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Safety, feasibility, and efficacy of a community exercise training program on a group of breast cancer survivors: preliminary data.

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PALAVRAS-CHAVE: EXERCÍCIO, PROGRAMA COMUNITÁRIO, DOENTE ONCOLÓGICO, CANCRO DA MAMA.

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Resumo

De acordo com as Estatísticas Globais do Cancro 2020, o cancro da mama é a principal causa de tumores nas mulheres em todo o Mundo e na Europa, sendo que a incidência do cancro da mama está a crescer em todas as faixas etárias. Nos diferentes tipos e estadios do cancro da mama são utilizadas diferentes abordagens de tratamento, onde o objetivo principal é a cura, o aumento da sobrevida e a melhoria da qualidade de vida. No entanto, muitos tratamentos têm efeitos colaterais significativos que podem afetar a qualidade de vida. O exercício melhora a qualidade de vida nos pacientes em tratamento do cancro da mama. Desta forma, tem-se verificado um aumento de programas comunitários de exercício em grupo para os sobreviventes que mostram que os programas comunitários de exercício ativo são seguros, proporcionando benefícios fisiológicos e psicossociais.

O objetivo deste estudo foi avaliar a segurança, a viabilidade e a eficácia de um programa permanente de oncologia comunitária em Portugal, sem data de término, de forma a melhorar a qualidade de vida dos participantes.

Foram incluídos no programa 24 participantes (n=24), onde realizaram avaliações periódicas e aulas supervisionadas 2x por semana com a implementação de um plano de treino (força e aeróbico), modificado a cada 3 meses. Estas participantes, tinham acesso a consultas de medicina e de medicina física e reabilitação sempre que apresentassem queixas significativas devido ao treino ou medicação.

Os resultados mostram que a circunferência do abdominal diminuiu de 93,2 cm para 91,0 cm, no teste de potência muscular sentar-levantar (STS), verificou-se um aumento do número de repetições do primeiro para o segundo momento de avaliação, de 19,5 para 22,5 repetições, por fim, no Incremental Shuttle Walk Test (ISWT) passaram de 8,9 para 9,2 níveis completos.

É possível concluir que o programa ajudou na diminuição dos perímetros e no aumento de força muscular, o que pode significar uma diminuição da incidência de doenças associadas à obesidade e à perda de massa muscular, respetivamente, afetando assim a qualidade de vida.

PALAVRAS-CHAVE: EXERCÍCIO, PROGRAMA COMUNITÁRIO, DOENTE ONCOLÓGICO, CANCRO DA MAMA.

Abstract

According to the Global Cancer Statistics 2020, breast cancer is the leading cause of tumors in women worldwide and in Europe, the incidence of breast cancer is growing in all age groups. In different types and stages of breast cancer, different treatment approaches are used, where the main objective is cure, increased survival, and improved quality of life. Many breast cancer treatments have significant side effects that can affect quality of life. As evidence mounts about the purpose of exercise in breast cancer treatment, community group exercise programs for cancer survivors have increased globally and we can see that community active exercise programs are safe, providing physiological and psychosocial benefits.

The objective of this study was to evaluate: the safety, feasibility and efficacy of a permanent community oncology program with no end date and considering that the biggest flaw is specialized and multidisciplinary professional monitoring and the long-term retention of this type of participants in an active lifestyle program It's healthy.

The program included 24 participants (n=24), who received periodic assessments and supervised sessions twice a week with the implementation of a training plan (strength and aerobic) that was adjusted every 3 months. When a participant has substantial complaints about the training or any medication, they are referred to a physician and physical medicine and rehabilitation consultation.

Analyzing all the variables, the ones that stood out most were: abdominal circumference, which ranges from 93.2 cm to 91.0 cm; in the Sit-to-Stand (STS) muscle power test, where they performed 19.5 repetitions in the first moment and 22.5 repetitions in the second evaluation moment; Finally, in the Incremental shuttle walking test (ISWT) they went from 8.9 to 9.2 complete levels.

The program helped to reduce perimeters and increase muscle strength respectively, which can reduce the incidence of diseases associated with obesity and loss of muscle mass, thus affecting quality of life.

