

## The Effect of Command Training Methods, Exploration and Motivation Training Methods on the Smash Ability Results of Junior Sepak Takraw Athletes



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**ABSTRACT:** The problem in this study is the low ability of junior sepak takraw smash. This study aims to determine the Effect of Command Training Methods, Exploration and Motivation Training Methods on the Smash Ability Results of Junior Sepak Takraw Athletes in Sijunjung Regency. This study was conducted using a 2 x 2 factorial redesign. The method of exercise and motivation is as a factor variable, while the smash ability of the variable is bound. The population is all junior sepak takraw athletes assisted by PSTI sijunjung district. The sample was Sijunjung Regency Junior Sepak Takraw Athletes with 24 people with male and female genders. The sample collection method used in this study is the total sampling technique. The collection of smash capability data is carried out by testing the ability of smash, namely by smashing 20 times the predetermined target. The physical fitness data obtained were further analyzed with inferential statistics of two-way ANOVA 2 x 2 (two way ANOVA). Based on the results of data analysis and interpretation of the results of the study, it shows that: (1) there are differences in the ability of smash sepak takraw in the command training method to be higher than the exploration training method, (2) there is a difference in the ability of smash sepak takraw on high training motivation has differences with low training motivation, (3) there is an influence of interaction between training methods and motivation on the ability of smash sepak takraw, (4) there are differences in the ability to smash sepak takraw athletes who have high motivation, higher in command training methods than in exploration training methods, (5) there are differences in the smash ability of sepak takraw athletes who have low motivation, have differences with command training methods and exploration training methods.

**KEYWORDS:** Command Training Method, Exploration, Motivation, Smash Ability

### I. INTRODUCTION

Physical education planning is carried out carefully to meet the development, growth, and behavioral needs of each child (Darmiyanti et al., 2021). Exercise is a form of physical activity that has the benefit of being able to increase physical freshness. Sports can be used as a forum for increasing the dignity and dignity of the nation, unifying the nation, and obtaining achievements. One of Indonesia's human development goals is directed at sports activities where the target is all Indonesian people because one of the nation's valuable assets is a nation that is physically and spiritually healthy (Anggriawan, 2015; Mulyana, 2018; Prasetyo & Damrah, 2018). In addition to increasing physical freshness, sports can also be used as a means for recreation and increased achievement. The achievement of this achievement sport is not easy, it takes quite a long time, motivation and seriousness are high, exercises are carried out continuously and programmatically. In sports, achievement highly upholds the value of discipline and the value of sportsmanship, carried out both individually and in groups. Law of the Republic of Indonesia Number 11 of 2022 concerning Sports, in Chapter I Article 1 paragraphs 12, 16, and 18 states that: Achievement sports are sports that foster and develop sportsmen in a planned, systematic, integrated, tiered, and sustainable manner through competitions to achieve achievements with the support of sports science and technology. Achievements are the results that Sportsmen achieve in Sports activities. (18) Sports Award means a recognition of achievements in the field of Sports embodied in material and/or nonmaterial form.

Effendi, (2016); Utami, (2015) Sports coaching efforts in order to achieve high achievements according to Bahar stated that they will be influenced by several elements, namely health conditions, body shape, psychic values, physical freshness,

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movement efficiency, capacity of body tools, tactical skills (tactics) and competing experience. The skills of an athlete in a sport can be seen in terms of the level of ability which is divided into two categories, namely the mass of sports that are just learning or training and the seeds of sports that are being nurtured and fostered to achieve maximum achievements (Alfiandi et al., 2018; Hidayat et al., 2020).

Sepak Takraw is one of the games on the list of sports that competes using foot media (Muhyi et al., 2021). The game became popular throughout Southeast Asia and in the 1940s, rules were established and the game became officially known as Sepak Takraw. Sepak takraw or volleyball is a sport native to Southeast Asia, resembling volleyball, only it uses rattan balls and only allows players to use their feet and head to touch the ball (Maselena et al., 2016). The sport of sepak takraw is one of the branches known to almost all levels of society (Pratama & Wiyaka, 2021; Syam, 2019). This is because the sport of sepak takraw has game characteristics that are identical to the traditional sport that has been cultivated for the people of West Sumatra, namely sepak rago. How to play football using a ball made of wicker rattan that has the purpose of flapping the ball and keeping the ball as long as possible in the air. But nowadays the game of sepak takraw is no longer played using a ball made of rattan but already using a ball made of fiber (*synthetic fiber*) (F. W. Putra et al., 2020).

The development of sepak takraw in West Sumatra has made a lot of progress, this is evidenced by the existence of sepak takraw athletes who have been able to achieve achievements in several championships, both at the regional, national and even international levels. (Hidayat et al., 2016; Ramadhan & Bulqini, 2018). In Sijunjung Regency, which is one of the most respected regencies in the sepak takraw branch, at the 2008 PON XVII in East Kalimantan and the 2012 PON XVIII in Riau specifically for the princess team number, there were 4 female athletes from Sijunjung Regency, namely Rike Media Sari (tekong), Putria Hirwana (Pider), Ria Afrianis (Smash), Dian Kurnia (Tekong), who succeeded in donating a bronze medal. At PON XIX 2016, there were 3 female athletes from Sijunjung Regency, namely Rike Media Sari (tekong), Dian Kurnia (Tekong), Tiska Permata Sari (Smash) who won a bronze medal. In Pre-PON in West Java, Sijunjung Regency only has 1 representative of An.Tiska Permata Sari (Smash) (Hidayat et al., 2019).

