

# Developing a Home-Based Exercise Program in Breast Cancer Patients: A Focus Group Discussion

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## Abstract

**Background:** Exercise is a major non-pharmacological intervention to improve quality of life in breast cancer patients. Given the enhanced utilization of exercise programs worldwide and lack of proper guidelines for breast cancer exercise programs in Iran, a group of different experts gathered to draw an exercise framework in these populations

**Methods:** This is a qualitative study using a focus group discussion method. Eight participants with different expertise were gathered. We had a moderator and two assistant moderators.

**Results:** After analyzing, two challenging themes emerged: (1) conducting different types of exercise as home-based, and (2) pre-participation assessments. We had seven subthemes for the first theme, which in turn were divided into three categories: aerobic exercises, resistance training, and exercise intensity monitoring. Also we extracted two subthemes for pre-participation assessments.

**Conclusions:** Based on opinion of different experts who are involved in breast cancer care process, conducting different types of exercise as home-based, and pre-participation assessment should be considered.

**Keywords:** Home-Based Exercise, Breast Cancer, Focus Group Discussion

## 1. Background

As survival of breast cancer is enhancing, improving their quality of life gets more important. Exercise is a modifiable behavior which is associated with enhanced quality of life and survival (1-3). There has not set a study for assessing the level of physical activity in Iranian breast cancer patients; however, according to the results of the third national surveillance of risk factors of non-communicable diseases (SuRFNCD-2007), 40% of adult Iranians suffer from physical inactivity (4). Exercise could be prescribed in a supervised or home-based fashion. Although research has revealed that supervised exercise is the most effective method for breast cancer patients (5), sometimes patients prefer to exercise at home, or their health status or environmental barriers like air pollution may restrain from undertaking supervised exercises.

Considering breast cancer disease nature and its treatments, designing a home-based exercise package that would be practicable and safe as well as capable of improving the QoL of breast cancer patients could be a challenge. Therefore, we decided to conduct a focus group discussion to identify the main aspects of developing an exercise package for these patients.

## 2. Methods

The discussion session was held in Brest Cancer Research Center, ACERCR. The study was reviewed and approved by research ethics committee of breast cancer research center, ACECR. The discussion panel comprised a moderator, two assistant moderators, and eight experts from various disciplines, involved with breast cancer patients, consisting of three exercise physiologist, two lymph therapist, one internist, one surgeon and one general practitioner. We used purposive sampling method to select the subjects. All participants were selected based on their history of working with cancer patients or prescribing exercise for different populations especially cancer patients. The moderator has a great experience in conducting and leading exercise oncology studies. He was a PhD student in public health. Acceptance rate for accepting the invitation was 100%. One of our subjects was not able to attend. The sessions were held for two hours.

Study questions were designed by the moderators. In order to create an interactive discussion, we opted for open-ended and semi-structured questions. We had two main questions: 1) what types of exercise do you suggest for breast cancer patients and 2) what should be considered in home-based prescription of these/those exercise(s).

The session was recorded and then transcribed thor-

oughly. Units of meaning were classified by two independent experts in the field of qualitative research. A third expert was assigned to combine and integrate those units. Finally, the units were analyzed, and the themes and sub-themes were extracted. After extracting the results, the data was sent to participants for approval or comments. Considering their comments, the results were rewritten.

### 3. Results

As it was said, we had eight participants with different expertise. The demographic characteristics of participants is presented in [Table 1](#).

**Table 1.** Demographic Characteristics of Participants

| Variables   | Value  |
|---|--|
| Age, mean $\pm$ SD  | 44.62 $\pm$ 6.39   |
| Sex   | Women (n = 5), men (n = 3)   |
| working with cancer patients or exercise training, y, mean $\pm$ SD | 12.50 $\pm$ 5.68   |
| Expertise   | Exercise physiology (n = 3), lymphotherapist (n = 2), Internist (n = 1), Surgeon (n = 1), general practitioner (n = 1) |

After analyzing, two challenging themes emerged: (1) conducting different types of exercise as home-based, and (2) pre-participation assessments. We had seven sub-themes for the first theme, which in turn were divided into three categories: aerobic exercises, resistance training, and exercise intensity monitoring. Also we extracted two subthemes for pre-participation assessments. All themes and subthemes are presented in [Table 2](#).

