

# Development of Preparation of Exercise Programs to Improve Physical Fitness Through Applications to Banyuasin III Men's Volleyball Club Athletes

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## Development of Preparation of Exercise Programs to Improve Physical Fitness Through Applications to Banyuasin III Men's Volleyball Club Athletes

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### Abstract

This study aims to determine the development of the preparation of the right exercise program to improve the physical fitness of athletes through the application at the Banyuasin III Men's Volleyball Club. The research and development method used is the Borg and Gall model, with data collection techniques in the form of observation, tests, and questionnaires. The data obtained from the results of this study will be analyzed to determine the quality of developing an exercise program in improving physical fitness using an analysis of validity, practicality, and effectiveness. The results of the study concluded that the resulting product was an exercise program to improve the physical fitness of athletes consisting of 6 posts at each meeting and compiled based on input and advice from coaching experts, exercise program experts, and fitness experts. The product that has been created has been tested on a small scale with 10 volleyball athletes, on a large scale with 25 volleyball athletes, and has met the validity, practicality, and effectiveness tests. The implications of developing this training program are very good so that it can be used by athletes, especially volleyball and generally other sports athletes as needed.



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## INTRODUCTION

Player coaching can be done by preparing players or prospective athletes from an early age and starting as children. Children and youth are potential athletes, sports clubs are one of the places where children and youth are gathered intentionally to gain knowledge and skills. In this training, athletes are trained to hone their skills. Athletes' skills need to be honed to prepare athletes so that their best performance can come out when participating in sports competitions or championships. In achieving sports achievements, it is necessary to pay attention to several influencing factors, including training facilities, prizes, athlete conditions, good management, competent coaches, and training programs.

Iyakrus in the National Seminar on Physical Education and Health (2012) regarding "Development of Physical Components for Athletes' Movement," stated that the goal of a coach in training is to try to help improve his athlete's performance as much as possible, for that coaches need to constantly improve their knowledge in training methodologies by better understand the development of science and technology for the development of athlete's motion as the main basis for achieving peak performance. The success of a coach is largely supported by knowledge of scientific principles possessed by the coach himself, in addition to his rich experience and personal maturity. Much has been done in the laboratory and in the field to study the factors that greatly affect the improvement of sports achievement. The physical component is the first stage in preparing athletes to face a match in addition to other components such as technique, tactics and psychology (Iyakrus, 2012a).

The training program plays a very important role in improving athlete performance. The athlete's training program can be improved through correct, measurable, and continuous physical exercises, as well as periodic evaluations. Periodic evaluation is very important to know the progress that athletes have made in an exercise program. Therefore, sports training programs need to be considered more professionally through systematic and sustainable arrangements so that they can improve exercise skills and physical fitness, especially in volleyball.

Volleyball is one of the most popular sports in the community and in education. This is indicated by the number of standing volleyball clubs that are ready to compete in tournament events, both at the regional and national levels. However, not all athletes participating in volleyball matches have excellent physical fitness. This is due to the lack of athletes participating in training programs that can improve physical fitness, such as endurance, speed, agility, explosive power, balance, flexibility, and coordination exercises.

<sup>10</sup> According to Moeloek, physical fitness is the ability or ability of the body to make adjustments (adaptations) to the physical loads given to it (Rismayanthi, 2018). The formation of physical fitness is a fundamental component in addition to technical, tactical, and mental preparation in various sports. Physical fitness preparation, technique, tactics and psychology are factors that are interconnected with one another (Bafirman, 2019). In various sports activities if the physical fitness preparation is not perfect, technical, tactical, and mental abilities will be affected so that the performance is less than optimal, and vice versa. In addition, physical fitness status can reach an optimal point if training is started at an early age, carried out

continuously throughout the year, in stages and guided by the principles of proper exercise.

The development of volleyball in Banyuasin Regency is classified as very good, this is evident from the very large interest of the people in this sport. It can be noted that during this pandemic period, volleyball courts in villages are always crowded every afternoon. Even village tournament activities have been held with good health protocols. In one year, almost every sub-district within the Banyuasin Regency holds an inter-village tournament (Tarkam), Popda and Porprov which is held every 2 years, adding to the lively development of volleyball.

