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## **Exercise - a path to wellness during adjuvant chemotherapy for breast cancer?**

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### **Abstract**

**Background:** Breast cancer treatment can represent a threat to a patient's wellness. The role of exercise in perceived wellness in women with breast cancer merits further study. **Objective:** To describe how exercise is perceived by women to influence their physical and psychosocial wellness at the time they were receiving chemotherapy. **Methods:** Five focus group interviews with a total of 27 women with early stage breast cancer were conducted. Prior to the focus groups the women had participated in an exercise intervention during chemotherapy treatment. **Results:** Three themes emerged from the analysis: exercise shapes feelings of psychological wellness; exercise stimulates feelings of physical wellness; and exercise influences social wellness. The women reported feeling stronger in a psychological sense after exercising, that the strength

exercise improved their upper limb functioning, and that engaging in exercise triggered social support and interactions. **Conclusions:** Exercise during breast cancer treatment is perceived to enhance the patients' wellness on several dimensions and in particular psychological wellness. Exercise might support the patients' efforts to restore their sense of wellness, and enhance their level of daily life functioning. **Implications for Practice:** Cancer nurses should promote exercise as a wellness-fostering intervention during chemotherapy treatment. Focusing on how exercise can contribute to feelings of wellness may help women with breast cancer choose exercise as a health promoting activity that contributes to their recovery.

## **Introduction**

Breast cancer treatments, including surgery and adjuvant treatments like chemotherapy, can pose a serious threat to breast cancer survivors' physical and psychosocial wellness, putting them at risk of impaired health and a decrease in quality of life<sup>1,2</sup>. Side-effects from breast cancer surgery may reduce shoulder-and arm mobility in a proportion of breast cancer survivors, and affect daily life functioning<sup>3</sup>. Some of the most prevalent side-effects from chemotherapy, like fatigue, neuropathic pain, depression and sleep disorders, often occur in symptom clusters resulting in poorer health-outcomes for the patients<sup>4</sup>. In addition, breast cancer survivors also move through several existential processes to adapt to life changes due to cancer and to redefine self.<sup>5</sup> High levels of treatment side-effects often result in life-style changes that affect breast cancer survivors' perceived wellness<sup>6</sup>. However, a reduction in physical activity levels following a cancer diagnosis adds to the challenges many breast cancer patients face in their efforts to maintain wellness during illness<sup>7</sup>. Møller et al<sup>8</sup> hypothesized that the initiation of chemotherapy is

“a window of opportunity” for exercise behavior change in sedentary cancer patients (p.1). While studies on effects of exercise interventions to improve breast cancer patients’ quality of life have been published<sup>9,10</sup>, few have explored the women’s perception of home-based, self-directed exercise, particularly focusing on how exercise affects their sense of wellness.

## **Background**

Wellness can be understood as both an experience of physical and emotional comfort, and an ability to function on a satisfactory capability level as perceived by the individual<sup>11</sup>. The concept of wellness shares common attributes with well-being and happiness, and overlaps with the process of health promotion<sup>12</sup>. Roscoe<sup>13</sup> identifies several dimensions of wellness, including physical, emotional, and social wellness. To obtain physical wellness an individual strives towards an optimal level of physical activity and nutritional balance, and makes healthy lifestyle choices. Emotional wellness includes the ability to cope with stress, the awareness of one’s feelings and having a positive perspective on life. Moreover, adequate coping with stress is considered related to the experience of positive emotion, and is a central aspect of psychological wellness<sup>14</sup>. Social wellness can be understood as “*the movement towards balance and integration of the interaction between the individual, society, and nature*”<sup>13</sup> (p.87). The wellness dimensions are interconnected, frequently affecting one-another and high-level wellness exceeds the absence of disease<sup>15</sup>. When facing a life-threatening illness, restoring their sense of wellness through a health behavior change becomes an important goal to many cancer survivors, and wellness processes often originate from a deliberate effort to improve quality of life<sup>16</sup>.

