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Prevalence in athletes with intellectual, anthropometric, and physical disabilities-conditional in Athletics

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Abstract

This article aims to verify the prevalence of athletes with intellectual, anthropometric, and physical-conditional disabilities in Athletics. Mixed research was conducted, the descriptive, exploratory, and non-experimental studies. Methods of document analysis, surveys, interviews, measurements, and statistical analysis were used. The reliability and validity of the instruments gave us a confidence interval of (95%), with a standard value of ($p < 0.05$). This prevalence study involved 10 male athletes with disabilities, with an age (± 13.6), weight (± 58.3), and average height ($\pm 1,605$). The results showed the main physical-conditional anthropometric characteristics that distinguish athletes and their analyses according to the upper and lower extremities and functional conditions, based on the behavior of the mean values of each indicator. In conclusion, greater attention should be paid especially to athletes who have not shown the good physical condition to achieve outstanding results in these Olympics.

INTRODUCTION

As a form of expression of sport and physical exercise, they are essential components of developing physical skills and abilities in people with intellectual, anthropometric, and physical-conditional disabilities. These factors potentiate the improvement of the personal, social and psychological preparation of this population through adapted sport to strengthen and stimulate the efforts that this type of population puts into their performance, which we must take paradigm for today's society.

According to the United Nations (N U, s.f), International Convention on the Rights of Persons with Disabilities, disability is an evolving concept that results from the interaction between people with disabilities and the barriers due to attitudes and environment that prevent their full and effective participation in society, on equal terms with others. Adapted sport is any physical, sporting, or recreational activity that can be performed or achieved by a specific population with needs or conditions, with the purpose of carrying out the social and participatory activities of athletes, maximizing their emotions and physical conditions. (Olmos & Urdampilleta, 2012).

We consider that a determining aspect of these athletes is their emotional potential to be able to express their motivations through adapted sports. Within this category, the following is accepted as a definition of people with physical motor impairment-disability: It is any person unable to attend by himself, totally or partially, to the needs of his individual life or the normal social, because of a deficiency, congenital or not, and that produces a sequel in his physical or motor abilities (Rodriguez, s.f).

In the last 50 years, we have been living in a society where we aspire to equality and equity for the participation of athletes with intellectual disabilities in participation at the national level in the Special Olympics in the sports field, as well as to international seats such as the Paralympic Games to promote the inclusion of athletes who can demonstrate all their abilities to contribute to a change of mentality of conventional people. (Torralba, Braz & Rubio, 2017). It is important to make modifications to the sport according to the needs and characteristics of the athletes, as well as to the means of

communication, such as transport, buildings, and public roads (Cantabrian Federation of Sport for the Physically Disabled, 2016). According to the disciplines, sports must be adapted to manifest all physical, technical, tactical, and psychological skills and abilities.

According to what has been said, adapted sports offer equity and equal opportunities for people with physical-conditional potentialities so that they have the right in the recreational and competitive field to express their potentialities; in addition, they allow them to practice physical and sports activities nationally and internationally. The Special Olympics is one of the largest sports organizations in the world for people with intellectual and physical disabilities; it defines the characteristics to understand the process of physical activities for participants of Unified Sports in 172 countries (Taranjit, Tapan, Singh, & Ishita, 2020).

In the case of adapted sport, its benefits are broadly related to rehabilitation; at the physical level, it allows to have new experiences of movement, facilitates the discovery of skills, develops motor skills and properly sports skills, enhances functional development, and limits the comorbidities associated with the primary health condition; It also benefits at the psychosocial level self-care, work capacity, improves self-esteem and self-efficiency, and motivation for a goal.

The main objective is to facilitate sports training for athletic competition during a one-year cycle or a four-year cycle of Olympic sports to all people over eight years of age with disabilities according to the needs of people with a certain disability to develop physical fitness, demonstrate courage, experience joy, and participate in an exchange of gifts, Skills. Special Olympics (IAAF, 2009 a). According to Gillespie (2008), "the Special Olympics program under review offers numerous opportunities for athletes with intellectual disabilities to participate in competitive sports programmes" (p.24).

Through sports training and quality competition, global movement improves the lives of people with intellectual disabilities; according to the physical-conditional potentialities, people with intellectual disabilities must become valuable and productive citizens who are accepted and respected in their communities. Special Olympics (IAAF, 2009 b). The number of Ath-

letics events or events available at Special Olympics is geared to offer competitive opportunities to all athletes of all abilities and possibilities. Coaches are responsible for offering specialized and specific training, tests, or appropriate events to each of the athletes depending on the skill and interest of the athlete.

