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Original article

Recreational activities to motivate the learning of children with Down síndrome

Actividades recreativas para motivar el aprendizaje de los niños con síndrome de Down

Atividades recreativas para motivar a aprendizagem em crianças com síndrome de Down

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ABSTRACT

Recreational activities can enhance various variables for the teaching of various elements in children with Down syndrome, which can improve the subject's quality of life, through the scientific application of appropriate physical stimuli and adapted to the context. The objective of this research was to theoretically validate the importance of recreational



activities to motivate the learning of children with Down syndrome from different analysis variables. The research is exploratory, with a descriptive-explanatory and correlational orientation, 31 specialists from two independent groups are consulted (Group 1: National Specialists: 16 subjects; group 2: international specialists: 15 subjects). The importance of recreational activities in basic (HFB in Spanish) and specific (HFE in Spanish) physical skills, the formation of values (FV in Spanish), cognitive skills (HC in Spanish) and ludic culture (CL in Spanish) is validated. The criteria issued by the independent groups did not show significant differences in the variables "HFB" ($p=0.626$), "FV" ($p=0.545$) and "CL" ($p=0.861$), but in the variables "HFE" ($p=0.000$) and "HC" ($p=0.000$). The need for an update of knowledge in national specialists in the last two variables described is evident. Of the variables analyzed, "HFB" has a greater relative importance, followed by "HFE", "FV", "HC" and "CL" respectively. The present research laid the theoretical foundations to carry out practical researches with a high originality for the Ecuadorian environment. The professional improvement of national specialists and the implementation of prospective actions of consideration are prioritized.

Keywords: Recreational activities; Down's syndrome; Basic and specific physical skills; Formation of values; Cognitive skills; Ludic culture.

RESUMEN

Las actividades recreativas pueden potenciar diversas variables para la enseñanza de elementos diversos en niños con síndrome de Down, las cuales pueden mejorar la calidad de vida del sujeto, a través de la aplicación científica de estímulos físicos adecuados y adaptados al contexto. El objetivo de esta investigación consistió en validar teóricamente la importancia que revisten las actividades recreativas para motivar el aprendizaje de los niños con síndrome de Down desde diferentes variables de análisis. La investigación es exploratoria, de orientación descriptiva-explicativa y correlacional, se consultan a 31 especialistas de dos grupos independientes (grupo 1: especialistas nacionales: 16 sujetos; grupo 2: especialistas internacionales: 15 sujetos). Se valida la importancia de las actividades recreativas en las habilidades físicas básicas (HFB) y específicas (HFE), la formación de valores (FV), las habilidades cognitivas (HC) y la cultura lúdica (CL). Los criterios emitidos por los grupos independientes no mostraron diferencias significativas en las variables "HFB" ($p=0.626$), "FV" ($p=0.545$) y "CL" ($p=0.861$), y sí en las variables "HFE" ($p=0.000$) y "HC" ($p=0.000$). Se evidencia la necesidad de una actualización de conocimientos en los especialistas nacionales en las dos últimas variables descritas. De las variables analizadas, posee una mayor importancia relativa la "HFB", seguida de "HFE", la "FV", la "HC" y la "CL" respectivamente. La presente investigación sentó las bases teóricas para realizar investigaciones prácticas con una alta originalidad para el entorno ecuatoriano. Se prioriza la superación profesional de los especialistas nacionales y la implementación de acciones prospectivas de consideración.

Palabras clave: Actividades recreativas; Síndrome de Down; Habilidades físicas básicas y específicas; Formación de valores; Habilidades cognitivas; Cultura lúdica.

