

The Effect of Imagery and Concentration Training Regarding the Shooting Results of Yogyakarta Special Region Water Polo Athletes

Meiliana Dwi Puspita^{1*}, Suharjana¹, Wahyu Dwi Yulianto¹

¹Department of Sport and Health Sciences, Yogyakarta State University, Indonesia

DOI: <https://doi.org/10.36348/jaspe.2024.v07i08.001>

| Received: 27.06.2024 | Accepted: 03.08.2024 | Published: 07.08.2024

*Corresponding author: Meiliana Dwi Puspita

Department of Sport and Health Sciences, Yogyakarta State University, Indonesia

Abstract

Still many Yogyakarta water polo athletes experienced problem moment do shot or shooting, especially problem lies in the player's mentality. Study This aim for know-how influence between method Internal imagery and external imagery training for water polo shooting among Yogyakarta water polo athletes. Study This use method experiment with 2x2 factorial design with use technique collection of pre-test and post-test data on imagery exercises (internal and external) and level concentration (high and low). Population study is player DIY water polo team. Sample study this determined with purposive sampling technique consisting of 30 athletes. For know level concentration done test measurement with using test grid concentration. Internal imagery and external imagery exercises were carried out each exercise is done 6 times for 30 minutes. Ability athlete's shooting accuracy done with use 5 meter penalty shooting test. Data analysis techniques using two way Analysis of Variance (Anova) at level significance (α) 0.05. Research result show that: 1) exists difference between internal imagery and external imagery training ($p = 0.010 < 0.05$) then method more internal imagery exercises Good rather than external imagery. Group players who have concentration tall more appropriate if trained with *internal imagery*, meanwhile group players who have concentration low more Good If trained with *external imagery*.

Keywords: Mental Imagery, Concentration, Water Polo shooting.

Copyright © 2024 The Author(s): This is an open-access article distributed under the terms of the Creative Commons Attribution 4.0 International License (CC BY-NC 4.0) which permits unrestricted use, distribution, and reproduction in any medium for non-commercial use provided the original author and source are credited.

INTRODUCTION

Water polo is team water sports that can seen as combination from swimming, wrestling, football, and basketball. A competing teams consists from six player and a guard goal. Regulation game similar with football, that is print goal as much maybe, and one goal calculated as one points. Water polo is one of them branch a sport that has been followed for a long time in Indonesia. Even sport This Once held in Solo in 1948 at the first National Sports Week (PON-I), regional, national and international levels (Sports sea, far this).

Ferragut, *et al.*, (2011) stated that water polo is sport complex team, which combines performance physique intensity height and intensity low. Besides that, water polo is also a equipped body contact sports with swimming, jumping vertical in the water when throwing, receiving, passing and shooting the ball. Water polo players must face his opponent with intercept, contact physique even push. Bee (2013) added that water polo is is sport teams in need cooperation team compared to ability individual.

Its creation A Interesting match, no regardless from ability athlete can displays ability technique in game Water Polo sport. Ability technique, tactics even understanding play athlete different. Especially in the sport of water polo which is complex sport. Water polo player obviously must can swimming, ability swim on every athletes too for sure different. Swim is basic in the sport of water polo. Related with a number of technique in Water Polo is available a number of type technique that is technique swimming (swim), technique floating in water (eggbeater), technique throwing (throwing), technique passing, technique carrying the ball (dribbling) and technique shooting (shooting). The technique must mastered by Water polo athletes so that can displays something interesting match as well as quality.

In water polo itself shoot or shooting is very important thing, because shoot is put as many balls as possible into the wicket and deep specified time (4x8 minutes), then without exists shoot No will happen goal or additional points from every his team. When match all athlete in 1 team expected can shoot or shooting with Good in accordance with what is recommended. If in a

team there is athletes with shooting skills or technique shoot or the shooting that we have is very minimal can harm his team, because If something player No can own technique shoot or good shooting so moment player That is at face to face with guard wicket and not in guarding enemy then that's a must done player or athlete is shoot with Correct.

According to what has been done directed previously by the trainer. Various type technique from shoot or shooting, among other things; shot direct or direct shoot, shot toward goal after given bait or passed ball shoot, shot toward behind or backhand shoot, shot sideways or swing shoot, shot soar or loop shoot, and shot bouncing or bounce shoot.

