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INCORPORATING VIDEO TECHNOLOGY INTO GREEK TRADITIONAL DANCES FOR INDIVIDUALS WITH AUTISM SPECTRUM DISORDER

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ABSTRACT

Individuals with Autism Spectrum Disorder often exhibit motor difficulties when assessed through standard motor evaluations. These difficulties can include challenges in performing typical motor tasks for their age group. Dance can be described as a physical activity involving coordinated movements such as steps and jumps, performed for artistic, ritualistic, or recreational purposes, typically following a set rhythm and order guided by music. Video technology provides a dynamic and engaging approach to dance instruction, combining flexibility in location and timing. The aim of the present study was to investigate the effects of an exercise program with Greek traditional dances on the balance of individuals with Autism Spectrum Disorder, using video technology. Participants were six adults with Autism Spectrum Disorder, five males and one female, with an age range of 20 to 26 years. The Standing Stork Test was employed to evaluate balance ability, while a smartphone was used to monitor the video of the dance routines. The intervention program took place once every week, spanning a period of six weeks. Results indicated a significant difference between the initial and final measurement of balance for both feet. In conclusion an intervention program incorporating Greek traditional dance elements using video technology, may contribute to improving the balance ability of individuals with the Autism Spectrum Disorder.

Keywords: Autism Spectrum Disorder, Greek Traditional Dances, Smartphone Technology, Video Technology

1.0 INTRODUCTION

1.1 Autism Spectrum Disorder

Characterized by difficulties in social interaction and repetitive patterns, Autism Spectrum Disorder (ASD) is a neurodevelopmental disorder affecting self-perception, learning, and daily life (American Psychiatric Association, 2013). Individuals with ASD often display challenges in communication and social interaction, alongside restricted interests, repetitive behaviors, and functional limitations. The number of ASD diagnoses has risen sharply in the past twenty years, affecting approximately 1 in 44 children aged eight in the U.S. in 2018, with boys disproportionately affected (Maenner et al., 2021). A childhood diagnosis relies on symptoms

including poor social interaction, repetitive movements, restricted interests, and communication delays.

According to the DSM-V (2013), ASD diagnosis requires persistent deficits across three social communication/interaction domains and the presence of at least two of four restricted/repetitive behavior patterns. The severity of the condition is determined by the degree of impairment in social communication and the intensity of repetitive behaviors. The DSM-V (2013) defines three levels of severity based on the amount of support required: Level 3 (requiring substantial support), Level 2 (requiring considerable support), and Level 1 (requiring minimal support).

Level 3: Requires extensive help. Regarding social communication, significant deficits in verbal and nonverbal skills severely impair functioning. Regarding restricted interests and repetitive behaviors, significant distress arises when routines are disrupted.

Level 2: Requires considerable help. Social communication is impaired by deficits in verbal and nonverbal skills. Restricted interests and repetitive behaviors can lead to frustration when fixated interests are interrupted.

Level 1: Requires support. There are challenges in social communication that may lead to difficulties in interactions. There is a reduced interest in social engagement. In terms of restricted interests and repetitive behaviors, fixed routines and repetitive actions can notably disrupt functioning in one or more settings.

Individuals with ASD often exhibit motor difficulties when assessed through standard motor evaluations. These difficulties can include challenges in performing typical motor tasks for their age group (Moraes et al., 2017). They may also struggle with posture control, planning motor movements, and imitating actions, which can affect their ability to perform age-appropriate motor skills (Downey & Rapport, 2012). Limitations in motor skills, such as issues with coordination and balance, can significantly restrict their participation in physical activities. Additionally, difficulties may arise in gross motor skills, including poor visual-motor coordination, issues with bilateral coordination, posture problems, and deficits in both static and dynamic balance (Bhat, Landa & Galloway, 2011; Fournier, Hass, Naik, Lodha & Cauraugh, 2010).

