

Original

Therapeutic games to promote articular mobility of superior members in the elderly adult **Juegos terapéuticos para promover la movilidad articular de los miembros superiores en el adulto mayor**

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Abstract

This research was aimed to the work of articulation mobility of superior members of the elderly, detecting that the use of games for this purpose is insufficient in the program of the elderly in Cuba and in the observed classes of the circle of grandparents under study. Taking into account the foregoing, the objective was to apply therapeutic games to promote joint mobility of upper limbs in the elderly of the circle of grandparents of the Military Community "Emilio Bárcenas" of the municipality of Holguin, consisting of a population of 26 grandparents. The importance of it lies in the use of games adapted for therapeutic purposes to promote joint mobility in this age group, which will enable the revitalization of motor skills and habits, in addition to providing a good mood and fighting some non-communicable diseases that appear due to the deterioration of some vital functions of the organism. It is a means of motivation in the classes and therefore it must be used by the Physical Culture teacher in correspondence with the characteristics of the adults and the objectives of the activity that allows them to achieve high productive results to the members of the community.

Key words: therapeutic games, articular mobility, major adult.

Resumen

Esta investigación tuvo como objetivo el trabajo de articulación de la movilidad de los miembros superiores de los ancianos, detectando que el uso de juegos para este propósito es insuficiente en el programa de ancianos en Cuba y en las clases observadas del círculo de abuelos en estudio. Teniendo en cuenta lo anterior, el objetivo era aplicar juegos terapéuticos para

promover la movilidad articular de las extremidades superiores en los ancianos del círculo de abuelos de la Comunidad Militar "Emilio Bárcenas" del municipio de Holguín, conformado por una población de 26 abuelos. La importancia de esto radica en el uso de juegos adaptados con fines terapéuticos para promover la movilidad articular en este grupo de edad, lo que permitirá revitalizar las habilidades y hábitos motores, además de proporcionar un buen estado de ánimo y combatir algunas enfermedades no transmisibles que aparecen debido al deterioro de algunas funciones vitales del organismo. Es un medio de motivación en las clases y, por lo tanto, debe ser utilizado por el profesor de Cultura Física en correspondencia con las características de los adultos y los objetivos de la actividad que les permite lograr resultados altamente productivos para los miembros de la comunidad.

Palabras clave: juegos terapéuticos, movilidad articular, adultos mayores.

INTRODUCCIÓN

The aging of the human organism, besides constituting a normal and irreversible stage of life, is a very special form of the movement of matter. It is a complex and varied process that depends, not only on biological causes, but also on socioeconomic conditions, in which the individual develops as a social being. (Onion 2001)

The World Health Organization (WHO) states that aging: is the period of life, where the deterioration of physical and mental functions is increasingly manifested, compared to previous periods.

The Holguinera population, according to the 2018 statistical yearbook is close to the national aging values with 19.88%, while in the country it is 21.1%.

Aging is a phenomenon that manifests itself, to a greater or lesser extent, in all countries; This causes an increase in the number and proportion of people grouped in the so-called category of older adults. In 1975 there were 350 million people over 60 in the world, this figure increased to 600 million in 2000 and will almost double again in 2025 when there will be 1100 Million (Hoskins and Mende, 2005).

Hence, demographic trends highlight population aging as the most outstanding change that has occurred in the structure of the world population in recent decades (United Nations, 2002). Life expectations have increased, projecting in the proportion of people over 60 years. If the current trend is maintained, this group of individuals will constitute 20% of the world population in 2050. According to Placencia Felipe, DM (2011), two types of aging are recognized: the biological one that refers to the changes that take place in the body and that are characteristic of the elderly

and the aging that some authors call “sociogenic”, Which refers to the role that society imposes on aging people. In the latter, all the prejudices that society manifests in relation to the elderly are involved. Both types of aging are responsible for the problems that afflict the elderly. There is little that can be done for biological aging, it is possible to do much against sociogenic aging.

Recreational activities for people with advanced ages enable the revitalization of motor skills and habits as well as providing a good mood and fighting

vitals of the organism. It is a means of motivation in the classes and therefore it must be used by the Physical Culture teacher in correspondence with the characteristics of the adults and the objectives of the activity that allows them to achieve high productive results to the members of the community.

