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## **BREAKING PARADIGMS, NEW BREAST CANCER REHABILITATION METHODS FROM OCCUPATIONAL THERAPY: CASE REPORT**

**Keywords:** Occupational therapy; Breast cancer lymphedema; Breast neoplasms; Comprehensive health care.

**Palabras clave:** Terapia ocupacional, Linfedema del cáncer de mama; Neoplasias de la mama; Atención integral de salud.

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**Jaime Moreno-Chaparro**

Universidad Nacional de Colombia – Bogotá Campus  
Faculty of Medicine - Department of Human Occupation  
Bogotá D.C. - Colombia

**Claudia Jaramillo-Corredor**

**Yuliana Faustino**

Instituto Nacional de Cancerología Empresa Social del Estado -  
Rehabilitation, diagnostic support and therapeutic  
complementation unit - Occupational Therapy Service  
Bogotá D.C. - Colombia.

**Corresponding author:**

Jaime Moreno-Chaparro.  
Departamento de la Ocupación Humana,  
Facultad de Medicina, Universidad Nacional de Colombia.  
Bogotá D.C. Colombia. Email: [jaamorenoch@unal.edu.co](mailto:jaamorenoch@unal.edu.co).

## ABSTRACT

**Introduction:** Breast cancer is one of the most frequent diseases in Colombia and worldwide. Thousands of women, who undergo treatment, survive and require timely and comprehensive occupational therapy intervention. This paper presents a rehabilitation case study that followed the biopsychosocial and quality of life in persons model.

**Case presentation:** Intervention on a 64-year-old woman referred to the occupational therapy service with a diagnosis of infiltrating ductal carcinoma of the left breast with neoadjuvant radiotherapy, after modified radical mastectomy and stage III lymphedema. She presented with restricted participation and occupational performance, specifically in activities of daily living, with relevant psychosocial and socio-emotional consequences.

An intervention focused on the individual, following a biopsychosocial approach, was proposed in order to apply strategies on restorative, empowerment and maintenance activities of occupational skills involved in activities of daily living. Emphasis was placed on socio-emotional, occupational biomechanics and education aspects with special care to involve the interests of women.

**Conclusions:** Rehabilitation for breast cancer patients not only involves biomedical care but also approaches psychosocial aspects that sometimes have to be solved in advance to get results that are later evident in the health of the person. In this case, a breast prosthesis was elaborated by and for the person, using all kinds of strategies that responded to biomedical axes and well-being and health.

## RESUMEN

**Introducción.** El cáncer de mama es una enfermedad recurrente en el mundo y en Colombia. Miles de mujeres que la padecen se someten a tratamiento, sobreviven y necesitan una oportuna, y sobre todo holística, intervención desde la terapia ocupacional. Se presenta un estudio de caso de rehabilitación en concordancia al modelo biopsicosocial y centrado en la persona.

**Presentación del caso.** Mujer de 64 años remitida al servicio de terapia ocupacional con diagnóstico de cáncer ductal infiltrante de mama izquierda con neoadyuvancia por radioterapia, posterior a mastectomía radical modificada y linfedema etapa III, quien presenta restricciones en la participación y desempeño ocupacional, en específico en actividades de la vida diaria con alteraciones psicosociales y socioemocionales relevantes.

Se planteó una intervención centrada en la persona, con enfoque biopsicosocial, en donde se aplicaron diferentes estrategias en actividades de tipo restaurativo, potenciación y mantenimiento de destrezas ocupacionales implicadas en actividades de la vida diaria. Se hizo énfasis en las áreas socioemocional, de biomecánica ocupacional y de educación con especial cuidado de involucrar los intereses de la mujer.

**Conclusiones.** La rehabilitación del cáncer de mama no solo implica atención biomédica, sino también abordaje de aspectos psicosociales que en ocasiones tienen que ser resueltos con antelación para conseguir resultados que se evidencien en la salud. En este caso la elaboración de una prótesis de

mama por y para la persona vinculó toda clase de estrategias que respondían a ejes biomédicos y comprendían en su totalidad el bienestar y la salud.