In junior athletes, the achievement of athlete coaching achievements can be seen from the number of junior athletes who have successfully passed the West Sumatra PPLP entrance test in the last 5 years. This data was obtained from direct interviews with junior athlete coaches Mr. Drs. Syafnel, M.M, as follows: (1) In 2017 - 2018 the number of athletes who took the test was 12 men and 6 women but none of the junior athletes passed; (2) In 2019, there were 9 male athletes and 8 female athletes, who successfully passed the PPLP, namely An. Rani Mukherji (daughter); (3) In 2020 as many as 10 male athletes and 6 female athletes, who successfully passed the 1-person test on behalf of Abelia (women); (4) In 2021, as many as 8 male and 6 female athletes took the test, and who successfully passed the test of 1 person on behalf of Akhram (men); (5) In 2022, as many as 8 sons and 6 daughters took the test, only 1 person passed An. Gendis (Princess).

Judging from the description of the achievements above, it can be seen that there is no increase in the achievements of sepak takraw athletes in Sijunjung Regency. Based on the results of an interview with Drs. Syafnel, M.M. who brought the Sijunjung sepak takraw team for the West Sumatra PPLP test, he stated that the failure of the athletes in the selection was caused by the low physical condition of the athletes (in the VO2MAX test results), the variation (there are high and some low) the results of basic engineering tests and the frequency of entry of smashes and services are relatively low, It can be seen from the 10 balls given for the highest serve they put it 6 balls and smash 5 balls.

From the results of the interview with the head coach above, it can be seen that the lack of ability of junior athletes to enter serve balls and smashes during tests, while service and smash skills are very important in winning a match (Maksum et al., 2017). To be able to pass the smash test, the test taker must be able to enter the smash ball quickly and strongly as many as 10 balls and so must serve. Serves and smashes are very important forms of attack in the game of sepak takraw. A serve is the first attack that if executed properly will be very lethal and gain points, while a smash is a final attack which is a form of attacking scheme fed by a pider/tekong whose flow of the ball is very sharp and hard this can produce points quickly. Therefore, it is important for a sepak takraw athlete in his team to have good smash skills/abilities (R. N. Putra & Fuaddi, 2021).

In general, the athlete's performance is determined by two factors, namely internal factors and external factors. Internal factors are factors that come from the individual athlete himself, that is, any form of potential possessed by the athlete that can determine and influence achievements such as mental, emotional intelligence, athlete motivation, and physical condition. Meanwhile, external factors are factors that come from outside the athlete that can affect his achievements, such as training programs, facilities/infrastructure and the role of administrators and the competence of coaches. Through information from KONI Sijunjung, it was revealed that in cang sepak takraw there is not even 1 coach who has a Regional – National referee review (Zulva & Raharjo, 2022).

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Fath, (2019) The achievements of a sports sport are also influenced by the means and means of support. In this case, Pengkab. PSTI Sijunjung does not have a training ground / sepak takraw building owned by the PSTI regency itself, where Sijunjung athletes are fostered and trained at SMP Negeri 1 Sijunjung for generations. There are 2 concrete fields that are in pretty good condition, but far from being in decent condition for a sepak takraw field for match standards. In addition, training equipment such as balls, nets, fishing rods, and tennis rackets are considered very limited and the absence of field barriers makes the training balls fall further down (the texture of the ground is tiered) making athletes need time to collect the ball.

Judging from the aspect of coaching, in the Sijunjung Regency area in particular is not developing well, this can be seen from the number of letters that have entered the PSTI Regency Government regarding the implementation of events in 2021, only 2 Nagari, namely Sijunjung nagari and new Kamang. This is allegedly due to the Covid-19 pandemic that has hit the world in the past 3 years as well as the lack of interest of young people in the sport of sepak takraw games as well as the low motivation to learn to play sepak takraw, this may be due to movements in sepak takraw skills (serves, smashes, passes) which are suspected to be quite difficult to do and are judged to be quite acrobatic.

Based on the results of an interview with one of the organizing committees of the open sepak takraw tournament in Nagari Palangki and one of the An participants. Junaidi can be concluded that the athletes who participated in the championships were between 30 - 40 years old. At that age the game of sepak takraw performed its role as a recreational sport. This resulted in the soldering of athletes not going well, the District PSTI Management also saw that attention was focused on coaching young athletes, which would later be prioritized to pass the PPLP entrance selection. In terms of coaches, according to data from KONI Sijunjung Regency in 2022 that there is no licensed sepak takraw coach of Sijunjung Regency. The current coach is a former athlete who has a bachelor's educational background in sports education.

Meanwhile, the researcher also conducted an interview with PPLP coach Yovi Hendra Utama, he mentioned that broadly speaking there are several factors that cause athletes not to pass the PPLP selection, namely: (1) Not achieving level 7 for women and level 9 for men in the VO2MAX test; (2) Non-achievement of football test results within 1 minute with a specified height with a minimum result of 60/min, (3) Non-achievement of special technical test results such as serves and smashes of 10 balls in 8-10 balls with correct service techniques and good accuracy of serves and smashes. From the information found in the field, it can be concluded that in general the achievements of Sijunjung sepak takraw athletes have not improved and it is necessary to give training treatment that will affect the improvement of the abilities of junior athletes in Sijunjung Regency, especially the smash training method. "Smash is the last movement to obtain numbers or points. Therefore, jumping or reaching the legs at the time of performing the smash is indispensable". Therefore, To perform high jumps and high leg reach requires a form of exercises that lead to explosive power of the leg muscles.

