

---

8-9-2021

## Experiences of an Exercise Program: Perspectives from Breast Cancer Survivors

Yvonne Anisimowicz

University of New Brunswick, [y.anisimowicz@unb.ca](mailto:y.anisimowicz@unb.ca)

Lauren Rudy

University of New Brunswick, [lrudy@unb.ca](mailto:lrudy@unb.ca)

Ryan Hamilton

University of New Brunswick, [rhamilto@unb.ca](mailto:rhamilto@unb.ca)

Erin McGowan

Memorial University of Newfoundland, [emcgowan@mun.ca](mailto:emcgowan@mun.ca)

Travis Saunders

University of Prince Edward Island, [trsaunders@upei.ca](mailto:trsaunders@upei.ca)

*See next page for additional authors*

Follow this and additional works at: <https://nsuworks.nova.edu/tqr>



Part of the [Health Psychology Commons](#)

---

### Recommended APA Citation

Anisimowicz, Y., Rudy, L., Hamilton, R., McGowan, E., Saunders, T., Keats, M., Grandy, S., Soucy, C. R., & Bouchard, D. (2021). Experiences of an Exercise Program: Perspectives from Breast Cancer Survivors. *The Qualitative Report*, 26(8), 2479-2501. <https://doi.org/10.46743/2160-3715/2021.4824>

This Article is brought to you for free and open access by the The Qualitative Report at NSUWorks. It has been accepted for inclusion in The Qualitative Report by an authorized administrator of NSUWorks. For more information, please contact [nsuworks@nova.edu](mailto:nsuworks@nova.edu).

---



## Experiences of an Exercise Program: Perspectives from Breast Cancer Survivors

### Abstract

Few studies have examined how breast cancer survivors experience an individually tailored group exercise program designed to help mitigate physical and psychosocial challenges and improve health outcomes. This research used qualitative interviews to provide insight into what motivates breast cancer survivors to join an exercise program, what they hope to gain from exercise programs, the barriers they experience to participation, and their overall satisfaction with the program. Thirty-three breast cancer survivors from Atlantic Canada completed semi-structured, qualitative interviews following the completion of a twelve-week supervised exercise program, and thematic analysis was applied to transcripts of the interviews. Our findings suggest of the participants generally enrolled in the program, in hopes of increasing energy levels and muscular strength, most reported increases in both outcomes by the end of the program, and obstacles to participation included fatigue, poor physical health, and access challenges.

### Keywords

exercise, physical activity, survivorship, intervention, breast cancer, quality of life, qualitative research

### Creative Commons License



This work is licensed under a [Creative Commons Attribution-Noncommercial-Share Alike 4.0 International License](https://creativecommons.org/licenses/by-nc-sa/4.0/).

### Acknowledgements

We would like to thank all of our program facilitators, as well as our participants, for their hard-work, cooperation and team spirit. We would also like to thank Jennifer McWilliams for help structuring the original draft of the manuscript.

### Authors

Yvonne Anisimowicz, Lauren Rudy, Ryan Hamilton, Erin McGowan, Travis Saunders, Melanie Keats, Scott Grandy, Courtni Ruth-Anne Soucy, and Danielle Bouchard

# Experiences of an Exercise Program: Perspectives from Breast Cancer Survivors

Yvonne Anisimowicz, Lauren Rudy, Ryan Hamilton, Courtni Ruth-Anne Soucy, and Danielle Bouchard  
University of New Brunswick, Canada

Erin McGowan  
Memorial University of Newfoundland, Canada

Travis Saunders  
University of Prince Edward Island, Canada

Melanie Keats and Scott Grandy  
Dalhousie University, Nova Scotia, Canada

---

Few studies have examined how breast cancer survivors experience an individually tailored group exercise program designed to help mitigate physical and psychosocial challenges and improve health outcomes. This research used qualitative interviews to provide insight into what motivates breast cancer survivors to join an exercise program, what they hope to gain from exercise programs, the barriers they experience to participation, and their overall satisfaction with the program. Thirty-three breast cancer survivors from Atlantic Canada completed semi-structured, qualitative interviews following the completion of a twelve-week supervised exercise program, and thematic analysis was applied to transcripts of the interviews. Our findings suggest of the participants generally enrolled in the program, in hopes of increasing energy levels and muscular strength, most reported increases in both outcomes by the end of the program, and obstacles to participation included fatigue, poor physical health, and access challenges.

*Keywords:* exercise, physical activity, survivorship, intervention, breast cancer, quality of life, qualitative research

---

## Introduction

Cancer rates in the Atlantic Provinces are among the highest in Canada (Canadian Cancer Society [CCS], 2017). Atlantic Canada is comprised of the three Maritime provinces—New Brunswick (NB), Nova Scotia (NS), and Prince Edward Island (PE)—and the easternmost province of Newfoundland and Labrador (NL). According to 2016 census data, the population of the Atlantic provinces is approximately 2.3 million people (Statistics Canada, 2016). In 2019, the CCS projected 525.4 new cancer cases per 100,000 people averaged across the Atlantic provinces. For comparison, the CCS projected 475.8 new cases per 100,000 people averaged across the rest of Canada (excluding Quebec; CCS, 2019). That same year, NL was projected to have the highest rates of cancer in the country (CCS, 2019). Breast cancer is the second most diagnosed cancer in Canada as a whole, and in NS and PE, breast cancer is the most frequently

diagnosed cancer in women (Health PEI, 2018; Saint-Jacques et al., 2018). On its own, breast cancer is one of the four leading cancers in NB, accounting for almost 27% of cancer in females (Government of New Brunswick, 2013). Although the yearly incidence of new cancer diagnoses is steadily increasing across Canada, cancer survival rates are also increasing over time (CCS, 2019). For all cancers combined, net survival is now 63% at five years, which is up from only 55% in the 1990s (CCS, 2019). Increasing survival rates mean that the physical and psychosocial challenges associated with cancer and its treatment, and the associated late effects, are experienced over a long period of time.

## **Background**

Breast cancer treatments can be physically demanding and emotionally intense, giving rise to complicated feelings surrounding one's sense of control and self-identity (Thomas-MacLean, 2004). Many individuals with breast cancer report experiencing depression and anxiety as a result of their diagnosis or treatment. Multiple studies suggest breast cancer survivors (BCS) show significant reductions in anxiety when engaged in exercise, as compared to survivors of other types of cancer (Mishra et al., 2012). In addition, research has found an association between depression and anxiety and cancer-related fatigue (Abrahams et al., 2018; Casla et al., 2015). Fatigue is a common issue that arises during and after many types of treatment, particularly chemotherapy and radiation (Abrahams et al., 2018). To reduce fatigue and improve quality of life, engaging in physical activity after treatment is completed has been shown to be an effective strategy (Fisher et al., 2017). In addition, being physically active while still undergoing treatment has been found to help with fatigue and improve quality of life (Andersen et al., 2006; Dujits et al., 2011; Mustian et al., 2017; Segal et al., 2017b). Muscle weakness or loss of strength is another commonly reported side effect of treatment (Casla et al., 2015). This, too, can be ameliorated through exercise both during and after treatment (Spence et al., 2010). For people who are used to being active, slowing, or stopping physical activity because of cancer can mean losing not only physical fitness but also their social network as well (Adamsen et al., 2009; Williams et al., 2019). The intensity of the activity has also been shown to influence patient outcomes (Segal et al., 2017b). For example, exercise performed at moderate to high intensity confers greater health benefits (e.g., quality of life, aerobic fitness, and muscular strength) when compared to lower-intensity activities (i.e., walking at a casual pace). However, when one is struggling with feelings of exhaustion and sickness from treatment, motivation, or energy can be difficult to find to be physically active while balancing the need for rest (Andersen et al., 2006; Blaney et al., 2010; Courneya et al., 2005). Adding those extra challenges on top of non-cancer related barriers to engaging in physical activity, such as lack of motivation and attitudes toward exercise (Bauman et al., 2012), could mean the difference between overcoming those obstacles or not.

Although not currently standard practice, exercise programs are sometimes prescribed as an adjuvant supportive therapy for cancer survivors to improve their fatigue, quality of life, overall physical and mental health, or to reduce the risk of recurrence as well as comorbidities (Leiserowitz & Watchie, 2011). Exercise interventions can take several forms; they often focus on aerobic (e.g., walking, running, swimming, cycling) or resistance exercises (e.g., weight training), or a combination of both. They can be supervised by a trained facilitator, undertaken one-on-one or in a group setting, or done by an individual at home. Each method of intervention delivery has its benefits, and research suggests participants show the most improvements when exercise interventions are done in groups and supervised settings (Segal et al., 2017b).