KEYWORDS: EXERCISE, COMMUNITY PROGRAM, CANCER PATIENT, BREAST CANCER.

Introduction

According to the Global Cancer Statistics 2020, breast cancer is the leading cause of tumors in women worldwide [1]. In Europe, the incidence of breast cancer is growing in all age groups, which seems to be explained by the wide implementation of cancer screening programs and by risk factors such as the aging of the population, declining fertility, the use of estrogen replacement therapy, contraceptive pills, late pregnancy or nonpregnancy, changes in the lifestyle of the female population, with an increase in alcohol or tobacco consumption and an increase in high-fat/obesity [2, 3]. Meanwhile, because of advances in medical technology, the early diagnosis and an excellent breast cancer screening and treatment, an increasing number of breast cancer patients are living for an extended period [4]. There are four breast cancer subtypes identified, the luminal A and luminal B (expressing the estrogen receptor (ER)), basal-like, and human epidermal growth factor receptor 2 (HER2)-enriched (no ER expression)[5], which can be detected at different stages. For the different types or stage of cancer different treatment approaches or different treatment conjugations can be used: surgery (mastectomy and lumpectomy/ conservative surgery), radiation therapy, systemic therapy (chemotherapy and hormonotherapy), and immunotherapy [6]. All of them have the main objective of healing, increasing survival, and improving quality of life.

In 2018, an estimated 6.8 million people globally survived breast cancer diagnosed over the previous five years [7]. While this represents a huge success due to timely and effectiveness of therapies, many breast cancer patients will experience significant long-term physical and psychological side effects of their treatments that can impact many aspect of their health and quality of life [8] [9]. For instance, hormone therapy can result in hot flashes as the main common side effect, with Tamoxifen and regimens based on ovarian suppression, the Aromatase inhibitors often translate into joint pain (arthralgias), vaginal dryness and dyspareunia [10-12]. Chemotherapy causes two different types of toxicities, the acute and chronic toxicity. In acute toxicities the most common side effects are nausea, fatigue, and sarcopenia. In chronic toxicity it is common to find reports of infertility, cardiotoxicity, neuropathy, functional impairments, and poor bone health [8, 13-15]. Regarding local therapies, namely surgery and

radiotherapy, they both can cause nerve damage to the long thoracic, thoracodorsal, intercostobrachial nerves, and lymphedema [16]. Given these huge implications, the evaluation of patient-reported outcomes related to toxicity and quality of life is becoming more widely recognized as a crucial component of oncology research that can help influence personalized clinical decision-making [5].

It is known that physical activity decreases the risk of chronic diseases and, potentially, some side effects of cancer treatments. Furthermore, it may improve prognosis, survival rate after cancer treatment, quality of life, psychological health, physical fitness, and functioning [17, 18]. Physical activity is described as anybody activity that requires energy (such as daily activities). On its turn, physical exercise refers to a type of physical activity that is planned, structured, and repeated in time, with the specific purpose of improving physical fitness and/or overall health [19]. Exercise has been found to be practical and safe in breast cancer patients and survivors during and after treatments such as chemotherapy and/or radiotherapy [20, 21], with recommendations evolving over time as more knowledge was accumulated. In 2009, the American College of Sports Medicine (ASCM) brought together a multidisciplinary team composed by oncologists and exercise experts to design a set of exercise guidelines for cancer survivors. Although there weren't many studies at that time, these experts agreed about the benefits of physical activity and exercise for cancer patients and adopted the 2008 physical activity guidelines that recommend 150 minutes of aerobic activity per week in adults with chronic conditions [18, 22]. Since 2010, the number of studies increased by 281%. Therefore, in 2018 the ASCM International, a multidisciplinary roundtable on Physical Activity and Cancer prevention and control, held a new meeting with 40 representatives from 20 organizations from around the world, with the goal to establish the exercise's role in cancer prevention and control, the exercise's efficacy in improving cancer-related health outcomes (acute, late, and long-term impacts), and finally translate evidence into clinical and community settings [18, 23, 24]. To make the process easier, the evidence used to inform each exercise prescription was derived from high-quality systematic reviews and meta-analyses, which frequently included separate analyses on the effectiveness of FITT components in identifying the most optimal type of exercise, time, intensity, or frequency to improve a given

