

## Compiling the Physical Test Instruments for Adult Tarung Derajat Martial Arts

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### Abstract

*This study aims to (1) produce a physical test instrument for combat martial arts in the adult fighting category (2) produce a manual for a physical test instrument in the adult fighting category. (3) Knowing the feasibility of the product manual for the physical test instrument for combat martial arts degrees in the adult fighting category. This research is a type of research (R&D) using a 4D development model. This development model consists of four stages, namely: (define, design, develop, disseminate). This research was conducted at PB Kodrat Yogyakarta which involved two validators, 1 material expert and 1 physical condition expert, 3 practitioners and 2 colleagues and 10 combat trainer respondents. Data collection techniques using questionnaires, methods delphi, and scoring rubrics. Validity test use content validity analyzed using Aikens v formula and concurrent validity analyzed using correlation product moments. Reliability test using Alpha Cronbach. This study resulted in a manual product for the physical test of combat martial arts in the adult fighting category, which consisted of 12 test items, namely: (1) side splits, (2) 20 meter sprint, (3) hexagonal obstacle, (4) standing broad jump, (5) shock test (6) Expand Dynamometer (7) leg dynamometer (8) back leg dynamometer (9) push ups 1 minute, (10) sit ups 1 minute, (11) wall squat test, (12) run 2.4 km. The physical test instrument for fighting grade martial arts is declared valid with r count > from r table with details; 0.94 > 0.632 and the test was declared reliable with Cronbach's alpha value of 0.945 > 0.765. The product of the Tarung Degree physical test instrument has a feasibility percentage of 100% with a very strong/decent/ appropriate category from a material expert and 100% very strong/appropriate/feasible from a physiotherapist. The trainer's response to the manual has a percentage of 96% including in the very very strong / appropriate / appropriate category.*

### Keywords

Physical test instruments;  
combat degrees; combat degrees  
adults.



### I. Introduction

Law Number 3 of the Republic of Indonesia of 2005 and Government Regulation of the Republic of Indonesia of 2007 concerning the National Sports System, Article 4 concerning the basics, functions and objectives of sports, namely: National sports aim to maintain and improve health, fitness, achievement, and quality. instilling moral values and noble character, sportsmanship and discipline, strengthen, promote national unity and integrity, strengthen resistance national, as well as increase the dignity of the nation. One of the fields that often raise the dignity of the nation is the field of achievement sports.

Optimal hacking will be achieved If you practice in a high-quality way and use the concept of pyramid building as processfor reach aim. Using the use of science and technology to obtain information about the physiological characteristics of athletes can be used as a guide in planning an exercise program. more broadly, performance improvement is not just one-sided. Although many aspects contributed to this achievement. The role of physiology is one of the disciplines that make scientific contributions to sport in supporting increased achievement (Utami,D., 2015).

One of the sports that have been competed in achievement sports in Indonesia is martial arts degree. Tarung Degree is one of the sports that has been competed as an achievement martial sport at the district/city, provincial, national and Asian levels. Tarungdegree is an original Indonesian martial art created by Guru Haji Acamad Drajat in the 1960s in Bandung - West Java.

Tarung degree is a martial art that relies on the logic of moral action that comes from feelings, thoughts, and emotions belief in utilizing the three main factors of the life force compound, namely muscles, brain, and conscience in a realistic and rational manner to develop the five elements of locomotion, namely strength, speed, accuracy, courage and tenacity which are applied in an aggressive and dynamic self-defense system. in the form of punches, kicks, parries, slams, locks, evasions, capokans and other important body movements according to techniques, tactics, and defensive - attacking - attacking - deadly techniques that are practical and effective for a martial arts sport (Drajat 2017 : 8).

Tarung degree is a self-defense that applies a full body contact system in every fight/competition of its achievements, so that in its training method, fighting degrees puts more emphasis on 3 aspects, namely: physical, moral and mental. Physical training is the initial stage in every process of developing combat athletes, both beginners and seniors, so that it is hoped that through physical training, combat athletes have good physical fitness.

