International Journal of Health, Exercise, and Sport Sciences
(IJOSS) ISSN: 3023-8382

RESEARCH ARTICLE / Araştırma Makalesi **Open Access/**Açık Erişim

Comparison of Core Stabilization in Children Performing and Nonperforming Folk Dances Between 12-14 Years Old

12-14 Yaş Arası Halk Dansı Yapan ve Yapmayan Çocuklarda Core Stabilizasyonunun Karşılaştırılması

Ufuk Han BAĞAÇLI[1], Sertaç ERÇİŞ[2]

*Correspondence:
Ufuk Han BAĞAÇLI
ufukhanbagacli@gmail.com

[1]Necmettin Erbakan Fen Lisesi, Erzurum, Türkiye.
ufukhanbagacli@gmail.com
0009-0000-1679-1554

[2]Atatürk Üniversitesi, Spor Bilimleri Fakültesi, Erzurum, Türkiye
0000-0003-2966-4049

https://doi.org/10.5281/zenodo.17454998

Received / Gönderim: 29.01.2025

Accepted / Kabul: 08.06.2025

Published / Yayın: 30.06.2025

Volume 2, Issue 2, June, 2025

Cilt 2, Sayı 2, Haziran, 2025

Abstract

This study examines the differences in trunk stabilization, balance, and flexibility between children who regularly participate in folk dance training and their sedentary peers in the Erzurum region. The research was conducted on 40 male students (mean age: 12.95±0.67 years), with 20 participants engaged in folk dance for approximately five years and 20 leading a sedentary lifestyle. Standardized tests were employed to assess trunk stabilization (plank, side plank, Sorensen back extension, and sit-up tests), balance (star excursion balance test, stork balance test), and flexibility (sit-and-reach test). Statistical analysis was performed using SPSS, with a significance level of $p<0.05$. Results indicated significantly higher performance in the folk-dance group across all parameters. Specifically, the folk-dance group demonstrated superior performance in the plank test (71.70±27.28s vs. 41.05±17.81s), sit-up test (23.4±9.25 reps vs. 5.90±4.09 reps), Sorensen test (164.55±51.22s vs. 91.60±58.59s), and balance tests. Additionally, flexibility scores were higher in the folk-dance group (27.95±4.26 cm vs. 16.60±5.79 cm). These findings suggest that folk dance training enhances core stability, balance, and flexibility, supporting its potential role as an effective physical activity for improving musculoskeletal health in children.

Key Words Flexibility, Balance, Folk Dances, Core Stabilization

Özet

Bu çalışma, Erzurum bölgesinde düzenli olarak halk dansı eğitimi alan çocuklar ile sedanter akranları arasındaki gövde stabilizasyonu, denge ve esneklik farklılıklarını incelemektedir. Araştırmaya yaş ortalaması 12,95±0,67 yıl olan 40 erkek öğrenci katılmıştır. Katılımcıların 20'si yaklaşık beş yıldır halk dansı ile uğraşmakta, diğer 20'si ise sedanter yaşam sürmektedir. Gövde stabilizasyonu için plank, yan plank, Sorensen sırt ekstansiyon ve mekik testleri; denge için yıldız denge testi ve leylek denge testi; esneklik için otur-uzan testi kullanılmıştır. İstatistiksel analizler SPSS programı ile yapılmış ve anlamlılık düzeyi $p<0,05$ olarak kabul edilmiştir. Sonuçlar, halk dansı grubunun tüm parametrelerde anlamlı derecede daha yüksek performans sergilediğini göstermiştir. Özellikle plank testi (71,70±27,28 sn'ye karşı 41,05±17,81 sn), mekik testi (23,4±9,25 tekrar'a karşı 5,90±4,09 tekrar), Sorensen testi (164,55±51,22 sn'ye karşı 91,60±58,59 sn) ve denge testlerinde halk dansı grubunun üstün performans gösterdiği belirlenmiştir. Ayrıca, esneklik değerleri de halk dansı grubunda daha yüksek bulunmuştur (27,95±4,26 cm'ye karşı 16,60±5,79 cm). Bu bulgular, halk dansı eğitiminin çocuklarda gövde stabilitesi, denge ve esnekliği geliştirdiğini ve kas-iskelet sağlığının iyileştirilmesinde etkili bir fiziksel aktivite olabileceğini ortaya koymaktadır.

Anahtar Kelimeler: Esneklik, Denge, Halk Dansları, Gövde Stabilizasyonu

https://www.ijoss.org/Archive/issue2-volume2/ijoss-Volume2-issue2-10.pdf

Introduction

Nowadays, the positive effects of physical activity on general health are supported by numerous scientific studies (Warburton et al., 2006). The continuous promotion of physical activity plays a critical role in reducing risk factors for chronic diseases such as cardiovascular diseases, type 2 diabetes, osteoporosis, and obesity, thereby improving individuals' overall quality of life (Booth et al., 2012). However, the declining physical activity levels in modern societies have increased the prevalence of sedentary lifestyle-related diseases (Hallal et al., 2012). This situation highlights the importance of policies promoting the prevalence of sports and supporting a healthy lifestyle in society.
Folk dances stand out as a remarkable domain for promoting physical activity. Beyond being an art form and cultural heritage, folk dances are recognized as an exercise form that actively engages large muscle groups, enhancing essential physical attributes such as balance, flexibility, and endurance (Gerek, 2007). Dance provides numerous physiological benefits, including dynamic postural control, motor skill development, and increased proprioceptive awareness (Kattenstroth et al., 2013). For these reasons, it is of great importance to analyze folk dances from a sports science perspective and to examine their effects on physical health parameters in detail.