Shooting techniques in water polo are: technique the most important basis besides swimming and passing. Shooting techniques in absolute water polo must controlled by everyone player. Victory point Focus on shooting technique to get results more opportunities big For print goal. Add matter the, use Correct technique can also be done help for reduce injury. Low shooting technique as well as leg muscles, muscles stomach and muscles a weak back can also influence speed and accuracy shot. Jim Solum (2009) argues that.

There are some determining factor happen enhancement performance in the sports, including: 1) factors biological (ability base body and body organ functions), 2) psychology (mental, character, motivation, and intellectual), 3) environment (facilities and infrastructure, family), 4) support (trainers, training programs, awards). Factor the developed and mutually complete, done in a way systematically to produce results maximum performance.

Success a deep water polo athlete reach his achievements No regardless from athlete's mental condition, because mental is the most important part in sport This. In accordance with expressed (Komarudin, 2015:3) that "apart from practice technique, physicality and tactics are very carefully considered in sport is mental exercise." Athlete need have a tough mentality, so can practice and compete with Spirit high, total dedication, abstinence give up, no easy distracted by non- technical problems or personal. Coach own role important in pay attention to one's training athletes, especially mental exercise, because athlete's mental problems actually No pure problem psychological, however factor technical or physiological can become reason disturbed mental factors. Therefore that before applying mental training to psychological mental factors, trainer know moreover formerly reason from mental problems that become problem athlete concerned.

On a branch in water polo, mental health is very important results match. Something victory No only determined by ability physical, technical and tactical only, but also influenced by the athlete's mentality That

Alone. There are five influencing aspects achievement performance athlete that is aspect physical, aspect techniques, tactics, aspects psychology and equipment. Aspect psychological influences performance athlete including mental imagery, concentration, goal setting, relaxation, and recreation.

Komarudin (2015:6) said that many feel that the performance process is good it is 70-90% influenced by mental factors. Player trained his mentality with Good Of course will the more skilled in overcome emotional mental problems that come to her. Techniques taught to athlete is previous technique once taught by a trainer previously. Shooting should be become weapon for every player for get points or turn off against. Shooting practice techniques are also lacking so pay attention, practice more increased in practice physical and gaming. When play, some big shooting results carried out by athletes No appropriate target and too rush at times do it so that No see direction the goal against.

Accuracy shooting results are possible mastered with Good If have level high concentration. Shooting accuracy is method for print goal to goal against, with specifically direction to the target shot it means a lot for a victory team. Weinberg & Gould (2007:367) say that "concentration including inner mental aspect exercise and holding role important, with reduced or disturbed concentration athlete at the moment practice, especially moment match, then will arise various problem as well as suboptimal results." Especially in something match often shooting techniques are very poor effective consequence decreased mental condition, cause with decreased it mental state will can influence athlete in concentrate for doing shooting. Maksum (2011:153) said that concentration Can nature narrowed or nature widespread. Concentration can nature narrowed, like a medium archer aim and release child the arrow going to target. Somebody can said concentration if himself capable focus on what is encountered on the spot that, not in place other. Factor affecting concentration including age, physique, type gender, as well knowledge and experience. When athletes middle concentrate, he will sort information or stimuli that are not facilitate performance and focus only on relevant information for his victory.

Weinberg and Daniield (2007:284) state that imagery is A form stimulation, p This similar with experience real sensory (eg see, feel, or hear), but all over experience the happen in thought. The mental imagery training model used based on ability player the capable imagine himself yourself and others at any time do A technique. There is two type method imagery exercises used in research this namely internal imagery and external imagery. In implementation second type exercise the need A assistance, related to the external imagery model requires stimulus from outside in the form of a video or purposeful image for help player concentrate on a shooting techniques. The hope with

exists mental imagery exercises will can help player in increase concentration in do good and correct shooting techniques.

As sport team, aside each individual's abilities, capabilities Work the same with member the team is also necessary trained. Antitila (2016) said "individual skills are best acquired through constant repetition and fundamental tactics are best learned by practice of isolated patterns". Ability technique, tactics even understanding play athlete different. Especially in the form of water polo a very complex sport. Ability technique base such as passing, dribbling, shooting are also important in control something water polo game. Shooting techniques are still wrong, and there are difficulties remember position shot, so result lack of energy expended in doing shooting.

METHODS

Type study this is study quantitative. Study quantitative is method research used For research on populations or sample certain, techniques taking samples in general done randomly, data collection using instrument research, data analysis quantitative, and purposeful for test hypothesis that has been set.