## INTRODUCTION

Breast cancer is a high-impact disease worldwide that affects women around the world in a 1:2 ratio. In Colombia, the most recent data show that about 7 000 new cases are diagnosed and that around 4 500 women survive per year. (1,2) Currently, the country has guidelines and management protocols for this disease, which include rehabilitation through relevant interventions such as occupational therapy in order to increase the impact on the persons and their health. (1,3)

In general, some of the health and occupation alterations caused by cancer, especially breast cancer, are related to physical, emotional and cognitive impairments. (4) Regarding daily life, women who suffer and survive this disease present alterations in the activities of daily living, work, education, leisure, etc., resulting in restrictions that involve everything from body structures and functions to emotionality. (5-10)

Occupational therapy positively impacts the rehabilitation process of a person with cancer (5,6,8,10-14), covering important aspects including initial diagnosis, survival phase or final stage of life (4), even in subjects who relapse in intensive care units. (15) The activities performed by an occupational therapist in breast cancer rehabilitation involve those related to prevention of alterations and occupational restrictions and the improvement and enhancement of skills (4,6-8,13,14,16) through activities and strategies such as motor rehabilitation, enhancement of the execution of activities of daily living, prevention of cognitive dysfunctions, teaching techniques, using splints, the psychosocial approach, among others. (4-8,11,13,14,17)

The importance of the following case lies in the comprehensive epistemological stance from occupational therapy. Said stance arises from knowledge based on the dynamic interaction of the personal areas (public, private, “the me”) and the medical, social and environmental areas, grounded on reflection by the subjects involved through their participation and change process. (18)

## CASE PRESENTATION

64-year-old woman, living in Bogotá D.C., referred to the occupational therapy service 9 months after modified radical mastectomy surgery and neoadjuvant therapy with radiotherapy by the Physical Medicine and Rehabilitation Service of the Instituto Nacional de Cancerología Empresa Social del Estado (National Institute of Cancerology Social Enterprise of the State - INC) with diagnosis of infiltrating ductal carcinoma of the left breast. During consultation, restrictions in participation and occupational performance were observed, which in part were caused by the diagnosis and subsequent complete breast tissue removal surgery (including the nipple, the areola and the secondary and sentinel lymph nodes). The surgery took place in January 2016, with subsequent development of lymphedema in the upper left limb.

### Assessment

A comprehensive assessment process was initiated by occupational therapy through occupational history, observation of movements, execution of activities and application of tests by areas. During the process, the woman manifested difficulties to develop activities of daily living and socio-emotional distress related to the surgery and treatment. Regarding her general background, she stated being the head of the family, living with five children and close

relatives, being a housewife and having only elementary school education. She also said that she was self-employed in the sale of food, and that her hobbies included weaving, dancing and local music activities. She manifested that her family or close network accompanied her occasionally in rehabilitation.

In relation to executive skills, she responded positively to sensory, auditory, visual and vestibular stimuli, but with difficulties in affected areas such as the upper limbs, trunk and

chest. The proprioceptive and tactile sensory systems were found to be affected at a deep, superficial and thermal hypoesthesia level. In a later study, she was diagnosed with severe carpal tunnel syndrome caused by bilateral median nerve entrapment.

Regarding motor skills, limitations in the upper left limb were observed such as mobility, strength and functional, integral and grip motor skills (Table 1), related, among others, to lymphedema.

Table 1. Specifications of the biomechanical assessment.