Many studies propose that Special Olympics Athletics includes track, field, and combined events (Neumann et al., 2006; Special Olympics, 2009; Winnick & Porretta, 2017; Palacio et al., 2021; Suzanne & Thomas, 2022). According to that sense, track events contain races from 25 to 10,000 meters; hurdles races of 110 meters for men and 100 meters for women; 4 x 100-meter relay; 4 x 400 meters and these same events, where an athlete with intellectual disability can be included. The pentathlon is among the combined events (100 meters, long jump, shot put, high jump, 400 meters). In addition, in the Assisted Olympic March 10, 25, and 50 meters; wheelchair events, in races of 10, 25, 30, and 50 meters; wheelchair bullet drive; road races; half marathon and marathon.

Anthropometric measurements have been addressed by authors such as (Gomez, Garcia, & Franco, 2002; Canda, 2012; Castañeda et al., 2017; Castillo & Espinoza, 2018; Carmenate et al., 2014; Cossio et al., 2015; Lucero et al., 2012; Junqueira, 2010; Perez et al., 2013; Moncef et al., 2022; Nikic et al., 2017; Latif et al., 2021) these anthropometric measurements, constitute aspects that should be addressed and studied from various points of view, to provide information on the general health status of this population with some disability. According to Palacio (s.f). States that "it is important that the teacher comes to know and determine the personal profile of the child with needs, to be able to establish exactly the type of adaptation" (p.6)

In the sports context, the National Special Olympics Program has reached relevant levels in terms of the organization from the base, incorporation, and preparation of athletes, training of coaches, volunteers, and families, and inclusion of new sports; in this context. However, in the practice of the Special Olympics Programme, the results have been favourable in competitions. The training of this sport has been developed with a sympathetic and empirical character because it has not been based on the actual knowledge of the state of the fundamental indicators of physical condition, favouring

performance in the practice of athletics.

According to studies conducted by (Garrote, Muñoz, & Sánchez, 2017), the sport is key to improving the emotional state of people with disabilities because it improves self-esteem and self-improvement. It also influences personal development, develops self-control, self-confidence, identity, and positive self-concept, improves self-esteem, creates and regulates habits, etc. (p. 147). In this sense, the problematic situation related to the lack of knowledge of anthropometric and functional indicators of athletes with intellectual disabilities for their incorporation into the sports practice of Special Olympics, specifically Athletics, remains; therefore, this research aims to verify the prevalence in athletes with intellectual, anthropometric and physical-conditional disabilities in Athletics, based on indicators of the results with frequencies of the upper and lower extremities and functional conditions.

METHODS

Mixed research was carried out based on a descriptive, exploratory, non-experimental study, where ten athletes with intellectual disabilities participated, members of the Athletics team of the Special Olympics Program. In the study, we used the following empirical level methods.

The analysis of documents: To the Development Strategy of the Special Olympics Subprogram, the training plan of the coaches of athletes attending Special Olympics, to the File of the Diagnostic and Orientation Center (CDO) of each athlete; all to verify in the official documentation, aspects related to the anthropometric evaluation.

The survey was applied to coaches of the Special Olympics Subprogram, specifically to those of the sport of Athletics, to verify the existence of previous measurements. The interview: It was intended for the officials of the Special Olympics Subprogram, specifically those of Athletics, to know the guidance issued regarding anthropometric evaluations in these athletes. The measurement did not allow the evaluation of the athletes related to the anthropometric indicators for the control of the upper and lower extremities (Espejo, de la Vega, Chacón, 2013).

Statistical analysis: It was used to determine the data obtained with the statistical program SPSS version 23, applying the statisticians, the mean in the anthropometric indicators of the upper and lower train and the functional indicators, the statistical processing, the arithmetic mean, and the frequency, to verify the average values and the position of the athletes concerning these. The reliability and validity of the instruments gave us a confidence interval of (95%), with a standard value of ($p < 0.05$). In addition, the inclusion criterion of the parents of families of the ten athletes was used for their consent and managers

Participants

The population is made up of the ten school athletes who make up the men's Special Olympics Athletics team, category 13-15 years, all men. They belong to special schools for the education of children with intellectual disabilities. They reside in different municipalities of the province, which they have represented in different national competitions.

Table 1. Anthropometry Data

N	Sex	Age	Weight	Height
10	M	13.6±1.1	58.3±2.1	1.6±2.4

Instrument

For the reliability and validity of the instruments, two ISAK level II certified evaluators of the Department of Sports Medicine were selected, who have all the credibility of knowledge and experience. Surtek CL 20 (66) tape measure measures were used to measure the indicators of diameter, length, and anthropometric ranges of the research subjects.

Manual Chronometer mark JIMHER STOP-WATCH SG-152; this instrument made it easier for us to take the times of the ten school athletes who make up the men's Special Olympics Athletics team of physical-conditional abilities.

Data Registration Sheet, designed by the Excel program, this instrument was very useful and practical for recording the data of the physical-conditional anthropometric tests; In addition, this recorded data allowed us to apply the SPSS version 23 program for statistical indicators.

