow, progressive conditioning, you can build up to the butterfly stroke as a form of exercise.
- Lap swimming should be performed in cool water, usually between 68°F (20°C) and 86°F (30°C), to minimize elevation of core body temperature from the combination of warm water and strenuous exercise. Water temperatures greater than 94°F (34.4°C) degrees may worsen lymphedema and should be avoided.
- Individuals with lymphedema are particularly susceptible to infections such as cellulitis, so proper pool maintenance to ensure water hygiene is essential. For the same reason, it is important to apply lotion after swimming, to counter the drying effects of chlorinated or salt water. Skincare, to help prevent minute skin breaks that allow bacterial infection, is essential for anyone with BCRL.

Additional guidelines for yoga

Yoga's deep breathing and relaxation benefit lymphedema patients, but some poses that put weight on the arms and torso bring risk too. Exercise research suggests some common-sense yoga guidelines and precautions if you have, or are at risk for breast cancer related lymphedema.

- Be aware of the effects of exercise on body temperature: Avoid 'hot' yoga and ensure that yoga is performed in adequately cooled and ventilated premises.
- Slow, deep breathing with breath retention clears lymphatic pathways. Yoga breathing exercises are therefore highly recommended, especially when performed both before and following the poses.
- Research suggests that slow poses may enhance lymph flow and a rest following each series of poses, prior to starting the next series, may help empty lymph vessels.
- Be careful with poses that put weight on the arms. Introduce these slowly and progressively over time. In general, this precaution applies to arm balances, inverted poses, and headstands. Specific poses include:
 - Plank (Chaturanga)
 - Four-Limbed Staff Pose (Chaturanga Dandanasana)
 - Downward-Facing Dog (Adho Mukha Svanasana)
 - Upward-Facing Dog (Urdhva Mukha Svanasana)
 - Upward Bow Pose (Urdhva Dhanurasana)
 - Half-Moon Pose (Ardha Chandrasana)
 - Side Plank Pose (Vasisthasana)
 - Cobra Pose (Bhujangasana). A modification for Cobra is Low Cobra aka Baby Cobra.

Add these poses one at a time, and only after 2-4 sessions where arm-weight bearing poses have been supervised to ensure proper form, and there has been no change in your existing BCRL, or no lymphedema symptoms if you are a breast cancer survivor at risk for lymphedema

RESOURCES

Study / *Weight Lifting in Women with Breast-Cancer–Related Lymphedema*, August 2009 New England Journal of Medicine / *Weight Lifting for Women at Risk for Breast Cancer–Related Lymphedema, A Randomized Trial*, December 2010, Journal of the American Medical Association. / *Weight Lifting and Lymphedema: Clearing up Misconceptions*, by Schmitz, Kathryn. Available online at www.lymphnet.org/pdfDocs/Weight_LE_Misconception.pdf.

Resources

Select page links from www.stepup-speakout.org:

- What is lymphedema: http://stepup-speakout.org/What_%20is%20Lymphedema.htm
- Reducing your risk of lymphedema: http://stepup-speakout.org/riskreduction_for_lymphedema.htm
- Finding a qualified lymphedema therapist: http://stepup-speakout.org/Finding_a_Qualified_Lymphedema_Therapist.htm

National Lymphedema Network exercise position paper:
<http://www.lymphnet.org/pdfDocs/nlnexercise.pdf>

PALS for Life (www.cancersurvivorfitness.com) Ask your gym to provide hands-on lymphedema risk-reduction training for fitness professionals. This resource provides PAL Trial-compliant workshops for personal trainers who would like a hands-on introduction to weight training guidelines and precautions for those with and at risk of BCRL. The owner of this company was lead personal trainer in the PAL Trial.

Recovercises for Wellness, <http://www.recovercisesforwellness.com/index.htm> Provides workshop and online resources for rehab and ongoing fitness after breast cancer treatment. Naomi Aaronson uses traditional rehabilitation techniques as well as Pilates-based methods. Owners are occupational therapists.

ACKNOWLEDGMENT

Step-up, Speak-out gives sincere thanks to the following individuals who donated their time and expertise to research, write, and review this document: Naomi Aaronson, OT, Carol Doeringer, Mary Eno, Joy Hirsch, Judith Nudelman, MD and Martine Sarret-Talvela. Thanks as well to others who prefer to remain anonymous, but whose contributions were equally important to the project.