The results of the focus group discussion on these questions are presented below.

#### 3.1. Aerobic Training

##### 3.1.1. Conduct an Aerobic Training at Home

All experts agreed that these patients must have aerobic training; however, there was a discrepancy as to which mode of aerobic training should be used. One expert believed that step exercise would be the best option because it is interesting and the exercise intensity can be monitored easily. On the other hand, a surgeon stated that because the vast majority of cancer patients are old and have arthritis or other joint problems, step exercises may exacerbate these conditions. Walking was recommended by other experts. Another expert stated that “walking is not an aerobic exercise, but it is a kind of activity of daily living.”

Also, swimming and cycling were recommended. Some experts believed that a list of feasible activities must be developed so that patients could choose favorable and appropriate exercises.

##### 3.1.2. Different Energy Expenditure Levels of Various Exercises

One of the challenges was if we made a list of activities as patients can choose one of them, whether it would be appropriate. One of the experts believed that all alternative activities must be adjusted for level of energy expenditure.

#### 3.2. Resistance Training

##### 3.2.1. Necessity of Doing RT in Cancer Patients

Two experts believed that RT is necessary for these patients. The rest of the experts did not have any ideas about necessity of RT. One expert observed, “If your goal is increased muscle mass or even quality of life, you should include RT in exercise program.”

##### 3.2.2. Feasible Types of RT in Cancer Patients

An expert stated, “Weight training is the standard RT; however, these patients cannot do that. RT by body weight may be an appropriate option.” Also, RT by elastic bands was suggested by two experts.

##### 3.2.3. Doing RT at Home

An expert believed that these patients can do RT by elastic bands (Thera-Band TM) without any adverse consequences.

##### 3.2.4. Lymphedema and RT

In this part, there was disagreement among experts. Two lymphotherapists believed that RT could lead to development or exacerbation of lymphedema. On the other hand, one expert argued that RT might actually help to reduce breast cancer-related lymphedema.

#### 3.3. Intensity Control

##### 3.3.1. Best Method of Monitoring Exercise Intensity in These Patients

Various exercise monitoring methods were suggested. Intensity monitoring using heart rate was recommended by some experts. An internist believed that because these patients receive certain medications affecting their heart rate response to exercise, like beta blockers, it is better to use another method like Borg scale beside the heart rate method. Another expert believed exercise training index (ETI) is the best method for this purpose. Also, controlling by pedometer was suggested.

**Table 2.** Extracted Themes and Subthemes

| No. | Themes                                 | Subthemes   | Classification of Subthemes |
|-----|--|---|-----------------------------|
| 1   | Different types of home-based exercise | 1. Conduct an aerobic training at home                            | Aerobic exercises           |
|     |  | 2. Different energy expenditure levels of various exercises       |                             |
|     |  | 3. Necessity of doing RT in cancer patients                       | Resistance training (RT)    |
|     |  | 4. Feasible types of RT in cancer patients                        |                             |
|     |  | 5. Doing RT at home   |                             |
|     |  | 6. Lymphedema and RT  |                             |
|     |  | 7. Best method of monitoring exercise intensity in these patients | Intensity monitoring        |
| 2   | Pre-participation assessments          | 1. Necessity of counseling before exercise                        |                             |
|     |  | 2. Different kind of counseling                                   |                             |

### 3.4. Pre-Participation Assessment

#### 3.4.1. Necessity of Counseling Before Exercise

Five out of eight experts believed that these patients have to take a counseling before exercise. The rest of the experts did not have any specific ideas.

