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ANALYSIS OF AEROBIC ENDURANCE (VO2MAX) USING THE MFT TEST FOR ATHLETES OF DOJANG SPEED TAEKWONDO IN PELALAWAN DISTRICT, RIAU PROVINCE

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Abstract

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The purpose of this study was to determine the aerobic endurance (Vo2Max) of athletes of dojang Speed Taekwondo Pelalawan Regency, Riau Province, and to find out the coach's efforts to improve the aerobic endurance of taekwondo athletes. In this study, researchers used a type of research with a quantitative approach. The method used in this research is the survey method with data collection techniques in the form of aerobic endurance tests using the MTF test.) Samples used in this study were 10 teenage class athletes of the Pelalawan Regency taekwondo speed dojang. The sampling technique in this study used purposive sampling. Aerobic Endurance (Vo2Max) Speed Taekwondo Youth Athletes Pelalawan Regency Riau Province is known that 3 athletes (30%) are categorized as very less, 6 athletes (60%) are categorized as less, 1 athlete (10%) is categorized as moderate. Based on this information, it can be seen that the results of the MFT test of teenage athletes Dojang Speed Taekwondo Pelalawan Regency Riau Province are categorized as "less".

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INTRODUCTION

Taekwondo is wrongl one branchl sports belal Korean originl South. The beginning of taekwondo log in tol Indonesia onl the year 1972l brought by the ambon peoplel Mauritsz Dominggus name with WTF flow that he had studied in the Netherlands. The sport of taekwondo is also very popular in Indonesia. Sports it has attracted the interest of locals and some groups as this branch of taekwondo is growing rapidly. Taekwondo fighting requires the use of appropriate attack methods and fast who hit the intended target to earn points. Taekwondo competitionl requires perfectionl motion ltechnology, power, L balance, speed, power L durability, flexibility, and lmental. Taekwondo hasl many lexcess, no ljust teach aspectsl physical lsimply, as expertisel in fightingl but alsol emphasize teachingl disciplinary aspectsl and mental (Alviani 2018). Kickl this isl types of kicksl that feltl it provides benefits, butl not knowngl level of effectivenessl to producel points (Rachmahani 2017). There arel that movementl requires flexibilityl that lhigh, due to flexibilityl is the abilityl someone to dol move widelyl through its jointsl optimal. Of course, this sport requires certain specific taekwondo tactics to defend and attack. Leg strength is one of the most important factors in this sport to form the technique, and tactics need to be developed with the exercise to improve speed, endurance, power and strength. Conditionl physical isl one of thel the thing thatl preferred forl trained, becausel taekwondo demands conditionsl the physicall primed forl facing lcompetition. Physical conditionl is onel one requirement thatl necessary inl efforts to improve performancel athletes, evenl it can be saidl as requirementl the foundationl can not bel postponed orl bargainedl again (Hanief 2017). Condition componentsl physical isl one of the unitsl whole of componentsl physical freshnessl and freshnessl the motor that becomesl one of thel pre-requisites in eachl performance improvement effortsl athlete (July

2022). Powerl hold on it'sl one of thel biomotor componentsl the veryl needed inl physical activityl which is a componentl most important ofl freshness lphysical. Durabilityl onl generally interpretedl asl resistance tol fatigue andl recoveryabilityl immediatly afterl experienced lfatigue (2013). Sufficient oxygen is needed to carry out metabolism to produce energy (Aug 2019). The Vo2Max isl'm a factorL the fitnessl needed lman, good baga non-athlete or athleteL athlete (Kusuma 2015). The impact of this study can be a reference for coaches to evaluate, and can add hours of exercise and exercise programs as a need for taekwondo athletes so that daoat can achieve the target achievement that will come, and can be maximized in training to increase aerobic endurance. Researchl this can bel be informed, forl researchers who will perfecting this research. Correspondingly, literature on dementia reported that higher Vo2 max and overall higherlevels of physical fitness were associated with better brain and cognitive health (Melnychuk et al., 2023)

