
PHYSICAL TEST TABLE TENNIS DOMAIN FOR 13-15 YEARS AGE GROUP

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Abstract: Every sport requires a different level of physical qualities with the other, but very important note is the physical quality of players needed to achieve peak performance when desired. In the world of sport, to achieve high performance, optimal physical quality is a requirement that cannot be ignored. The value of minimum standards for each sport varies in accordance with the necessary physical qualities of the sport. Many types of physical ability test that is used for identification and development of the physical domain of table tennis game, but have not tested how much effectiveness against the appearance of table tennis. This preliminary study design is a development of this kind of research that is the development of table tennis test aged 13-15 years Central Java PTMSI player. In the limited testing performed tests a number of players made up 61 players that consist of 27 men and 31 women. From the results of Focus Group Discussion (FGD) trainers recommend as many as 25 kinds of tests for measuring the physical domain of table tennis. Based on the analysis of data using part-whole correlation analysis of the results obtained from Guilford: Validity and reliability test for men and women players are not different, both of them are on average of very good category.

Keywords: Physical domain, instrument, table tennis

1. INTRODUCTION

Table tennis can be played and enjoyed by all family members and provide exercise and entertainment to players of all ages and them with disabilities as well as physical. Table tennis requires a complete physical condition to be able to get higher achievement, in addition to mastery of technique, tactics and strategy. This is not only due to the inclusion of this branch in the curriculum at the school, but this game is very interesting and quickly became popular because of easy execution, not too needs space, and can be played by anyone, young and old, men and women even early childhood.

Each sport requires a high level of physical qualities varying or different from one another, but very important note is the physical quality of players needed to achieve peak performance when desired. In the world of sport, to achieve high performance, optimal

physical quality is a requirement that cannot be ignored. The value of minimum standard for each sport varies according to the quality of the physical needed for the sport. Optimal physical quality supports the performance of athletes and reduces the risk of injury.

Table tennis requires a complete physical condition to be able to get higher achievement, in addition to mastery of technique, tactics and strategy. According A.M. Bandi, et al (2004), "basically a game of table tennis is the ability to apply various technical skills, physical and psychological". In detail the basic coaching physical condition for an athlete who wants to excel must have a physical condition, as proposed by Muhammad Sajoto (1988) physical coaching such as: Strength, endurance, muscular power, speed, coordination, agility, balance, accuracy, the reaction. Based on the overall physical condition of the components mentioned above

cannot be separated from one another, so that the achievements of a player in any sport can be increased.

Efforts for achievement need systematic planning, implemented gradually and continuously from To promote, nursery until it reaches the peak of achievement. As we know that to achieve sporting achievements are many factors that determine them through the method of exercise is one of the keys to success and with a scientific approach that is controlled by a trainer will be able to assist in the process of achieving the targeted objectives. But in fact the hitherto system of coaching, scouting and development achievement and continuous exercise regularly still felt having problems include the following: (1) lack of adequate evaluation system; (2) the time constraints, the funds in efforts to increase the national sports achievements; (3) handling in the process of coaching accomplishments have not been done in a sustainable manner; (4) scouting and player recruitment is often done through observation or experience coach. Therefore, the need for physical test table tennis to be used as a valid and reliable guidance based on physical indicators so as to develop table tennis players, achievements.

Elizabeth Quinn (2009) says, "Talent selection should do with the tests. Aspects that must be measured and known through the test, they are aspect of biomechanical, physiological and psychological, which is genetic, relatively permanent and relatively irreversible by any other form of exercise program. Biomechanical aspects related to the shape and size of the body, the physiological aspects related to the structure of the organs of the body and the psychological aspects associated with intelligence and personality ". Based on preliminary research, it turns almost all trainer does not carry out the same physical test and does not have standardized physical tests / standards for measuring the physical abilities of players cadets at the game of table tennis in Central Java.

Problem Question

Based on the background of the problem can be formulated in this preliminary study is: Does the test circuit table tennis physical domains valid and reliable?