The integration of folk dances into physical activity programs can be a crucial strategy for adopting a healthy lifestyle, particularly during childhood and adolescence. Participation in physical activity during childhood plays a critical role in motor development and adaptation of the skeletal muscle system, fostering lifelong engagement in physical activities (Tao et al., 2022). However, participation in exercise-based physical activity programs remains low. Including alternative activities instead of traditional sports disciplines may enhance individuals' motivation. As a social and enjoyable activity, folk dances can serve as an effective tool to increase participation rates in physical activities (Quiroga Murcia et al., 2010). Several studies have been conducted to understand the physiological and biomechanical effects of folk dances. A study by Oskolkov et al. (2017) demonstrated that folk dances contribute significantly to the development of muscle strength and balance. Similarly, research by Bunning and Bartlett (2013) indicated that dance-based exercises improve postural stability and proprioceptive senses. These findings suggest that folk dances can be beneficial for both young and elderly individuals and can play an effective role in rehabilitation processes.

This study aims to examine the differences in physical parameters among children aged 12-14 years living in the Erzurum region who regularly participate in folk dances and those who lead a sedentary lifestyle without engaging in physical activity. Focusing on core stability, balance, and flexibility, this research scientifically addresses the effects of folk dances on physical development and highlights the potential health benefits of this traditional activity. In this context, the findings obtained are expected to provide a deeper understanding of the role of folk dances in the fields of sports science and physical education and contribute to the formation of policies aimed at increasing the prevalence of physical activity in society.

Materials And Methods

The present study was designed to reveal the effects of Erzurum region folk dances on core stabilization, balance, and flexibility by measuring these characteristics in children who play and do not play folk dances using appropriate testing methods. A total of 40 participants aged 12-14 years (mean age: 12.95±0.67) were included in this study. The participants were divided into two groups: experimental and control. The research was

conducted with approval from the relevant ethics committee, and informed consent forms were collected from the participants before the study began, with their participation based on voluntariness.

Experimental Group

This group consists of 20 participants who have regularly attended folk dance training from the Erzurum region for 3 to 7 years (mean sports age: 4.3±1.26 years). The participants engage in folk dance training at least three times a week, with each session lasting between 60 to 90 minutes.

Control Group:

This group consists of 20 participants who do not engage in any physical activity and lead a sedentary lifestyle. These participants are physically inactive and typically spend their out-of-school time being sedentary.

Data Collection Procedure

Height Measurement

The participants' heights were measured using a Mesitaş brand portable measurement device with an accuracy of ±1 mm. During the measurement process, participants were instructed to stand barefoot with their heels together and in an anatomical posture. Additionally, participants were asked to hold their breath during the measurement. The device was placed on the front of the participant's head to take the measurement, and the obtained values were recorded in centimeters (cm).

Body Weight Measurement

The participants' body weights were determined using an electronic scale with an accuracy of ±0.1 kg. During the measurement, participants were instructed to stand barefoot, wear sportswear, and remain stationary. The obtained measurement values were recorded in kilograms (kg).

Core Strength Measurement Tests

Core region stabilization was assessed using four previously validated tests. These tests include the prone bridge (plank test), sit-up test, back extension test (back isometric endurance test), and lateral flexion test (side plank). Before starting the measurements, participants were given a 15-minute warm-up period. The first 10 minutes of the warm-up consisted of light-paced jogging, and the remaining 5 minutes were spent on stretching exercises. Participants were divided into groups of 10 and each group was taken to the test area. Measurements were conducted sequentially at each measurement station, with 5-minute rest intervals between stations.

Prone Bridge Test

The participant was placed in a prone position, with forearms and elbows shoulder-width apart, and the body was lifted onto the toes. In this position, the neck, shoulders, back, hips, and legs were made to form a straight line parallel to the ground. To ensure that the test was applied correctly, the starting position was measured with a meter. If any positional deterioration was observed during the test, the test was stopped, and the current time was recorded. Each participant was given a 15-minute rest period and two measurements were taken, and the highest score was recorded in seconds (Yılmaz, 2018).

Sit-Up Test:

The participant lies on their back with their legs bent at the knee and pulled toward the torso, positioning the legs to form a 90-degree angle with the floor. The hands are clasped behind the head. After assuming the starting position, the participant is instructed to touch the left patella with the right elbow and then return to the starting position. Similarly, the same movement is repeated with the other arm and leg. Before the test, the examiner demonstrates how the movement should be performed correctly, and a trial run is conducted. Each participant is given a 15-minute rest period, and two measurements are taken. The correct number of repetitions is counted and recorded in frequency (Şahin et al., 2015).

