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Development of an Aerobic Training Model for Volleyball Players Endurance at SMP Negeri 37 Tebo Regency in Extracurricular Activities

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Abstract

Objectives. This research was motivated by the lack of physical condition of volleyball players at SMPN 37, especially regarding physical endurance. This research aims to develop an endurance training model that will also increase the endurance of volleyball players at junior high school. This model was developed use the ADDIE model, analysis, planning, development, and implementation, which consists of 5 stages: analysis, planning, development, implementation, and evaluation.

Materials and methods. These five stages are carried out through training program analysis, material analysis, and analysis of volleyball player characteristics. Then, the validation test was carried out by three validators, namely two expert team validators and one language validator. The practicality test was carried out by a volleyball coach and 12 volleyball players. After the model was categorized as valid and practical, an effectiveness test was carried out by carrying out a multistage fitness test (bleep test).

Results. The results of research on the development of an aerobic training model for the endurance of volleyball players in the validity test obtained percentage data with an average of 86.19% categorized as very valid, practicality tests by volleyball coaches with a percentage of 90%, and players with a percentage of 83.88% categorized as very practical. In comparison, the effectiveness test was 83% in the very effective category.

Conclusion. Based on the results obtained, the aerobic training model for endurance volleyball players is categorized as valid, practical, and effective, so it can be concluded that it can be applied to endurance volleyball players. This model is also an alternative form for trainers and teachers delivering material and exercises.

Keywords: Development, Aerobic Training Model, Endurance, ADDIE, Volleyball

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Introduction

Sport is a part of world society that cannot be separated from everyday life and is one of humans' most important critical needs. Sport is a person's activity to train the body in a planned and structured manner, involving repetitive movements to become fit (Andira et al.,

2019). ⁴ Article 28 C paragraph 1 of the 1945 Constitution states that sports are all systematic activities to encourage, develop, and develop physical, spiritual, and social potential. Sport also has different benefits, including physical fitness, achievement, and recreation (Prima & Kartiko, 2021).

Volleyball is one of the world's most successful and popular competitive and recreational sports (Bayo Ola Tapo, 2019). *The game is fast, exciting, and explosive and consists of several interactive elements that make it unique among other rally games.* Volleyball ⁵ is a sport played by two teams on a playing field divided or limited by a net. (Ricky, 2020). The game aims to pass the ball over the net to place it in the opponent's court and prevent a similar attempt by the opponent. (TURCANU et al., 2013) Based on this explanation, according to the FIVB, the essence of the game of volleyball can generally be summarized that the definition of the game of volleyball is a sizeableball game played on a particular playing area (field) ⁵ by two teams, with each team consisting of six players, who play the ball with special provisions for crossing the ball over the net (net).

The state of the art in this research is identifying updated and innovative aerobic exercise models. Apart from that, it also increases the physical endurance of volleyball players. This research focuses on volleyball players at SMP Negeri 37 Tebo Regency, meaning that the training model developed will be specifically designed for these players. It considers needs, capabilities, and resources that may lie elsewhere. This research is also to develop a type of exercise that has not existed before. This research also talks about exercise in general but also emphasizes increasing endurance. This acknowledges the importance of endurance in this sport and suggests that this research provides specific insight into training players' endurance.

One form of exercise used by volleyball players when training is aerobic training. Aerobic training here will focus on the endurance of volleyball players at SMPN 37 Tebo Regency. (Palar et al., 2015) Aerobic exercise is a type of cardiovascular conditioning or "cardio." ³ During cardiovascular conditioning, breathing and heart rate will increase for a sustained period (Kurnia, 2019). Examples of aerobic exercise are swimming, running, or cycling. Aerobic exercise aims to prepare the circulatory and respiratory systems, strengthen tendons and ligaments, reduce the risk of injury, and provide energy sources for long-term, low-intensity activities (Saptono et al., 2021).

