



The Effect of Gyrotonic Training on Developing Certain Bio-Kinetic Abilities Among Young Shot Putters

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Abstract

The objective of this research was to devise exercises for Gyrotonic training to develop specific physical and bio-kinetic capabilities for young shot putters consisting of Al-Furat Sports Club as well as to discover if these exercises could enhance their level of performance. The researcher employed the experimental method to satisfy the objectives of the research. The analysis of the data showed the Gyrotonic training program had a role in promoting the strength of the muscle groups involved in the performance of shot put for the young athletes. The use of practical exercise doubled their activity, which in turn developed increased fidelity and a marked improvement in their measurable performance ability. The exercises that were selected were systematically structured to be varied and smooth and customary to athletes' skill level. The analysis also showed a significant increase in overall performance of the shot put after the implementation of Gyrotonic training to young athletes. The researcher highly recommends the implementation of exercises using Gyrotonic training for each sport and event. Additionally, the researcher recommends future studies to fully utilize Gyrotonic training and develop it into a competitive methodology in track and field. The researcher also recommends, if applicable, to simulate performing Gyrotonic training with other technical practice in order to effectively utilize training time and efficiency. Research on this practice in different age populations and sports would expand our understanding of its general application to athletes.

Keywords : Gyrotonic Training; Sports Training; Bio-Kinetic Abilities; Shot Put; Young Athletes

1. INTRODUCTION

Sports training are considered a science, with some experimental approaches and the use of evidence-based practice in the realm of athletics (Cañas-Jamett et al., 2020; Gandrapu & Rakesh, 2024). When new training approaches or methods are established, a rigorous testing and evaluation process is required to determine its efficacy by coaches, specialists and researchers (Crowley et al., 2018; Duncan et al., 2022; Kelly et al., 2018). Today, the concept of training has expanded to include an elaborate network of approaches, methods, techniques, and specialized exercises (McGill et al., 2014). The proliferation of programs, dietary supplements, and the plethora of sophisticated tools available has further complicated the training process, creating the necessity for scientific inquiry to uncover the training approach most appropriate for each sport or athletic population (Cañas-Jamett et al., 2020; Crowley et al., 2018; Gandrapu & Rakesh, 2024).

Gyrotonic training has emerged as an innovative and contemporary approach in the field of physical preparation. This training style encourages circular and spiral movements of the body that rotate around some fixed or imaginary axis and provides either constant or progressive resistance (Ramos-Campo et al., 2021). Rotational movements improve muscular strength in a safe and controlled way, thus limiting the risk of injury and increasing movement control. Gyrotonic training also encourages focus on one's mental process and produces a calm and relaxed learning environment, as the individual must focus and produce smooth movement and synchronistic breath (@ Charles et al., 2017; Ca et al., 2015). In addition, it enhances balance and body awareness by initiating movement through even distribution of loading throughout stable and dynamic planes (Dewi, 2021; Utami, 2021).

In the context of shot put, bio-kinetic abilities such as strength, speed, flexibility, balance, and coordination are critical factors in an athlete's performance (Bishop et al., 2009; Jalagat, 2024). The event involves the timing and integration of these abilities in order to throw as far as possible taking over a 7 kg shot. If one of these abilities is lacking, it can produce instability or technical errors. Therefore, developing these bio-kinetic abilities is the first leg towards on the path towards advanced technical training. Thus, the significance of this study involves designing a Gyrotonic-based training program to enhance selected bio-kinetic abilities of young shot putters (Jackson & Hanline, 2020).

Research Problem

Several sports make up track and field events, each requiring specific training forms based on the unique physical and technical demands. Particularly in shot put, a high level of strength, coordination, and rotational body power is needed to produce the highest amount of force in the

shortest time. However, the utilization of modern training systems in athletics is only limited in Iraq. Most training programs still include traditional non-evidence rules training programs, which do not meet international benchmarks.

For this reason, the researcher sought to apply Gyrotonic training as an innovative and scientifically grounded approach to improve the bio-kinetic abilities of young shot putters, aiming to develop their performance using modern methods instead of conventional routines.