1.2 Traditional Dance programs

Individuals with ASD may benefit from targeted strategies and interventions designed to enhance motor control, motor learning, and overall motor skills. These approaches can support the learning of new motor skills (Djordjevic, Memisevic, Potic & Djuric, 2022; Ruggeri, Dancel, Johnson & Sargent, 2020). Dance, a fundamental movement, significantly impacts the human experience from birth until death. Throughout life's remarkable moments, individuals use music, verse, and dance for self-expression. As a physical activity, dance involves ordered, rhythmic movements like steps and jumps, motivated by artistic, ritualistic, or recreational aims, usually to a musical beat. Dance is inextricably linked to human life, reflecting a particular social group at a specific time. Moreover, dances can be ritualistic, traditional, or purely for enjoyment. It's also considered a social activity, as all members of society participate (Mavrovouniotis et al., 2013).

Traditional dance programs boost the physical and motor skills of participants with disabilities. Their efficacy stems from incorporating specific movement sequences demanding full-body coordination. From this perspective, these programs might offer an alternative therapeutic approach for individuals with disabilities like ASD (Arzoglou et al., 2013). The positive effects of physical education and sports on motor skills and social interaction are well documented for individuals with and without disabilities (Bremer et al., 2016). Nevertheless, for a program to be effective for the specific group, it is necessary to first assess specific components for each individual to design the most appropriate exercise program. Designing a physical education and sports program for individuals with ASD, necessitates a focus on behavioral strategies implemented before, during, and after the program sessions. Numerous studies have examined how various exercise programs, including animal-assisted, music therapy, and dance interventions, benefit motor and social skills in individuals with ASD (Harris & Williams, 2017; LaGasse et al., 2019; Aithal et al., 2021). 2018; Machado, 2015; Arzoglou et al., 2013; & Marouli et al., 2021). Balance is essential for effective dance performance and can be greatly enhanced through consistent practice (Tsimaras et al., 2012). Dance is a valuable activity for improving both static and dynamic balance and is particularly beneficial for children, older adults, individuals with motor difficulties, balance issues, and those with hearing impairments (Tsimaras et al., 2012).

1.3 Smartphone Technology and Dance teaching through Video Technology

Mobile phone technology has undergone remarkable advancements. The first mobile phone, weighing 2 kg, was introduced in 1973 by John F. Mitchell and Martin Cooper of Motorola. Since then, mobile phones have evolved rapidly, becoming essential devices owned by nearly everyone due to their versatility (Charlesworth, 2009). Unlike traditional mobile phones, smartphones, which first emerged in 1997 when Ericsson referred to the GS 88 "Penelope" as a Smart Phone, offer enhanced features with advanced computing power and connectivity. Specifically, smartphones are mobile devices equipped with capabilities such as email, text messaging, video watching, and wireless internet access (Kratzke, 2012).

Verbal instruction has been the traditional method of dance learning; yet, continuous experimentation using a variety of techniques is fundamental to its evolution. Video technology is now a leading substitute for in-person classes, particularly given current circumstances. Researchers in Barcelona, Spain, studied two groups of dance students with no prior experience; one group received oral instruction, the other video-based instruction. Video instruction led to significantly better learning outcomes than oral instruction, according to Tsiatsos et al. (2010). With video dance lessons, individuals enjoy a dynamic and engaging learning experience with flexible scheduling and location. This approach combines adaptable teaching formats and clear instruction effectively.

Additionally, many dance instruction resources, including the Beijing Dance Academy's amateur dance grade exam materials, are now available as videos. This proves that video teaching is both feasible and widely used in dance education. Dance performances, when recorded, become shareable data, thus boosting knowledge exchange. Previously, DVDs, VCDs, and MP4 files (paid or free) were used to distribute video teaching materials. The internet's and 5G's evolution has led to faster internet speeds and more broadband choices

(Liberg et al., 2020). More people are uploading dance videos online thanks to these advancements, leading to better communication and teamwork in the dance world.

