ENHANCEMENT 102 MOVEMENT SKILLS THROUGH ACCOMPANIMENT LIMB MUSCLES POWER EXERCISE OF PPLP SOUTH SUMATERA DIVING ATHLETE

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ABSTRACT

This research aims to increase 102 movement skills of PPLP South Sumatera diving athlete through accompaniment limb muscles power exercise. This research is an action research and the subject is 4 PPLP South Sumatera diving athletes. The research done by 2 cycles, first is accompaniment limb muscles power exercise by up and down stairs with one foot switches, while the second cycles is exercise up and down stairs with two foot. The data collection technique is observation guidance and limb muscles power test with descriptive qualitative data analysis technique. The result shows that the first cycles contained 9.2% the enhancement of limb muscles power and 26.7% the enhancement of athlete 102 movement skills. On the other hand, the second cycles contained 13.6% the enhancement of limb muscles power and 61% the enhancement of athlete 102 movement skills. In the conclusion, accompaniment limb muscles power exercise is effective to increase PPLP South Sumatera athlete 102 movement skill. Suggested as an alternative by coach to increase diving athlete 102 movement skills through act the limb muscles power exercise.

Keywords: 102 Movement Skill, PPLP South Sumatera diving athlete, Accompaniment Limb Muscles Power

1. INTRODUCTION

Diving is a sport featured South Sumatra that included sports that are members of the PPLP South Sumatra. Diving is a sport that resembles aquatic acrobatics in the air above the water surface, usually done from the platform and springboard. Basically, diving consists of stepping starting from step take off or take off then bounce into the water. The use of the diving board is a wonderful combination of movement while in the air after take off and before going into the water.

Diving movements include a movements that done from platform and springboard. Then perform acrobatics in the air force before entering the water. Stepping into the water is classified into 2, there are a stepping with hand first going into the water and stepping with leg first going into the water. Sport diving in Indonesia is less popular than sports pool. This is because diving has a dangerous risk when the accident occurred.

In the early stages of exercise PPLP South Sumatera diving athlete, they are difficult do 102 motion, 102 movements is the basic movements in diving with a somersault forward with straight legs first entered the water surface. According to M. Yasin (1990) to be able to master the movement of 102 athletes must have the ability to do a somersault which is supported by a leg muscle power in doing repulsion foot pedestal at the top of the diving board. Below is the 102 movement along the main muscle involved:

Figure 1: Movement 102 Diving along the main muscles involved.

Leg muscle power is one of movement component to bring the ability jump 102. According to Fox (2009) limb muscle power is a combination of strength and speed, the ability to apply force in a short time. While Pate (1990) defines power as the ability of an athlete to overcome a detainee with a high pace of contraction to achieve peak performance.

Pinnacle achievement in sport can only be achieved through the development of a systematic, planned, organized and continue. Therefore the peak achievement needs to be translated into an overall in a development pattern cascade, so that national development pattern taken and national development pattern referring to the pyramid system which includes to promote, nurseries, and coaching achievements in order to achieve peak performance.

According Bompa (2009) to achieve the peak performance go through stages exercise that are conditioning exercise, technique exercise, tactics/strategies exercise and psychological training. Exercise of conditioning or also called physical exercise is the main exercise stage and the first in preparing the athlete appearances in a game. Physical exercise is a systematic process of preparing athletes at the highest level performances done repeatedly with higher load / increase (Fox, 2009). Soekarman (2000) states physical exercise in the sociological sense is an improvement system and organ function in its duty to realize an athlete's performance. Pate (1990) argues physical exercise can improve the efficiency of several organs and functions involved in the implementation of the exercise. Then Bompa opinion (2009) to obtain the achievement optiomally needed a physical exercise continuous and programmed. Physical exercise is an exercise activities systematically, in the long term be increased gradually and individually devoted to psychological functions and the formation of human physiological to meet the demands of the game (Pate, 1990). Physical exercise in principle is to provide the physical stress on the body on a regular basis, systematic, continuous so that it may cause their ability to do work (Soekarman, 2000).