The term smash or Rejam (in Malaysian) is the most important work motion and is the final motion of the attack work movement which is important to get points or numbers for the team that does it. If the final attack smash is ineffective and inaccurate means a failure in the game to earn points, although the other companion players are quite skilled, but the final attack is ugly and fails then the attempt to win the match will become heavier. A skilled smasher will be able to insert the ball into the opponent's area with all conditions, both with the terrace and also be able to place the ball in the opponent's empty area accurately.

In the game of sepak takraw the position of smash, it is very important because it is the last attack to obtain a value or number. The smash position is a very important position because the final execution is usually carried out by the smasher. There are several kinds of smash in sepak takraw including: smash roll, smash scissors, smash kedeng, straight smash and foot sole smash. When an athlete performs a smash and is able to consistently insert the smashed ball into the opponent's game area, the physical condition component is needed, because in doing the smash movement, the support of the explosive power of the leg muscles is very necessary when making the highest possible jump up using one fulcrum foot. In the process of its implementation, strength is also needed, the contraction of the leg muscles will exert pressure or repulsion on the floor when performing the prefix, is the starting point that determines the height of the jump in accordance with Newton's Law III of the law of interaction (Law of Interaction) that each action will cause an equally large reaction and the opposite direction.

In the process of training many smash exercise methods can be applied such as 1) Hanging ball training method, 2) Drill training method, 3) Command exercise method and exploration exercise method. The command training method is a trainer-centered training activity, while the exploratory exercise method is a player-centered training activity. "It is called the command method because from planning to execution it depends entirely on the coach's command, while the player's task is simply to hear the explanation and imitate the execution of the task shown by the coach". While the exploration method is "a learning

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process in which the entire initiative in the implementation of tasks or problem solving depends entirely on the player". So the command and exploration methods can be carried out to improve the player's achievements.

In addition to choosing the right training method to improve the ability of athletes, training motivation and achievement also have an important role. Different psychological conditions of athletes can affect training results as well as at matches. Motivation is one of the factors that always goes hand in hand with motion skills, which is a desire that arises from a person who will encourage to perform and complete motion tasks. Motivation is one of the factors that influence a person, in doing, acting, working to achieve or achieve certain goals. The instriksic and extrinsic motivation factors possessed by athletes are thought to improve the ability of sepak takraw athletes in Sijunjung Regency. From the description above, this is the reason behind the author to examine the extent of "The Effect of Command Training Methods, Exploration and Motivation Training Methods on the Results of Smash Abilities of Junior Sepak Takraw Athletes in Sijunjung Regency. With this research, it should be useful to improve the ability of Sijunjung athletes to perform special techniques, namely the ability to smash in the game of sepak takraw.

### **II. MATERIAL AND METHODS**

This type of exercise is Quasy Exsperiment, the purpose of this study is to see the influence of the Command training method and the exploration training method accompanied by motivation on the smash ability of junior sepak takraw athletes in Sijunjung Regency. This research design is a design used to facilitate the research process, the design that will be used in this study is treatment by design with a factorial design of 2 x 2. *Teknik* analisis data untuk penelitian ini menggunakan desain penelitian eksperimen *factorial 2x2*. Therefore, hypothesis testing will be carried out using a two-path analysis of variance (ANOVA). Before the analysis is carried out, researchers will test the analysis requirements, namely the normality test and the homogeneity test. Furthermore, a histogram table is created to represent the frequency distribution. Data normality testing was performed using the Liliefors test technique. If the test results show that  $L_{hitung} < L_{tabel}$ , then the data comes from a normally distributed population. In addition, researchers will also conduct homogeneity tests using the Bartlett test. By criteria, if the test results show  $\chi^2_{count} < \chi^2_{table}$ , then the data has a homogeneous variant.

After the normality test and homogeneity test were carried out, the research hypothesis test was then carried out using a two-track ANOVA because the design of this study was 2x2. If the results of the variance analysis show that there is a main effect between the free variable on the bound variable and the interaction (simple effect) then it is continued with the Tuckey test as a further test to determine which group has better results with a significance level  $\alpha = 0.05$

### **III. RESULTS AND DISCUSSION**

#### **Results**

#### **1. Overall Command Training Method Group Sepak Takraw Smash Ability (A1)**

The smash ability of the commando training method group as a whole consisted of 12 athletes ( $n=12$ ), resulting in the highest smash ability score of 41 and the lowest score of 17. From this group of data obtained an average score ( $\bar{X}$ )= 29 and a standard deviation (SD) = 8.54, mode (Mo) = 36, median (Me) = 31.

#### **2. Sepak Takraw Smash Ability Group Overall Exploration Training Method (A2)**

The sepak takraw smash ability group of exploration exercise methods as a whole consisted of 12 athletes ( $n=12$ ), resulting in the highest smash ability score of 36 and the lowest score of 12. From the group of data obtained an average score ( $\bar{X}$ )= 26 and a standard deviation (SD) = 6.56, mode (Mo) = 23, median (Me) = 25.