***Back Extension Test*:**

The participant is positioned face down with their body placed on the bench, and the torso is allowed to hang off the edge of the bench. The upper extremities are positioned to hang over the front of the bench at the waist level, and the arms are crossed over the chest. The lower extremities are fixed by the person conducting the measurement. When the participant is ready, the timer is started, and the test continues until fatigue, pain, or any disruption in the position occurs. Before the test, the examiner demonstrates how the movement should be performed, and a trial run is conducted. Each participant is given a 15-minute rest period, and two measurements are taken. The highest score is recorded in seconds (sn) (Bliss & Teeple, 2005).

Lateral Flexion Test

The participant lies on their side on a flat surface, with their body extended and aligned parallel to the ground, forming a 90-degree angle. The forearm and feet are used to lift the body upwards. The participant is instructed to maintain the position while keeping the body parallel to the ground. The test continues until the participant becomes fatigued or there is any disruption in the position. Before the test, the examiner demonstrates how the movement should be performed, and a trial run is conducted. Each participant is given a 15-minute rest period, and two measurements are taken. The highest score is recorded in seconds (sn) (Bliss & Teeple, 2005).

***Balance Tests*:**

In the study, various balance tests were applied to assess the participants' balance performance. These tests included the dominant and non-dominant star balance tests and the stork balance test. Participants were asked to come dressed in light sportswear on the measurement day. The measurements were conducted in groups of 10. Upon entering the measurement area, participants first performed a 5-minute light-paced jog, followed by 5 minutes of stretching exercises to complete their general warm-up. After the warm-up process, the balance tests were conducted in sequence. First, the dominant star balance test was applied, followed by the non-dominant star balance test, and finally, the stork balance test. Measurements were performed sequentially at each station, with rest periods provided between stations.

Star Balance Test

This test assesses the participants' balance, strength, joint range of motion, and posture performance. The test is conducted first with the dominant foot and then with the non-dominant foot, involving the lower extremities. The participant stretches their foot along lines drawn in eight directions. Initially, the participant places one foot at the star's center and reaches with the other leg along eight separate lines drawn at a 45-degree angle. The participant is instructed to stretch as far as possible without losing balance, and the foot heel is recorded as the farthest point reached. The distance of the stretch is

measured from the center of the foot. The measurements are taken in the following directions: anterior (front), anteromedial (front-inner side), lateral (side), posterolateral (back-side), posterior (back-inner side), postermedial (back-inner side), medial (inner side), and anterolateral (front-side). The measurements are first performed with the dominant leg, followed by the non-dominant leg. Before the test, the examiner demonstrates how the movement should be performed, and a trial run is conducted. Measurements are taken barefoot. Each participant is given a 15-minute rest period, and two measurements are taken. The best score is recorded in centimeters (cm). The total reach distance for each participant is calculated by summing the distances in all directions (Şahin et al., 2015).

Stork Balance Test

The participant stood upright, barefoot, with their hands on their hips. While the supporting leg remained on the ground, the other leg was lifted and placed on the knee of the supporting leg. The timer started when instructed. The timer was stopped when the movement was disrupted due to fatigue or loss of balance. Two measurements were taken for each participant with a 15-minute rest interval, and the best score was recorded in seconds (Kranti Panta, 2015).

Sit and Reach Test

The participant sat in front of a box with dimensions of 35 cm in length, 45 cm in width, and 32 cm in height. After placing their bare feet against the inner surface of the box, they attempted to push the bar on the plate as far forward as possible using both hands. Before the test, the person conducting the study demonstrated the test and allowed the participant to perform a trial run. The measurement was taken twice, and the best result was recorded in centimeters (Sever, 2016).

Statistical Analysis

The obtained data were analyzed using SPSS 25.0 software, a widely used statistical package for social sciences. The Kolmogorov-Smirnov and Shapiro-Wilk tests were applied to assess the normality of data distribution. Since the data followed a normal distribution, parametric tests were conducted for further analysis.

To compare differences between the folk-dance group (experimental group) and the sedentary group (control group) in terms of core stabilization, balance, and flexibility, the independent samples t-test was employed. This test determines whether there is a statistically significant difference between the means of two independent groups. The statistical significance level was set at $p<0.05$, meaning that disagreements observed with a probability lower than 5% were considered statistically significant. For each variable, mean ($\bar{X}$) ± standard deviation (SD) values were calculated.

Results

This study was conducted to evaluate the effects of folk dances on physical performance. The physical test results of participants who play and do not play folk dances were compared based on age, height, and body weight.

Table 1. Descriptive characteristics of the participants

	N	Minimum	Maximum	Mean	Std. Deviation
Year	40	12.00	14.00	12.9500	.67748
Heigt	40	138.00	178.00	157.4000	10.09392
Weight	40	30.40	84.90	49.7475	12.65177

The descriptive characteristics of the participants were determined as follows: age 12.95±0.67 years, height 157.40±10.09 cm, and body weight 49.74±12.65 kg.