Diving Physical Components

To achieve high achievement in sports coach must understand physical components supporting techniques so the movements are performed effectively and efficiently. According to Fox (2009) fundamental precept in the training of the sport is to know the major energy system and determine the dominant physical components, by knowing the energy system and the dominant physical components can make up the shape and exercise program appropriate to the characteristics of the sport in question.

M Yasin opinion (1990) to be able to control the diving movements an athlete first perform a physical component that sustains the movement include strength, speed, flexibility and leg muscle power. Beside that M Yasin (1990) also argues for controlling the movement of the diving athlete must have strength and speed component in doing repercussion on the diving board, especially on the strength and speed of leg muscle. Then opinion of Bompa (2009) forms of exercises to develop explosive power leg muscles is plyometrics.

Opinions Chu (1992) form of plyometrics training is a form of exercise that aims to develop speed and strength simultaneously with special character that is strong muscle contractions that are a response to dynamic loading or strain that is faster than the muscles are involved. Opinions Chu (1992) goes on to say that plyometrics exercises are exercises that allow the muscles to reach maximum speed and strength in the shortest time as possible. Opinions Fox (2009) plyometrics exercises based on the understanding shortening of muscle contraction strongly followed immediately extends the same muscle contraction. Then Bompa (2009) also found plyometrics exercise is concept exercise strain that occurs in the muscles before the muscles to contract back or an exercise that allows the muscles to reach maximum force in the shortest time as possible.

One form of plyometrics exercises that can increase the explosive power of the leg muscles by Radcliffe (1995) exercises up and down stairs is a jumping exercise by lifting your knees up the stairs. This exercise is done in a circuit stepping explosive fast.

Up Down Stairs Exercise

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In this study a form of exercise up and down the stairs by using two legs is a form of exercise that right in diving due to both feet rested on a diving board is indispensable explosive power leg muscles. While the flexor muscles are developed hips and thighs,

gastrocnemius, gluteals, quadriceps and hamstring. Below is a form of exercise up and down the stairs along with the involved muscles:

Framework for Thinking and Hypotheses Filing

Based on observations and conversations along with coaches and diving athletes PPLP South Sumatra, athletes struggle to acquire 102 movements. Movement 102 is the basic movements in diving where athletes put forward somersault with his feet touching the surface of the water first. So that the athlete be able to master 102 movement it is necessary to limb muscle power in performing pedestal on the diving board as a component of motion footstool solid. One form of exercise that can increase muscle power of the legs is training up and down stairs.

Based on the theory study above, the researchers propose the hypothesis of action is to provide guidance leg muscle exercises up and down stairs are expected to improve movement 102 diving athletes PPLP South Sumatra as shown below:

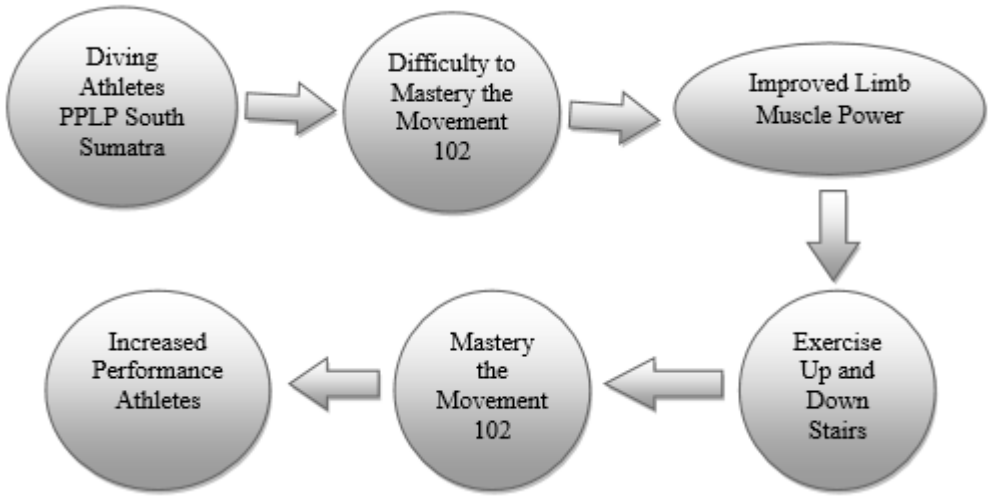

Figure 2 : Mindset Research

2. RESEARCH METHODS

Type of research is action research. Action research is a process of recycling began the planning, action and reflection which may be followed by re-planning. This action research aims to develop new skills or a new approach to solving the problem by direct application, fix the rationale and appropriateness of practices, an understanding of the practice, and the situation or the institution where the practice is carried out. According Arikunto (2006) action research conducted with the aim to improve the process of learning or training process through action performed aims to improve learning outcomes or results of the exercise.

This research was conducted in an aquatic diving Jakabaring Palembang with research time 6 months with a frequency training assistance 3 times a week. The subject are diving athlete of PPLP Sumatera Selatan amounted to 4 people with a form of action limb muscle power drills up and down steps to improve movement 102. The procedure of this action researches is use 4 stages, namely planning, action, observation and evaluation. Reflections on cycle are repeated in the next cycles. The series of steps of each cycle can be seen in the following chart :

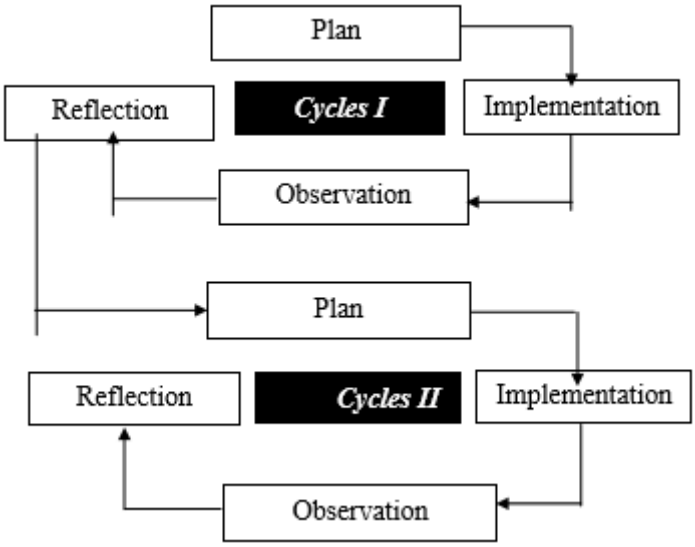

Figure 3: Chart Spiral Model Adaptation of Kemmis and Taggart (Arikunto, 2006)

Data collection techniques in this study are observation and tests, observations to provide an assessment the ability of the athlete from controlling the movement 102 and mentoring coach while the test is used to obtain data on the results of limb muscle power. The data were analyzed by quantitative descriptive analysis in the form of the average percentage, the research is successful if the athlete has managed to control the movement 102 and the trainer can arrange training programs and can increase leg muscle power with good category. Here is the draft of research that conducted:

1. The initial state ⇒
   a. Athletes did not master the movement 102
   b. Power leg muscles of athletes still weak.
2. Plan / Implementation ⇒ Cycles 1
   a. Stretching (30 minutes)
   b. Main Activity (90 minutes)
      1. Coach explains training materials
      2. Athletes exercise leg muscle power up and down stairs
   c. Cooling activity (30 minutes)

⇩

3. Reflection ⇒ Evaluation of the action 1

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4. Cycles 2 ⇒ Based on the evaluation prepared action cycle 2
   a. Stretching (30 minutes)
   b. Main Activity (90 minutes)
   1. Coach explains training materials
   2. Athletes exercise leg muscle power up and down stairs 1 2.