Increased interest in dance and dance education is significantly linked to the rise of telecommunications, video platforms like YouTube, and social media (Parrish, 2016). Interactive video platforms improve content accessibility by enabling efficient topic-based searches and material discovery. Additionally, comments and likes foster user engagement, feedback, and idea exchange, thus creating a more interactive and collaborative learning environment (Doe, 2022).

While some studies have explored this topic, they have not specifically focused on balance skills. Therefore, the aim of this study was to investigate the effects of an exercise program with Greek traditional dances on the balance of individuals with Autism Spectrum Disorder, using video technology.

2.0 MATERIALS & METHODS

2.1 Participants

The initial sample included seven individuals with ASD (one female and six males), ranging in age from 20 to 28 years. However, the final sample comprised six participants (one female and five males), aged between 20 and 26 years.

2.2 Measurement Instruments

The Huawei P20 Pro smartphone was utilized to present Greek traditional dances to the participants and to measure the equilibrium time by using the timer.

2.2.1 Materials

A Dell Latitude 3510 laptop was in use for music playback.

2.2.2 Tasks

The Standing Stork Test, which assesses balance ability, was used to measure static balance. This is a method commonly used by athletes and coaches to assess their static balance with the aim of minimizing injuries, while for non-athletes it is used to improve their balance. (Johnson & Nelson, 1979).

The Standing Stork Test was carried out using only a pen, pencil, a piece of paper and a mobile smartphone to record the results.

Before the test, instructions were given to the participants. All parameters that could affect the participants' health were checked with the subjects' consent. A 10-minute warm-up was performed before the test began (Johnson & Nelson, 1979).

During the procedure, participants remove their shoes and place their hands on their hips. Then they placed their bent foot on the inner knee of their balance foot. Participants were given one minute to practice their balance before measurement. The time measurement started as on as

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the wheel was lifted from the floor and ended when the wheel was back on the floor. Once the measurement was complete, the participants rested and repeated the procedure with the other foot. It was important that the participants lifted their support to their foot to allow themselves to balance on the centre of their foot. The timer could be stopped before the end of the measurement in the following cases: 1. In the case where the hands remained on the hips, 2. In the case where the support foot moved, i.e. if it bounced in any direction and the other foot lost contact with the knee, or 3. If the wheel of the support did not touch the ground. Three attempts were made for each support foot and the total trial time was recorded in seconds. The final score was the average of the best trial for the right and left foot.

Table 2.1 Official standards for individuals aged from 16 to 19 years (Johnson & Nelson, 1979)

Sex	Perfect execution	Above average	Average/mean score	Below average	Poor execution
Male	>50′′	41-50′′	31-40′′	20-30′′	<20′′
Female	>30′′	23-30′′	16-22′′	10-15′′	<10′′

Table 2.2 Official standards for males and females (Schell & Leelarthaepin, 1994)

Sex	Perfect execution	Above average	Average/ mean score	Below average	Poor execution
Male	>50′′	37-50′′	15-36′′	5-14′′	<5′′
Female	>27′′	23-27′′	8-22′′	3-7′′	<3′′

2.3 Procedure

A month prior to the start of the intervention, a meeting was held with the President of the association and the parents of the participants to inform them about the program and its duration and to obtain their consent for the participation of individuals with ASD. After obtaining the parents' consent to the intervention program, the first meeting took place on 27 March 2024 at the "Talking about Autism" association, where the participants were informed in detail about the measurement procedure and the intervention program and asked if they were willing to participate. Since participants experienced difficulty or discomfort with placing the off-balance foot on the knee of the support foot, they were asked to keep one foot slightly bent in the air and to place it at the point where they felt comfortable (on the gastrocnemius muscle or ankle).