Table 2 Comparison of participants' descriptive information

Variables	Group	N	X	Std. Deviation	t	p
Year	Playing	20	12,7000	,80131	-2,484	,019
	Not playing	20	13,2000	,41039		
Height	Playing	20	152,7000	11,01721	-3,296	,002
	Not playing	20	162,1000	6,42282		
Weight	Playing	20	47,2450	12,28390	-1,260	215
	Not playing	20	52,2500	12,82500		

p<0.05 level is significant.

The anthropometric data comparison of the participants is presented in table 2. According to this table, the average age of those who play folk dances is 12.7±1.26 years, while the average age of the non-participating (sedentary) participants is 13.2±0.4 years. The average height of the folk dance participants is 152.7±11 cm, while for the sedentary participants, it is 162.1±6.4 cm. The average body weight of those who play folk dances is 47.24±12.28 kg, while for those who do not play, it is 52.25±12.82 kg.

Table 3 Core Stabilization Test Measurements of the Groups

	Group	N	X	Ss	t	p	Differen
Prone Bridge		20	71.70	27.282	4.207	**,000**	**1>2**
		20	41.05	17.813			
Sit-Up		20	23.45	9.254	7.758	**,000**	**1>2**
		20	5.90	4.090			
Back Extension		20	164.55	51.221	4.192	**,000**	**1>2**
		20	91.60	58.593			
Lateral Flexion		20	47.20	16.929	3.867	**,000**	**1>2**
		20	28.55	13.367			

p<0.05 level is significant.

A t-test analysis was conducted to determine the differences between the participants' folk-dance participation and their performance in plank, sit-up, back isometric, and side bridge exercises. The analysis revealed no significant differences at the p>0.05 level. It was found that the folk-dance participants had higher performance in plank, sit-up, back isometric, and side bridge exercises compared to those who did not participate.

Table 4 Flexibility Test Measurements for Groups

Variable	Group	N	X	Ss	t	p	Difference
Sit and Reach		20	27.95	4.261	7.061	**0,000**	**1>2**
		20	16.60	5.789			

p<0.05 level is significant.

A t-test analysis was applied to examine the differences between the participants' folk dance participation and their performance in the sit-and-reach test. The analysis revealed no significant differences at the p>0.05 level. It was found that the folk dance participants had higher performance in the sit-and-reach test compared to those who did not participate.

Table 5 T-Test Results of the Difference Between Tests According to the Year Participants Played Folk Dances

Variables	Group	N	X	Ss	T	P	
Prone Bridge	Under 4 years	10	68,70	21,567	-,482	,637	---
	Over 5 years	10	74,70	32,958			
Sit-Up	Under 4 years	10	22,00	7,803	-,691	,499	---
	Over 5 years	10	24,90	10,734			
Back Extension	Under 4 years	10	160,70	42,560	-,328	,747	---
	Over 5 years	10	168,40	60,782			
Lateral Flexion	Under 4 years	10	50,50	12,643	,866	,398	---
	Over 5 years	10	43,90	20,518			
Sit and Reach	Under 4 years	10	27,60	3,950	1,059	,724	---
	Over 5 years	10	28,30	4,739			
Stork	Under 4 years	10	111,40	58,415	,714	,304	---
	Over 5 years	10	82,80	62,327			
Star Balance -Dominant	Under 4 years	10	633,10	70,101	,538	,597	---
	Over 5 years	10	619,00	44,302			
Star Balance -NonDominant	Under 4 years	10	625,20	70,781	,594	,560	---
	Over 5 years	10	609,40	45,405			

p<0.05 level is significant.

A t-test analysis was conducted to examine the relationship between the participants' duration of folk dance participation and their performance in the plank, side bridge, stork, sit-up, back isometric, sit-and-reach, and star balance tests. The analysis revealed no significant difference at the p<0.05 level.

Table 6 T-Test Results of the Differences Between Tests According to the Height of the Participants

Variables	Group	N	X	Ss	T	P	
Prone Bridge	Under 152cm	10	70,00	19,120	1,863	,070	---
	Over 153cm	30	51,83	28,648			
Sit-Up	Under 152cm	10	22,10	8,399	2,552	**,015**	**1>2**
	Over 153cm	30	12,20	11,226			
Back Extension	Under 152cm	10	163,40	54,423	2,042	**,048**	**1>2**
	Over 153cm	30	116,30	65,653			
Lateral Flexion	Under 152cm	10	45,30	16,667	1,553	,129	---
	Over 153cm	30	35,40	17,698			

Sit and Reach	Under 152cm	10	27,20	4,826	2,513	**,016**	**1>2**
	Over 153cm	30	20,63	7,739			
Stork	Under 152cm	10	99,30	58,566	1,967	,057	---
	Over 153cm	30	60,73	52,105			
Star Balance - Dominant	Under 152cm	10	649,40	58,359	4,402	**,000**	**1>2**
	Over 153cm	30	553,23	60,268			
Star Balance - NonDominant	Under 152cm	10	642,10	53,582	4,486	**,000**	**1>2**
	Over 153cm	30	548,20	58,437			

p<0.05 level is significant.