For some cancer survivors, safety concerns and fear of injury deter them from engaging in exercises during treatment (Sander et al., 2012), and they may receive messages from well-meaning family, friends, or healthcare providers that they should rest and reduce physical

activity during recovery (American Cancer Society, 2014). These concerns have been addressed by newer research, which suggests engaging in exercise is safe for cancer survivors, both during active treatment and recovery, and is associated with few adverse effects (Anderson et al., 2012; Cormie et al., 2013; Steins Bisschop et al., 2012). Even high doses of physical activity—defined as 50-60 minutes of aerobic exercise 3 times per week compared to a standard dose of 25-30 minutes—have been found to be safe for cancer survivors undergoing chemotherapy (Courneya et al., 2013). New research has also shown high-intensity interval training (HIIT) is safe and effective for cancer survivors (Toohey et al., 2020). Several organizations, including the Cancer Council Western Australia (2016), Exercise and Sports Science Australia (Hayes et al., 2019), Cancer Care Ontario (Segal et al., 2017a), and the American College of Sports Medicine (2019) have released comprehensive guidelines recommending exercise as an adjunct therapy for people with cancer and have detailed specific exercises, doses, and adaptations to suit a variety of ability levels.

Only 32% of breast cancer survivors participate in recommended levels of physical activity, defined by the American Cancer Society and the Centre for Disease Control (CDC) as 150 minutes of moderate-to vigorous-intensity exercise per week (Irwin et al., 2004). Despite the many benefits that can be gained through physical activity, most breast cancer survivors do not get access to a formal exercise program tailored for them and do not get enough exercise (Mason et al., 2013). This is likely because there are several exercise barriers for individuals with cancer. Barriers to exercise commonly experienced by cancer survivors include fatigue, physical disability, cost, lack of facilities, not having enough motivation, and being too busy (Brawley et al., 2003; Naik et al., 2018). Motivation plays an integral role in overcoming barriers to exercise; one study found the biggest predictor to engaging in physical activity was an individual's level of motivation (Frikkel et al., 2020). Exercise programs that are motivational and encourage a positive attitude towards exercise may prove to be the most successful in having participants complete the program and reap health benefits. In addition, concerns about safety can act as both real and perceived barriers to physical activity for survivors. Safe exercise environments, fostered by knowledgeable trainers, help many survivors feel more at ease with engaging in physical activity (Brunet & St-Aubin, 2016).

## **Objectives**

In 2018, breast cancer survivors were invited to partake in supervised exercise programs training in local fitness facilities across Atlantic Canada. Participants met at a fixed time twice a week for 12 weeks and followed individualized exercise programs developed for them by the program facilitators.

The authors vary in their relationship to the topic of this paper, but all share an interest in bettering the lives of cancer survivors through research, outreach, and exercise programs such as the one outlined in this article. Yvonne Anisimowicz's research focuses on the well-being of people who have experienced cancer and seeks to identify barriers to well-being and how to overcome them. She is interested in the body of research suggesting physical activity can have physical and mental health benefits for people with a cancer diagnosis. Lauren Rudy is a Ph.D. student whose research explores the lived experiences of cancer survivors, particularly those dealing with fear of recurrence and those living in rural and remote communities. Both she and her younger sister, a cancer survivor, are passionate about exercise and physical health. Dr. Ryan Hamilton's primary program of research focuses on the experiences of cancer survivors, with a particular emphasis on coping and adjusting to life after the completion of acute treatment. He also studies and applies concepts of performance psychology in the context of sport and exercise, informed by his immersion in high

performance sport. Dr. Erin McGowan is passionate about improving cancer survivorship through the promotion of physical activity. As such, she has been exploring the safety, feasibility, effectiveness, and sustainability of community-based physical activity programming for cancer survivors in Newfoundland, Canada. Dr. Travis Saunder's research program focuses on helping people improve their health through increased physical activity and reduced sedentary behaviour. He is especially interested in evaluating exercise methods that can be integrated into the medical care of clinical populations.

Dr. Melanie Keats, a three-time cancer survivor, is passionate about advocating for and implementing exercise programming for individuals living with or affected by cancer. Her goal is to ensure all those confronted with a cancer diagnosis are provided with access and opportunities to participate in safe and effective exercise programming. Dr. Scott Grandy was the co-lead investigator for the Activating Cancer Communities through an Exercise Strategy for Survivors (ACCESS) project, the data from which was used in this manuscript. The goal of the ACCESS program is to improve cancer care through the inclusion of regular exercise as part of the short and long-term treatment strategy for cancer. Courtni Ruth-Anne Soucy was a master's student during the implementation of the exercise program, and the information gained from that program informed her thesis topic. She is committed to using exercise to improve the lives of individuals living with breast cancer. Dr. Danielle Bouchard led the group that developed the exercise program discussed in this article, and her interest in the topic is to compile proofs that exercise can benefit many people living with an acute or chronic disease. She hopes that the findings reported in this paper and elsewhere can lend support to the argument that exercise should be part of the rehabilitation process in oncology.

The purpose of this descriptive phenomenological study was to explore the experiences of individuals who participated in an exercise program for breast cancer survivors. The goals of the exercise program were to (1) create safe opportunities for exercise for breast cancer survivors and (2) to provide participants with the skills needed to maintain physical activity after completing the program. This research provides insight into what attracts people to join these programs, what they hope to gain from these programs, the barriers they experience to participation, and whether they felt they had received what they were looking for from the program.

## Methodology

Study procedures were approved by Research Ethics Boards at participating academic institutions and health authorities in each province.

## Participants

A purposeful sample of thirty-three participants (32 female, 1 male) agreed to complete a one-on-one interview after completing the 12-week group-based supervised exercise program. Participants were eligible to take part in the exercise program if they were currently undergoing treatment for breast cancer, were above 19 years of age, were not currently engaged in an organized exercise program, were cleared by their medical team, and were committed to attending at least one session of exercise per week. Participant ages ranged from 31-70 ( $M = 53.6$ ). Interviewees included eight participants from NB, four participants from PE, four from NL, and seventeen from NS. Most participants were still receiving treatment (e.g., chemotherapy, radiation, hormone therapy, surgery) or had completed treatment within the past two years. Participants in NB who had indicated on their consent forms that they were willing to be interviewed were contacted by email by a member of the research team. Participants in PE and NL were given the interviewer's email address and contacted the interviewer

themselves. In NS, all participants in the ACCESS program underwent a consent process ensuring their understanding of the program and applicable data collection, including the post-program interview. Upon completing the program, all participants in NS were asked if they were willing and able to complete a post-program interview. Written informed consent was obtained from all study participants.

### **Exercise Program**

Participants in all locations participated in a 12-week exercise program consisting of both aerobic and resistance training. Depending on the site, the intervention was overseen by some combination of clinical exercise psychologists, trained community fitness partners, physiotherapists, nurses, kinesiologists, and students. Although participants exercised in a group, they were given individualized plans and support to suit their level of ability. Participants were either self-referred to the program or referred by a healthcare provider. For details on the program's schedule and activities, please see Appendix A.

### **Interview Procedure**

The researchers used semi-structured interviews to gather information about participants' experiences in the exercise program. The research team developed a semi-structured interview guide that consisted of 10 questions and relevant probes, which were guided by their experiences working with cancer survivors and the relevant literature. Initial questions were logistical and close-ended (e.g., What program location did you attend? How did you hear about the program?), but the majority were open-ended and nondirective (e.g., What did you hope to gain from participating in the program? Can you describe your overall experience with the 12-week program?). The final interview guide was reviewed by a fellow researcher and cancer survivor for clarity and feasibility.

Interviews were conducted by members of the research team who were not involved in delivering the exercise program. Interviews were conducted both in person and over the telephone. The shortest interview was 15 minutes, and the longest was 90 minutes (the average interview length was 43 minutes). The interviewers used the semi-structured interview protocol as a guide but remained open and flexible to the participants changing the direction or course of the conversation. Each interview was audio recorded and then transcribed verbatim by members of the research team with participant consent.

### **Study Design & Analysis**

A descriptive phenomenological design was chosen (Giorgi & Giorgi, 2003) because of its emphasis on understanding and describing the experiences of participants in their own words, including the meaning they make of their experiences. Thematic analysis was the method chosen to unify participants' experiences and meaning into commonalities or themes (Sundler et al., 2019). In generating themes, the authors sought to illuminate both the underlying meanings and the explicit or overt meanings embodied in our participants' discussions of their experience with exercise (Ho et al., 2017).