RESUMO

As atividades recreativas podem melhorar várias variáveis para o ensino de diversos elementos em crianças com síndrome de Down, o que pode melhorar a qualidade de vida da disciplina, através da aplicação científica de estímulos físicos adequados



adaptados ao contexto. O objetivo desta investigação era validar teoricamente a importância das atividades recreativas para motivar a aprendizagem em crianças com síndrome de Down a partir de diferentes variáveis de análise. A investigação é exploratória, descritiva-explicativa e correlativa. Foram consultados 31 especialistas de dois grupos independentes (Grupo 1: Especialistas Nacionais: 16 temas; Grupo 2: Especialistas Internacionais: 15 temas). A importância das atividades recreativas nas competências físicas básicas (BPS) e competências físicas específicas (BPS), formação de valores (VF), competências cognitivas (CS) e cultura lúdica (LC) é validada. Os critérios emitidos pelos grupos independentes não mostraram diferenças significativas nas variáveis "HFB" ($p=0,626$), "FV" ($p=0,545$) e "CL" ($p=0,861$), mas diferenças significativas nas variáveis "HFE" ($p=0,000$) e "HC" ($p=0,000$). A necessidade de atualizar os conhecimentos dos especialistas nacionais nas duas últimas variáveis descritas é evidente. Das variáveis analisadas, "HFB" tem a maior importância relativa, seguido por "HFE", "FV", "HC" e "CL" respectivamente. Esta investigação lançou as bases teóricas para a investigação prática com um elevado grau de originalidade para o ambiente equatoriano. É dada prioridade ao aperfeiçoamento profissional dos especialistas nacionais e à implementação de ações prospectivas de consideração.

Palavras-chave: Atividades recreativas; Síndrome de Down; Aptidões físicas básicas e específicas; Formação de valores; Aptidões cognitivas; Cultura lúdica.

INTRODUCTION

Physical and recreational activities are recommended for their benefits to the body from a physical, psychological and social point of view (Morales, Lorenzo, de la Rosa, 2016; Eigenschenk, et al., 2019), which thus form a factor positive for the harmony between the biological, psychological, social and spiritual in the human being. The practice of these activities is often related to free time, (González & Temprano, 2018) thus constituting a healthy alternative to invest this time and influence a lifestyle. On the other hand, other physical-recreational activities tend to be more controlled and oriented towards specific objectives, such as improving motor skills in people with disabilities or specific mobility problems (Calero Morales, Garzón Duque, & Chávez Cevallos, 2019; Barroso, Sánchez, & Calero, 2016; Pereda & Calero, 2015).

It is then emphasized that physical recreation is not an eminently static fact, but dynamic, referring to a specific area of human experience with freedom of choice, creativity, satisfaction, enjoyment, etc. What favors personal, economic and social development, an important aspect of the quality of life by promoting good health and well-being, by offering varied opportunities that allow individuals and groups to select activities according to their experiences, their needs, interests and value orientations, (Obregón, et al., 2018), in addition to becoming a personal and social fact.

Motor activities help body mobility, participation in activities where enjoyment, friendship and coexistence with members of the community are achieved (Calero, et al., 2014; Salazar, Morales, 2018; Hernández, Chávez, et al., 2017; Sailema, et al., 2017). Society has to be enriched with individual differences and the diversity of people. This inclusion is very important for the enrichment of society, where family life is a constant active participation in all areas such as: work, community, culture, education and in all social processes (Talavera et al., 2018; Bhojti, Brown, Lentin, 2020). One of the most effective strategies to achieve the goals mentioned above is physical recreation, sports initiation, educational sports and motor games; they are elements of the sciences of



physical activity. It should be remembered that Physical Education contributes a lot to society; it promotes an active life that allows combating sedentary lifestyle and other associated ills, (Pardos-Mainer, *et al.*, 2021). Also people in special conditions such as those with Down syndrome are included (Morales, 2017; Wentz, *et al.*, 2021). Currently, the concern to find ways or forms to provide greater and more effective care to people with special educational needs has increased considerably throughout the world. In the case of people with Down Syndrome, society feels the need to find a solution to the situation that they may present, associated with their disabilities. The adapted application of complementary and significantly important sciences such as physical culture is included as one of the solutions (Sailema, *et al.*, 2017; Pitchford, *et al.*, 2018; Panezo, Coyago, Cevallos, 2021). Here, promotion and participation in specialized physical-recreational activities are normally sought, as defined by Wentz, *et al.*, (2021).