2. LITERATURE REVIEW

2.1 Table Tennis

Sutarmin (2007) table tennis is a sport can be played in a closed room or in the building (indor game) played by two and four players. How to play using Celluloid racket over the net that lays on the table, which is linked to the two poles of the net. Game of table tennis is a sport that is unique and creative nature (Muhajir, 2007) how to play using Celluloid pass bet nets hanging above the table, which is linked to the two poles nets. Table tennis is a game that is done by dealing with opponents. The ball comes so fast and direction changes unpredictably, so the game requires high concentration.

The game is played to 11 points with 2 points difference; the winner of the match is the best of the three games he has obtained. Basic motion table tennis game consists of motion, moving forward and backward, left and right laterally shifted strode done quickly and carefully. All movements and activities are necessary for the player can hit the ball in the attitude and position of the body remains well controlled. The movement is quite long and repetitive.

According to Jimbaw, the Chinese table tennis team coach, 1992 (in Kertamanah 2003) says that the higher quality of the techniques that must be controlled by a player, the greater the physical requirements needed. Similarly, the quality of the championship / tournament which will be followed, the greater physical conditions required for the achievement of a player in the championship followed.

2.2 Table Tennis Achievement

Table tennis achievement is a result of training that includes aspects of motion or physical ability, skill or technique, strategy / tactics, mental / psychological aims to achieve the highest performance in a game of table tennis. The highest achievement in the game of table tennis is the culmination of all the coaching process, including and nurseries. The process can be seen in the figure 1:

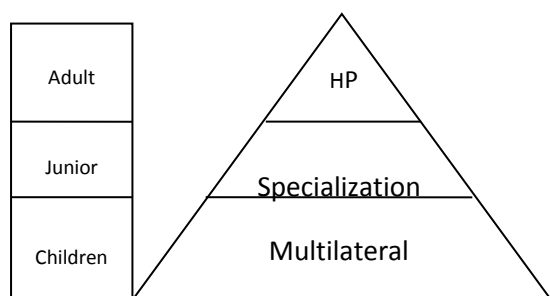


Figure 1. Development of Sports Performance System (Tudor O. Bompa, G. Gregory Haff, 2009)

Guidance system as in Figure 1 provides the widest possible opportunity for all children and youth to participate in sports activities as a preparation for achievement. Many factors that can affect the achievement of table tennis, as Nossek stated (1982) that the sporting achievements depend in the elements, among others: (1) the skills and techniques required, developed, controlled and automated; (2) capabilities based on the setting of fitness training, motor skills, learning ability of coordination; (3) good behavior to deal with situations in the competition; (4) the development of tactics and strategy; (5) the quality of affective behavior, cognitive and social.

To achieve a high level of achievement required training can develop the physical condition, technical, tactical and psychological, supported by the talent of players, available infrastructure and good competition. Pesurney (2005: 7) suggests that increasing physical abilities determined through targeted exercises, in addition to the age of the players, the talent, the nature of organs, muscle size, the level of coordination and control of psychic ability.

2.3 Physical Domain

Physical domain is the study of the physical power that embodies the body movements while reviewing the psychomotor domain of the body movements. The importance of physical qualities in supporting motor skills in the sport, the physical domain obtaining portion special handling. The physical domain and psychomotor domain cannot be separated, but can only be distinguished. Physical function and psychomotor function in the practice of sports must be distinguished which one is preferred to

be improved on certain training period. At certain stages of the training precedence mastery of movement, at another stage needs prioritized improving the quality of physical exercise.

The physical domain in this study is the fitness components required in accordance with the players sport and its role. Physical is the foundation of the building achievements of this is due to technical factors, tactics, psychic can be developed properly if the player has the physical quality of the provision of good quality. In the physical condition of the training material (2009) stated that the basic biomotor capabilities include five types, namely: strength, endurance, speed, flexibility and coordination. Elements such capabilities have the respective roles of a sport, in other words the physical ability for potential players of various sports is a requirement to show the performance of the particular qualities. In relation to sports achievements in the future, the phenomenon can be analyzed so that the process of developing sports achievement more effectively and efficiently.