Research design this is design factorial (Factorial Design). Sugiyono, (2015:114) states "Factorial design is modification from true experimental design, namely with notice possibility exists influencing moderator variables treatment (variable independent) against results (variable dependent)." In design This there is groups were given a pretest at baseline meeting For know ability beginning athlete and posttest at the end meeting For know how much influence the treatment given with imagery training on water polo shooting results with see level concentration different athletes.

Study this the plan will done located at the Depok Sport Center swimming pool. Research time customized with timetable exercise for 2 weeks with frequency 3 times a week with timetable exercises carried out on the day Monday, Wednesday and Friday. Brooks & Fahey in Candra (2016:46) stated exercise with frequency twice a week will give chance for body for adapt to burden training given.

Population in study this all over athlete DIY water polo team of 50 people. The sampling technique used in study This is purposive sampling, where purposive sampling is samples taken in accordance with considerations certain (Sugiyono 2014:85). Amount sample used there were 30 people, namely 16 boys and 14 girls in accordance with requirements that have been set. Formation group in study this will made into 4 groups with use ordinal pairing pattern. Ordinal pairing is separation based samples on ordinal criteria (Sutrisno Hadi, 2000:111).

Deep data collection techniques study This use two type test namely : test concentration taken from the grid concentration exercise model, test This used For measure concentration athlete in the form of a table containing numbers 0-99, and gives shooting tests carried out at the initial test (pre-test) and after get athlete's pre-test results will receive treatment in the form of internal imagery and external imagery exercises after given treatment at the end meeting athlete will given test final (post-test).

Instrument is an important point in A research that works for obtain the desired data in A study. According to Sugiyono (2015:102) that "instrument study is something tools usedfor measure phenomenon natural nor observed social". There are many variations in instruments research, terms from an instrument must be valid (can measure what you want measurable) and reliability (determination results or level consistent from instrument).

Implementation:

1. Athlete do warming up in the pool for 15 minutes with combination special style for water polo (200m style free, 100m modification style butterfly using chest leg or free leg, 50m "head-up" style free and 4x20m egg better forward, backward, side right and side left with your elbows out from water level)
2. Athletes continue warmup with the ball for passing and shooting to direction goal for 15 minutes then rest 2 minutes
3. Position beginning shoot is in the middle goal on the 5m line that has been marked cone on the side pool, 5m is normal distance used moment do shot penalty.
4. Shooter do shot for 1 minute and should about targets that have been installed in part pole goal Then rest for 35 seconds with float on the ball, sequence the will done 3 times.
5. Shooter do shot with 1 meaningful movement No There is interrupted movement (athlete recommended For shoot as fast and accurate Possible)

Every ball that goes in is awarded score one, score test is number of balls entered legitimate to in goal.

Test initial (pre-test) was carried out to use for know the initial data from subject study about shooting water polo on any sample athlete.

a. Implementation Test Final (Post-Test)

Implementation test end or post-test in study This that is the same case with implementation test initial, with use test shooting, which is the goal to test final (post-test) for know difference shooting score after any treatment or exercise. Difference score Water polo shooting results can be obtained seen from comparison score between before (pre-test) and after (post-test).

b. Treatment

Treatment is carried out follow an established training program compiled and has been expertly judged by experts. The process of providing treatment is carried out with 6 meetings Where in One Sunday held 3 meetings.

RESULT

Description of Research Results

Collected data in the study this furthermore done analysis descriptive for mean (average) value for each data group with results presented in the table as following.

Table 1: Analysis results descriptive water polo shooting pretest and posttest data

	Pretest	Posttest	Difference
A1 B1	18.14	20.57	2.43
A2 B1	17.13	18.88	1.75
A1 B2	18.57	20.00	1.43
A2 B2	17.75	19.25	1.50

Information:

A1 B1: Group that practiced internal *imagery* with high concentration training.

A2 B1: Group that practiced external *imagery* with high concentration training.

A1 B2: Group that practiced internal *imagery* with low concentration training.

A2 B2: Group that practiced external *imagery* with low concentration training.

