

ORIGINAL RESEARCH

BEEF training model, drill exercise model, and eye-hand coordination on increasing the ability of free shooting and three shot scores for basketball players aged 14-16 years

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Abstract

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In the game of basketball shooting is the main key to creating a number. This research is experimental research that aims to determine the effect of training (BEEF and Drill) with eye-hand coordination on a free throw and three-point shooting abilities aged 14-16 years. Treat is the BEEF (Balance, eyes, elbow, follow-through) training model and the Drill training model. Groups were grouped based on the results of the high-hand-eye coordination test and the low-eye-hand coordination group. The results compared are the improvement in free throw ability and three-point shooting ability. Apart from conducting tests to determine hand-eye coordination abilities, another test is the ability to shoot both free throws and three-point shots. The sample in this study is the entire population, namely all Asbec Club Sarolangun players aged 14-16 years, totalling 40 people. Instruments for measuring free throws and three points use shooting tests and hand-eye coordination tests. This research was conducted for four months, from July 1, 2022, to October 30, 2022. Based on the results of the research that has been done there is a significant effect between beef training and hand-eye coordination (high-low) on the basketball shooting skills of athletes aged 14-16 years.

Keywords: BEEF, drill, eye-hand coordination, free fire.

Introduction

Basketball is a sport that uses a large ball and is played with the hands, it may be passed to a friend, or it may also be bounced on the floor (on the spot or while walking or running). The aim of the basketball game is to score as many points as possible by putting the ball into the opponent's basket. The game of basketball starts with the basic techniques of passing, dribbling, catching, and shooting. Of all the basic techniques, shooting is the most important because shooting is all about getting the ball

into the opponent's ring to gain points. This agrees with the opinion of Wismanadi (2019) shooting is the ability to shoot the ball by putting the ball into the opponent's ring to score points. Shooting consists of several techniques, including jump shoot, layup, set shoot, hook shoot, and all kinds of movements by trying to put the ball into the hoop (Mawarti & Arsiwi, 2020).

In the game of basketball shooting is the main key to creating a number, therefore you must pay attention to body position when making a shot. Thus, basketball

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players need to have good and correct shooting techniques if they want to achieve high achievements. There are still many basketball players who have not mastered proficient shooting techniques, therefore effective and efficient training must still be encouraged. A shot requires good shooting techniques so that when you do it you get good results. Because shooting is a series of movements that are sequential and continuous, there are several important things that must be considered by basketball players when shooting basketball so that the shot produces the expected number. Body position must also meet the basic principles of movement in shooting, starting from the position of the hands, legs, views, balance, and rhythm of the shot (Rudiansyah et al., 2014).

There are two types of shots that need to be mastered by basketball players, namely free throws and three-point shots. Liat & Tanudjaja (2013) explained that when making a three-point shot, children aged 14-16 years must pay attention to the fundamentals, namely the view of focusing on the basket before and during the shot. Furthermore, it was revealed that children also need to focus on the arm muscles and wrist flexibility. Besides requiring hand flexibility, basketball aged 14-16 years when shooting three points requires accurate hand-eye coordination (Oktavianus et al., 2018). Gumay et al. (2018) added that executing a good three-point shot requires flexibility, elbow angle, and coordination when shooting into the basket at the age of 14 years.

Mashuri (2021) explained that Shot-shooting basketball is a training model that combines shooting and biomotor techniques with drill and game methods to improve shooting skills. One of the training models that feels good for improving shooting ability is the BEEF training model. shooting practice with the BEEF concept (Balance, Eyes, Elbow, Follow-Through) and BEEF-based discovery teaching style have a positive impact on improving free-shoot and three-point shooting skills (Sampurno & Suryadi, 2020; Sari et al., 2020).

The results of the observations that the researchers found in the field showed that most of the Sarolangun basketball players had not mastered the free throw and three-point shooting techniques properly and correctly. In addition, the data shows that the training model used to maximize students' shooting abilities has not been fully used and given optimally by the coach. Training should be able to support the success of basketball players to

make three-point shots and free throws and focus on the ring through the right training model.

Based on this, the researcher wants to conduct further research on training models and eye-hand coordination of three-point shooting ability and free shooting ability. Researchers also want to combine several of these training methods together to improve the ability of free throws and three-point shots of basketball players aged 14-16 years. This research is an update in the BEEF and Drill training research with eye-hand coordination because previously it only did exercises on accuracy results.