#### 3.4.2. Different Kinds of Counseling

Four experts mentioned that the exercise counseling should be considered prior to getting involved in regular physical exercise. An expert believed that there is a need for physician besides the exercise counseling. Another expert held that they should take both exercise and psychological counseling. Also, one expert contended that there is just need for physician counselling.

## 4. Discussion

Exercise is a safe and excellent way for improving quality of life in cancer patients. Despite the cumulative recommendations for increasing physical activity levels in these patients, conducting a home-based exercise program in these patients still remains a challenge. By arranging a focus group with a verity of experts involved with cancer patients, we aimed to discuss how to practically design and prescribe an exercise program for the cancer patients, particularly in breast cancer survivors. Exercise during cancer survivorship is an underdeveloped concept in Iran, although it is acknowledged that physical activity is an effective intervention for increasing QoL in cancer patients (6). Results of the study revealed that there are concerns and disagreements in two issues: 1) conducting different types of exercise as home-based, and 2) pre-participation assessment.

The current American society for cancer (ACS) recommendation is that cancer patients should perform exercise for 150 min/week, including two days of strength training (7). Aerobic exercise is a crucial part of exercise programs for cancer patients. This exercise can be performed in various modalities. Based on our focus group discussion, step exercises, jogging, cycling, and swimming can be used by these patients for aerobic part; however, there were some concerns among experts. First, in prescribing these exercises, the comorbid conditions must be considered. One concern among experts was performing step exercise by patients at the risk of joint problems. Results of a study revealed that joint symptoms are very common in breast cancer patients taking aromatase inhibitors as 47% of them reported joint pain and 44% reported joint stiffness (8). Therefore, caution must be taken when prescribing step exercise, or any other kind of exercise affecting joints, for these patients. Second, the experts suggested that all activities must be adjusted for energy expenditure levels before being recommended as alternative. Different aerobic exercise modes induce different physiological responses (9); thus, these issues need to be considered in design of home-based exercise programs.

Resistance exercise is an important part of exercise training for cancer patients (7). Some experts stated that resistance exercise could exacerbate, or even lead to the development of, lymphedema. Others, however, argued that resistance exercise may prevent or reduce lymphedema. Historically, breast cancer patients have been advised not to lift weights for preventing breast cancer-related lymphedema; however, resistance training has been shown to reduce cancer-related fatigue and improve body density (10). Recently, results of two well-designed trials (11, 12) revealed that weight training in breast cancer patients not

only does not intensify lymphedema, but it can indeed reduce its incidence and intensity. Interestingly, in those trials the first 13 sessions were completely supervised, with gradual increase in workload, using free weights or machines. It is, therefore, suggested that resistance training be prescribed only supervised.

In prescribing home-based aerobic exercise, it is of great importance to make sure that the target intensity is achieved. Monitoring exercise intensity via heart rate and PRE was recommended by majority of experts. Also, one expert argued that because of some drugs, like beta blockers, used by these patients, monitoring intensity through HR could be error-prone. It should be mentioned that beta blockers are not among conventional cancer treatments; however, the use of these drugs in breast cancer treatment is currently being studied (13, 14). Indeed, some cancer treatments, like trastuzumab and doxorubicin, could lead to heart damage (15) and consequently affect heart rate response to exercise. Therefore, because of probable change in HR response, it is suggested to monitor exercise intensity using HR plus another method, e.g. RPE.

The last theme extracted from the discussion was pre-participation assessments. The majority of experts believed that a pre-participation counseling is warranted; however, there was inconsistency as to the kind of consulting (e.g. by an exercise professional or physicians). American college of sports Medicine (ACSM) recommends that all individuals who want to be more active, should be screened at least by self-reported medical history followed by a health/fitness and clinical exercise professionals evaluation (16). A recent cohort study conducted in cancer patients also revealed the need for a screening prior to exercise (17). Indeed, ACSM guideline suggested that health/fitness and clinical exercise professionals should consult with their medical colleagues when there are questions about patients with known diseases (16).