Table 2: Normality Test Results

Variable	Group	p	Significance	Information
Shooting Polo Game Water				Normal
	Posttest A1B1	0.064		Normal
	Pretest A2B1	0.085		Normal
	Posttest A2B1	0.859		Normal
	Pretest A1B2	0.523		Normal
	Posttest A1B2	0.804		Normal
	Pretest A2B2	0.065		Normal
	Posttest A2B2	0.096		Normal

Based on table 1 above, you can seen mean (average) value of results measurement towards shooting water polo games in each group internal imagery exercises and exercises external imagery is good it's about concentration height and concentration low.

Internal data normality test study this used Shapiro-Wilk method due to amount sample under 50 people. Results of data normality tests carried out on each group analysis done with the SPSS version 22.0 for Windows software program with level significance 5% or 0.05. Summary presented in table 1 as following:

Based on table above, it is known if sig value > 0.05 for all over data group. So can concluded if the data is in study this normally distributed.

Homogeneity test aim For know is the data in study This own homogeneous variance or No. Homogeneity test in study this use levene's test with level significant 5%, then the data is said to be homogeneous if results sig value > 0.05 and not homogeneous if sig value < 0.05. Homogeneity test results in study this presented in the table as following:

Table 3: Homogeneity Test

Test of Homogeneity of Variances		
Levene Statistics		
Group	Significance	Information
Internal <i>Imagery</i>	0.261	Homogeneous
External <i>Imagery</i>	0.506	Homogeneous

Based on results analysis above, obtained sig value > 0.05 for all over data group, then can concluded if the data is in study This own homogeneous variance.

Testing hypothesis study done based on results data analysis and interpretation analysis Anava Two Way (Anova Two-Way). Order results testing hypothesis as following.

Difference Influence Internal Imagery and External Imagery Training Methods Yogyakarta Water Polo Athletes' Shooting Ability.

First hypothesis reads " Yes Difference "The Influence of Internal Imagery and External Imagery on Shooting Results in DIY Water Polo Games". Based on results analysis the data obtained in table 4 is as follows following:

Table 4: Hypothesis Test Results First

Source	Type III Sum of Squares	df	Mean Square	F	Sig
Practice Method	,688	1	,688	,267	,010

Based on from hypothesis test results first in table 3 above can seen that mark the significance of p is 0.010 and the F value is 0.267. So because mark the significance of p is $0.010 < 0.05$, meaning H_0 is rejected. With thereby can concluded If there is difference significant influence from method internal imagery and external imagery training ability DIY water polo athlete shooting results. Difference influence the can seen in the table following:

Table 5: Difference in Average Improvement Practice Method

Group	Mean Difference
Internal Imagery	1.93
External Imagery	1.63

Based on table above, yes seen if the average difference the increase (mean difference) in the internal imagery group was 1.93 while in group external imagery is 1.63. So can concluded if application method more exercises in the internal imagery group Good rather than implementation method exercise external imagery.

DISCUSSION AND RESULTS

In results analysis this, got it results that is application method more exercises in the internal imagery group good rather than implementation method exercise external imagery. Method proven internal imagery exercises more effective in increase ability DIY water polo athlete shooting results. That matter in accordance with theory that imagery exercises can increase performance athletes (Mardhika & Dimiyati, 2015). According to (TO Bompaa & Carlo, 2019) method proven internal imagery exercises more Good in increase performance athletes, besides it's more internal imagery tall produce response psychological. Response psychological the capable produce more endorphin hormones Lots so that give effect more calm and comfortable for athletes moment train. With exists role the endorphin hormone of course help athlete more concentrate (Yachsie *et al.*, 2021).

External imagery is when somebody can see himself alone through outside media himself like see from videos/ tools record, while internal imagery is when somebody imagine as if real do something Skills. So imagery training will Work effective when kinesthetic imagery simultaneously with imagery perspective (internal and external) (Lubis & Permadi, 2020) Related with a number of theory above can is known that method internal imagery exercises have a number of superiority compared method external imagery exercises. In method Internal imagery exercises are available superiority that is more Lots in increase response psychological. Besides

there's also more of an internal imagery training process simple and maximizing experience motion every athlete. With a number of superiority the then it's very logical If method Internal imagery training is given to athletes and abilities athlete increase.

