Breast Cancer-Related Lymphedema and Exercise

What you should know for a smart, safe workout

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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

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 rest of 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 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.
- Stay well hydrated.
- Take periodic deep abdominal breaths, which facilitate lymphatic drainage.
- Avoid temperature extremes in the exercise venue.
- Rest muscle groups in between sets.
- 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.

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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.

Additional guidelines for Pilates

There are special considerations when working on Pilates equipment:

- When starting a Pilates mat or equipment program, upper body movement should be limited to few repetitions with little to no spring resistance at first. Upper body weight bearing and planking should be avoided at first. Progress to higher resistance only after 2-4 sessions with low resistance, supervised to ensure proper form, and only if there have been no changes in your existing BCRL, or no lymphedema symptoms if you are a breast cancer survivor at risk for lymphedema.
- Take care to alternate exercises so that arms and torso have rest periods between sets.
- Pilates exercises that may be too rigorous at first include mat work that requires weight bearing on arms such as planks/push ups, side planks, swan, and exercises from swan position such as single and double leg kick, and swimming. 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.
- Avoid any exercise that requires upper body exertion to which you are unaccustomed.
- Be sure you know how to change springs, in order to avoid injury.

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.

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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 Dandanasa)
    - 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

Studies / *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%20_Lymphedema.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