

10.2478/tperj-2024-0002

Enhancing inclusivity: A holistic approach to psychomotor development and adapted football programs for children with intellectual disabilities

Valentina Stefanica^{1*}, Ionuț-Traian Mercea², Vasile Emil Ursu³, Corneliu Florin Gorban⁴, Cristian Dragos GHEORGHE⁵, Costinel MIHAIU⁶, Gina Gogean GROZA⁷

Abstract

Aim. The aim of this article is to investigate the effectiveness of personalized psychomotor programs, particularly focusing on adapted football programs, for children with intellectual disabilities (ID).

Material and methods. Twelve participants, with a mean age of 17.42 years underwent a carefully designed intervention program spanning 36 weeks. The program aimed to enhance fundamental movement skills, integrate these skills into specialized football training, and culminate in a Unified 7-a-side Football Match. Results indicate significant improvements in static and dynamic balance. Moreover, the intervention positively impacted social interaction among participants. The statistical analysis in this study involved the utilization of the Paired Samples t-Test (One-Sample), a method for comparing means within paired groups, which enabled a comprehensive examination of the data to assess the significance of observed alterations and understand the intricate interrelationships among variables.

Results. Results revealed significant differences between pre- and post-intervention measurements, providing robust evidence of the program's efficacy. The significant associations between physical parameters and social interaction underscore the interdependency between physical fitness and social engagement. Our findings suggest that improvements in physical abilities may contribute to increased social interaction among children with intellectual disabilities, underscoring the holistic nature of our intervention, which addresses multiple dimensions of development simultaneously. The findings underscore the holistic benefits of integrating psychomotor development and adapted football programs for adolescents with intellectual disabilities, emphasizing the importance of promoting inclusive physical activities for their overall well-being. Through psychological analyses, we gained insights into their cognitive and emotional dimensions. Subsequently, we formulated a holistic framework for integrating psychomotor interventions with adapted football programs.

Conclusions. Evaluating the advancements achieved through the implemented training programs, we aimed to contribute to the promotion of inclusivity for children with mild ID within society and the educational system. This research endeavors to contribute to the growing body of knowledge surrounding the holistic development and social inclusion of children with ID. This study examines the effectiveness of a comprehensive psychomotor development program.

Key words: *inclusive, well-being, intervention, social interaction, psychomotor skills.*

Rezumat

Scop. Scopul acestui articol este de a investiga eficacitatea programelor personalizate de psihomotricitate, concentrându-ne în special pe programele de fotbal adaptate, destinate copiilor cu dizabilități intelectuale (ID).

Material și metodă. Douăsprezece participanți, cu o vârstă medie de 17,42 de ani, au urmat un program de intervenție meticolos conceput, desfășurat pe o durată de 36 de săptămâni. Programul își propunea să îmbunătățească abilitățile fundamentale de

^{1*} Department of Physical Education and Sport, Faculty of Sciences, Physical Education and Informatics, National University of Science and Technology Politehnica Bucharest, Pitesti University Center, Pitesti, Romania, valentina.stefanica@upb.ro

² Department of Educational Science, Faculty of Education, Social Sciences and Psychology, National University of Science and Technology Politehnica Bucharest, Pitesti University Center, 110040 Pitesti, Romania, traian_ionut.mercea@upb.ro

³ Department of Physical Education and Sport, Faculty of Law and Social Sciences, University "1 Decembrie 1918" of Alba Iulia, Alba Iulia 510009, Romania; vasile.ursu@uab.ro

⁴ Department of Physical Education and Sport, Faculty of Agriculture, "Ion Ionescu de la Brad" Iasi University of Life Science, Iași 700490, Romania; cornel.gorban@iuls.ro

⁵ Doctoral student, Doctoral Program in Marketing, Bucharest University Of Economic Studies, Piața Romană 6, București 010374, Romania; ghcristian@gmail.com ;

⁶ Department of Physical Education and Sport, University of Bucharest, Romania, costinel.mihaiu@unibuc.ro

⁷ Department of Physical Education and Sport, Faculty of Law and Social Sciences, University "1 Decembrie 1918" of Alba Iulia, Alba Iulia 510009, Romania; gina.gogean@uab.ro

mișcare, să integreze aceste abilități într-un antrenament specializat de fotbal și să culmineze într-un meci unificat de fotbal cu șapte jucători pe parte.

