

EXERCISE AFTER BREAST CANCER IN SURVIVORSHIP

(AFTER SURGERY & TREATMENT)

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THE CURRENT RESEARCH-

EXERCISE IS GOOD!



SCHMITZ, ET AL. (2019)

Exercise is medicine- Found to increase aerobic capacity, improve muscle strength, balance, quality of life (QOL) and lessen depression.

FICARRA, ET AL (2022)

Exercise interventions are a valuable strategy to avoid the decline of cardiorespiratory fitness, strength, fatigue, and improve QOL.

NIEMAN, ET AL. (2019)

Strong link between exercise and the immune system.

MICHOU ET AL (2025)

Exercise reduces breast cancer risk and recurrence and enhances survival.

CONSIDERATIONS WHEN STARTING AN EXERCISE PROGRAM

- Make sure you are cleared by your doctor to start exercising after your surgery and/or treatment.
- If you exercised before your surgery and/or treatment, do not resume where you left off prior.
- Start slow and progress gradually. Stop if you have any pain.
- It often takes longer to get back to your previous program than you expect.
- It is okay to modify your exercise and to ask for help.
- If you are not sure where to start, ask your doctor to be referred to a PT that specializes in oncology rehabilitation.



SPECIAL CONSIDERATIONS



LYMPHEDEMA/RISK OF

- Watch HAFNTS (Heaviness, Aching, Fatigue, Numbness, Tingling, and Swelling)
- Take breaks if any symptoms arise
- Avoid extreme temperatures
- Caution with high altitude
- With lymphedema- Wear compression garments



NEUROPATHY

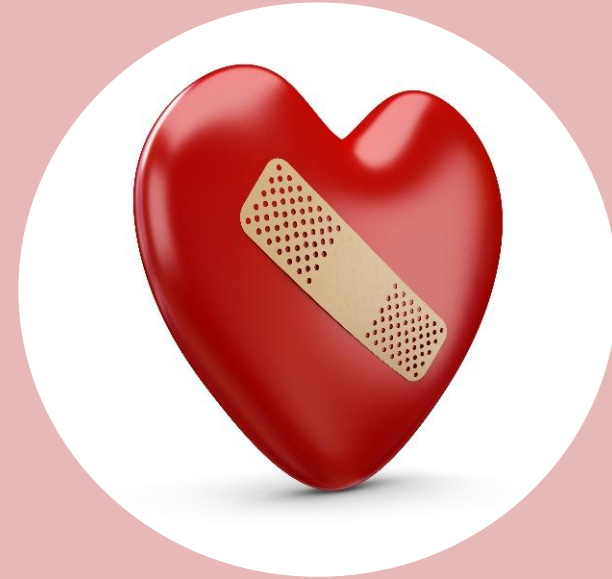
- Take precaution with balance
- Wear supportive shoes
- Watch tripping hazards
- Wider grip



OSTEOPOROSIS

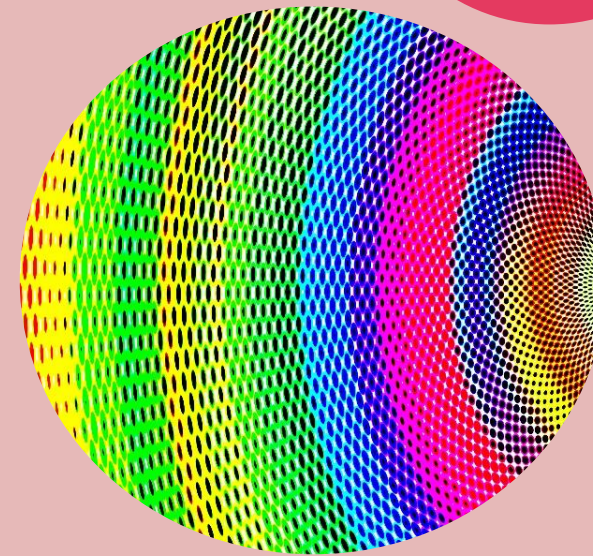
- Weight bearing activities, strengthening, and balance activities can be helpful in reducing risk of falls and improving bone health
- Avoid twisting and bending of the spine especially with lifting

SPECIAL CONSIDERATIONS



CARDIOTOXICITY

- Start low and slow (Talk Test)
- Follow phases of treatment with Rate of Perceived Exertion (RPE) scale
- Use a targeted Heart Rate (HR) formula to exercise in safe zones



RADIATION

- Radiation fibrosis is common
- Gentle stretching is helpful and recommended for 2 years+ after radiation



ADJUVANT HORMONE TREATMENT

- Work on pacing
- Watch overheating
- Protect joints

HEART RATE CALCULATION

- Find resting heart rate (HR)
- Use Tanaka Formula for HRmax:
 - $HR_{max} = 208 - (0.7 \times \text{age})$
- Next, use Karvonen Formula:
 - $HR \text{ formula} = [(HR \text{ max} - HR \text{ rest}) \times \% \text{ intensity}] + HR \text{ rest}$
 - I.e. % intensity = 30%, 40%, etc.