The descriptive approach involves several steps. The first is "reading for a sense of the whole"; that is, reading each transcript separately and in its entirety (Giorgi & Giorgi, 2003). This enabled us to get a sense of each participant's experience individually and holistically, and to immerse ourselves in the data (Nowell et al., 2017). In this step, two members of the research team uploaded the interview transcripts to NVivo and read through each one to get a preliminary sense of our participants' unique experiences with exercise.

The second step of analysis involves establishing meaning units, which are sentences, blocks of text, or paragraphs that, when presented alone, convey a fully formed idea (Elliott & Timulak, 2005), which helped prepare the data for coding. One member of the research team read through the transcripts again, this time making a mark whenever a shift in meaning was present in participants' speech (Giorgi & Giorgi, 2003).

In the third step, one member of the research team simplified and summarized the meaning units in a way which attempted to articulate the essential components of the statement without adding or subtracting from the participants' own understanding. An example is shown for the following meaning unit: "We've connected, we shared emails, and you know, we have a barbeque, and we get together and stuff. So that, to me, that is probably the most healing." The summary for this meaning unit was: "Participant felt that the social connections made during the course of the program conferred to her the greatest benefits."

The fourth step consisted of creating codes for the data. Two members of the research team collaborated on creating labels for the summarized meaning units. In keeping with Saldana's (2013) definition, our codes were single words or short phrases that symbolically assigned a salient, essence-capturing attribute to a portion of data. These initial codes were pithy, straightforward labels which conveyed the general idea of our meaning units (Braun & Clarke, 2006). Some examples of our codes included "Education," "Quitting," "Motivation," and "Support."

In the final step of analysis, the same members of the research team systematically worked through the codes and began to identify more abstract themes which captured meaningful patterns in the data (Braun & Clarke, 2006). Themes researchers agreed on were kept and assessed a second time for accuracy and fit with the data. The themes that emerged from this analysis were then refined and organized to tell the story of the participants' experiences in the exercise program (Braun & Clarke, 2006). Ten themes were generated from this process and were organized into four overarching categories for clearer organization of the data. The four categories aligned with several of our initial codes ("Motivation," "Benefits," "Barriers," and "Impressions") and are therefore simple descriptive labels. Participants were assigned pseudonyms and all quotations presented herein have been anonymized.

## Findings

Four main categories (Motivation, Barriers, Benefits, and Impressions) emerged characterizing participants' experiences in the 12-week group based supervised exercise program. Across these four categories, 10 themes were identified (Table 1).

**Table 1**

<b>Categories and Themes</b>
<i>Motivation</i>
Increase energy, strength, and fitness
Commitment to program, self, and each other
Safe environment
Engaging with other survivors
<i>Barriers</i>
Fatigue
Access issues
Getting out of the house
<i>Benefits</i>

Physical gains  
Emotional gains  
Social gains

---

*Note.* Categories and themes emerging from thematic analysis of participant interview transcripts.

## **Motivation**

The category of “Motivation” is defined in this study as intrinsic and extrinsic reasons for engaging in physical activity at the outset of the program, as well as reasons for continuing to show up for the duration of the program. Participants’ motivations for engaging in the program included increasing their energy, strength and fitness, committing to the process, the felt safety of the environment, and having an opportunity to engage with other survivors.

### ***Increase Energy, Strength, and Fitness***

Nearly all the participants stated they had joined the program in order to increase their energy, strength, and fitness. As Holly stated:

The reason why I wanted to participate was, I was feeling really weak. I had gone through all my chemo, and I had just finished my radiation, and I was quite fit when I started all this, but I lost a lot of muscle mass, and I was very weak, tired, and I was actually looking for a program elsewhere... I was looking at different places and then my friend told me about this program, so then I just called [the nurse] and got in there. So, I was looking to build my strength and my muscle.

This excerpt demonstrates that Holly’s main motivation for joining the exercise program was to regain her pre-illness level of fitness, specifically her strength and muscle mass. Holly felt not being able to eat properly during treatment also contributed to her weakness. Losing strength and energy took a toll on some participants’ activities of daily living, limiting the type and amount of activity they were able to accomplish before becoming exhausted. Samantha recounted an experience of making breakfast and being so light-headed and weak that she had to sit on the kitchen floor because she thought she might pass out.

Nearly all participants stated they joined the program particularly in hope of increasing their energy and muscular strength. As Clarice stated, “I lacked energy and that’s what I was aiming for. I wanted some guidance because I knew I should be doing something physical, but I wasn’t sure how to do it on my own.” Samantha expressed her desire to be more physically active in order to regain a previous level of fitness:

I wanted to establish a routine for me to be physically active. And I wanted to also lose some weight and gain some muscle, but I wanted to get back to at least how I was before chemo. That strong.

Samantha’s words echo Holly’s statement above. Both women communicate that their desire to return to their baseline level of fitness pre-chemotherapy was a strong motivator to enter the program.

### ***Commitment to Program, Self, and Each Other***

Needing to commit and be accountable was mentioned by several participants as a motivating factor for joining the program. The commitment was typically to the program and the group of people. As Lily stated, “I just thought if I had a dedicated time that someone’s at least looking, to see if I was there, it would make me go. [Laugh] And it did.” For other participants, the commitment was also to themselves:

Samantha: Yeah, it’s easier not to go—[it] was knowing that I was part of something that [...] the program leader might say, where is [name], where’ve you been, teasing or whatever, you know that kinda thing? So, being a part of something and like I better show up.

Interviewer: You’d made a commitment.

Samantha: Right. But it wasn’t always a commitment to me in the beginning, it was, to others. Now, it’s more me.

In this excerpt, Samantha explains she was initially motivated to attend sessions to be accountable to (and to not disappoint) the program leaders, but that, over time, her commitment became to herself. Making the commitment to the program motivated participants to start and helped them to keep attending regularly. Making the commitment to themselves came later in the program, and it may not have happened without that external obligation to the program keeping them going long enough for the motivation to become personal.

Many participants found making the commitment was what helped them complete the program. As Caroline stated:

I’m just the type of person, once I make a commitment to something, I follow through if I can at all. So, that was one of the factors to me to get started. Once I made that decision, I was going to stick to it and do the best I could to be there for every exercise program.

Here, Caroline attributes her ability to commit to the program to her personality; she is “just the type of person” who follows through on her decisions and sticks them out until the end. Her motivation to begin and continue to attend group exercise came from a strong commitment to herself and her goals. For participants who were less internally motivated, having the program structure and schedule serve as an external motivator which helped many participants keep up with their exercise, even on days when they might have been less inclined to do so. For Felicia, “holding me accountable to be somewhere and exercise kind of made it part of, made it fit my schedule, and just help me be a little bit more accountable to get moving.” Felicia’s motivation was based on the group’s ability to keep her accountable. Marie, knowing that her wanting to travel into town outside of testing days would be unlikely, set up a workout area at her home because seeing the equipment all of the time motivated her to keep up with the exercise program. She said, “I knew it would work better with the weights at home, so that’s what I’ve been doing.”

### ***Safe Environment***

Throughout this exercise program, concerns over managing physical limitations that had resulted from cancer treatments or other medical conditions, were eased by the fact that trained, experienced facilitators were delivering the physical activity programs for cancer

survivors. Specifically, they were reassured by the fact that the facilitators had experience working with cancer survivors in an exercise context. As Alicia put it:

I was feeling pretty unhealthy and not very strong, so looking forward to, you know, getting a chance to work my body again and, you know, I was thinking in a, you know, pretty safe environment with people who knew what they were doing.

In this excerpt, Alicia shares her motivation to attend the program was increased by the felt safety of the environment, and her sense that the program facilitators were knowledgeable and likely well-trained in the safe administration of exercise. Several participants expressed relief that their level of physical ability would be recognized and accommodated by the facilitators, and that they would not be pushed past their physical limits. As Caroline said:

I guess the fact that it was breast cancer survivors kind of made me feel comfortable in that there wouldn't be too much physical demand, more than what I could handle. [...] If I was having difficulty, I could ask somebody, "Can I push through this, or should I back off?" That was the feedback that I needed.

Here, Caroline is highlighting the safety of the environment by expressing that she felt secure knowing that the program was designed specifically for breast cancer survivors, and that she would therefore not be expected to push herself to unsafe physical extremes. She trusted the program facilitators to know, and to express to her, when a certain activity posed a risk. The expertise of the facilitators, as well as the individual attention the participants received, was especially important to participants who had multiple complex health needs. As Lily stated:

I also liked that the [program leader] would come up with a plan that would suit me individually because I have some sort of special needs...on top of all the cancer...it was nice to have someone that could sort of point me in the right direction and know that I was doing it safely.

