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EFFECTS OF LIFE KINETIC EXERCISES ON SKILL LEARNING IN ATHLETES

(Review study)

Serkan Dađlı^a

^a Department of Sports Sciences, Suleyman Demirel University, Isparta, Turkey.

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Abstract

In a world where competition in life is increasing, it is very important to learn skills faster and easier. Based on this, brain-based exercises, which entered our lives first as brain gymnastics and then as life kinetic exercises, are increasing their importance day by day. The effects of life kinetic exercises, which accelerate learning and make it permanent by creating new connections in the brain, on skill learning in athletes are curious. In this study, many studies investigating the effects of life kinetic exercises applied to athletes on skill learning were examined and recent studies were collected. When the studies were analysed, it was seen that life kinetic exercises played an important role in both learning new skills and improving and retaining previous skills.

Keywords: Life Kinetic, exercises, skill, motivation, athletes.

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*Corresponding author: Serkan Dađlı. ORCID ID. <https://orcid.org/0009-0004-9403-0987> E-mail: serkandagli@sdu.edu.tr

1. Introduction

Brain gymnastics was first introduced by Dr Kawashimas (Kawashimas, 2006). Later, it was developed as Life Kinetic (LK) exercises in Germany under the leadership of Horst Lutz and then spread worldwide (Çimen, 2021a). The basis of Life Kinetic training is to apply various basic movements with different movement activities that activate and associate cortical regions that can increase athlete efficiency during the training process (Demirakca et al., 2016).

Life kinetic is an exercise method that creates new connections in the brain and enables the person to perform the movements that the person has previously done with difficulty in a more practical and quicker way. These connections created by performing movements that the brain has not encountered before improve people's motor skills (coordination, quickness, etc.) (Lutz 2010). Motor skill is defined as the ability to perform one or a group of movements in a complete and correct manner through learning and experience (Gallahue & Ozmun, 2006). Motor skill is a type of skill that can perform one or more movements voluntarily, including coordination (Gallahue, 2012). In other words, it is the ability to perform complex movements in an orderly and fluid manner through learning (Shala, 2009). The general characteristics of skills are being able to adapt to different environments and changing conditions, using muscles in a balanced and coordinated manner, and showing the right reaction at the right time (Çimen, 2021).

At this point, it is thought to be quite compatible with life kinetic exercises. LK also increases the concentration of the person by helping to keep our senses and mind alive. In addition, the age category in which life kinetic exercises can be applied is quite wide, because there are movements of various difficulty that people of all ages can do. Both a 6-year-old child and an Olympic athlete can perform an LK exercise programme (Lutz, 2014). LK exercises consist of 3 basic topics. The first one is flexible body control. Flexible body control, readiness, is the ability to respond to external stimuli in a timely and appropriate manner. Many athletes have difficulty in carrying their performance in training to the competition. The reason for this is the inability to manage the situation and cope with stress in the face of external factors encountered in the competition. LK exercises increase the readiness of the person by increasing the person's capacity to control his/her body (Peker, 2014).

The second main subject of LK exercises is the visual system. The visual system is very important for perceiving differences depending on environmental stimuli and adapting to these differences and maintaining body balance. The ability to see also provides information about distance, depth, environment and time characteristics, body component function and movement angle (Arslan 2009). The last basic issue is visual perception. Visual perception is the initiation of the visual perception

process with the ability to see the images that the person can select from the surrounding images and crowded environments. As the environment speeds up and the crowd increases, it becomes difficult to select and perceive images (Maraşlı, 2010). The aim of this research is to make a review of the studies on the effect of life kinetic exercises on skill learning.

2. Method

This review study was conducted by examining scientific studies conducted between 2014-2024. Books, articles, doctoral theses, master's theses, systematic reviews were included in the study. The research was conducted by using studies accessed from Google Scholar, Yöktez, Dergipark, ResearchGate, ProQuest databases with the keywords "Life Kinetic", "Brain-Based Exercise", "Skill Learning".