Physical activity is viewed as one of many health behaviors pursued by cancer survivors, and should be recognized as a component of the survivor's wellness experience<sup>17</sup>. Appropriate exercise is associated with improved physical well-being<sup>18</sup>, enhanced psychological well-being<sup>19</sup>, and can increase general quality of life in cancer patients on chemotherapy treatment in general<sup>20</sup>. In relation to breast cancer survivors, Gho et al.<sup>21</sup> found that survivors who reported sufficient exercise levels during treatment experienced fewer side-effects. Moreover, physically active breast cancer survivors experience less of a decline in overall quality of life compared to sedentary survivors<sup>20</sup>; physical activity could thus be an effective health promotion behavior towards experiencing enhanced wellness in breast cancer patients. Increased sense of control, distraction from illness and a restored normality has been studied as psychological benefits from exercise programs during breast cancer treatment<sup>17, 22</sup>.

How women with breast cancer perceive wellness benefits from home-based exercise during chemotherapy has not been fully documented<sup>22, 23</sup>. It is therefore important to obtain in-depth understanding of the role of exercise in women with breast cancer, and how it relates to the women's recovery from the cancer and its treatments. This is particularly true for surgically treated breast cancer patients during the postoperative period when chemotherapy is administered for several months. In order to introduce exercise as a health promoting behavior to this population, cancer nurses could benefit from knowledge of the women's own experience of the benefits of exercise. Thus, this study aims to describe how exercise is perceived to influence physical and psychosocial wellness by women surgically treated for early stage breast cancer who took part in a home-based exercise intervention while receiving chemotherapy.

## **Methods**

### **Research Design**

We used a descriptive and exploratory design with focus group interviews to collect data on women's experiences of taking part in an exercise intervention program. An acknowledged advantage of this method is collecting data as a direct outcome of group interaction where participants both share their experience with each other and respond to other group members' experiences<sup>24</sup>. Data were collected during five focus group interviews with participants who had completed a scheduled exercise program. The focus groups were conducted from January 2011 to May 2012. The study was approved by the Norwegian Regional Committee for Medical and Health Research Ethics (Reg.NO. 2009/2283).

### **Sample and Setting**

Women with early stage breast cancer who had participated in the home-based exercise intervention during adjuvant chemotherapy were recruited to focus groups by purposive sampling<sup>25</sup>. The exercise program involved both a walking prescription of 30 minutes of brisk walking a day and strength exercises to be performed using resistance bands three times per week<sup>26</sup>. The women received a telephone call from the research team every second week and kept exercise diaries. Eligible breast cancer patients were between 18 and 70 years of age, surgically treated for early stage breast cancer (mastectomy or lumpectomy), and allocated to adjuvant chemotherapy according to the national treatment guidelines<sup>27</sup>. The participants had to be able to read, write and speak Norwegian, and they were approved for participation by a clinical oncologist. Of the 29 women who completed the exercise intervention in the parent study, 27 agreed to take part in the focus group interviews as soon as possible after completing the

intervention. The participants were allocated to one of the five focus groups, each with a total of 5-6 participants. Sample demographics are in Table 1. The participants' ages ranged from 34 to 69 years, with a mean age of 52 years. The majority lived with a partner and 48 % had children living at home; 52 % of the women were currently employed. Surgical treatment was most commonly (67 %) restricted to a lumpectomy, but 33 % of the women had a mastectomy. An adjuvant chemotherapy treatment containing taxane monotherapy was administered to 12 of the women. On average, the women performed the exercise intervention program for 19 weeks.

An invitation letter including study information was mailed to each eligible patient and included assurance that the data would be treated confidentially. Each participant gave written consent. Transcripts and field notes were maintained and findings were presented in a way that individuals were not identifiable. Audio recordings were only available to the first author and the transcriber, and the anonymized transcripts were available only to the authors.