Research conducted by (Mulya, 2020) imagery training can give positive influence to shooting skills on branches sport petanque. Imagery training is is one of technique or method exercise mental skills are a must mastered by athletes. Proven imagery training give benefit to athlete for create return experience move inside his brain, so athlete possible for displays pattern motion the with Good. In line with research conducted by (Lubis & Permadi, 2020) found results if there is influence imagery training on enhancement shooting game skills of athletes petanque. Imagery refers to a very intense process of feeling, as it were feeling the is actual situation. Imagery is also possible used in plan competitive strategies in exercises routine as well as Skills For maintain feeling calm down below pressure, so life emotion can controlled in a way constructive. Emphasized more carry on that everyone has ability for using imagery, the same with other. This is required skills developed and trained.

CONCLUSION

Based on results of data analysis and discussions carried out conclusion study this there is difference influence between method internal imagery exercises and methods external imagery training on shooting results for Yogyakarta water polo athlete. By general, method exercises that have best results in increase the shooting results are internal imagery method. There is a difference intermediate shooting results athletes who have concentration height and concentration low for DIY water polo athlete. By general, athletes who have concentration tall own more shooting ability Good than athletes who have concentration low. Research result showing that There is difference significant influence internal imagery training methods and external imagery training methods shooting results for DIY water polo athlete. This matter give description that in effort increase deep shooting concentration more water polo sports well traveled with method internal imagery training. Regarding with difference influence concentration with category high and low to enhancement water polo shooting results, results study showing someone who has concentration tall give more influence good rather than concentration low to shooting results for DIY water polo athlete. Research result this is also useful for coach for can understand about mental exercise that can be help deep water polo player reach Maximum results when shooting.

REFERENCES

- Anttila, B. (2016, December 1). Water Polo Planet. Retrieved oct 21, 2020, from 11 offense pattern drills: <http://www.waterpoloplanet.com/11-offense-pattern-drills/>
- Bee, E., Tree, B., & Tree, M. (2013). *A beginner's guide to water polo*. A resource for the Wasatch High School water polo program.
- Bompa, T. O., & Carlo, B. (2019). Periodization: Theory and Methodology of Training. In *Human Kinetics* (Sixth Edit). Human Kinetics.
- Bompa, T., & Carrera, M. (2015). Conditioning Young Athletes. In *Journal of Chemical Information and Modeling*.
- Ferragut, C., Abraldes, J. A., Vila, H., Rodriguez, N., Argudo, F. M., & Fernandes, R. J. (2011). *Anthropometry and throwing velocity in elite water polo by specific playing positions*. *Journal of Human Kinetics*, 27, 31-44. DOI: 10.2478/v10078-011-0003-3
- Komarudin. (2016). *Psychology Sport*. Bandung, West Java: PT REMAJA ROSDAKARYA.
- Lubis, M. R., & Permadi, A. G. (2020). Difference Influence Practice *Imagery* And Without *Imagery* Practice Against Enhancement Ability *Shooting* Game Athlete Petanque Undikma. *Journal Scientific Mandala Education*, 6(1), 101–106. <https://doi.org/10.36312/jime.v6i1.1114>
- Mardhika, R., & Dimiyati, D. (2015). The Effect of Mental Practice and Confidence Self To Success Kick Penalty Player Football. *Journal Sports*, 3(1), 106–116. <https://doi.org/10.21831/jk.v3i1.4973>
- Mulya, G. (2020). Effects of *Imagery* and Coordination Training to Skills *Shooting* in Sports Petanque. *Journal of SPORT (Sport, Physical Education, Organization, Recreation, and Training)*, 4(2), 101–106. <https://doi.org/10.37058/sport.v4i2.1754>
- Solum, J. (2008). *Science of shooting - water polo fundamentals (1st ed.)*.
- Solum, J. (2012). *Women's shooting: Part 1*. 5(5), retrieved on October 21, 2020 from <http://www.waterpoloplanet.com/womens-shooting/>
- Sugiyono. (2015). *Understand Study Qualitative*. Bandung. ALPHABET.
- Sum, A. (2008). *Psychology Sport*. Surabaya: FIK – Surabaya State University.
- Weinberg, R. (2013). *Mental toughness: what is it and how to build it*. *Revista da Educação Física /UEM*, 24(1), 1-10.
- Weinberg, R. S., & Gould, D. (2011). *Foundation of Sport Exercise Psychology*. Human Kinetics. New York: Wiley.
- Yachsie, B. T. P. W. B., Prasetyo, Y., & Hita, I. P. A. D. (2021). The Relation Between Confidence Level Towards Archery Ability at 50 Meters Distance on Archery Athletes. *Journal Medicore*, 20(1), 1–9.