3. Results and Discussion

Effects of Life Kinetic Exercises on Skill Learning

LK exercises are known to be useful in accelerating the process in teaching various skills and making the taught movement permanent. LK exercises are very effective on the development of cognitive skills because they include brain-based exercises, motor skills because they involve applying multiple movements at the same time, and perceptual skills because they involve perceiving colours and objects within the movements. Skill consists of three groups within itself. These are cognitive, perceptual and motor skills. Cognitive skill is a type of skill that is performed with mind power without the need for concrete objects. Perceptual skill is the type of skill that we become aware of the details as we pay attention to an image, and we start to see and understand beyond looking. Motor skill is a type of skill that can perform one or more movements voluntarily, including coordination (Gallahue, 2012). In other words, it is the ability to perform complex movements in an orderly and fluid manner through learning (Shala, 2009). It is thought that LK exercises have the most effect on cognitive skills. The reason for this is that the movements in LK exercises can exercise both parts of the brain at the same time as a result of movements using both sides of the body, and the movements are constantly variable and enable the brain to give new responses to new stimuli (Lutz

2010). The fact that the movements in LK exercises always show variability allows both children and athletes to train more enjoyable (Peker, 2014).

Life Kinetic Exercises to Enhance Skill Learning

LK exercises are performed individually, in pairs or as group work (Yarim et al., 2019). LC exercises can be performed by applying the basic techniques required by the branch by changing the size or number of materials used in the sports branch or by replacing the ball used in any branch with a very small or very large ball. For example, finger pass or cuff practice with a basketball in volleyball, bouncing two basketballs with the right and left hand at the same time, bouncing the right hand high and the left hand low, throwing and holding a tennis ball with the free hand while bouncing a basketball, bouncing a ball with closed eyes, holding the ball of the colour told by the instructor while throwing more than one ball of different colours, picking up the coloured papers placed on the ground while bouncing a ball with the colour command given by the instructor are examples of various LK exercises (Vural, 2016). LK exercises continue to be updated with the development of technology. For example, "Light Trainer" trainings, whose usage areas have increased rapidly in recent years and which are included in various professional football clubs, are also a part of LK exercises. The device switches on lights in different places at a certain speed and the practitioner tries to catch those lights. "Light Trainer" exercises improve the ability to concentrate and also improve the reaction time (Theofilou, 2022).

Studies Investigating the Effects of Life Kinetic Exercises on Skill Learning

In a study conducted in football players, one group received only football training, while the other group received both football training and life kinetic exercises. When the results were examined, it was found that there was no significant difference in the 20-metre sprint tests of both groups, while there was a positive effect of LK exercises on flexibility and agility parameters (Çakır et al., 2020). In another study, 32 basketball players were divided into two as control and subject groups. The subject group performed LC exercises during the warm-up phase of basketball training for 12 weeks, while the control group did not. According to the results of the study, a significant difference was found between the experimental group and the control group in the elements of selecting external factors and mobilising the motor skill in a timely and appropriate manner. While the reaction time was shorter in the group warmed up with life kinetic exercises, no significant difference was found between the two groups in balance skills (Vural, 2016). In another study, 65 students aged 10-11 years were divided into two groups, 33 in the experimental group and 32 in the control group. The experimental group was given LK exercises for 10 weeks, while the control group was not given any

exercise. Both groups received 8 weeks of basic technique teaching in handball branch and coordination test was applied to the students at the beginning and end of the study. The results showed a significant difference between the experimental group and the control group in favour of the experimental group. The study also showed that brain-based exercises were more effective in skill learning than the classical training method (Çimen, 2021). In another study, 24 people in the 11-12 age group who did not have a sports background in the summer school participated in the study as two groups of 12 people each as experimental and control groups. In addition to the training in the summer school, an LK exercise programme was created and applied to the experimental group 3 times a week for 8 weeks. In the control group, only the summer school training programme was applied. In the study, balance, throwing a medicine ball backwards, rhythm running and medicine ball running tests were applied before and after the training programme. At the end of the study, a significant difference was found between the balance and rhythm running pre-test and post-test of the experimental group, while no significant difference was found between the pre-test and post-test of the control group in these tests (Peker, 2014).