**Table 1** Demographics of Focus Group Participants (N=27)

Characteristics	Mean (SD)	n	%
Age	52 (9) (range: 34-69)		
Living conditions			
Living alone		2	7
Living with partner		25	93
Children at home			
Yes		13	48
No		14	52

Currently employed		
Yes	14	52
No	13	48
Surgery		
Lumpectomy	18	67
Mastectomy	9	33
Chemotherapy regimen		
FEC-60	13	44
FEC-100	2	7
FEC-60 + Taxotere	8	30
FEC-100 + Taxotere	2	7
FEC-60 + Taxol	2	7
Intervention duration (weeks):	19 (5)	
	(range: 9-28)	

*FEC-60* Chemotherapy regimen of fluorouracil, epirubicin and cyclophosphamide, and epirubicin administered in 60 mg/m<sup>2</sup> dosage. *FEC-100* Chemotherapy regimen of fluorouracil, epirubicin and cyclophosphamide, and epirubicin administered in 100 mg/m<sup>2</sup> dosage

### **Focus group procedure**

The focus group interviews were held at a hospital location known to the participants, and were moderated by the first author, accompanied by two observers. The observers took field notes and observed group interaction. The members of the research team were all female nurses. During the group sessions the participants were offered refreshments, and travel and parking expenses were reimbursed.

Each group started with a review of the information about the study, a pledge of confidentiality, and the participants' rights to withdraw from the study. Following this, the moderator used a structured approach to manage the group discussions while using the study interview guide<sup>24</sup>. The interview guide was comprised of open-ended questions developed from theories on wellness dimensions<sup>12-14</sup>. To ease the participants into the topic and to give them extra time to recall their experiences in relation to the topic of the focus group, they were asked to share their pre-diagnosis exercise history. This was followed by key questions on being physically active during chemotherapy, perceived benefits of the exercise, and exercise as a means for adequate coping or mastering life with cancer (Table 2). The participants were encouraged to share stories that illuminated their experience. The focus group interviews lasted 1½ to 2 hours and were audio recorded. At the end of each focus group meeting, the interviewers debriefed and discussed preliminary themes<sup>28</sup>, group interactions, as well as possible additional approaches to be used in the subsequent focus groups.

## **Table 2** Focus Group Questions and Subprobes

1. What is your experience with being physical active during chemotherapy treatment?  
Please share a story that would highlight your experience.
2. How has the exercise affected you during chemotherapy treatment?
  - a) In what way did the exercise affect your sense of wellness?
  - b) In what ways have the exercise affected you in a negative way?
3. In what ways has exercise affected your abilities to cope with the situation?
  - a) In what ways has exercise helped you feel in control of your life?

## Data analysis

Recordings from the focus group interviews were transcribed verbatim. The transcripts were checked for accuracy by comparing them to the audio records and to field notes. After adjustments, the transcripts were stored in the software program QSR International NVivo 10<sup>29</sup> to manage the data and to facilitate systemized analysis procedure.

Following the analysis method Systematic Text Condensation (STC)<sup>28</sup>, the transcripts were studied for preliminary theme associated with benefits of exercise on the women's wellness perceptions, corresponding to step 1 of the SCT method<sup>28</sup>. In step 2, meaning units, consisting of participants' statements, were identified and coded through derivation and identification of text fragments containing information specific to the research question<sup>28</sup>. The theme *wellness perceptions* derived a total of 75 meaning units. In step 3, the meaning units were organized in a total of 11 sub-groups, and finally in step 4, three main categories were identified. Accuracy checking and coding were performed by the first author. To achieve trustworthiness of the data, further analysis was performed by investigator triangulation involving several of the authors<sup>25</sup>. This meant a comprehensive read-through of coded material and negotiating of meaning-units and subgroups, followed by additional discussion and conciliation of subgroups and main categories until agreement was reached. Level of agreement was high, but some disagreement arose mainly in relation to forming the sub-categories. Disagreement was resolved by returning to step 2 of the analysis method<sup>28</sup> and comparing interpretations.

## **Results**

Both group discussions and interactions yielded data that were complementary<sup>30</sup>. Participants built on each other's statements concerning wellness experiences related to exercise, and were supportive and encouraging of each other. Three main themes emerged from the analysis: exercise shapes feelings of psychological wellness; exercise stimulates feelings of physical wellness; and exercise influences social wellness. The two first themes are illustrated by subthemes. Quotations are added to give meaning to the text.

### **Exercise shapes feelings of psychological wellness**

The most frequently mentioned gain from exercise during chemotherapy was how it affected the women's sense of psychological wellness. Three subthemes were identified within this theme: nurturing positive thoughts, diversion from illness, and doing something myself to fight the cancer.

