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THE EFFECT OF POWER, BALANCE AND COORDINATION ON DROPKICK CONVERSION KICKING SKILLS ON RUGBY 7'S WOMEN ATHLETES DKI JAKARTA

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Abstract The objective of this study is to investigate the impact of power, balance, and coordination on the precision of dropkick conversion among female rugby players from DKI Jakarta. The targeted sample for this research is constituted by all the members of UNJ rugby and Banteng rugby club. Evaluation of the accuracy of the dropkick includes the use of a rum kick drop kick examination, power assessment using the Vertical Jump. In addition, balance using the Bosuball Balance Single Leg test. coordination aspect, the researcher changed Sridadi's assessment instrument to a drop-in test. The analytical technique utilizes a path analysis approach and maintains a significance level of 0.05. The conclusion of each research finding shows (1) There is a direct influence between each independent variable: power (X_1), Balance (X_2), and Coordination (X_3), (2) There is a direct effect of each independent variable {Power (X_1), Balance (X_2), and Coordination (X_3)} have a direct effect on the dropkick conversion kick (Y), (3) There is an Indirect Effect of Power (X_1) through coordination (X_3) of the dropkick conversion kick (Y). There exists a mediating impact of equilibrium (X_2) via Coordination (X_3) on the conversion of a dropkick (Y).

Keywords: Power; Balance; Coordination; Drop Kick



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INTRODUCTION

Rugby is a group sport that uses media or tools, namely a ball, and the ball used in rugby itself also has a special shape and is different from balls in general (Barata, 2018). The main concept in the game of Rugby is simple, the ball as the main object is carried across the enemy's goal line and touches it to the ground to get a score (Try) (Sutanto, 2016).

The game of rugby is a sport that requires teamwork and individual skills which contain the necessary elements, namely strength, endurance, speed, balance, power and hand-eye coordination. And in rugby sport requires a strong mentality to face bigger players in order to bring them down and a strong soul to cultivate rugby values, namely integrity, passion, solidarity, discipline, and respect (Rugby Indonesia, 2021).

The game of rugby sports has several techniques, namely throwing the ball, dropping and kicking. Kicking is a complex biomechanical action that requires controlled and intricate coordination between lower body segments, both temporally and spatially (Green et al., 2016). How to kick the ball according to (Internasional Rugby Bord,

2013) a kick is made by hitting the ball with any part of the leg the leg or foot, except the heel, from the toe to the knee but not including the knee, a kick must move the ball a visible distance out of the hand, or along the ground.

There are three kick techniques, namely the krosskick kick, grabber and dropkick where the krosskick kick technique is used directly by kicking and soaring high and crossing, grabber, namely kicking the ball to the ground and rolling on the ground while the dropkick kick technique is kicked by bouncing the ball vertically to the ground.

The ground then kicks in the specified direction. However, the dropkick technique includes techniques that determine the success of the kick off, the success of additional points during conversions and scoring points during the game (drop goals). The dropkick conversion technique is also a way to attack and score points. So every athlete must master a good and correct kick technique in rugby.

The researchers took the precise movement of the dropkick conversion kick because the dropped ball was one of a series of difficult movements to kick the oval-shaped ball. Because by kicking

a dropkick ball requires balance when dropping the ball, coordination of the eyes and feet and power to kick an oval ball. Until the distance of the ball with the height and reach the maximum result so that the kicker needs better physical condition. Good and correct technique is needed because technique is one of the main components in performing movements.

The difficulty in performing a dropkick is not only in the physical components that must be in harmony but also in the movement technique which is quite difficult. When going to kick the ball, the athlete must start by holding the ball vertically, the fall of the oval ball will make the ball bounce in various places if the bounce is not appropriate, the steps of the feet are in rhythm with the reflection of the ball and the impact of the foot on the rugby ball must be appropriate so that the ball can bounce high and far.

The dropkick conversion kick is an attack that has a good presentation in scoring points in rugby, because when both teams score an even number of points, the one that determines the victory is the dropkick conversion, dropkick during the game (drop goals) and extra time. golden point is an attack

that is efficient enough to get points and win a match with the dropkick conversion technique.