Volleyball clubs that participated in the tournament included Rejodadi Volleyball Club, Katar Volleyball Club, Tunas Muda Volleyball Club, Men's Volleyball Club Banyuasin III, Rajawali Volleyball Club, and Putra Panji Volleyball Club. Based on these clubs, the authors chose the Men's Banyuasin III Volleyball Club because this club has more adequate volleyball facilities and infrastructure, gathers athletes who excel among middle-level students, and has a scheduled training program. Even so, the athlete's achievement has not been maximized, where achievement is only at the sub-district level in the Banyuasin Regency area, but when participating in tournaments outside the region, they have not excelled.

This indication is seen when athletes follow the exercises given by the coach, it appears that athletes experience fatigue very quickly. This can be seen when athletes play games that often make their own mistakes. This also happened when participating in the championship, the athlete could not maintain his playing performance in the deciding set when facing a tough opponent. In addition, physical exercise that is not programmed

provides opportunities for athletes participating in training to become less controlled. The possibilities that can occur because of the exercise include being too heavy so that it exceeds the athlete's ability, too light, and not in accordance with the ability so that the adaptation of physical exercise is less than optimal so that it has a negative effect on the athlete's physical fitness.

The development of the physical fitness of the Banyuasin III Men's Volleyball Club athletes must be planned periodically based on the stages of training, physical fitness status, sports, nutrition, facilities, tools, environment, and health status. Developing physical fitness requires the qualification of a professional coach or trainer so that he can foster the development of the athlete's physical fitness without causing negative effects in the future. With excellent physical fitness, it is expected to be able to contribute to achieving achievement in a match or competition event.

Based on the results of initial observations and information from the coach of the Banyuasin III Men's Volleyball Club, the athlete's physical fitness is low. This can be seen from the stamina that quickly decreases and it is easy to experience fatigue during training, especially the inability to maintain endurance, lack of muscle power and speed in hitting the ball, lack of coordination with team members, inability to block smashes, and less able to anticipate the direction of the ball. In addition, the movements exhibited by athletes are still weak or not fast enough, and are unable to carry out heavy training loads, and cannot recover their physical fitness quickly after participating in training. Other problems are suspected because the preparation of the physical exercise program is not based on correct, unsystematic, sustainable training

principles and the difficulty factor of the coach in making training programs according to the athlete's needs, does not inform the composition of the materials in the training program to athletes, athletes do not know the effect or influence of the exercises given by the coach, and athletes only train at the training ground without increasing the intensity or repeating it in other places.

Based on the description above, the authors are very interested in conducting research related to volleyball, especially the development of training programs through applications as a step to measure the physical fitness of the Banyuasin III Men's Volleyball Club athletes, as well as making it easier for volleyball coaches in preparing more innovative training programs. and interesting. As it is known that the preparation of an exercise program will be effective if the exercise is within the limit of ability so that adaptation becomes optimal. In this regard, trainers need to be equipped with knowledge about measurable physical training according to the correct training rules and try to increase knowledge, either through training or through professional education. It is hoped that the trainer will be able to develop and implement a physical exercise program. In addition, the coach must be able to evaluate the progress of the athlete's physical condition on a regular basis. Therefore, coaches must master physical fitness tests and measurements in accordance with sports disciplines, one of which uses digital technology (applications).