Lily's motivation to attend sessions was partly based on the program leader's flexibility in delivering a plan that would accommodate her complex health needs, and their skill in ensuring that her safety was being taken into consideration.

### ***Engaging with Other Survivors***

Some participants were interested in the intervention because the exercise program would provide an opportunity to meet other people who had experienced a cancer diagnosis and treatment and who may have shared similar experiences as their own. Alicia was interested in meeting others in order to benefit from their knowledge surrounding living with or having been treated for cancer:

It was mostly just the opportunity to talk to the other ladies about what was going on and things that were gonna be happening to me or were happening to me, and if they were things they had encountered, as well.

Here, Alicia describes that her choice to participate in the intervention was motivated by a desire to connect with other survivors and perhaps engage in mutual support. This sentiment was expressed by other participants as well. As Lily explained, she wanted more

interaction with other participants in order to “offer some support to each other and encouragement, too... to be able to cheer other people on and celebrate their progress as well, ‘cause I know for some people it was quite a challenge, so it’s a big deal.” Being able to support other people that are going through cancer is important to many cancer survivors and can become part of their survivor identity (Sumalla et al., 2009; Ussher et al., 2006).

Some participants expressed interest in having more social interaction with other participants. Irene would have liked the opportunity to socialize to be built into the program instead of having to reach out on her own, saying “if you said to me, they’ve decided to have a little coffee group do you wanna go, I’d say sure, but I’m not that keen to get a list to phone people to say ‘Do you wanna get together?’” Here, Irene is conveying that one benefit of the program is that it offers survivors and opportunity to converse with one another without having to go out of their way to make plans themselves. Others, however, were content with the level of interaction they experienced. Rose said:

I only have a dim awareness of who else was in that group because I only met them that first day. And I didn’t go to the barbecue at the end for the same reason I didn’t go to the first day, because I don’t like to focus on, like I don’t want to spend the whole evening talking about the fact I have cancer.

Although Rose was not interested in more social interaction, she did think having organized get-togethers was a good idea, saying that the participants, “didn’t meet up with each other very well. So, I think a weekly session would’ve been better for meeting like-minded people and people who wanted to talk to each other could meet each other.” In this excerpt, Rose is reiterating Irene’s sentiment; that it is easier, and even preferable, when interactions between participants are scheduled and planned.

## **Barriers**

The category of “Barriers” is defined in this study as anything that represented an obstacle the participants would have to overcome to engage in physical activity. These barriers included fatigue, difficulties with access (timing, location, finances), and combating low motivation to leave the house.

### ***Fatigue***

The biggest obstacle for participants was cancer or treatment-related fatigue. Even though participants understood intellectually that engaging in physical activity would help with their fatigue levels, some still had to push themselves to participate in the program on days when they were feeling especially weak. Clarice said that in the beginning she “did want to quit because I was at that point where I didn’t have that energy to come in and do it. It was just like, why bother, why don’t I just forget about it and not even continue.” Lily explained how experiencing fatigue was both a motivator to attend the program and a barrier, saying:

I’m still tired from radiation, and I wanna be active, but it’s so hard when you’re tired. And I know that was one of the things at the education session that [program leader] was saying, it will help fatigue to be active, but it always just sounds like a funny thing when you’re like, I’m exhausted, I don’t wanna be active, but you know it’s gonna help you. So yeah, I would say fatigue was the hardest part.

Here, Lily is finding humour in the paradox of knowing that attending the program would give lessen her fatigue but being too fatigued to attend the program in the first place. Overcoming the fatigue was a challenge, but as Alicia stated, she overcame it by “just making myself do it. There was a couple of days that I couldn’t, but for the most part, I’ve been there almost every time.” Although fatigue was a significant barrier for Alicia, she overcame it by sticking to her commitment to the program.

### ***Access Issues***

Another obstacle faced by some participants was the timing and location of the sessions and expenses associated with attending despite the sessions themselves being free. Bethany found she was too tired at the end of the workday and would be less inclined to attend if she went home. She said, “I stayed at work and the [site] is on the way home, so I stayed at work until it was close to class time, and I just went to class from there.” Living out of town or being unable to drive on their own (e.g., due to treatment side effects, age, or choice) added extra challenges for some participants. Holly found the travel time added up, saying, “half an hour [in], half an hour back, when you’re still kinda feeling weak...that was the only obstacle and...it never made me stop.” For Paige, the extra time and expense was a real barrier in terms of gas for the car and another other person’s time. She and her husband overcame the obstacle because she enjoyed the program, but the added costs might be prohibitive for others:

I had to entice my husband to bring me on a regular basis, where he had to sit there and wait for me. [...] We were spending gas coming back and forth twice a week, so it was pricey enough even though I wasn’t paying [for the program].

In this excerpt, Paige sheds light on the challenge that distance can pose to full attendance. Nearly half the population of Atlantic Canada lives in a rural area (Statistics Canada, 2016), which can mean added time and money must be spent in order to access programs like this when people live farther away from the urban centres where these programs tend to be located.

### ***Getting Out of the House***

Some participants found it difficult to find the motivation to get out of the house and attend the program. Particularly for participants who were less active to begin with, an exercise program can be a dramatic change in their daily routine and a difficult habit to adopt. For Nancy, the biggest obstacle was to “get up and go out the door.” Melanie laughed about finding it challenging to “[get] out of the house.” The season was also a factor; as Bethany put it, “in the winter it’s kind of hard to get out, you come home and [have to] go out again.” Cancer can also be isolating (Hill & Hamm, 2019). For some, joining the program was a way to force themselves to get out of the house and interact socially. Jason joked that it was, “something to do, get me off my butt.” For Bethany, she “really liked the idea of going out and doing something.” All these excerpts touch on participants’ desires to engage in an activity which would get them up, out the door, and moving, and finding it difficult to initiate such an activity when inertia has set already set in.

### **Benefits**

The category of “Benefits” is defined in this study anything the participants gained from participation in group physical activity. These included physical benefits (increased energy

levels, strength, and interest in physical activity), emotional benefits (increased wellbeing and less mental distress), and social benefits (camaraderie, friendship, and support).

### ***Physical Gains***

Participants in this study experienced a range of physical improvements as a result of the exercise intervention. Nearly all participants reported their energy levels had increased, as originally hoped. As Rose stated:

Before I'd get up, I'd get my daughter ready for school, and I'd go back to bed. For like two hours. And then I'd also have a nap later on. My husband says it's remarkable how much I suddenly have energy that I just didn't have before.

Caroline was especially pleased with improvements she experienced in many areas:

I often would have been crashed on the couch by eight o'clock and nothing left and no energy to do something else. But now, I don't look to sit on the couch at eight o'clock anymore. I have energy to do more than I did before. Definitely strength—like climbing stairs. I don't necessarily feel like I have to hold onto the rail anymore; I have good core strength to be able to step up the steps. And little things like that, and mashing potatoes, just general housework, and sleeping has definitely improved.

These excerpts highlight the range of physical gains made by participants in the program. Regaining strength and energy made a difference in participants' daily lives and gave them a renewed sense of independence. Being able to mash potatoes for supper may seem like a simple achievement, but it was important for Caroline to be able to return to some of her regular daily activities. Recovering a sense of independence is a significant need for cancer survivors (Muntlin et al., 2018).

Many participants took up walking after the program ended, some with a friend or partner, and participants from one site started a walking group together. Some individuals also purchased their own weight equipment or continued attending a gym facility after the program ended. Sandra noted:

[Without the program] I wouldn't have known what exercises to do, and I wouldn't have been doing them regularly... [with the] program I understood that I was supposed to be doing it more or less regularly, as often as possible... So, just even doing it occasionally, is something that I wasn't doing before, and I'm going to continue to do it now that I have the weights.

For Sandra, the weights served as a reminder of her newfound commitment to physical exercise.

### ***Emotional Gains***

Some participants experienced positive emotional changes throughout the program. Many attributed these changes to improvements in their physical well-being. As Caroline stated: "Just how much it helped my day-to-day feelings and positivity and that kind of thing. I was impressed with that. I don't think I've realized until after I started to improve my physical fitness how much it helped." For Caroline, emotional gains manifested as a more positive

mindset. Many participants found participating in the program helped alleviate various kinds of mental distress. Joan found the program “helped my stress quite a bit. It’s been a rough couple of years. I had a lot more going on than just cancer.” Victoria experienced increased confidence, which she attributed to participating in the program:

I would say [the program] made me more confident, funny word to use perhaps, but having been through cancer surgery and treatment... your mind goes to crazy places, so exercise kind of helps to focus your mind and get you back and say: “You know what, if nothing else in this world, I know that I can do this exercise.”