The training program is planned towards the best performance, peak performance in a competition, and *peak* performance. The expected *performance* is an increase in the athlete's performance or appearance by maximizing physical adaptation (biomotor and physiological) techniques, tactics, and psychological or mental factors. The physical training program in

volleyball must be adjusted to achieve the desired abilities to become a champion. The first is physical strength training (*strength*), which is the ability to resist resistance or physical load both from outside and one's body (Dharma & Duhe, 2020). Endurance training is a person's ability to use a muscle group to contract continuously for a long time (Wicaksono, 2020).

In good training, there are good conditions for the players, competent coaches, and training portions appropriate to the players' conditions. Additionally, complete facilities and infrastructure support training to run smoothly. Physical condition is the primary key for athletes in carrying out sports activities. Endurance is one of the physical conditions that athletes need, especially when playing sports. According to Syafruddin (2011), physical condition is one of the determining factors for implementing tactical concepts. Based on the opinion above, without good physical condition, it is difficult for every athlete to master the technique, moreover they will not be able to implement good tactical plans, which will affect the athlete's mentality. In other words, to master techniques and apply good tactics, you must first be supported by good physical condition (Krishnasari, MA, 2019).

Achievement is influenced and determined by the group of athletes themselves as a whole regarding physical condition, technical skills, tactical knowledge, and mentality (Sovens et al., 2019). Physical condition not only influences improving technique but also improving tactics. Improving tactics will not be successful if you do not master the technique well and are supported by good physical condition. The player's physical condition will also affect the player's mental state. Conversely, the player's mental condition will also affect the player's physical condition and techniques and tactics. Technique, tactics, mental and physical condition are essential elements for creating a good game (Usman & Argantos, 2020). From this statement, it can be concluded that when playing volleyball, physical condition is the primary key in terms of tactical technique and the volleyball player's mentality. If the player's physical condition is good, it can increase their self-confidence so that their mental and playing performance can be maximized.

From the results of observations that have been made, the author states that the problem encountered is the lack of physical condition of SMPN 37 volleyball players, especially in terms of physical endurance. By practicing this training model, players can increase motivation and participation. Apart from that, there are also requirements for volleyball, such as good physical condition, speed, strength, and agility. Having a specially designed training model can help them increase their endurance. This can be seen from the playing results of the volleyball players, where when playing the first set, the players still played well. Then, during the second set, the players can still control the game. However, when they entered the third set, the players

started to get tired, so they lost focus while playing. So, their playing performance decreases due to fatigue caused by their training patterns, which are not yet focused on endurance training.

Therefore, the author wants to develop aerobic training for the endurance of SMPN 37 volleyball players in order to improve their physical condition, especially in the endurance category, so that when they take part in a match where they can play more than two sets of matches, the players do not get tired quickly. However, SMPN 37 has shortcomings in facilities and infrastructure. Facilities such as balls, nets, and *cones* are insufficient for carrying out training. Apart from that, the infrastructure is also not very supportive, where the condition of the field around the volleyball court is uneven, so if you want to do it, use the volleyball court. It will feel less than optimal if endurance training only uses an existing volleyball court. This research focuses on developing aerobic endurance exercises such as wall sits for aerobic endurance of the leg muscles, planks, and Russian twists for aerobic endurance of the abdominal muscles. Additionally, aerobic endurance will be developed by modifying circuit training, squat trusts, jumping, going up and down stairs, bicycle crunches, and cross country. This training is all for developing aerobic training, which will affect the player's endurance.

Materials and Methods

Study Participants

The subjects in this research were 12 SMPN 37 Tebo players who participated in extracurricular activities, namely male players.

Study Organization

This research uses the ADDIE model: Analysis, Design, Development, Implementation and Evaluation. This research is Research and Development R&D. The systematic ADDIE model is recommended for making decisions at each step (output) as input for the next step (Herdianto et al., 2020). The analysis stage begins with surveying players and the field to determine existing problems.

The types of data taken in this research are qualitative and quantitative. Qualitative data is data taken from the results of validation carried out by the validator, and practicality data is taken from the results of expert responses and the results of players' responses to the aerobic training model for endurance volleyball players at SMPN 37 Tebo Regency in modified extracurricular activities. In contrast, quantitative data is taken from scores. Test results provided.