To maintain the physical stability of a fighting athlete, a fighting athlete needs to be fostered continuously. This needs to be done because to maintain the stability of the physical condition of a fighting degree has a direct impact on winning when participating in a match. Therefore, the physical aspect of fighting martial arts is very necessary in preparing athletes to take part in the competition. aspects of physical condition that need to be considered are: abdominal muscle endurance, agility, togok flexibility, abdominal muscle strength, arm muscle endurance, speed and VO2 Max (Noviatmoko, 2016).

Physical condition is a very important factor in determining sports achievement, because in training Tarung athletes the degree of physical condition must be the main consideration factor Hendarto, S., & Rahayu, T. (2018). The physical condition is a unified whole and cannot be separated from the biomotor components, both in repair and maintenance. That is, to improve physical conditions, all biomotor components must be developed. According to Setiawan, D. (2013).

Physical condition is an absolute requirement in improving athlete achievement, it can even be said as a basic need that cannot be postponed or negotiable, (Teja et al., 2015). The better a person's physical condition or ability, the higher the chance of achievement (Aldani, 2020). Physical exercise is one way to improve overall physical fitness (Demorest et al., 2016).

Good fitness or physical condition is the initial foundation for athletes in launch techniques, tactics and strategies in a match (Setyo Budyanto 2012:29). Physical condition is an important factor and is the foundation / foundation in terms of technical development, tactics, strategy, and mental development Bafirman & Wahyuri (2019:5). Thus, good physical condition is a condition that must be owned by an athlete.

Good physical condition is a prerequisite that must be possessed by an athlete in improving and developing optimal sports performance so that all his physical conditions must be developed and improved according to the characteristics, characteristics, and needs of each sport branch Supriyoko, A., & Mahardika, W. (2018).

This suggests that a cut-off point for age is needed to help trainers identify a person's high level of physical fitness that can be used as material for an exercise development plan. Roberts, et al. (2016: 80). So it is hoped that after the preparation of physical test instruments that are appropriate for the characteristics and age of the martial arts degree, it is hoped that training can also be done considering several aspects, including the athlete's age, personal potential, level of preparation or training stages, the focus of training for each sport depending on the characteristics of the sport (Setyo Budyanto, 2012:35).

The success or failure of the athlete's performance depends on the coach, it is hoped that the coach can develop a test instrument and measurement of physical condition as a reference material for training make an exercise plan, so that it can improve athlete achievement. Hariadi, I., Fadhli, NR, & Taufik, T. (2019).

Test is a tool or any other name instruments, namely tools used to obtain or collect information needed by Fenanlampir and Faruq (2015: 3). This means that the physical test is a tool to obtain information and data as material for evaluating a person's physical condition.

Evaluation is the process of interpreting the collected measurements and determining some values. The interpretation of this value is often done by comparing the results with predetermined criteria or objectives. Without the availability of tests and measurements and norms by which to compare, the evaluation process will less good results Lacy, A. C., & Williams, SM (2018). So that evaluation cannot be separated from the training program. Evaluation is an activity that determines the extent of the athlete's ability and mastery of the training objectives intended by Setyo Budyanto (2012: 124).

Evaluation is an inseparable part of various human activities, as well as in sports teaching and training activities. Because by carrying out these three things, we can find out developments and shortcomings, so that we can finally make the right decision (Asnaldi; 2019).

From the results of the researchers' observations during the championship at the Bandung West Java 2019 National Sports Week (Prapon) the researchers observed that some DIY fighting athletes lost due to a decrease in physical condition. Based on the case examples described above, it is illustrated that the physical component of the martial arts degree is an important part that needs to be done noticed. So the researchers decided to find out what were the obstacles for each coach in the physical development process.

Based on the results of a preliminary study conducted by researchers in the fighting sport family, the special region of Yogyakarta (DIY) shows that: in the last few years, starting from 2016 – 2019 there has been a decline in achievement, meaning that in 2016 the DIY fighting athletes got one gold medal, one bronze medal and one passed one athlete so that the number who passed the 2016 PON was three athletes. Meanwhile, Prapon in 2019 experienced a decline, where Tarung derjat DIY only got one bronze medal and only one athlete passed. Thus, there are fewer fighting athletes who qualify for the Papua PON in 2021 than the athletes who pass the 2016 West Java PON.