This study is considered important because there are still few study results that reveal how BEEF and Drill exercises with eye-hand coordination when applied simultaneously in improving the ability of free throws and three-point shots of basketball players aged 14-16 years. The purpose of this study was to determine the effect of the training model and eye-hand coordination in improving the free throw and three-point shooting abilities of Asbec Club Sarolangun athletes aged 14-16 years.

Method

The type of research to be carried out in experimental research by providing training model treatments (BEEF and Drill) with eye-hand coordination on the ability of free throws and three-point shots. The sample in this study used all members of the population, namely all Asbec Club Sarolangun players aged 14-16 years, totaling 40 people.

The variables to be studied in this study include independent, dependent, and attributive variables. The independent variables are the BEEF training model and the drill training model. The dependent variable is the ability of free throws and three-point shots of basketball players aged 14-16 years. The attributive variable is eye-hand coordination. The instruments used in this study included a hand-eye coordination test carried out by throwing and catching a tennis ball at a wall that had been given a target, a free throw ability test was carried out by shooting at the ring (free throw) 10 times to shoot, and a three-point shot ability test.

There are two data analysis techniques used in this study, namely the prerequisite analysis test, and

hypothesis testing using two-way ANOVA at a confidence level of 0.05.

Results

The hypothesis testing in this study will be presented sequentially, including: (a) The effect of the training model (BEEF and Drill) on increasing the ability of free throws and three-pointers in basketball players aged 14-16 years; (b) The effect of high and low eye-hand coordination on the improvement of the free throw and three-point shooting abilities of basketball players aged 14-16 years; (c) Interaction of the training model (BEEF and Drill) with eye-hand coordination (high and low) on the improvement of the free throw and three-point shooting abilities of basketball players aged 14-16 years.

The data collected in this study was then carried out with descriptive analysis for the average value in each data group with the results presented in Table 1.

BEEF and Drill exercises, to increase the ability of free throws and three-point shots of basketball players aged 14-16 years

Based on the analysis results obtained from the ANOVA test results, it is known that the significance value of p is 0.018 and the F value is 21.015. Because the significance value of p is 0.018 < 0.05. Thus there is a significant difference in the effect of the application of BEEF and Drill exercises on improving the ability of free throws and three-point shots of basketball players aged 14-16 years, for further results will be presented in Table 2.

Table 1

Description of pre-test and post-test data.

Free Throw Shooting Result					
Hand-High Eye Coordination					
Free Throw-A1B1			Free Throw-A2B1		
Pre-test	Post-test	Difference	Pre-test	Post-test	Difference
2.50	7.40	4.90	1.60	3.80	2.20
Hand-Eye Coordination – Low					
Free Throw-A1B2			Free Throw-A2B2		
Pre-test	Post-test	Difference	Pre-test	Post-test	Difference
2.90	4.60	1.70	2.50	5.70	3.20
Three-Point Shooting Results					
Hand-High Eye Coordination					
Three Point Shooting Results-A1B1			Three Point Shooting Results-A2B1		
Pre-test	Post-test	Difference	Pre-test	Post-test	Difference
20.40	47.80	27.40	20.10	40.60	20.50
Lower-Hand Eye Coordination					
Three Point Shooting Results -A1B2			Three Point Shooting Results -A2B2		
Pre-test	Post-test	Difference	Pre-test	Post-test	Difference
22.60	35.90	13.30	19.30	43.20	23.90

A1.B1: The group using the BEEF training model with high hand-eye coordination; A2.B1: The group that uses the Drill training model with high hand-eye coordination; A1.B2: The group using the BEEF exercise model with low hand-eye coordination; A2.B2: The group that uses the Drill training model with low hand-eye coordination.

Table 2

ANOVA test of BEEF and Drill exercises, to increase the ability of free throws and three-point shots.

Source	Type III Sum of Squares	df	Mean Square	F	p
Practice Model	19.215	1	0.60	21.015	0.018*

* $p < 0.05$

Table 3

ANOVA test of high and low hand-eye coordination on the improvement of the free throw and three-point shooting abilities of basketball players aged 14-16 years.

Source	Type III Sum of Squares	df	Mean Square	F	p
Eye-Hand Coordination	17.725	1	1.85	31.618	0.004*

* $p < 0.05$

Table 4

ANOVA test BEEF drills and drills with hand-eye coordination for increased free ability and increased three-point shooting ability.