The design of timely strategies and actions, aimed both at comprehensive education and the increase of specialized physical activity, must be in correspondence with the needs, likes and preferences of individuals with Down syndrome. This study arises to respond to the lack of a physical-recreational project in the *City of Palenque Special Education School*, which responds to the purposes of the population under study. This work is also designed in order to provide criteria to provide prospective solutions to the problem; this is related to the possibilities that specialized physical activity has to motivate general learning in children with Down syndrome. For this reason, the purpose of the research is to theoretically validate, through consultation with specialists, the importance of recreational activities to motivate the learning of children with Down syndrome from different analysis variables.

MATERIALS AND METHODS

The research has an exploratory basis with a view to carrying out actions in the future aimed at developing specific learning with specialized physical activity. This is developed through eminently recreational-oriented strategies, aimed exclusively at children with Down syndrome. Therefore, this research is descriptive-explanatory and correlational. Consultations are carried out through a survey of 31 specialists, divided into two independent groups: nationals (group 1, national specialists, 16 subjects) and internationals (group 2, international specialists, 15 subjects).

These supposed inclusion groups have the following characteristics:

1. Minimum degree of third level in Science of Physical Activity and Sports or related.
2. Work experience directly related to the application of specialized physical activity for children with Down syndrome (at least seven years).
3. Demonstrable knowledge of professional skills in the area of education of people with special educational needs (Certificates, master's degrees, specialized courses).

The specialists consulted evaluated 5 (five) variables using a Likert scale with five increasing levels (Level 1: Not importance; level 2: little importance; level 3: average importance; level 4: With Importance; level 5: high importance). These variables were related to the theoretical importance of the teaching process to motivate the learning of children with Down syndrome. These variables were:



1. Basic physical skills (HFB): basic motor movements required to perform a locomotor movement effectively and accurately such as running, jumping, catching, throwing and turning.
2. Specific physical skills (HFE): motor movements specific to each sport, necessary to improve sports technique.
3. Formation of values (FV): extend the scope of motor education to the moral and civil sphere, which forms responsible citizens.
4. Cognitive skills (HC): skills related to information processing, including memory, attention, perception, socialization, creativity and analogical thinking, among others.
5. Ludic culture (CL): activities carried out in free time to expand body expression independently.
6. To compare the results issued by each specialist, the non-parametric Mann-Whitney U test was used for two independent samples ($p \leq 0.05$), after verifying the non-existence of normal data distribution.

RESULTS AND DISCUSSION

Table 1 shows the results issued by each specialist in each independent group and for each study variable. Theoretically, the motivation process with recreational activities could have a greater or lesser importance, the learning of children with Down syndrome; the average or arithmetic mean reached in each score is expressed at the end (Table 1).

Table 1. - Results of the survey of specialists

Do not	Group 1	Group 2	Group 1	Group 2	Group 1	Group 2	Group 1	Group 2	Group 1	Group 2
	HFB		HFE		PV		HC		CL	
1	3	4	3	4	3	3	2	5	2	3
2	4	4	3	4	3	2	1	4	3	2
3	5	5	3	3	2	3	2	3	2	1
4	3	3	4	4	5	4	3	4	2	3
5	4	5	3	4	4	3	2	4	2	2
6	5	4	2	5	4	4	2	4	2	2
7	4	3	3	4	3	4	2	3	2	3
8	5	4	2	4	4	3	3	4	3	3
9	4	4	3	5	3	3	2	4	2	2
10	4	5	3	4	4	3	2	4	2	2
11	3	4	3	4	3	3	3	4	3	2