#### **3. Sepak Takraw Smash Ability Group of Highly Motivated Command Training Methods (A1B1)**

The smash ability group of commando and high motivation exercise methods consisted of 6 athletes ( $n = 6$ ), resulting in the highest smash ability score of 41 and the lowest score of 33. From this group of data obtained an average score ( $\bar{X}$ )= 37 and a standard deviation (SD) = 3.20, mode (Mo) = 36, median (Me) = 36.

#### **4. Sepak Takraw Smash Ability Group of Highly Motivated Exploration Training Methods (A2B1)**

The smash ability group of exploration and high motivation exercise methods consisted of 6 athletes ( $n = 6$ ), resulting in the highest smash ability score of 23 and the lowest score of 16. From this group of data obtained an average score ( $\bar{X}$ )= 20 and a standard deviation (SD) = 2.83, mode (Mo) = 23, median (Me) = 20.

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### 5. Sepak Takraw Smash Ability Group Low-Motivated Command Training Method (A1B2)

The group's smash ability of commando training methods and low motivation consisted of 6 athletes ( $n = 6$ ), resulting in the highest smash ability score of 29 and the lowest score of 17. From the data group obtained an average score ( $\bar{X}$ ) = 22 and a standard deviation ( $SD$ ) = 4.26, mode ( $Mo$ ) = 21, median ( $Me$ ) = 21.

### 6. Group smash ability Low-Motivated exploratory exercise method (A2B2)

The smash ability group of exploration and low motivation exercise methods consisted of 6 athletes ( $n = 6$ ), resulting in the highest smash ability score of 36 and the lowest score of 27. From the data group obtained an average score ( $\bar{X}$ ) = 31 and a standard deviation ( $SD$ ) = 3.43, mode ( $Mo$ ) = 31, median ( $Me$ ) = 31.

Furthermore, a summary of the sample sepak takraw smash ability data on command and exploration exercise methods, a description of the data can be seen in the table below;

**Table 1. Descriptive Statistics Dependent Variable: Improved smash capability**

Motivation	Exercise Methods					
	Command ( $A_1$ )		Exploration ( $A_2$ )		$\sum b$	
Tall ( $B_1$ )	$n_1$	6	$n_2$	6	$n_1$	12
	$\sum X_1$	274	$\sum X_2$	187	$\sum X_1$	461
	$\sum X_1^2$	12544	$\sum X_2^2$	5887	$\sum X_1^2$	18431
	$X_1$	46	$X_2$	31	$X_1$	77
Low ( $B_2$ )	$n_3$	6	$n_4$	61	$n_2$	12
	$\sum X_3$	131	$\sum X_4$	172	$\sum X_2$	303
	$\sum X_3^2$	2951	$\sum X_4^2$	5092	$\sum X_2^2$	8043
	$X_3$	22	$X_4$	29	$X_2$	51
$\sum k$	$nA_1$	12	$nA_2$	12	$n_t$	24
	$\sum XA_1$	405	$\sum XA_2$	359	$\sum X_t$	764
	$\sum XA_1^2$	15495	$\sum XA_2^2$	10979	$\sum X_t^2$	26474
	$XA_1$	57	$XA_{02}$	46	$X_t$	102

From the 2 x 2 factorial design mentioned above, there are 8 (eight) data groups consisting of 4 groups of athletes that will be described separately. These results indicate that, the average value of smash capability after being given command and exploration exercises at high motivation saw that the group of highly motivated command methods (A1B1) was 46 higher than the high-motivation exploration method (A2B1) of 31. In addition, the smash performance in the command training method group is at low motivation, where the average athlete's smash ability given the command method on motivation (A1B2) is 22 lower than the exploratory training method (A2B2) of 29. The average results of smash ability performed on two groups of athletes by two different methods. Leads to improvements in command methods compared to exploration methods. Where, the command method has an average value of 57 while the exploration method has 46.

### A. Testing Analysis Requirements

#### 1. Test Data Normality

The purpose of conducting a data normality test is to find out whether the sample comes from a normally distributed population. The data analysis used was the Kolmogorov Smirnov test at the confidence level = 0.05. Data normality tests were performed for each 2 x 2 factorial research design. The results for more details can be seen in table 2 below:

**Table 2. Summary of Data Normality Test Results**

Group	N	P	=0,05 $\alpha$	Conclusion
A <sub>1</sub>	12	.200*	0,05	Normal
A <sub>2</sub>	12	.200*	0,05	Normal
B <sub>1</sub>	12	.114	0,05	Normal
B <sub>2</sub>	12	.200*	0,05	Normal
A <sub>1</sub> B <sub>1</sub>	6	.200*	0,05	Normal

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A <sub>2</sub> B <sub>1</sub>	6	.200*	0,05	Normal
A <sub>1</sub> B <sub>2</sub>	6	.200*	0,05	Normal
A <sub>2</sub> B <sub>2</sub>	6	.200*	0,05	Normal

### Information

N = Number of samples

p = Probability/chance value

= 0.05  $\alpha$

A<sub>1</sub> = Command exercise method sample group

A<sub>2</sub> = Command exercise method sample group

B<sub>1</sub> = Group of highly motivated samples

B<sub>2</sub> = Group of highly motivated samples

A<sub>1</sub>B<sub>1</sub> = Sample group of command exercise methods that have high motivation

A<sub>2</sub>B<sub>1</sub> = Sample group of exploratory exercise methods that have High motivation

A<sub>1</sub>B<sub>2</sub> = Sample group of command exercise methods that have Low motivation

A<sub>2</sub>B<sub>2</sub> = Sample group of exploratory exercise methods that have Low motivation

Based on the normality test results in table 6, the 4 (four) research design groups above turned out to be the price of  $p > \alpha = 0.05$ . In conclusion, all groups of data in this study were taken from normally distributed populations, so that the first condition for the hypothesis test was met.