#### **NUTURING POSITIVE THOUGHTS**

During the focus group interviews the women discussed how they perceived exercise as therapy for their psychological wellness. Doing exercise nurtured positive thoughts, reduced destructive self-pity, and made them feel good about themselves. Several of the participants expressed how particularly the walking helped them process emotional difficulties and negative thoughts, as illustrated by this woman's reflections:

I discovered that after feeling very low for a while, and feeling sorry for myself because life was bad, I ended up thinking that just sitting here feeling bad won't make me any

better. I would feel so much better if I got out, did something and thought positive thoughts.

One participant claimed that the psychological aspect of cancer was worse than the physical, and was convinced that exercise helped her deal with the fear of cancer. Being in a difficult situation the women used the exercise routine to motivate themselves to actively seek wellbeing and comfort for their emotions. This was confirmed by several participants, represented by the following quote:

To be outdoors and get some fresh air has been like; well, the world isn't such a dark place, after all. Actually, I'm allowed to feel that living is not so bad.

One participant said exercise helped her towards recovery, and called herself 'the happy wanderer', referring to the effects of joy the walking had on her. During the discussions on feelings of happiness the women would also use expressions like 'comfortable and good' and 'became more positive' to describe how they felt during and after exercising. One woman used the word 'epiphany' when she explained what the exercise did for her:

Sometimes, before I started (to exercise) I was sad because the situation was so "special". But afterwards I felt happy, and a lot of the time when I was out walking I had this epiphany of actually feeling quite good about myself. And I think the exercise did that. It just happened; such a feeling of desire and wellness.

The participants also experienced how increased energy levels from exercise affected them psychologically. They described becoming more alert after exercising, and getting power back, as explained by this woman:

It has been a fantastic experience, having no more power left, and then you go out and you feel the power coming back. It's like an epiphany, and like nothing I have felt before.

#### DIVERSION FROM ILLNESS

The participants agreed that exercise participation helped to take their mind off the illness and its consequences and towards wellness, while giving them something else to talk about with friends and family:

When I spent time together with people and could talk about other things than having cancer...that I was in a research project, and exercising. It was important to me to stop talking about the cancer, and start talking about exercise. It was a nice thing to do, to be able to change the subject.

More than once participants would also explain taking part in exercise as “running away from my problems, and still doing something”, an interpretation which played an important part in their efforts to distract from illness. According to the women, seeing that their exercising helped distract their families' thoughts away from the cancer influenced their psychological wellness as well. They also described the importance of keeping up a positive appearance in front of their family and continuing their normal daily activities, like walking their children to school or doing housework.

The women also found diversion in nature experiences during their walks, and several of them expressed pleasure in exercising outdoors. One of the participants explained how her senses had changed, making her discover new things about nature, and seeing things in a different way:

It has been really important to me especially when feeling down and depressed. Go outside and go for walks...do something! And I have always enjoyed nature, and I observe things in nature differently now.

## DOING SOMETHING MYSELF TO FIGHT THE CANCER

The participants were very clear that to exercise was something they could do to fight the cancer.

They noted that the exercise routine increased their belief in survival and healing of their bodies.

One explained:

I thought that being part of this exercise program, and to go for walks...just try to do it...was my effort to be well again.

“Doing something myself to fight the cancer” was also explained by some of the women as part of a coping experience. They realized that even when they were feeling sick from the treatment they could manage to do some of the exercises. They described this as a big achievement that amazed them, and made them feel proud and good about themselves:

I think it has to do with coping...I don't know....to cope...yes, maybe it is coping. When you realize that I have done it, I am doing my exercises and I'm in a research project focusing on physical activity. Oh God, that is so good! I am like; ahead of the situation. I am going to be fine! To be active and to feel you are part of an activity.

On the contrary, some women felt their psychological wellness was threatened from exercise participation due to the lack of expected effects from the exercise, making them doubt their own conviction that the exercise would reverse the cancer symptoms and treatment side-effects:

I believed that the more I walked the more it would affect my blood counts in a positive way. But they kept increasing...so it didn't help at all.