### ***Social Gains***

A few participants acknowledged the program did make them get out of the house and engage with other people. Paige, who is retired, appreciated the opportunity to get out, saying, “being out of the house and being around other people was just kinda nice” because she missed “being out in the thick of things.” Holly realized she had become too reclusive before the program. “I have to say I kinda became a bit of an introvert. [Laughter] Well, I am an introvert, but I should say I became a recluse! So, it pushes you to get out, that’s for sure.” For Holly, it was the presence of other people who had experienced cancer that was important. She appreciated “just getting out, and being around people, and... being comfortable around people, ‘cause there was a few people that’ve gone through the same thing.” During treatment, fear of illness can lead to people limiting their activities (Fleischer & Howell, 2017). As Jason explained, “when a lot of people get sick, they don’t think they can leave the house.” Being able to venture out in an environment tailored to the specific needs of people in treatment for cancer could help allay some of those fears and get people out of the house, which these participants found rewarding.

Emily found the group supportive and appreciated the camaraderie that arose during the program. Melanie also noted the support participants gave and received through social media, saying, “some people used to post ‘Oh my gosh, I don’t think I can go I’m just really tired, somebody tell me what I should do.’ Everyone was encouraging ‘Come on, you can do it.’ That was really encouraging.” For Melanie, social gains were exemplified in increased support.

### **Impressions, Feedback, and Recommendations**

The category of “Impressions, Feedback, and Recommendations” is defined in this study as the participants’ overall impressions of the program, specific feedback about the program, and recommendations made about what could have been done differently.

The program was a positive experience for all participants; all stated that they found it motivating and would recommend it to anyone. For example, Marie stated, “The [provincial program] program is a very positive program, and it motivates us, and it provides resources that we need for a very low period in our life. It’s very supportive and people are compassionate, so it’s really helpful.”

Marie touches on several aspects of the program that she found positive: motivation, resources, support, and compassion. Participants enjoyed that the program was structured, and the exercise plans were tailored to their individual needs. The fact that the program was free was also a big selling point; some participants stated that if it had not been free, they would have been less likely to attend.

Participants expressed satisfaction not only with the increases in energy and muscular strength that they achieved but also with the way the program helped bridge the gap when transitioning out of being in treatment. Caroline would like to see this type of program available through the cancer treatment centre

I would highly recommend it. I would love to see it offered at the cancer treatment center going through the care, and similar to the heart care program, I think [the Heart and Stroke Foundation] is involved in that one. To be able to offer that, for survivors to know, “Here’s your next step. You can do this.”

This sentiment was also endorsed by Samantha, who explained:

When you’re done treatment, there’s another *huge* transition point that there’s a big gap. And I know that, they know that. Where you’re just kinda done. So, I had the [provincial program] then, and it was *so* helpful for my transition out of my treatment phase back into real life.

Feeling lost after treatment ends is a common experience (Schnur et al., 2018). Programs that provide structure to people as they move out of active treatment may help ease what can be a difficult transition.

Participants had a few practical suggestions to help improve the program moving forward. Several people mentioned feeling awkward at not having been introduced to the others and forgetting their names; a couple suggested using name tags or being introduced to the others at the start of the program. Participants also expressed interest in meeting with a dietician, ideally early in the program. One of the most common suggestions was that they wished the program had gone on for a longer period, and many expressed interests in completing a second program. Finally, a few participants thought it would be beneficial to let people know programs like this exist when they start their cancer journey, so they are aware of the opportunity to get help with being active during and after treatment.

## Discussion

Participants in the present study experienced a myriad of benefits from the group exercise program, including deepened social networks, increased emotional wellbeing (increased positivity and less stress), and improved physical health (increased strength and less fatigue), which corroborates previous studies on the beneficial effects of group exercise (Adamsen et al., 2003; Ferri et al., 2021; McGrath et al., 2011; Smith et al., 2016). Many barriers to exercise (e.g., cancer-related symptoms like fatigue, time constraints, lack of motivation) and motivators for engaging in exercise (e.g., increase energy, social support) identified by our participants were consistent with those reported in other qualitative studies on the topic (Brunet et al., 2013). One surprising finding was the number of survivors who continued to exercise after the completion of the program, whether alone or with the walking group they put together independently. Transitioning from a supervised exercise environment to using exercise in everyday life presented a significant barrier to lasting gains in previous studies (Ferri et al., 2021), but participants in the present study appeared keen and motivated to continue physical activity after program completion. A follow-up with the present participants would indicate whether they kept up their commitment to ongoing exercise.

This study was conducted at multiple sites across multiple time periods and evolved with each implementation based on the resources available and feedback from the participants. Overall, the findings were largely consistent across sites and over time; however, this study did

not investigate the possible effects relating to the unavoidable differences between the sites (e.g., facilities, instructors, time of year). In addition, participants received individualized workout plans, specifically constructed to meet their individual needs and abilities; therefore, each participant's experience was necessarily unique. The individualized nature of the program is, by design, one of the strengths of the program, but it is also a limitation as the individual plans may not be comparable. Our drop-out rate was 19.1%, which is like the average attrition rate for exercise interventions for patients with advanced cancer (24%; Sheill et al., 2019). Our findings are consistent with the literature that exercising during cancer treatment can be beneficial if done knowledgeably and safely (Brawley et al., 2003; Brunet & St-Aubin, 2016).

Future studies may wish to inquire about the function of exercise and the role it plays in participants' lives (e.g., whether the idea of exercise inspires excitement or trepidation). It would be beneficial to investigate how an exercise program such as this one might encourage people to be active for the first time or help those who were very active before cancer return to a sense of normalcy, to "recapture body control and identity through exercise" (Adamsen et al., 2009). Understanding how survivors relate to exercise should influence how these programs are advertised and structured.

The participants in the present study differed in their enjoyment of the more social aspects of the group intervention. Some highlighted the importance of socializing with other survivors, whereas others preferred to focus more on their individual progress and goals. Future implementations of this kind of program could evaluate whether a fully group-based intervention would be preferable to the more individual experience some participants prefer.

The findings of the present study are likely generalizable to breast cancer survivors in active treatment in other communities, as our participants' experiences of the exercise program, including their perceived barriers and gleaned benefits, as well as their relationship to exercise in general, were consistent with previous studies (Brunet et al., 2013; Wurz et al., 2015). As only one male participant was included in our sample, it is difficult to generalize our findings to male cancer survivors; although, other studies have found that male cancer survivors also benefit greatly from group exercise. Male cancer survivors involved in group exercise programs report decreased treatment-related side effects and increased practical, social, and emotional support (Cormie et al., 2015), and experience improved cognitive functioning and less depressive symptoms (Livingston et al., 2015). In the present study, our single male participant reported the same benefits from the program as our female participants.

Participants joined the exercise program in hopes of regaining some of the muscle strength and energy they had lost through their cancer experience, and nearly all reported improvements in those areas. For most participants, making a commitment to the program helped overcome barriers to following through on plans to exercise. Furthermore, engaging in a structured activity helped ease their transitions out of active treatment by providing guidance, support, and the opportunity to engage with other cancer survivors. These findings support the inclusion of structured exercise programs as part of standard cancer care, a concept endorsed by cancer survivors and oncologists alike (Peeters et al., 2009). Policymakers and care providers should consider wider adoption of exercise programs for cancer survivors.