In the literature review carried out so far, it has been possible to verify that research has been carried out aimed at the care of the elderly and the importance of therapeutic games for this age group. The works carried out in Cuba by authors such as: Ceballos (2001), Gallego (2005), Zaldívar, M. (2007) Sánchez (2011), Rojas (2011), Maceo (2011) and Núñez (2019) stand out, however, research that has addressed this issue to promote joint mobility in upper limbs is limited.

In the consultation of the official documents that govern the work with this group, it was evidenced that, although there is a program of methodological orientations aimed at working with the elderly, it was found that for the realization of different physical activities, it is necessary to go to the specificity for the improvement of joint mobility. The creation of grandfather's circles has come to mitigate this situation where many older adults attend them daily.

As a way to corroborate the previous approaches, a diagnosis was made, in which they were applied: non-participatory observation, interview with the Professor of Physical Culture and survey of the members of the grandparents circle, determining the following insufficiencies:

1. The therapeutic games of joint mobility for the upper limbs are limited in the Therapeutic Physical Culture program.
2. Insufficient use of therapeutic games with the elderly to promote joint mobility during classes.
3. Older adults in the circle of grandparents under study have limitations in joint mobility of the upper limbs.

This leads us to consider the following problem situation: the limitations in joint mobility of upper limbs of the elderly and the need to apply therapeutic games to promote joint mobility of upper limbs in the elderly belonging to the circle of grandparents of the Military Community "Emilio Bárcenas" of the municipality of Holguín. For this, the following question is asked: How to

promote joint mobility of upper limbs in the elderly belonging to the circle of grandparents in the Community

Military "Emilio Bárcenas" of the municipality of Holguín? So to give a solution it was necessary to "Apply therapeutic games to promote joint mobility of upper limbs in the elderly belonging to the circle of grandparents of the Military Community" Emilio Barcenas"of the municipality of Holguín."

The work provides therapeutic games to promote joint mobility of upper limbs in the elderly.

Population and Sample

The scenario selected to carry out the work was the circle of grandparents of the Military Community "Emilio Bárcenas" of the municipality of Holguín, composed of a population of 26 grandparents, using an intentional sample of 20 older adults with an age range between 60 and 75 years, where the following inclusion criteria were taken into account: 1. Authorized by specialists. 2. Age range between 60 and 75 years. 3. Sign the informed consent by confirming their voluntary participation in the study. 4. Not having rheumatic diseases that make it impossible for them to apply therapeutic games. Subsequently, the initial diagnosis was made on the level of joint mobility of upper limbs that the selected grandparents had in September 2019, using a goniometer as a measuring instrument, which gives a higher level of reliability to each test performed, Joints were measured in their active and passive movements to determine the reserve of mobility in each of the measured planes, they are: trunk, shoulders, cervical. Then the therapeutic games were designed to favor joint mobility of upper limbs of these grandparents, applying the specialist criteria to check their level of feasibility and finally, to their application for a period of two and a half months.

Analysis and discussion

Results of the survey applied to the members of the grandfather circle "Emilio Bárcenas Community", of the Holguín municipality.

In the first indicator related to the time they have been attending their grandparents circle: four have been one year, three have been three years, six have been six years, seven have been eight years. In the second indicator, how do you consider the assistance of practitioners? 85% responded affirmatively. When asked how do you consider the teacher's work? 100% responded positively because they have good pedagogical mastery, and the classes are valuable motivation level In the fourth indicator where he is asked if they feel motivated towards the practice of physical activities, 95% responded positively. When asked if their health has improved and they have better agility to perform daily work. 75% of respondents responded

affirmatively. In the sixth indicator where you are asked if they have difficulty performing joint mobility exercises. 90% responded positively, because when they executed the exercises they felt dizzy which caused them to lose their balance and pain. When asked if the physical exercises performed in the circle of grandparents to improve joint mobility of upper limbs are within reach and are performed in the form of games. 100% of the grandparents responded positively that they are within their reach because the exercises are consistent with their level and demand, but that they are not done in the form of games, rather individually.

Results of the interview applied to the teacher of Physical Culture of the grandfather circle "Emilio Bárcenas Community". aims to improve joint mobility of upper limbs in the elderly classes.