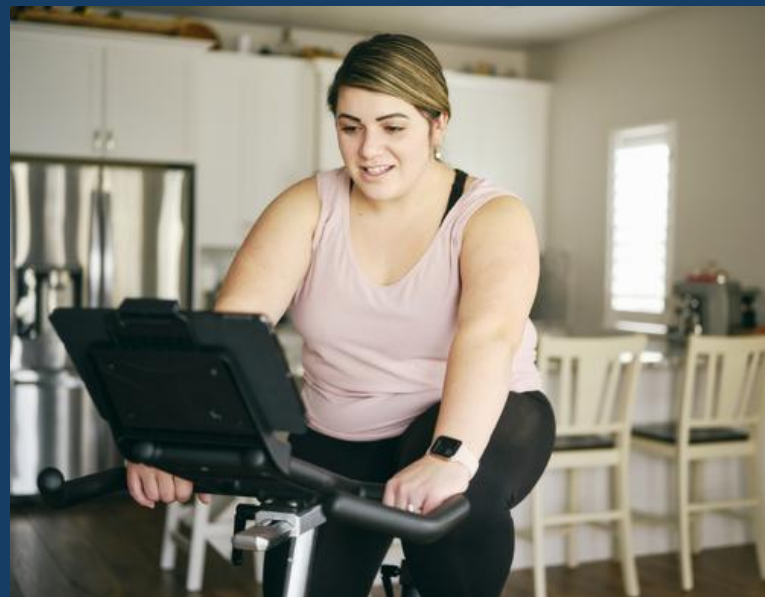
RATE OF PERCEIVED EXERTION (RPE)

PHASES OF TIME (WITH CHEMOTHERAPY)

- Phase 1: During Chemotherapy/First Starting Exercise-
 - 1-3 RPE/Easy
 - 30-45% HR/1-RM
- Phase 2: Next 3 Months-
 - 3-6 RPE/Light-Mod
 - 40-60% HR/1-RM
- Phase 3: Next 3 Months-
 - 6-8 RPE/Mod-High
 - 60-85% HR/1- RM

RPE Scale	Rate of Perceived Exertion
10	Max Effort Activity Feels almost impossible to keep going. Completely out of breath, unable to talk. Cannot maintain for more than a very short time.
9	Very Hard Activity Very difficult to maintain exercise intensity. Can barely breathe and speak only a few words.
7-8	Vigorous Activity Borderline uncomfortable. Short of breath, can speak a sentence.
4-6	Moderate Activity Breathing heavily, can hold a short conversation. Still somewhat comfortable but becoming noticeably more challenging.
2-3	Light Activity Feels like you can maintain for hours. Easy to breathe and carry a conversation.
1	Very Light Activity Hardly any exertion, but more than sleeping, watching TV, etc.

WHERE TO START



WALKING

BIKING

TAI CHI/QIGONG

WATER

YOGA/STRETCHING

AMERICAN COLLEGE OF SPORTS MEDICINE TASK FORCE- MOVING THROUGH CANCER



- Aerobic Exercise: Build up to 150-300 minutes of moderate (or 75-150 minutes of vigorous intensity) activity per week.
- Resistance Exercise: 2-3 days per week.
- Stretching Exercise: At least 2 days per week.
- Balance Exercise: 2-3 days per week.
- General Recommendation: Exercise several times a week for at least 10 minutes at a time (work up to as needed).