12	5	5	3	4	2	3	3	4	2	2
13	4	4	2	4	3	4	2	5	3	2
14	4	5	3	4	3	3	3	5	1	2
15	5	5	3	5	4	3	3	3	2	1
16	4		4		4		2		2	
□	4.13	4.27	2.94	4.13	3.38	3.20	2.31	4.00	2.19	2.13

In the case of the *basic physical skills* (HFB) variable, the specialists consulted in each independent group show a similar mean in the score achieved, in the case of the national specialists (group 1) the score reached 4.13 points (with importance) and in the international specialists (group 2) the average score reached 4.27 points (with importance), without significant differences in the score when comparing the data of each independent group ($p=0.626$). These results have been possible after analyzing data processing from the *Mann-Whitney U Test* (Table 2).

The foregoing evidences, in the opinion of the specialists consulted, that recreational activities have a relevant importance to develop the process of teaching basic physical skills in children with Down syndrome. This approach is declared regardless of the complexity of each skill. In this sense, works by nationals such as the one arranged in *Sailema, et al., (2017)* show how traditional games can favor motor skills in children with down syndrome; while in the international literature other directly related works are evidenced, such as those arranged in *Winders, Wolter Warmerdam, Hickey (2019)* that exhibit a program for gross motor development or those arranged to perfect movement in *Capio, et al., (2018)*.

The teaching-learning process from physical-recreational activities in people with special educational needs is well founded in national and international literature. From this perspective, the data obtained in this research show the similar understanding that specialists have of the importance of specialized physical activity in the acquisition and improvement of basic motor skills. On the other hand, in the case of sports-specific motor skills, they revealed notable differences ($p=0.000$) in the scores issued by the specialists. In this context, the specialists of group 2 showed a much higher level of importance (4.13 points: with importance) than that reached in the average score of group 1 (2.94 points: between little importance and average importance).

In the opinion of the authors of this research, the significant difference between independent groups is due to the lack of knowledge of national specialists about the use of recreational activities to enhance specific physical abilities (HFE). In this case, there is a lack of national literature in terms of enhancing these skills in children with Down syndrome. This is an aspect that according to *Makhov, Medvedev (2019)* originates in part from the lack of qualified coaches, although in the international literature there is evidence of research establishing the potential of practicing sports in various motor aspects of the child with Down, such as: table tennis practice (*Ilkim, Akyol, 2018*).

Taking into account the variable *Specific Physical Abilities* (HFE) and given the little importance given by national specialists to the influence that recreation can have on the acquisition and development of specific physical abilities in children with Down Syndrome, it is recommended in the future, to develop experiences with physical stimuli



from different sports. In this situation, the possibilities for specialized physical activities in that field are created. On the other hand, it is additionally recommended to expand the level of knowledge of national coaches through professional improvement processes, with emphasis on the real potentialities of implementing work actions to improve the process of teaching physical-sports skills in children with Down.

In the case of *formation of values* (FV), neither does the national literature consulted announce directly related actions in Ecuador, however, the average scores achieved in both independent groups were statistically similar ($p=0.545$). It is considered in this analysis that both national (3.38 points) and international (3.20 points) specialists point out that the formation of values through recreation could have repercussions of average importance in children with Down syndrome, as would be the case of inclusion as a human condition (Král, Králová, 2015).

On the other hand, and related to the previously analyzed variable, the formation of social skills as the basis of the *cognitive skills* (HC) variable according to Makhov, et al., (2020) can be enhanced through elements specific to football. This sport makes it possible to develop one's own cognitive skills such as punctuality, neatness, discipline and diligence, which include collectivism, camaraderie, mutual support and socialization. Aspect that national specialists do not consider possible, given the low score shown (2.31 points: Little Importance). Unlike the international specialists who did score with a higher average (4 points: With Importance), it is considered that the teaching process is important for perfecting specific cognitive skills.