Source	Type III Sum of Squares	df	Mean Square	F	p
Model Practice * Eye-Hand Coordination	17.725	1	1.85	31.618	0.004*

* $p < 0.05$

High and low eye-hand coordination for improving the ability of free throws and three-point shots in basketball players aged 14-16 years

Based on the results of the analysis obtained from the ANOVA test results it is known that the significance value of p is 0.004 and the F value is 31.618. Because the significance value of p is 0.004 < 0.05. Thus there is a significant difference in the effect of high and low eye-hand coordination on improving the ability of free throws and three shots of basketball players aged 14-16 years, for further results will be presented in Table 3.

The interaction between the effect of the BEEF and drill training models with hand-eye coordination (high-low) on the improvement of free ability and the improvement of three-point shooting ability of basketball players aged 14-16 years

Based on the analysis results obtained from the ANOVA test results it is known that the significance value of p is 0.041 and the F value is 29.719. Because the significance

value of p is 0.041 < 0.05. Thus, there is an interaction between the influence of training models (BEEF and Drill) with eye-hand coordination on improving free throw ability and improving three-point shooting ability in basketball players aged 14-16 years.

Discussion

Based on the results of the research that has been done, it can be seen that there is an influence of the training model (BEEF and Drill) and eye-hand coordination on improving the ability of free throws and improving the ability of shooting three points in basketball players aged 14-16 years. It is hoped that these results can be used as a reference or theoretical basis to find out how free-shoot ability and three-shot ability for each basketball player aged 14-16 years can then be carried out by training models (BEEF and Drill) and hand-eye coordination in carrying out or creating training programs.

This is in line with the results of research, Nasution (2021) with the title 'The Effect of the "BEEF" concept

training method on Increased shooting in Basketball Extracurricular Participants at Sukatani 1 Public Middle School, with the results in this study revealing that shooting practice uses the BEEF concept can provide an increase in the ability to shoot at basketball for beginners. Further corroborated by research results Cahya et al. (2021) with the title Concentration and balance: Factors Influencing successful shooting in basketball, the results of this study revealed that there was an effect of shooting basketball with concentration and balance exercises in the BEEF exercise. The literature study had almost similar results which revealed that the training model (BEEF and Drill) and eye-hand coordination to improved free throw ability and improved three-point ability.

The BEEF exercise is one of the basketball drills, namely the concept of shooting which can make it easier for a basketball player in the correct shooting technique. The focus is on drills using the BEEF concept, especially on free throws, effectively and efficiently, with concepts that are easy to understand (Bayu, 2019). The BEEF concept is a shooting technique that makes it easier for athletes to understand and master shots properly and correctly (Hardiyono, 2017). The advantage of doing the BEEF concept is that it is a good starting solution for shooting basketball (Nur et al., 2019). Making shots with the BEEF concept prefix really helps athletes in improving their performance in playing basketball.

In general, basketball coaches use various forms of drill training for physical adaptation and specific skills of players (Castagna et al., 2011) Applying the concepts of drill training will help basketball coaches and practitioners achieve specific training goals and conditions. This is because drill exercises can mimic the actual game of basketball and can enhance sport-specific physiological capacities (Conte et al., 2016). The drill method is a training method that is suitable for the problems that occur because the drill method is a method to increase awareness of various factors related to motion, namely awareness of time, force and space (Aprianova & Hariadi, 2017).

The drill method is an activity of doing the same thing repeatedly and seriously with the aim of strengthening or perfecting a skill so that it is permanent. This is in accordance with the law of practice (law of practice) that by repeating certain appropriate responses several times, a good stimulus-response relationship will be strengthened.

Conclusion

Based on the results of the research and the results of the data analysis that has been carried out, namely that there is a significant difference in effect between the BEEF and Drill exercises on increasing the ability of free throws and three lifts, this exercise really needs to be implemented by children aged 14-16 years because it can improve free throw abilities. Then high and low hand-eye coordination has an effect on increasing the ability of free throws and triple shots. Furthermore, there is a significant interaction between beef and drill exercises with eye-hand coordination (high-low) on the basketball shooting skills of athletes aged 14-16 years.

Practical research results can be used as material for consideration for coaches, as well as basketball coaches in making appropriate training programs for improving the ability of free throws and three-point shots of basketball players. Thus the training will be effective and will get the results as expected by the coach. This study has limitations, namely, the sample is only in the Asbec Club Sarolangun, it is hoped that further research can cover a more diverse sample and include other training models.

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