This was followed by the intervention program of Greek traditional dances and the participants were taught two traditional Greek dances. The videos were altered from a website that aimed to support the teaching of Greek traditional dances included in the curriculum of Physical Education in Primary and Secondary Education, as well as Greek traditional dances from all over Greece.

Teaching Greek traditional dances:

http://www.pi-schools.gr/lessons/gymnastics/ypost_yliko/paradosiakoi/

1. The Syrtos in three.

2. The Foot dance.

The intervention program lasted for six weeks, with sessions held once a week, each lasting 45 minutes. Each session included 20 minutes dedicated to learning the Greek traditional dance "Syrtos in three," followed by a 5-minute break, and concluded with 20 minutes focused on learning the "Foot dance".

At the beginning of each session, the participants watched a video of the Greek traditional dance on a smartphone. Then, the researcher either taught or reminded them of the dance steps. Afterward, they performed the dance. This procedure with the video technology, was followed for both Greek traditional dances. At the end of the intervention in May 2024, final measurements of the participants' balance ability were conducted to assess possible improvements.

3.0 RESULTS

Table 3.1 Demographics of the participants

Participants	Sex	Age
1st Participant	Female	26
2nd Participant	Male	20
3rd Participant	Male	21
4th Participant	Male	22
5th Participant	Male	22
6th Participant	Male	22

Table 3.2 Initial measurements of the participants from the Standing Stork Test

Participants	Age	Standing Stork Test	
		Right foot	Left foot
1st Participant	26	1. 06,68′′ 2. 03,77′′ 3. 03,35′′	1. 18,02′′ 2. 11,78′′ 3. 07,77′′
2nd Participant	20	1. 02,75′′ 2. 02,55′′ 3. 02,85′′	1. 13,83′′ 2. 04,38′′ 3. 10,10′′

3rd Participant	21	1. 02,75´´ 2. 05,58´´ 3. 08,50´´	1. 03,08´´ 2. 02,82´´ 3. 02,57´´
4th Participant	22	1. 03,24´´ 2. 02,04´´ 3. 01,94´´	1. 03,50´´ 2. 02,39´´ 3. 04,79´´
5th Participant	22	1. 05,98´´ 2. 05,45´´ 3. 06,51´´	1. 17,49´´ 2. 06,97´´ 3. 04,69´´
6th Participant	22	1. 17,05´´ 2. 13,22´´ 3. 12,22´´	1. 14,51´´ 2. 10,60´´ 3. 13,52´´

Table 3.3 Final measurements of the participants from the Standing Stork Test

Participants	Age	Standing Stork Test	
		Right Foot	Left Foot
1st Participant	26	1. 12,61´´ 2. 11,79´´ 3. 15,01´´	1. 24,93´´ 2. 12,48´´ 3. 16,86´´
2nd Participant	20	1. 09,87´´ 2. 11,95´´ 3. 09,53´´	1. 42,51´´ 2. 20,56´´ 3. 17,69´´
3rd Participant	21	1. 05,55´´ 2. 07,15´´ 3. 09,75´´	1. 05,02´´ 2. 04,56´´ 3. 05,48´´
4th Participant	22	1. 04,10´´ 2. 04,30´´ 3. 03,08´´	1. 04,16´´ 2. 03,59´´ 3. 04,20´´
5th Participant	22	1. 06,88´´ 2. 06,02´´ 3. 05,25´´	1. 17,55´´ 2. 10,12´´ 3. 05,45´´
6th Participant	22	1. 33,79´´ 2. 11,84´´ 3. 20,83´´	1. 23,75´´ 2. 22,84´´ 3. 17,50´´

Table 3.4 Average scores for the Standing Stork for right and left foot of the participants

Participants	Age	Initial Measurement Right foot	Final Measurement Right foot	Initial Measurement Left foot	Final Measurement Left foot
1	26	4,60´´	12,52´´	13,01´´	18,09´´
2	20	2,71´´	9,40´´	10,45´´	26,92´´
3	22	5,61´´	2,82´´	7,48´´	5,02´´
4	22	2,40´´	3,56´´	3,82´´	3,98´´
5	22	5,98´´	9,71´´	6,05´´	11,04´´
6	22	14,10´´	12,87´´	22,01´´	21,36´´