From the results of the research conducted by the researcher, the results with several trainers in the Regency/City and the main trainer of Tarung Degree DIY (KD) through interviews, the data obtained show that; the coaches have given physical exercise to athletes but to measure and determine the physical condition of the athlete the coach is still experiencing problems regarding the test equipment used. This is because there is no arrangement and guideline for the physical test instrument for fighting martial arts, the

category of fighting adults specifically for this martial art. So far, the physical tests carried out are still using the general tests conducted by KONI DIY, so it is not clear how far the physical condition of the speech fighting athletes (KD) of DIY coaches is.

Apart from the fact that the physical test instrument for combat martial arts has not yet been prepared, the norms for the physical test have not yet been made. Therefore, in addition to the preparation of the physical test instrument, it is also necessary to make a physical test guideline for the adult fighting category which contains test norms, in order to classify the results of the tests carried out. Because the physical test instrument for fighting martial arts degrees today is very much needed by coaches in knowing the physical condition of athletes and as a source of data to evaluate and develop training programs.

Furthermore, KD, the main trainer of the Yogyakarta fighting degree, said that: the most important thing that a combat athlete must prepare is his physique because technique and mentality will follow when the athlete has a good physique. because without a good physique, athletes will find it difficult to face matches.

From the results of the analysis, there are several physical biomotor components needed by DIY fighting athletes such as: (flexibility, speed, agility, power, coordination, strength and endurance). Therefore, a physical test instrument for fighting martial arts degrees is needed to evaluate the physical condition of the DIY degree fighting athletes, because without a physical test instrument that is in accordance with the characteristics of the coach's fighting martial arts branch, it will be difficult to know the extent of the physical condition of the athletes being fostered.

More carry on trainer main DIY provide suggestions that the physical test instrument that you want to make should be adjusted to the age and characteristics of the Tarung Degrees, because in the Tarung Degrees itself there are categories and age limits that are required to take part in the Achievement Degree Fighting Championships. In terms of athlete growth and development there are also differences between early ages, adolescents and adults, so this also needs to be considered. Based on the statement above, it can be concluded that it is necessary to develop a physical test instrument according to the age category and the characteristics of the degree fighting sport which is focused on the components of biomotor needs in combat martial arts.

From the results of the preliminary study, the researcher wants to develop a test instrument that is appropriate to the age and characteristics of the needs of the sport of martial arts. The physical test instrument that the researcher wants to develop is a physical test instrument for fighting martial arts degrees in the adult fighting category. It is hoped that the existence of a physical test instrument for fighting martial arts in the adult fighting category can help coaches in knowing the physical condition of the athletes being fostered and as a materials for evaluating and compiling an exercise program.

## **II. Research Methods**

This research is classified as Research and Development (R&D) and uses a 4D development model. This development model consists of four stages. According to Sugiyono (2015: 37,38), the four stages are defining, designing, development(develop) and deployment (disseminate). From the several existing steps, it was then adjusted to the actual research needs from 4 designs to 3 designs of development research procedures where this research only reached the development stage.

The initial stage is an analysis of the needs of the dominant biomotor component in combat martial arts athletes in the adult fighting category which is discussed with experts and practitioners through the Delphi method. After obtaining the physical test instrument item for

the adult fighting category, the initial product was then validated by material experts and physical condition experts. Furthermore, the product was carried out in a limited trial to see the legibility of the product of the physical test instrument for the adult fighting martial arts category. The subjects in this study were special regional fighting trainers Yogyakarta.

Data collection techniques in this study used surveys to analyze needs, Delphi method, and the scoring rubric. The tools used in the survey using a questionnaire Indirect. The first is calculation percentage, which is used to calculate the results of the field research questionnaire. The second is to use the formula Aiken  $v$  to test content validity.