Rezultate. Rezultatele indică îmbunătățiri semnificative în echilibrul static și dinamic. Mai mult, intervenția a impactat pozitiv interacțiunea socială între participanți. Analiza statistică în acest studiu a implicat utilizarea Testului t pentru eșantioane perechi (un eșantion), o metodă de comparare a mediilor în grupuri pereche, care a permis o examinare cuprinzătoare a datelor pentru a evalua semnificația modificărilor observate și pentru a înțelege interrelațiile intricate între variabile. Rezultatele au relevat diferențe semnificative între măsurătorile pre- și post-intervenție, oferind dovezi solide ale eficacității programului. Asociațiile semnificative între parametrii fizici și interacțiunea socială subliniază interdependența dintre condiția fizică și implicarea socială. Descoperirile noastre sugerează că îmbunătățirile în abilitățile fizice pot contribui la o mai mare interacțiune socială între copiii cu dizabilități intelectuale, subliniind natura holistică a intervenției noastre, care abordează simultan mai multe dimensiuni ale dezvoltării. Rezultatele subliniază beneficiile holistice ale integrării dezvoltării psihomotorii și a programelor de fotbal adaptate pentru adolescenții cu dizabilități intelectuale, accentuând importanța promovării activităților fizice incluzive pentru starea lor generală de bine. Prin analizele psihologice, am obținut perspective asupra dimensiunilor cognitive și emoționale. Ulterior, am formulat un cadru holistic pentru integrarea intervențiilor psihomotorii cu programele de fotbal adaptate.

Concluzii. Evaluând progresele realizate prin programele de antrenament implementate, ne-am propus să contribuim la promovarea incluzivității pentru copiii cu ID ușoare în cadrul societății și sistemului educațional. Această cercetare își propune să contribuie la creșterea cunoștințelor în jurul dezvoltării holistice și incluziunii sociale a copiilor cu ID. Acest studiu examinează eficacitatea unui program comprehensiv de dezvoltare psihomotorie.

Cuvinte cheie: *incluziv, bunăstare, intervenție, interacțiune socială, abilități psihomotorii*

Introduction

Mitigating the rigidity of programs in the development and education of children with Intellectual Disabilities (ID) involves enhancing emotional balance, fostering quality relationships, and facilitating task performance, aiming to address the decline in cognitive functions associated with intellectual disability (Berens & Nelson, 2015). This intellectual impairment significantly limits social competence, leading to restrictions in adaptive behavior within the individual's community (Mocanu et al., 2020).

Children with ID constitute a heterogeneous group characterized by a wide range of cognitive abilities and challenges that significantly impact their daily functioning and social interactions (Hendrickson et al. 2013; Valentyina & Daniel, 2018). The severity of ID spans from mild to profound, encompassing varying levels of impairment that affect learning, adaptive behaviors, and overall quality of life (Reichenberg et al., 2016). Understanding the nuances of these challenges is essential for developing targeted interventions that foster the holistic development and social inclusion of children with ID within society and the educational system (Stefanica et al., 2024). Among children with ID, those with mild intellectual disability represent the majority, accounting for nearly 85% of cases. Despite having IQ scores ranging from 50-55 to 70, these individuals often encounter difficulties in social competence and adaptive behavior, posing barriers to their integration into communities. Conversely, individuals with profound intellectual disability, characterized by IQ scores below 25-30, require extensive support and specialized care to address their complex needs (Rosu et al., 2023).

A crucial aspect of supporting children with ID lies in the development of their psychomotor skills, which play a fundamental role in their physical, cognitive, and social development (Fotiadou et al., 2017; Muntean et al., 2023). Tailored psychomotor education programs designed for children with ID can enhance various physical attributes, including strength, coordination, balance, and flexibility, thereby promoting their overall well-being and independence (Badau et al., 2023; Marin et al., 2023). Furthermore, integrating playful activities such as adapted football into these programs can amplify participant motivation and engagement, leading to improved outcomes in motor-cognitive tasks (Patrascan & Stefanica, 2019).