Lastly, we suggest our findings have the following implications for psychosocial oncology:

- Engaging in exercise while undergoing or following treatment for breast cancer can reduce feelings of fatigue and weakness.
- Group exercise programs for cancer survivors should be better advertised to clinicians, and clinicians should be encouraged to refer patients to these programs at every stage of the cancer trajectory

- People undergoing or following treatment for breast cancer benefit from free, structured exercise programs that are facilitated by staff who are experienced in working with cancer survivors.
- Exercising in a group can create an atmosphere of accountability and increased motivation. Social cohesion of the group plays a role in encouraging participants to attend sessions.
- Exercise programs can help those further along the post-treatment phase of their cancer experience regain their strength and independence

## References

- Abrahams, H. J. G., Gielissen, M. F. M., Verhagen, C. A. H. H. V. M., & Knoop, H. (2018). The relationship of fatigue in breast cancer survivors with quality of life and factors to address in psychological interventions: A systematic review. *Clinical Psychology Review*, *63*, 1–11. <https://doi.org/10.1016/j.cpr.2018.05.004>
- Adamsen, L., Andersen, C., Midtgaard, J., Møller, T., Quist, M., & Rørth, M. (2009). Struggling with cancer and treatment: Young athletes recapture body control and identity through exercise: Qualitative findings from a supervised group exercise program in cancer patients of mixed gender undergoing chemotherapy. *Scandinavian Journal of Medicine and Science in Sports*, *19*(1), 55–66. <https://doi.org/10.1111/j.1600-0838.2007.00767.x>
- Adamsen, L., Midtgaard, J., Rørth, M., Borregaard, N., Andersen, C., Quist, M., Møller, T., Zacho, M., Madsen, J. K., & Knutsen, L. (2003). Feasibility, physical capacity, and health benefits of a multidimensional exercise program for cancer patients undergoing chemotherapy. *Supportive Care in Cancer*, *11*(11), 707–716. <https://doi.org/10.1007/s00520-003-0504-2>
- American Cancer Society. (2014, March 24). *Physical activity and the cancer patient*. [https://www.cancer.org/treatment/survivorship-during-and-after-treatment/staying-active/physical-activity-and-the-cancer-patient.html#written\\_by](https://www.cancer.org/treatment/survivorship-during-and-after-treatment/staying-active/physical-activity-and-the-cancer-patient.html#written_by)
- American College of Sports Medicine. (2019, November 25). *ACSM guidelines for exercise and cancer* [Infographic]. <https://www.acsm.org/blog-detail/acsm-certified-blog/2019/11/25/acsm-guidelines-exercise-cancer-download>
- Andersen, C., Adamsen, L., Moeller, T., Midtgaard, J., Quist, M., Tvetraas, A., & Rørth, M. (2006). The effect of a multidimensional exercise programme on symptoms and side-effects in cancer patients undergoing chemotherapy: The use of semi-structured diaries. *European Journal of Oncology Nursing*, *10*(4), 247–262. <https://doi.org/10.1016/j.ejon.2005.12.007>
- Anderson, R. T., Kimmick, G. G., McCoy, T. P., Hopkins, J., Levine, E., Miller, G., Ribisl, P., & Mihalko, S. L. (2012). A randomized trial of exercise on well-being and function following breast cancer surgery: The restore trial. *Journal of Cancer Survivorship*, *6*(2), 172–181. <https://doi.org/10.1007/s11764-011-0208-4>
- Bauman, A. E., Reis, R. S., James F Sallis, Wells, J. C., Loos, R. J. F., & Martin, B. W. (2012). Correlates of physical activity: Why are some people physically active and others not? *The Lancet*, *380*(9838), 258–271. [https://doi.org/10.1016/S0140-6736\(12\)60735-1](https://doi.org/10.1016/S0140-6736(12)60735-1)
- Blaney, J., Lowe-Strong, A., Rankin, J., Campbell, A., Allen, J., & Gracey, J. (2010). The cancer rehabilitation journey: Barriers to and facilitators of exercise among patients with cancer-related fatigue. *Physical Therapy*, *90*(8), 1135–1147. <https://doi.org/10.2522/ptj.20090278>
- Braun, V., & Clarke, V. (2006). Using thematic analysis in psychology. *Qualitative Research in Psychology*, *3*(2), 77–101. <https://doi.org/10.1191/1478088706qp063oa>

- Brawley, L. R., Culos-Reed, S. N., Angove, J., & Hoffman-Goetz, L. (2003). Understanding the barriers to physical activity for cancer patients: Review and recommendations. *Journal of Psychosocial Oncology*, 20(4), 1–21. [https://doi.org/10.1300/J077v20n04\\_01](https://doi.org/10.1300/J077v20n04_01)
- Brunet, J., Taran, S., Burke, S., & Sabiston, C. M. (2013). A qualitative exploration of barriers and motivators to physical activity participation in women treated for breast cancer. *Disability and Rehabilitation*, 35(24), 2038–2045. <https://doi.org/10.3109/09638288.2013.802378>
- Brunet, J., & St-Aubin, A. (2016). Fostering positive experiences of group-based exercise classes after breast cancer: What do women have to say? *Disability and Rehabilitation*, 38(15), 1500–1508. <https://doi.org/10.3109/09638288.2015.1107633>
- Canadian Cancer Society. (2017). *Canadian cancer statistics 2017*. The Government of Canada. <https://doi.org/0835-2976>
- Cancer Council Western Australia. (2016). *Guidelines for implementing exercise programs for cancer patients*. Cancer Council Western Australia.
- Casla, S., Hojman, P., Márquez-Rodas, I., López-Tarruella, S., Jerez, Y., Barakat, R., & Martín, M. (2015). Running away from side effects: Physical exercise as a complementary intervention for breast cancer patients. *Clinical and Translational Oncology*, 17(3), 180–196. <https://doi.org/10.1007/s12094-014-1184-8>
- Cormie, P., Pumpa, K., Galvão Daniel A, Turner, E., Spry, N., Saunders, C., Zissiadis, Y., & Newton, R. U. (2013). Is it safe and efficacious for women with lymphedema secondary to breast cancer to lift heavy weights during exercise: A randomised controlled trial. *Journal of Cancer Survivorship*, 7(3), 413–424. <https://doi.org/10.1007/s11764-013-0284-8>
- Cormie, P., Turner, B., Kaczmarek, E., Drake, D., & Chambers, S. K. (2015). A qualitative exploration of the experience of men with prostate cancer involved in supervised exercise programs. *Oncology Nursing Forum*, 42(1), 24–32. <https://doi.org/10.1188/15.ONF.24-32>
- Courneya, K. S., Friedenreich, C. M., Quinney, H. A., Fields, A. L. A., Jones, L. W., Vallance, J. K. H., & Fairey, A. S. (2005). A longitudinal study of exercise barriers in colorectal cancer survivors participating in a randomized controlled trial. *Annals of Behavioral Medicine*, 29(2), 147–153. [https://doi.org/10.1207/s15324796abm2902\\_9](https://doi.org/10.1207/s15324796abm2902_9)
- Courneya, K. S., McKenzie, D. C., Mackey, J. R., Gelmon, K., Friedenreich, C. M., Yasui, Y., Reid, R. D., Cook, D., Jespersen, D., Proulx, C., Dolan, L. B., Forbes, C. C., Wooding, E., Trinh, L., & Segal, R. J. (2013). Effects of exercise dose and type during breast cancer chemotherapy: Multicenter randomized trial. *Journal of the National Cancer Institute*, 105(23), 1821–1821. <https://doi-org.proxy.hil.unb.ca/10.1093/jnci/djt297>
- Dujits, S. A., Faber, M. M., Oldenburg, H. S. A., van Beurden, M., & Aaronson, N. K. (2011). Effectiveness of behavioral techniques and physical exercise on psychosocial functioning and health-related quality of life in breast cancer patients and survivors--A meta-analysis. *Psycho-Oncology*, 20(2), 115–126. <https://doi.org/10.1002/pon.1728>
- Elliott, R., & Timulak, L. (2005). Descriptive and interpretive approaches to qualitative research. In J. Miles & P. Gilbert (Eds.), *A handbook of research methods for clinical and health psychology* (pp. 147-160). Oxford University Press.
- Ferri, A., Gane, E. M., Smith, M. D., Pinkham, E. P., Gomersall, S. R., & Johnston, V. (2021). Experiences of people with cancer who have participated in a hospital-based exercise program: A qualitative study. *Supportive Care in Cancer*, 29(3), 1575–1583. <https://doi.org/10.1007/s00520-020-05647-y>
- Fisher, H. M., Jacobs, J. M., Taub, C. J., Lechner, S. C., Lewis, J. E., Carver, C. S., Blomberg, B. B., & Antoni, M. H. (2017). How changes in physical activity relate to fatigue