The three product validity tests use concurrent validity testing and are processed using product moment correlation. The four reliability tests use the test use Cronbach's alpha. Fifth, for the preparation of norms using a standard value of a scale of 5 involving the mean and standard deviation.

### III. Results and Discussion

From the results of the analysis and discussion with the DIY degree fighting trainer, it was found that there are 7 dominant biomotor components in the Terajat martial arts, namely (1) flexibility, (2) speed, (3) agility, (4) explosive power (5) coordination, (6) strength, (7) endurance (cardiovascular endurance/ VO<sub>2</sub>Max and muscular endurance). the following is the explanation:

#### 3.1. Flexibility

Flexibility of the legs is the most important thing that every fighting athlete must have because in kicking the athlete is required to attack from the belt up used by other athletes or the leg attack must pass through the waist to the head of the opponent. In addition, the flexibility of the waist is also needed by fighting athletes to avoid the opponent's attack by doing body moving. According to Tirtawirya, D. (2005)

Flexibility is a condition in which muscles and joints can move freely. This flexibility is important because the biggest points are earned if an athlete can kick his opponent's head. High kicks can only be done if a fighter has good flexibility. Flexibility exercises in combat sports include splits, kiss knees and many more.

#### 3.2. Speed

Speed is a must-have for every fighting athlete, because fighting athletes require high speed to carry out fast attacks, both punches and kicks to earn points. In addition to punching and kicking, fighting athletes must also be fast in moving, (moving the body, dodging the opponent's attack and moving quickly in attack). Speed is the ability to move from one place to another in the shortest possible time. Ridwan, M. (2020).

According to Tirtawirya, D. (2005) Speed is ability to complete kicks and punches in the shortest time possible. Speed is a very important part in combat degrees. The degree fighting competition is influenced by speed, because if you lose quickly, it is difficult to get points. There are many types of combat speed training. among them; run fast, do drill sport degrees etc. Kicks and punches in combat degrees can be used to model speed training.

#### 3.3. Agility

Agility is the most important thing that every fighting athlete must have because fighting athletes must always be agile in moving. Move to avoid, parry and agile in carrying out attacks (punches and kicks). This will greatly assist the athlete in issuing more maximal and varied techniques so that the athlete's movements are difficult to read by the opponent.



### 3.4. Explosive Power

Power is a word in English that related to dominance, superiority, etc. There are different ways of projecting power that is known to the human being. In primitive society for example, power is shown through physical coercion. Since humans back then are incapable of using their logic, the ones with the bigger body are justified to rule others. It is the power and superior position is that distinguish the place that people hold in certain cultures and communities. (Bahar, et al. 2020)

Power or explosive power is something that is really needed by fighting athletes in sports fighting because fighting degrees is a full body contact martial art that does not only rely on points to win but also aims for absolute defeat, namely by knocking down the opponent (knockout). Do An attack on an opponent with great power is something that every athlete wants because when the athlete has great power, it will make the athlete feel confident in his abilities. The power needed by fighting athletes is leg power and hand/arm power.

Explosive power is the ability of a person to use the maximum force that is deployed in the shortest time to do repulsion. Reject in this case it is stated as power or explosive power Ridwan, M. (2020).

Meanwhile, according to Tirtawirya, D. (2005) Explosive power or power is the product of strength and speed, so that if the leg has good power, of course if you take a kick the result will be relatively strong and fast. Power training in combat sports uses plyometrics, for example, jump, jump, go up and down stairs, drill kicks with jumps and many others.

### 3.5. Coordination

Coordination is something that a fighting athlete must have, because in a fighting competition there are rules that are required for fighters to carry out attacks. Fighting athletes are required to be aggressive and carry out a combination of attacks between punches and kicks to a predetermined area, so that coordination is needed for high-level combat athletes to avoid mistakes that can result in warnings and point deductions.

### 3.6. Strength

Strength is an important thing in fighting degrees because strength is a support in the performance of fighting athletes whose maximum strength will be confessed to power. In fighting, the muscles needed by combat athletes are hand/arm strength, leg/leg strength and back strength.