outcome [18]. Following the of FITT principle (frequency, intensity, time, type) it was concluded that benefits can be obtained when using 3 types training: aerobic, resistance, and aerobic + resistance. Moderately intensity aerobic training 3x per week, not less than 30 minutes, lasting at least 8 to 12 weeks and adding resistance training to aerobics, 2x per week following 2 sets of 8 to 15 sessions has been shown to result in health-related improvement [18]. The experts also concluded that, while the majority of the available evidence on the safety and efficacy of exercise during and after cancer treatment comes from randomized controlled clinical trials of supervised and/or prescribed exercises at home and trials in breast cancer survivors, the effects were stronger for supervised exercise [25, 26]. Finally, exercise-based interventions were found to positively helps to manage Anxiety, Depressive Symptoms, Fatigue, Health-related Quality of Life, Lymphedema, Physical Function, Bone Health, Sleep, Cardiotoxicity, Chemotherapy induced peripheral neuropathy, Cognitive function, Falls, Nausea, Pain, and Sexual Function [18].

Cancer survivors should exercise because it reduces treatment adverse effects and promotes overall heath. However, these patients often lack from options about appropriate places to safely exercise and professionals with the required training to deal with their health challenges. Mounting evidence is supporting the utility of community group exercise programs for cancer survivors. Available data suggest that community exercise programs are safe and effective in providing some physiological and psychosocial benefits [27] but the offer of these programs to patients remains very limited as many barriers exist to exercise program implementation in community setting [28]. In a recent scope review, an analysis of a total of 58 publications describing 34 individual programs from around the world concluded these programs are typically delivered for only a limited period (4 weeks to 12 months) and are commonly operated within public exercise facilities (62%) such as community centers, or private fitness studies/center [28]. Of note, these programs were mostly based on USA and Canada (74%) which means that cancer patients from around the world, including Portugal, are in need for community-based programming for survivors of cancer to provide a safe and effective space for exercise in line with published guidelines [28]. Also, although most programs have the support of several teams, a multidisciplinary team is missing, with periodic meetings to discuss the progress of patients since entering

the program or any type of adverse events to be referred to a medical team, systematic estimates of the physical and cardiovascular component, provisions in the training plan to monitor the evolution/regression of the disease (due to side effects), funding protocols, so that community programs are successful [29]. The biggest gap in the success of these programs will be the socio-economic fact. Partnership and collaboration between existing community exercise facilities and exercise professionals, clinicians, oncology services and hospitals, and not-for-profit or charitable organizations appear to be important factors for the development and successful and sustainable delivery of community-based exercise programs based on the available literature [29].

The MamaMoves Community Program is a program that was created translate exercise programming beyond controlled settings and into the community to truly improve cancer survivors' health and well-being. It is targeting breast cancer survivors who finished treatment at least a month ago. It has an initial duration of 8 free weeks and after 8 weeks, they are forwarded to existing classes where the classes have no end date. This community program operates at SOLINCA CLASSIC GAIA (Health Club), in Vila Nova de Gaia, Portugal, in partnership with ONCOMOVE, a program of AISCO (Association for Research in Supportive Care in Oncology) and Centro Hospitalar Vila Nova of Gaia and Espinho.

Participants in the MamaMoves Community carry out assessments consisting of a battery of physical fitness tests, bioimpedance, shoulder joint mobility and balance tests. These assessments are carried out at the start of the 8 free weeks, again when moving to the transition class after 8 weeks and at the continuation of the program every 6 months, when they move to the maintenance classes. They perform supervised exercises with exercise physiologists specialized in oncological exercise. The program has a frequency of 2x per week (strength and aerobic training), where attendance, reports of adverse effects and pain due to hormone therapy are recorded. In addition to the practical component, a multidisciplinary team meets weekly, made up of exercise physiologists, oncology doctors and nurses, and physical rehabilitation medicine with the aim of discussing new students entering the program, such as some adverse events that may occur during the training week of these same patients. In this study, we intend to perform a preliminary assessment of the program, in terms of its safety, feasibility and efficacy.

