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by Setya Rahayu Unnes

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Imagery Training Method and Hand-Eye Coordination on The Exercise of Ball Batting Practice of Softball-Baseball of UNNES

Ajeng Miranti¹, Soegiyanto² & Setya Rahayu²

¹Public Senior High School 2 Ungaran, Jawa Tengah, Indonesia
²Universitas Negeri Semarang, Indonesia

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Abstract

The purpose of this study was to determine the effect of Imagery training methods and hand-eye coordination on the exercise of ball batting practice of softball on the softball-baseball student's activity unit athletes of UNNES. The research method was using an experiment with a 2x2 factorial design. The sample was 22 athletes were taken by using purposive sampling technique. The instrument for a test of hitting the ball is Elrod softball batting tests of Johnson BL and Nelson JK, eye-hand coordination by catching-throwing tennis balls at a wall that had been given a target by Ismaryati in Tatag Efendi. Data analysis technique was using ANOVA with two lanes. The results showed that Imagery training methods (exercises internal and external imagery) effected on the result of batting practice balls softball-baseball students activity unit athletes of UNNES there were differences of influence between the level of hand-eye coordination high and low on the results of batting practice balls softball on the softball-baseball students activity unit athletes of UNNES and there were interactions between imagery training method (exercise internal imagery and external imagery) and hand-eye coordination (high and low) on the results of ball batting practice of softball on the softball-baseball students activity unit athletes of UNNES. The conclusion the imagery internal exercise had better influences on the results of a softball batting practice.

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Correspondence address:

Diponegoro No. 77 RT.05/RW.04, Candirejo,
Ungaran Barat, Jawa Tengah, 50513
E-mail: ajengmir1@yahoo.com

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INTRODUCTION

Hitting the ball is an important technique in the beginning of the assault, because mastering a good hit technique will be able to produce hit that can be directed to the empty area that can not be accepted by the opponent, even the results obtained may be out of the ground or can produce a home run that runners could run towards the base until up to home base without being able to be defeated by the opponent and get one score. To be able to produce a good hit and it needs to do exercises with proper methods and adapted to the training program has been prepared.

Facts show that 7 of the 10 players who observed during the game, it was found that junior to senior level failed to capitalize optimally hit technique. Based on discussions with the three coaches of softball club and observation at several clubs in Semarang especially woman junior athletes, 8 of the 10 players were observed during the game found that woman junior athletes have a low hit accuracy and fail to hit. It is based on observations on event intercollegiate championship in 2017 as well as discussions and gatherings of fellow coaches softball club in Semarang. On the implementation of inter-college championship juniors in 2017 the coaches of UNNES and UNY recorded in each set match losing points on average 5-8 of failure hit.

In addition, the data from woman's softball team coach Softball Student Activity Unit of UNNES on the intercollegiate championship in 2017 in Yogyakarta was known in each set almost lose 3-5 points of hits.

The data reinforces that the performances of woman junior softball athletes of Softball Students Unit Activity of UNNES have not been able to compete at the intercollegiate level. It is very reasonable because it started from a hitting technique yet mastered and maximized either by the athletes. Besides, the coach also complained about the low level of hit accuracy. The essence of the main goals of a hit softball is as offensive. But in fact, the hit which should be the first attack to drive the ball as far as possible was difficult to be captured by an opposing player many missed the target. From the results, there would be a gap

between the instructor's instructions and the intended target with the results of the athlete's execution in the field.

Mental exercises aim to manage the attention and concentration of athletes that leads to the hit technique concentration so as to increase the percentage of success and accuracy of a hit. There is a mental exercise program called imagery rehearsal. Hopefully, in the form of the exercise will improve the concentration of the athlete at the time will do blow and produce a high level of accuracy. Until now there has been popularly used a form of mental exercise *imagery* combined with exercise techniques to improve the quality of a particular technique below branch softball.

METHODS

The research method used experiment with a 2x2 factorial design study. The sample of the study was 22 athletes were taken using *purposive sampling*. The instrument for a test of hitting the ball is Elrod softball batting tests of Johnson BL and Nelson JK, eye-hand coordination by catching-throwing tennis balls at a wall that had been given a target by Ismaryati in Tatag Efendi. Data analysis techniques used ANOVA with two lanes with the aid of a computer program.

