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PHYSICAL ACTIVITY IN WOMEN AFTER BREAST CANCER TREATMENT: AN ASSESSMENT STUDY

Dariusz Nędza *(Corresponding Author, Email: mcnedza@gmail.com)*
Regional Hospital No. 3 in Rybnik, Rybnik, Poland
ORCID ID: 0009-0003-6220-2214

Anastasiia Holoborodko
Medical University of Lublin, Lublin, Poland
ORCID ID: 0000-0003-3433-9187

Ewa Wieczorkiewicz
Medical University of Lublin, Lublin, Poland
ORCID ID: 0009-0009-9828-1456

Eliza Garbacz
Jan Kochanowski University, Kielce, Poland
ORCID ID: 0009-0009-2647-5884

Agnieszka Pocheć
Jan Kochanowski University, Kielce, Poland
ORCID ID: 0009-0009-0258-8032

Bartosz Lautenbach
Antoni Jurasz University Hospital No. 1 in Bydgoszcz, Bydgoszcz, Poland
ORCID ID: 0009-0002-8008-156X

Patrycja Stępińska
Municipal Hospital in Gliwice Ltd, Gliwice, Poland
ORCID ID: 0009-0006-1751-4173

Klaudia Wojciech
Medical University of Silesia in Katowice, Katowice, Poland
ORCID ID: 0009-0008-8755-6461

Anhelina Loputs
University Hospital in Wrocław, Wrocław, Poland
ORCID ID: 0009-0008-0002-2126

Wiktoria Błaszczyk
Andrzej Frycz Modrzewski Cracow University, Cracow, Poland
ORCID ID: 0009-0000-6340-7957

ABSTRACT

Background: Breast cancer remains the most commonly diagnosed malignancy among women in Poland. Effective postoperative rehabilitation, including physical activity, plays a crucial role in restoring functional capacity, reducing complications, and improving overall quality of life.
Aim: To evaluate the level of physical activity in women after surgical breast cancer treatment, considering type of surgery, presence of lymphedema, psychological factors, and changes compared with pre-treatment activity
Methods: A cross-sectional survey was conducted among 58 women treated surgically for unilateral breast cancer. Data were collected using an author-designed questionnaire and the International Physical Activity Questionnaire (IPAQ).
Results: Most participants were older than 55 years, retired, and had undergone radical mastectomy. Lymphedema occurred in approximately one-quarter of the women. Across all subgroups, physical activity declined after treatment, regardless of surgery type or presence of lymphedema. Most women perceived physical activity as beneficial for recovery, but a significant proportion lacked clear guidance.
Conclusions: Physical activity levels decrease following breast cancer treatment, yet women recognize its value. Systematic patient education and structured rehabilitation programs should be integral to oncologic care.

KEYWORDS

Breast Cancer, Physical Activity, Mastectomy, Breast-Conserving Treatment, Rehabilitation, Quality of Life, Oncology

CITATION

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Introduction

Breast cancer remains the most common malignant tumor among women in Poland, with a growing incidence observed particularly in younger age groups. As women's professional activity continues to extend, efficient postoperative rehabilitation plays an increasingly important role in restoring functional capacity and quality of life. Oncological treatment—including surgery, chemotherapy and radiotherapy—typically leads to reduced physical activity, additionally burdened by treatment-related side effects and complications. Among these, upper-limb lymphedema constitutes one of the most significant limitations to physical functioning.

Breast cancer therapy is frequently accompanied by decreased exercise tolerance, mood disturbances, and difficulties in adapting to the disease, all of which negatively impact overall quality of life. Numerous studies have demonstrated that regular physical activity supports recovery, enhances psychological well-being, and may reduce the risk of disease recurrence. Therefore, patient education and professional guidance provided by healthcare personnel are essential to ensure that women maintain an adequate level of physical activity following treatment, allowing their quality of life to approximate that of healthy individuals.

Aims

The aim of the study was to assess the level of physical activity in women after breast cancer treatment and to compare it with their pre-treatment activity. An additional objective was to evaluate differences in physical activity between women with and without lymphedema following radical mastectomy or breast-conserving therapy. The study also sought to determine the perceived importance of physical activity and patient knowledge regarding exercise as components of recovery and cancer rehabilitation.