Aspect	Upper left limb	Upper right limb
<b>Mobility</b> Assessment by goniometry and compared with normal standards	<ul style="list-style-type: none"> <li>▪ Limited flexo/extension reaching 120° in flexion and 20° in extension</li> <li>▪ Complete abduction and limited adduction reaching 10°</li> <li>▪ Internal and external rotations slightly altered, sometimes achieving full rotation</li> <li>▪ Supination and pronation with minimum restriction at 85°, especially in supination</li> <li>▪ The elbow and its movements show flexion limitations reaching 110°</li> </ul>	Complete on all the evaluated planes
<b>Strength</b> Evaluated by Hand Grip Strength test	<ul style="list-style-type: none"> <li>▪ Decreased in maintenance control and object pressure</li> <li>▪ Below average (&lt;22)</li> </ul>	No limitations in maintenance control and object pressure were observed Above average (=30)
<b>Functional skills</b>	Difficulties were observed in the performance of functional skills (start-development-completion) with emphasis on those that require mobilization above the shoulder girdle such as hand, head and mouth	Complete in all evaluated skills
<b>Motor skills</b>	Difficulties were observed in motor skill patterns (start-development-completion) with special emphasis on vertical and diagonal movements such as reaching, grasping and throwing	Complete in all evaluated patterns
Grasp patterns	Difficulties were observed in palmar grasp, cylindrical grasp and full grip. Global limitation was evident at the level of fine clamps and tripods	Complete in all evaluated patterns

Source: Own elaboration.

The motor evaluation, by measuring the limb circumference and in accordance with the guidelines of the Consensus Document of the International Society of Lymphology, (19) showed a stage 3 lymphedema in the upper left limb, characterized by visible edema, enlargement of the affected area, hardening, difference between limbs of around 3-5 cm and thickening of the skin.

Regarding the cognitive-perceptual level, processing skills, time-place-person orientation, basic cognitive functions, basic learning devices and executive functions were functional and appropriate. The social-emotional aspect showed affectations referred and related directly to the loss of body image and self-awareness due to the removal of the mammary gland and the lymphedema. The person said that this was her main concern and the main reason for the alterations and difficulties in her activities of daily living and her health.

Regarding occupation, alterations were found in all the activities of daily living as the person mentioned that they were "difficult", slow and sometimes painful to perform. Sections of the Occupational Therapy Practice Framework were used for this item. (20) In relation to food, the person manifested difficulties for using cutlery, eating normally, preparing meals, reaching tools and implements located in elevated areas of the kitchen, general cleaning of food sites, among others, always in relation to bimanual activities.

Concerning with personal hygiene, she showed difficulties in activities such as showering, combing and putting on makeup as she needed to use the affected limb. When getting dressed, more relevant difficulties were mentioned due to the need to use the affected limb globally; in this regard, the person manifests pain when putting on underwear,

blouses or coats, pants or skirts and shoes, and the need to make more efforts and put to test the resistance of her body. Additionally, she expressed discomfort and night pain due to the lymphedema, and that she did not know how to position it to be able to rest.

When asking her about her thoughts on the disease and her way of coping with it, in relation to her daily life, she mentioned two main ideas: one related to the her body image and her routine to shape her breast using pads and cottons in order to wear bras (body ↔ getting dressed) and another related to her emotional and physical distress, which she must set aside to carry out her daily activities, specifically, mobility restrictions when doing housework (psychosocial ↔ participation). Regarding her family role and networks, she says that her relationships with others and her body image have been altered, especially her participation at home. Finally, with respect to family accompaniment, her children and the people close to her occasionally accompany her during the intervention process; however, it is clear that the process is mostly individual.

### Occupational concept

Female person diagnosed with infiltrating ductal carcinoma, treated with neoadjuvant radiotherapy after modified radical mastectomy and current lymphedema in upper left limb who attends occupational therapy sessions. An evaluation was applied, showing participation and occupational performance restrictions in specific activities of daily living, work, leisure, etc. In addition, psychosocial and socio-emotional repercussions were evident. Her potential strengths include the will to adapt, clear preferences and interests used to develop activities, discipline and quick learning of actions and recommendations.