Instrument Development is the development of an exercise modification model. To obtain data collection that will be used in this research, there are validation sheets, practicality sheets, and effectiveness sheets from coaches and players.

1. Validation Instrument

This validation sheet is used to determine whether a product is valid. This validation sheet consists of a training model validation sheet. This validation sheet is given to the validator (trainer) along with the training model that will be validated to get input or assessment of the training model. Validation takes the form of validating the model's content, which is related to aerobic exercise, while language validation is related to the systematics of writing. There is a material expert validator for validators: one lecturer and one trainer, one media validator, and one language validator.

2. Practicality Instrument

This practicality sheet determines the practicality of the endurance training model for volleyball players that will be developed later. The practicality sheet consists of a practicality sheet on the volleyball player's endurance training model, which will later be given to the coach as a practitioner to get a response regarding the practicality of the volleyball player's endurance training model.

3. Effectiveness Instrument

This effectiveness instrument is used to determine the results of player training using the endurance training model for volleyball players. This instrument is given to players as a test in which a collection of training test models is created based on a predetermined training model.

4. Observation Sheet Instrument

This observation sheet is used on the affective and psychomotor aspects of the players to be able to determine the increase in the affective and psychomotor aspects of the players each time the training takes place by using the Aerobic training model for endurance volleyball players at SMPN 37 Tebo Regency in extracurricular activities.

Statistical Analysis

Data collection techniques are methods that researchers can use to collect research instrument data and develop modified aerobic training models for endurance volleyball players at SMPN 37 Tebo Regency in extracurricular activities as follows; Observation, Questionnaire and Documentation. The data analysis techniques used in this development research are: Validity, Practicality, and Effectiveness Analysis.

Results

1. Analysis stage (*Analyze*)

The analysis stage is the initial stage carried out in carrying out this development research. At this stage, an analysis of the player's needs is carried out, namely an analysis of the characteristics and materials of the SMP 37 volleyball players.

a) Player Characteristics Analysis Results

The problem was the lack of physical condition of the SMPN 37 volleyball players, especially in the endurance component. This can be seen from the results of the volleyball players playing in the first set, they still played well; in the second set and the third set, the players started to get tired, so their focus when playing was reduced. Apart from that, there is still a lack of self-confidence, a nonchalant attitude, and not encouraging friends when playing.

At the analysis stage, it is related to several things above; basically, every human being has various kinds of characters, attitudes, and abilities. As is the case with the volleyball players at SMP Negeri 37 Tebo Regency, whose players have a variety of traits/characters, the characteristics of most players can be seen from their language procedures, not using good and correct language and being indifferent when receiving the material being taught because of the diversity of methods. Players in receiving material, learning styles, interests, and talents. However, in general, players really like a training model created in an innovative, creative and varied manner to create a sense of enthusiasm and motivation in following the training process. Therefore, researchers developed an aerobic training model for endurance volleyball players at SMP Negeri 37 Tebo Regency to harmonize players' various traits/characters in training.

b) Material Analysis Results

Based on the material, the aerobic training model for endurance is not varied, making volleyball players less enthusiastic about participating in training. In this analysis, researchers analyzed material related to aerobic training models for the endurance of volleyball players. Creating an attractive aerobic training model for volleyball players will make the athletes who take part in the training process enthusiastic so that the goal is achieved.

2. Planning Stage (*Design*)

a) Validation Sheet. On the validation sheet, there are instructions for filling in three aspects that are assessed, including the content feasibility aspect, the construction feasibility aspect, and the language components, which are filled in by the validator for the validation results Maldin Ahmad Burhan, M.Pd as a construction feasibility expert with the results 80% with valid results, as content validator Ikhsan Abi Sholeh, S.Or with 88.57% very valid results, as validation for linguist Aprimadedi, SSMPd with 90% results in the very valid category.

b) Practicality Sheet. In the results of the draft practicality sheet, there are instructions for filling in and aspects assessed by trainer Ikhsan Abi Sholeh, S.Or, with a result of 90% categorized as very valid. The practicality of the questionnaire design can be seen in the attachment.

c) Effectiveness Sheet. Effectiveness sheet of the aerobic training model for endurance volleyball players at SMP Negeri 37 Tebo Regency in extracurricular activities carried out by 12 players with percentage results.