Research Questions:

1. How does the level of physical activity in women treated for breast cancer differ before and after oncological treatment?
2. Are there significant differences in physical activity between women with and without upper-limb lymphedema following radical mastectomy?
3. Are there significant differences in physical activity between women with and without upper-limb lymphedema following breast-conserving surgery?
4. Does the presence of lymphedema influence daily functioning and perceived physical limitations among breast cancer survivors?
5. To what extent do healthcare professionals provide recommendations regarding physical activity to women after breast cancer treatment?
6. Do women perceive physical activity and exercise-related knowledge as important elements of recovery and cancer rehabilitation?
7. What factors do women identify as barriers limiting their ability to engage in regular physical activity after breast cancer treatment?

Methods:

The study included 58 women treated surgically for unilateral breast cancer. Participants were recruited at the Oncology Outpatient Clinic of the Regional Hospital in Racibórz (Poland) in October 2025. Five age groups were defined (<35, 36–45, 46–55, 56–65, >65 years).

Data Collection Tools:

Author's questionnaire – demographics, medical data, psychological support, functional limitations, and self-reported physical activity before and after treatment.

IPAQ (short version) – used to calculate metabolic equivalent minutes per week (MET-min/week) for vigorous, moderate, and walking activities.

Results

Participant characteristics

Participants were primarily older women, with 57% aged over 55 years. Most resided in towns (48%) or rural areas (31%). The majority were married (78%) and had secondary (43%) or higher education (22%). Occupational inactivity was high, with 64% being retired or on disability pension.

Clinical characteristics

- Mastectomy: 69%
- Breast-conserving surgery (BCS): 31%
- Adjuvant therapy: chemotherapy (36%), radiotherapy (29%), hormonotherapy (28%)
- Time since surgery: mostly 1–5 years (51%) or 6–10 years (41%)

Lymphedema was reported by 26% of participants; in 60% of these cases, it persisted at the time of the study.

Physical functioning and well-being

- Shoulder pain on the operated side affected 26% of women.
- Daily activity limitations due to lymphedema were noted by 40% of affected women.
- Nonetheless, overall **self-rated well-being** was positive:
  - good or very good: 91%
  - neutral: 9%
  - no reports of poor well-being

Return to work was limited: only 34% resumed employment after treatment.

Physical activity patterns

Before diagnosis

Most women engaged in regular physical activity:

- daily activity: 54%
- several times per week: 46%

Most common activities included:

- housework (34%)
- cycling (29%)
- walking/Nordic walking (21%)

After treatment

Activity levels declined:

- daily activity: reduced to 26%
- several times weekly: 58%
- complete inactivity: 2%

Overall self-assessed physical fitness decreased from **8.5/10 before diagnosis** to **7.3/10 after treatment**.

IPAQ outcomes

Physical activity decreased across all domains:

- Vigorous activity: from 156.6 ± 285.2 to 15.9 ± 62.7 METmin/week
- Moderate activity: from 496.9 ± 334.5 to 316.2 ± 237.1 METmin/week
- Walking: from 830.1 ± 727.3 to 763.5 ± 652.4 METmin/week

Sedentary time increased from 143.9 ± 168.1 to 232.2 ± 160.6 METmin/week.

Knowledge and attitudes toward physical activity

- **74%** believed physical activity is essential in cancer recovery
- **74%** received recommendations from medical staff
- **100%** believed such recommendations should be provided routinely
- Only **6%** participated in support groups, though all reported access to movement classes within these groups

Table 1. Return to Work After Treatment

Response	Count	%
No	38	64
Yes	20	34

Table 2. Time Elapsed Since Surgery

Time Since Surgery	Count	%
<1 year	3	2
1-5 years	26	51
6-10 years	21	41
>10 years	8	6