### Intervention

The person underwent occupational therapy intervention in the Rehabilitation Unit of the INC in April-May 2017, with a total of 10 sessions of 30 minutes each for 4 weeks. The sessions were distributed as follows: first week, two sessions; second week, two sessions; third week, three sessions; and fourth week, three sessions. The purpose of the intervention addressed the reason for referral, her priorities and the greatest amount of information about her condition and how to develop different activities of daily living. To this end, the activities focused on addressing self-perception, self-care, participation and performance in activi-

ties of daily living through socio-emotional and biomechanical intervention using the educational approach.

### Intervention activities

To fulfill the proposed objectives, and taking the person as the center of the intervention, mainstreaming care through a project executed by and for the person was decided, including tasks and specifications that met the occupational therapy objectives.

The sessions were structured in: A) introductory activity, B) education activity and C) central activity. Table 2 lists the activities and strategies used.

Table 2. Introductory, educational and central activity strategies.

Activity	Strategies	Sub-strategy		
Introductory	Alignment and postural correction			
	Proprioceptive loading	Alternation and tolerance		
	Passive mobility range	Maximum limit		
	Active mobility range	As tolerated		
	Lymphatic drainage exercises			
	Functional exercises	Motor/functional skills		
	Joint protection			
	Energy efficiency			
	Extension of joint range in upper limbs	ADL Feeding	Motor skills	Planes of motion
		ADL Getting dressed	Alternation in getting dressed	Sequences for getting dressed Technical help
ADL Hygiene		Alternation	Activity adaptation	
Game		Handling of vertical and diagonal planes		
Education	Knowledge on the condition	Training		

Continues.

Activity	Strategies	Sub-strategy
Education	Getting dressed: clothes, sequence, order	Training
	Joint protection	
	Energy efficiency	
	Modification and adaptation of activities	Workshop
	Decrease and control of lymphedema in activities of daily living	
	Activities at home plus home plan	Plan delivery at home
	Pumping and heat prevention	
	Technical aids of low and medium complexity	Connection with central activity
	Stress and relaxation management techniques	Workshop and indications
	Handling weights, pressures and movements	
	Location and positioning	
Central	Body mirror therapy	Transversal central project
	Expressing feelings related to the consequences and daily living	
	Working with family and community networks	

Source: Own elaboration.

In particular, the central strategy combines performance skills (motor and socio-emotional), occupation areas and occupational history, building the ideal link between likes and interests and the latent needs of the person.

The occupational project included a series of requirements that allowed the person to relate to motor, sensory, socio-emotional and relational demands. The occupational therapists also used the therapeutic relationship as an opportunity to engage in and allow for a social-emotional intervention. For this, the central activity was based on using skills

that would help the person to make a breast prosthesis.

Creating a breast prosthesis is as an alternative strategy to breast reconstruction and surgery for vulnerable women with low incomes or those who do not have the possibility of benefiting from this surgery. The activity begins with the identification of the need and the voluntary involvement of the person for its elaboration. It is important to start socializing the final result, as shown in Figure 1, and invite the person to build her own prosthesis following a rehabilitation plan whose focus is occupational therapy.



**Figure 1. Final result and person**

Source: Document obtained during the study

## Results

Favorable results in the performance of the skills and effective responses —remarkably faster with respect to sensory stimuli, especially at the tactile level—, were achieved during the intervention and after the scheduled sessions, which also correlates with management and self-care of the lymphedema by the person. At a biomechanical level, a goniometric evaluation was carried out, showing mobility and plane degrees close to the normal ranges: flexion reached 170°; extension, 38°; adduction, 35°; and elbow flexion, 135°. Regarding strength, both members stabilized at an average rating of 29.

Regarding functional and motor skills, greater progress was observed in the actions

that involve activities of daily living, games and education. It was evident that the person can now perform all functional and motor skills correctly, completely and slowly, with specific adaptations.