3. Development Stage (*Develop*)

After the research stage was completed, it continued with the development stage, namely testing the validity of the aerobic training model for the endurance of volleyball players at SMP Negeri 37 Tebo Regency by three validators.

Table 1. Training Model Validation Test Data

No	Validator	Result $V = \frac{f}{n} \times 100\%$	Category	Note
1	Maldin Ahmad Burhan, M.Pd	$V = \frac{24}{30} \times 100\%$ $V = 80\%$	Valid	UNDHARI PENJASKESREK Lecturer
2	Ikhsan Abi Sholeh, S.Or	$V = \frac{31}{35} \times 100\%$ $V = 88.57\%$	Very valid	Volleyball Coach
3	Aprmadedi, SSMPd	$V = \frac{27}{30} \times 100\%$ $V = 90\%$	Very valid	Lecturer B. INDONESIA UNDHARI
	Amount	258.57%		
	Average	86.19%		Very valid

In testing the validity of the aerobic training model for the endurance of volleyball players at SMP Negeri 37 Tebo Regency, various aspects were assessed, namely aspects of construction feasibility and language components. This data is explained in the form of validation of an aerobic training model for endurance volleyball players. The results of the validation analysis can be seen on the table above.

Based on the validation results of the training model above, it can be seen from the validation results carried out by content validator Maldin Ahmad Burhan, M.Pd with a result of 80% categorized as valid, content validator Ikhsan Abi Sholeh, S.Or with a result of 88.57% is categorized as very valid. The Aprmadedi language validator, SSMPd, with a result of 90%, was categorized as very valid. Thus, the aerobic training model for endurance volleyball

players at SMP Negeri 37 Tebo Regency designed by researchers can be used and implemented.

4. Implementation Stage (*Implementation*)

- a) Results of practicality analysis by the trainer

Table 2. Data on the Practicality of Product Trials by Trainers

No	Name	Result $P = \frac{f}{n} \times 100\%$	Category	Note
1	Ikhsan Abi	$P = \frac{27}{30} \times 100\%$	Very valid	Volleyball Coach
	Sholeh	$P = 90\%$		

The results of the practicality of the aerobic training model for endurance for volleyball players by practitioners received a percentage of 90% in the practicality category of the aerobic training model for endurance Sugiyono (2018). The percentage was in the interval $81 \leq P \leq 100$, which is included in the convenient category.

- b) Results of practical analysis of volleyball players at SMP Negeri 37 Tebo Regency was obtained from filling out a questionnaire by 12 players with different levels of physical endurance.

Table 3. Data on the Practicality of Product Trials by Volleyball Players

No	Name	Mark	Information
1	ICA	80%	Practical
2	MI	80%	Practical
3	GAP	80%	Practical
4	TRI	90%	Very practical
5	RACE	86.66%	Very practical
6	R.I	83.33%	Very practical
7	DCA	80%	Practical
8	FAM	80%	Practical
9	OR	83.33%	Very practical
10	APW	86.66%	Very practical
11	ANP	86.66%	Very practical
12	KDP	90%	Very practical
	Amount	1006.64%	
	Average	83.88%	
	Category	Very practical	

2. Evaluation Stage (*Evaluation*)

This section is the final stage in the *ADDIE development model*. The effectiveness data analyzed in this section is in the form of data generated from tests carried out accompanied by aerobic training models for players' endurance. For 3 months, it is

carried out three times a week, namely the social training schedule from 16.00-18.00.

The results of the test can be seen in the table below.