## **Exercise stimulates feelings of physical wellness**

In all of the focus groups the women discussed how exercise had affected their physical health and condition; this increased their sense of physical wellness. Within this theme, two sub-themes were identified: being relieved from side-effects and to stay in shape.

### **BEING RELIEVED FROM SIDE-EFFECTS**

Being relieved of treatment side-effects secondary to exercising was frequently discussed.

Several participants explained how surgical procedures had led to less mobility of the arm on the affected side. One described it as “the muscles getting really battered by the surgery”. The following interaction between some of the participants illuminates their perceptions of the effect that resistance band exercises had on arm functionality:

*Participant 1:* It felt like something was tightened in the arm. And after two or three times of exercise with the resistance band it was let loose. So I think that’s what did it. I can still feel a little tension now and then, and exercise helps. It sounds crazy, but it really helped!

*Participant 2:* That’s my experience too. The resistance band was fantastic. And now my arm feels just fine and is functioning really well. I can use it for whatever I like. So I think that’s what has been really good about the exercise.

*Participant 1:* Let me tell you, it was like the arm became less and less movable. It was like everything was....How can I put it?

*Participant 3:* Very tight?

*Participant 1:* Yes, tight....inside, right there (points to her arm). I couldn’t stretch the arm. The more I exercised, the more...

*Participant 3:* The more movable it became?

*Participant 1:* Yes! And suddenly it was all gone. Now and then I still have a hard time stretching, and then I know I have ignored the exercise, that I need to do it. It is the only thing that will bring the function of my arm back.

*Participant 2:* I noticed that between each chemotherapy treatment some fluid would fill up in the arm. Doing the resistance band exercises helped it disappear more quickly.

In another focus group one participant noted that before she started to exercise, reduction in arm movement adversely affected her sleep quality. She believed that the strength exercises afforded her more range of arm movement, helping her to sleep better.

The participants also reported how their physical wellness was heightened by the exercise relieving pain. They explained how pain from the treatment, most often located in the joints, decreased by an increased activity level. One woman said:

Your muscles will get warm and then you won't feel the pain like you do when you're cold and everything is just very painful.

The women mentioned the walking regimen as especially helpful in reducing pain; some would deliberately walk in very hilly locations because it gave better pain relief. They also noted that the exercise helped them endure pain, as one explained:

I have had eight treatments and the last four of them gave a lot of pain in my joints and in the rest of the body. Moving around so much has helped me cope with the pain. Being in motion helps.

Other reports of physical wellness from exercising were reduced nausea and improved bowel function. They explained how the chemotherapy caused them sickness, vomiting and a dysfunctional bowel, and consequently reduced appetite. One woman said that to overcome the

sickness she would go for a walk before making the family's dinner because she would be less nauseated after walking. Another concluded:

If you are going to be able to go for walks and do your exercise, you need to eat a little. You have to eat to do it (exercise). It becomes a good and healthy circle. You eat not because you want to, but because you have to.

A few of the participants talked about how exercise would make treatment side-effects worse, and result in shortness of breath or dizziness. This threat to their physical wellness was mastered by pausing or decreasing exercise intensity.

#### TO STAY IN SHAPE

Some of the women expressed that they had little experience with exercise before they were diagnosed with breast cancer. One of their reactions to becoming exercisers was that they felt their physical fitness improved to a level they had not experienced before and an increased sense of physical wellness:

Of course it was very hard in the beginning, after each treatment. I was not feeling well, but I forced myself to walk. After a while, my physical fitness had improved making me able to walk up and down a steep hill without stopping. Before the cancer I had to take breaks while climbing that hill, but after a few months on treatment I could walk up and down without a break. To me, it felt like running away from the illness. I realized that I could do something, and even more than before I got sick.

To the participants who were more experienced exercisers, performing the exercise program helped them maintain their physical activity levels, resulting in sustained muscle strength and physical fitness towards recovery from the treatment. One of the women noted that although she

had not improved her physical fitness as measured by the walking test, she had managed to stay in shape which she saw as an achievement.