Adapted football, serving as an inclusive sports activity, offers unique opportunities for social interaction and skill development among children with ID (Patrascan & Stefanica, 2018). By engaging in

activities alongside peers with typical development, children with ID can cultivate friendships, strengthen their self-esteem, and enhance their social integration skills. (Rosu et al., 2022). Moreover, adapted football contributes to the enhancement of both general and specific motor skills, making it a valuable component of physical education curricula in schools (McConkey et al., 2019).

Despite the challenges inherent in comprehending the strategic aspects of sports like football, tailored activities and modified exercises can provide avenues for inclusive engagement and development among children with ID, yielding diverse physical, psychological, and social benefits (Patrascan & Stefanica, 2019).

This article embarks on an exploration of an innovative approach that integrates psychomotor activities with adapted football to enhance the holistic development and social inclusion of children with ID. Through action research, the aim is to generate outcomes that facilitate social transformation, ultimately improving the lives of individuals with intellectual disabilities.

The comprehensive investigation delves into the intricate dynamics of psychomotor development and adapted football interventions, aiming to elucidate their synergistic effects on the well-being and social integration of children with ID (Baran et al., 2013). By adopting a multidimensional perspective, encompassing physical, cognitive, and social dimensions (Baran et al., 2011) the study seeks to uncover the transformative potential of integrated programs in addressing the diverse needs of this population.

Furthermore, the research methodology employs action research principles, emphasizing active engagement with stakeholders and the community to implement meaningful change. By fostering collaboration and co-creation, the study endeavors to generate insights that resonate with the lived experiences of individuals with ID and their caregivers, thereby ensuring the relevance and efficacy of the interventions implemented.

This research endeavors to contribute to the growing body of knowledge surrounding the holistic development and social inclusion of children with ID. By examining the integration of psychomotor activities and adapted football through the lens of action research, the study aims to pave the way for innovative approaches that empower individuals with ID to lead fulfilling and inclusive lives.

The primary objective is to generate outcomes that facilitate social transformation, resulting in a beneficial influence on individuals' lives. The research

objectives, derived from the purpose of the study, are as follows:

1. Undertaking a comprehensive initial assessment to elucidate the psychomotor behavior and psychological profile exhibited by children with ID, aiming to understand their baseline abilities and needs accurately.
 2. Formulating a comprehensive framework for a holistic approach to psychomotor development and adapted football programs, grounded in primary data derived from the initial assessment. This framework aims to integrate psychomotor interventions with football training in a manner that addresses the specific needs and abilities of participants, fostering their overall development and inclusivity.
 3. Evaluating the advancements in psychomotor behavior and the level of inclusivity achieved by implementing the training programs over a 36-week period. This assessment seeks to determine whether the integrated approach has resulted in outcomes supportive of social transformation, positively impacting the lives of individuals with ID. Key metrics for evaluation include improvements in psychomotor skills, social interaction.
 4. Contributing to the promotion of inclusivity for children with mild ID within society and the educational system through the utilization of adapted football and psychomotor training. This involves not only assessing individual progress but also advocating for systemic changes that support the integration and empowerment of individuals with intellectual disabilities.
- These objectives aim to explore the multifaceted dimensions of psychomotor development in adolescents with intellectual disabilities, providing a comprehensive understanding of the efficacy and impact of the proposed integrative program.

Materials and Methods

Participants

The study participants comprise 12 adolescents diagnosed with ID (mean age 17.42 ± 0.8 years, height 170.6 ± 8.5 cm, weight 55.69 ± 9.8 kg, and BMI 21.4 kg/m²), distributed between genders 7 females and 5 males. These individuals are affiliated with a family-oriented center situated in Pitești, Romania. The investigation was conducted at the educational unit where the participants are enrolled. We employed a conventional sampling method, taking into account the age, IQ, and normal physical development of the children, to ensure the representativeness and relevance of the results obtained in the study.