Methods

Study Design

We used a longitudinal study design that spanned a 24-week community exercise training program at the Solinca Gaia Classic (Health Club) in Vila Nova de Gaia, Portugal. This initiative was conducted in collaboration in partnership with ONCOMOVE, a program under the Association for Research in Supportive Care in Oncology (AISCO) and the Centro Hospitalar Vila Nova of Gaia and Espinho (CHVNG/E) in Portugal. Two assessments were conducted over the course of the study: an initial assessment at baseline, and a follow-up assessment after 24 weeks of exercise training. A schematic representation of the study protocol is depicted in Figure 1.

Study population

The study included cancer patients who meet the following criteria: (1) Female breast cancer aged > 18 years old; (2) Completed the primary surgical treatments associated or not with radiotherapy and/or chemotherapy, of which the last treatment must have finished more than 1 month ago; (3) Participants may be under hormone therapy or anti-HER2 targeted therapy in adjuvant context (i.e., after surgery); (4) Having undergone a consultation in Physical Medicine and Rehabilitation consultation. Exclusion criteria included: (1) having criteria for cardio-oncological rehabilitation or (2) oncological recurrence.

Recruitment, screening procedures

Patients who were enrolled in the Mama Move Gaia Comunidade long-term community exercise program were invited to participate in this longitudinal study. These patients have been recommended to the exercise program by physicians from the Oncology Service of the Vila Nova de Gaia Hospital Center. Before being enrolled in the exercise program, every participant had a preliminary consultation with a physical medicine and rehabilitation doctor to assess their suitability for participation. Thereafter, the exercise physiologists program reviewed the clinical data and conducted a comprehensive assessment, which included evaluations of physical fitness and functional capacity. The exercise program started

accepting referrals in 29/08/2019. Patients received invitations to participate in this study in September 2023. The evaluations were conducted in October 2022 and April 2023.

Safety and Feasibility

Adverse events and complications related to exercise during the intervention were recorded during the intervention period. The following outcomes were used to assess the feasibility of the study: (1) Completion rate defined as the number of patients who completed both evaluations that were planned within the specified timeframe. (2) Adherence to the intervention defined as the total number of exercise sessions attended by the participants relative to the number of prescribed exercise sessions by the exercise physiologists. A successful adherence rate was defined as attending to >80% of the planned exercise sessions. The reasons for abandoning the study were recorded [30, 31].

Assessments

Demographical data (age and sex) and clinical history were obtained through the participant (type of cancer, type of surgery, treatments, time elapsed since cancer diagnosis, comorbidities, medication).

Body Composition measurements such as abdominal circumference and body mass index (BMI). The abdominal circumference which is measured by positioning the tape measure at the midpoint between the last two ribs and the upper part of the iliac bone, it is necessary to pass the tape around the navel, wrapping the entire diameter of the body around this area. were taken, and body mass index (BMI) was determined from body weight and height. Electrical bioimpedance was also used to calculate the percentage of body fat mass and lean mass [30, 32].

The *Arm Curl Test* is a test of upper body strength designed to test the functional fitness of seniors. It is part of the Senior Fitness Test and the AAHPERD Functional Fitness Test [33]. The participant was instructed to sit on a chair with her back straight, feet on the floor and the dominant side of the body close to the edge of the chair. The participant held the dumbbell with his dominant hand, using a handshake grip. The test started with the arm extended near the chair,

perpendicular to the floor. The test began with the arm extended close to the chair and perpendicular to the ground. At the indicative signal, the participant was instructed to turn her palm upward while flexing the arm through full range of motion and then return the arm to a position completely extended. The subject was encouraged to perform as many repetitions as possible in 30 seconds. After the demonstration, the participant was asked to perform one or two repetitions to verify proper execution, followed by testing. The test was performed on the dominant and non-dominant arms.

The *Sit to stand (STS)* muscle power test is an easy, portable, and inexpensive procedure for evaluating muscle power [34]. The participant was informed to cross her arms with the middle finger towards the acromion. At the signal, the participant rose to a full standing position and then returned to the sitting position. The participant was encouraged to complete as many standing fully and sit-down actions as much as possible in 30 seconds. The analyzer performed once to demonstrate the test so that the participant had an appropriate learning. The test was performed once. The score was obtained by the total number of correct executions in a 30-second interval. If the participant was halfway through the lift at the end of the 30 seconds, this was counted as an execution. For safety reasons, the chair was placed against a wall, or otherwise stabilized, preventing it from moving during the test.