Physical components are needed to support the dropkick conversion, because the physical is the foundation of achievement. One of the physical components that are thought to have a connection and contribution in performing this dropkick conversion kick, namely leg muscle strength (power), endurance, explosive power, flexibility, agility, balance, coordination and reaction are important components that must be possessed by a rugby athlete. Which is where these components have different forms of exercise and many choices in training them.

The balance in doing dropkick conversion kicks is needed to make someone able to kick the ball properly and correctly so that they can kick the ball until it reaches the target. Balance is one of the important factors for success in performing a drop kick. Balance control requires both upright posture and equilibrium to achieve functional ambulation and avoid falling (Day, Kautz, Wu, Suter, & Behrman, 2012). Meanwhile, according to Millard et al., (2009) balance control is a multifaceted

process that relies on estimating the body's state, generation of a desirable future state, the means to make the transition (through foot-placement, center of pressure manipulation, or some other mechanism) and the physical ability to execute the desired action.

Meanwhile, power is for adding strength and speed in performing dropkick conversion kicks so that you can kick hard to the target. According to (Rosmawati, Darni, & Syampurma, 2019) Power is the ability of muscles to overcome loads and resistance with very high rates of contraction.

Leg muscle power is the ability of a muscle or a group of leg muscles to work or fight against an object or resistance in the shortest possible time (Karyono, 2016). Leg muscle power is a combination of explosive strength and muscular power, which is able to perform activities suddenly and quickly by exerting all the strength in a short time (Susila, 2021).

Furthermore, coordination to determine the success of the kick and the accuracy of kicking to produce a series of good and correct kick movements. Coordination is the ability to perform movements with varying degrees of difficulty quickly and efficiently and

skillfully (Hermansyah, Imanudin, & Badruzaman, 2017).

Coordination is the ability to overcome the harmony of motion of body parts, the ability to develop with body control (Mappaompo & Silatulrahmi, 2015). Coordination is the ability to perform movements at various levels of difficulty quickly and precisely efficiently (Nurhidayah & Sukoco, 2015).

Coordination is the result of a combination of performance from the quality of muscles, bones and joints in producing an efficient and effective movement (Saputro, Manurizal, & Armade, 2021). Coordination is the ability to perform movements or work appropriately and efficiently (Reggie Reginald, Fahmy Fachrezzy, & Iwan Hermawan, 2021). Without having good movement coordination skills, individuals will find it difficult to learn basic technical skills (Arifin, Marani, & Jauhari, 2022).

In rugby matches held from 2015 to 2019 researchers saw many opportunities or opportunities to get points from the results of dropkick conversions for women's rugby players, but the opportunity to create numbers could not be utilized as well as possible

by players, this is because the player cannot do a dropkick conversion kick properly and correctly.

Many of the athletes are still not skilled and maximize the opportunity to get a chance to do a dropkick conversion kick. In addition to the championship, the experience of researchers playing in the women's DKI Jakarta rugby found that there were many players who had not mastered good and correct converse drop kick skills. Thus, there is a need for a process of forming and developing the ability to perform drop kicks in the training process.

Paying attention to the existing problems, the researcher wants to research about power (leg muscle strength), balance and coordination (eyes, hands and feet) to create a series of dropkick movements properly and correctly. Because in dropkick kicks, many athletes are still not skilled in doing dropkick conversion kicks, and there are still many who do dropkick converse kicks that are not correct and too weak.

There are still many rugby athletes who have not been able to master and maximize the series of dropkick conversion kick movements, especially female rugby athletes in the

student and student categories. This is one of the problems that exist related to physical components. Plus, doing a dropkick conversion kick in this 7's rugby sport requires a good and correct series of movements.

Dropkick conversion is one way to get a chance to score points. The dropkick conversion kick in rugby is a basic skill that must exist in this sport, because it serves to maximize a good and correct series of movements so as to get maximum results. The more perfect the series of movements and power carried out by a player, the easier it will be for a player to determine the direction of the kick to the opponent's goal in making numbers and the success of the drop kick.

