SPORT AND MENTAL DISABILITY: A QUALITATIVE-QUANTITATIVE RESEARCH ON THE EFFECTIVENESS OF MOTOR-SPORT ACTIVITY

SPORT E DISABILITÀ MENTALE: UNA RICERCA QUALI-QUANTITATIVA SULL'EFFICACIA DELL'ATTIVITÀ MOTORIA-SPORTIVA

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ABSTRACT

The purpose of this study was to test the hypothesis that, children with intellectual disabilities, can have motor and behavioral benefits with sports practice. Twenty young people with mild intellectual disability, were divided into 2 groups randomly. After the initial tests, only the experimental group was subjected to the training of the sport of bowls. The results confirm motor and psycho-emotional improvements.

Lo scopo di questo studio è stato quello di verificare l'ipotesi secondo cui, ragazzi con disabilità intellettiva, possono con la pratica sportiva avere benefici motori e del comportamento. Venti giovani con disabilità intellettiva lieve, sono stati ripartiti in 2 gruppi in modo randomizzato. Dopo i test iniziali, solo il gruppo sperimentale è stato sottoposto all'allenamento della disciplina sportiva del gioco delle bocce. I risultati confermano miglioramenti motori e psico-emotiv.

KEYWORDS
Sport, Intellectual Disability, Motor activity.
Sport, Disabilità Intellettiva, Attività motoria

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1. Introduction[1]

The importance of sport on health and psycho-physical and social well-being, in particular, is due to the fact that it is enhanced with appropriate skills and associated with positive behaviors towards physical activity at a young age. Thanks to sport and exercise it is possible to promote the social inclusion of young people with disabilities and increase their self-esteem, overcoming the characteristics associated with disability, emphasizing an alternative, more positive image of the body and self (England, 2001). The value of school motor and sports education is in the possibility of acquiring, through positive interaction with others, different personal, social and moral skills thus allowing young people to act better in different social situations of life (Hersman & Hodge, 2017; Block et al., 2017). The author Arnold states that sport is "social collaboration", due to the agreements that players make in accordance with the rules, thus improving interpersonal relations, cooperation and sharing. In particular, the practice of team sports is linked to an improvement in health, but also to social involvement through positive confrontation with their peers. Arnold says that sport as a "social collaboration" involves both an agreement between players to respect the rules, and cooperative dynamics that translate into interpersonal relationships in a shared and consolidated path (Arnold, 2002). Arnold also asserts that, sport causes people to assume "a sincere commitment to the values of friendship or brotherhood, which are more important than the desire to win or the very conquest of victory. The central objective of this perspective is to preserve and promote social relationships that can arise within and through sports participation" (Arnold, 2002, p. 76). Sport, therefore, reproduces the relationships of society and with the expansion of an inclusive culture, sport has also extended its participation. In fact, the studies that sport is capable of generating in relation to the dimensions of self-effectiveness of motor skills and the perception of self-competence of young mentally disabled people, are of fundamental interest, for theoretical and practical answers, both educational and rehabilitation (Coco et al., 2020; Alves & Alves, 2019; Van Hooren & Croix, 2020; Wu et al., 2017). Through sport you can improve your self-efficacy and gain greater self-confidence, strengthening confidence in their potential (Marcolongo, 2019). According to Marmocchi et al., (2004), it is the school that has the institutional task of assigning a value in the bio-psycho-social perspective for

[1] The introduction are to be attributed to M.C.Maietta, the paragraph 2 are to be attributed to D.Tafuri, the paragraphs 3 are to be attributed to N.Marzullo, the paragraphs 4 and conclusion are the result of a common commitment on the part of the authors