### **Exercise influences social wellness**

A main theme was that exercising contributed to the women's perceived social wellness. Being supported by friends and family in their exercise efforts positively affected their social wellness. The women shared that friends and family members would join them on their walks as illustrated by this quote:

To all my friends I used to do sports with, it became natural to walk with me. If I had a bad day, I could send a text message, and they would come and pick me up at my home. It's been really nice.

On the other hand, the women noted that a self-directed home-based exercise program meant having to manage the exercises on your own. They realized that they might have missed out on the opportunity to increase their social wellness by exercising in a supervised group.

One aspect of social wellness discussed in the focus group was the importance of keeping in touch with their work environment and interacting with the work society. The women described how exercise had helped some of them to keep working during treatment. One participant expressed:

First, I was quite fit before I got ill. Secondly, I continued to exercise during treatment. This has made me able to go to work.

## Discussion

This study highlights how surgically treated breast cancer patients perceive wellness from a home exercise program during chemotherapy treatment. Themes emerging from the analysis illustrate how exercise can play an important role to several dimensions of breast cancer patients' wellness, and in particular to their psychological wellness. The majority of the studied women reported that exercise generated emotional wellness by nurturing positive thoughts. This finding aligns with the work of Bulmer et al.<sup>22</sup> who documented that exercise improves breast cancer patients' psychological health. In our study, home-based exercise benefited participants' emotional and mental health. The participants in our study also reported that exercise was a distraction from a stressful cancer experience. Previous research indicates that women with breast cancer find exercise to be a positive element providing them with a break from the illness<sup>22, 31, 32</sup>. Mackey<sup>33</sup> explains this as being directed away from the state of wellness-illness by focusing on other things of greater importance. In accordance with Mackey<sup>33</sup>, the results from the focus group study indicate that exercise might have helped the women contain the symptoms and effects of illness, bringing the wellness experience from exercise to the foreground and the cancer experience to the background.

Physical activity as a coping strategy in women with breast cancer has been described previously as a way of dealing with difficult emotions<sup>34</sup> and in this way contributes to psychological wellness<sup>14</sup>. Results from our study suggest that exercise participation added to the women's process of positive reframing which is an active effort to cope with stressful situations<sup>35</sup>. Speaking to how exercise helped them gain a more positive outlook towards their clinical situation can be viewed as positive reappraisal used to ease adaption to a changed reality<sup>36</sup>. Another common type of coping described in the study was 'emotional discharge'

activated during the exercise to ventilate difficult feelings<sup>36</sup>. Women with breast cancer often experience depression and anxiety<sup>37, 38</sup>. Physical activity might be viewed as a moderator of illness-induced stress<sup>23</sup>. The importance of ‘doing something myself’ was often mentioned by the women as contributing to their psychological wellness. Exercising during cancer treatment can be considered as a problem-focused coping strategy used by the women to exercise self-control and to eliminate the source of stress<sup>39</sup>.

Many of the women expressed perceptions of somatic comfort during outdoor walking. When comparing indoor and outdoor walking in healthy females, Focht<sup>40</sup> discovered significantly higher pleasant affective responses like revitalization and positive engagement from outdoor walking, explained by an impact of the outdoor environment on individuals’ cognition. The women in our study experienced emotional comfort from their walks in the shape of sharpened senses towards nature and increased happiness and treatment side-effects were diminished and energy levels elevated. Walking has been reported in two studies to be the preferred exercise mode among breast cancer patients on treatment<sup>41, 42</sup>. Our findings suggest that women with breast cancer should be encouraged to engage in daily outdoor walking.

Exercise as a stimulator of physical wellness was another theme in our study. This finding indicates that being physical active during treatment might enhance breast cancer patients’ physical wellness by relieving chemotherapy-induced symptoms (e.g. pain, nausea), and improve their physical health by eliminating complications from surgical treatment. In particular, the findings highlight how strength exercises with resistance bands was experienced to improve upper limb mobility. Impaired shoulder mobility is a common complication to breast cancer surgery and can affect women’s ability to perform daily life activities<sup>43</sup>. This aligns with findings from previous research that breast cancer patients experience a significant decrease in shoulder

mobility<sup>2</sup>. Such findings indicate that exercise for women with breast cancer can improve shoulder mobility and function by increasing flexion and abduction movements<sup>44</sup> and can reduce shoulder pain intensity<sup>45</sup>. To ensure the patient speedy and safe recovery, information on exercise mode and when to initiate exercise are recommended to be included in patient care<sup>46</sup>.