### 2. Homogeneity Test

The homogeneity test aims to find out whether the sample is in a homogeneous state or not. The results of the homogeneity test for each group of sepak takraw smash ability of athletes from each group using Variants and Bartlett tests at a significant level = 0.05, Homogeneity testing was carried out with the test criteria are;  $H_0$  is accepted if  $p > (= 0.05)$

**Table 3. Homogeneity Test of Variance of the Four Groups Using the Barlett Test of the Research Design**

Box's M		3.430
F	Approx.	1.056
	df1	3
	df2	720.000
	Sig.	.367

Tests null hypothesis of equal population covariance matrices.

Based on the table above, the value of p-value = 0.367 > 0.05 or  $H_0$  is obtained. Thus, the smash ability data of the four homogeneous groups.

### B. Hypothesis Testing

Hypothesis testing is carried out using a two-track ANAVA analysis technique, furthermore, if there is an interaction between the exercise group and motivation to the sepak takraw smash ability, then proceed with the Tukey Test. The purpose of the two-track ANAVA analysis is to determine the influence of free variables on experimental results (main effect) and to determine the influence of interaction (interaction effect). The main influences in this study are: (1) differences in the influence of training methods and motivation on smash ability, (2) differences in smash ability levels for athletes who have high and low basic skills in command and exploration training methods. Meanwhile, the influence of interaction is the influence of a combination of exercise methods and basic skills on improving smash ability. Furthermore, the results of data analysis carried out using ANAVA 2x2 and its summary can be seen in Table 4, below;



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**Table 4. Anava 2 x 2 Calculation Results Summary (Tests of Between-Subjects Effects)**

Dependent Variable: Results

Source	Type III Sum of Squares	df	Mean Square	F	Sig.
Corrected Model	1811.000 <sup>a</sup>	3	603.667	35.268	.000
Intercept	24320.667	1	24320.667	1420.876	.000
Metode	88.167	1	88.167	5.151	.034
Motivasi	1040.167	1	1040.167	60.769	.000
Metode * Motivasi	682.667	1	682.667	39.883	.000
Error	342.333	20	17.117		
Total	26474.000	24			
Corrected Total	2153.333	23			

a. R Squared = ,822 (Adjusted R Squared = ,796)

Based on the table above, it can be concluded that there are differences in sepak takraw smash ability between groups of command and exploration training methods. But based on the motivation of having differences Furthermore, to see which groups are different, then proceed with the Tukey test.

### 1. The sepak takraw smash ability on the command exercise method is higher than on the exploratory exercise method after being given both forms of exercise method.

Based on the results of the hypothesis (A1 A2) obtained the value of  $p = 0.034 < \alpha = 0.05$ . This means that  $H_0$  is rejected, so there is a difference in the ability to smash sepak takraw between command and exploratory training methods. Likewise, when viewed from the average score of the command exercise method group is 57, while the average score of the exploration exercise method group is 46 ( $57 > 46$ ). Thus it can be concluded that the smash ability of sepak takraw group command training method is higher when compared with the ability of smash sepak takraw exploration training method. For more details about the results of the analysis can be seen in the table below;

**Table 5. ANAVA Advanced Test Results Summary**

Comparable groups	P	( $\alpha=0,05$ )	( $\alpha=0,01$ )	Information
(A <sub>1</sub> , A <sub>2</sub> )	**0,000	0,05	0,01	Significant

### 2. The ability to smash sepak takraw on high training motivation has a difference with low training motivation.

Based on the results of hypothesis tests (B1 and B2) obtained  $p$  values =  $0.000 < \alpha = 0.05$ . This means that  $H_0$  is rejected, so there is a difference in smash ability between high training motivation and low training motivation. Likewise, when viewed from the average score of the smash ability group between high training motivation is 38, while the average score of the smash ability group between low training motivation is 25. Thus it can be concluded that the smash ability of the high exercise motivation group and the low exercise motivation are different. For more details about the results of the analysis can be seen in the table below;

**Table 5. ANAVA Advanced Test Results Summary**

Comparable groups	P	( $\alpha = 0,05$ )	( $\alpha = 0,01$ )	Information
(B <sub>1</sub> , B <sub>2</sub> )	** 0,000	0,05	0,01	Significant

### 3. There is an influence of the interaction between exercise methods and motivation on improving smash ability

Based on the results of the calculation of variance analysis (ANAVA) two paths obtained  $p$  values =  $0.000 < \alpha = 0.05$  and  $0.01$ . This means that  $H_0$  who stated that there is an influence of interaction between training methods and motivation on sepak takraw smash ability was rejected, while  $H_a$  who stated that there is an influence of interaction between training methods and basic skills on sepak takraw smash ability is empirically accepted.

Furthermore, due to the influence of the interaction between the exercise method and motivation on the ability of the sepak takraw smash treated by the exercise method, the next analysis technique can be continued. For more details about the

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interaction of exercise methods and motivation towards improving smash ability, see the image below. Based on the picture, it can be seen that there is an interaction between low motivation and high motivation on the smash ability of sepak takraw athletes.