the development of emotional and relational skills necessary to effectively manage their interpersonal relationships. Through the sports activity you can experience their skills and their difficulties. In a study by Doré et al., (2020), it is highlighted in the conclusions that through medium or vigorous intensity physical activity, the results support the development of strategies to encourage adolescents to engage and remain involved in the movement, fostering perceptions of autonomy and competence, which in turn improve mental health. In particular, the study of Ginis et al., (2021), provides a global overview of the benefits and policies of promoting physical activity for people with physical, mental, sensory or intellectual disabilities. The authors, through meta-analysis have demonstrated that physical activity has beneficial effects on cardiovascular fitness, musculoskeletal fitness, on the reduction of cardio-metabolic risk factors and finally on mental and cerebral health outcomes, demonstrating in conclusion that the health benefits can be achieved even with less than 150 min of physical activity per week. It is also important at this point to examine the parental role in order to understand the perception of parents of young people with disabilities in relation to the engagement of physical activity of their children. Indeed, the review of Columna et al., (2020), examines the published research literature of relevant articles published between January 2007 and January 2018, relating to parents' perspectives on the physical activity of young people with disabilities. In these conclusions, in addition to the need for multiple reasons to involve their children with disabilities in physical activity, there are also numerous obstacles (for example, lack of program, lack of time, disability of children) which have a negative impact on participation in physical activity, highlighting the need for training provided by qualified professionals to improve the participation of their children with disabilities.

2. Effective behavior and Sport

The study of the possible consequences that sport produces in relation to the adaptive functioning and the perception of the individual motor skills of young people with mental disabilities, is to the benefit of educational and rehabilitation theory and practice. Effective behavior is to be considered as the set of beliefs possessed by a person in reference to their ability to organize and carry out actions useful to the achievement of their purposes. This is to be considered a progress in the psychological field, especially due to the fact that phenomena such as motivation, learning, self-regulation and academic and professional success, would be impossible to explain without mentioning the beliefs of self-efficacy. Professor Albert Bandura, father of the socio cognitive theory and the concept of self-efficacy,

considers the family context, school, career choices, sport and health-related behaviors, among the most important areas of adolescent life on which beliefs of self-efficacy exert their influence (Bandura et al., 2007).

In relation, Pan & Davis (2019) after exploring how the concept of physical self-interacts in the sports population, come to the conclusion that improvements in motor competence are undeniable. Their study explored the concept of physical self in athletes with intellectual disabilities, the results of which provide evidence that sports participation can have positive impacts on the concept of physical self. A recent Chilean study investigated the obvious concept that the physical self is related to well-being in both children and adolescents. The aim of this research was to analyze the association of the physical self with mental health (depression and body image), physical state (fitness and weight) and lifestyle (models of physical activity and nutritional level) young students aged 10-14. The results show a poor concept of the physical self-linked to poor cardiorespiratory fitness and severe dissatisfaction with body image, thus determining that low self-awareness is related to depression in Chilean school children (Delgado-Floody et al., 2022). The current study by Aitchison et al., highlighted the experiences and health benefits perceived by people with disabilities participating in sport. This systematic review exposes the virtuous possibilities that sport offers to socialize and to consolidate the sense of belonging. The research also carried out on children and adolescents with physical and intellectual disabilities has exalted and experienced the values of sport useful to create a team culture for the benefit of new groups of friends, thus offering many benefits and improving their physical and emotional well-being (Aitchison et al., 2022). The happiness and fun of doing sports is very obvious, as well as the fact that it acts as a facilitator and motivator to the point of creating positive effects on self-efficacy (Arribas-Galarraga et al., 2020; Clevinger et al., 2020; Kwon et al., 2022; Lee et al., 2021; Neumann Ortenburger et al., 2021; Ouyang et al., 2020).

3. Method

In evaluating and analyzing the effects that sport can cause in children with intellectual disabilities, we researched the effects of the sport of bowls (Bowls Federation - Paralympic, 2023) as part of a research in favor of the sports movement, coordination skills and effective behavior (Borland et al., 2020; Mohammadi et al., 2022; Zurita-Ortega et al., 2020). Bowls are a sport of easy