The *Incremental Shuttle Walk Test (ISTW)* is a simple and inexpensive test which evaluates maximal exercise capacity based on the distance walked around a 10 m course according to different speeds dictated by an audio signal. This exercise test has been used to predict mortality and morbidity in patients with chronic respiratory and other diseases, to predict aggravation in patients with pulmonary disorders, to assess intervention benefits, and to detect oxygen desaturation during exertion [35].

Interventions

Participants were placed into a gym group exercise program. The exercise program included two 45-min exercise sessions per week. Each exercise session consisted of 4 components, including 5 minutes of warm-up and joint mobility exercises, a first 4-min cardiovascular training circuit, 30 minutes of strength

training and a second 6-min cardiovascular training. The cardiovascular training consisted of walking and body weight calisthenic exercises performed in a stable floor or step. The strength component consisted of a circuit training composed of 4 exercises for upper limbs, lower limbs, and core muscles, using body weight, dumbbells, and elastic resistance bands. Each exercise included 3 sets of 12 to 15 repetitions. Exercise intensity and resistance were gradually increased as tolerated. Exercises were changed after 3 months, but frequency, duration, intensity, and volume remained unchanged during the transition between exercise plans.

Statistical analysis

To compare the differences in outcomes between the first and second assessments, we used a paired samples *t*-test for within-group comparisons. The continuous variables are expressed as the means and standard deviations, whereas the categorical variables are presented as counts and percentages. The level of significance was set as a *p*-value less than 0.05. All analyses were conducted with SPSS version 24.0 (SPSS Inc).

Results

Twenty-nine women accepted the invitation to participate (63.3± years, min: 49, max: 78). Of the 29 participants, only 24 completed both assessment moments. Of the 5 participants who did not complete at least one assessment, 3 did not complete the first evaluation due to health reasons and 2 interrupted the program for professional reasons. Only data from participants who completed the 2 assessments was used for the current study.