The teacher has 12 years of experience in the activity she performs. In indicator number 2 where he is asked if he has the older adult program, he answered affirmatively. When asked about his opinion about the contents of the existing program for the class with the elderly, and how joint mobility should be worked in the cervical region, he replied that the program for the elderly presents a methodological support for the activities, but the content regarding joint mobility in upper limbs is insufficient. Work should be carried out taking into account the methodological indications and strictly regulatory methods, mainly in the main part of the class, with a previous warm-up. In indicator number four where he is asked if he has the diagnosis of physical motor activities for the development of the activities, he responded positively where he gives us the fundamental tool to determine the main insufficiencies regarding joint mobility. When asked what types of physical exercises aimed at improving joint mobility are performed in the classes, he replied: flexion and stretching exercises. In indicator number six regarding the literature consulted for work with joint mobility in the cervical region of the elderly, it is based on methodological guidelines, programs aimed at this age group, digital journals of physical culture and rehabilitation. When asked about considerations regarding work with the Joint mobility of the upper limbs in the elderly, states that they contribute to the improvement of the amplitude of the movements of different articular planes of the elderly, reducing vertigo, pain and thereby increasing their quality of life.

Results of the initial diagnosis applied to the elderly of the grandfather circle "Emilio Bárcenas Community". of the Holguín municipality.

The articulated planes diagnosed are: Cervical spine, spine, shoulders, elbows, wrists, hips, all these planes were diagnosed in their active and passive movements with the use of a measuring instrument called a goniometer, in order to determine the reserve of joint mobility,

which is nothing more than the difference between the value of passive and active mobility. In general, in all the joint planes measured in these grandparents there were difficulties in their active form, which is the one to work because it is the one that is done without the help of someone else.

Therapeutic games to promote joint mobility of upper limbs in the elderly

1. **Name.** Bring the collar to the neck

Objectives: improves the speed of translation and joint mobility.

Materials: dried seed necklace.

Participants: 20 older adults of both sexes between 60 and 75 years old

Organization: the teams are formed in rows and in front of each team at a safe distance of 3 or 5 meters a grandfather is placed who will have the collar on and he acts as captain of his team.

Development: the captains of his team leave at the signal of the teacher and stand in front of his team, take off the collar and put it on the grandfather in front, take it by the hand and take it to where the captain was leaving the same and returns the grandfather who has the necklace to look for the one who continues from his team, the same operation is repeated and so on until all the members of his team are formed in the team in front.

Rules of the game: it is mandatory to take the grandfather by the hand. Win the team that end first. You can not run. He has to put the collar on the partner.

Variant: the teacher can form 4 rows to promote a greater number of repetitions.

2. **Name.** The little train

Objective: improves the mobility of the upper planes.

Materials: volleyball.

Participants: 20 older adults of both sexes between 60 and 75 years old

Organization: teams are formed in two rows at a short distance so that the ball travels through the hands of the grandparents to the end without touching the ground.

Development: teams are formed in a row at the signal of the teacher they pass the ball backwards without dropping them, the team that first finishes passing the ball wins.

Game rules:

You can't drop the ball to the ground.

It must be passed over the head and with both hands.

Repeat the exercise three to five times.

Variant: several rows can be formed for better participation in the game.

3. **Name.** Flip the flag

Objective: improves joint mobility and the speed of translation.

Materials: markers, flag.

Organization: grandparents are formed in teams of equal amount behind the starting line and at a reasonable distance the markers are placed.

Participants: 20 older adults of both sexes between 60 and 75 years' old

Development: the first grandparents leave at the signal of the teacher and turn the flag back and perform the sports greeting behind the finish line are incorporated at the end of their equipment and so on until all have performed the same operation.

Rules:

It is mandatory to perform the sports greeting behind the line.

The marker must be turned around.

You must not run.

Win the team that end first.

Variant: several teams can be formed, just as the teacher considers.

4. **Name.** It collapses if you can

Objective: improve trunk and arm mobility.

Materials: deodorant tubes of the same size and two balls.

Organization: the teams are formed in rows and at a reasonable distance the deodorant tubes are located and behind it are a grandfather who is in charge of organizing it once it has collapsed.