accessibility whose specific movements require a motor performance suitable for all practitioners, different for sex, age and disability (Alias et al., 2023;Phytanza et al., 2022). The rules of the game of bowls are simple, making it fall into the category of precision sports, whose specific motor skills is the coordination oculo-manual, skill based on concentration useful to build a repeated training of the technical gesture precise and in accordance with the ideal mental motor action (Purnomo, 2020). Fundamental objective of this sport is the development and improvement of body awareness, whose psychosomatic and bodily sensations, return stability and uniformity to the process of acquiring the autonomy of the person (Pierre et al., 2022). For this reason, the research was carried out at the Municipal bowling alley of Marano di Napoli, in Via Castel Belvedere. The research sample, randomly chosen from among disabled members, includes 20 boys in the age range from 9 to 15 years with a relational intellectual disability, all coming from various school courses, from primary school to high school, in the Nocerino Sarnese area of the Naples province. This analysis, in addition to exploring the potential of play and motor activity in involving the boys to the movement, has been proposed to observe if there are improvements in motor skills and effective behavior, after the sport of Bowls. Groups were created randomly, Group A was experimental, and Group B was control. Before the start of the study, both arms were tested TGM or Test of gross motor development third edition (Ulrich, 2013) and the test of effective behavior, through a card created ad hoc, which allowed through observation, the analysis of the conduct. In this first phase, the parents were involved, for the administration of a questionnaire for the collection of socio-personal data and to sign the informed consent to the research. The field study lasted 6 months, with three weekly meetings lasting 60 minutes, the experimental group A (n = 10, divided into 2 groups of 5), practiced the motor activity sports with a structured program through the sport of bowls (Tab. 1), while the control group B (n = 10, divided into 2 groups of 5), supported only the motor activity, eliminating from the program the structured sports part of the bowls. The goal was to observe the behaviors and attitudes of all children to record any progressive improvements, especially related to effective behavior during the activity. The aim, however, was to investigate whether through the sports activity practiced through the game of bowls it is possible to improve adaptive behavior and coarse motor skills, thus giving the sport of bowls the value of integration, of inclusion and equity, thus allowing all disabled children of this project, to access this sport enjoying the opportunities and benefits of leisure, physical well-being and the development of logical and intellectual skills. The research project has been elaborated by establishing the tools to program an educational, motor and sports intervention,

starting from the knowledge of children to plan actions aimed at enhancing the needs and developing the potential of each individual. The two groups of boys had the same social and economic background and the same age group (9-15 years); (11 ± 1 year; 139.25 ± 8.12 cm; 30.24± 9.12 kg). The boys were divided into 4 groups, randomized without taking into account their characteristics, of which the experimental group A divided in turn into 2 groups of 5 boys, and the group B also divided into subgroups of 2 with 5 boys per group. The Tests were carried out before the motor-sport activity and after, in order to compare the initial and final data. The TGM (Tab. 2), thanks to which it was possible to obtain the score of gross motor development quotient (GMDQ), and to performance scorecard (PS) through the compilation of a systematic card created specifically for this search (Tab. 3). In this research we used a qualitative-quantitative data collection methodology, using a descriptive statistical analysis of the same.

Activity	1 month	2 month	3 month	4 month	5 month	6 month
Introduction to Sport through creativity	X					
Use of manual skills: use of papier-mâché bowls, fabric bowls and aluminium snitch		x				
Introduction of the technical gestures of bowls sport (approach and reject, with rubber bowls)			x			
First games of individual skill: each boy must try to place the tool inside the circles				x		
Individual or team game of skill: the player must try to throw the bowl within the designated spaces (each team must obtain the highest score)					x	
Introduction of team play: the result is obtained by adding up the results of the throws of each individual component. The tool can be launched several times in order to allow learning: adjust the strength and direction of the jet, adjust the parabolic trajectory; adjust the position of the body during the action.						x
Simplified game, with neoprene bowls	x	x	x	x	x	x

Table 1 (structured program through the sport of bowls)

SUBTEST 1: LOCOMOTION	*SUBTEST 2: OBJECT CONTROL*
RACE	HITTING A BALL WITH A TENNIS RACKET
GALLOP	BOUNCING A STATIONARY BALL
JUMP FORWARD ON ONE FOOT	RECEIVING A THROWN BALL WITH THE HANDS
JUMP FORWARD	KICKING A BALL WHILE RUNNING