#### Exercise Program

Exercise is a conscious effort that is carried out continuously and systematically to improve the functional ability of the body in accordance with the demands of the appearance of the sport. To be able to display the high quality of the

sport, both in terms of basic abilities (physical abilities) and in terms of skills (technical abilities) (Firdaus, 2011). The program is a design regarding the principles (basic ideals) and the efforts to be carried out, while training is a systematic and practice process that is carried out repeatedly by increasing the number of training loads and the intensity of the exercise. So the training program is a set of activities in training that are arranged in such a way that it can be carried out by athletes, both regarding the amount of training load and the intensity of the exercise (Hasyim, 2019)<sup>3</sup>

Physical exercise is a form of planned, structured, and continuous physical activity involving repetitive body movements and is aimed at improving physical health and fitness (Kemenkes RI, 2017). Furthermore, Astrand and Rodahl stated, physical exercise and sports activities are systematic activities over a long period of time, progressively and individually improved that lead to the characteristics of human physiological and psychological functions to achieve predetermined goals. From this, it is revealed the fact that the process of reaching the highest level of ability and achievement requires a long time and a hard struggle, in accordance with the guidelines of the sport that is occupied to achieve a predetermined standard (Bafirman, 2019).

The following is an initial product concept for preparing an exercise program to improve the physical fitness of volleyball athletes.

1. Introduction
  - a. Marching, praying, and giving motivation.
  - b. Warm up jogging around the volleyball field.
  - c. Stretching.
2. Core



- a. Movement 1 is a squat jump exercise with 2 sets, 10 repetitions and 90 seconds of recovery.

Activities carried out include:

- 1) Initial stance (squatting position of two legs front and back, hands connected and placed at the nape, looking forward).
- 2) Movement (jumping up, both legs straight, body upright, looking forward, then landing and changing foot positions alternately, back to squatting).



- b. Movement 2 is a backup exercise to lift the togok with 2 sets, 10 repetitions and 90 seconds of recovery. Activities carried out are:

- 1) Initial stance (lying on your stomach, legs straight and tight, arms connected and placed at the nape).
- 2) Movement (the stick is bent upwards so that the chest, shoulders, head and arms are raised. The hips and stomach are still close to the floor, the view is towards the front above).



- c. Movement 3 is a push-up exercise with 2 sets, 10 repetitions and 90 seconds of recovery. Activities carried out include:

- 1) Initial attitude (lying on the stomach, legs straight and tight, both feet resting on the fingers, both hands placed beside the chest).
- 2) Movement (hands push down so that both arms are straight, body, hips and both legs are raised. Then return to the starting position).



- d. Movement 4 is a sit up exercise with 2 sets, 10 repetitions and 90 seconds of recovery. Activities carried out include:

- 1) Initial stance (lying on your back, legs bent, hands connected and placed at the nape).
- 2) Movement (stick and head lifted and bent upwards (flexi), until both elbows touch the knees).



- e. Movement 5 is in the form of lateral raises with 2 sets, 10 repetitions and 90 seconds of recovery. Activities carried out include:

- 1) Initial stance (standing straight with both feet together, arms straight at the sides of the body, each hand holding a dumbbell by the side).
- 2) Movement (the dumbbell is raised to the side (abduction) until the arm is straight with the shoulder, the arm is still straight, then returns to the starting position).



- f. Movement 6 is a bench up and down exercise with 2 sets, 10 repetitions and 90 seconds of recovery. Activities carried out include:

- 1) Initial stance (standing straight in front of the bench, arms behind the head, and looking forward).
- 2) Movement (jump with both feet on the bench and jump back both feet to the floor with both knees spread and body straight).



3. Cover
  - a. Pending, stretching
  - b. Marching, directing, and praying.

### Physical Fitness

Understanding physical fitness is an important element and becomes the basis / foundation in the development of techniques, tactics, strategies, and mental development (Bafirman, 2019). Technical development is the initial knowledge and mastery of movements that need to be understood in a sport. Meanwhile, strategy is an overall approach related to the implementation of ideas, planning, and execution of an activity within a certain period. While mental development is a strong will and determination in an athlete. Increased physical fitness aims to increase the physical ability of athletes and is useful for carrying out sports activities in achieving maximum performance (Hasyim, 2019).

Physical exercise is a conscious and programmed effort to foster the basic functional qualities of athletes to a higher level, so that they can achieve optimal performance. The basic physical condition components consist of: strength, speed, explosive power, flexibility, agility, balance, endurance, reaction, accuracy, coordination (Ruslan, 2011).