Table 3. Current Well-being

Well-being	Count	%
Very good	25	43
Good	28	48
Neutral	5	9

Table 4. Physical Activity Before Illness

Activity	Count
Walking	25
Running	5
Swimming	8
Cycling	34
Housework	41
Other	6

Table 5. Physical Activity After Illness

Activity	Count
Walking	33
Running	6
Swimming	5
Cycling	26
Housework	41
Other	3

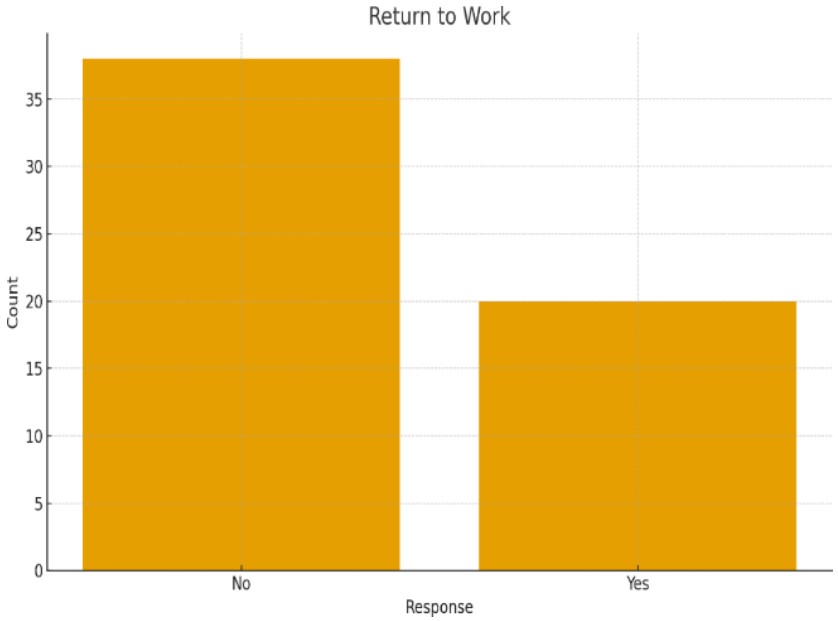

Fig. 1. *Return To Work*

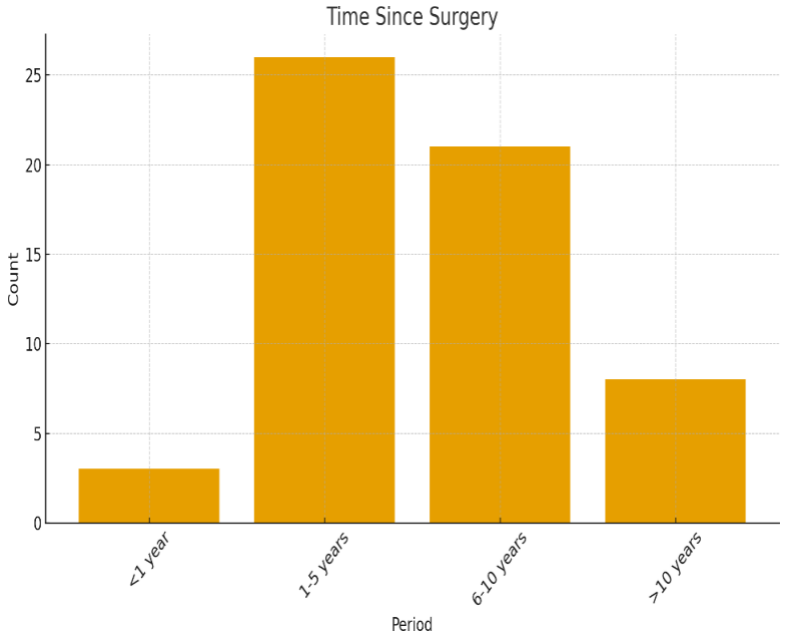

Fig. 2. *Time Since Surgery*

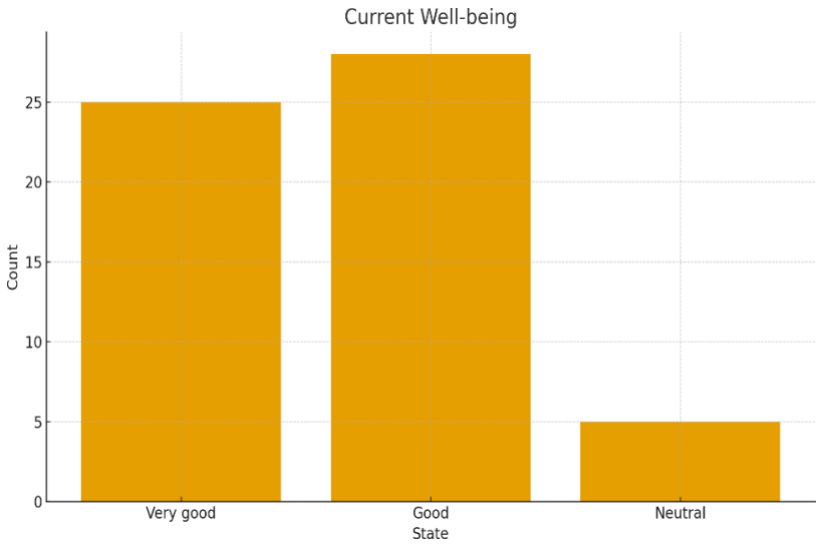

Fig. 3. *Wellbeing*

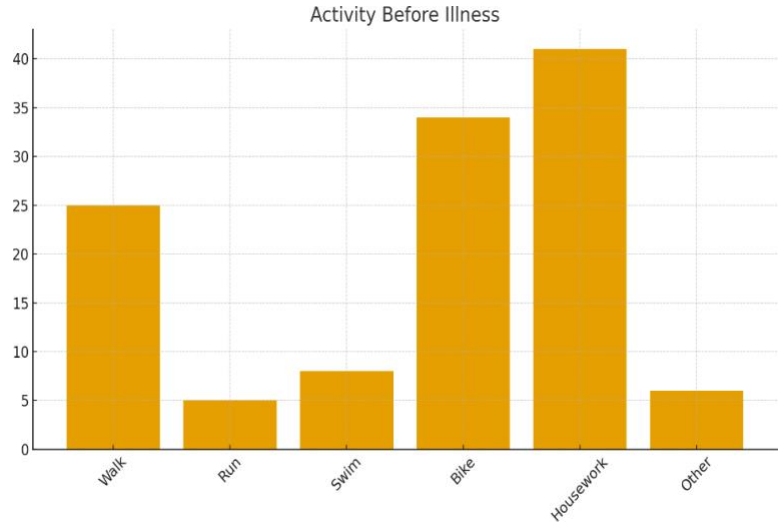

Fig. 4. *Activity Before*

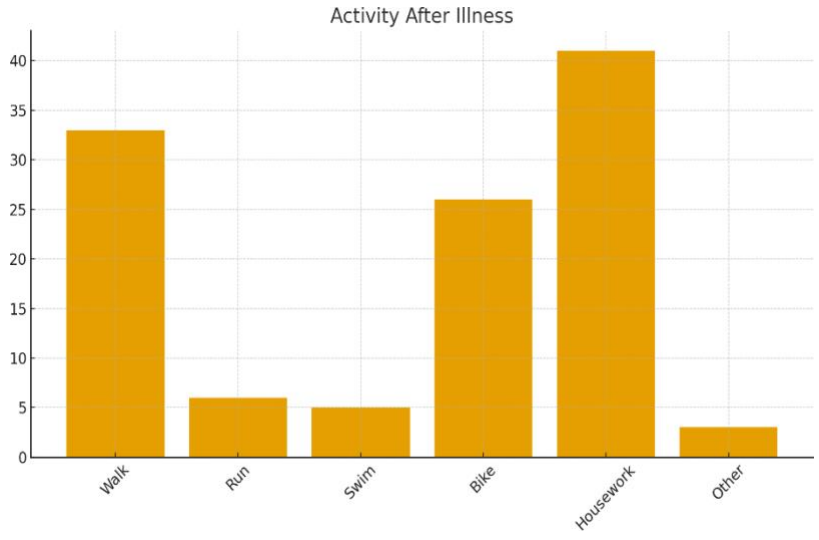

Fig. 5. *Activity After*

Discussion

The results of this study indicate that physical activity significantly declines following breast cancer treatment. Women experiencing lymphedema showed even greater reductions in activity. The limited rate of return to work (34%) suggests functional challenges and psychological factors. Despite this, most women reported good subjective well-being. The findings emphasize the need for structured rehabilitation and routine counseling regarding safe physical activity.

Conclusions