RESULTS AND DISCUSSION

Table 1. Summary Data Research

Eye-hand coordination (B)	Exercise method		Total
	Exercise internal imagery (A ₁)	Exercise external imagery (A ₂)	
High (B ₁)	$\Sigma X_1 = 30.0$ $X_1 \text{ average} = 6.0$ Min = 5.0 Max = 7.0 SD = 1.0 $n_1 = 5$	$\Sigma X_2 = 17.0$ $X_2 \text{ average} = 3.4$ Min = 2.0 Max = 5.0 SD = 1.1 $n_2 = 5$	$\Sigma X_{b1} = 47.0$ $X_{b1} \text{ average} = 3.4$ $nb_1 = 10$
Low (B ₂)	$\Sigma X_3 = 14.0$ $X_3 \text{ average} = 2.3$ Min = 2.0 Max = 3.0 SD = 0.5 $n_3 = 6$	$\Sigma X_4 = 18.0$ $X_4 \text{ average} = 3.0$ Min = 2.0 Max = 4.0 SD = 0.9 $n_4 = 6$	$\Sigma X_{b2} = 32.0$ $X_{b2} \text{ average} = 2.7$ $nb_2 = 12$
Total	$\Sigma X_{k1} = 44.0$ $X_{k1} \text{ average} = 4.0$ $nk_1 = 11$	$\Sigma X_{k2} = 35.0$ $X_{k2} \text{ average} = 3.2$ $n_1 = 11$	$\Sigma X_t = 79.0$ $n_t = 22$

Table 2. Summary Calculation Results Anova Two Way at Sinergy Level $\alpha= 0.05$

Source	Type III sum of squares	df	Mean square	F	Sig.
Corrected model	40.785 ^a	3	13.595	16.838	.000
Intercept	296.006	1	296.006	366.613	.000
Exercise method	5.097	1	5.097	6.313	.022
Agility	22.552	1	22.552	27.931	.000
Exercise method * Agility	14.552	1	14.552	18.023	.000
Error	14.533	18	.807		
Total	339.000	22			
Corrected Total	55.318	21			

a. R squared = .737 (Adjusted R squared = .693)

It was known F_{value} equal to 6.313 with a probability of 0.022. Therefore the probability was less than 0.05, then H_0 was stating that "there is a difference of influence internal training methods external imagery and imagery exercises to practice hitting the ball softball result in athletes of softball-baseball students activity unit of UNNES be accepted. F_{value} equal to 27.931 with probability 0.000.

Table 3. Tukey Test Results Summary

Compared group	Average score	Mean difference	Sig.	Explanation
$A_1B_1 >< A_2B_1$	6.00 – 3.40	2.6000	0.001	Significant
$A_1B_1 >< A_1B_2$	6.00 – 2.33	3.6667	0.000	Significant
$A_1B_1 >< A_2B_2$	6.00 – 3.00	3.0000	0.000	Significant
$A_2B_1 >< A_1B_2$	3.40 – 2.33	1.0667	0.239	Not significant
$A_2B_1 >< A_2B_2$	3.40 – 3.00	0.4000	0.882	Not significant
$A_1B_2 >< A_2B_2$	2.33 – 3.00	-0.6667	0.587	Not significant

Information:

- A_1B_1 = Group given training methods *internal imagery* with a high hand-eye coordination
- A_2B_1 = Group given training methods *external imagery* with a high hand-eye coordination
- A_1B_2 = Group given training methods *internal imagery* with a low hand-eye coordination
- A_2B_2 = Group given training methods *external imagery* with a low hand-eye coordination

Therefore the probability was less than 0.05, then there were differences in the level of hand-eye coordination high and low on the results of Softball batting practice. F_{value} equal to 18.023 with probability 0.000. Therefore the probability is less than 0.05, then H_0 was stating that "there is an interaction between imagery training methods (exercises *internal imagery* and *external imagery*) and Hand-eye Coordination (high and low) on the results of the hitting ball

exercise of softball-baseball students activity unit athletes of UNNES."

The Influence of Imagery Training Methods on Yield Batting Softball on SMEs Softball-Baseball Athletes UNNES

Imagery is an effective training technique to improve the appearance and improved documentation. Based on the first hypothesis testing notes that the exercise of internal imagery and external imagery training methods have a significant difference in improving outcomes in softball batting practice. These differences influence results obtained from the use of internal imagery and external imagery training methods. The training method of internal imagery was proved to be more effective in improving concentration and accuracy hit a softball for the softball students activity unit athletes of UNNES. This is consistent with the theory that imagery exercise can improve the performance of athletes (Olsson, 2008).

The data research was the training method of internal imagery was most excellent in improving the accuracy of hit softball. The training method of internal imagery was proved to be better in improving the performance of athletes (Hinshaw in Wann, 1997). Besides, the internal imagery was a higher yielding psychological response (Olsson, 2008). The psychological response was able to produce more endorphin hormone that gave the effect of a more quiet and comfortable in athletes during training. With the role of endorphins was certainly helping athletes more concentrate.