Physical fitness is the ability or ability of the body to adjust (adaptations) to the physical loads given to it (Rismayanthi, 2018). Physical condition is related to the ability and ability to carry out work optimally and efficiently (Sukirno, 2017). Whether we realize it or not, physical condition is needed in daily life, because physical condition is always related to daily activities. Physical fitness is a condition when the body still has energy remaining to carry out light recreational or entertainment activities after carrying out routine physical activities or activities (Afriwardi, 2011).

Physical activity can be undertaken in many ways: walking, cycling, sports and active forms of recreation (for example, dance, yoga, tai chi). Physical activity can

also be undertaken at work and around the home. All forms of physical activity can provide health benefits if undertaken regularly <sup>11</sup> of sufficient duration and intensity (Global Action Plan on Physical Activity 2018–2030: More Active People for a Healthier World, 2018).

(Rylee A. Dionigi, Maria Horne, Anne-Marie Hill, 2022) in his study concluded that overall, qualitative studies provide unique insights and knowledge about older people's perspectives, experiences, and values regarding aging and physical activity. Seeking older people's stories and wisdom informs theory as well as the design, relevance, and delivery of innovative physical activity-related policies and/or programming. Qualitative approaches can also show how personal experiences and identities shape (and are shaped by) sociocultural, environmental, and contextual factors, adding to the subjectivity and complexity of the phenomenon of aging and physical activity. JAPA is committed to bringing qualitative research that amplifies older people's voices and lived experiences to our readership because such research is a critical component of our mission to increase understanding about physical activity in aging.

Positive youth development goals are salient for many reasons, such as enhancing youths' desire to continue physical activity for self-determined reasons like enjoying experiences, identifying as a physically active person, and seeking health and fitness benefits. Participating out of internally driven reasons and attaining positive health and social, psychological, and physical assets translate to continued interest in and value toward a lifetime of physical activity. In this monograph, we define a positive youth development perspective, delineate goals and contexts

of effective youth development programs, review the research evidence for physical activity as a context for youth development, and make recommendations for how a variety of stakeholders such as parents, educators, and healthcare providers can optimize positive youth development through physical activity (Maureen R. Weiss, 2009).

## METHODS

The research method used is Research and Development. Research and development research is essentially research carried out to develop products from previous research on an ongoing basis, so that ideal changes and developments occur as expected. The research model used is the Borg and Gall model. This model is used because it can address real and urgent needs through developing solutions to a problem while generating knowledge that can be used in the future, being able to produce a product/model that has a high validation value because it went through a series of field trials and was validated by experts, encouraging the process continuous product/model innovation so that it is hoped that models/products that are always up to date with current demands, and become a liaison between theoretical and field research, with data collection techniques in the form of observation, tests and questionnaires. The data obtained from the results of this study will be analyzed to determine the quality of developing an exercise program in improving physical fitness using an analysis of validity, practicality, and effectiveness. Analysis of the effectiveness of the development of the preparation of the exercise program used SPSS for windows version 26.0 analyze paired t-test. However, previously the



data were analyzed for normality using Kolmogorov-Smirnov. The data is declared normal if the Asymp. Sig. (2-tailed) > 0.05, and the data is declared effective if  $t_{count} > t_{table}$  or  $sig > 0.05$ .

## RESULT

The initial product in the form of developing an exercise program to improve the physical fitness of volleyball athletes that has been made, before being tested in small groups, needs to be validated by experts adapted to the field of research carried out. In design validation, the validator validates one item of the development product, namely the preparation of an exercise program in the form of circuit training. In this case the validator assesses the initial product of the preparation of the exercise program made by the researcher.

Initial product validation was carried out by three (3) expert volleyball practitioners on the development of the preparation of the exercise program, including Dr. Waluyo, M.Pd., from the national volleyball coach and the Secretary of the PBVSI South Sumatra acting as the training program expert, Ramlan, S.Pd., M.M., the national volleyball coach KAPOTA HUBDAM acting as the instrument expert, and Ida Mardalena, S.Pd., M.Sc., Palembang's national volleyball coach acted as a physical fitness expert.