Within the preliminary research, a comprehensive evaluation focusing on psychomotor skills was also conducted (Table I). To assess the psychomotor behavior of children with intellectual disabilities, specialized observation techniques were employed. Each child received individual guidance from a specialist to perform specific tasks outlined in the evaluation. An evaluation form, comprising 29 items categorized into six analytical dimensions—body schema, basic positions and movements, fundamental motor behaviors, fine motor skills, spatial orientation, and temporal orientation—was utilized for a structured and systematic analysis. This evaluation implemented a 3-level scale, with measurement options categorized as High, Moderate, and Low.

In the context of the psychomotor behavior assessment program, the examined subjects demonstrated a normative trajectory of physical development. There was an absence of both genetic and acquired anomalies such as deficiencies, malformations, and dislocations. Additionally, the subjects did not present any motor-related health conditions. Proficiency in the control and coordination of movements, along with a commendable sense of rhythm, characterized their physical capabilities.

Table I. Comprehensive Psychomotor and Psychological Assessment Profile for Participants

Psychomotor variables	High	Moderate	Low
Body schema	12 (100%)	-	-
Basic positions and movements	8 (66,66%)	4 (33,33%)	-
Fundamental motor behaviors	7 (58,33%)	2(16,66%)	3 (25%)
Fine motor skills	8 (66,66%)	3 (25%)	1 (8,33%)
Spatial orientation	9 (75%)	3 (25%)	-

Temporal orientation	12 (100%)	-	-	
Cognitive Dimensions	Simple	Complex	No	
Comprehension of Concepts	10 (83,33%)	2 (16,66%)	-	
Definition of Concepts	11 (91,66%)		1 (8,33%)	
Application of Concepts	10 (83,33%)	1 (8,33%)	1(8,33%)	
Language and communication	Low	Moderate	High	
Lexical Proficiency	2 (16,66%)	9 (75%)	1 (8,33%)	
Verbal expression	9 (75%)	1 (8,33%)	2 (16,66%)	
Attentional Focus	Low	Moderate	High	
	5 (41,66%)	7 (58,33%)		
Social Indicators	Consistently communicative and emotionally stable	Displaying tendencies of withdrawal isolation	Exhibiting of and propensity for turbulence and a violent behavior	
	1 (8,33%)	8 (66,66%)	3 (25%)	
Academic Knowledge Level	Not developed at all	Low	Moderate	High
Reading Proficiency	2 (16,66%)	8 (66,66%)	2 (16,66%)	
Writing Proficiency	1 (8,33%)	9 (75%)	2 (16,66%)	1 (8,33%)
Numerical Competence	2 (16,66%)	10 (83,33%)		

Research Instruments

1. Sensamove Balance Miniboard

For the evaluation of static coordination, we utilized the Sensamove balance miniboard. This instrument played a crucial role in assessing individuals' stability and control in stationary situations. Equipped with highly sensitive sensors and a precisely calibrated surface, the miniboard facilitated the accurate measurement and monitoring of balance and coordination performance during static tasks. This allowed us to collect precise data on participants' ability to coordinate movements and contributed significantly to the overall evaluation of our study (Stefanica et al., 2024).

2. Optojump Next Optical System

The Optojump Next optical system, an advanced tool for analyzing perceptual-motor synchronization, was instrumental in our research. This system, featuring state-of-the-art sensors and algorithms, accurately recorded and evaluated multiple facets of human motion. By assessing the coordination between sensory perception and physical response, this system provided essential insights into participants' perceptual-motor coordination. The application of this instrument, as demonstrated by Stefanica et al (2024),

enhanced our comprehension of dynamic balance in various settings.

4. Structured Observation of Interaction Evaluation Test.

This test involved systematic observations of the social behavior of children with ID within the context of the psychomotor and football program in which they participated. Specially trained observers evaluated the social interactions of children with ID by analyzing verbal and non-verbal behavior, as well as communication and cooperation skills (Merrell & Gimpel, 2014). The Likert Scale for Social Interaction Evaluation included 5 response items:

1: Minimal interaction or avoidance of social contact.