c. Cooling activity (30 minutes)

5. Reflection ⟹ Evaluation of the action 2

Improving the ability of movement 102 and limb muscle power

3. RESULTS

Action assistance is given in cycle 1 in the form of exercise up and down the stairs with the results obtained in this study as follows :

a) Preparing coaches for action

This step aims to prepare trainers mentally to take action so that coach together researchers companion had the same view so that a uniform application in the field with the following results:

1) System energy an aerobic diving dominant.
2) The main muscles are involved in the movement 102
3) The form of exercise up and down stairs and the main muscles are involved
4) Preparation of training program to the National Championship in September in Surabaya.

b) Preparation of facilities and means of support

Together, the coach set up facilities and other purposes such as stairs for exercise, observation sheet, test tools, and training program. Based on observations of researchers towards the training process of diving athletes PPLP South Sumatra, with the following results :

1) Stages training programs already reached the stage at a special preparation, focus exercises mastery of movement 102.
2) Physical Data athletes based dominant component in diving is not optimal
3) Data engineering capabilities of individual athletes has not been written
4) Athletes have trouble doing the exercise mastery movement 102.
5) Athletes PPLP 4 people aged around 10-14 years is beginner athletes in the program mastery of movement 102. .

Based on the observation above, the study focused on the mastery of movement accompaniment 102 through mentoring exercise leg muscle power up and down stairs for diving athletes PPLP South Sumatra.

c) Implementation of an act

Cycle I conducted with the following activities :

1) Perform initial test limb muscles power with the following data:

No	Name	Jump 1	Jump 2	Jump 3	Des
1	Vivi Mariska	43	42	41	43
2	M Ridho Akbar	40	38	40	40
3	M Veril Vian H	45	43	40	45
4	Ihsan Bahari	54	54	52	54

2) Implement actions based on the data with a maximum capacity of athletes structured exercise program up and down stairs cycle I as follows:

NO	Name	Weeks to	Intensity	Repetition	Set	Rest	Desc.
1	Vivi Mariska	1 and 2	50 %	4	4	60 Sec	Action 1 – 5
2	M.Ridho Akbar		50 %	3	4	60 Sec	
3	M.Veril Vian Hardianto		50 %	4	4	60 Sec	
4	Ihsan Bahari		50 %	4	4	60 Sec	

NO	Name	Weeks to	Intensity	Repetition	Set	Rest	Desc.
1	Vivi Mariska	3 and 4	60 %	5	4	60 Sec	Action 6 – 10
2	M.Ridho Akbar		60 %	4	4	60 Sec	
3	M.Veril Vian Hardianto		60 %	5	4	60 Sec	
4	Ihsan Bahari		60 %	5	4	60 Sec	

Based on data maximum capability athlete's training program arranged up and down steps following the second cycle:

NO	Name	Weeks to	Intensity	Repetition	Set	Rest	Desc.
1	Vivi Mariska	5 and 6	60 %	4	5	60 Sec	Action 11 – 16
2	M.Ridho Akbar		60 %	3	5	60 Sec	
3	M.Veril Vian Hardianto		60 %	4	5	60 Sec	
4	Ihsan Bahari		60 %	4	5	60 Sec	