Research Objectives

1. To design a set of Gyrotonic exercises to develop selected physical abilities among young shot putters at Al-Furat Sports Club.
2. To identify the effects of Gyrotonic training on the improvement of certain bio-kinetic abilities among young shot putters at Al-Furat Sports Club.

Research Hypothesis

It is hypothesized that there will be statistically significant differences between the pre-test and post-test results of the experimental group, favoring the post-test outcomes.

Research Fields

1. Human Field: The participants were young shot putters from Al-Furat Sports Club during the 2024–2025 training season.
2. Time Field: The experimental phase was conducted from May 6, 2025, to September 12, 2025.
3. Spatial Field: The practical part of the research was carried out at the indoor training facility of Al-Furat Sports Club.

Research Procedures

2.1 Methodology and Field Procedures

The experimental method was employed, as it best suits the nature of this study and allows the researcher to identify cause-and-effect relationships under controlled conditions.

2.2 Research Population and Sample

The study population included all shot put athletes from Al-Furat Sports Club in Dhi Qar. A purposive sample of ten (10) athletes was chosen to represent the study group. In addition, three (3) athletes conducted a pilot test which help to verify the feasibility of the experiment and the reliability of measurements and identify potential challenges before to the main study. To verify

that the sample was homogeneous, and the normality, and to obtain an indicator of symmetry, the mean, standard deviation, and coefficient of skewness was calculated for biological age, training age, body weight, and height.

2.3 Sample Homogeneity

To guarantee the homogeneity of the research sample, the researcher calculated the skewness coefficient for the height, weight, chronological age, and training age variables. As presented in Table (1), all the skewness values ranged between ± 1 , confirming that the data was normally distributed and that the sample was homogeneous with respect to these characteristics.

Table 1. Research sample homogeneity in height, weight, chronological age, and training age variables.

Variable	Unit of Measurement	Mean	Median	Standard Deviation	Skewness Coefficient
Height	cm	179.5	179	0.600	0.840
Weight	kg	73.6	74	0.424	-0.718
Chronological Age	years	18.3	18	0.895	0.844
Training Age	years	4.2	4	0.848	0.773

2. METHODOLOGY

2.1 Research Design

This research followed an experimental design with a single-group pre-test and post-test approach that is commonly used in research related to sports science to study causal relationships (Sugiyono, 2017). The research design allowed the researcher to assess the effects of Gyrotonic training on selected bio-kinetic abilities of junior shot put athletes.

2.2 Research Population and Sample

The population consisted of the shot put athletes from Al-Furat Sports Club. A purposively selected sample of ten athletes were selected to participate in the study (Creswell, John W. & Poth, Cheryl N., 2025). Three additional athletes participating in a pilot research study were instrumented to test the reliability and feasibility of the study protocols. The sample's homogeneity was assessed using descriptive statistics (mean, median, and standard deviation), and the skewness coefficient for the variables of height, weight, chronological age, and training age. All variables were normally distributed and, thus, defined the research sample as being appropriate to engage in experimental research analysis (Arikunto, 2010).

2.3 Research Instruments

2.3.1 Data Collection Tools

1. Relevant Arabic and foreign literature and references
2. Expert surveys and personal interviews.
3. Questionnaires for recording and extracting data

2.3.2 Equipment and Devices

1. Shot put facility with all necessary accessories.
2. Men's shot puts (10).
3. Calculator.
4. Medical scale.
5. Stopwatch or timer-equipped mobile devices.
6. Medicine ball (3 kg).
7. Markers/cones (10).

2.4 Field Procedures

2.4.1 Identification of Abilities

Experts were presented with a variety of selected bio-kinetic skills for assessment of their relationship or relevance to shot put performance. Only those bio-kinetic skills to which the experts had agreement of 75% or better were allowed to remain in the final program (Bompa & Haff, 2009).

2.4.2 Selection of Tests

The physical tests associated with the selected bio-kinetic abilities were chosen based on their validity, reliability, and objectivity. Again, expert approval of at least 75% agreement was necessary for inclusion to the program (Nawawiwetu & Lutfiya, 2020).