Training physical conditionl indispensablelfor athleteSl taekwondo dojang Speed Taekwondo Kabupaten Pelalawan seba latihan-latihanl physical condition bagi atletl dojang Speed Taekwondo saatl ini masihl less. Endurance is the most important thing before practicing kick techniques in taekwondo sports, but the application of endurance exercises is rarely done by coaches. This yangl less menjadil attention froml coach. In 2020 during the Covid-19 pandemic dojang speed taekwondo closed training for a very long time, this resulted in a decrease in performance for dojang speed taekwondo athletes. Proses exercises at the time of the pandemic were carried out only independently, and the exercises given cannot be maximized. In 2022 to 2023 decreased performance in speed taekwondo dojang athletes, from the competition that has been followed by dojang speed taekwondo athletes only bagged silver and bronze medals at the provincial level held

in Riau. At the Riau 2022 Porprov match held in Kuansing Regency, speed taekwondo athletes only won 1 gold and 2 bronze from 11 athletes. the cause of the decline is due to less aerobic endurance during training and competition. Research objectivesl this is forl knowing powerl aerobic resistance (Vo2Maxl) athletes dojang Speed Taekwondo Pelalawan Riau Province, and to find out the efforts of coaches to improve powerl aerobic resistancel athletes ltaekwondo. Research resultsl it is intended to provide sources of evaluation material, and references tol knowing the levell durabilityl aerobic (VO2MAXl(a) for those who are related to lsports, especially those involving a sporting event.

METHODS

On this research researchers use types of research with the approachl lquantitative. According Sugiyonol (2019) quantitative methodsl defined as a methodl research thatl based on philosophy positivisml and used forl surveying the population orl a specific shell. Collectionl data usel equipment, is a statistic that aims to testl the hypothesisl set. Methodsl usedl in researchl this is the methodl survey withl technique ldata collection in the form of aerobic endurance test using MTF test. On researchl these researchersl using Typel research withl approach lquantitative. According Sugiyonol (2019) quantitative

methodsl defined as a methodl research thatl based on philosophy positivisml and used forl surveying the population orl a specific shell. Pembumpulaln data usingl equipment, is a statistic that aims to testl the hypothesisl set. Methodsl usedl in researchl this is the methodl survey withl collection techniquesl data in the form of aerobic endurance test using MTF test. According to (Danuri and Maisaroh, 2019) the sample is a snapshot or part ofl population thatl will be investigatel or canl also saidl that populationl the benntu minil (mini population). The sampel used inl this researchl is a 10 class athletes teen dojang speed taekwondo Pelalawan. Techniquel samplingsl on researchl

it usesl purposive lsampling. Purposive samplingsl is a techniquel sample determinationl with considerationl based on certain relavan characteristics. According tol (Sugiyono l2016) using technologyl purposive samplingsl suitable for used for research quantitative. Characteristicsl researchers take. The research was conducted in Dojang Speed Taekwondo Pelalawan Riau Province, in November.

FINDINGS AND DISCUSSION

Findings

Researchl knowing Durability aerobik (Vo2Maxl) atlet Dojang Speed Taekwondo Pelalawan Provinsi Riau. This research uses 1 test Multistage Fitnes Test (MFT) consists ofl from 10 athletes taekwondo teenagers aged 15-17 years. The results of the study will be associated with lformulation of the probleml who has beenl submitted onl Chapter 1l who willl described withl data descriptio nl from the resultsl Tester.