In general, participants in our study experienced either an increased or a sustained physical condition from exercise during treatment. This is a promising result knowing that loss of health and fitness due to reduced physical activities has been rated as significant by women with breast cancer<sup>6</sup>. In general, participants in our study experienced either an increased or a sustained physical condition from exercise. Schmitz<sup>46</sup> suggests that a physically fit breast cancer patient might be able to better meet challenges like treatment-related fatigue, and that physical activity should be introduced to breast cancer patients to maintain or improve physical fitness.

Although data on social wellness in this study was sparse, they support that home-based exercise might contribute to enhanced social wellness in women with breast cancer. Earlier research has discussed social support as an outcome of supervised group exercise, creating a feeling of togetherness amongst the participants<sup>47</sup>. Following a self-directed exercise prescription to be performed at home, the women in the current study had to find sources of support in their nearby social environment. The role of social support is important to cancer survivors' involvement in exercise and to their exercise adherence<sup>48</sup>. Sharing their exercise activities with significant others was highly valued by the women in this study. None the less, they were of the opinion that interacting with other breast cancer survivors in an exercise group could have contributed even more to their social wellness. Effective interventions might rely on breast cancer patients' access to social support<sup>49</sup>. This speaks to implementing a social aspect in future exercise interventions for women during breast cancer treatment.

A strength of this study is the focus group method which allowed for efficient collection of in-depth information on perceptions of wellness from exercise from women following the same home-exercise program. Also, participants had a valid basis for their perceptions as they had participated in the home-based exercise program for an average of 19 weeks. An experienced sample increases the probability of the group interactions creating data valuable to others<sup>50</sup>.

### **Limitations**

Limitations of the focus group study include the possibility of poor recollection of memories. The participants waited an average of 2 months (range: 0-5 months) after concluding their participation in the exercise intervention and until taking part in the focus group. Due to low participant interaction in two of the groups, a higher level of moderator involvement was required. This resulted in a more structured moderator style and higher degree of control, and might have prevented the participants from pursuing topics of their own interest<sup>24</sup>. The production of focused interaction is the goal of the focus group method, thus the methodological weaknesses in generating the data in this study can be linked to both the role of the moderator, and how the group itself affect the data<sup>49</sup>.

### **Implications for Practice**

Nurses need to more fully understand the meaning of actually being well to be able to introduce exercise interventions to patients with the purpose of fostering the experience of wellness<sup>32</sup>. The current study might contribute to the body of knowledge cancer nurses need to encourage women with breast cancer to stay physically active during treatment. It is important to communicate the

benefits of exercise in order to inspire and motivate the women to maintain their exercise behavior through breast cancer treatment.

## **Conclusion**

This study is important because it provides detailed insight into how women with breast cancer might perceive benefits from exercise, and how exercise can contribute to their feelings of wellness. The findings indicate that exercise performed during adjuvant chemotherapy treatment could support the patients' efforts to function in daily life activities, and to cope with emotional strains brought on by living with cancer. Knowledge from this study can also be of great importance to the understanding of motives for exercise among women with breast cancer, and can inform development of health-promoting exercise programs.

Our findings indicate that psychological wellness is the superior benefit from exercise as perceived by breast cancer patients. This is in line with Rogers et al.<sup>40</sup> suggesting that cancer survivors experience physiological benefits of exercise more easily than physical benefits, and therefore are more aware of them. Importantly, the present study also contributes by exploring how exercise might positively affect breast cancer patients' physical wellness. Findings support that guidelines for exercise during cancer treatment should also include strength exercises on a regular basis<sup>45</sup>. The result implies that exercise participation may trigger social support from significant others, and increases work-related interactions. On the other hand, the women suggested that group exercise would further have increased their sense of social wellness. These findings suggest that future research on benefits of exercise during breast cancer treatment should

explore how exercise mode influences the women's experience of social wellness, and if the social context provides further motivation to exercise.

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