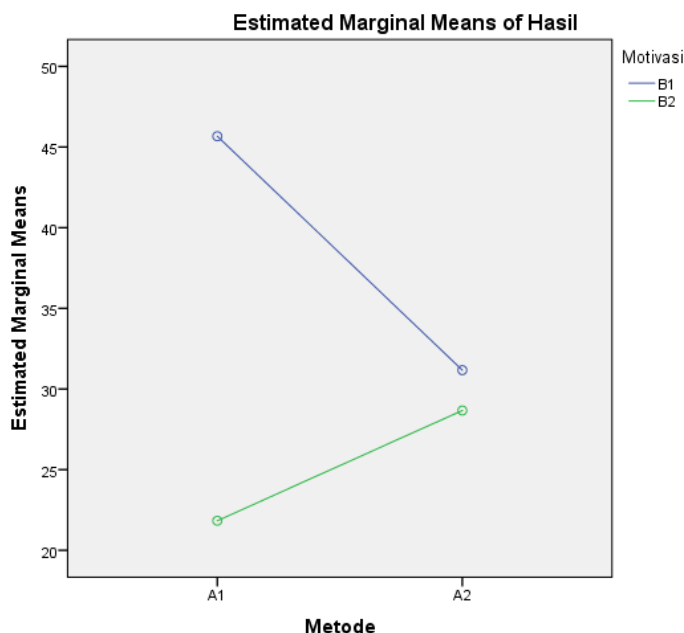


Figure 1. Interaction of exercise methods and motivation towards improving smash ability

With the hypothesis proving that there is an influence of interaction between exercise methods and motivation on samash ability, the analysis continues using the Tukey test.

Table 6. ANAVA Advanced Test Results with Tukey Test

	(I) Interaksi	(J) Interaksi	Mean Difference (I-J)	Std. Error	Sig.	95% Confidence Interval	
						Lower Bound	Upper Bound
Tukey HSD	A1B1	A1B2	23.83*	2.389	.000	17.15	30.52
		A2B1	14.50*	2.389	.000	7.81	21.19
		A2B2	17.00*	2.389	.000	10.31	23.69
	A1B2	A1B1	-23.83*	2.389	.000	-30.52	-17.15
		A2B1	-9.33*	2.389	.004	-16.02	-2.65
		A2B2	-6.83*	2.389	.024	-13.52	-.15
	A2B1	A1B1	-14.50*	2.389	.000	-21.19	-7.81
		A1B2	9.33*	2.389	.004	2.65	16.02
		A2B2	2.50	2.389	.725	-4.19	9.19
	A2B2	A1B1	-17.00*	2.389	.000	-23.69	-10.31
		A1B2	6.83*	2.389	.044	.15	13.52
		A2B1	-2.50	2.389	.725	-9.19	4.19
Scheffe	A1B1	A1B2	23.83*	2.389	.000	16.55	31.12
		A2B1	14.50*	2.389	.000	7.22	21.78
		A2B2	17.00*	2.389	.000	9.72	24.28
	A1B2	A1B1	-23.83*	2.389	.000	-31.12	-16.55
		A2B1	-9.33*	2.389	.009	-16.62	-2.05
		A2B2	-6.83	2.389	.071	-14.12	.45



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	A2B1	A1B1	-14.50*	2.389	.000	-21.78	-7.22
		A1B2	9.33*	2.389	.009	2.05	16.62
		A2B2	2.50	2.389	.779	-4.78	9.78
	A2B2	A1B1	-17.00*	2.389	.000	-24.28	-9.72
		A1B2	6.83	2.389	.071	-.45	14.12
		A2B1	-2.50	2.389	.779	-9.78	4.78

Based on observed means.

The error term is Mean Square(Error) = 17,117.

\*. The mean difference is significant at the 0,05 level.

Based on further tests using the Tukey Test above, it can be stated, namely:

### 1. The smash ability of highly motivated athletes sepak takraw is higher in command training methods than in exploratory training methods

Based on the results of tukey's advanced tests (A1B1 and A2B1), p values =  $0.000 < \alpha = 0.05$  and  $0.01$  were obtained. It means that  $H_0$  is rejected i.e.; There are differences in the smash ability of highly motivated sepak takraw athletes between commando and exploratory training methods. Judging from the average score of the highly motivated command exercise method group is 46, while the average score of the high-motivation exploration exercise method group is 31, or  $46 > 31$ . Thus it can be concluded that the smash ability of sepak takraw group command exercise method and exploration exercise method is different. For more details about the results of the analysis can be seen in the table below;

**Table 7. Summary of ANAVA Advanced Test Results with Tukey Test**

Comparable groups	p	( $\alpha=0,05$ )	( $\alpha=0,01$ )	Information
(A <sub>1</sub> B <sub>1</sub> , A <sub>2</sub> B <sub>1</sub> )	**0,000	0,05	0,01	Significant

### 2. The ability to smash sepak takraw athletes who have low motivation, has differences with command training methods and exploratory training methods

Based on the results of tukey's advanced tests (A1B2 and A2B2), p values =  $0.034 < \alpha = 0.05$  and  $0.001$  were obtained. It means that  $H_0$  is rejected i.e.; There is a difference in the smash ability of low-motivated sepak takraw athletes between commando and exploratory training methods. Judging from the average score of the command exercise method group that has low motivation is 22, while the average score of the group of low-motivation exploration exercise method group is 29. Thus it can be concluded that the smash ability of sepak takraw group command exercise method and exploration exercise method is different. For more details about the results of the analysis can be seen in the table below;