Strength is a physical component that needs to be considered and developed to improve performance in the combat martial arts branch of the degree Hambali, H., Syamsulrizal, S., & Ifwandi, I. (2015).

According to Tirtawirya, D. (2005) muscle strength is a condition in which the body can cope with a certain amount of load. When fighting, the athlete's body must be strong enough, because if the muscles are not strong enough it can cause fracture, sprain or other injury. Therefore, in combat training, physical training is always given in the form of strength. For example, in fighting degrees have various forms of strength training such as; pushups, sit-ups, crunches, leg lifts, leg curls, etc. This form of strength training does not always have to use tools, but can also use your own body weight or in pairs with friends

### 3.7. Durability

Endurance is one of the physical components that need to be considered and developed to improve performance in the combat martial arts branch of the degree Hambali, H., Syamsulrizal, S., & Ifwandi, I. (2015).

According to Bafirman, B., & Wahyuri, AS (2019). Endurance is defined as the length of time a person can survive do a certain work intensity that is far from tired. Muscular endurance is the ability of muscles to contract repeatedly without experiencing fatigue, whereas cardiorespiratory endurance is the ability of the entire body to exercise for a long time without fatigue. Endurance is divided into two parts, namely: local muscle endurance and cardiovascular endurance. Local muscle endurance or often referred to as muscular endurance, while the general resistance is called endurance (cardiorespiratory endurance) or endurance aerobic endurance.

### a. Muscle Endurance

Muscular endurance is really needed by combat athletes because to keep the body from getting tired easily, some parts of the muscles must be trained. From the results of the analysis, researchers get 3 components of muscle endurance that play an important role in supporting the achievement of combat athletes, namely abdominal muscle endurance, arm / shoulder muscles and leg muscle endurance.

Local (muscle) endurance: The ability of a muscle to sustain static or dynamic activity for long periods of time Suntoda, A.m (2009).

### b. Cardiovascular Endurance (VO2.Max)

Cardiovascular endurance is very much needed by fighting athletes because in the competition the time used is 3 minutes x 3 rounds. Combat athletes are required to always be aggressive and not always back down in the fight. If the fighting athlete always backs down, the athlete will get a warning until points are deducted. So this VO2.Max is really needed by fighting athletes so that they can quickly return to choosing from fatigue or not experiencing significant fatigue during the match. General Endurance (Cardio-respiratory): A person's ability to perform physical activity in a relatively long time with a sub-maximum load and constant exercise intensity Suntoda, A. (2009).

According to Tirtawirya, D. (2005) Endurance is a person's ability to perform aerobic and anaerobic activities for a long time. The time used in fighting degrees in the match is 3 rounds with a time of 2-3 minutes. Length of time Competing requires athletes to have good endurance. Endurance training in fighting degrees can use: interval training, fartlek, circuit target, sparring targets, land sports and others.

### c. Method Results Delphi

As for the results of expert input through the Delphi method, the results of the composition of the physical test instrument for combat martial arts degrees in the adult fighting category are as follows:

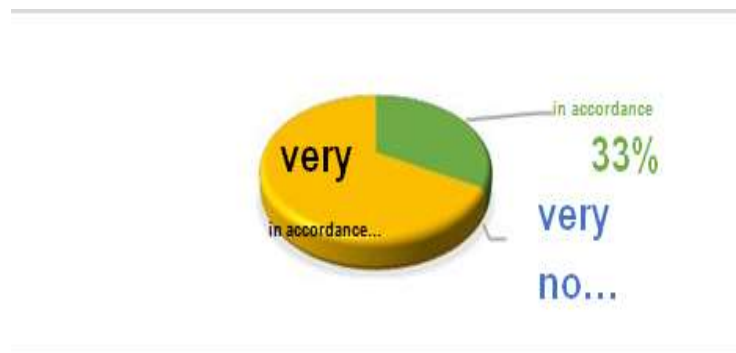
**Table 1.** Results of the preparation of physical test instruments

No	Component		Test
	Biomotor	Type	
1	Flexibility li	limbs	side split
2	Running Sp	eed	20 meter sprint
3	Agility		Hexagonal Obstacle Ageliti Test
4	Power	limbs	Triple hup jump
5	Power and coordination		Shoken test
6		Hand/	Expand