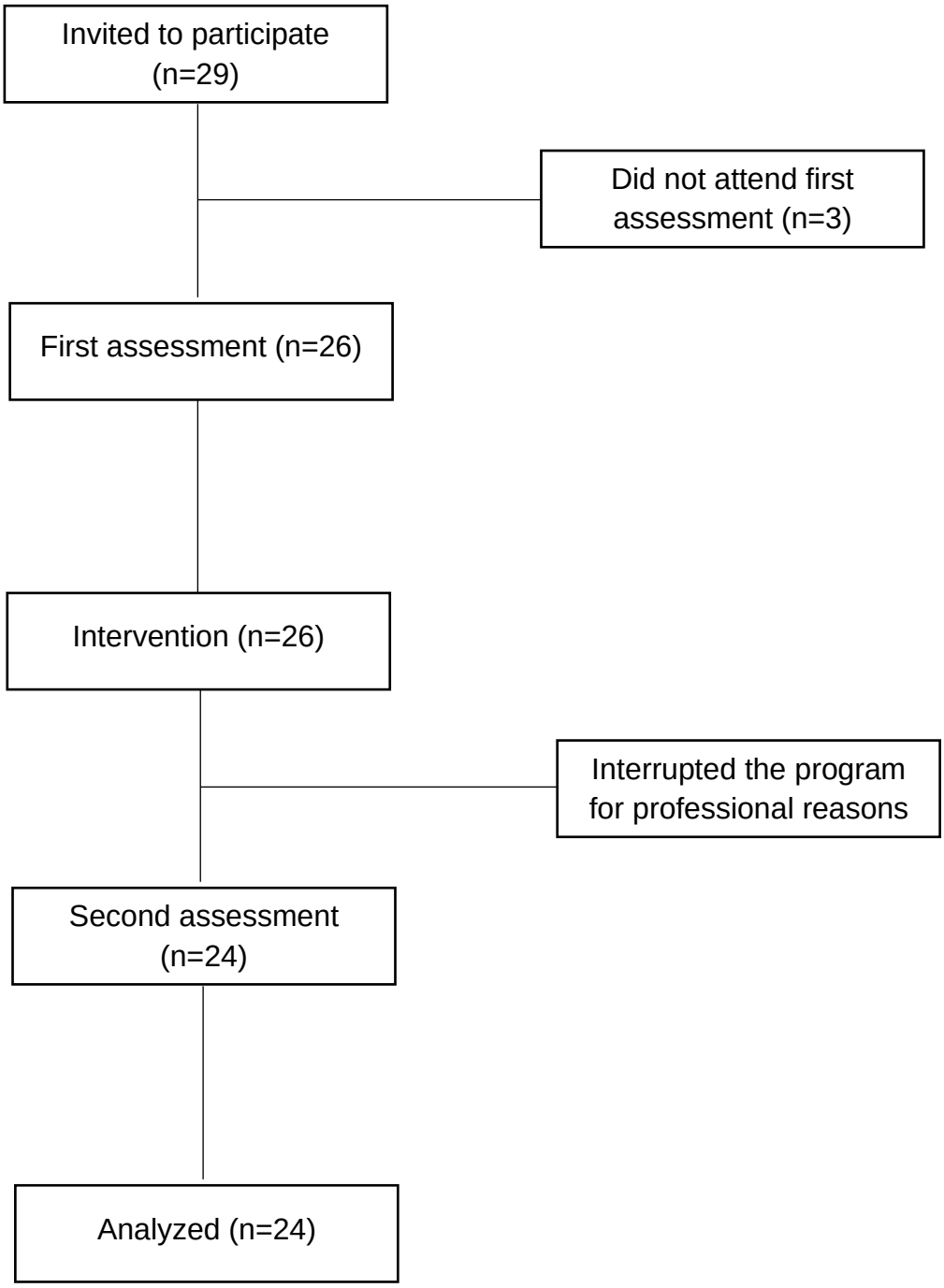

Figure 1: Study flowchart.

With respect to participant's medical history (Table1), 18 participants (75%) underwent mastectomy, 7 (29.2%) underwent Tumorectomy and 16 (66.7%) underwent Sentinel Node Biopsy. Furthermore, 20 participants (83.3%) underwent chemotherapy, 16 (66.7%) received radiotherapy, and 21 (87.5%) were treated with hormone therapy, regarding hormone therapy, 12 patients (57.14%) were treated with Aromatase Inhibitors and 9 participants (42.85%) with Tamoxifen.

We observed an adherence rate of 72.5%, and an average completion rate of 83%. No adverse events or complications related to exercise were reported during the intervention.

Table 1: General characterization of the sample.

Number of Participants (Women)	**24 (24)**
Age (years)	**64.7±8.9**
Chemotherapy (yes, %)	20 (83.3%)
Radiotherapy (yes, %)	16 (66.7%)
Hormonotherapy (yes, %)	21 (87.5%)
Tamoxifen	12 (57.14%)
Aromatase inhibitors	9 (42.85%)
Surgery (yes, %)	
Mastectomy	18 (75.0%)
Tumorectomy	7 (29.2%)
Sentinel Node Biopsy	16 (66.7%)

The effect of the program on body composition and physical fitness parameters is shown in Table 2. No significant changes across time were detected for weight, BMI, fat mass, muscle mass, hip circumference, upper limb strength, or aerobic capacity. However, a significant reduction was observed in abdominal circumference (93.2 vs. 91.0 cm, p=0.013) and an improvement in lower limb strength as assessed by the Sit to Stand (STS) muscle power test (19.5 vs. 22.5 repetitions, $p<0.001$).

Table 2: The impact of the program on anthropometric, body composition and physical fitness parameters.