**Table 8. Summary of ANAVA Advanced Test Results with Tukey Test**

Comparable groups	P	( $\alpha = 0,05$ )	( $\alpha = 0,01$ )	Information
(A <sub>1</sub> B <sub>2</sub> , A <sub>2</sub> B <sub>2</sub> )	**0,024	0,05	0,01	Significant

## DISCUSSION

Based on the results of data analysis and hypothesis testing using two-lane 2 X 2 factorial anava statistical analysis, which is then continued with Tukey's test of the hypothesis proposed in this study, it turns out that of the five hypotheses submitted, all five hypotheses are accepted as empirically correct. The next step is to discuss the findings. For this reason, sequentially, several things will be discussed as follows.

1. The first hypothesis proposed in this study is; The sepak takraw smash ability on the command exercise method is higher than that of the exploratory exercise method. Based on the results of data analysis, it turns out that this first hypothesis is accepted, namely  $p = 0.034 < \alpha = 0.05$ . That is, there is a difference in the level of sepak takraw smash ability between the command exercise method and the exploratory exercise method.

The training method is a method and tip applied by a coach to provide training material in effective ways so that the material conveyed can be accepted or mastered well by athletes. If creative training methods are supported by a good level of athlete motivation, it will certainly have a positive effect on the athlete's training results in knowledge and practice. In order for the level of smash ability of athletes to increase the coach must choose a suitable metode to use. Many problems are encountered

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when coaches and athletes carry out the training process. These problems include that the training methods used have not varied and are not in accordance with the material being given so that the training goals are not achieved and athletes do not understand the concept of training given (Bahtra et al., 2020).

Based on the characteristics of the command training method and exploration shows that, the command training method has a better effect on the results of the sepak takraw smash ability. This is because, the command training method in practice begins with giving specific examples and then comes to its generalization. In addition, coaches can also monitor more carefully, because the movement tasks carried out by athletes are different from the rules that must be implemented. Based on these results, it is clear that command training methods have better influence on the results of smash ability than exploration teaching styles.

The difference in smash ability that athletes have is due to commando training is better compared to the exploratory exercise method. Because the kломандо approach in training is an approach that begins with presenting a number of materials that are exemplified and instructed so that it can make it easier for athletes to understand the training material that is given, especially to junior sepak takraw athletes. Unlike the exploratory training method where, this method is the most extreme opposite of the command method that depends entirely on the trainer". If in the command method the entire initiative of task execution and problem solving depends entirely on the trainer. However, in the overall method of exploration the initiative and its solution were invented by athlete itself. In this activity, the athletes train in their groups to solve problems, make conclusions to report to all players, this is the silhouette for junior athletes in improving smash skills.

2. The second hypothesis proposed is; High exercise motivation has a difference from low exercise motivation towards smash ability. Based on the results of data analysis, this second hypothesis is accepted, namely  $p = 0.000 > \alpha = 0.05$ . That is, there is a difference in smash ability improvement between high exercise motivation and low exercise motivation.

The motivation of high and low athletes has a difference in doing exercises. This is because the smash ability that athletes have at high motivation is higher than low motivation. The smash ability possessed by athletes is very significant differences related to the high and low motivation that athletes have in the game of sepak takraw, especially in mastering smash techniques. While the fundamental difference is seen in students who have high exercise motivation. Where, students who have high training motivation in terms of knowledge quality and movement skills can be encouraged to improve their smash skills. This, due to the exercise method used as well as the high motivational drive towards the exercises performed, is related to the achievement of smash ability. This ability has a significant difference for junior athletes in the sport of sepak takraw. Based on this, between high and low training motivation gives different results in terms of sepak takraw smash ability (Okilanda et al., 2020). There are differences in training motivation also supported by a training process, in simple terms it will have a difference in improving the results of the smash ability itself.

3. The third hypothesis proposed in this study is; There is an influence of the interaction between exercise methods and motivation on improving smash ability. Based on the results of data analysis, it turns out that this third hypothesis is empirically acceptable ( $p = 0.000 < \alpha = 0.05$ ). This is because these two variables (the ability of the sepak takraw smash treated by the exercise method as a free variable, and the motivation as an attribute variable) affect each other's ability to smash sepak takraw as a bound variable.

The practice process is very important for a person's change, so the exercise method can improve the smash ability. As previously known, the ability to smash will be influenced by several components for the achievement of effective and maximum goals. This will be related to the effectiveness of training methods to optimize training in complex exercises related to improving the smash ability possessed by athletes.

The given exercise method can be through the command and exploration exercise method. Through this training method, it is hoped that it can improve the athlete's smash ability. Because, the increase in the athlete's smash ability will greatly affect the quality of the athlete's own desu. The training method is expected to be in accordance with the training objectives where, the athlete has an increase in smash ability, so that the athlete is proficient in mastering smash.

After the athlete's improved smash ability, another factor that supports it is motivation. Motivation is considered as the set of a person's equipment that the individual will use to do something, whether in the form of knowledge or movement skills. Motivation is seen as a level of encouragement both from within and outside oneself in a number of series of activities. Motivation is considered as an integrated spirit of individual characteristics, as well as knowledge related to self-awareness or the quality of movement possessed, especially achievers in training to get good smash skills.

