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# Ciencia y Deporte



*Methodological strategy for community intervention of Physical Culture professionals  
in people with Parkinson's disease*

[Estrategia metodológica para la intervención comunitaria de profesionales de la Cultura Física  
en personas con enfermedad de Parkinson]

[Estratégia metodológica para a intervenção comunitária de profissionais da Cultura Física em  
pessoas com doença de Parkinson]

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**ABSTRACT**

**Introduction:** Parkinson's disease demands comprehensive interventions that shift the traditional clinical approach and favor functional, emotional and social rehabilitation in community settings. In this context, adapted physical activity and the participation of Physical Culture professionals acquire special relevance in primary care.

**Objective:** to design and value a methodological strategy for the community intervention of Physical Culture professionals in people with Parkinson's disease.

**Materials and methods:** a study with a participatory research-action focus was developed at the "Ernesto Guevara" Polyclinic, in the municipality of Cienfuegos, Cuba, between April and September 2025. The sample was integrated by 15 people with Parkinson's disease in stages I and II of Hoehn and Yahr, selected through intentional sampling. The strategy included adapted physical activity sessions, three times a week, for six months. The UPDRS scale, the Berg balance test, the WHO-5 scale, a family perception questionnaire and semi-structured interviews were used. Descriptive statistics were applied, using Wilcoxon sign and methodological triangulation tests.

**Results:** favorable changes were observed in the motor functionality, balance, functional autonomy and emotional well-being of the participants. The average score of the UPDRS scale decreased from  $32.4 \pm 5.6$  to  $25.1 \pm 4.8$ ; the Berg balance test increased from  $38.2 \pm 4.1$  to  $44.6 \pm 3.7$ ; and functional autonomy only ranged from  $3.1 \pm 0.6$  to  $4.2 \pm 0.5$ . On the WHO-5 scale, improvements will be seen in items such as feeling happy, sleeping well and having energy. Family members and professionals positively valued the strategy, highlighting its usefulness, relevance and feasibility.

**Conclusions:** the methodological strategy applied showed favorable results in people with Parkinson's disease in a community context. The integration of Physical Culture professionals into primary care, together with the active participation of family members and patients, supports the feasibility and relevance of this proposal, as well as its potential for application in similar scenarios.

**Keywords:** adapted physical activity; Parkinson's disease; community intervention; primary care; quality of life.

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## **RESUMEN**

**Introducción:** la enfermedad de Parkinson demanda intervenciones integrales que trasciendan el enfoque clínico tradicional y favorezcan la rehabilitación funcional, emocional y social en escenarios comunitarios. En este contexto, la actividad física adaptada y la participación de profesionales de la Cultura Física adquieren especial relevancia en la atención primaria.

**Objetivo:** diseñar y valorar una estrategia metodológica para la intervención comunitaria de profesionales de la Cultura Física en personas con enfermedad de Parkinson.

**Materiales y métodos:** se desarrolló un estudio con enfoque de investigación-acción participativa en el Policlínico "Ernesto Guevara", del municipio de Cienfuegos, Cuba, entre abril y septiembre de 2025. La muestra estuvo integrada por 15 personas con enfermedad de Parkinson en estadios I y II de Hoehn y Yahr, seleccionadas mediante muestreo intencional. La estrategia incluyó sesiones de actividad física adaptada, tres veces por semana, durante seis meses. Se emplearon la escala UPDRS, el test de equilibrio de Berg, la escala WHO-5, un cuestionario de percepción familiar y entrevistas semiestructuradas. Se aplicó estadística descriptiva, prueba de rangos con signo de Wilcoxon y triangulación metodológica.

**Resultados:** se observaron cambios favorables en la funcionalidad motora, el equilibrio, la autonomía funcional y el bienestar emocional de los participantes. La puntuación media de la escala UPDRS disminuyó de  $32.4 \pm 5.6$  a  $25.1 \pm 4.8$ ; el test de equilibrio de Berg aumentó de  $38.2 \pm 4.1$  a  $44.6 \pm 3.7$ ; y la autonomía funcional pasó de  $3.1 \pm 0.6$  a  $4.2 \pm 0.5$ . En la escala WHO-5 se apreciaron mejoras en los ítems sentirse alegre, dormir bien y tener energía. Los familiares y profesionales valoraron positivamente la estrategia, destacando su utilidad, pertinencia y factibilidad.

**Conclusiones:** la estrategia metodológica aplicada mostró resultados favorables en personas con enfermedad de Parkinson en un contexto comunitario. La integración del profesional de la Cultura Física en la atención primaria, junto con la participación activa de familiares y pacientes, respalda la viabilidad y pertinencia de esta propuesta, así como su potencial de aplicación en escenarios similares.

**Palabras clave:** actividad física adaptada; enfermedad de Parkinson; intervención comunitaria; atención primaria; calidad de vida.