STRENGTH AFTER BREAST CANCER



- **Based on a large clinical trial conducted at U. of Pennsylvania (PAL trial):**
 - 154 survivors WITHOUT lymphedema
 - 141 survivors WITH lymphedema
 - The safety of twice-weekly progressive strength training in breast cancer (BC) survivors 1 to 15 years post-diagnosis of BC was assessed
- **This study showed that women who participated had these benefits:**
 - Risk of worsening lymphedema decreased by 50%
 - Risk of developing lymphedema decreased by 70%
 - Increased strength and energy
 - Improved body image
 - Decreased body fat
 - Increased overall physical function

STRENGTH AFTER BREAST CANCER



Warm up



Stretches



Core strengthening



Strengthening of arms and legs

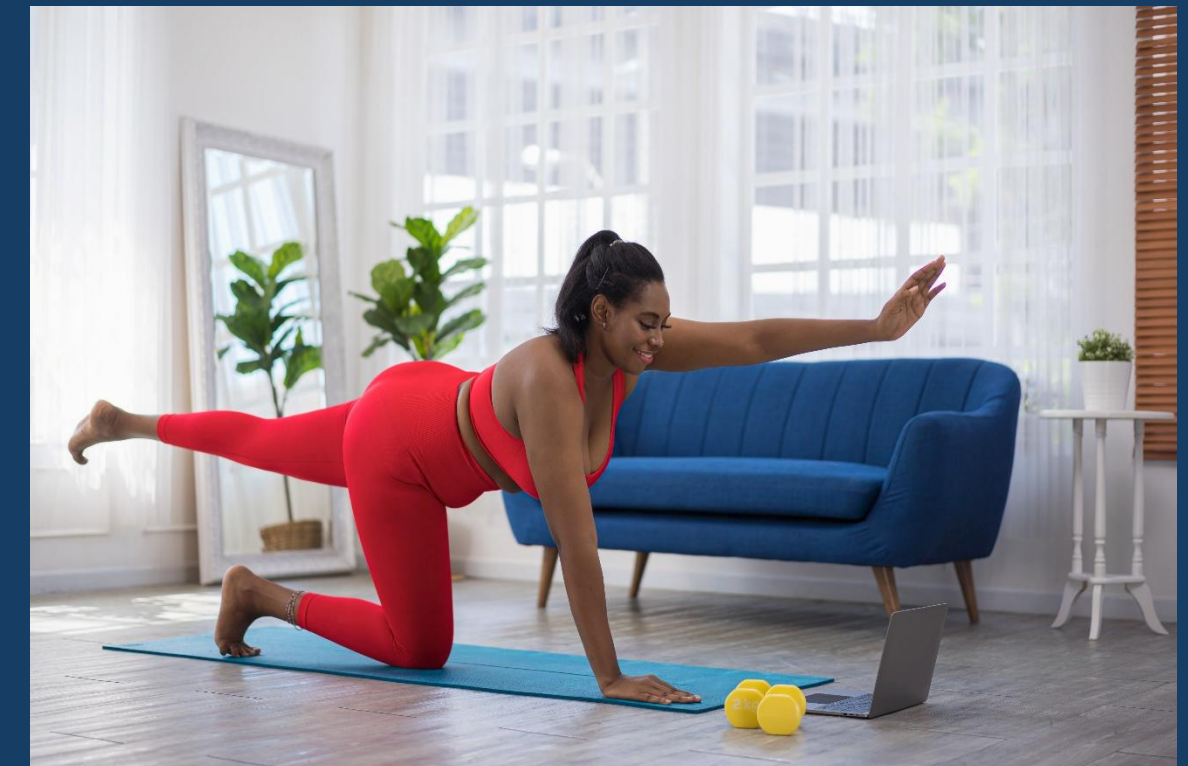


Cool down stretches



PROGRESSION OF EXERCISE

- Go low and slow
 - Example (Strength After Breast Cancer)
 - No pain
- Add a little body resistance at a time
 - Ie. Plank: Wall, countertop, chair, then floor
- Add one at a time, never together:
 - Increase in time
 - Increase in resistance/tension/incline
- Watch HAFNTS (Heaviness, Aching, Fatigue, Numbness, Tingling, or Swelling)
- Keep good posture



ADDITIONAL TIPS AND TAKE-HOME MESSAGE



- Exercise is important in reducing the risk of recurrence and shown to improve endurance, strength, decrease depression, and improve quality of life.
- Find the type(s) of exercise you enjoy.
- Don't be afraid to try a new type of activity.
- Exercise with a friend.
- Seek modifications when needed.
- Create an activity log to help track what you are doing.
- It may take longer than you expect to get back to where you were with your exercise routine prior to breast cancer treatment.
- Not sure where to start- Ask your doctor for a referral to an oncology rehabilitation specialist.
- A little activity can go a long way.

Don't push yourself
beyond your limits.
Exercise isn't
a competition.

Thank You!