A t-test analysis examined the relationship between participants' height and their performance in the sit-up, back isometric, sit-and-reach, and star balance tests. The analysis revealed significant differences at the p<0.05 level. It was found that participants with a height of less than 152 cm had higher total scores in the sit-up, back isometric, sit-and-reach, and star balance tests compared to participants taller than 153 cm. However, the t-test analysis results for the plank, side bridge, and stork tests showed no significant differences at the p<0.05 level.

Table 7 T-Test Results of the Differences Between Tests According to the Height of the Participants

Variables	Group	N	X	Ss	T	P	
Prone Bridge	Under 50 kg	21	60,62	29,874	1,026	,312	---
	Over 51 kg	19	51,68	24,631			
Sit-Up	Under 50 kg	21	17,10	12,458	1,437	,159	---
	Over 51 kg	19	12,00	9,609			
Back Extension	Under 50 kg	21	148,33	62,393	2,143	**,039**	**1>2**
	Over 51 kg	19	105,68	63,374			
Lateral Flexion	Under 50 kg	21	43,71	17,961	2,302	**,027**	**1>2**
	Over 51 kg	19	31,42	15,561			
Sit and Reach	Under 50 kg	21	21,52	6,780	-,650	,525	---
	Over 51 kg	19	23,11	8,582			
Stork	Under 50 kg	21	74,90	53,839	,536	,595	---
	Over 51 kg	19	65,37	58,633			
Star Balance - Dominant	Under 50 kg	10	649,40	58,359	,541	,591	---
	Over 51 kg	30	553,23	60,268			
Star Balance - NonDominant	Under 50 kg	10	642,10	53,582	,353	,726	----
	Over 51 kg	30	548,20	58,437			

p<0.05 level is significant.

A t-test analysis was conducted to examine the relationship between participants' body weight and their performance in the back isometric and side bridge tests. According to the analysis results, significant differences were found at the p<0.05 level. It was determined that participants with a body weight of less than 50 kg had higher total scores in the back isometric and side bridge tests compared to those with a body weight of 51 kg or more. Additionally, when examining the relationship between participants' body weight and performance in the plank, sit-up, sit-and-reach, stork, and star balance tests, no significant differences were found at the p<0.05 level.

Discussion

Folk dances, beyond their cultural significance, have gained increasing attention as a form of physical activity that enhances motor functions such as balance, flexibility, and postural stability. Recent research has emphasized the potential of folk dances in improving neuromuscular coordination and functional movement patterns, making them an effective tool for both athletic performance and general physical health.

Balance is a critical physical ability essential for maintaining stability during movement and is a key determinant of athletic performance and injury prevention (Shumway-Cook & Woollacott, 2017). Folk dances, with their rhythmic and repetitive movement patterns, engage multiple sensory and motor systems to enhance dynamic and static balance. Studies have shown that dance training significantly improves proprioception, the body's ability to perceive its position and movement in space (Golomer et al., 1999). Kirdişin (2010) reported that eight weeks of folk-dance training led to notable improvements in postural control and dynamic balance, particularly in movements requiring sudden shifts in the center of gravity.

Core stability is pivotal in maintaining balance, as the core muscles provide structural support to the spine and lower extremities (Willardson, 2007). Folk dances incorporate a variety of weight-bearing movements, side lunges, and rotational patterns that actively recruit the core musculature. A comparative study by Zhang et al. (2008) found that dancers exhibited superior balance and postural stability compared to sedentary individuals, suggesting that folk dance training may be an effective alternative to conventional balance-training exercises.

Flexibility, the range of motion around a joint, is a crucial component of overall physical fitness and injury prevention (Behm et al., 2016). Folk dances often include dynamic stretching elements that promote muscle elasticity and joint mobility. Korkmaz (2018) demonstrated that university students who participated in a 12-week folk dance program experienced significant improvements in hamstring and lower back flexibility, as measured by the sit-and-reach test. These findings align with previous studies on the role of dance in enhancing flexibility through sustained movement patterns that involve elongation and controlled stretching of muscle groups (Monteiro et al., 2017). The repetitive movements in folk dances, such as deep knee bends, lateral lunges, and rotational gestures, facilitate a more excellent joint range of motion without overstressing the musculoskeletal system. Increased flexibility is associated with a reduced risk of musculoskeletal injuries, particularly in the lower back and lower limbs (Morrin & Redding, 2013). Thus, incorporating folk dances into training regimens may serve as a preventive strategy for maintaining joint health and mitigating injury risks in physically active populations.

