The Relationship Between Limb Muscle Power and Balance With “Yeop Chagi” Kick Technique on Taekwondo on The Members of Gunung Karang Taekwondo Club (GKTC) 1995, Pandeglang Regency

Dedi Aryadi*, Ridwan Sudirman, Mukhtar Ridwan, Taufik Hidayat Suharto, Ayi Rahmat, and Wandi Suwandi Assayid
STKIP Setiabudhi Rangkasbitung, Indonesia

*dediaryadipendor@gmail.com

Abstract. Limb muscle power and balance are one of the important elements of yeop chagi kick technique. This research aims to determine the relationship between limb muscle power and balance of the yeop chagi kick technique on taekwondo athlete at Pandeglang Regency. This is done for the trainers, so they can apply a more concentrated physical exercise on the supporting factor of yeop chagi kick technique. This research used survey method with test and measurement technique. The subject was taekwondo athletes of Pandeglang Regency. The total samples taken were 20 people, the research used both vertical jump and strock stand instruments. Based on the research result, we obtained the correlation data between limb muscle power by yeop chagi kick technique of 0.680 including in the strong category. The correlation of balance by yeop chagi kick technique of 0.738 that including in the strong category. The correlation between limb muscle power and yeop chagi kick technique of 0.760 including in the strong category. The conclusion of the research is there is a relationship between limb muscle power and yeop chagi kick technique on the member of Gunung Karang Taekwondo Club (GKTC) 1995, Pandeglang Regency.

1. Introduction
Indonesia is a developing country. The development of Indonesia is marked by being active to carry out the development evenly in each region. One of the objects of development is in the Sport. The development in sport is the most important aspect. It is realized that through the Sport, it can improve the human body fitness. One of sports that can be done is one of the branches of martial art, Taekwondo, where taekwondo is one of outstanding sport of Indonesia in the martial art. This sport is not only about both ability and skill, but also about physical aspects, mental, and spiritual. Practicing and learning taekwondo are supposed to show a good body condition, strong mentality, and high spirit. This is shown in the good attitude and action and is based on a noble spirit.

Taekwondo makes a good physical condition. It is due to the high intention of movement in carrying out every single movement technique. The components of physical condition are limb muscle power, flexibility, endurance, balance, speed, coordination, and agility. Limb muscle power is one of the most important physical components in the advancement of movement techniques. This element contains two physical components, strength and power which work simultaneously. “Muscle must
apply strong. As the same as the explanation before, limb muscle power is necessary for the realization of an achievement and advancement in the kick technique. Limb muscle power is not only required in the taekwondo sport, but also every branch of sport which are asiklis which make an explosive movement in the shortest time, like kicking. It is the main movement in taekwondo by means that without limb muscle power and the balance, the movement cannot be done perfectly.

Taekwondo is a martial art that uses hands and feet. It is also better known by its various kicking movements. Every kicking in taekwondo, have their own meaning. Kicking techniques in the taekwondo are ap chagi (kick forward), dwi chagi (back kick), nare chagi (drifting kick), dolyo chagi (circular kick), yeop chagi (kick forward the side), etc., there’re, every taekwondo trainers (sunbae nim/coach nim) have to explain it to their students briefly during the practice. Taekwondo as a branch of martial art has characterization as full body contact. It teaches punches and kicks in an effort to overcome the attacks of others by supporting factors such as power, muscle explosive power and balance.

Power is the result of strength and speed. Individuals who have power are those who have a high degree of muscle strength, high degree of speed, and a high degree of skill in combining speed and strength.[1] Defines power or often called explosive power is a very important motion ability to support activity in every sport. The ability of this power / explosive power will determine the results of good motion. And the formula that states the magnitude of explosive muscle or power (power) is:

\[
\text{Power} = \text{Force (strength)} \times \text{Velocity (speed)}.
\]

Suggests that Power (energy) is the ability to remove power / maximum power in the fastest time. Someone who has great energy. 1) Has great Muscular Strength. 2) Has the ability to combine strength and speed. 3) Has a high speed.[3]

The formulas used in power are power or explosive muscle energy = work or time = power x mileage. Strength is the ability of a person’s physical component to use the muscle to accept the load while working, whereas. Said that power is the strength of the amount of work that is commonly done during a certain time and speed is very needed to make someone’s body reaches the maximum amount of motion, and the result of time units.[4] The balance is the ability to control the gestures, and defines the balance as the level of ability possessed by a person to keep his nerve system in a state of static, so that, he can respond and control his body in performing certain movements.[5] The balance is the body's ability to control the movements that humans have in varying degrees, it can be increased through exercises that match with their goals.[6]