REFERENCES

1. Photo Credit. Kaiser Permanente Brand Center. ©Image: 5917855_Getty_RF_HiRes.png. Accessed August 20, 2025.
2. Stubblefield, M. *Cancer Rehabilitation : Principles and Practice*. 3rd Ed. US: Demos Medical Publishing; 2025.
3. <https://www.mq.edu.au/research/research-centres-groups-and-facilities/centres/alert-centre>. Accessed August 27, 2025.
4. <https://reachtorecoveryinternational.org/about-rrr/>. Accessed August 21, 2025.
5. Stout NL, Sleight A, Pfeiffer D, Galantino ML, deSouza B. Promoting assessment and management of function through navigation: opportunities to bridge oncology and rehabilitation systems of care. *Support Care Cancer*. 2019;27(12):4497-4505. doi:10.1007/s00520-019-04741-0
6. Nieman DC, Wentz LM. The compelling link between physical activity and the body's defense system. *J Sport Health Sci*. 2019;8(3):201-217. doi:10.1016/j.jshs.2018.09.009
7. Schmitz KH, Campbell AM, Stuiver MM, et al. Exercise is medicine in oncology: Engaging clinicians to help patients move through cancer. *CA Cancer J Clin*. 2019;69(6):468-484. doi:10.3322/caac.21579
8. Ficarra S, Thomas E, Bianco A, et al. Impact of exercise interventions on physical fitness in breast cancer patients and survivors: a systematic review. *Breast Cancer*. 2022;29(3):402-418. doi:10.1007/s12282-022-01347-z
9. Michou V, Zervoudis S, Eskitzis P, et al. Exercise Interventions in Breast Cancer: Molecular Mechanisms, Physical Benefits, and Practical Recommendations. *Medicina (Kaunas)*. 2025;61(7):1167. Published 2025 Jun 27. doi:10.3390/medicina61071167
10. Lin Y, Wu C, He C, et al. Effectiveness of three exercise programs and intensive follow-up in improving quality of life, pain, and lymphedema among breast cancer survivors: a randomized, controlled 6-month trial. *Support Care Cancer*. 2022;31(1):9. Published 2022 Dec 13. doi:10.1007/s00520-022-07494-5
11. Photo Credit. PowerPoint Stock Image, Megaphone. Accessed on August 27, 2025.
12. Image. Kaiser Permanente Brand Center. ©1332406157_Getty_RF_HiRes.png, Accessed August 20, 2025.
13. Mehrara BS, Ashinoff RL, Chang EI. Clinical features, diagnosis, and staging of peripheral lymphedema In: UpToDate, Connor RF (Ed), Wolters Kluwer. (Accessed on May 28, 2025.)
14. Foldi M, Foldi E, Kubik S. *Foeldi's Textbook of Lymphology: For Physicians and Lymphedema Therapists*. 3rd ed. Munich, Germany: Elsevier Urban & Fischer; 2012.
15. Photo Credit. Kaiser Permanente Brand Center. ©Image:EXR10d099.jpg. Accessed on August 27, 2025.
16. Photo Credit. Kaiser Permanente Brand Center. ©Image:1278837470_Getty_RF_HiRex.jpg. Accessed on August 27, 2025.
17. Photo Credit. PowerPoint Stock Image, Heart. Accessed on August 27, 2025.
18. Photo Credit. PowerPoint Stock Image, Radiation. Accessed on August 27, 2025.
19. Photo Credit. Kaiser Permanente Brand Center. ©Image:1275745092_Getty_RF_HiRex.png. Accessed on August 27, 2025.
20. Way AR, Wasserman PL, Mailhot R, Letter H. Radiation-Induced Rib Fractures on Magnetic Resonance Imaging Following Proton Therapy for Breast Cancer With Pencil Beam Scanning. *Cureus*. 2020;12(10):e11120. Published 2020 Oct 24. doi:10.7759/cureus.11120
21. <https://chemocare.com/druginfo/tamoxifen>. Accessed August 27, 2025.
22. <https://chemocare.com/druginfo/aromasin>. Accessed August 27, 2025.
23. [https://www.uptodate.com/contents/managing-the-side-effects-of-tamoxifen-and-aromatase-inhibitors/print#:~:text=The%20AIs%20\(letrozole%2C%20anastrozole%2C,dysfunction%2C%20among%20other%20side%20effects](https://www.uptodate.com/contents/managing-the-side-effects-of-tamoxifen-and-aromatase-inhibitors/print#:~:text=The%20AIs%20(letrozole%2C%20anastrozole%2C,dysfunction%2C%20among%20other%20side%20effects). (Accessed August 20,2025.)