2: Limited interaction and difficulties in forming connections.

3: Moderate interaction, with opportunities for improvement.

4: Satisfactory interaction, with positive implications.

5: Excellent interaction, establishing positive relationships with all partners.

Procedure of intervention

During the initial phase, spanning from January to February 2023, participants underwent a series of assessments aimed at capturing precise data regarding static and dynamic balance, as well as social interaction metrics. These insights proved to be pivotal determinants in guiding the selection of psychomotor and adapted football tools and structuring segments within the integrative psychomotor and adapted football program. This comprehensive program, conducted over 50-minute sessions twice a week, unfolded over a duration of 36 weeks from March 2023 to November 2023.

In November 2023, final assessments were conducted to evaluate dynamic and static balance, as well as social interaction metrics.

The holistic program design for integrated psychomotor and adapted football initiatives. It comprises three segments: fundamental psychomotor foundations, transition phase, and specialized football training with a unified 7-a-side football match preparation.

In the first segment, fundamental psychomotor foundations are established over four periods of four weeks each. This includes mechanisms for enhancing balance maintenance abilities, coordination development, climbing skills, specific coordination, ideomotor skill refinement, balance education, and sport-specific coordination.

The transition phase, spanning weeks 17 to 20, focuses on transitioning to adapted football training. The objectives include enhancing movement proficiency in confined spaces, refining ball handling skills, cultivating supportive teammate dynamics, and advancing technical proficiency.

The third segment involves specialized football training and unified 7-a-side football match preparation. Offensive and defensive strategies are developed over four periods of four weeks each, focusing on improved technique, collaborative support dynamics, precision passing, and first-time passing ability.

Strategic positioning and group pressing are emphasized, along with technical mastery and endurance conditioning. Finally, match preparation and the unified 7-a-side football match are addressed, aiming to enhance striking ability, support sense development, reception and passing skills, and ultimately culminating in the unified 7-a-side football match.

Statistical Analysis

During the final stage of analysis (December 2023 to January 2024), statistical-mathematical procedures were undertaken to assess the disparities between initial and concluding assessments. Each specific metric, encompassing static / dynamic balance, social interaction, underwent a rigorous series of statistical examinations to elucidate any alterations between the initial (I) and final (F) measurements. Utilizing the Paired Samples t-Test (One-Sample) provided a robust framework for comparing means within paired groups. This statistical tool allowed us to assess the significance of observed alterations, providing valuable insights into the differences between paired samples (Manfei et al., 2017).

Results

The statistical analysis conducted in our research encompasses t-tests performed on various variables measured within the study. Table II presents the correlation between initial and final measurements of specific parameters.

Table II present the results of the t-test for paired measurements related to psychomotor items (static balance, dynamic balance) and social interaction. The negative values in the first column represent the difference between initial and final measurements. Significant values for "Sig. (2-tailed)" indicate that the differences are statistically significant between initial and final measurements, both for psychomotor items and social interaction.

Table II. Paired Samples Test for Static Balance, Dynamic Balance and Social Interaction

		Paired Differences			t	Sig. (2-tailed)
		Std. Er.	95% Confidence Interval of the Difference			
M	SD	M	Lower	Upper		

I.T.Static_balance – F.T.Static_balance	-1.750	.754	.218	-2.229	-1.271	-8.042	.000
I.T.DynamicBalance F.T.DynamicBalance	-	.15861	.04579	-	-.00447	-2.299	.042
	.1052			.2060			
	5			3			
I.T.Social_interaction F.T.Social_interaction	-2.167	.835	.241	-2.697	-1.636	-8.990	.000

This statistical analysis provide valuable insights into the relationships between different variables measured in our study and contribute to our understanding of the effects of the intervention on psychomotor abilities and social interaction among participants.