Validation was carried out by providing the initial product concept of preparing an exercise program to improve physical fitness in the form of circuit training consisting of eight (8) posts made in 12 meetings. The validator assesses the initial product through an evaluation sheet in the form of a questionnaire containing aspects to be measured whether the design of the preparation of an exercise program to improve physical fitness and input from experts on the

design of the exercise model developed by the researcher is assessed. There are 11 indicators that are considered by experts, including performance, information, economy, security, efficiency, service, science and technology, integration, adaptation, activity design, and time duration.

The stages of validation by experts on the design of the exercise program to improve physical fitness and the results of the answers or responses to the questionnaire about the quality of the developed exercise model can be seen in the following table:

Based on the table above, it can be explained that in a small-scale product trial, the results obtained from the quality score of the preparation of an exercise program to improve the physical fitness of volleyball athletes were developed in the Very Good category. This is evidenced by the acquisition of the percentage score of the quality assessment of the preparation of the exercise program on a small-scale trial with an average percentage of 94%.

Improvements to the preparation of training programs to improve the physical fitness of athletes that are being developed are carried out based on input in the form of suggestions, comments, and improvements to aspects of the quality of the training program. The results of the revision carried out on the basis of data from the implementation of small-scale trials and suggestions from expert volleyball practitioners are as follows:

Develop an exercise program in the form of circuit training into 6 posts, which previously amounted to 8 posts.

Reduced recovery time from 90 seconds to 60 seconds for each post.

Practicality data comes from the response of volleyball athletes to a questionnaire consisting of 10 statements.

The data obtained is then given a score and percentage as shown in the following table:

The athlete's response showed very high levels of the training material he participated in, as well as the material provided in accordance with the training objectives. Furthermore, the athlete's response was very high regarding the training material provided to improve performance when participating in volleyball matches. The same response was also to the implementation of the training in accordance with the predetermined schedule and on time. Next, the athlete's response was very high to the given exercise, which was systematic and fulfilled the training principles, and was not boring because it was more varied. Athletes respond very highly to the risk of physical injury during training and assume that the available facilities and infrastructure are suitable for use. However, athletes responded in the high category regarding the facilities and infrastructure needed when training was available. Furthermore, related to the exercise material to increase physical fitness, it can be used as an exercise method in general showing a very high response from athletes.

The data from the measurement results through the pretest and posttest of athletes' physical fitness on a small scale were analyzed for effectiveness using t-test statistics. However, before that, it is necessary to test for normality using Kolmogorov Smirnov analysis, the results of which can be seen in the following table:

**Table 1.** Testing the Normality of the Data on a Small Scale

		Pretest	Posttest
N		10	10
Normal Parameters	Mean	14.00	18.60
	Std. Deviation	.667	.966
Most Extreme Differences	Absolute	.300	.233
	Positive	.300	.233
	Negative	-.300	-.167
Kolmogorov-Smirnov Z		.949	.736
Asymp. Sig. (2-tailed)		.329	.651

Based on the table above, it is known that Asymp. Sig. (2-tailed) in the pretest column of 0.329 and the posttest column of 0.651. Asymp Value. Sig. (2-tailed) > 0.05, so it can be stated that the pretest and posttest data are normally distributed and can be continued with effectiveness testing using the t-test, as shown in the following table:

**Table 2.** Effectiveness Testing Using t-Test Statistics

		95% Confidence Interval of the Difference			t	df	Sig. (2-tailed)
Mean	Std. Dev.	Std. Error Mean	Lower	Upper			
Posttest - Pretest	4.6	.69	.22	4.1	5.1	9	0.0

The value of t-count obtained is interpreted in t-table, where t-table is obtained from  $dk = 10 - 1$ , and probability  $(1 - \alpha)$ , where  $\alpha = 0.05$  is obtained 1.833. Based on the test criteria, it is stated that  $t_{count} > t_{table}$  ( $20.804 > 1.833$ ) or  $sig < 0.05$ , so the preparation of an effective training model is used to improve the physical fitness of athletes on a small scale.