Table 4. Data on Effectiveness Results for State Middle School 37 Players

No	Name	Mark	Bleep Test Value
			Category
1	ICA	58.5	Very well
2	MI	46.2	Good
3	GAP	52.8	Very well
4	TRI	52.2	Very well
5	RACE	57.9	Very well
6	R.I	55.1	Very well
7	DCA	33.6	Enough
8	FAM	36.8	Good
9	OR	34.3	Enough
10	APW	41.1	Good
11	ANP	36.8	Good
12	KDP	43.6	Very well

Based on the effectiveness table above, it is known that the results of practical tests obtained a result of 83%, and those that were not completed obtained a result of 16%. Hence, the effectiveness value category is very effective. This shows that the aerobic training model for endurance for junior high school volleyball players is very effective for volleyball players at SMP Negeri 37 Tebo Regency in training physical conditions in the endurance category.

Discussion

Aerobic Model for Endurance

1. Group Wall Sit

Wall sit is an exercise that is done by leaning your back against a wall while bending your knees as if you were sitting, then holding it for a few moments. Wall sits aim to increase thigh muscle endurance. In this exercise, wall sits are done for 30 seconds per set, with three sets of repetitions and a rest break of 2 minutes per set.

Implementation:

- 1) Stand near a wall or wall.
- 2) Place your back against a wall or wall.
- 3) After your back is against the wall, position your body like sitting on a chair.
- 4) After that, hold for 30 seconds and repeat for three sets of repetitions with a rest time of 2 minutes for each set.



Figure 1. Group Wall Sit

2. Run Ball

The run ball modification of the shuttle run is a running movement back and forth over the same or predetermined distance. It could be said that almost all parts of the body's muscles will work when you do a shuttle run. Therefore, this back-and-forth running exercise is usually used as an essential exercise for various sports. This shuttle run exercise aims to increase cardiovascular endurance. To carry out this run, you must prepare cones, a stopwatch, and a field. The exercise is done for 5 minutes per set, with three sets of repetitions and a rest time of 2 minutes per set.

Implementation:

- 1) Preparing the arena for running by installing cones according to the design.
- 2) Preparation for running with a distance of 12 meters and done for 5 minutes per set with three sets of repetitions.
- 3) In this exercise, rest for 2 minutes on each set

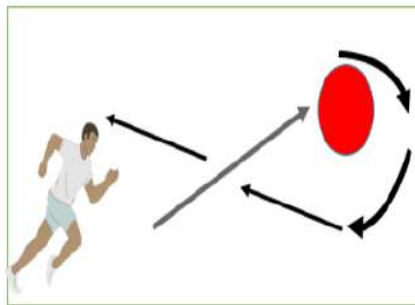
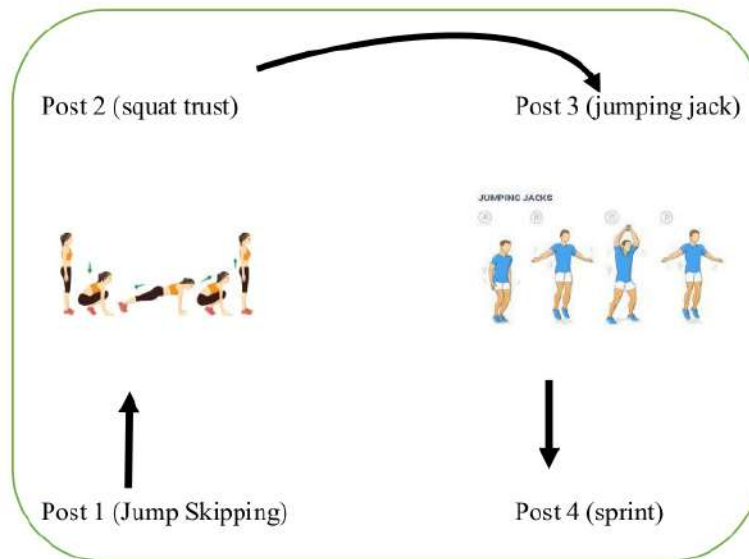


Figure 2. Run Ball

3. Circuit Training 4 Posts

Circuit training is aerobic exercise, which consists of training posts, between 8 and 16 training posts Suharjana (2013: 69). Exercise is done by moving from one post to the next until all the posts are completed. Circuit training is an efficient way to improve

cardiovascular fitness and muscular endurance. In this exercise, three sets are done; each set is done for 10 minutes with a rest time of 3 minutes for each set.