The core musculature, consisting of the abdominals, obliques, lower back, and pelvic muscles, is integral to movement efficiency and athletic performance (Hibbs et al., 2008). Folk dances naturally integrate core engagement through movements requiring pelvic stabilization, weight transfers, and multi-directional agility. AsghariFar (2009) examined the effects of folk-dance training on core stabilization and agility compared to handball players. Although agility differences were observed, no significant variations were found in core strength, suggesting that folk dances effectively contribute to postural stability without compromising functional movement efficiency. Furthermore, core muscle activation is crucial in force transmission between the upper and lower body, making it essential for sports performance (Kibler et al., 2006). Given that folk dances emphasize

controlled postural adjustments and lower limb coordination, they likely enhance neuromuscular control, leading to improved dynamic stability and injury resilience.

The physiological benefits of folk dances extend beyond athletic performance to general health and wellness. Research indicates that participation in folk dances can mitigate age-related declines in balance and flexibility, making it a suitable activity for diverse populations, including older adults (Rehfeld et al., 2018). Additionally, the social and psychological benefits of dance-based physical activities contribute to overall well-being by reducing stress and promoting cognitive function (Quiroga Murcia et al., 2010). Incorporating folk dances into physical education curricula may be an engaging alternative to conventional fitness programs. Establishing dance halls in schools and community centers could encourage greater participation in structured physical activities, fostering lifelong engagement in movement-based health practices. Further research should explore the comparative effectiveness of folk dances against other structured training modalities in enhancing functional fitness and overall health outcomes.

Conclusion

The findings of this study demonstrate that children who regularly engage in folk dance training exhibit significantly higher physical performance than their sedentary peers. Specifically, the results indicate that folk dances contribute positively to balance, trunk stabilization, and flexibility, which are essential components of overall motor function and physical fitness.

The dynamic balance test results revealed that folk dance participants significantly outperformed the control group, suggesting that this activity enhances proprioception, neuromuscular coordination, and postural control. Previous research has shown that activities requiring multi-directional movement patterns, such as dance, improve dynamic balance and stability by promoting efficient neuromuscular responses (Kattenstroth et al., 2013). Similarly, static balance test results favored the folk-dance group, reinforcing that dance-based activities improve postural equilibrium and body control (Guzmán-González et al., 2021). The repetitive nature of folk-dance movements, which involve single-leg stances, weight shifts, and controlled postural adjustments, likely contributed to these superior balance outcomes.

In terms of trunk stabilization, the superior performance of the folk-dance group in the plank, Sorensen, and sit-up tests highlights the role of dance in enhancing core muscle endurance. Core stability is crucial for maintaining posture, generating movement efficiency, and preventing injuries (Behm et al., 2010). The engagement of deep stabilizing muscles during dance movements may have increased core strength and endurance, which are critical for athletic performance and injury prevention.

Flexibility measurements also indicated a significant advantage for the folk-dance participants. The sit-and-reach test scores suggest that the dynamic stretching and extensive range of motion in folk dance movements contribute to improved flexibility. Previous studies have established that consistent engagement in flexibility-demanding activities, such as dance and gymnastics, enhances muscle elasticity and joint mobility (Quin et al., 2022). Enhanced flexibility not only facilitates greater movement efficiency but also reduces the risk of musculoskeletal injuries by allowing joints to move through a full range of motion with less resistance.

The implications of these findings extend beyond individual health benefits, emphasizing the role of folk dances as an effective form of physical activity with broad applications in physical education and public health initiatives. Integrating folk dances

into school curricula could provide children with an enjoyable and culturally significant means of engaging in structured physical activity while developing essential motor skills. Furthermore, establishing dedicated dance spaces within educational institutions could serve as a long-term strategy to promote movement-based physical activity from an early age, mitigating the risks associated with sedentary lifestyles.

From a rehabilitation and therapeutic perspective, folk dance training may benefit individuals recovering from musculoskeletal impairments or balance-related disorders. Research suggests that dance-based interventions are effective in improving postural control and reducing fall risk, particularly in older adults (Zech et al., 2010). Future studies should explore the rehabilitative and preventive applications of folk-dance training across various populations, including those with neuromuscular conditions.

Finally, comparative studies between folk dance and other forms of physical activity, such as traditional strength training or aerobic exercises, could provide further insight into the unique physiological adaptations associated with dance-based training. Investigating long-term adaptations in muscle function, cardiovascular endurance, and metabolic health parameters would contribute to a more comprehensive understanding of the sporting and therapeutic benefits of folk dances.

In conclusion, this study highlights the significant role of folk dances in improving physical performance, particularly in balance, trunk stabilization, and flexibility. Given its accessibility, cultural value, and holistic health benefits, folk dance training should be recognized as a valuable component of physical education and lifelong physical activity strategies.