The measurement data through the pretest and posttest of athletes' physical fitness on a large scale were analyzed for effectiveness using the SPSS for windows version 26.0 program. Before testing the effectiveness of the data, normality testing was first carried out with Kolmogorov-Smirnov analysis, the results of which can be seen in the following table:

**Table 3.** Testing the Normality of Data on a Large Scale

N		25	25
Normal Parameters	Mean	15.24	20.96
	Std. Deviation	1.332	1.274
Most Extreme Differences	Absolute	.196	.153
	Positive	.144	.134
	Negative	-.196	-.153
Kolmogorov-Smirnov Z		.980	.764
Asymp. Sig. (2-tailed)		.293	.603

Based on the table above, it is known that Asymp. Sig. (2-tailed) in the pretest column of 0.293 and the posttest column of 0.603. Asymp Value. Sig. (2-tailed)  $> 0.05$ , so it can be stated that the pretest and posttest data are normally distributed and can be continued with effectiveness testing using the t-test, as shown in the following table:

**Table 4.** Effectiveness Testing Using t-Test Statistics

Paired Differences		t	df	Sig. (2-tailed)			
Mean	Std. Deviation	Std. Error Mean	95% Confidence Interval of the Difference				
			Lower	Upper			
Posttest - Pretest	5.72	.843	.169	5.37	5.0633	24	.000

The t-count value obtained is interpreted in ttable, where t-table is obtained from  $dk = 25 - 1$ , and probability  $(1 - \alpha)$ , where  $\alpha = 0.05$  is obtained 1.711. Based on the test criteria, it is stated that  $t_{count} > t_{table}$  or  $33,942 > 1,711$ , so the preparation of an effective training model is used to improve the physical fitness of athletes on a large scale.

## DISCUSSION

The preparation of the exercise program that the researcher developed is a product that aims to measure the physical fitness of volleyball athletes, as well as make it easier for volleyball coaches in preparing training programs that are more innovative, varied, interesting, and not boring. In addition, the product developed has fulfilled several elements of physical fitness such as endurance, agility, strength and speed, explosive power, balance, and flexibility. These fitness elements are packaged in a circuit exercise consisting of 6 posts, which include squat jump exercises, back up lifting the togok, pushups, sit ups, jumping both thighs close to the chest, back up lifting the legs, squat thrust, lying on your back with leg lifts. and togok, bench press, deadlift, jumping squat, barbell curl, side band, half squat, triceps stretch, lateral raise, snatch from hang, 50-meter run, quick leap, and so on. Meanwhile, the instrument used to measure physical fitness was through the

Filit test application which was adopted by Dr. Iyakrus, M.Kes., covers the bleep test, 60 meter run, pull ups, vertical jump, sit and reach and grip strength.

The product in the form of preparing an exercise program to improve the physical fitness of athletes was reviewed by three (3) expert practitioners, who concluded that it was in the very good category and was suitable for mass use. Research findings based on the developed model indicate a quality product. This is like the research of expert practitioners, which has shown performance, information, economy, security, services, science and technology, integration, and activity design which are classified as very good. However, in terms of efficiency and time duration, it is only in the good enough category.

The results of this study are in line with the study of (Iyakrus, 2012b), which in his research concluded that the development of a physical training model for sepaktakraw athletes produces effective products that can improve the physical components of athletes. Furthermore, (Putro, 2018) created the GO FIT application as a tool for cardiovascular endurance fitness programs. Then the results of the analysis of application trials with the percentage of feasibility level of 88.41% are obtained. In contrast to the study of (Khakiki, 2021), which concludes that agile methods can be used to make applications by prioritizing customer needs and the Volleyball Assessment Tool application is able to find out team performance quickly because the assessment is directly processed and presented in the form of complete statistical data in real time. Research by (Bayu et al., 2021)), concluded that the level of physical activity of prospective physical education teachers was in the high category, although it was also found that some research subjects had low categories

of physical activity. While the study (Usra, 2014), states that physical activity requires very prime physical conditions, in order to complete a job, physical fitness will determine the results obtained. At the elementary school level, you need excellent physical fitness to complete all the tasks you do without feeling tired and to be able to continue with other work with the right decisions. Perform various activities related to sports because they want to maintain physical fitness. Regular exercise can be beneficial for improving health.