Implementation:

- 1) Post-preparation for doing circuit training.
- 2) Entering post 1, do jump skipping for 15 seconds.
- 3) After entering the second post, do squat trust movements for 15 seconds.
- 4) Then, in the third post, do jumping jacks for 15 seconds
- 5) And in the fourth post, do a sprint movement.
- 6) In this circuit training exercise, three sets of repetitions are carried out for each player with a rest time of 2 minutes per set.



Figure 3. Circuit Training 4 Posts

4. Squats forward and backward

Squats are an exercise to train the thigh, hip, and buttock muscles and strengthen the bones, ligaments, and tendons in the lower part of the body. Apart from that, squats can also

increase a player's muscle endurance and aerobic endurance. In this exercise, squats are done ten times with three repetitions with a rest time of 2 minutes for each set.

Implementation:

- 1) The initial position of the body is standing upright.
- 2) After that, lower it slightly to a half-squat position with your arms raised forward.
- 3) Then stand straight again.
- 4) Do this movement 10 times with 3 sets of repetitions.

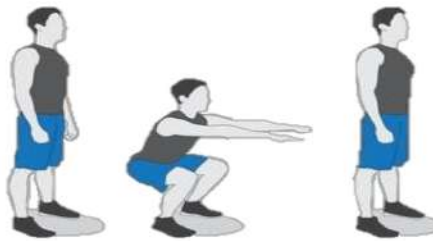


Figure 5. Squats

5. Plank to Push Up

Planks keep the body stable and increase the endurance of the body's core muscles. Push-ups help muscles lengthen and contract when holding body weight and train body stability. This exercise combines plank and push-up movements, which are done 25 times with three sets of repetitions and a rest time of 2 minutes for each set.



Figure 6. Plank To Push Up

Implementation:

- 1) Get into a plank position.
- 2) Then straighten your arms upwards.

- 3) After that, go back down to the plank position.
- 4) Do this movement ten times with three sets of repetitions.
- 5) This movement is a combination of plank and push-up.

6. Russian Twist

The Russian twist is a movement that trains and strengthens the abdominal, back, and hip muscles. In this exercise, the Russian twist is modified by using weights so that when doing this exercise, you can increase the endurance of the abdominal muscles, too.

Implementation:

- 1) Lie your body on the floor or mat.
- 2) Then bend your legs and lift your body 45° from the floor.
- 3) After that, hold your body and hold both hands
- 4) After holding your hand, point it to the right and left 25 times.
- 5) Do this movement for three sets of repetitions and rest for 2 minutes for each set.



Figure 7. Russian Twist

7. Cross Country Run 8 km

Cross-country running is a type of long-distance running done in the open air. The benefits of running, if done regularly, will make the lungs work more effectively. In this training model, cross-country is done over 8 kilometers.

Implementation:

- 1) Preparing to run, stand up straight.
- 2) Direction of the route to be taken from the coach.
- 3) After that, run according to the specified route.



Figure 8. Cross Country Run

8. Walking Lunges Up

Walking lunges are a movement that can train the same muscles as basic lunges while also helping to increase your heart rate. Apart from that, lunges also increase muscle endurance and cardiovascular endurance. In this exercise, walking lunges are done ten times per set with three repetitions and 2 minutes of rest per set.

Implementation:

- 1) Stand up straight and carry the weight according to the player's needs.
- 2) The right leg is opened in front of the left leg behind.
- 3) Bend both legs as shown.
- 4) After that, stand up again and bend again.
- 5) When repeating the movement, alternate leg positions.



Figure 9. Walking Lunges Up

9. Bicycle Crunch

Bicycle crunches are an exercise that can strengthen your abdominal muscles and make your stomach look flat. Besides that, bicycle crunches can also increase the endurance of the abdominal and leg muscles. This exercise is done ten times in each set with three repetitions of the set and a rest time of 2 minutes per set.