These characteristics are needed as a foundation in displaying complex life sequences. Knowledge of a person's or individual's motivations will help to estimate some of the obstacles that nati will face in the process of achieving smash ability. In

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addition, motivation can influence athletes to achieve maximum performance in some other movement activities, especially to get smash abilities. Based on the description above, it can be explained that, the training methods (A1), (A2) and motivation (B1), (B2) have an influence on the interaction on improving the results of the athlete's smash ability.

It is pointed out from the explanation that, there is an interaction between command training methods and exploration and motivation towards improving the athlete's smash ability. Therefore, at a high level of motivation the increase in smash ability given the command exercise method is greater than that of the group given the exploration exercise method. Meanwhile, at low motivational levels, the increase in the smash ability of athletes who were given the command training method was greater than the group who were given the exploration exercise method. This is due to the different training processes of the command and exploration methods. Low motivation group with command exercise method, easier to reason in drawing conclusions compared to exploration method (Indra & Marheni, 2020).

4. The four hypotheses proposed are; The smash sepak takraw ability of highly motivated athletes is higher in command training methods than in exploration training methods. Based on the results of data analysis it turned out that the fourth hypothesis was accepted ( $p = 0.000 < \alpha = 0.05$ ). This means that the ability to smash sepak takraw between command training methods and highly motivated exploratory exercise methods is statistically different.

The high motivation factor is also one of the factors that are thought to influence the improvement of smash ability. The motivation of athletes will have a huge influence on the performance and achievement of training results, especially on improving smash ability. The motivation in a person is different, depending on the needs and goals to be achieved. With high Motivation a person strives to achieve a high standard of achievement. The drive to avoid failure and high rewards contribute greatly to the acquisition of good training results. Based on the explanation above, the group of athletes who use the command training method with high motivation is better than the group of exploration training methods in athletes who have high motivation.

In contrast to the command training method, the high motivation condition in this exercise method is necessary because, in this method the athlete becomes a participant, and the coach makes the atmosphere or training situation to cultivate a pleasant exercise in a person, in order for them to be motivated to perform the exercise. Therefore, the preparation of the exercise material must be oriented to the basic principles or concepts of the idea of the method itself (Amirzan et al., 2019).

Likewise with the exploratory training method, athletes do not really master a specific material, athletes only get material in general. So that in improving the smash ability of athletes, they do not get a better quality of smash ability. So, if this command method, is carried out with a high condition of motivation then the athlete will be better and able to put himself in receiving and obtaining better training results as well, because in essence in this method the coach as a training center.

Based on the differences put forward that the increase in smash ability in the high motivation category using the command exercise method is greater than the high motivation using the exploration exercise method. This is because highly motivated athletes already have a drive, so by using the athlete's command method it is easier to do reasoning in drawing a conclusion in the form of facts or principles from the material that has been provided (Hadi, 2019), Especially on the athlete's smash ability.

5. The fifth hypothesis proposed is; The ability to smash sepak takraw athletes who have low motivation, have differences with command training methods and exploration training methods. Based on the results of tukey's advanced test,  $p$  values =  $0.024 > \alpha = 0.05$  and  $0.01$  were obtained. It means that  $H_0$  is rejected i.e.; There is a difference in the smash ability of low-motivated sepak takraw athletes between command and exploration training methods. Thus it can be concluded that the smash ability of sepak takraw group command exercise method and exploration exercise method is different.

The low category motivation condition that athletes have can certainly affect the results or goals to be achieved. In this method of exploration there is no need for high motivation because in training the athlete carries out activities simultaneously from each component of the smash ability. If the motivation that the athlete has does not affect the quality of training so that the results of the goals to be achieved can still be. Therefore, the command method results in the athlete's smash ability at low motivation is lower than using the exploration method at low motivation.

Based on the differences stated, it should be an increase in the ability of smashes with a low motivation category that uses the command method greater than the low motivation group that uses the exploration exercise method. This is due to the command method is a trainer-centered exercise method. However, empirical data prove that extrapolation exercises or exercises performed jointly can provide differences in results with command exercises at low motivation. Thus, athletes who have low motivation are more suitable for exploratory training methods than commando. Because, the command method is often called traditional training, where the coach starts with general theories and then escalates to the application of the theory (example) while performing commands to the athlete.

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Exercises with a commando approach emphasize on the coach transferring information to the athlete. Whereas Exploration is a constructiv learning theory-based investigation that occurs in problem solving situations in which the athlete refers to his own past experiences and existing knowledge to discover facts and relationships with new truths to be learned together (Kusnodo & S., 2012).

### IV. CONCLUSION

Based on the results of data analysis and discussion, the following will be stated the conclusions of the study as follows; The sepak takraw smash ability has differences in the training method, where the command exercise is higher than the exploration exercise method  $p = 0.018 < \alpha = 0.05$ . The ability to smash sepak takraw on high training motivation has no difference from low training motivation  $p = 0.211 > \alpha = 0.05$ . There is an influence of the interaction between training methods and motivation on the ability to smash sepak takraw  $p = 0.000 < \alpha = 0.05$ . The smash ability of highly motivated athletes sepak takraw is higher in the command training method than in the exploratory exercise method  $p = 0.000 < \alpha = 0.05$ . The smash sepak takraw ability of athletes who have low motivation, has differences with command training methods and exploration exercise methods  $p = 0.001 < \alpha = 0.05$ .

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