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## **RESUMO**

**Introdução:** a doença de Parkinson exige intervenções integrais que transcendam o enfoque clínico tradicional e favoreçam a reabilitação funcional, emocional e social em cenários comunitários. Neste contexto, a atividade física adaptada e a participação de profissionais da Cultura Física adquirem especial relevância na atenção primária.

**Objetivo:** projetar e valorizar uma estratégia metodológica para a intervenção comunitária de profissionais da Cultura Física em pessoas com doença de Parkinson.

**Materiais e métodos:** foi desenvolvido um estúdio com abordagem de investigação-ação participativa no Policlínico "Ernesto Guevara", do município de Cienfuegos, Cuba, entre abril e setembro de 2025. A mostra foi integrada por 15 pessoas com doença de Parkinson nos estádios I e II de Hoehn y Yahr, selecionadas mediante registro intencional. A estratégia incluiu sessões de atividade física adaptadas, três vezes por semana, durante seis meses. Se empregue a escala UPDRS, o teste de equilíbrio de Berg, a escala WHO-5, um questionário de percepção familiar e entrevistas semiestruturadas. Se aplicou estatística descritiva, teste de rangos com signo de Wilcoxon e triangulação metodológica.

**Resultados:** observar mudanças favoráveis na funcionalidade motora, no equilíbrio, na autonomia funcional e no bem-estar emocional dos participantes. A pontuação média da escala UPDRS diminuiu de  $32,4 \pm 5,6$  para  $25,1 \pm 4,8$ ; o teste de equilíbrio de Berg aumentou de  $38,2 \pm 4,1$  para  $44,6 \pm 3,7$ ; e a autonomia funcional passou de  $3,1 \pm 0,6$  a  $4,2 \pm 0,5$ . Na escala WHO-5 você aprecia as melhores coisas nos itens, sente-se alegre, dorme bem e tem energia. Os familiares e profissionais valorizaram positivamente a estratégia, destacando sua utilidade, pertinência e factibilidad.

**Conclusões:** a estratégia metodológica aplicada mostrou resultados favoráveis em pessoas com doença de Parkinson em um contexto comunitário. A integração do profissional da Cultura Física na atenção primária, juntamente com a participação ativa de familiares e pacientes, respalda a viabilidade e pertinência desta proposta, bem como seu potencial de aplicação em cenários semelhantes.

**Palavras-chave:** atividade física adaptada; doença de Parkinson; intervenção comunitária; atenção primária; qualidade de vida.

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### *INTRODUCTION*

Parkinson's disease constitutes a progressive neurodegenerative disorder that simultaneously affects motor, cognitive and emotional functions, which generates increasing dependence and deterioration of the quality of life. Your attention demands comprehensive strategies that transcend the conventional clinical approach and favor sustainable responses in community settings, which can enhance the mobility, autonomy and well-being of affected people (Abreu Mora *et al.*, 2022).

Several investigations have demonstrated that physical activity applied in a systematic and adapted way can become an effective therapeutic tool to improve the global functionality of people with Parkinson's disease. In particular, resistance training in lower limbs has shown benefits in mobility, postural control and functional autonomy, essential aspects within a comprehensive rehabilitation aimed at preserving the quality of life (Li *et al.*, 2020).

The neurophysiological basis of these interventions is related to neuroplasticity, understood as the capacity of the nervous system to reorganize itself and establish new synaptic connections in response to physical and cognitive stimuli. This process is especially relevant in neurodegenerative diseases, as adapted exercise can favor functional reorganization and improve the motor and emotional response of people with Parkinson's (Hirsch *et al.*, 2025).

In this same vein, it has been documented that regular physical exercise, structured and adjusted to individual conditions, can contribute to improving both motor and non-motor symptoms, with positive effects on functionality and quality of life (Cano-de-la-Cuerda *et al.*, 2020). However, many programs continue to be developed in hospital or highly specialized environments, which limits their accessibility in communities with scarce resources or transportation difficulties (Ellis *et al.*, 2021).

Community care represents, in this sense, a favorable scenario for the implementation of adapted physical activity programs, to facilitate the integration of Physical Culture professionals, healthcare personnel, sick people, family members and social support networks. This type of intervention favors participation, the contextualization of actions and the social ownership of the process, which increases its possibilities of sustainability and effectiveness (Brach & Juarez, 2024).

In Cuba, the articulation between health and sports is based on a preventive model with a strong territorial and community base. This characteristic opens up possibilities for designing strategies aimed at managing chronic illnesses, including Parkinson's disease, through comprehensive proposals adjusted to the real needs of the population. However, methodological gaps persist when it comes to the systematization of strategies that guide the work of Physical Culture professionals in community settings, particularly in the face of neurodegenerative diseases.