Procedure

The research process was developed under the ethical standards and principles expressed in the Declaration of Helsinki 2013. Before starting the training session, with appropriate clothing, the specialists in sports medicine made the anthropometric measurements, those of the upper and lower train; these measurements were taken three times to check the degree of difference between them, with a confidence level of 95%. The laboratory where these measurements were applied complies with the standardized certification standards of the International Society for the Advancement of Kinanthropometry (ISAK) level II. The functional indicators of the physical-conditional, after a joint warm-up previously performed on the athletics track, were performed in an orderly manner as expressed below: flexibility, speed, planks, abdominals, long jump without impulse, and resistance; all these tests were performed on the same day.

RESULT

The results found above the mean can be observed in a table 2. Table 2 shows that the indicators where the athletes are above the average are forward reach (6 athletes) and palm length (5 athletes). These athletes have the potential for launch tests since the length of the arm affects the initial flight height of the launch, the initial angle of flight, and the route of application of force that is determining factors of the results in these tests.

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It can be seen in this table 3 that there are no athletes who exceed the average, however. Some athletes are in the mean in the calf circumference indicator (5 athletes), which can affect the mass needed to produce strength and close to the average. The thigh circumference indicator where four athletes present conditions to also generate force through muscle contraction. These athletes have the potential to achieve competitive results in jumping, throwing, and speed events.

Table 2. Results frequencies of athletes that exceed the average of the measurement's anthropometric indicators of the upper extremities

Indicators	\bar{x}	Above average	%	Below average	%	Match	%
reach up (from floor)	1.97	4	40	5	50	0	0
forward reach	0.73	6	60	4	40	0	0
Side Reach	0.67	4	40	6	60	0	0
length of the arm	0.44	3	30	7	70	0	0
hand length	0.16	4	40	4	40	2	20
palm length	0.8	5	50	3	30	2	20

Table 3. Results frequencies of athletes that exceed the average in the anthropometric indicators of the lower extremities

Indicador	\bar{x}	Above average	%	Below average	%	Match	%
Hip length	0.89	2	20	8	80	0	0
Hip-knee length	0.43	2	20	6	60	0	0
Knee-ankle length	0.4	3	30	5	50	1	10
foot length	0.25	2	20	6	60	2	20
thigh circumference	0.4	4	40	5	50	1	10
calf circumference	0.32	5	50	4	40	1	10

Table 4. Results frequencies of athletes that exceed the average in functional indicators

Total	Above average	%	Below average	%	Match	%
Flexibility	6	60	4	40	0	0
Speed	5	50	4	40	1	10
strength	4	40	6	60	0	0
Abdominal	5	50	5	50	0	0
Standing broadjump	5	50	5	50	0	0
Endurance	4	40	6	60	0	0

DISCUSSION

After the findings related to the tests applied to the participants, we were able to verify the prevalence of athletes with intellectual, anthropometric, and physical-conditional disabilities in Athletics from indicators of the results with frequencies of the upper and lower extremities and functional conditions. In the case of the length of the palm, it also has a favourable impact on the grip of the implement, which gives it a greater and safer hold of it. In the case of palm length, it also has a favourable impact on the grip of the implement, giving it a greater and more secure hold on the implement.

Anthropometry and its effects on athletic skills have been well documented in healthy participants in different types of sports (Kirk, 2016, cited in Moncef et al., 2022; Saraya, 2018). Sala & Carbajal (2021) propose that intellectual disability, IQ, and planning are not conclusive because intelligence tests are not sensitive to metacognitive processes such as the design and execution of plans to approach objectives (p.145).

Motivation is a decisive factor in the practice of physical activities, sports, and physical exercise in people with disabilities, so it is convenient to encourage

emotionally and systematically these people who make an extraordinary effort in their effort to obtain, improve and manage their skills and adaptation capacities to develop their self-esteem healthy lifestyle, as defined by (Muñoz et al., 2017, p.145).

About the functional indicators, it is important to note that in flexibility, there are six athletes above the average and five athletes who are on the average, in indicators such as abdominal speed and long jump, without impulse run, which reflects that although in previous tables some athletes have possibilities of achieving good results in jumping and speed throwing tests, the truth is that half or more of the athletes. They are not able to show good results in these tests because they are below the average, which may be influenced by age. After all, strength is perceptual after 15 years, influencing this in speed tests (Aguado & Mencho, 2007).

In the case of disciplines or endurance tests, athletes with conditions for performance in endurance tests are not appreciated, so coaches must emphasize the preparation of athletes with insufficient development and enhance the physical condition of those who present adequate preparation. Coaches must know the individual characteristics of their athletes as well as their strengths, opportunities, weaknesses, and threats related to the biological, physical, and psychological foundations for sports planning and training. According to the physical-conditional anthropometric potentialities of athletes with intellectual disabilities in relation (De la Vega et al., 2004).

CONCLUSION

The results of the indicators analyzed show that there are 5 of the ten athletes have the potential to achieve good results in the Special Olympics. Special attention should be paid to them and continue to prepare those who have not shown good physical condition to achieve outstanding results in those Olympics.

CONFLICT OF INTEREST

The authors declared no conflict of interest.

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