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The Effect of Life Kinetic Exercise on Performance in Bocce Athletes

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Abstract

The aim of this study is to examine how life kinetic exercises affect body and mind coordination and shooting performance of bocce athletes in the field of physical education and sports. A total of 40 volunteer men between the ages of 10-12, residing in the city center of Kilis and interested in bocce, participated in this study. Life kinetic exercise was applied to the experimental group for 8 weeks along with bocce training. Only bocce training was applied to the control group. The data were analyzed in the SPSS 26.0 package program. Normality analysis of the data was done with the Shapiro-Wilk test.

Paired in the in-group comparison of normally distributed data Sample T-Test was used. At the end of the study, statistically positive significance was determined in the comparison of the pre-test and post-test values of the experimental group.

No significant difference was found in the comparison of the pretest and posttest values of the control group.

As a result, it can be said that life exercises to be applied in bocce sports, where attention and focus are important, will have positive effects on individuals' sportive performance.

Keywords: Bocce, Life kinetics, Performance

1. Introduction

In most of the sports studies that continue today, sports scientists, sports doctors and educators aim to train successful athletes with the least effort. (Karagöz, 2008). However, studies without methods often yield random results. Therefore, effective methods should be determined to achieve success (Ünlü & Aydos, 2007). In recent years, life kinetic exercises have gained importance with motor coordination and skill learning. It is known that life kinetic exercises, which develop motor coordination in children, accelerate learning and have positive effects on individuals. Life kinetic exercises help individuals to use parts of the brain that they cannot actively use more effectively and actively (Lutz, 2014). When the general effects of life kinetics are examined, it is known to reduce stress, a dynamic memory and concentration, a very fast and high quality learning, and improvement in physical and mental performance. With Life kinetic exercises, athletes can become athletes who have better coordinative abilities and can make quick decisions.

In the literature reviews, in recent years, studies have found that life kinetic exercises have begun to be applied within the same training program, as well as different exercise techniques.

Studies have also mentioned that life kinetic exercises affect the cognitive process, as well as have effects on motor skills and different physiological parameters. While the use of life kinetic exercises is becoming increasingly common, the lack of sufficient scientific research and evidence-based studies draws attention. It is thought that there is a great need to draw attention to this form of application, which brings different effects and developments, to increase its use and to present scientific evidence.

For this purpose, we aimed to contribute to science by examining the effect of life kinetic exercises on sportive performance.

2. Method

2.1 Participants

A total of 40 men, 20 from the experimental group and 20 from the control group, aged between 10 and 12, residing in Kilis city center participated in the study. It was noted that the subjects participating in the study did not have any discomfort. In addition to bocce training, life kinetic exercises were applied to the experimental group in our study for 8 weeks. Only bocce training was applied to the control group. In order to measure the bocce performance of the subjects, raffa, volo and punto throws, which are used in bocce, were made before and after the 8-week training. Each shot was repeated 10 times by the subjects, and each successful shot was evaluated over 10 points and unsuccessful shots were evaluated over 0 points in raffa and volo shots. The point shot performance measurement was recorded in cm by measuring the distance with meters.

2.2 Data Collection Tools

Height and weight measurement: The subjects' height measurements were made with bare feet. Weight measurements were taken on a scale with a precision of 0.01.

Determination of Body Mass Index: Calculation of the subjects' body mass indexes was determined by the formula below. BMI = Weight (kg)/Height $(m)^2$

Life Kinetic Exercise Program: In the life kinetic exercises, which were performed 3 days a week for 8 weeks, the experimental group performed movements that were easy to perform in the first weeks, and movements that were more difficult to perform in the following weeks.

2.3 Statistical Analysis

SPSS 26.0 statistical package program was used to calculate the data. The analysis of whether the data showed normal distribution was tested with the Shapiro-Wilk test and it was determined that the data showed normal distribution. Within-group comparisons Paired It was done with the Sample T test. The error level was accepted as 0.05 in the study.

Ethics committee approval was obtained for this study with the decision dated 21/04/2022 and numbered 2022/07 by Kilis 7 Aralık University Rectorate Ethics Committee.

In Table 1, there are 8-week life kinetic exercises applied to the students from easy to difficult.

Table 1. Life kinetics exercise program

Week	Exercise	Duration and repetition	Tools
1. week	Throwing balls straight into the air flat catch	5 min × 5 reps rest 2-3 min	color balls
2. week	Throwing balls straight into the air and diagonally catching	5 min × 5 reps rest 2-3 min	color balls
3. week	Throwing the ball high change of direction	5 min × 5 reps rest 2-3 min	color balls
4. week	Two hands at the same time while walking ball bounce	5 min × 5 reps rest 2-3 min	color balls, field lines
5. week	Target while bouncing ball in hand shoot the ball	5 min × 5 reps rest 2-3 min	color balls
6. week	Straight horse cross catch tell me the colors	5 min × 5 reps rest 2-3 min	color balls, A4 paper
7. week	Capture the target ball by turning on command	5 min × 5 reps rest 2-3 min	color balls
8. week	One-eyed target catching the ball	5 min × 5 reps rest 2-3 min	color balls, eye patch

Table 1, the movements applied in the 8-week life kinetic exercise program are included.