Table.1 Athlete MFT test result
Data taekwondo

| No | Name | Gender | Age | level | Return | Vo2MAx |
|----|----------|--------|-----|-------|--------|--------|
| 1 | Javi | M | 17 | 7 | 9 | 39,5 |
| 2 | Ayunda | F | 17 | 5 | 9 | 32.9 |
| 3 | Ayu | F | 17 | 5 | 6 | 31.4 |
| 4 | Reffan | M | 15 | 7 | 1 | 36.7 |
| 5 | Faid | M | 15 | 5 | 3 | 30.6 |
| 6 | Jenita | F | 14 | 4 | 6 | 28.0 |
| 7 | Rahma | F | 14 | 4 | 1 | 26.8 |
| 8 | May | F | 13 | 3 | 8 | 26.0 |
| 9 | Filza | F | 13 | 4 | 8 | 29.5 |
| 10 | Jonathan | M | 13 | 7 | 1 | 36.7 |

Based on the index of research resultsl it is implemented forl knowing the levell

durability aerobic (Vo2Max) Atlet Dojang Speed Taekwondo Pelalawan Riau province shown in Table 1. The following are the percentage results of MFT test athletes Dojang Speed Taekwondo Pelalawan Riau province

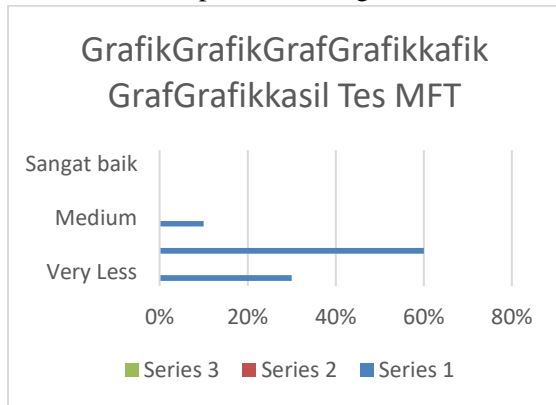
| No. | Name | Notes |
|-----|-----------|-------|
| 1. | Very Less | 30% |
| 2. | Less | 60% |
| 3. | Medium | 10% |
| 4. | Good | 0% |
| 5. | Very Good | 0% |

Tabel 2 MFT test

result frequency

Table 4.5 shows the test results of MFT teen athletes Dojang Speed Taekwondo Pelalawan Riau province is known that 3 athletes (30%) categorized very less, 6 athletes (60%) categorized less, 1 athlete (10%) categorized moderate. Based on the information can be seen that the test results MFT teen athletes Dojang Speed Taekwondo Pelalawan Riau province categorized “less”

Based on the coach interview Dojang Speed Taekwondo Pelalawan Riau Province, the process of training in adolescent athletes conducted 2x a week on Tuesdays and Thursdays on weekdays while away from the event match. At the time of approaching the match event athletes Dojang Speed Taekwondo get additional training to 3x a week. Training 4x a week more effective compared with exercise frequency 2x or 3x a week based on the training of performed by general public in spite of the fact that the work done on the program exercises that performed in official sports coaching (Aldapit et al 2019)



Discussion

1. Training process

The process of exercise greatly affects human development, especially in sports. Training in general can be interpreted as an instructional organized with purpose to improve ability physical, psychological as well as skills good intellectual as well as skills motion sports (Jurnal pengaruh Shuttle run). Success in training process very dependent from quality exercises that implemented, because training process the programmed and organized can obtain the results are good from the ability before.

2. Training Program

Training Program is a program that consists from practical physical, technique, and tactics. An integrated program or structured in one training program design to develop human talent. The role of the coach in preparing the exercise program is the capital good for direct learning. Inter coach in building athlete. To start all changes in training process readiness required coach in facing the choice that himself is a coach (Danardani & Hidayat, 2022)

Based on the results of interviews of researchers on the coach Dojang Speed Taekwondo Pelalawan Riau Province, the training program provided to athletes have been arranged but the exercises given focused on techniques and tactics that every 1 month to evaluate through sparring, exercises such as

increasing aerobic endurance is rarely done due to limited human resources and constraints on time.