Participatory research-action is recognized as a pertinent methodological path to generate applicable strategies in community contexts, which can involve social actors in the different phases of the process and convert the construction of knowledge into a collective practice. This approach strengthens the relevance of the proposals, their sustainability and their link with local reality (Springett *et al.*, 2023).

From an integrative perspective, Physical Culture can act as a bridge between scientific knowledge and community practices, while offering accessible resources to promote the physical and psychosocial well-being of people with Parkinson's. Furthermore, the participation of family members and caregivers in community programs strengthens

therapeutic adherence, reduces emotional overload and consolidates support networks that favor the continuity of treatment (Pirtošek, 2024).

Therefore, this investigation proposes to design a methodological strategy to guide the community intervention of Physical Culture professionals in people with Parkinson's disease, from a primary care context, based on participatory research-action and adapted physical activity

## *MATERIALS AND METHODS*

The study was developed based on a participatory research-action approach, with the purpose of designing, applying and valuing a methodological strategy for adapted physical activity aimed at people with Parkinson's disease in a community context.

The intervention was carried out at the "Ernesto Guevara" Polyclinic, in the municipality of Cienfuegos, Cuba, during a period of six months, between April and September 2025, in coordination with the Physical Culture and Primary Health Care team.

The sample was made up of 15 people diagnosed with Parkinson's disease in stages I and II according to the Hoehn and Yahr scale, selected through intentional sampling. The inclusion criteria were: confirmed diagnosis, ability to participate in group sessions, absence of serious comorbidities that impede physical exercise and willingness to regularly attend the program. Persons with severe cognitive deterioration or physical limitations incompatible with intervention are excluded. The ethical principles of informed consent, confidentiality and voluntariness are respected.

The methodological strategy included three weekly sessions of adapted physical activity, lasting approximately 60 minutes each. The sessions were structured into three moments: warm-up, main part and final relaxation. In the central phase, exercises aimed at balance, coordination, strength and functional mobility were developed, adjusted to the characteristics of the participants.

The intervention is organized into four phases: (1) initial diagnosis, with identification of needs, functional conditions and availability of participants; (2) participatory planning, with the design of the program together with professionals, sick people and family members; (3) execution of the program, through the systematic implementation of sessions; and (4) final evaluation, aimed at valuing functional, emotional changes and perceptions of the actors involved.

To collect information, the UPDRS scale for motor symptoms, the Berg balance test, the WHO-5 scale for emotional well-being, a family perception questionnaire and semi-structured interviews with family members and professionals were used.

The analysis of quantitative data was carried out using descriptive statistics, using standard measures and deviations. For pre and postintervention comparison, a test of rankings with Wilcoxon sign was used, taking into account the size of the sample and the ordinal nature of some indicators. Furthermore, methodological triangulation was applied, integrating quantitative results, qualitative observations and evaluations of participating actors.

The strategy was supervised by a multidisciplinary team made up of specialists in Physical Culture, comprehensive general medicine, psychology and nursing, with the aim of ensuring the integrity of the process.

## RESULTS

The results will show favorable changes in functional and emotional indicators valued before and after the intervention (Table 1).

*Table 1.* - Comparison of functional indicators before and after intervention ( $n = 15$ )

Indicator	Preintervention (Mean $\pm$ DE)	Postintervention (Mean $\pm$ DE)	Difference
UPDRS (motor)	32.4 $\pm$ 5.6	25.1 $\pm$ 4.8	-7.3
Berg Balance Test	38.2 $\pm$ 4.1	44.6 $\pm$ 3.7	+6.4
Functional autonomy	3.1 $\pm$ 0.6	4.2 $\pm$ 0.5	+1.1

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*Source: Clinical record of the "Ernesto Guevara" Polyclinic, 2025.*

The data reflects a decrease in the score on the UPDRS scale, which suggests a favorable evolution in the motor symptoms of the participants. The Berg balance test showed an average increase of 6.4 points, which indicates an improvement in postural stability. Functional autonomy also presents positive evolution, with an increase of more than one point on the scale used (Table 2).

*Table 2. - Comparison of emotional well-being according to the WHO-5 scale (n = 15)*

Item evaluated	Preintervention (Mean ± DE)	Postintervention (Mean ± DE)	Difference
To feel happy	2.8 ± 0.7	4.1 ± 0.6	+1.3
Sleep well	2.5 ± 0.8	3.9 ± 0.7	+1.4
Tener energy	2.6 ± 0.6	4.0 ± 0.5	+1.4

*Source: WHO-5 questionnaire applied in the context of intervention, 2025.*

On the emotional level, favorable changes will also be observed, especially in items linked to the state of mind, the quality of sleep and perceived energy.

The semi-structured interviews showed that the participants positively valued the group dimension of the program, highlighting the motivation generated by collective work and the support of Physical Culture professionals. Family members reported greater confidence in the rehabilitation process and a perception of less emotional burden associated with daily care.