SALTO IN LUNGO DA FERMO	
ALTERNATE FORWARD JUMPS ON ONE FOOT	THROWING A BALL WITH ONE HAND
SIDE GALLOP	

Table 2 (Gross motor development quotient – GMDQ - Measurements of twelve gross motor skills taught with children with mental retardation or other disabilities)

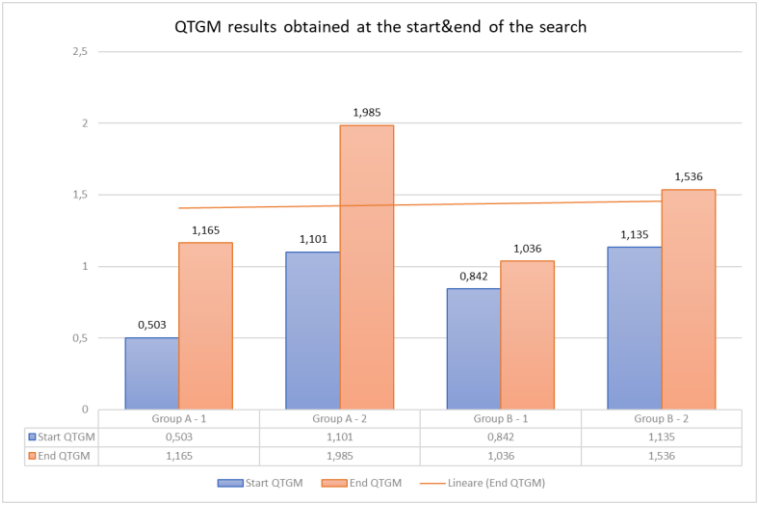
AUTONOMY AREA			
	SI	NO	PARTIALLY
PERFORMS THE TASK DILIGENTLY AND PUNCTUALLY			
CARRY OUT THE TRAINING SESSION ONLY IF CONSTANTLY PROMPTED AND HELPED			
CARRY OUT THE TRAINING SESSION ONLY IF CONSTANTLY PROMPTED AND HELPED			
DOES NOT PERFORM THE EXERCISES EVEN IF HELPED AND PROMPTED			
SOCIO-RELATIONAL AREA			
PLAY AND TRAIN IN A CONSTRUCTIVE, COLLABORATIVE, PARTICIPATORY WAY CREATIVE WITH OTHER CHILDREN			
RECOGNIZES THE ORGANIZATION AND THE RULES CHARACTERIZING THE MOTOR-SPORT ACTIVITY			
ASSUMES CORRECT BEHAVIOR FOR THE SAFETY, THE HEALTH OF OTHERS AND OTHERS AND FOR THE RESPECT OF PEOPLE, THINGS, PLACES AND THE ENVIRONMENT			

Table 3 (Performance scorecard - PS)

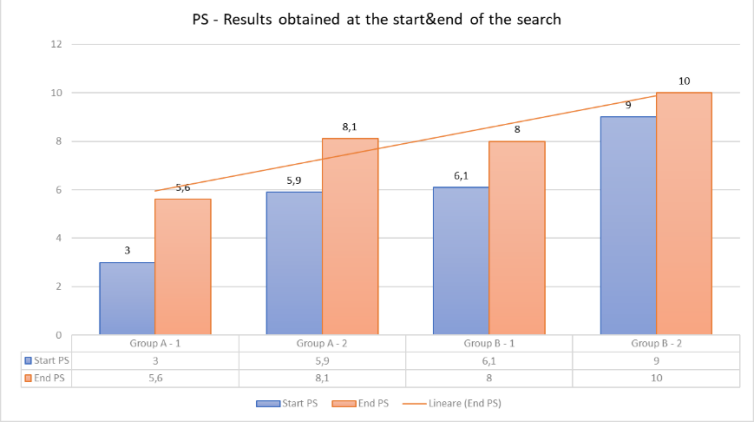
4. Results

Comparing the initial and final results of the tests, we observed that the boys who practiced the sport through the game of bowls have raised the average of gross motor development quotient - GMDQ (Group A, from 0,802 to 1,575; Group B, from