REFERENCES

24. Osborne, J. Breast Cancer Breast Cancer Rehab Course Manual. Physiological Oncology Rehabilitation Institute (PORi). 2024. Accessed August 20, 2025.
25. Photo Credit. Kaiser Permanente Brand Center. ©Image:WAL10d076. Accessed on August 27, 2025.
26. Leclerc AF, Foidart-Dessalle M, Tomasella M, et al. Multidisciplinary rehabilitation program after breast cancer: benefits on physical function, anthropometry and quality of life. *Eur J Phys Rehabil Med*. 2017;53(5):633-642. doi:10.23736/S1973-9087.17.04551-8
27. Photo Credit: Image © PowerPoint Stock Image, Yoga. Accessed May 27, 2025.
28. Photo Credit: 1453881406_Getty_RF_HiRes.jpg- water aerobics, Accessed on May 26, 2025 via the Kaiser Brand Center.
29. Photo Credit: Image © PowerPoint Stock Image, Tai Chi. Accessed May 27, 2025.
30. Saraswathi V, Latha S, Niraimathi K, Vidhubala E. Managing Lymphedema, Increasing Range of Motion, and Quality of Life through Yoga Therapy among Breast Cancer Survivors: A Systematic Review. *Int J Yoga*. 2021;14(1):3-17. doi:10.4103/ijoy.IJOY_73_19
31. Greenlee H, DuPont-Reyes MJ, Balneaves LG, et al. Clinical practice guidelines on the evidence-based use of integrative therapies during and after breast cancer treatment. *CA Cancer J Clin*. 2017;67(3):194-232. doi:10.3322/caac.21397
32. Maccarone MC, Venturini E, Menegatti E, Giancesini S, Masiero S. Water-based exercise for upper and lower limb lymphedema treatment. *J Vasc Surg Venous Lymphat Disord*. 2023;11(1):201-209. doi:10.1016/j.jvsv.2022.08.002
33. Chen Y, Zuo X, Tang Y, Zhou Z. The effects of Tai Chi and Baduanjin on breast cancer patients: systematic review and meta-analysis of randomized controlled trials. *Front Oncol*. 2024;14:1434087. Published 2024 Oct 28. doi:10.3389/fonc.2024.1434087
34. Photo Credit. Kaiser Permanente Brand Center. ©Image:12073493998_Getty_RF_Hi Res.png. Accessed on August 27, 2025.
35. Photo Credit. Kaiser Permanente Brand Center. ©Image:1158622494_Getty_RF_HiRes.png. Accessed on August 27, 2025.
36. Schmitz KH, Courneya KS, Matthews C, et al. American College of Sports Medicine roundtable on exercise guidelines for cancer survivors. *Med Sci Sports Exerc*. 2010;42(7):1409-1426. doi:10.1249/MSS.0b013e3181e0c112
37. Schmitz KH , Troxel AB, Cheville A, Grant LL, Bryan CJ, Gross CR, Lytle LA, Ahmed RL. Physical activity and lymphedema (the PAL trial): Assessing the safety of progressive strength training in breast cancer survivors. *Contemporary Clinical Trials*, May 2009, Volume 30, (Issue 3), Pages 233-245
38. Schmitz, Kathryn, "Strength After Breast Cancer" , video via Klose training online course. <http://klosetraining.com/course/online/strength-abc/>
39. Schmitz K, Ahmed RL, Troxel AB, Cheville A, Lewis-Grant L, Smith, R, Bryan CJ, Williams-Smith CT, Chittams J. Weightlifting for Women at Risk for Breast Cancer–Related Lymphedema. A Randomized Trial. *JAMA*. 2010;304(24):2699-2705. doi:10.1001/jama.2010.1837
40. National Lymphedema Network. Position Statement of the National Lymphedema Network – Exercise. December 2011. <https://nlmembership.com/wp-content/uploads/2022/02/Exercise.pdf>
41. Photo Credit. Kaiser Permanente Brand Center. ©Image:1591615387_Getty_RF_HiRes.png. Accessed on August 20, 2025.
42. Photo Credit. Kaiser Permanente Brand Center. ©Image: 1316198707_Getty_RF_HiRes.png. Accessed on August 20, 2025.
43. Photo Credit. Kaiser Permanente Brand Center. ©Image: 1356398741_Getty_RF_HiRes.png. Accessed on August 27, 2025.
44. Photo Credit. PowerPoint Stock Image, Yoga. Accessed on August 27, 2025. Accessed on August 27, 2025.
45. <https://www.healthline.com/health/breast-cancer/tips-for-exercise#pace>. Accessed on August 18, 2025.
46. Photo Credit. PowerPoint Stock Image, Pink Ribbon. Accessed on June 15, 2025. Accessed on August 27, 2025.



Thank you!