Implementation:

- 1) Place your arms behind your head and point your elbows out.
- 2) After that, lift your upper body and try to lift your knees to 90 degrees.
- 3) Move your right elbow and left knee in the same direction, then alternate with your left elbow moving in the same direction.
- 4) Do this movement ten times with three repetitions and 2 minutes of rest time for each set.



Figure 10. Bicycle Crunch

This research, the researchers developed an aerobic training model for endurance for junior high school volleyball players. The resulting product is a guidebook and an aerobic training model for endurance, and there are steps in the process so that players who follow the endurance training process in the training model aerobics for endurance. Based on observations during trials in the field, the presence of varied training methods can make players interested in doing endurance training. This statement is also strengthened by theory (Wicaksono, 2014): pulmonary and cardiac endurance training is the ability to work or train for a long time without experiencing fatigue.

Endurance is the ability of an athlete's body organs to resist fatigue during long-term sports or work activities (Akbar, 2014). Endurance training is essential because it aims to support the performance of volleyball players. Apart from that, this exercise is also helpful for maintaining the stability of the player's condition. As well as increasing players' endurance when competing.

Developing this model of aerobic endurance exercise can add to the training program in extracurricular activities at the school. The results of this research are used as a training guide for players, especially volleyball players at SMP Negeri 37 Tebo Regency. This exercise affects the players because it can be seen from the researchers' observations, where the initial condition of the players is poor, especially in terms of endurance. Therefore, the researchers created this training model, which was made attractive so that players would be interested in participating

in the training. This exercise is done at least two times a week and maximum four times a week. Hopefully, this training model can be used as a reference for future researchers to develop an aerobic training model for endurance.

In the development process, researchers used the *ADDIE model*, which consists of stages: analysis, design, development, implementation, and evaluation. The choice of training model must be appropriate for the volleyball players who take part in the training; this is also because this training model can be practiced and understood better by the volleyball players. Developing an aerobic training model for endurance in the training process is one way to create a more exciting training process and increase athlete activity in practice. Apart from that, this model of aerobic exercise for endurance can also help players make it easier to understand information according to each individual's abilities.

Based on the results of validity tests, practicality and effectiveness of the aerobic training model for endurance for volleyball players at SMP Negeri 37 Tebo Regency. The components were developed following the characteristics of the volleyball players at SMP Negeri 37 Tebo Regency. The validity results show that the product developed is in very valid criteria, so the product is suitable for use by volleyball players at SMP Negeri 37 Tebo Regency.

Conclusions

Based on the problem formulation in the development research and the trial stages that have been carried out by researchers on volleyball players at SMP Negeri 37 Tebo Regency regarding the aerobic training model for endurance for junior high school volleyball players, the following conclusions can be drawn:

1. Research into the development of this model was to develop an aerobic training model, so the conclusion was that nine aerobic training models had been produced, including 1) group wall sit model, 2) run ball 3) 4 post circuit training 4) forward and backward squats 5) plank to push up 6) Russian twist 7) Cross Country Run 8 km 8) walking Lunges 9) Bicycle Crunch.
2. The results of the validity of the three validators obtained a result of 86.19, which was categorized as very valid. The practicality of the aerobic training model for endurance was obtained on average 90 in the convenient category with the very practical category, so it can be said that the aerobic training model for endurance is accessible for junior high school volleyball players to use. Negeri 37 Tebo Regency.
3. The effectiveness of the aerobic training model for endurance was obtained from *the bleep test*, which obtained a percentage of 83%, which was very effective, so it can be

said that using the aerobic training model for endurance and improving the abilities of the volleyball players at SMP Negeri 37 Tebo Regency.

4. The implications of the aerobic training model for endurance can be used as an alternative form for coaches and teachers in using the training model so they can convey material to volleyball players and understand and remember the training model being carried out.

Acknowledgment

The researcher would like to thank the volleyball players at State Middle School 37 in Tebo Regency who have actively participated in making this research successful.

Conflict of Interest

The author declares that he has no conflict of interest.