In conclusion, based on opinion of different experts who are involved in breast cancer care process, conducting different types of exercise as home-based, and pre-participation assessment should be considered.

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## Footnotes

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## References

1. Courneya KS, Mackey JR, Bell GJ, Jones LW, Field CJ, Fairey AS. Randomized controlled trial of exercise training in postmenopausal breast cancer survivors: cardiopulmonary and quality of life outcomes. *J Clin Oncol*. 2003;21(9):1660-8. doi: [10.1200/JCO.2003.04.093](https://doi.org/10.1200/JCO.2003.04.093). [PubMed: [12721239](https://pubmed.ncbi.nlm.nih.gov/12721239/)].
2. Kalter J, Buffart LM, Korstjens I, van Weert E, Brug J, Verdonck-de Leeuw IM, et al. Moderators of the effects of group-based physical exercise on cancer survivors' quality of life. *Support Care Cancer*. 2015;23(9):2623-31. doi: [10.1007/s00520-015-2622-z](https://doi.org/10.1007/s00520-015-2622-z). [PubMed: [25680762](https://pubmed.ncbi.nlm.nih.gov/25680762/)].
3. Demark-Wahnefried W, Colditz GA, Rock CL, Sedjo RL, Liu J, Wolin KY, et al. Quality of life outcomes from the Exercise and Nutrition Enhance Recovery and Good Health for You (ENERGY)-randomized weight loss trial among breast cancer survivors. *Breast Cancer Res Treat*. 2015;154(2):329-37. doi: [10.1007/s10549-015-3627-5](https://doi.org/10.1007/s10549-015-3627-5). [PubMed: [26518022](https://pubmed.ncbi.nlm.nih.gov/26518022/)].
4. Esteghamati A, Khalilzadeh O, Rashidi A, Kamgar M, Meysamie A, Abbasi M. Physical activity in Iran: results of the third national surveillance of risk factors of non-communicable diseases (SuRFNCD-2007). *J Phys Act Health*. 2011;8(1):27-35. doi: [10.1123/jpah.8.1.27](https://doi.org/10.1123/jpah.8.1.27). [PubMed: [21297182](https://pubmed.ncbi.nlm.nih.gov/21297182/)].
5. van Waart H, Stuiver MM, van Harten WH, Geleijn E, Kieffer JM, Buffart LM, et al. Effect of Low-Intensity Physical Activity and Moderate-to High-Intensity Physical Exercise During Adjuvant Chemotherapy on Physical Fitness, Fatigue, and Chemotherapy Completion Rates: Results of the PACES Randomized Clinical Trial. *J Clin Oncol*. 2015;33(17):1918-27. doi: [10.1200/JCO.2014.59.1081](https://doi.org/10.1200/JCO.2014.59.1081). [PubMed: [25918291](https://pubmed.ncbi.nlm.nih.gov/25918291/)].
6. Courneya KS. Exercise in cancer survivors: an overview of research. *Med Sci Sports Exerc*. 2003;35(11):1846-52. doi: [10.1249/01.MSS.0000093622.41587.B6](https://doi.org/10.1249/01.MSS.0000093622.41587.B6). [PubMed: [14600549](https://pubmed.ncbi.nlm.nih.gov/14600549/)].
7. Rock CL, Doyle C, Demark-Wahnefried W, Meyerhardt J, Courneya KS, Schwartz AL, et al. Nutrition and physical activity guidelines for cancer survivors. *CA Cancer J Clin*. 2012;62(4):243-74. doi: [10.3322/caac.21142](https://doi.org/10.3322/caac.21142). [PubMed: [22539238](https://pubmed.ncbi.nlm.nih.gov/22539238/)].