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3.1 Statistical Analysis

Statistical analyses were performed using SPSS 20. A t-test was conducted to determine whether there were statistically significant differences between the initial and final measurements for the right foot. Results showed the existence of statistically significant differences $t(5)=4,7$, $p<0.05$. Similarly, a t-test was performed to assess differences between the initial and final measurements for the left foot, revealing significant differences as well, $t(5)=3,8$, $p<0.05$.

4.0 DISCUSSION

The aim of this study was to examine the balance ability of individuals with ASD following an intervention program incorporating Greek traditional dances, with the utilizing of video technology. Specifically, the study hypothesized that an intervention using elements of Greek traditional dances would have a statistically significant impact on the balance of participants with ASD.

Individuals with ASD have a deficit in motor skills. In particular, they have a significant deficit in sensory perception which includes balance skill. Participation in exercise programs may possibly improve motor skills and more specifically balance skill (Sherill, 2014). Dance may be part of an exercise program aiming to improve motor skills for individuals with ASD, mainly due to the deepening it offers in motor activation (Arzoglou et al., 2013).

The results of the present study showed that following the intervention program, statistically significant differences were found among the initial and the final measurements for the right and the left foot, meaning there was an important effect on balance. These results come in agreement with the findings of other similar studies, Arzoglou et al. (2013) and Marouli et al. (2021).

This study's positive statistical results match those seen in other dance program studies. A study by Machado (2015) demonstrated the benefits of a dance therapy program for motor skills, gestures, balance, and gait in individuals with ASD. Note that while dance is beneficial, it's not the only activity that positively affects motor skills development. Motor skills have been shown to improve through various intervention programs. Ruggeri et al. (2019) demonstrated that exercise interventions enhanced motor skills in individuals with ASD. Likewise, positive outcomes were reported by Ketcheson et al. (2016) for their intensive motor exercise program. Najafabadi et al. (2018) demonstrated that the SPARK program boosts motor skills among young children with ASD. Furthermore, Lourenco et al. (2015) found that a trampoline program improved motor skills in individuals with ASD.

Another study by Sarabzadeh et al. (2019), showed that a training intervention program of Tai Chi Chua, had a positive effect on motor skills and contributed to the decrease of motor limitations in everyday life of the participants. Moreover, Cheldavi et al.(2021) through their intervention program on balance training observed an improvement on posture oscillation in various sensory situations for individuals with ASD, resulting in the improvement of their balance skill. Similar improvement was also observed at the study of Kim et al. (2016) and their Tae-kwon-do intervention program.

Numerous researchers agree that various physical activity intervention programs can enhance the motor skills of individuals with ASD. The research by Ceccarelli et al. (2020) found that all physical activity programs evaluated significantly enhanced fine motor skills, motor skills in general, object control, and coordination in participants with ASD. Likewise, Lourenco and Esteves (2019) demonstrated that physical activity interventions improved motor skills in children and adolescents with ASD, regardless of activity type, frequency, or duration.

Individuals with ASD showed significant improvements in motor skills, particularly in both feet, according to this study. The intervention program significantly improved left-foot balance, even among right-handed participants, showing its positive effect on overall balance.

Dance exercise uniquely blends improved communication, teamwork, and physical fitness. Individuals with ASD may experience difficulties with mobility and communication, impacting their daily lives and overall well-being. This study's evidence suggests moderate-intensity exercise improves balance skill among those with ASD. The intervention program yielded enthusiastic participants who exhibited more socialization, enjoyment, and measurable improvements. Integrating similar exercise programs into education is crucial for ASD individuals growth and well-being, as these findings revealed.