Study (Hery Supriyadi, Tri Rustiadi, 2021), the results of this study is an android-based application product of physical fitness test for students of Senior High School 1 Kudus which is effective and attractive to use by both physical education teachers and students. The validation result by material experts in all aspect is "Very Good" with an average score of 93.13%, the media experts' assessment to product is "Very Good" with an average score of 89.09%, the teachers' assessment to the product is "Very Good" with an average score of 85.38%, assessment by the large group students is "Very Good" with an average score of 85.11%. This study concludes that a product of android-based physical fitness assessment application has been produced and the teachers, students and parents can download it in the Play store by keyword "SIKESA". The implication of the research is that "SIKESA" can simplify the physical education learning process and become a learning resource which can be used by students to learn independently.

Research (Laura Prada-Cano Carolina Lozano-Ruiz, 2020), despite differences in study duration, design, and variables, 13 of the 14 studies reported that applications were effective in increasing physical activity and healthy habits as dietary behaviors. However, further



longer-term studies with larger samples are needed to confirm the effectiveness of mobile health applications in increasing physical activity.

Study (Adrià Muntaner-Mas, Victor A Sanchez-Azanza, 2021), state the results showed that the intervention group improved their physical fitness ( $F=8.1$ ,  $p=.006$ ) and reported better general scores in self-reported physical fitness ( $F=7.4$ ,  $p=.008$ ) over time, in comparison to the control group. However, the intervention group did not show any changes to their fatness. Further research is needed to disentangle which BCTs are more effective to achieve physical health improvements when using physical activity apps. Lebih lanjut studi (Salmizal, Wawan Junresti Daya, 2019), from the results of the study it can be concluded that the physical condition of the Kerinci district athletes who will participate in Porprov 2018 are in the moderate category.

Research (Hambali et al., 2020), the results of the study, it can be seen that the average physical condition of Pencak silat athlete PPLP in West Java is 3.22 in the moderate category, with a standard deviation of 0.86. In detail, the physical condition of West Java PPLP Pencak silat athletes is very good 0%, good category 41.18%, enough category 35.29%, less category 17.65%, and very less category there are 5.88%.

Likewise research (Mi Kyung Lee, Nam Kyu Kim., 2018) physical fitness measured by using the step test ( $-3.9$  vs.  $2.6$ ,  $p = 0.012$ ) and push-up test ( $3.0$  vs.  $1.2$ ,  $p = 0.012$ ) also improved significantly in the exercise group compared to the control group. The 6-week home-based mixed aerobic and resistance exercise program was feasible and effective for increasing physical activity level and physical fitness in stage II to III colorectal cancer survivors.

Study (Yudhy Dharmawan, Suroto, 2018), the results of the test showed that the application worked properly. As indicated by the functioning of the designed and developed menus. The system was able to record the individual data and the physical fitness of the elderly, also able to serve the information and the records of the fitness of the elderly people and the appropriate recommendation on fitness exercise. Research (Pera Prima, 2021), conclusions in each sport require a component of physical condition needs which vary according to the characteristics of each sport. In designing an exercise program must be structured.

## CONCLUSION

Based on the results of the research and discussion, it can be concluded that the product resulting from this research is the preparation of an exercise program to improve the physical fitness of athletes which consists of 6 posts at each meeting and is compiled based on input and advice from coaching experts, exercise program experts, and fitness experts. volleyball. The product that has been created has been tested on a small scale with 10 volleyball athletes, on a large scale with 25 volleyball athletes, and has met the validity, practicality, and effectiveness tests.

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