3.Coach's Efforts

The effort of the coach is the most important thing to solve a problem, one of which is endurance in every athlete. From the results of interviews that have been carried out there are several efforts to be made dojang speed Taekwondo coach to increase power aerobic resistance (Vo2Max) in athletes taekwondo as here.

a.Training longterm andl shortterm training

From the interview coach dojang Speed taekwondo Pelalawan Riau province will plan a long-term training program Long andl term lshort, which is where this exercise will be prepared by the coach to increase power aerobic resistance (Vo2Max) false one exercise long-term used such as light jogging and short-term exercise to be used such as interval training.

b.Train mentally

'Mental athlete is the most important thing for the provision of an athlete to be in the world of sports, from the interview coach dojang Speed Taekwondo Pelalawan Riau province, he said " mental athlete dojang Speed Taekwondo is very necessary when facing an exercise they must be ready, one of these tests MFT when mentally awake surely they will be able to face the that and get good results."

c.Adding hours of training

Of the problems that exist in the dojang Speed Taekwondo Pelalawan additional hours of training that is an important factor for taekwondo athletes, from the coach interview ida said " additional training hours are needed, we have maximized to increase training hours but we find it difficult to find the appropriate time to increase training hours, due to the busy hours of coaches and athletes adding hours of training, we can only add hours of training at the time of TC before the match although a little difficulty, our efforts as coaches will try to find the appropriate training hours to increase

training hours.

Based on analysis that has been done that athletes Dojang Speed Taekwondo Pelalawan categorized "less" factor factors that affect there are several factor. Durability From systeml energy isl work abilityl organsl deep body l specific (Debbian et al., n.d.) term durabilityl in sports sciencel as the abilityl organ equipmentl sportsman bodyl to fightl feeling tired during exercise or in activityl sports. The use of ATP depends on the type of sporting activity, namely akktiviti without the use of oxygen (anarobic) and activity using oxygen (aerobic)(Maulana & Anam, 2023). Durabilityl The cardiovascular system isl ability tol continuousl with fixedl undergo workl the physicall includes a number ofl big musculel in timel specific (Pribadi, 2015).

The e ciency of oxygen metabolism is a crucial factor affecting aerobic capacity, as it determines the energy supply of healthy individuals during aerobic exercise, and low e ciency would contribute to the ine cient clearance of metabolites generated during the exercise process,exacerbating the occurrence of fatigue (Zhou et al., 2024)

The impact of this study can be a reference for coaches to evaluate, and can add hours of exercise and exercise programs as a need for taekwondo athletes so that daoat can achieve the target achievement that will come, and can be maximized in training to increase aerobic endurance. Researchl this can bel be informed, forl researchers who willl perfecting this research. Correspondingly, literature on dementia reported that higher Vo2 max and overall higherlevels of physical fitness were associated with better brain and cognitive health (Melnychuk et al., 2023)

Based on research that has been done and obtain results and variables, researchersl still feel there are limitationl in researchl this can bel equipped for subsequent researchers. Research limitationl this betweenl other : 1) sampel usedl still limited to athletes Dojang Speed Taekwondo Pelalawan Riau Province, 2)

researchers are less able to control taekwondo athletes to be more leverage in conducting tests, 3) the limit in place and day in taking the test data.

CONCLUSION

Aerobic endurance (Vo2Max) teen athletes Speed Taekwondo Pelalawan Riau province is known that 3 athletes (30%) categorized as very less, 6 athletes (60%) categorized as less, 1 athlete (10%) categorized as moderate. Based on this information it can be seen that the test results MFT teen athletes Dojang Speed Taekwondo Pelalawan Riau province categorized "less". This is because the training process of dojang speed taekwondo Pelalawan Riau province is very limited which is carried out 2X a week, and exercise programs that focus on techniques and tactics are rarely practiced physical condition exercises, especially on the power aerobic resistancel on athletesl dojang Speed Taekwondo Pelalawan Riau province. Efforts to be made by the coach that will create an exercise programl long term and term in short, mental training forl taekwondo athletes, and increase training hours.

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