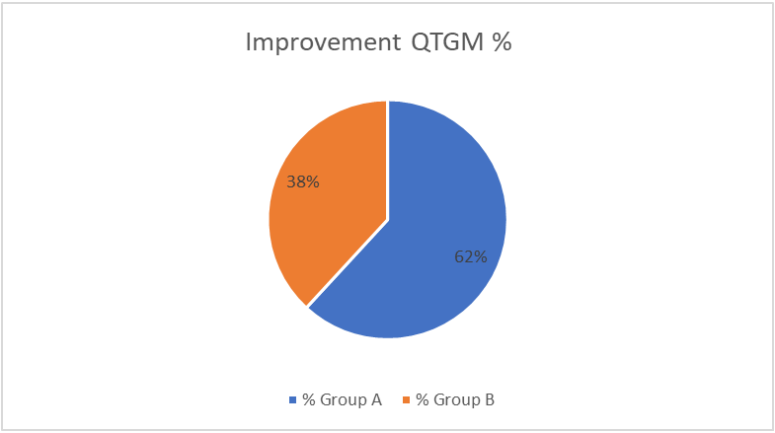
0,988 to 1,286) and likewise, also increased with positive results the responses in the acceptance of the rules and in the relationship with comrades, Performance scorecard - PS (Group A, from 4,45 to 6,85; Group B from 7,55 to 9), (Graph 1 and Graph 2). In addition, as the final averages in Graphs 3 and 4 show, Experimental Group A improved the expression as a percentage of gross motor skills (GMDQ group A +6,2%; group B + 38%), as well as skills of effective behavior (PS group A +59%; group B +41%), (Graph. 3 e Graph 4).



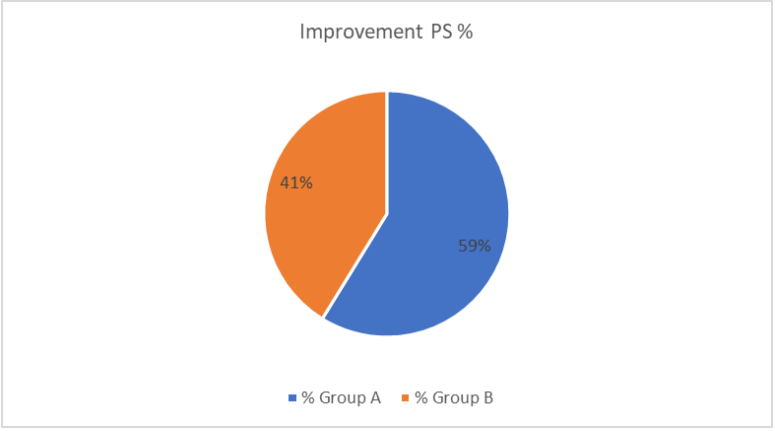
Graph. 1 (QTGM - results obtained at the start & end of the search)



Graph. 2 (PS - results obtained at the start&end of the search)



Graph. 3 (Improvement - QTGM %)



Graph. 4 (Improvement - PS %)

Conclusions

The aim of this research was to highlight the motivational, motor and cultural aspects of children with mild intellectual disabilities. It has been shown that motor activity allows the acquisition of new skills (knowing how to do), thus confirming the realization of self-autonomy. We therefore decided to use for our study the sport of the game of bowls, because its versatility of space and playing surface allows the use both in outdoor spaces and in bowls, thus ensuring inclusion in favor of discomfort relational, physical, and social. Thus, the proposed motor activity, combined with the sport discipline, has significantly enhanced the improvement in

effective behavior, managing to overcome the limits exposed in the initial tests. Similarly, coarse motor skills have also improved for both groups, testifying to scientific theories that support the constructive processes in which movement can become an effective means of improving proprioceptive skills, of technical gestures, of building personal identity through the strengthening of one's positive image and self-esteem. Motor knowledge, therefore, is a fundamental prerequisite for the acquisition of a healthy lifestyle that can last over time, through sports, which is capable of useful realization and skillful relational conditions that facilitate the union, communication, collaboration, respect for rules, comrades and adversary. The greatest ability that has been exalted through our analysis is the overcoming of one's own limits, enhancing effective behavior in both groups.

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