- interference, mood, and quality of life during treatment for non-metastatic breast cancer. *General Hospital Psychiatry*, 49, 37–43. <https://doi.org/10.1016/j.genhosppsych.2017.05.007>
- Fleischer, A., & Howell, D. (2017). The experience of breast cancer survivors' participation in important activities during and after treatments. *British Journal of Occupational Therapy*, 80(8), 470–478. <https://doi.org/10.1177/0308022617700652>
- Frikkel, J., Götte, M., Beckmann, M., Kasper, S., Hense, J., Teufel, M., Schuler, M., & Tewes, M. (2020). Fatigue, barriers to physical activity and predictors for motivation to exercise in advanced cancer patients. *BMC Palliative Care*, 19(43), 1-11. <https://doi.org/10.1186/s12904-020-00542-z>
- Giorgi, A. P., & Giorgi, B. M. (2003). The descriptive phenomenological psychological method. In P. M. Camic., J. E. Rhodes., & L. Yardley (Eds.), *Qualitative research in psychology: Expanding perspectives in methodology and design* (pp. 243-273). American Psychological Association.
- Government of New Brunswick. (2013). *Cancer in New Brunswick*. New Brunswick Cancer Network, Department of Health.
- Hayes, S. C., Newton, R. U., Spence, R. R., & Galvão, D. A. (2019). The Exercise and Sports Science Australia position statement: Exercise medicine in cancer management. *Journal of Science and Medicine in Sport*, 22(11), 1175–1199. <https://doi.org/10.1016/j.jsams.2019.05.003>
- Health PEI. (2018). *Report on cancer statistics in Prince Edward Island: Breast cancer*. PEI Cancer Treatment Centre. [www.healthpei.ca/cancercare](http://www.healthpei.ca/cancercare)
- Hill, E. M., & Hamm, A. (2019). Intolerance of uncertainty, social support, and loneliness in relation to anxiety and depressive symptoms among women diagnosed with ovarian cancer. *Psycho-Oncology*, 28(3), 553–560. <https://doi.org/10.1002/pon.4975>
- Ho, K. H. M., Chiang, V. C. L., & Leung, D. (2017). Hermeneutic phenomenological analysis: The 'possibility' beyond 'actuality' in thematic analysis. *Journal of Advanced Nursing*, 73(7), 1757–1766. DIO: 10.1111/jan.13255
- Irwin, M. L., McTiernan, A., Bernstein, L., Gilliland, F. D., Baumgartner, R., Baumgartner, K., & Ballard-Barbash, R. (2004). Physical activity levels among breast cancer survivors. *Medicine and Science in Sports and Exercise*, 36(9), 1484–1491.
- King, N. (2004). Using templates in the thematic analysis of text. In C. Cassell & G. Symon (Eds.), *Essential guide to qualitative methods in organizational research* (pp. 257–270). Sage.
- Leiserowitz, A., & Watchie, J. (2011). Exercise prescription. *Topics in Geriatric Rehabilitation*, 27(3), 193–205. <https://doi.org/10.1097/TGR.0b013e3182198f9d>
- Livingston, P. M., Craike, M. J., Salmon, J., Courneya, K. S., Gaskin, C. J., Fraser, S. F., Mohebbi, M., Broadbent, S., Botti, M., & Kent, B. (2015). Effects of a clinician referral and exercise program for men who have completed active treatment for prostate cancer: A multicenter cluster randomized controlled trial. *Cancer*, 121(15), 2646–2654. <https://doi.org/10.1002/cncr.29385>
- Mason, C., Alfano, C. M., Smith, A. W., Wang, C. Y., Neuhausser, M. L., Duggan, C., Bernstein, L., Baumgartner, K. B., Baumgartner, R. N., Ballard-Barbash, R., & McTiernan, A. (2013). Long-term physical activity trends in breast cancer survivors. *Cancer Epidemiology, Biomarkers & Prevention*, 22(6), 1153–1161. <https://doi.org/10.1158/1055-9965.EPI-13-0141>
- McGrath, P., Joske, D., & Bouwman, M. (2011). Benefits from participation in the chemo club: Psychosocial insights on an exercise program for cancer patients. *Journal of Psychosocial Oncology*, 29(1), 103–119. <https://doi.org/10.1080/07347332.2010.532301>

- Mishra, S. I., Scherer, R. W., Geigle, P. M., Berlanstein, D. R., Topaloglu, O., Gotay, C. C., & Snyder, C. (2012). Exercise interventions on health-related quality of life for cancer survivors. *The Cochrane Database of Systematic Reviews*, 8(8). <https://doi.org/10.1002/14651858.CD007566.pub2>
- Muntlin, A. A., Brovall, M., Wengström, Y., Conroy, T., & Kitson, A. L. (2018). Descriptions of fundamental care needs in cancer care—an exploratory study. *Journal of Clinical Nursing*, 27(11-12), 2322–2332. <https://doi.org/10.1111/jocn.14251>
- Mustian, K. M., Alfano, C. M., Heckler, C., Kleckner, A. S., Kleckner, I. R., Leach, C. R., Mohr, D., Palesh, O. G., Peppone, L. J., Piper, B. F., Scarpato, J., Smith, T., Sprod, L. K., & Miller, S. M. (2017). Comparison of pharmaceutical, psychological, and exercise treatments for cancer-related fatigue: A meta-analysis. *JAMA Oncology*, 3(7), 961–968. <https://doi.org/10.1001/jamaoncol.2016.6914>
- Naik, H., Eng, L., Liu, G., Jones, J. M., Pringle, D., Mahler, M., Niu, C., Charow, R., Tiessen, K., Lam, C., Halytsky, O., Hon, H., Irwin, M., Pat, V., Gonos, C., Chan, C., Villeneuve, J., Harland, L., Shani, R. M., & Brown, M. C. (2018). Patterns, perceptions, and perceived barriers to physical activity in adult cancer survivors. *Supportive Care in Cancer*, 26(11).
- Nowell, L. S., Norris, J. M., White, D. E., & Moules, N. J. (2017). Thematic analysis: Striving to meet the trustworthiness criteria. *International Journal of Qualitative Methods*, 16(1), 1-13. <https://doi.org/10.1177/1609406917733847>
- Peeters, C., Stewart, A., Segal, R., Wouterloot, E., Scott, C. G., & Aubry, T. (2009). Evaluation of a cancer exercise program: Patient and physician beliefs. *Psycho-Oncology*, 18(8), 898–898. <https://doi.org/10.1002/pon.1406>
- Saldana, J. (2013). *The coding manual for qualitative researchers* (2<sup>nd</sup> ed.). SAGE Publications Ltd.
- Sander, A. P., Wilson, J., Izzo, N., Mountford, S. A., & Hayes, K. W. (2012). Factors that affect decisions about physical activity and exercise in survivors of breast cancer: A qualitative study. *Physical Therapy*, 92(4), 525–536. <https://doi.org/10.2522/ptj.20110115>
- Saint-Jacques, N., Dewar, R., Nauta, L., & MacIntyre, M. (2018). *Nova Scotia cancer incidence and survival statistics update: Focusing on 2011-15*. Registry & Analytics, Nova Scotia Cancer Care Program, Nova Scotia Health Authority. <http://www.nshealth.ca>
- Segal, R., Zwaal, C., Green, E., Tomasone, J. R., Loblaw, A., Petrella, T., & Exercise for People with Cancer Guideline Development Group (2017a). Exercise for people with cancer: A clinical practice guideline. *Current Oncology (Toronto, Ont.)*, 24(1), 40–46. <https://doi.org/10.3747/co.24.3376>
- Segal, R., Zwaal, C., Green, E., Tomasone, J. R., Loblaw, A., Petrella, T., & Exercise for People with Cancer Guideline Development Group. (2017b). Exercise for people with cancer: A systematic review. *Current Oncology (Toronto, Ont.)*, 24(4), 315. <https://doi.org/10.3747/co.24.3619>
- Schnur, J. B., Dillon, M. J., Goldsmith, R. E., & Montgomery, G. H. (2018). Cancer treatment experiences among survivors of childhood sexual abuse: A qualitative investigation of triggers and reactions to cumulative trauma. *Palliative and Supportive Care*, 16(6), 767–776. <https://doi.org/10.1017/S147895151700075X>
- Sheill, G., Guinan, E., Brady, L., Hevey, D., & Hussey, J. (2019). Exercise interventions for patients with advanced cancer: A systematic review of recruitment, attrition, and exercise adherence rates. *Palliative & Supportive Care*, 17(6), 686–696. <https://doi.org/10.1017/S1478951519000312>
- Smith, T. M., Broomhall, C. N., & Crecelius, A. R. (2016). Physical and psychological effects