Individuals with ASD frequently exhibit motor clumsiness, marked by developmental difficulties with muscle coordination. Their ability to perform age-appropriate motor skills can be affected by these problems. Numerous programs focused on improving motor skills, especially balance skill, have been created for individuals with ASD (Sherill, 2014). Incorporating dance provides a holistic approach, improving motor skills and activation within these programs. Physical activities, such as dancing, help individuals express emotions and understand their perception of themselves, others, and their surroundings (Mavrovouniotis et al., 2013).

Dance therapy shows promise in significantly improving motor skills for ASD individuals who struggle with motor development, according to this and previous research.

Furthermore, video technology provides an effective way for teachers and students to learn dance. It's adaptable, easy to use, and offers thorough insights into student work. It's suitable for pre-recorded content or virtual classes. Video improves learning by blending visual and auditory instruction. Interactive video platforms help users search and find specific topics and relevant materials more efficiently.

Using video in dance education offers:

1) Enhanced Visual Learning: Individuals benefit from the video's clear demonstration of movements and techniques from multiple viewpoints. A slow-motion feature helps analyze complex dance moves.

2) Accessibility: Individuals can easily learn anywhere, anytime. This means that there are no geographical restrictions, and class schedules are not a factor in learning. The recording can also be accessed at any time by learners with any level of ability.

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3) Learning at your own pace: Individuals can pause the video, rewind to previous clips, and watch again at their own time and pace. This is particularly useful when practicing difficult moves.

Video technology is now a leading replacement for face-to-face instruction, especially in today's environment. Video dance classes offer individuals a dynamic, engaging, flexible, and location-independent learning experience. This strategy uses adaptable teaching methods and clear instructions effectively (Tsiatsos et al., 2010).

This study, which used video technology to assess the impact of a Greek dance program on the balance of people with ASD, showed improvements beyond the main goal. Throughout the program, participants steadily improved rhythm and coordination, with notable progress by week three. In addition, a noticeable improvement was seen in their social interactions. Smartphone video technology likely boosted the course's attractiveness by merging traditional teaching with modern digital tools.

5.0 CONCLUSION

A traditional dance program showed promise in improving balance skill for individuals with ASD, according to this study with a limited number of participants. Results indicated that Greek traditional dances may offer substantial benefits in improving motor skills, rhythm, coordination, and social skills within this group. Further research is needed to build upon these findings. To confirm the findings, future studies need larger samples and longer interventions to collect richer data.

In addition, the inclusion of experimental and control groups allows for a comparison of program effectiveness with other interventions, highlighting specific effects. The impact of age on motor skill development in individuals with ASD highlights the vital need to include children and adolescents in these studies. Addressing motor difficulties, which often early onset and progressively worsening, is essential via focused exercise interventions to improve social interactions and overall quality of life.

It would also be beneficial to study the impact of various dance forms, including Greek traditional dances, on individuals across the disability spectrum to determine their wider applicability. Investigating the influence of varied dance programs on balance and motor skills among individuals with ASD and other disabilities could illuminate the adaptability and efficacy of dance as therapy. In addition by incorporating video teaching technology in exercise intervention programs, individuals enjoy a dynamic and engaging learning experience with flexible scheduling and location. This approach effectively combines adaptable teaching formats and clear instruction effectively. It would be beneficial for further studies to investigate the impact and appeal of video technology on the learning abilities of individuals with disabilities.

Conflict of Interest The authors declare no conflict of interest

REFERENCES

American Psychiatric Association (2013). Diagnostic and statistical manual of mental disorders, 5th ed. American Psychiatric Publishing: Washington, DC, London England.

Arzoglou, D., Tsimaras, V., Kotsikas, G., Fotiadou, E., Sidiropoulou, M., Proios, M. & Bassa, E. (2013). The effect of a traditional dance training program on neuromuscular coordination of individuals with autism. Journal of Physical Education and Sport, 13(4), 563-569.