Discussion

Our study reinforces the importance of implementing personalized psychomotor programs for children with ID, aligning with previous findings by Santos (2017). Integrating physical education and sports not only improves physical health but also encourages inclusive activities and social engagement, as supported by Orr et al. (2021). We demonstrate the effectiveness of integrating psychomotor development with adapted football programs for children with ID, resulting in significant improvements across various parameters. By combining these approaches, we aimed to address physical, psychomotor, and social aspects of development, promoting inclusivity and enhancing participants' quality of life. Our findings contribute to existing literature, providing further evidence for holistic approaches to psychomotor development in children with ID (Scifo et al., 2019; Stefanica, 2022).

Table II presents the results of the Paired Samples Test examining changes in Static Balance, Dynamic Balance, and Social Interaction between different conditions. These findings are crucial for understanding the impact of specific interventions or conditions on these variables.

In terms of Static Balance, the significant paired difference observed between initial (I.T.Static_balance) and final (F.T.Static_balance) measurements highlights the effectiveness of interventions or changes in conditions on participants' static balance abilities. The mean decrease of 1.750 units indicates a substantial alteration in static balance performance, suggesting that the intervention or condition had a notable effect on participants' ability to maintain balance.

Similarly, the analysis of Dynamic Balance revealed a significant difference between initial

(I.T.DynamicBalance) and final (F.T.DynamicBalance) measurements. The mean decrease of 0.10525 units suggests that interventions or changes in conditions influenced participants' dynamic balance performance, emphasizing the importance of such factors in shaping motor skills and coordination.

Moreover, the examination of Social Interaction underscored significant differences between the social interaction scores in different conditions. The substantial mean decrease of 2.167 units indicates that interventions or changes in conditions had a pronounced impact on participants' social interaction abilities, influencing their engagement and communication skills.

These findings have important implications for interventions aimed at improving balance and social interaction skills. Understanding the effects of specific interventions or conditions on these variables can inform the development of targeted interventions tailored to individuals' needs. Moreover, the observed alterations provide valuable insights into the interplay between environmental factors and participants' abilities, highlighting potential avenues for further research and intervention development in this domain. Future studies could explore the mechanisms underlying these effects and evaluate the long-term effectiveness of interventions on improving balance and social interaction outcomes.

Our intervention emphasizes motor skill enhancement and football skill development to enrich social interactions, aligning with the interconnection between physical development and mental capacity, as emphasized by Biddle and Asare (2019).

Improvements in motor skills may contribute to increased social interaction among children with ID, highlighting the holistic nature of our intervention, which addresses multiple dimensions of development simultaneously.

Moving forward, continued exploration and implementation of tailored intervention programs are essential to meet the diverse needs of children with ID. Fostering acceptance and understanding within society and the educational system is crucial for

creating inclusive environments that empower individuals with ID to reach their full potential and lead fulfilling lives. Attitudes and perceptions toward individuals with special educational needs also play a pivotal role in promoting inclusivity, as emphasized by Freeman et al. (2000). Building on this, Bluth and Blanton (2014) explored the impact of tailored exercise routines on physical well-being, while further research by Duchowny et al. (2018) highlighted the benefits of incorporating exercise to enhance skill-related fitness components (SRF) among young individuals with ID. Additionally, physical activity plays a crucial role in promoting overall well-being and motor development among individuals with ID, as noted by White (2011) and De Giorgio (2017).

Conclusions

In summary, our study highlights the positive impact of integrating psychomotor development with adapted football programs for children with ID. The findings demonstrate significant improvements in physical, psychomotor, and social aspects of well-being, underscoring the importance of holistic approaches in promoting inclusivity and enhancing quality of life for individuals with ID. Moving forward, continued research and implementation of tailored intervention programs are essential for fostering acceptance, understanding, and support within society and educational systems, ultimately empowering individuals with ID to lead fulfilling lives.