N=24				
Variable	Before training	After training	Mean Difference	*p*
Weight(kg)	69.2±11.3	69.2±11.1	-0.0±2.8	0.971
IMC (kg/m^2)	27.2±7.0	27.2±7.0	-0.1±9.3	0.979
Fat mass (%)	40.3±5.6	39.4±5.6	-0.9±2.7	0.133
Muscle mass (%)	25.3±2.5	25.8±2.6	0.5±1.6	0.148
Abdominal circumference (cm)	93.2±11.6	91.0±11.8	**-2.3±4.1**	**0.013**
Hip circumference (cm)	104.9±9.4	103.6±9.6	-1.3±4.1	0.140
Dominant upper limb strength (reps)	19.5±4.0	19.7±3.8	0.3±2.8	0.669
Non-dominant upper limb strength (reps)	19.9±4.5	20.7±4.0	0.8±3.8	0.305
Lower limb strength (reps)	19.5±5.7	22.5±5.0	**3.0±3.5**	**<0.001**
Aerobic Capacity (levels)	8.9±1.2	9.2±1.1	0.2±0.6	0.087
Aerobic Capacity (meters)	619.6±129.8	645.8±123.6	26.3±80.2	0.123

Discussion

The objective of this study was to investigate the safety, feasibility, and efficacy of a community exercise program with no end date after the intervention of a training program in conjunction with a multidisciplinary team and in a community context, where participants are breast cancer survivors after treatment. Our data suggest that the community program is safe, is feasible, and improves some aspects of physical fitness.

Long term side effects of breast cancer treatment have a very important impact on the survival and quality of life of breast cancer survivors [36]. Given the benefits that a tailored exercise prescription may exert for cancer patients, particularly in survivors [18] it is urgent to provide condition for them to exercise in a safe and effective manner. Most programs carried out in the context of exercise and breast cancer take place in hospitals, or research centers, and their length is usually short. Expanding the dissemination of exercise programs from controlled environments to the wider community is imperative for truly enhancing the health and well-being of cancer survivors. According to a recent review community exercise training programs are safe and effective for several outcomes, but more than 70% were programs in the United States and Canada [37]. It is therefore urgent to address the safety, feasibility, and efficacy in other contexts.

Regarding the safety of the program, the absence of adverse events in our community exercise program supports its safety, which agrees with data from the literature, annihilating the argument that community programs are not safe outside the context of a clinical trial, in a hospital context or in a research center. [29]. We believe this could be in part explained by the initial screening of our program (guaranteeing that patients with contraindications to exercise are not included), by the prescription of tailored exercises intensity, by the participation of exercise physiologists with specific background on exercise and oncology, plus the weekly multidisciplinary team meeting that allowed the discussion of new patients entering the program.

About feasibility, one of the biggest challenges in implementing a community program is the geographic distance where the program takes place, as it involves

patients being referred to the program, being evaluated and having to be monitored, which translates into often at an obstacle. Therefore, we wanted to understand whether this program located in that region was feasible or not, and to resolve fears regarding the exercise. Our data showed a retention rate of 82.7%, which means that of the 29 participants, 24 completed the program. Regarding the adherence rate, we found that despite the rate being defined as >80%, participants only reached 72.5%. However, it must be highlighted that exercise session's missing was usually because of medical reasons (e.g., oncology consultations) and a few related to professional and personal reasons. Regarding the completion rate of the two evaluation moments within the pre-established dates, we found that this rate is around 100%, as everyone completed the evaluation process. Overall, we think it is fair to consider our community exercise training program as feasible.

Previous studies have shown that physical exercise is effective in improving physical fitness components, including aerobic capacity, upper and lower body strength, and body composition [38, 39]. The literature also supports that supervised, and group physical exercise are more effective than unsupervised exercises [40]. Our community exercise program promoted significant improvements from the preintervention to the postintervention assessment in health-related physical fitness parameters such as abdominal circumference and lower limb strength. These findings align with the growing body of recent research demonstrating substantial post-treatment advantages of exercise for individuals who have survived cancer [18]. Of note, the weight remained stable. This is very important as excessive weight gain that may follow breast cancer treatment elevate the risk of breast cancer recurrence, as well as the onset of other chronic conditions, ultimately contributing to higher all-cause and breast cancer-related mortality rates [41].