The statement described above can be seen that kicking is a physical activity that requires strength in the leg muscles, balance and eye-hand coordination. The power generated from the leg muscles can make a person kick far according to the quality of the muscles they have. The balance that results from the footstool when kicking and the coordination of the ankles produces a good and correct and accurate series of movements to get the perfect and maximum range of movements.

Leg muscle strength, balance and hand and foot eye coordination are very useful in carrying out a series of dropkick kicks at the time of kick off and towards the goal to get points (conversion). The method or technique of the dropkick kick in rugby is very effective for creating numbers compared to other ways or techniques of creating numbers in rugby.

Therefore, from the statement described above, the researcher was compelled to conduct a study "The Effect of Power, Balance and Coordination on Dropkick Conversion Kick Skills in DKI Jakarta Women Rugby Athletes".

METHOD

This study aims to determine whether or not there is an influence between power, balance and coordination on the accuracy of dropkick conversion kicks in female DKI Jakarta rugby athletes. The method used in this study uses a quantitative approach, a survey method with test and measurement techniques. While the analysis technique uses a path analysis approach.

In this study, the population taken were all active members of UNJ rugby or all rugby athletes in Jakarta,

namely the UNJ rugby club and the Banteng rugby club. Sampling was done by using total sampling technique. So that the sample is a member of the DKI Jakarta rugby specifically the female gender. The measurement of the accuracy of the drop kick uses a rum kick drop test with a score result. Variable power using Vertical Jump test. Balance variable using Bosuball Balance Single Leg Test. In the coordination component, the researcher modified the Sridadi test instrument into a drop up in test.

RESULT AND DISCUSSION

Result

This research has been carried out in DKI Jakarta Province, there is a total sample of 30 women's Rugby athletes through tests and measurements that have been carried out in the field and laboratory of FIK UNJ by testing each variable X_1 (Power), X_2 (Balance), X_3 (coordination) and Y (Dropkick Conversion Kick Skill).

Dropkick Conversion (Y)

The results of descriptive statistics for the dropkick conversion kick variable get an average value of 6.5 and a standard deviation of the dropkick conversion kick of 3.4 while the variance is 11.8 and the lowest value of the

dropkick conversion kick is 1, while the highest value of dropkick conversion is 15.

Table 1.
Dropkick data distribution conversion

Interval Class	Freq. Absolute	Freq. Relatively
1 – 3.2	7	23%
3.3 – 5.5	7	23%
5.6 – 7.8	4	13%
7.9 – 10.1	10	33%
10.2 – 12.4	2	7%
12.5 – 14.7	0	0%
Total	30	100%

Power (X₁)

The results of descriptive statistics for the power variable get an average value of 41, the standard deviation of power is 7.9 while the variance is 62.6 and the lowest value of power is 30, while the highest value of power is 55.

Table 2.
Power data distribution conversion

Interval Class	Freq. Absolute	Freq. Relatively
30 – 34.1	5	17%
34.2 – 38.3	9	30%
38.4 – 42.5	7	23%
42.6 – 46.7	2	7%
46.8 – 50.9	0	0%
51 – 55.1	7	23%
Total	30	100%

Balance (X₂)

The results of descriptive statistics for the balance variable get an average

value of 22.9, and a standard deviation of the balance of 8.5, while the variance of 72.7, the lowest value of balance is 10, while the highest value of balance is 34. interval table of the balance results for rugby athletes.

Table 3.
Balance data distribution conversion

Interval Class	Freq. Absolute	Freq. Relatively
10 – 13.9	5	17%
14 – 17.9	6	20%
18 – 21.9	3	10%
22 – 25.9	2	7%
26 – 29.9	3	10%
30 – 33.9	11	37%
Total	30	100%

Coordination (X₃)

The results of descriptive statistics for the coordination variable get an average value of 29.2, and the standard deviation of coordination is 4.84, the variance is 23.5, the lowest value of balance is 19, the highest value of coordination is 38.

Table 4.
Coordination data distribution conversion

Interval Class	Freq. Absolute	Freq. Relatively
19 – 21.1	3	10%
22.2 – 25.3	6	20%
25.4 – 28.5	2	7%
28.6 – 31.7	5	17%
31.8 – 34.9	13	43%
35 – 38.1	1	3%
Total	30	100%

The results of the decisions on all proposed hypotheses can be explained as follows:

Sub Structure I

Table 5.