2. Method
The method is basically a way of doing things. “Method is a procedure or a way that serves as a tool to achieve research goals.”[7] The research method used in this research was descriptive method with correlation technique. Descriptive research is a research method used to find the knowledge of the extent to the object of research at the certain times.[8]

Correlation technique is a guess about the relationship between variables in the population which will be tested through the relationship in the variables in the sample that has been taken from those population. The correlation technique used is the correlation product moment. This technique used to look for the relationship and proving the related hypothesis between two variables if those two variables in the form of interval or ratio, and the resource of the data from two variables or more is the same.[9]
Information:
X 1: Limb muscle power
X 2: Balance
Y: Technique kick yeop chagi

3. Result of Study
3.1 The data of the test result of limb power and balance with yeop chagi kick technique
Here is described the general description of limb power test results, running speed, and yeop chagi kicks.

| No | Name  | Test result | Limb power (cm) | Balance (seconds) | yeop chagi kick (point) |
|----|-------|-------------|-----------------|------------------|------------------------|
| 1  | AH    |             | 63              | 85               | 83                     |
| 2  | AR    |             | 60              | 73               | 74                     |
| 3  | AM    |             | 58              | 66               | 64                     |
| 4  | AMY   |             | 58              | 67               | 64                     |

Table 2. (continued)

| No | Name  | Test result | Limb power (cm) | Balance (seconds) | yeop chagi kick (point) |
|----|-------|-------------|-----------------|------------------|------------------------|
| 5  | AB    |             | 59              | 67               | 64                     |
| 6  | ARN   |             | 59              | 70               | 71                     |
| 7  | DP    |             | 57              | 65               | 71                     |
| 8  | DLY   |             | 55              | 54               | 67                     |
| 9  | FZNM  |             | 56              | 61               | 71                     |
| 10 | GDP   |             | 59              | 72               | 71                     |
| 11 | MY    |             | 60              | 73               | 66                     |
| 12 | MRP   |             | 55              | 58               | 69                     |
| 13 | NYL   |             | 56              | 63               | 66                     |
| 14 | RR    |             | 63              | 84               | 77                     |
| 15 | Rd. AZ|             | 65              | 85               | 79                     |
| 16 | RA    |             | 62              | 82               | 81                     |
| 17 | RZK   |             | 56              | 64               | 74                     |
| 18 | TFA   |             | 61              | 77               | 72                     |
| 19 | VSR   |             | 61              | 75               | 77                     |
| 20 | YN    |             | 62              | 81               | 75                     |
Table 3. The result of balancing correlation with yeop chagi kick

| Balance | Yeop Chagi kick | Correlation | Pearson | Sig. (2-tailed) | N |
|---------|----------------|-------------|---------|-----------------|---|
| Yeop Chagi kick | Balance | Pearson | .738** | .000 | 20 |

**. Correlation is significant at the 0.01 level (2-tailed).

Based on the data above, the value of correlation test between the balance with kick yeop chagi 0.738. It shows a positive correlation of 0.738 between the balance with yeop chagi kick. These relationships include strong categories (0.738).

Table 4. The correlation results of leg power with balance

| power tungkai | keseimbangan | Correlation | Pearson | Sig. (2-tailed) | N |
|---------------|--------------|-------------|---------|-----------------|---|
| keseimbangan | power tungkai | Pearson | .976** | .000 | 20 |

**. Correlation is significant at the 0.01 level (2-tailed).

Based on the data above, the correlation test value between power limbs with balance 0.976. It shows a positive correlation of 0.976 between leg power and balance. The relationship includes a very strong category (0.976).

4. Discussion

Based on the results of data analysis, it shows that there is a significant relationship between Limb Power, Balance, with yeop chagi kick technique. The existence of the relationship is indicated by the price of coefficient correlation product moment $r = 0.760$. According to Sugiyono’s opinion (2003: 183), the magnitude of correlation coefficient is included in the strong category. It means that the power of the limbs, the balance, with yeop chagi kick have a very strong relationship. Therefore, someone who has limb power and good balance can be predicted that those one will be able to perform yeop chagi kick very well. The higher the limb power and body balance, the higher the results achieved by the person in doing of yeop chagi kick technique.

The analysis results also show a significant contribution between limb muscle power and balance with yeop chagi kick. The amount of the contribution is shown by the price of $R^2 = 0.760$ so it can be said that the limb power, balance, hand and feet have contribution (contribution) equal to 76% in mastery of yeop chagi kick technique. The amount of the relationship between limb power and balance with yeop chagi kick is 0.760 and including the strong category.[10] By the higher correlation, it will
affect the amount of donations that exist. Furthermore, the author also put into two physical elements of power and balance so as to allow there is a relationship of some physical elements, thus causing the correlation coefficient obtained optimally.

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