- of a 12-session cancer rehabilitation exercise program. *Clinical Journal of Oncology Nursing*, 20(6), 653–659.
- Spence, R. R., Heesch, K. C., & Brown, W. J. (2010). Exercise and cancer rehabilitation: A systematic review. *Cancer Treatment Reviews*, 36(2), 185–194. <https://doi.org/10.1016/j.ctrv.2009.11.003>
- Statistics Canada. (2016). *Population and dwelling count highlight tables, 2016 census*. <https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/hlt-fst/pd-pl/Table.cfm>
- Steins Bisschop, C. N., Velthuis, M. J., Wittink, H., Kuiper, K., Takken, T., van der Meulen, W. J. T. M., Lindeman, E., Peeters, P. H. M., & May, A. M. (2012). Cardiopulmonary exercise testing in cancer rehabilitation. *Sports Medicine*, 42(5), 367–79. <https://doi.org/10.2165/11598480-000000000-00000>
- Sumalla, E. C., Ochoa, C., & Blanco, I. (2009). Posttraumatic growth in cancer: Reality or illusion? *Clinical Psychology Review*, 29(1), 24–33. <https://doi.org/10.1016/j.cpr.2008.09.006>
- Sundler, A. J., Lindberg, E., Nilsson, C., & Palmér L. (2019). Qualitative thematic analysis based on descriptive phenomenology. *Nursing Open*, 6(3), 733–739. <https://doi.org/10.1002/nop2.275>
- Tanaka, H., Monahan, K. D., & Seals, D. R. (2001). Age-predicted maximal heart rate revisited. *Journal of the American College of Cardiology*, 37(1), 153–156.
- Thomas-MacLean, R. (2004). Memories of treatment: The immediacy of breast cancer. *Qualitative Health Research*, 14(5), 628–643. <https://doi.org/10.1177/1049732304263658>
- Toohy, K., Pumpa, K., McKune, A., Cooke, J., Welvaert, M., Northey, J., Quinlan, C., & Semple, S. (2020). The impact of high-intensity interval training exercise on breast cancer survivors: A pilot study to explore fitness, cardiac regulation and biomarkers of the stress systems. *BMC Cancer*, 20(1), 787. <https://doi.org/10.1186/s12885-020-07295-1>
- Ussher, J., Kirsten, L., Butow, P., & Sandoval, M. (2006). What do cancer support groups provide which other supportive relationships do not? The experience of peer support groups for people with cancer. *Social Science and Medicine*, 62(10), 2565–2576. <https://doi.org/10.1016/j.socscimed.2005.10.034>
- Williams, G. R., Pisu, M., Rocque, G. B., Williams, C. P., Taylor, R. A., Kvale, E. A., Partridge, E. E., Bhatia, S., & Kenzik, K. M. (2019). Unmet social support needs among older adults with cancer. *Cancer*, 125(3), 473–481. <https://doi.org/10.1002/cncr.31809>
- Wurz, A., St-Aubin, A., & Brunet, J. (2015). Breast cancer survivors' barriers and motives for participating in a group-based physical activity program offered in the community. *Supportive Care in Cancer*, 23(8), 2407–2416. <https://doi.org/10.1007/s00520-014-2596-2>

## Appendix A

### Exercise Program

#### Program Duration

Participants met twice a week to either receive an exercise program in groups (PE, NL, and NS) performed in a circuit manner, or individually performed (NB). In NB, participants met at the YMCA and received regular membership access to the facilities. In PE participants met in the Kinesiology teaching and research labs at the University of Prince Edward Island. Participants in NL met at the fitness facility at the Memorial University of Newfoundland and received a membership to the facility after the program was completed to facilitate maintenance. Participants in NS met at the Dalhousie teaching hospital or community-based exercise facilities. During each session, participants followed their individualized, prescribed exercise program designed by the facilitators.

#### Program Details

The programs were designed to be specific to each participant's goals, considering how recently their surgery was, if and when they had radiation, if they had or were at risk of lymphedema, and if they had bone metastatic disease.

Recommendations for exercise were based on the Canadian Physical Activity Guidelines ([http://csep.ca/CMFiles/Guidelines/CSEP\\_PAGuidelines\\_0-65plus\\_en.pdf](http://csep.ca/CMFiles/Guidelines/CSEP_PAGuidelines_0-65plus_en.pdf)): twice weekly resistance training and 150 minutes of moderate intensity exercise per week. All trainers in NS completed the Thrive Health - Cancer & Exercise Training certification (<https://thrivehealthservices.com/professionals/certification/>). Resistance training recommendations were 2-3 sets of 10-12 reps of major muscle groups. Several factors were considered when determining the load and exercises such as if they:

- had a recent mastectomy (within the past 3 months)
- finished radiation therapy (within the past 3 months)
- Had reduced range of motion (strength exercises above 90 degrees were to be avoided)
- had lymphedema (they must wear a compression garment when doing resistance training and ensure gradual progression of weight)
- had bone metastases (exercise/positioning were dependent on the type/severity/location of the bone mets)

Very gradual strength training of the upper extremity was encouraged. Use of free weights was encouraged to prevent compensatory patterns. To meet the recommendations for the aerobic portion of the session, participants in NB were provided with instruction on how to work up to that amount as required. A heart rate for moderate intensity was the target (as per, Tanaka et al., 2001)

### Author Note

Yvonne Anisimowicz is a Ph.D. student in Experimental Psychology at the University of New Brunswick. Please address correspondence to [y.anisimowicz@unb.ca](mailto:y.anisimowicz@unb.ca).

Lauren Rudy is a Ph.D. student in Clinical Psychology at the University of New Brunswick. Please address correspondence to [lrudy@unb.ca](mailto:lrudy@unb.ca).

Dr. Ryan Hamilton is an associate professor of Psychology at the University of New Brunswick. Please address correspondence to [rhamilto@unb.ca](mailto:rhamilto@unb.ca).

Dr. Erin McGowan is an associate professor in the School of Human Kinetics and Recreation at Memorial University. Please address correspondence to [emcgowan@mun.ca](mailto:emcgowan@mun.ca).

Dr. Travis Saunders is an associate professor of Applied Human Science at the University of Prince Edward Island. Please address correspondence to [trsaunders@upe.ca](mailto:trsaunders@upe.ca).

Dr. Melanie Keats is a professor in the School of Health and Human Performance (Division of Kinesiology) at Dalhousie University. Please address correspondence to [Melanie.Keats@Dal.Ca](mailto:Melanie.Keats@Dal.Ca).

Dr. Scott Grandy is an associate professor in the School of Health and Human Performance (Division of Kinesiology) and Pharmacology at Dalhousie University. Please address correspondence to [Scott.Grandy@Dal.Ca](mailto:Scott.Grandy@Dal.Ca).

Courtnei Soucy is an alumna of the University of New Brunswick with a master's degree in Kinesiology. Please address correspondence to [courtnei.soucy@unb.ca](mailto:courtnei.soucy@unb.ca).

Dr. Danielle R. Bouchard is an associate professor in the faculty of Kinesiology at the University of New Brunswick. Please address correspondence to [dbouchal@unb.ca](mailto:dbouchal@unb.ca).

**Acknowledgements:** We would like to thank all our program facilitators as well as our participants, for their hard-work, cooperation and team spirit. We would also like to thank Jennifer McWilliams for help structuring the original draft of the manuscript.

**Funding:** This work was supported by Ultramar in partnership with the Quebec Breast Cancer Foundation and the New Brunswick Health Research Foundation under the Health Research Value Demonstration Initiative Grant (2018- HRSI1401).

**Conflicts of Interest:** The authors have no relevant interests to disclose.

**Compliance with Ethical Standards:** This study was approved by the Research Ethics Boards of the University of New Brunswick (#2018-045), the University of Prince Edward Island (#6007728), Dalhousie University (#1023682) and Memorial University of Newfoundland (#0190515). Written informed consent was obtained from all participants.

**Authors' Contributions:** The study conception and design were developed by D.B., R.H., J.O., E.M., T.S., M.K., and S.G. Materials were prepared by D.B., R.H., Y.A., C.S., E.M., M.K., S.G., and T.S. Data collection (interviews and transcription) was conducted by Y.A., L.R., R.H., C.S., D.B., E.M., M.K., S.G., and T.S. Data analysis was conducted by Y.A., L.R., and R.H. The manuscript draft was written by Y.A., L.R., and R.H. Comments on and suggestions for the manuscript were written by E.M., T.S., M.K., S.G., and D.B.

Copyright 2021: Yvonne Anisimowicz, Lauren Rudy, Ryan Hamilton, Courtnei Ruth-Anne Soucy, Danielle Bouchard, Erin McGowan, Travis Saunders, Melanie Keats, Scott Grandy, and Nova Southeastern University.

### Article Citation

Anisimowicz, Y., Rudy, L., Hamilton, R., Soucy, C. R.-A., Bouchard, D., McGowan, E., Saunders, T., Keats, M., & Grandy, S. (2021). Experiences of an exercise program: Perspectives from breast cancer survivors. *The Qualitative Report*, 26(8), 2479-2501. <https://doi.org/10.46743/2160-3715/2021.4824>

---