	<b>Strength</b>	<b>Arm</b>	<i>Dynamometer</i>
		<b>limbs</b>	<i>Leg dynamometer</i>
		<b>Back</b>	<i>Back lag dynamometer</i>
<b>6</b>	<b>Durability</b> muscle	Muscle <b>Arm</b>	<i>Push ups 1 minute</i>
		Abdominal muscles	<i>Sit ups 1 minute</i>
		Muscle <b>limbs</b>	<i>Wall squats Test</i>
<b>7</b>	<b>Aerobic En</b> aerobics	<b>durance</b>	<i>Run 2.4 km</i>

#### d. Expert Validation Results (Material)

Based on the results of the assessment related to the content of the product material in the table above, it can be concluded that from the aspect of the material it has conformity. The details of the assessment are as much as 67% of the content of the material is very appropriate and as much as 33% of the content of the material is appropriate. It can be concluded that the content of the product material is 100% very appropriate. For more details, see the following diagram:



*Figure 1. Meter expert validation result chart*

#### e. Expert Validation Results (Physical Condition)

The results of the assessment related to the contents of the physical test instrument manual for combat martial arts in the adult fighting category in the table it can be concluded that from the aspect of physical condition it has conformity, with a percentage of 100% in the very appropriate category. For more details, see the following diagram:



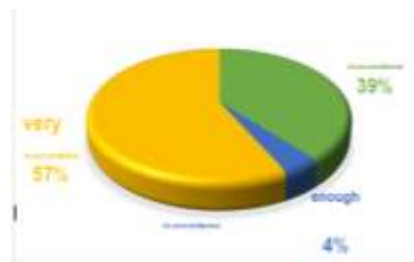
*Figure 2. Physical condition expert validation diagram*



## f. Limited Trial Results

Based on the results of the limited trial of the book product which contains the composition and guidelines for the implementation of the physical test of combat martial arts degrees in the adult fighting category, it shows that the total score on a scale of 5 (very appropriate) is 63 with a percentage of 57%, while the overall score of scale 4 (appropriate) is 43 with a percentage of 39%, and the overall value of scale 3 (quite appropriate) is 4 with a percentage of 4%. This shows that the trainer's response to the product manual for the physical test instrument of combat martial arts in the adult fighting category has a suitability of 96%, meaning that the product is included in the category of very strong / appropriate / feasible.

Furthermore, it can be concluded that the manual product which contains the structure of the physical test of the combat martial arts category for the adult fighting category has conformity in terms of the first few aspects. according to the needs of fighting athletes, the degree has an appropriate value of 7 and is appropriate 3. Third, the number of physical test items can be It is carried out with a very appropriate score of 7 and appropriate 3. The four test instruments are easy to understand and have a very appropriate value of 7 and appropriate 3. The five test instruments are easy to apply have a very appropriate value of 5 and appropriate 4 are neutral 1. The six test instruments are in accordance with the needs of category-level fighting athletes adult fighting has a very appropriate score of 6 and appropriate 3 neutral 1. The seven physical needs are in accordance with the stage of growth and development of adults 18-35 years old have a very appropriate value of 6 and appropriate 4. The eight physical tests used are in accordance with physical targets and have a very appropriate value 6 and appropriate 4. The nine tools used are in accordance with the physical test target and have an appropriate score of 6 and appropriate 4. The ten tools used are in accordance with the physical test target and have an appropriate score of 6 and appropriate 4. Eleventh has a positive value of 6 and 3 is neutral 1. More details can be seen in the following diagram;



**Figure 3.** Diagram of the results of the trainer's assessment of the product

## g. Physical Test Norms

**Table 2.** Hexagonal Agility Norms (Fenanlampir & Faruq, 2015)

Category	AGE > 18 Years			Weight 8%
	Man	Woman	Score	Score
Very good	> 12.10 seconds	12.42 seconds	50	4
Well	12.11 -13.52 seconds	12.43 -14.09 seconds	40	3.2
Enough	13.53 -14.96	14.10-15.74	30	2.4

	seconds	seconds		
Not enough	14.97-16.39 seconds	15.74-17.39 seconds	20	1.6
Not enough very	< 16.40 seconds	> 17.40 seconds	10	0.8