Study limitations

It should be noted that this program could be more successful if, within the multidisciplinary team, a nutritionist was present to evaluate and implement a dietary plan depending on each participant's individual needs, as we do in the training plans. One point for improvement would also be to insert a class schedule

in an after-work context. Because, if we check withdrawals for professional reasons, the schedules are not compatible. Class times take place on weekdays (two) at the start of the afternoon from 2:15pm - 3:00pm or 3:00pm - 3:45pm, which is not compatible with most companies.

Conclusion

Our data suggest that supervised community exercise program and a multidisciplinary team is safe and can boost participant adherence and lead to improvements in physical fitness. Given the practicality and safety of an exercise program in a community setting, as well as the beneficial outcomes of the intervention, similar projects should be encouraged.

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Appendix

Ficha de Avaliação – MAMAMOVES (Parte 1)

DATA		**TURMA:**	

Nome		**Nº Processo:**	
Data de Nascimento		**Nº Sócio:**	
Idade		**Telemóvel:**	

Hábitos de Treino	

Histologia				**Reconstrução Mamária**		Imediata
Lateralidade		Direita				Diferida
		Esquerda				Redução Mamária
		Bilateral				TRAM
Braço Dominante:						DIEP
Cirúrgia		Conservadora	DATA:			TUG
		Mastectomia	DATA:			Simetrização
		Pesquisa do Gânglio Sentinela (PGS)	DATA:			Expansor
		Esvaziamenento Axilar	DATA:			Prótese

	LESÃO DOS NERVOS:
	Torácico longo (motor) - paralisia do serratus anterior
	Toracodorsal (motor) - paralisia do grande dorsal – escápula alada (omoplata protusada – limitação ombro)
	Intercostobraquial (sensitivo) - dormência da porção lateral da axila e face medial do braço (mais frequente)
	Linfedema: Edema do braço e mão causada pelo acumular fluído linfático nos tecidos moles

Radioterapia		Neoadjuvante	
		Adjuvante	
	Data Final:		
		Sessões Totais	
		Toxicidades Agudas	
		Toxicidades Subagudas/crónicas	

Quimioterapia		Neoadjuvante	
		Adjuvante	
	Data Final:		
		Antraciclinas	(Toxicidade cardíaca, náuseas e vómitos, alopécia total)
		Taxanos	(Neuropatia periférica, alopécia total, aplasia medular, mialgias, alterações das unhas)

Hormonoterapia	Data início:		platinos???
		Tamoxifero:	
		Letrozol	
		Goserrelina	
		Exemestan	
		Anastrozol	

Antecedentes Pessoais		Patologia Cardíaca	Qual?
		Diabetes Mellitus	Insulina?
		Hipertensão	Beta-bloqueante?
		Doença Pulmonar	
		Défice Cognitivo	
		Deficiência Visual	
		Deficiência Auditiva	
		Osteoporose	
		Patologia Osteoarticular	Qual?
		Outra:	

Ficha de Avaliação – MAMAMOVES (Parte 2)

DATA:					
	Pressão Arterial Sistólica:				
	Pressão Arterial Diastólica:		TEST CARDIO ISWT		
	FC Repouso:				
	ALTURA:		FLEXÃO DO COTOVELO (30SEG -> 2KG)	Direito	
	PESO:			Esquerdo	
	IMC:				
	MG:		30''SIT&STAND TEST:		
	MM:				
	GV:				
Perimetros	Cintura:				
	Anca:				

DATA:					
	Pressão Arterial Sistólica:				
	Pressão Arterial Diastólica:		TEST CARDIO ISWT		
	FC Repouso:				
	ALTURA:		FLEXÃO DO COTOVELO (30SEG -> 2KG)	Direito	
	PESO:			Esquerdo	
	IMC:				
	MG:		30''SIT&STAND TEST:		
	MM:				
	GV:				
Perimetros	Cintura:				
	Anca:				

DATA:					
	Pressão Arterial Sistólica:				
	Pressão Arterial Diastólica:		TEST CARDIO ISWT		
	FC Repouso:				
	ALTURA:		FLEXÃO DO COTOVELO (30SEG -> 2KG)	Direito	
	PESO:			Esquerdo	
	IMC:				
	MG:		30''SIT&STAND TEST:		
	MM:				
	GV:				
Perimetros	Cintura:				
	Anca:				