Model Summary Struktural Model I

Model Summary			
Model	R	Adjusted R	
	Square	Square	
1	.335 ^a	.713	.747
2	.335 ^b	.712	.681

A. Predictors: (Constant), Keseimbangan, Power

B. Predictors: (Constant), Keseimbangan

Based on the number of R squares showing the effect of power and coordination of 0.713×100 , the percentage of the total influence of substructural II is 71.3%. So the error model 2, $= 1 - R^2 = 1 - 0.713 = 0.287$. R square shows the effect of balance and coordination of 0.712×100 , so the percentage of total influence is 71.2%. then the rest (28.8%) were influenced by other factors. So the error model 2, $= 1 - R^2 = 1 - 0.712 = 0.288$.

The results of data processing, the path coefficient will be shown by the standardized coefficients (Beta) column. Path coefficient (X₁) against (X₃) or (p₁₃) $= 0.662$ and $p\text{-value} = 0.000/2 = 0.000 < 0.005$, or H₀ is rejected, which means that there is an influence of power (X₁) on Coordination (X₃). The next test,

namely (X₂) to (X₃) or (p₂₃) $= 0,635$ and $p\text{-value} = 0.000/2 = 0.000$ or H₀ is rejected. Thus the balance variable (X₂) has a positive direct effect on the coordination variable (X₃). From the results of testing the structural model 2 is significant.

Sub Structure II

Table 6.

Model Summary Struktural Model II

Model Summary				
Model	R	Adjusted R	Std. Error of the Estimate	
	Square	Square		
1	.730 ^a	.881	.898	3.18349
2	.713 ^b	.763	.708	3.16208
3	.767 ^c	.818	.890	3.19819

A. Predictors: (Constant), Koordinasi, Power, Keseimbangan

B. Predictors: (Constant), Koordinasi, Keseimbangan

C. Predictors: (Constant), Keseimbangan

Based on the R square number, it shows that the effect of power on the dropkick conversion is 0.881×100 , so the percentage of the total effect of substructural II is 88.1%. So the model error 2, $= 1 - R^2 = 1 - 0.881 = 0.119$. R square shows the effect of balance on the dropkick conversion of 0.763×100 , so the percentage of the total effect is 76.3%. So the model error 2, $= 1 - R^2 = 1$

$- 0.763 = 0.237$. R square shows the effect of coordination on the dropkick conversion of 0.818×100 , so the percentage of the total effect is 81.8%. So the model error $2, = 1 - R^2 = 1 - 0.818 = 0.182$.

Based on the results of the structure test, the path coefficient is obtained which is indicated by the standardized coefficients column. Data coefficients consecutively:

- 1) $Py_1 = 0.776$; $t_0 = 0.799$, p-value = $0.000/2 = 0.000 > 0,05$, H_0 is rejected, which means that power has a direct positive effect on the dropkick conversion skill.
- 2) $Py_2 = 0.676$; $t_0 = 1.207$, p-value = $0.000/2 = 0.000 > 0.05$, H_0 is rejected, then the balance has a direct positive effect on the dropkick conversion kick skill.
- 3) $Py_3 = 0.627$; $t_0 = 1.287$, p-value = $0.000/2 = 0.000 > 0.05$, H_0 is rejected, then coordination has a direct positive effect on the dropkick conversion kick skill.

Discussion

The results in the discussion will be presented regarding the results of data panellation that has been carried out with each variable as well as support from several theories and previous research.

Based on the test results of all the hypotheses that have been carried out in this hypothesis testing section, it can be stated that:

1. There is a direct effect of power (X_1) on coordination (X_3)

The series of movements in coordination require good power to produce dropkick conversion kicks. From the results of the analysis of research data, it was found that the significance value of power on coordination was equal to, then power had a significant direct effect on coordination with a direct effect of 0.713 or 71.3% and 28.7% of other variables. and has a coefficient value of 0.662, which means that power has a positive effect on coordination. Thus to increase power and coordination must be improved. Because rugby athletes have coordination, it really determines the power in the leg muscles, especially when doing dropkick conversion kicks.