The triangulation between quantitative results, qualitative observations and family valuations allows us to sustain the internal coherence of the hallmarks and reinforce the relevance of the applied strategy.

## DISCUSSION

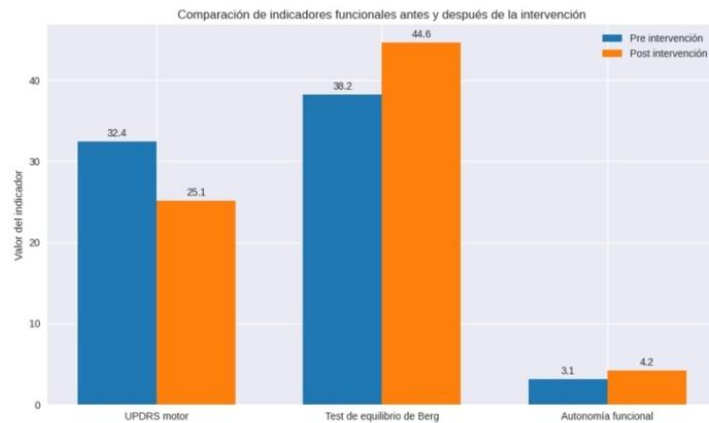
The results obtained highlight the potential of a methodological strategy for physical activity adapted in the community context to favor the functionality and well-being of people with Parkinson's disease. The decrease in the score on the UPDRS scale and the increase in the Berg balance test allow us to interpret a favorable evolution in motor dimensions relevant to everyday life, such as stability, postural control and movement capacity.

These findings coincide with those reported by Li *et al.* (2020), which highlights the usefulness of adapted physical training to improve the functionality of people with Parkinson's, particularly when focusing on strengthening and controlling movement. Likewise, Cano-de-la-Cuerda *et al.* (2020) indicate that structured and supervised programs can produce beneficial effects both in terms of functionality and the perception of quality of life.

The observed improvement in balance is especially important, as postural changes and the risk of falls constitute one of the main limitations in the progression of the disease. From this perspective, systematic work on balance and coordination at the community level reveals itself as a valuable and feasible option.

Regarding functional autonomy, the observed increase suggests that the strategy on the ground generates physical changes, but also a better capacity to face the activities of daily life. This result acquires particular relevance in community contexts, where the maintenance of functional independence has a direct impact on the reduction of family burden and the social participation of affected people.

To visualize these changes, a column graph was created that compares the pre and post intervention values of the three main functional indicators. The graphical representation allows a clear appreciation of the magnitude of the best achievements, and serves as a communication tool to share results with patients, family members and professionals (Figure 1).



*Figure 1. - Comparison of functional indicators before and after the intervention*

Emotional indicators also show favorable behavior. The increase in the perception of joy, rest and energy can be linked on the ground to the systematic practice of exercise, as well as the participatory character of the strategy, professional support and group interaction. This conclusion is coherent with the integral vision of rehabilitation in Parkinson's, which recognizes the need to meet the emotional and psychosocial dimensions of the process (Pirtošek, 2024).

Another element of interest was the involvement of family members and caregivers, whose participation strengthened adherence to the program and the continuity of actions outside the institutional space. This articulation between the sick person, family, community and professional team constitutes a strength of community focus and expands the reach of intervention.

From a methodological point of view, participatory research-action allows us to build the strategy based on the needs of the context, with the real participation of the involved actors. This favored the ownership of the process and the relevance of the actions developed, in line with what was planned by Springett et al. (2023) on the value of this approach in health promotion.

However, the results must be interpreted taking into account some limitations. If you work with a small sample, without group control and in a single institutional context, which limits the generalization of hallmarks. Simism, without using recognized

instruments and methodological triangulation, would be advisable to expand future investigations with greater samples, greater follow-up time and comparison between contexts.

Despite this, the experience developed provides a useful methodological basis for the community intervention of Physical Culture professionals in people with Parkinson's disease, and offers a contextualized reference for its adaptation in other primary care settings.

### ***CONCLUSIONS***

The adapted physical activity methodological strategy applied in a community context showed favorable results in mobility, balance, functional autonomy and emotional well-being of people with Parkinson's disease.

The integration of Physical Culture professionals into primary care, together with the active participation of sick people and their families, allowed the development of a pertinent and contextualized methodological proposal. The hallmarks support the feasibility of this type of intervention in community settings and suggest its potential for application in other similar contexts.

It is recommended to deepen future investigations with more extensive tests, greater methodological control and longitudinal follow-up, in order to strengthen the evidence on the impact of this type of strategies on community rehabilitation of neurodegenerative diseases.

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***Conflict of interests:***

The authors declare that they have no conflicts of interest.

***Contribution of the authors:***

The authors participated in the writing of the work and analysis of the documents.



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