**Table 3.** NormTriple Hupp Jump Left limb (2020 PON DIY Puslatda Test)  
Meter/centimeter

Category	AGE > 18 Years			Weight 4%
	Man	Woman	Score	Score
	Left STJ	Left STJ		
Very good	> 9.34 m	> 8.05 m	50	2
Well	9.34 - 8.18 m	8.05 – 7.16 m	40	1.6
Enough	8.18 – 7.60 m	7.16 – 6.71 m	30	1.2
Not enough	7.60 – 5.87 m	6.71 – 5.37 m	20	0.8
Not enough very	< 5.67 m	< 5.37 m	10	0.4

**Table 4.** NormTriple Hupp Jump Right Leg (Puslatda PON DIY Test 2020)  
Meter/centimeter

Category	AGE > 18 Years			Weight 4%
	Man	Woman	Score	Score
	Right STJ	Right STJ		
very much good	> 9.40 m	> 8.09 m	50	2
Well	8.23 – 9.40 m	8.09 - 7.18 m	40	1.6
Enough	8.23 – 7.65 m	7.18m – 6.73 m	30	1.2
Not enough	7.65 – 5.90 m	6.73 – 5.36 m	20	0.8
Not enough very	< 5.90 m	< 5.36 m	10	0.4

**Table 5.** Norm of power and coordination of shoken test (Test Puslatda PON DIY 2020)n  
Meter/centimeter

Category	AGE > 18 Years			Weight 7%
	Man	Woman	Score	Score
Very good	> 14.32 m	> 11.04 m	50	3.5
Well	11.76 – 14.32 m	11.04 – 9.34 m	40	2.8
Enough	11.76 – 10.49 m	9.34 – 8.49 m	30	2.1
Not enough	10.49 – 5.93 m	8.49 – 5.94 m	20	1.4
Not much	< 5.93 m	< 5.94 m	10	0.7

**Table 6.** Expanding Norms *Dynamometer* (Sukendro, S., & Indrayana, B. (2018)).  
Kilogram/Kg

Category	AGE > 18 Years		Score	Nobot 7%
	Man	Woman		Score
Very good	> 44.50 Kg	> 44.50 Kg	50	3.5
Well	34.00 - 44.00 Kg	31.50 - 44.00 Kg	40	2.8
Enough	25.00 - 33.50 Kg	20.50 - 31.00 Kg	30	2.1
Not enough	18.00 – 24.50Kg	10.50 - 20.00 Kg	20	1.4
Not much	< 17.50 Kg	> 10.00 Kg	10	0.7

**Table 7.** Norman Strength, LegDynamometer  
(Fenanlampir & Faruq 2015) Kilogram/Kg

Category	AGE > 18 Years		Score	Weight 7%
	Man	Woman		Score
Very good	> 259 Kg	> 219.50 Kg	50	3.5
Well	187.50-159.50 Kg	171,50-219,50 Kg	40	2.8
Enough	127.50-187.50 Kg	127.50-171.50 Kg	30	2.1
Not enough	84.50-127.50 Kg	81.50-127.50 Kg	20	1.4
Not much	< 84.50 Kg	> 81.50 KGg	10	0.7

**Table 8.** Norms Strength Back and Leg Dynamometer (Fenanlampir & Faruq 2015)  
Kimetal/Kg

			Kimetal/Kg	
Category	AGE > 18 Years		Score	Weight 7%
	Male	Female		Score
Very good	> 153.50 kg > 103.50 kg		50	3.5
Well	112.50-153.50 kg 78.50-103.50 kg		40	2.8
Enough	76.50-112.50 kg 57.50-78.50 kg		30	2.1
Not enough	52.50-76.50 kg 28.50-57.50 kg		20	1.4
Not much	< 52.00 kg > 28.50 kg		10	0.7