2. There is a direct effect of balance (X_2) on coordination (X_3)

Performing movements with balance requires a series of coordinated movements to produce the right dropkick conversion kick and is a very absolute unity for a kicker in rugby, but not all players cannot perform a series of kick

movements without practice. From the results of the analysis of research data, it was found that balance has a significant direct effect on coordination with a direct effect of 0.712 or 71.2% with 28.8% of other variables, and has a coefficient value of 0.635% which means that balance has a positive influence on coordination.

3. There is a direct effect of power (X₁) on the Dropkick conversion kick skill (Y)

In this movement to do a kick requires good power to produce a dropkick conversion kick. From the results of the research data analysis, it was found that power had a significant direct effect on the dropkick conversion kick with a direct effect of 0.881 or 88.1% and 0.119 from other variables, and has a coefficient value of 0.776 which means that power has a positive effect on the dropkick conversion kick. Thus, to increase the power and kick the dropkick conversion must be increased. Because rugby athletes really determine the power in the legs, especially when doing dropkick conversion kicks.

4. There is a direct effect of balance (X₂) on dropkick conversion skills (Y)

Movement with balance to produce the right dropkick conversion

kick and is an absolute must for a kicker in rugby, but not all players cannot perform a series of kick movements without practice. From the results of the analysis of research data, it was found that balance has a significant direct effect on the dropkick conversion kick with a direct effect of 0.763 or 76.3% and 23.7% of other variables. And has a coefficient value of 0.676, which means that balance has a positive effect on the dropkick conversion kick.

5. There is a direct effect of coordination (X₃) on dropkick conversion skills (Y)

If you want to get a dropkick conversion kick in rugby, a player must have good coordination. When performing a series of dropkick conversion kicks, coordination is very necessary to achieve success until achieving an accurate dropkick conversion kick skill.

From the results of research analysis data, it was found that the significance value of coordination had a significant direct effect on coordination with an influence of 0.818 or 81.8% and 18.2% of other variables, and has a coefficient value of 0.627 which means that coordination has a positive effect on the dropkick conversion kick.

6. There is an indirect effect of power (X₁) through coordination (X₂) on dropkick conversion skills (Y)

Leg muscle power in rugby is one of the physical component factors that are very much needed and even really determines the ability and victory in the match. In addition, with basic technical skills in performing dropkick conversion kick skills which require a good series of coordinated movements. From the results of the research data analysis, the results of the Sobel Test Calculator for the Significance of Mediation online, obtained the Sobel Test Statistic value, the Z value of 2.3215.

7. There is an indirect effect of balance (X₂) through coordination (X₃) on dropkick conversion skills (Y)

Physical factors that determine the sport is a factor that plays an important role in supporting other factors. Balance during the movement of the dropkick conversion kick skill is important to determine the starting position of the kick and is combined with good movement coordination.

From the results of the research data analysis, the results of the online Sobel Test Calculator for the Significance of Mediation, obtained the Sobel Test Statistic value, the Z value of 2.2734.

CONCLUSION

1. There is a direct effect of power (X₁) on coordination (X₃).
2. There is a direct effect of balance (X₂) on coordination (X₃).
3. There is a direct effect of power (X₁) on the dropkick conversion kick skill (Y).
4. There is a direct effect of balance (X₂) on dropkick conversion skills (Y).
5. There is a direct effect of power (X₁) on the dropkick conversion skill (Y).
6. There is an indirect effect of power (X₁) through coordination (X₃) on dropkick conversion skills (Y).
7. There is an indirect effect of balance (X₂) through coordination (X₃) on dropkick conversion skills (Y).

In addition, the results of this study can be used as a basic reference in efforts to develop research in other places that have problems or conditions similar to the research model. Based on the results of this study, it can be seen that several factors of dropkick conversion kick skills are determined by several factors including power, balance and coordination which are physical components that need to be developed and activated optimally to achieve good results and targets from athletes. With good physical component strength,

balance and coordination, the conversion of drop kick skills can be improved with practice.

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