References

1. Badau, D.; Badau, A.; Joksimović, M.; Oancea, B.M.; Manescu, C.O.; Graur, C.; Cornea, G.G.; Ene-Voiculescu, V.; Cojanu, F.; Stefanica, V.; et al (2023). The effects of a 6-week program of physical therapeutic exergames on cognitive flexibility focused by reaction times in relation to manual and podal motor abilities. *Balneo PRM Res. J.* 14, 570. Available at: <https://doi.org/10.12680/balneo.2023.570>
2. Baran, F., Aktop, A., Özer, D., Nalbant, S., Ağlamış, E., Barak, S., & Hutzler, Y. (2013). The effects of a Special Olympics Unified Sports Soccer training program on anthropometry, physical fitness and skilled performance in Special Olympics soccer athletes and non-disabled partners. *Research in developmental disabilities*, 34(1), 695-709.
3. Baran, F., Top, E., Aktop, A., & Nalbant, S. (2011). Evaluation of a unified football program by special olympics athletes, partners, parents, and coaches. *European Journal of Adapted Physical Activity*, 2(1).
4. Berens, A. E., & Nelson, C. A. (2015). The science of early adversity: is there a role for large institutions in the care of vulnerable children?. *The Lancet*, 386(9991), 388-398
5. Biddle, S.J.& Asare, M. (2011). Physical activity and mental health in children and adolescents: a review of reviews. *British journal of sports medicine*.
6. Bluth, K., Blanton, P.W. (2014). Mindfulness and self-compassion: Exploring pathways to adolescent emotional well-being. *Journal of child and family studies*. 23, 1298-1309.
7. De Giorgio (2017). A. The roles of motor activity and environmental enrichment in intellectual disability. *Somatosensory & Motor Research*, 34(1), 34-43.
8. Duchowny, K.A., Clarke, P.J.& Peterson, M.D. (2018). Muscle weakness and physical disability in older Americans: Longitudinal findings from the U.S. health and retirement study. *J. Nutr. Health Aging*. 22, 501-507.
9. Fotiadou, E.G., Neofotistou, K.H., Giagazoglou, P.F. & Tsimaras, V.K.(2017). The effect of a psychomotor education program on the static balance of children with intellectual disability. *The Journal of Strength & Conditioning Research*, 31(6), 1702-1708.
10. Freeman, R. D., Fast, D. K., Burd, L. et al. (2000). An international perspective on Tourette syndrome: selected findings from 3500 individuals in 22 countries. *Developmental medicine and child neurology*. 42(7), 436-447.
11. Hendrickson, J.M., Vander Busard, A.M.Y., Rodgers, D. & Scheidecker, B. (2013). College Students with Intellectual Disabilities: How Are They Faring?, *Journal of College and University Student Housing*, 2013, 40(1), 186-199.
12. Manfei, X. U., Fralick, D., Zheng, J. Z., Wang, B., & Changyong, F. E. N. G. (2017). The differences and similarities between two-sample t-test and paired t-test. *Shanghai archives of psychiatry*, 29(3), 184.
13. Marin, A., Stefanica, V. & Rosculeț, I. (2023) Enhancing Physical Fitness and Promoting Healthy Lifestyles in Junior Tennis Players: Evaluating the Influence of “Plyospecific” Training on Youth Agility. *Sustainability* 2023, 15, 9925. Available at: <https://doi.org/10.3390/su15139925>
14. McConkey, R., Peng, C., Merritt, M.& Shellard, A. (2019). The meaning of social inclusion to players with and without intellectual disability in unified sports teams. *Inclusion*, 7(4), 234-243.
15. Merrell, K.W. & Gimpel, G. (2014). Social skills of children and adolescents: Conceptualization, assessment, treatment. Psychology Press.
16. Mocanu, L., Pradais, D.& Crina, C.(2020). Psycho-Pedagogical Characteristics of Children with Intellectual Disabilities. *EIRP Proceedings*, 15(1)
17. Muntean, R. I., Stefanica, V., Ursu, V. E., Rusu, R. G., Man, C. M., Tomuş, A. M., Tomuş, A. M., Fleancu, J. L., Radu, P. O., Neamtu – Popescu, A. . , & Roşu, D. . (2023). The Impact of HVLA Manipulations and Therapeutic Massage in Increasing the Mobility of the Lateral Flexion of the Neck. *BRAIN. Broad Research in Artificial Intelligence and Neuroscience*, 14(4), 266-291. Available at: <https://doi.org/10.18662/brain/14.4/505>
18. Orr, K., Wright, F. V., Grassmann, V., McPherson, A. C. et al. (2021). Children and youth with impairments in social skills and cognition in out-of-school time inclusive physical activity programs: A scoping review. *International journal of developmental disabilities*. 67(2), 79-93.
19. Pătrășcan, G. & Stefanica, V. (2019). Developing strength and speed in children with special educational needs aged 16-18 in order to optimise adapted football game. *Discobolul—Phys. Educ. Sport Kinetotherapy* 2019, XV, 23-28. *Discobolul - Physical Education, Sport and Kinetotherapy Journal*, XV, no. 1(55), 23-28. <https://discobolulunefs.ro/wp-content/uploads/2019/06/Discobolul-No.-55-March-2019.pdf#page=21>
20. Pătrășcan, G., & Stefanica, V. (2018). Drawing up an institutional development project-unified football in 7. *Discobolul - Physical Education, Sport and Kinetotherapy Journal*, XIV, no. 4(54), 52-56. <https://discobolulunefs.ro/wp->