**Table 9.** Durability Norms, Pussy Up 1 minute (Fenanlampir & Faruq Tes, 2015)  
Time

Category	AGE > 18 Years		Score	Weight
	Male	Female		7% Score
Very good	> 70	> 70	50	3.5
Well	54-69	54-59	40	2.8
Enough	38-53	35-53	30	2.1
Not enough	22-37	22-34	20	1.4
Not much	< 21	> 21	10	0.7

**Table 10.** Endurance norm, sit-ups 1 minute (fenanlampir & faruq, 2015)

Category	AGE > 18 Years		Score	Time Weight 7%
	Man	Woman		Score
Very good	> 54	> 47	5	3.5
Well	50-53	40-46	4	2.8
Enough	43-49	35-39	3	2.1
Not enough	36-42	30-34	2	1.4
Not much	< 31	> 24	1	0.7

**Table 11.** Endurance Norms (Wall Squat Test (left leg (Pye, 2005)))

Category	AGE > 18 Years			Weight 4%
	Man	Woman	Score	Score
Very good	> 102 seconds	60 seconds	50	2
Well	102 - 76 seconds	60 - 46 seconds	40	1.6
Enough	75 - 58 seconds	45 - 36 seconds	30	1.2
Not enough	57 - 30 seconds	45 - 20 seconds	20	0.8
Not much	< 30 seconds	> 20 seconds	10	0.4

**Table 12.** Endurance Norms (Wall Squat Test (right leg (Pye, 2005)))

Category	AGE > 18 Years			Weight 4%
	Man	Woman	Score	Score
Very good	> 102 seconds	60 seconds	50	2
Well	102 - 76 seconds	60 - 46 seconds	40	1.6
Enough	75 - 58 seconds	45 - 36 seconds	30	1.2
Not enough	57 - 30 seconds	45 - 20 seconds	20	0.8
Not much	< 30 seconds	> 20 seconds	10	0.4

**Table 13.** Norms of Aerobic Endurance Running Test 2.4 Km (Bafirman, B., & Wahyuri, AS (2019)).

*In minutes/second*

Category	AGE > 18 Years			Weight 15%
	Man	Woman	Niai	Score
Very good	< -10.45	< -13.30	50 ■	7.5
Well	10.46-12.00	13.31-15.54	40 ■	6
Enough	12.01-14.00	15.55-18.30	30 ■	4.5
Not enough	14.01-16.00	18.31-19.00	20 ■	3
Not much	> 16.01	> - 19.01	10 ■	1.5

**Table 13.** Overall norm

Category	AGE 18 years
	Boy and girl
Very good	41 - 50
Well	33 - 41
Enough	25 - 33
Not enough	18 - 25
Not much	10 - 18

## IV. Conclusion

Based on study which has carried out through several stages, the conclusions of this study are as follows:

1. Research resulted in 12 arrangements physical test instrument for adult fighting category, which consists of: (1) Flexibility test using side splits, (2) Speed test using 20 meter sprint, (3) Agility test using hexagonal obstacle, (4) Leg power test triple hupp jump, (5) Test power and coordination using shock test (6) Test arm/hand strength using expanding dynamometer (7) Test leg strength using leg dynamometer (9) Back strength test using back dynamometer (10) Arm muscle endurance test using push ups, 1 minute, (11) Abdominal muscle endurance test using sit ups 1 minute , (11) Leg muscle endurance test using wall squat test, (12) Aerobic endurance test using a 2.4 km run. The test is declared valid
2. A manual for the physical test of fighting martial arts in the adult fighting category has been made.
3. The product of the physical test instrument book for combat martial arts in the adult fighting category is declared valid with r count > from r table with details;  $0.94 > 0.632$  and the test was declared reliable with Cronbach's alpha value of  $0.945 > 0.765$ . The physical test instrument product for Tarung Degrees has a feasibility percentage of 100% in the very strong/ appropriate/appropriate category from a material expert and 100% very strong/ appropriate/feasible from a physical condition expert and 96% is included in the very strong/ appropriate category worthy of the coach's judgment.

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