Regarding the cognitive-perceptual component, no time-space-person alterations were found; her responses and attention were adequate to environmental stimuli, managing to initiate, execute and finalize activities; in consequence, the final assessment was preserved, according to age and schooling.

At the psychosocial level, the woman responded to the requirements for social interaction and emotional regulation by combining rehabilitation tools and experiences considering her current situation. This was evident in her attitude and willingness to develop the activities and to attend to all sessions, handing in homework, and the improvement of her body schema, among others.

In this sense, the breast prosthesis activity included an approach based on functional skills, occupation areas and her personal background. Figure 2 shows the previous correlations with the requirements of the activity.

The different tasks and requirements needed accessible and comprehensive-real language with the person, which was complemented with introductory and education activities. For example, strategies such as postural feedback, passive and active motion in different ranges, and work planes and tasks ranging from gross to fine motor skills were used to strengthen a comprehensive therapeutic process that would allow designing, molding, sewing or filling her own prosthesis.

This project and the central occupational activity began with an explanatory task as shown in Figure 3. From that moment, the activity began, allowing the person to lead her own project, and developing and integrating



it with her routine. It is worth noting that the progress was >80% in each of the tasks in some sessions, yielding favorable responses to the requirements. In other occasions, ses-

sions focused more on introductory activities, clearly related to biomechanics due to its high correlation with the performance of activities of daily living.

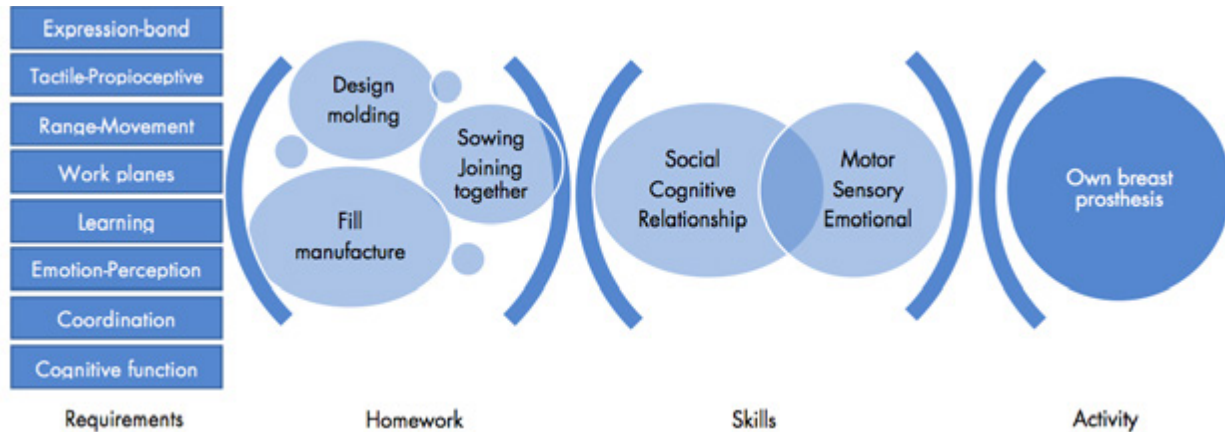


Figure 2. Intervention and activity correlations

Source: Own elaboration.



Figure 3. Explanatory task.

Source: Document obtained during the study.

Throughout the sessions, an increase in the amplitude of the range of motion expressed by the person in relation to her activities of daily living was observed in activities such as reaching objects located at the top of the

cupboard and in the decrease of pain when putting cloths on her upper body or when bathing, which she was now able to do in shorter times. Another result achieved with education strategies was the considerable

reduction of the lymphedema, in collaboration with physiotherapy, stabilizing in stage 2.

Manual activity was relevant to integrate fine motor requirements, becoming a space for emotional expression, and integrating many of the rehabilitation strategies as shown in Figure 4. At the end of the sessions, the tasks were

carried out in shorter times and the elements were distributed in a work plane as required by the person herself for better performance. As these tasks were related to her likes and interests, manipulation, coordination and efficiency were evident in each sensorimotor process performed.