The suggestions for developing an aerobic exercise model for endurance are as follows:

1. Suggestions for trainers: it is hoped that the aerobic exercise model for endurance can be used further in the classroom learning process.
2. For the development of aerobic exercise models for endurance, hopefully, in the future researchers interested in carrying out similar development research can develop more perfect aerobic exercise model products for endurance and more attractive products.

References

- Akbar, W. and MY (2014). Hockey's Anaerobic Endurance Ability. *Anaerobic Endurance and Aerobic Endurance Abilities of Men's Hockey Players*, Yogyakarta State University, 12 (1), 2.
- Andira, D., Argarini, R., & Maramis, MM (2019). The Influence of Closed Skill Type Aerobic Exercise on the Concentration of Airlangga University Medical Students. *Sports Area Journal*.
- Bayo Ola Tapo, Y. (2019). *eISSN 2580-6033 DEVELOPMENT OF A T-DESIGN LOWER PASTING CIRCUIT TRAINING MODEL (SPBT-DESIGN) VOLLEYBALL AS A FORM OF STUDENT LEARNING ACTIVITY IN PJOK LEARNING FOR SECONDARY SCHOOL LEVEL* Yohanes Bayo Ola Tapo PJKR STKIP Citra Bakti Lecturer email: yoh.3 (2).
- Dharma, E., & Duhe, P. (2020). Physical Training for Strength and Endurance in Volleyball Sports. *Jambura Journal of Sports Coaching*, 2 (1), 18–25.
- Herdianto, H., Iyakrus, I., & Usra, M. (2020). Development of a Swimming Learning Model Through Materials for Introduction to Water Activities in Elementary Schools. *Indonesian Journal of Sport Science and Coaching*. <https://doi.org/10.22437/ijssc.v2i3.10517>
- Krishnasari, MA, et al. (2019). Differences in Maximum Aerobic Capacity Values (Vo2Max) in Athletes Aged 10-13 Years Between Sports (Studies in Volleyball, Football, Swimming and Taekwondo). *Diponegoro Medical Journal (Diponegoro Medical Journal)* .
- Kurnia, MP (2019). Aerobic Endurance Level (VO2 MAX) Members of the Women's Volleyball UKM, Yogyakarta State University. In *Yogyakarta State University*.
- Palar, C.M., Wongkar, D., & Ticoalu, SHR (2015). THE BENEFITS OF AEROBIC EXERCISE ON HUMAN PHYSICAL FITNESS. *E-Biomedic Journal*. <https://doi.org/10.35790/ebm.3.1.2015.7127>

- Prima, P., & Kartiko, DC (2021). Survey of Physical Conditions of Athletes in Various Sports. *Journal of Sport and Health Education*, 9 (1), 161–170.
- Ricky, Z. (2020). The Effect of Box Drill Training on Volleyball Smash Ability. *Archipelago Sports Page (HON)*, 3 (II), 112–123.
- Saptono, T., Sumintarsih, S., & Saleh, RAP (2021). Comparison of Aerobic and Anaerobic Exercise on Immunity Levels of Volleyball Athletes Through Physical Fitness Tests. *Physical Education Journal*, 8 (2), 172–188.
- Sovensil, E., Supriyadi2, M., & Muhammad Suhdy. (2019). No Title. *PHYSICAL CONDITION OF CLUB VOLLEYBALL PLAYERS IN LUBUKLINGGAU CITY*, 2, 13–25.
- Syafruddin. (2011). *Sports Coaching Science*. UNP Press.
- ȚURCANU, F., COJOCARU, A., & TALAGHIR, L.-G. (2013). STRATEGIC ORIENTATION OF TRAINING IN HIGH-PERFORMANCE VOLLEYBALL. *Annals of the University Dunarea de Jos of Galati: Fascicle XV: Physical Education & Sport Management*.
- Usman, J., & Argantos. (2020). Journal of Sports Performance. *Journal of Sports Performance*, 5 (1), 18–25.
- Wicaksono, PB (2020). The Effect of Dynamic Down Passing Training Using Throwing and Catching Softball Balls on the Endurance of Beginner Athletes. *Eprints.Uny. Ac.Id*.

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