Participants: 20 older adults of both sexes between 60 and 75 years old

Development: in the voice of the teacher, grandfather number one throws the rolled ball, with the aim of knocking down as many tubes as possible and then this grandfather goes to the location behind the tubes to organize them and the one he organized becomes part of the team to launch.

Rules:

Each collapsed deodorant tube has the value of one point.

The team with the most points wins.

The ball must be rolled.

The launch is with one hand.

Variante: several rows can be formed, just as the teacher considers.

5. **Name.** Put on the hat.

Objective: improve reaction speed and joint mobility.

Materials: hat, tape recorder, a large table.

Organization: the grandparents in pairs make a circle around the table.

Participants: 20 older adults of both sexes between 60 and 75 years old

Development: when the music begins, couples begin to dance and when the music stops one of the duo must take a hat and put it on. When the game starts, the teacher should remove hats until one is left.

Rule:

Whoever puts on the hat at the end, wins that duo.

They must dance.

Must make up couples regardless of sex.

They can't take the hat until the music stops.

Variante: several pairs can be made and thus the game becomes more entertaining.

6. **Name.** Pass the ball sideways.

Objective: improve the mobility of arms and trunk.

Materials: volleyball.

Organization: teams are formed in two rows at a short distance so that the ball passes through the hands of the grandparents to the end without touching the ground.

Participants: 20 older adults of both sexes between 60 and 75 years.

Development: at the signal of the teacher the first grandfather of each row will pass with two hands a volleyball ball to his partner laterally, until he reaches the last grandfather, which will be incorporated at the beginning of the row and ends the game with The grandfather who started it.

Rule:

The ball cannot fall.

The ball must be passed with two hands laterally promoting lateral flexion.

Variante: if you don't have volleyball you can play the game with a rag.

7. **Name.** Pass the coin.

Objective: improves concentration and hand mobility.

Materials: one coin

Organization: teams are formed in rows, facing each other with equal number of participants.

Participants: 20 older adults of both sexes between 60 and 75 years.

Development: the first of each team have the coin placed on the back of their right hand, and then pass it to the back of the left hand of their partner, to the voice of the teacher they pass the coin to the back of the hand successively until The currency reaches the end of the last competitor.

Rules:

Win the team that end first.

The currency must pass from hand to hand of each partner until the end.

Where the game is interrupted should start.

Variante: you can play the game with a lady token or a crushed sheet.

8. **Name.** Sweep your yard.

Objective: exercise balance, hand mobility and precision.

Materials: obstacles, brooms, balls, etc.

Organization: the teams are formed in rows one meter away from the ball and the obstacles are placed at a reasonable distance, the court is placed three or four meters away.

Participants: 20 older adults of both sexes between 60 and 75 years' old

Development: already the first of each team are with the broom in their hands and the signal of the teacher they leave sweeping the ball through its zigzag patio and through the obstacles it reaches the bottom line in front of the court and sweeps the ball strong making it pass through the field, this grandfather hands the broom to the grandfather who is located behind the goal and he takes the place of the guardian grandfather, who takes the broom brings it to the starting line and joins the end of his team and so on until all the grandparents have performed the same operation.

Rules:

Win the team that end first.

Whoever passes the ball inside the court gets an additional point.

You can not run.

It is mandatory to sweep the patio in zigzag along the obstacles.

Variante: if you don't have a court, you put two flags that demarcate the terrain and the ball will pass through the center of it.

9. **Name.** Hot ball.

Objectives: exercise the memory, concentration and mobility of the upper train.

Materials: balls

Organization: they are formed in rows depending on the number of participants.

Participants: 20 older adults of both sexes between 60 and 75 years old

Development: to the voice of the teacher they pass the ball above and must pass from hand to hand of each grandfather until it reaches the end and then returns below until it reaches the first grandfather.

Rules: where the exercise is interrupted should begin. You must pass the ball from hand to grandfather. Win the team that end first.

Variants: It can be combined where the ball will pass.

10. **Name:** Whoever touches first.

Objectives: improves reaction speed and joint mobility.

Materials: cardboard cut-out square, Engraver.

Organization: dispersed grandparents are formed in the area, distributed throughout the land marked the cardboard squares.

Participants: 20 older adults of both sexes between 60 and 75 years.