In the case of *ludic culture* (CL) variable, related to the importance that recreational activities carried out in free time could have to expand body expression independently, both independent groups rated it with a low level of importance (group 1: 2.19 points; group 2: 2.13 points: little importance). No significant differences between independent groups ($p=0.861$). It is generally considered that children with special educational needs cannot expand their body expression with total independence, given the need for constant control by specialists and the relative inability of a child with Down to playfully become independent. However, the literature consulted does specify the importance of recreational activities in playful motor skills in children with Down syndrome (Izquierdo, Jarrín, 2021; Plúas, 2021). In this study, works have been found that nationally and internationally value the effects and importance of recreational activities in the teaching process in children with Down, although in a scientifically controlled way by the specialist in specialized physical activity.

Based on the results achieved in this research, the general actions, which from a practical point of view should be projected in the immediate future, can be delimited as follows:

1. Implement upgrading courses for national specialists where content related to the teaching of specific physical skills (HFE) in children with Down syndrome is developed, disseminating their potential.
2. Similarly, implement improvement courses with topics related to cognitive skills that can enhance recreational activities for children with Down.
3. Carrying out correlational and quasi-experimental research with elements typical of ludic activities and the development of specific physical skills, thus taking advantage of the high degree of originality that research related to this field would have in the Ecuadorian environment for people with special educational needs, with emphasis on children with Down syndrome.



4. Similarly, implement research similar to action number three, although enhancing the specific cognitive skills that are intended to be prioritized; these are original elements for the Ecuadorian environment to develop from recreational stimuli of active and passive orientation.
5. Recommend the theoretical study of other variables where physical-recreational activities could have some level of importance or influence.

As described in detail previously, comparisons of individual scores for each independent group were correlated with the *Mann-Whitney U Test* (Table 2). Only significant differences prevail in the *HFE variable* and the *HC variable*, aspects that should be strengthened with professional upgrading courses for national specialists. Thus, it is possible to expand knowledge about the importance of physical recreation to improve the teaching process of physical-sports skills and cognitive skills of children with Down syndrome. This forms a premise in the present investigation to support future actions theoretically and methodologically in order to improve said indicators in relevant national investigations (Table 3).

Table 2. - *Mann-Whitney U test* for the variables analyzed

		Ranks		
	Groups	N	Average range	Sum of ranks
HFB	Group 1	16	15.19	243.00
	Group 2	15	16.87	253.00
	Total	31		
HFE	Group 1	16	9.66	154.50
	Group 2	15	22.77	341.50
	Total	31		
FV	Group 1	16	17.00	272.00
	Group 2	15	14.93	224.00
	Total	31		
HC	Group 1	16	9.06	145.00
	Group 2	15	23.40	351.00
	Total	31		
CL	Group 1	16	16.28	260.50
	Group 2	15	15.70	235.50
	Total	31		



Table 3.- Test statistics^a

	HFB	HFE	PV	HC	CL
Mann-Whitney U	107,000	18,500	104,000	9,000	115,500
W for Wilcoxon	243,000	154,500	224,000	145,000	235,500
Z	-.561	-4,308	-.706	-4,558	-.210
Asymptotic sig.(bilateral)	.575	,000	,480	,000	.833
Exact significance [2*(one-sided sig.)]	.626b -	,000b	.545b -	,000b	.861b -

a. Grouping Variable: groups.

CONCLUSIONS

The consulted specialists valued the theoretical importance of recreation to motivate the learning of children with Down syndrome. A greater relative importance stands out in the enhancement of basic motor skills (the one with the highest average score), followed by specific physical skills, the formation of values, cognitive skills and ludic culture, respectively. This research lays the theoretical foundations to carry out practical research with a high originality in favor of the Ecuadorian environment, with priority in the professional improvement of national specialists and the implementation of prospective actions of consideration.

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Conflict of interests:

Los autores declaran no tener conflictos de intereses.

Authors' contribution:

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



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