3. Results

Table 2. Descriptive statistical values for the subject

Variables	Experimental Group Average±SD	Control Group Average±SD
age (year)	11.4±1.19	11.2±1.27
Height (cm)	141.4±3.27	142.3±2.87
Weight (kg)	40.97±1.59	39.96±2.08
BMI (kg/m^2)	20.58±1.68	19.81±1.52

When Table 1 is examined, it is observed that the mean values of age, height, weight, and

body mass index of the control and experimental groups.

Table 3. Experiment pre-test of the group and post-test values

Variables	Experimental group Pre-test Average	Experimental group Post-test Average	T	P
Point Shot (cm)	58.2±6.13	42.5±5.89	-6.517	0.000*
Volo Shot (Points)	2.5±0.79	3.3±0.83	-3.756	0.000*
Raffa Shot (Points)	2.3±0.62	2.9±0.77	-3.612	0.000*

Note. * Significance at $p < 0.05$ level.

When we examine Table 3, statistically significant improvements were found between pretest and posttest values in all shots of the experimental group ($p < 0.05$).

Table 4. Pretest and posttest values of the control group

Variables	Control group Pre-test Average	Control group Post-test Average	T	P
Point Shot (cm)	61.6±3.77	60.1±4.27	0.872	0.896
Volo Shot (Points)	3.4±0.88	3.5±0.97	-1.301	0.214
Raffa Shot (Points)	2.2±0.48	2.3±0.59	-1.436	1.009

Note. * Significance at $p < 0.05$ level.

When we examine Table 4, no statistically significant improvements were found between pretest and posttest values in all shots of the control group ($p > 0.05$).

4. Discussion

European countries, life kinetic training is used for exercises aimed at improving the cognitive functions and psychological aspects of athletes (Komarudin, 2019). Life kinetic exercises contribute to effective and permanent learning by forcing the brain capacity by developing neuromuscular coordination with complex and compelling movements made by the person in coordination (Çoban, 2019). In this study, we examined the effect of life kinetic exercises on bocce performance. It was determined that there were statistically positive significant increases between the pretest and posttest values in all the shots of the experimental group, there were positive effects between the pretest and posttest values in all the shots of the control group, but no statistical significance was detected. The positive effect

seen in the control group is considered to be caused by the bocce training performed by the athletes.

When we examine the studies in the literature; in a study on children between the ages of 9-12 and having learning problems, it was found that life kinetic training had a positive effect on the development of attention and orientation (Lutz, 2011). It was found that the planning and cognitive processing performance of the experimental group, which investigated the effects of Life kinetic exercises on cognitive processes in athletes, was high (Henryk, 2015).

Life kinetic training can be applied to increase the athletic efficiency of the players and athletes, by enabling them to judge how correct their decisions are during the decision-making process, and to learn how to use their intelligence throughout the entire competition. In a study conducted by Penka (2009) on students, it was stated that life kinetic training improved students' coordinative skills in a statistically positive way. In the study conducted by Komarudin et al. (2019) on football players, it was seen that life kinetic exercises improved the coordination skills of football players.

The learning speed and stability of the skill are directly dependent on the level of the various coordinative abilities.

Skills need to be coordinated to maximize the use of technical and tactical skills (Jain et al., 2015). Good performance in sports branches is determined by the harmony of motor coordinative abilities (Faigenbaum et al., 2013).

In a study conducted with tennis players, it was observed that life kinetic exercises planned for 3 months had a positive effect on the development of motor and cognitive skills in tennis players (Büyüktaş, 2021). In the study examining the acute and chronic effects of life kinetic exercises on motor coordination and skill learning, the results of the child body coordination test were found to be statistically significant in favor of the experimental group.

In the study conducted by Taşkın and Biçer (2015), it was determined that 8-week proprioception training provided increases in individuals' quickness, agility and acceleration performances.

In a study on team sports, Buraczewski et al. (2016) applied Life Kinetic training to 18 football players competing in the Polish Women's Football League for 12 weeks. In the tests performed, shooting tests were performed with the dominant and non-dominant foot using rhythm. The results showed significant improvement in the non-dominant leg. In another study which is measuring the effects of imagery and self-talk training on golf players were questioned, 32 female and male golfers participated in psychological skills training held in two different golf clubs, and in the questionnaire made at the end of the training.

It was noted that a significant improvement was achieved in skills such as coping with negative emotions, mental preparation, and putting skill (Thomas & Fogarty, 1997).

When we examine the results of the studies in the literature, we see that they overlap with the results of our study. Life kinetics aims to bring a different perspective to exercise in recent years. The harmony of coordinative abilities is very important for good performance in sports

branches (Faigenbaum et al., 2013). The mental preparation for each sportive movement can affect the quality of the movement. Funk et al. (2005), Revolving stages of movement in the mind and the figures that express them are not only a mental effort, but also associated with physical performance. This understanding shows that mental processes mediate motor processes. As a result, we think that the use of life kinetic exercises as a complementary training model alongside basic training models in increasing sportive performance will have positive effects on sportive performance.

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