Aithal, S., Karkou, V., Makris, S., Karamanis, T. & Powell, J. (2021). A Dance Movement Psychotherapy Intervention for the Wellbeing of Children with an Autism Spectrum Disorder: A Pilot Intervention Study. Frontiers in Psychology, 12, 1-15.

Bhat, A., Landa, R. & Galloway, J.C. (2011). Perspectives on motor problems in infants, children, and adults with autism spectrum disorders. Physical Therapy, 91, 1116–1129.

Bremer, E., Crozier, M. & Lloyd, M. (2016). A systematic review of the behavioraloutcomes following exercise interventions for children and youth with autism spectrum disorder. Autism, 20(8), 899- 915.

Ceccarelli, S., Ferrante, C., Gazzola, E., Marzocchi, G.M., Nobile, M., Molteni, M. & Crippa A. (2020). Children, 7 (11), 1-17.

Charlesworth, A. (2009). The ascent of smartphone. Engineering & technology, 4(3), 32-33.

Cheldavi, H., Shakerian, S., Boshehri, S.N.S. & Zarghami, M. (2014). The effects of balance training intervention on postural control of children with autism spectrum disorder: Role of sensory information. Research in Autism Spectrum Disorders, 8(1), 8-14.

Djordjevic, M., Memisevic, H., Potic, S. & Djuric, U. (2022). Exercise-based interventions aimed at improving balance in children with autism spectrum disorder: a meta-analysis. Perceptual and Motor Skills, 129, 90–119.

Doe, Y. (2022). The Application of Video Technology in Dance Courses. Art and Society, 1(3), 38-43.

Downey, R., & Rapport, M. J. K. (2012). Motor activity in children with autism: A review of current literature. Pediatric Physical Therapy, 24, 2–20.

Fournier, K. A., Hass, C. J., Naik, S. K., Lodha, N. & Cauraugh, J. H. (2010). Motor coordination in autism spectrum disorders: a synthesis and meta-analysis. Journal of Autism and Developmental Disorders, 40, 1227–1240.

Harris, A. & Williams, J.M. (2017). The Impact of a Horse Riding Intervention on the Social Functioning of Children with Autism Spectrum Disorder. International Journal of Environmental Research and Public Health, 14(7), 776. doi: 10.3390/ijerph14070776.

Johnson, B.L. & Nelson, J.K. (1979). Practical measurements for evaluation in physical education.4th, Edit. Minneapolis: Burgess.

Ketcheson, L., Hauck, J. & Ulrich, D. (2016). The effects of an early motor skill Intervention on motor skills, levels of physical activity, and socialization in young children with autism spectrum disorder: A pilot study. Autism, 21(4), 481-492.

Kim, Y., Todd, T., Fujii, T., Lim, J., Vrongistinos, K. & Jung, T. (2016). Effects of Taekwondo intervention on balance in children with autism spectrum disorder. Journal of Exercise Rehabilitation, 12(4), 314-319.

Kratzke, C. & Cox, C. (2012). Smartphone technology and apps: rapidly changing health promotion. Global Journal of Health Education and Promotion, 15(1). Retrieved online from: https://web.pdx.edu/~nwallace/GHS/KratzkeCox.pdf

LaGasse, A.B., Manning, R.C.B., Crasta, J.E., Gavin, W.J. & Davies, P.L. (2019). Assessing the Impact of Music Therapy on Sensory Gating and Attention in Children with Autism: A Pilot and Feasibility Study. Journal of MusicTherapy,56(3), 287-314.

Liberg, O., Sundberg, M., Wang, Y.-P. E., Bergman, J., Sachs, J., & Wikström, G. (2020). 5G and beyond. In Cellular Internet of Things, 731–735. https://doi.org/10.1016/B978-0-08-102902 2.00018-2.