**Figure 4. Manual task.**

Source: Document obtained during the study.

In terms of adherence and tolerance to treatment, the person adhered to the plan and the proposed sessions. It was necessary to perform constant feedback after completing each therapeutic activity and make sure that the results were evident at home. Likewise, she was able to adapt information about her diagnosis, risks and prevention at home, tasks and modified daily activities during the final sessions.

### Adverse and unexpected events

During these activities, pain management was approached from two different perspectives: the first involved the use of physical means such as heat and cold therapy, massages, and the interdisciplinary intervention of doctors,

nurses and physiotherapists; the second was related to prevention and education for activities not supervised by a health professional; the person received information about limiting movements, energy efficiency techniques, steps or analysis of tasks/simple and daily actions and handling of weights, tools, etc.

## DISCUSSION

In Colombia, breast cancer figures continue to increase and its survival rate is approximately 64%. (2) This condition requires massive rehabilitation intervention efforts that focus on the person and not on the health system. (1,3,5,6,13) To this end, interdisciplinary teams, including physicians, physiotherapists, speech

therapists, psychologists and occupational therapists, have evolved and consolidated as an essential transforming link for rehabilitation, proposing new forms of intervention where biomedical parameters can interact with psychosocial parameters. (5,10,11,14,17) An example of this situation is the intervention proposed here, where care components were intertwined with all functional skills and areas of occupation.

This case report is an alternative to purely biomedical interventions and includes biopsychosocial perspectives, taking into account the different dimensions of the human being. It is worth pointing that this work does not use the word "patient" because of its connotation, and that it intends to show that the objectives of rehabilitation and treatment can focus on the person, bearing in mind expressions, actions and therapeutic relationships, without neglecting the diagnostic reality. (5,10,11,14)

Said diagnostic reality implies an alternative management of rehabilitation procedures; for this, an occupational assessment was used to know the perspectives of the person, understanding that the central activity was focused on socio-emotional management and that biomechanical, sensory and daily life concepts could mix with it. The activity consisted of movements in planes that favored not only the motor component, but her performance in activities of daily living such as taking down a container from the cupboard or putting on cloths, which are used to face the tasks of a normal day and have a real impact on health. (10)

Occupational therapy intervention, in this case, comprised the needs that arise after surviving breast cancer, surgeries and reality, considering a group of structures, functions, actions, procedures and experiences that involve this population. It is worth mentioning that the role of occupational therapists is involved

with the process of consolidation thanks to the transmission of knowledge, techniques and strategies through experience.

## CONCLUSIONS

It is clear that a comprehensive intervention, focused on the person and responding to a biopsychosocial model, can be a valid rehabilitation strategy that addresses and solves the needs of the person in constant relation with the medical or traditional intervention. In the case of occupational therapy, a meaningful activity in combination with motor, sensory, cognitive and socio-emotional requirements serves and is ratified as a means of differential and potential intervention by a rehabilitation team.

In this case, focused rehabilitation divided into steps to respond to the needs of the person and her health was established as a benefit additional to traditional health intervention, directly impacting her physical health, functionality and psychosocial well-being. To that extent, the activities and global interventions of occupational therapy in the biosocial or clinical field should be informed in case reports that allow replicating successful intervention models and that understand and dialogue with the person, their culture and their work.

### Perspective of the patient

Throughout the sessions, and especially at the end of the proposed treatment plan, the person expressed her gratitude for the process, wore her prosthesis and took the designs she had made in order to continue with this activity at home, looking to the future. She also said that, thanks to the strategies, recommendations and training received during the treatment, she was able to carry out daily activities with modifications, and a change in

her attitude was noticeable. Occasionally, she visits the rehabilitation area, where she expresses and disseminates her experience with other people, bringing together other survivor women to join the program.

## CONFLICT OF INTERESTS

None stated by the author

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