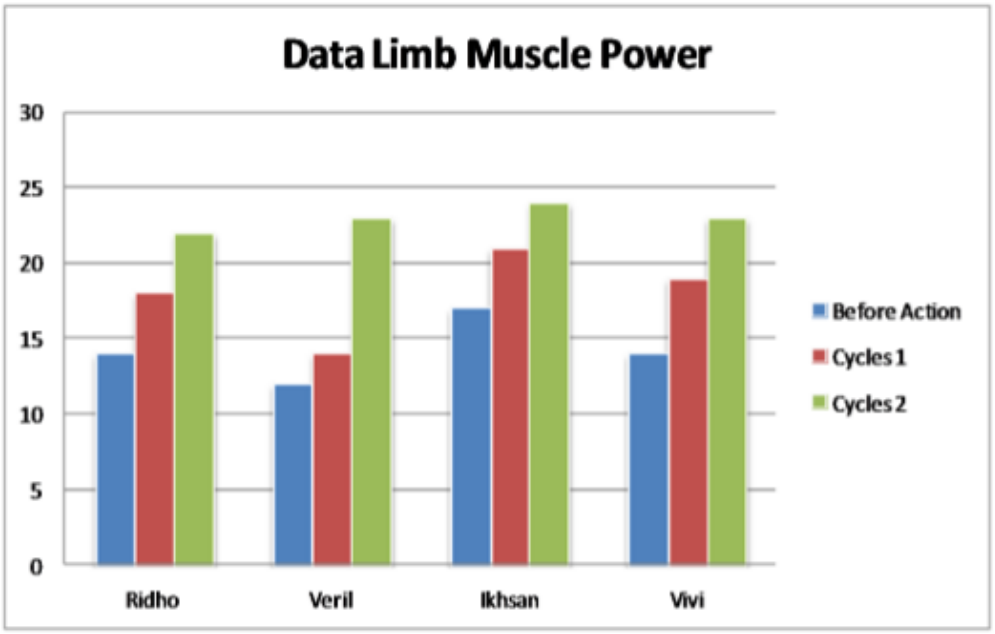
NO	Name	Weeks to	Intensity	Repetition	Set	Rest	Desc.
1	Vivi Mariska	7 and 8	70 %	5	5	60 Sec	Action 17 – 21
2	M.Ridho Akbar		70 %	4	5	60 Sec	
3	M.Veril Vian Hardianto		70 %	5	5	60 Sec	
4	Ihsan Bahari		70 %	5	5	60 Sec	

3) Reflection Results From the results of cycle I and cycle II that has done obtained data from the leg muscle power and the observations of movement 102 capability as follows:

Table 1. Data limb muscle power

No	Name	Before Action	Cycles I	Cycles II	Desc.
1	M.Ridho Akbar	40	45	47	
2	M Veril Vian Hardianto	45	48	52	
3	Ihsan Bahari	54	62	63	
4	Vivi Mariska	43	44	45	
	Total	182	199	207	
	Average	45.5	49.7	51.7	
	Percentage Increase		9.2 %	13.6	

Diagram 1. Data limb muscle power



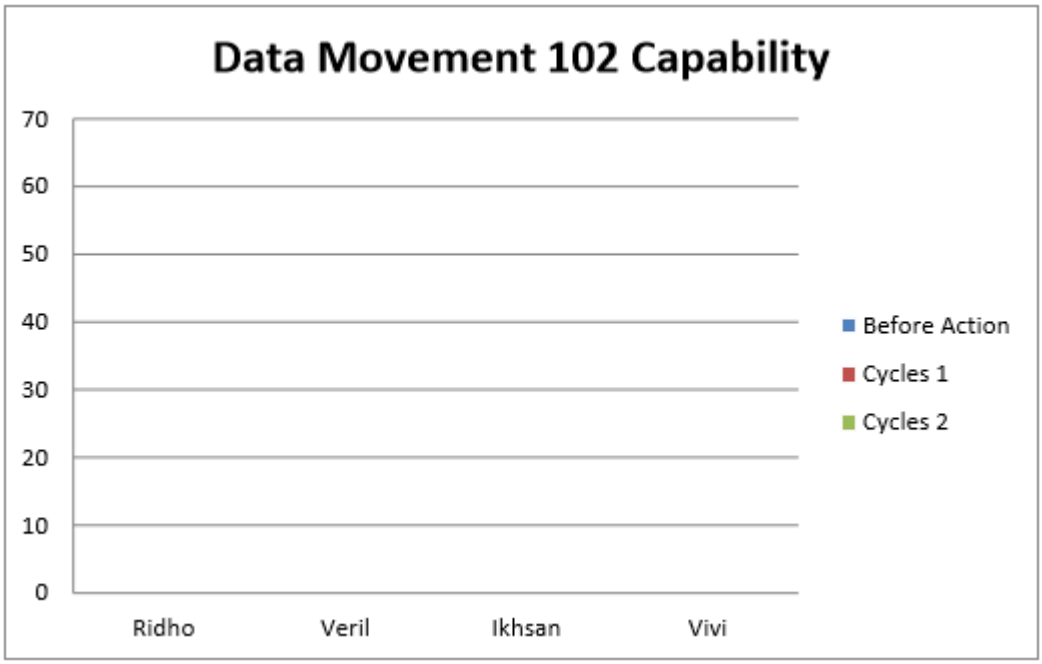
The above data shows an increase in leg muscle power, increase in limb muscle power aspects athletes first cycle of 9.2%, the second cycle increased by 13.6%, this shows that exercise up and down the stairs for a diving athlete can improve limb muscle power. Based on the observed data movement 102 which covers aspects prefix movement, repulsion movement, movement in the air and attitude into the water obtained the following data:

Table 2. Data movement 102 capability

No	Name	Before Action	Cycles I	Cycles II	Desc.
1	M.Ridho Akbar	14	18	22	
2	M Veril Vian Hardianto	12	14	23	
3	Ihsan Bahari	17	21	24	
4	Vivi Mariska	14	19	23	
	Total	57	72	92	
	Average	14.2	18	23	
	Percentage Increase		26.7 %	61 %	

Diagram 2. Data movement 102 capability

The above data shows that the increase aspect ability of mastering movement 102 athletes before and after exercise increased first cycle of 26.7% the second cycle increased by 61%., this case shows that the exercise up and down the stairs for a diving athlete can improve the mastery of movement 102.



4. DISCUSSION

Mastery the movement 102 in diving branch of athlete PPLP South Sumatera can be improved through exercise leg muscles power in the form of exercise up and down stairs. The results of this study are consistent with the opinion of M Yasin (1990) that the muscle power of the legs is one of the physical components to support mastery of diving movement. While the opinion Bompa (2009) developed a leg muscle power components needed in those sports that require anaerobic energy systems such dominant movement in sport diving. According to Fox (2009) the dominant energy system diving is an anaerobic which require great strength to movement in a short period of time using the energy derived from ATP PC and lactic acid so that exercise is an exercise that was developed with high intensity to low volume.

The results of this study are also in line with the opinion of Chu (1992) that in order to develop leg muscle power can be done with plyometrics exercises such as walking up the stairs mainly to train the primary muscle involved in explosive movements. Then Radcliffe (1995) plyometrics exercises such as up and down the bench or stairs is an effective form of exercise that develops limb muscle power so it can improve athletic performance.

Opinions Hanif (2011) to perform is not enough just to practice the technique of the sport only but also should first develop the physical aspect mainly to train the muscles involved in the movement technique of sports are concerned. Then opinion of Bompa (2009) stages to start training is the stage of conditioning that develops in accordance with the physical aspect of the sports are concerned. Then the opinion of Fox (2009) that the form and manner of physical exercise is very dependent on the components that are trained, so it is very important to know the dominant components the necessary to improve the physical athletes.

5. CONCLUSION AND SUGGESTION

Based on the results of research and discussion can be concluded: 1) Mentoring limb muscle power exercise can improve movement 102 of diving athletes PPLP South Sumatra, 2) exercise up and down the stairs can improve limb muscle power of diving athletes PPLP South Sumatra, 3) mentoring limb muscle power exercise can improve the performance of diving athletes PPLP South Sumatra. From the results of this study suggested a few things : 1) For mastery of movement diving 102 athletes are expected firstly train the main muscles involved in limb muscle power. 2) Based on the primary muscle involved in the movement 102 then a form of exercise that recommended is a form of plyometrics exercises such exercises up and down stairs.

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