[content/uploads/2019/04/Discobolul-No.-54-December-2018.pdf#page=52](https://doi.org/10.7752/jpes.2019.04.Discobolul-No.-54-December-2018.pdf#page=52)

21. Pătrășcan, G. & Stefanica, V. (2019). Football-specific motor training program adapted to children with SEN aged 16–18. *Discobolul—Phys. Educ. Sport Kinetotherapy* 2019, XV, 61–66. *Discobolul – Physical Education, Sport and Kinetotherapy Journal*, XV, no. 1(55), 23-28. <https://discobolulunefs.ro/wp-content/uploads/2019/06/Discobolul-No.-55-March-2019.pdf#page=61>
22. Reichenberg, A. et al. (2016). Discontinuity in the genetic and environmental causes of the intellectual disability spectrum. *Proceedings of the National Academy of Sciences*, 113(4), 1098-1103.
23. Roșu, D., Cojanu, F., Stefanica, V., & Enache, S. (2022). Experimental management of work collectives through social and socialization activities. *Journal of Physical Education and Sport*, 22(7), 1742-1747. Available at: <https://doi.org/10.7752/jpes.2022.07218>
24. Roșu, D., Enache, S., Stefanica, V. & Muntean, R.I. (2023). Initiation in Kin Ball – Pre and Post Pandemic Effects on Hand Strength, Resistance and Coordination. *Preprints*, 2023122233. <https://doi.org/10.20944/preprints202312.2233.v1>
25. Santos, S. (2017). Psychomotor Therapy and Intellectual Disability in Portugal: from 0 to 100. *International Journal of Psychology and Neuroscience*, 3(2), 22-37.
26. Scifo, L., Chicau Borrego, C., Monteiro, D., Matosic, D., Feka et al. (2019). Sport intervention programs (SIPs) to improve health and social inclusion in people with intellectual disabilities: A systematic review. *Journal of Functional Morphology and Kinesiology*, 4(3), 57.
27. Stefanica, V., Mihai, I., Cojanu, F., Vișan, P.-F., Roșu, D. & Potop, V. (2024). Determining the changes in psychomotor behavior of adolescents with special needs. *Revista Românească pentru Educație Multidimensională*, 16(1), 46-70. Available at: <https://doi.org/10.18662/rrem/16.1/811>
28. Stefanica, V. (2022). Study on the dynamics of the use of food supplements in amateur sports. *Journal of Physical Education and Sport*, 22(8), 1900-1904, Available at: <https://doi.org/10.7752/jpes.2022.08240>
29. Valentina, S., & Daniel, R. (2018). Evaluation of the working groups in the group cohesion perspective, in the project Boboc Camp, 2018. *Journal of Physical Education and Sport*, 18, 2134–2138. Available at: <https://doi.org/10.7752/jpes.2018.s5322>
30. White, J. P. Exploring well-being in schools: A guide to making children's lives more fulfilling. *Taylor & Francis*, 2011.