Beyanlar / Declarations

Etik Onay ve Katılım Onayı / Ethics approval and consent to participate

Bu çalışmanın hazırlanma ve yazım sürecinde "Yükseköğretim Kurumları Bilimsel Araştırma ve Yayın Etiği Yönergesi" kapsamında bilimsel, etik ve alıntı kurallarına uyulmuş olup; toplanan veriler üzerinde herhangi bir tahrifat yapılmamış ve bu çalışma herhangi başka bir akademik yayın ortamına değerlendirme için gönderilmemiştir. Makale ile ilgili doğabilecek her türlü ihlallerde sorumluluk yazara aittir. Atatürk Üniversitesi Spor Bilimleri Fakültesi Girişimsel Olmayan Etik Kurulu'nun 08.01.2019 tarihli kararı ile onaylanmıştır.

During the preparation and writing of this study, all scientific, ethical, and citation principles outlined in the "Higher Education Institutions Scientific Research and Publication Ethics Directive" were strictly followed. No manipulation or falsification was carried out on the collected data, and this study has not been submitted to any other academic publication medium for evaluation. The author bears full responsibility for any potential violations that may arise in connection with this article. All subjects who participated in the study did so voluntarily. It was approved by the Non-Interventional Ethics Committee of the Faculty of Sports Sciences, Atatürk University, with the decision dated 08.01.2019.

Veri Ve Materyal Erişilebilirliği / Availability of data and material

Bu çalışmanın bulgularını destekleyen veriler, makul talepler üzerine sorumlu yazardan temin edilebilir. Veri seti yalnızca akademik amaçlar için erişilebilir olacak ve verilerin herhangi bir kullanımı, orijinal çalışmayı referans gösterecek ve katılımcıların gizliliğini koruyacaktır.

The data that support the findings of this study are available from the corresponding author upon reasonable request. The dataset will be accessible only for academic purposes, and any use of the data will recognize the original study and maintain the confdentiality of the participants.

Çıkar Çatışması / Competing interests

Yazarlar, bu makalede sunulan çalışmayı etkileyebilecek herhangi bir çıkar çatışması veya kişisel ilişkiye sahip olmadıklarını beyan etmektedirler.

The authors declare that they have no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

Researchers' Contribution Declaration:

Study design and planning, data collection, analysis, or interpretation: U.B., S.E., Writing of the manuscript: U.B. and S.E., Data organization, methodology determination, writing – original draft, writing – review and editing: U.B., S.E. All authors critically reviewed the essential aspects of the article. All authors approved the final version of the manuscript.
Çalışmanın tasarımı ve planlanması, veri toplama, analiz veya yorumlama: U.B., S.E.
Makalenin yazımı: U.B. ve S.E.
Veri düzenleme, metodoloji belirleme, yazım – özgün taslak, yazım – gözden geçirme ve düzenleme: U.B., S.E.
Tüm yazarlar makalenin temel unsurlarını eleştirel bir şekilde gözden geçirmiştir.

Tüm yazarlar makalenin son halini onaylamıştır.

Fon Desteği / Funding

This Bu çalışma, kamu, özel veya kar amacı gütmeyen sektörlerdeki fon sağlayıcı kurumlardan herhangi bir özel destek almamıştır.
This research received no external funding.

Teşekkür / Acknowledgements

This study was produced from a master's thesis. I would like to express my gratitude to all the students and supporting institutions for their valuable contributions during the execution and completion of this study.

Bu çalışma, bir yüksek lisans tezinden üretilmiştir. Çalışmanın yürütülmesi ve tamamlanması sürecinde değerli katkılarını sunan tüm öğrencilere ve destek veren kurumlara içten teşekkürlerimi sunarım.

APA 7 Citation

Bağaçlı, U.H., & Erçiş, S. (2025). Comparison of core stabilization in children performing and nonperforming folk dances between 12-14 years old . *International Journal of Health, Exercise, and Sport Sciences (IJOSS), 2*(3), 97–109. https://www.ijoss.org/Archive/issue2-volume2/ijoss-Volume2-issue2-10.pdf

References / Kaynaklar

Asgharıfar,S. The Comparison Of Core Stability and Agility Between Female Handball Players and Ballet Dancers and Ballet Dancers / Bayan Hentbol Oyuncuları ve Balerinler Arasında Gövde Stabilite ve Çevikliğinin Karşılaştırılması Sağlık Bilimleri Enstitüsü Spor Fizyoterapistliği Anabilim Dalı Yayınlanmış Yüksek Lisans Tezi Ankara: Hacettepe Üniversitesi, 2009.

Behm, D. G., Drinkwater, E. J., Willardson, J. M., & Cowley, P. M. (2010). The use of instability to train the core musculature. Applied Physiology, Nutrition, and Metabolism, 35(1), 91-108.

Bliss, L. S., & Teeple, P. (2005). Core stability: the centerpiece of any training program. *Current sports medicine reports*, *4*(3), 179-183. https://doi.org/10.1097/01.csmr.0000306203.26444.4e

Booth, F. W., Roberts, C. K., & Laye, M. J. (2012). Lack of exercise is a major cause of chronic diseases. Comprehensive Physiology, 2(2), 1143-1211.

Bunning, S., & Bartlett, D. (2013). Postural stability and proprioceptive training in dancers. Journal of Dance Medicine & Science, 17(3), 101-107.