Lourenco, C., Esteves, D., Corredeira, R. & Seabra, A. (2015). Children with autism spectrum disorder and trampoline training. Wulfenia Journal, 22(5), 342-351.

Lourenco, C. & Esteves, D. (2019). Motor Intervention and Assessment Instruments in Autism Spectrum Disorders. Creative Education, 10(8), 1929-1936.

Machado, T.L. (2015). Dance therapy in autism: a case report. Fisioterapia e Pesquisa, 22(2), 1-8.

Maenner, M. J., Shaw, K. A., Bakian, A.V., Bilder, D. A., Durkin, M. S. et al. (2021). Prevalence and characteristics of autism spectrum disorder among children aged 8 years—Autism and developmental disabilities monitoring network, 11 sites, United States, 2018. Surveillance Summaries, 70(11), 1–16.

Marouli, E, Kaioglou, V., Karfis, V., Kambas, A., Koutsouba, M. & Venetsanou, F. (2021). The Effect of a Greek Traditional Dance Program on the Motor Competence of Children with Autism Spectrum Disorder. European Journal of Physical Education and Sport Science, 7(3), 1-14.

Mastrominico, A., Fuchs, T., Manders, E., Steffinger, L., Hirjak, D., Sieber, M., Thomas, E., Holzinger

A., Konrad, A., Bopp, N. & Koch, S. (2018). Effects of dance movement therapy on adult patients with autism spectrum disorder: A randomized controlled trial. Behavioral Sciences, 8(7) 61.

Martin, H. (1981) 'The Halliwick Method'. Physiotherapy, 67, 288–291.

Mavrovouniotis, F., Malkogeorgos, A. & Argyriadou, E. (2013). Greek folk dances. Publications, University studio press.

Moraes, I. A. P.,Massetti, T., Crocetta, T. B., da Silva, T. D., de Menezes, L. D. C., de Mello Monteiro, C., & Magalhães, F. H. (2017). Motor learning characterization in people with autism spectrum disorder. Dementia and Neuropsychologia, 11, 276–186.

Najafabadi,, M.G., Sheikh, M., Hemayattala. R., Amir. M., Rezaii, M.& Hafizi, S. (2018).The effect of SPARK on social and motor skills of children with autism. Pediatrics and Neonatology, 59(5), 481-487.

Parrish, M. (2016). Toward transformation: Digital tools for online dance pedagogy. Arts Education Policy Review, 117(3), 168–182. https://doi.org/10.1080/10632913.2016.1187974.

Ruggeri A., Dancel, A., Johnson, R. & Sargent, B. (2019). The effect of motor physical activity intervention on motor outcomes of children with autism spectrum disorder: A systematic review. Autism, 24(3), 544-568.

Sarabzadeh,, M., Azari, B.B. & Helalizadeh, M. (2019). The effect of six weeks of Tai Chi Chuan training on the motor skills of children with Autism Spectrum Disorder. Journal of Bodywork and Movement Therapies, 23(2), 284-290.

Schell, J. & Leelarthaepin, B. (1994). Physical Fitness Assessment in Sports and Sports Science. Mat Raville, Austrli: Leelar Biomediscience Services.

Sherill, C. (2014). Adapted Physical Activity, Recreation and Sport. Translation Evaggelinou, C., Edited by Evaggelinou, C. Publications Broken Hill Publishers LTD (In Greek).

Tsimaras, V.K., Giamouridou, G.A., Kokaridas, D.G., Sidiropoulou, M.P. & Patsiaouras, A.I. (2012). The effect of a traditional dance training program on dynamic balance of individuals with mental retardation. The journal of strength &conditioning research, 26(1), 192-198.

Tsiatsos, T., Stavridou, E., Grammatikopoulou, A., Douka, S. & Sofianidis, G. (2010). Exploiting Annotated Video to Support Dance Education. Proceeding of Sixth Advanced International Conference on Telecommunications, 100–105. https://doi.org/10.1109/AICT.2010.59.