Related to some of the theories above, it could be seen that the method of exercise internal imagery had several advantages over training methods external imagery. In the training method of internal imagery, there were more advantages in improving the psychological response. Besides the training process internal imagery simple and maximize the experience of motion of each athlete. With some of these advantages, it is logical if the training method of internal imagery given to the athlete and the athlete's ability to rise.

The Influence between Level Coordination Hand-Eye on Yield Softball Batting on The Softball-Baseball Students Activity Unit Athletes of UNNES

Learning the technique was not regardless of how an athlete was capable to do the exercise with the right moves. Truth movement would affect the level of energy expenditure. If the athletes were wrong or unable to perform the correct movement it would be a waste of energy. This condition would affect the results to be achieved. The most important factor affecting the quality of athletes in performing the duties of motion exercises correctly and effectively was hand-eye coordination.

The ability of a high mastery of a student's movement to coordinate between eyesight by gestures was to be able to provide good movement and accurate punches. The movement related to the basic movements softball hitting skills.

Students who had a high hand-eye coordination would be easier to perform motion tasks given in the study, with the ability to do the kind of learning that would provide faster results than those who have a pretty good hand-eye coordination and less good.

The results of data analysis showed that there was a difference between the athlete who had hand-eye coordination high compared with those had hand-eye coordination lower, the athlete had hand-eye coordination is high then the athlete would be able to carry out all types of learning skills of hitting the softball correctly and accurately in accordance with the required level of energy expenditure.

The interaction between Imagery Training Methods and Hand-Eye Coordination on Yield Batting Softball on The Softball-Baseball Students Activity Unit Athletes of UNNES

The results had been noted in this study that there was a significant interaction between training method (internal imagery and external imagery) and hand-eye coordination to softball ball batting practice results in Softball-Baseball Students Activity Unit athletes of UNNES. From the table presented forms of interaction seems

that the main factors in the form of two-factor research show that significant interaction. In the results of this study, the interaction which meant that each cell or group there were differences in the effects of each group were paired.

Based on the results obtained that the group of athletes with a high hand-eye coordination trained in internal imagery method (A_1B_1) increased lower hand-eye coordination trained in internal imagery method (A_1B_2), the order to group three (3) of athletes with a high hand-eye coordination trained in external imagery method (A_2B_1), the order of the group four (4) of athletes with low concentrations trained in external imagery method (A_2B_2). From these discussions, to optimize softball ball batting practice results in Softball-Baseball Students Activity Unit Athletes of UNNES, if it was known these athletes had a high concentration of suitably trained in internal imagery method. It was because internal imagery training tends to be simpler because only entered one aspect of the process of servicing engineering skills conjured up images in the mind of the athlete. After that athletes reinforced associated services technique overview in mind repeatedly and then practiced in training services. As expressed by Ut

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2. Alumni SD/SMP/SMA mana (d disesuaikan dengan kira2 artikel sesuai utk diterapkan dimana SD/SMP/SMA) & Gould (2007) that there are several theories that support the appearance of the effects of exercise imagery.

There were three theories related to the work function of exercise imagery. One of the theories was the theory of functions psycho neuromuscular. This theory stated imagery was the result of subliminal neuromuscular patterns similar to the patterns of neuromuscular used in the actual movement. Although at the time did not move a muscle practicing actively, but commands from the brain to the muscles were still sent. The neuromuscular system gave an

opportunity to "train" the pattern of movement without moving the actual muscle. This meant that when an athlete envisioned a movement then the muscles that worked on these movements would be trained although passive and active movement.

In addition, several studies had shown that internal imagery exercise was more suitable for elite athletes. The internal imagery was better and appropriate for open skills (Weinberg & Gould, 2007). Outdoor Skills were the type of skills that the environment around the game was difficult to be controlled and expected to Schmidt & Wriesberg (Sukadiyanto, 2006). That was, the opponent's position and actively moving targets or activities were affected by another person or an obstacle.

4 CONCLUSION

Based on the results of research and discussion can be concluded that there is a difference of influence between Imagery training methods to the results of ball batting in Softball-Baseball Students Activity Unit Athletes of UNNES, there is a difference in effect between the level of hand-eye coordination to the results of ball batting practice in Softball-Baseball Students Activity Unit Athletes of UNNES and there is an interaction between imagery training methods and hand-eye coordination to the results of ball batting practice in Softball-Baseball Students Activity Unit Athletes of UNNES.

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