8. Crew KD, Greenlee H, Capodice J, Raptis G, Brafman L, Fuentes D, et al. Prevalence of joint symptoms in postmenopausal women taking aromatase inhibitors for early-stage breast cancer. *J Clin Oncol*. 2007;25(25):3877-83. doi: [10.1200/JCO.2007.10.7573](https://doi.org/10.1200/JCO.2007.10.7573). [PubMed: [17761973](https://pubmed.ncbi.nlm.nih.gov/17761973/)].
9. Heyward VH, Gibson A. Advanced fitness assessment and exercise prescription. 7th ed. Human kinetics; 2014.
10. Paramanandam VS, Roberts D. Weight training is not harmful for women with breast cancer-related lymphoedema: a systematic review. *J Physiother*. 2014;60(3):136-43. doi: [10.1016/j.jphys.2014.07.001](https://doi.org/10.1016/j.jphys.2014.07.001). [PubMed: [25086730](https://pubmed.ncbi.nlm.nih.gov/25086730/)].
11. Schmitz KH, Ahmed RL, Troxel A, Cheville A, Smith R, Lewis-Grant L, et al. Weight lifting in women with breast-cancer-related lymphedema. *N Engl J Med*. 2009;361(7):664-73. doi: [10.1056/NEJMoa0810118](https://doi.org/10.1056/NEJMoa0810118). [PubMed: [19675330](https://pubmed.ncbi.nlm.nih.gov/19675330/)].
12. Schmitz KH, Ahmed RL, Troxel AB, Cheville A, Lewis-Grant L, Smith R, et al. Weight lifting for women at risk for breast cancer-related lymphedema: a randomized trial. *JAMA*. 2010;304(24):2699-705. doi: [10.1001/jama.2010.1837](https://doi.org/10.1001/jama.2010.1837). [PubMed: [21148134](https://pubmed.ncbi.nlm.nih.gov/21148134/)].
13. Barron TI, Connolly RM, Sharp L, Bennett K, Visvanathan K. Beta blockers and breast cancer mortality: a population-based study. *J Clin Oncol*. 2011;29(19):2635-44. doi: [10.1200/JCO.2010.33.5422](https://doi.org/10.1200/JCO.2010.33.5422). [PubMed: [21632503](https://pubmed.ncbi.nlm.nih.gov/21632503/)].
14. Powe DG, Voss MJ, Zanker KS, Habashy HO, Green AR, Ellis IO, et al. Beta-blocker drug therapy reduces secondary cancer formation in breast cancer and improves cancer specific survival. *Oncotarget*. 2010;1(7):628-38. doi: [10.18632/oncotarget.101009](https://doi.org/10.18632/oncotarget.101009). [PubMed: [21317458](https://pubmed.ncbi.nlm.nih.gov/21317458/)].

15. Russell SD, Blackwell KL, Lawrence J, Pippen JJ, Roe MT, Wood F, et al. Independent adjudication of symptomatic heart failure with the use of doxorubicin and cyclophosphamide followed by trastuzumab adjuvant therapy: a combined review of cardiac data from the National Surgical Adjuvant breast and Bowel Project B-31 and the North Central Cancer Treatment Group N9831 clinical trials. *J Clin Oncol.* 2010;**28**(21):3416–21. doi: [10.1200/JCO.2009.23.6950](https://doi.org/10.1200/JCO.2009.23.6950). [PubMed: 20530275].
16. Ferguson B. ACSM's guidelines for exercise testing and prescription 9th Ed. 2014. *J Can Chiropr Assoc.* 2014;**58**(3):328.
17. Kenjale AA, Hornsby WE, Crowgey T, Thomas S, Herndon J2, Khouri MG, et al. Pre-exercise participation cardiovascular screening in a heterogeneous cohort of adult cancer patients. *Oncologist.* 2014;**19**(9):999–1005. doi: [10.1634/theoncologist.2014-0078](https://doi.org/10.1634/theoncologist.2014-0078). [PubMed: 25061091].