2.4.3 Training Intervention

Gyrotonic exercises were then provided to the study group for 8 weeks, 3 times per week focusing on the major muscle groups involved in shot put. The exercises targeted flexibility, explosive strength, endurance, and capacity for total bio-kinetic performance (Bishop et al., 2009). The training loads and intensity were modified depending on the aim of the training session.

2.4.4 Pre- and Post-Testing

Selected bio-kinetic abilities were pre-test and post-test monitored. All contexts, apparatus, and procedures used were constant from pre-test to post-test.

2.5 Statistical Analysis

The data were analyzed using SPSS version 23 and were inclusive of descriptive statistics and comparing pre-test and post-test findings to evaluate the effects of Gyrotonic training on the experimental group

RESULTS AND DISCUSSION

RESULTS

3.1 Results of Pre-Test and Post-Test for the Experimental Group

Table 2 is show the findings of the pre-test and post-test results of the experimental group regarding selected bio-kinetic abilities. The overall outcomes reflect significant improvement as a result of the Gyrotonic training program for all tested bio-kinetic abilities.

Table 2. Pre-Test and Post-Test Results for the Experimental Group in Selected Bio-Kinetic Abilities

Variable	Unit	Pre-Test		Post-Test		Calculated T	Significance
		Mean	± SD	Mean	± SD		
		n					
Back.Mus	cm	9.643	0,259	14.59	0.265	4.582	Significant
ce				5			
Flexibility							

Repetitions	reps	21.33	3.204	34.17	1.602	8.472	Significant
Medicine Ball,Throw	cm	81.83	5.456	98.17	7.139	9.684	Significant

Notes:

- SD = Standard Deviation
- Significance at $p \leq 0.05$, $df = 9$

3.2 Discussion of Results

These results indicate a significant positive influence on the results of the experimental group's post-test compared to the pre-test. The reason for these improvements can be attributed to the Gyrotonic program, which has shown to positively aid in improving muscular strength, flexibility, coordination, and overall physical performance (Abarghoueinejad et al., 2021; Harold W. Kohl et al., 2013).

Gyrotonic exercises provide an environment of muscular balance by utilizing controlled rotational movement patterns, as well as fatigue/pacing through progressive loading, which all contribute to improved muscle balance, joint stability, and efficiency of movement. This also correlates with research that indicates another showed that structured Gyrotonic training improves strength, flexibility, and endurance, and overall athletic performance (Yang et al., 2012).

Furthermore, proper training preparation, duration, and intensity is also related to achieving measurable improvements in bio-kinetic abilities over an 8-week training period (Ramos-Campo et al., 2021). Together, these results support the notion of improving basic physical capacities resulting from targeted training will directly cause improvement in skill performance regarding complex athletic events, as shown in shot put.

Furthermore, these findings are consistent with other studies demonstrating that Gyrotonic training improves explosive power, flexibility, joint range of motion and muscular responsiveness, which leads to enhanced overall balance and coordination in athletes (Wang et al., 2023).

3. CONCLUSION AND RECOMMENDATIONS

4. Conclusions and Recommendations

4.1 Conclusions

Based on the study results, it was concluded that,

1. Gyrotonic training did effectively strengthen the primary muscles used in shot put performance.
2. Practicing Gyrotonic training did improve some physical activities and endurance to a higher measurable degree.
3. The exercises selected were varied, flowing, and at the appropriate skill level for the athletes.
4. Shot put performance did improve after implementing the Gyrotonic training program.

4.2 Recommendations

Based on these results, it is recommended that:

1. Applying Gyrotonic exercises tailored to specific sports and events.
2. Conducting further studies to enhance and compare Gyrotonic training with other training methods, especially in athletics.
3. Diversifying training sessions and integrating physical conditioning directly with skill training to save time.
4. Extending Gyrotonic research to other individual sports, age groups, and genders to better understand its broader impact.

Daftar Pustaka

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