In another study, the effect of LK exercises on technique, quickness and reaction times in 12-13 age group volleyball players was investigated. In the study, 18 female volleyball players were divided into 2 equal groups. One group performed only volleyball training for 12 weeks, while the other group performed both volleyball training and LK exercises. Volleyball basic technique test, reaction test and quickness test were applied to the participants in the first and last week. A significant positive difference was found in the post- test of the finger pass and serve test of the participants who performed LK exercises compared to the pre-test, while no significant difference was found in the reaction time and quickness tests. In the group that only did volleyball training, no significant difference was found in all tests (Kocağlu et al., 2022). Another study was conducted with bocce athletes. In the study conducted with children aged 10-12 years, there were a total of 40 athletes, 20 in the experimental group and 20 in the control group. The aim of the study was to examine the effects of LK exercises on body and mind coordination and shooting performance in bocce in bocce athletes. In the study, only bocce training was applied to the control group, while the experimental group received LK exercises for 8 weeks in addition to bocce training. At the beginning and end of the study, punt, volo and raffa throws used in bocce were applied. Each athlete was given 10 shots and successful shots were counted as 10 points and unsuccessful shots were counted as 0 points. At the end of the study, a significant difference was found in the pre-test and post-test results of the experimental group performing LC exercises. Thus, it was found that LK exercises provide positive results on attention and coordination and have positive effects on performance in bocce (Gür et al., 2022). In another study, the effects of LC exercises on reaction time, balance and technical skills of

football players in the 12-13 age group were examined. At the beginning and at the end of the study, a shot on goal test was applied to test the technical skills of the athletes, the "Light Speed Trainer" test for reaction time, and the flamingo balance test for balance skills. While only football training was applied to the control group for 10 weeks, both football and LK exercises were applied to the experimental group. At the end of the study, significant differences were found between the experimental group and the control group in reaction time, balance and technical skills in favour of the experimental group. It was concluded that LK exercises shortened reaction time and improved balance and technical skills in child football players (Korkmaz & Karabulak, 2023).

Another study was conducted with 26 athletes in the U-13 team of Saswco Bandung club. The athletes were divided into two groups and one group was given LK exercises while the other group was given "Brain Gym" training. Before and after the 4-week training programme, Dijit Memory Test was applied. As a result of the research, it was found that both LK exercises and "Brain Gym" training had a positive effect on working memory and concentration factors, but the effect of LK exercises was higher than "Brain Gym" training (Ansyah & Komarudin 2023). Another study was conducted with 40 university students in Indonesia, whose branch is football. While the experimental group of 20 people was applied LK exercises, the control group of 20 people was applied traditional training method. In the study, they looked at the effect of LK exercises on concentration and football skills. At the beginning and end of the study, concentration test and football basic technical skills test were applied. According to the results, a positive, significant difference was found between the experimental group and the control group in both concentration and skill elements (Komarudin et al., 2021).

4. Conclusion

When the studies investigating the effects of LK exercises on skill learning are examined, it is seen that LK exercises provide significant benefits especially in learning a new skill and improving previously learnt skills. Considering the researches, it is thought that LK exercises have the most important effect on reaction time and coordination skills. Therefore, it is thought that LK exercises play an important role especially in branches that include these skills. LK exercises improve learning by developing new connections in the brain. It is thought to have an important effect on child development as it facilitates skill learning in both children and adults. Based on all these results, it is recommended that LK exercises should be included in training as they facilitate and accelerate skill

learning in both children and adults and improve basic technical skills in many branches such as football, bocce, basketball, volleyball and accordingly contribute positively to performance.

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