1. Physical activity decreases significantly after breast cancer treatment. 2. Lymphedema is strongly associated with reduced activity. 3. Rehabilitation and physical activity guidance are insufficient and must be expanded. 4. Structured exercise programs may improve recovery and quality of life.

Disclosure

Author Contributions

Conceptualization: Dariusz Nędza

Methodology: Dariusz Nędza, Patrycja Stępińska

Software: Anastasiia Holoborodko, Bartosz Lautenbach

Formal analysis: Anhelina Loputs, Klaudia Wojciech

Investigation: Eliza Garbacz, Agnieszka Pocheć

Resources: Wiktoria Błaszczyk, Ewa Wieczorkiewicz, Eliza Garbacz,

Data curation / Check: Agnieszka Pocheć, Klaudia Wojciech

Writing – original draft preparation: Anastasiia Holoborodko,Ewa Wieczorkiewicz, Patrycja Stępińska

Writing – review and editing: Eliza Garbacz, Agnieszka Pocheć, Bartosz Lautenbach, Ewa wieczorkiewicz, Klaudia Wojciech, Wiktoria Błaszczyk, Anhelina Loputs, Anastasiia Holoborodko

Supervision: Dariusz Nędza

Visualization: Patrycja Stępińska, Wiktoria Błaszczyk, Anhelina Loputs

All authors have read and agreed to the published version of the manuscript.

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