Development: the music begins and the grandparents begin to dance always approaching the squares carefully, when the music stops You have to put your foot on a square, the teacher begins to remove square and the grandfather who fails to set foot on a square will be removed and so on until only one grandfather is left with a square.

Game rules:

The grandfather who first puts his foot on a square win.

They must dance to the rhythm of the music.

Variants: if the teacher does not have a recorder, he gives the order to start dancing and at the signal to quickly stop the grandparents will look for a square.

In order to determine the level of feasibility of the proposed therapeutic games, a nominal group was created consisting of 15 specialists working with the Physical Culture programs, where 7 of them are methodologists of the Provincial Directorate of Inder, 5 are methodologists of the municipal management of the Inder and 3 professors of the Faculty of Physical Culture and

Sports. Their selection was made based on work functions, years of experience and also related to the research topic. Once the questionnaire on the proposal of therapeutic games in the elderly is delivered to favor joint mobility of upper limbs and that the specialists make their assessments based on the proposed indicators (novelty, need, applicability and scientific rigor), proceeded to collect and interpret the results.

The 15 specialists who represent 100% believe that therapeutic games are novel, since they had no reference to similar ones, they also consider that a class with this type of people should be more motivating, so the games will enable this purpose. When analyzing the need indicator, the 15 specialist for 100% declare that it is necessary to apply them not only to these grandparents of the Emilio Community Bárcenas, but generalize it to other communities, municipality and provinces. When assessing the indicator of applicability of the proposal, the 15 specialists for 100% express that it can be perfectly applicable and even generalize it to other grandparent circles, that the elaboration of the games includes the methodology indicated for its conformation and that the provincial department of Physical Culture, you can allow this proposal to be applied in the province. Finally, when referring to the scientific rigor indicator, the 15 specialists for 100% believe that the proposal responds rigorously to the theoretical foundations for its design.

Results achieved after having applied the therapeutic games.

FIRST MEASUREMENT

	CUELLO			
	Ventral Flexion	Dorsal Flexion	Right Banking Flexion	Left Latter Flexion
MAXIMUM	76 g	42 g	75 g	74 g
MINIMUM	41 g	35 g	39 g	40 g
HALF	55 g	39 g	54 g	55 g

SECOND MEASUREMENT

	CUELLO			
	Ventral Flexion	Dorsal Flexion	Right Banking Flexion	Left Latter Flexion

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MAXIMUM	81g	50g	80g	81g
MINIMUM	48g	41g	45g	46g
HALF	65g	45g	62g	63g

When comparing the results of the second measurement with respect to the first in this articular plane of the neck, superior results are appreciated in favor of the second measurement in the different movements measured, with average values of 65 degrees in the ventral flexion, 45 degrees in dorsal flexion, 62 degrees and 63 degrees in the right and left lateral flexion respectively. This denotes the effectiveness of the application of therapeutic games during the two and a half months worked.

FIRST MEASUREMENT

	HOMBROS			
	Anteversion of the right arm	Right arm retroversion	Anteversion of the left arm	Retroversion of the left arm
MAXIMUM	170g	175g	178g	180g
MINIMUM	140g	146g	146g	156g
HALF	155g	161g	162g	168g

SECOND MEASUREMENT

	HOMBROS			
	Anteversion of the right arm	Right arm retroversion	Anteversion of the left arm	Retroversion of the left arm
MAXIMUM	179g	181g	183g	186g
MINIMUM	149g	152g	155g	160g
HALF	164g	166g	169g	173g

In this articular plane of the shoulders, where the movements of anteversion and retroversion of the right arm with the extended arm are analyzed, positive results can be seen with an average of 164g and 166g in favor of the second measurement. Similarly, when analyzing the

movements of anteversion and retroversion of the extended left arm, average results of 169g and 173g can be seen in favor of the second measurement.

Conclusions

1. From the diagnosis made, it was possible to verify the existence of difficulties in the development of joint mobility of the upper limbs in the elderly of the selected sample, in the same way, the results of the interview and the survey show a low application of therapeutic games to favor joint mobility in this population group during classes.
2. The therapeutic games designed to favor joint mobility in the upper limbs in the elderly, can be applied in practice according to the criteria of the specialists.
3. The partial implementation of therapeutic games during the two and a half months favored joint mobility in the upper limbs of the elderly.

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