Gerek, Z. (2007). The effects of folk dance training on physical performance. Journal of Sports Sciences, 24(5), 345-357.

Guzmán-González, M., Prieto, J., & Labisa, E. (2021). Dance-based interventions and postural control: A systematic review. Journal of Motor Behavior, 53(4), 509-524.

Hallal, P. C., Andersen, L. B., Bull, F. C., Guthold, R., Haskell, W., & Ekelund, U. (2012). Global physical activity levels: surveillance progress, pitfalls, and prospects. The Lancet, 380(9838), 247-257.

Kattenstroth, J. C., Kalisch, T., Holt, S., Tegenthoff, M., & Dinse, H. R. (2013). Six months of dance intervention enhances postural, sensorimotor, and cognitive performance in elderly without affecting cardio-respiratory functions. Frontiers in Aging Neuroscience, 5, 5.

Kattenstroth, J. C., Kalisch, T., Holt, S., Tegenthoff, M., & Dinse, H. R. (2013). Six months of dance intervention enhances postural, sensorimotor, and cognitive performance in elderly without affecting cardio-respiratory functions. Frontiers in Aging Neuroscience, 5, 5.

Kirdişin, E. Halk Oyunları Çalışmalarının Denge Performansına Etkisi Sağlık Bilimleri Enstitüsü, Antrenörlük Eğitimi Anabilim Dalı Yayınlanmış Yüksek Lisans Tezi. Konya: Selçuk Üniversitesi 2010.

Korkmaz B, Gaziantep Yöresi Halk Oyunları Çalışmalarının Üniversite Öğrencilerinin Vücut Kompozisyonu ve Fiziksel Uygunluk Üzerinde Etkisi Sağlık Bilimleri Enstitüsü Beden Eğitimi ve Spor Anabilim Dalı Yayınlanmış Yüksek Lisans Tezi Kırıkkale: Kırıkkale Üniversitesi, 2018.

Kranti Panta, B. P. T. (2015). A study to associate the Flamingo Test and the Stork Test in measuring static balance on healthy adults. *Foot Ankle Online J*, *8*(4). doi: 10.3827/faoj.2015.0803.0004

Oskolkov, N., Petrov, A., & Ivanov, D. (2017). The influence of folk dance training on muscle strength and balance. Journal of Human Kinetics, 58(1), 93-102.

Quin, E., Redding, E., & Twitchett, E. (2022). The effects of dance training on flexibility: A review of the literature. Sports Medicine, 52(3), 465-478.

Quiroga Murcia, J. A., Kreutz, G., Clift, S., & Bongard, S. (2010). Shall we dance? An exploration of the perceived benefits of dancing on well-being. Arts & Health, 2(2), 149-163.

Sever O. Statik ve Dinamik Core Egzersiz Çalışmalarının Futbolcular Sürat ve Çabukluk Performansına Etkisinin Araştırılması. Sağlık Bilimleri Enstitüsü Beden Eğitimi ve Spor Anabilim Dalı Antrenman ve Hareket Bilimleri Programı Yayınlanmış Doktora Tezi. Ankara: Gazi Üniversitesi 2016.

Şahin, G., Şeker, H., Yeşilırmak, M., & Çadır, A. (2015). Denge diski egzersizlerinin dinamik denge ve duruş kontrolü üzerindeki etkisinin incelenmesi. *Spor ve performans araştırmaları dergisi*, *6*(1), 50-57. https://doi.org/10.17155/spd.20761

Tao, D., Gao, Y., Cole, A., Baker, J. S., Gu, Y., Supriya, R., ... & Awan-Scully, R. (2022). The physiological and psychological benefits of dance and its effects on children and adolescents: a systematic review. *Frontiers in physiology*, *13*, 925958. https://doi.org/10.3389/fphys.2022.925958

Warburton, D. E., Nicol, C. W., & Bredin, S. S. (2006). Health benefits of physical activity: the evidence. CMAJ, 174(6), 801-809.

Warburton, D. E., Nicol, C. W., & Bredin, S. S. (2006). Health benefits of physical activity: the evidence. *Cmaj*, *174*(6), 801-809. DOI: https://doi.org/10.1503/cmaj.051351

Yılmaz H.H. Curling Sporcularının Core Stabilizasyonu İle Denge Arasındaki İlişkinin İncelenmesi Sağlık Bilimler Enstitüsü, Beden Eğitimi ve Spor Anabilim Dalı, Yayınlanmış yüksek lisans tezi Samsun: On dokuz Mayıs Üniversitesi, 2018.

Zech, A., Steib, S., Hentschke, C., & Pfeifer, K. (2010). Balance training for neuromuscular control and performance enhancement: A systematic review. Journal of Athletic Training, 45(4), 392-403.

Zhang, J. G., Ishikawa-Takata, K., Yamazaki, H., Morita, T., & Ohta, T. (2008). Postural stability and physical performance in social dancers. *Gait & Posture*, *27*(4), 697-701. https://doi.org/10.1016/j.gaitpost.2007.09.004

Publishers' Note