Thinking innovation of the existing studies is selecting factual observations and the main determinant factors of table tennis achievements related to the physical domain, include: a). Anthropometric characteristics, namely: (1) height, (2) weight, (3) arm span, (4) the length of the leg. b) Characteristics of physical ability, comprising: (1) hand eye coordination, (2) Hand reaction test, (3) Perception kinesthetic hands: the field of vertical, horizontal plane, (4) Perception kinesthetic legs: jump, shift, (5) flexibility : flexcion of thrunk, sit and reacsh, wrist flexibility, (6) the speed in anticipation of motion: speed anticipation, (7) the running speed: 20 m, 40 m, (7) agility: shuttle run, (8) the balance: hexagonal obstacle test, (9) power leg muscle: standing broad jumps, vertical power jumps, (10) power arm muscles: throwing the ball medecin, (11) the power: sit-ups, push-ups, (11) cardiovascular endurance: multistage fitness test (MFT), (12) grip dynamo meter.

2.4 Instrument

One of the most important phases in the measurement and evaluation program is selecting and constructing instruments or tests.

According to Ridwan (2006) test as an instrument of data collection is a series of questions / exercises that are used to measure the skills of knowledge, intelligence, ability or aptitude of the individual / group. In constructing the instrument need to consider that the interpretation of the resulting scores to be precise, useful, and can be used in these circumstances.

All the above types of instruments in order to have the ability to evaluate certain important characteristics to support this preliminary study cites several scientific theories relating to the test measurement and evaluation, sport physiology. A test can be used if it has a high degree of validity, reliability and objectivity.

According to Verducci (1980) the essential characteristics of the instruments in the selection and development of physical education are: (1) Validity, (2) reliability, (3) objectivity, and (4) administrability. In line with these opinions, according Sukardi (2010) are: (1) valid, (2) reliable, and (3) can be used (usability). Further guidance talent scouting in sport (1998) mentioned the things that need to be considered in developing the test, namely: (1) validity, (2) reliability, (3) distinguishing, (4) age, (5) applicability and (6) the ease of administration of the test.

2.4.1 Validity

Validity is the accuracy level instrument use to what should be measured. The validity of an instrument is the degree that shows where a test measures what it intends to measure. A test or measurement instrument is valid if it measures what it is supposed to be measured. For example, a test run of 40 m is valid to measure running speed, but it is not valid to measure flexibility.

2.4.2 Reliability

Reliability can be interpreted as the consistency of the measurement results when done several times in the same individual under the same conditions. So reliability synonymous consistently. An instrument is reliable when the test is made to have a high consistency in the measure something to be measured. The degree of reliability is expressed by the correlation coefficient with the range of 0.00 to 1.00, the greater the score means more reliable.

2.4.3 Objectivity

Objectivity can be defined as an agreement of two or more competent assessors on a measurement. Objectivity scores can also be termed as rater reliability. If the two assessors or member grader score of an individual with the same test and disagree with the scores given, then the test is not enough objectivity.

2.4.4 Administrability

Administrability related to practical considerations in selecting a test instrument. This aspect is an important aspect of the test criteria either for it had no negative effect on the other criteria. The factors for consideration in determining the instrument interoperability are: (1) ease of the test administration, (2) the time required, (3) the test order, (4) the availability of facilities, and (5) costs.

Ease of administration of the test means the complete guidelines will provide guidance for officers and the tests, making it easy to do so the time needed is closely connected with the costs. Similarly, facilities and infrastructure used in the implementation of the test, the fewer tools of personnel in the implementation of these tests, the less the costs incurred. In addition to these criteria, the availability of the norm in a test is also very important, the norm it easier to compare the value achieved in a test subject.

3. RESULTS AND DISCUSSION

Result

Table 1. Results of Validity and Reliability Test Table tennis Physical Domain

No.	Test	Validity		Reliability	
		M	FM	M	FM
1.	High	0.91	0.90	0.92	0.91
2.	Weight	0.89	0.91	0.90	0.90
3.	range of hand	0.92	0.86	0.91	0.88
4.	length of leg	0.90	0.92	0.91	0.94
5.	Coordination	0.93	0.91	0.94	0.92
6.	Hand reaction test	0.90	0.89	0.91	0.90
7.	Perception vertical	0.81	0.78	0.82	0.78
8.	perception horizontal	0.75	0.71	0.75	0.72
9.	perception: jump	0.71	0.66	0.72	0.67
10.	perception: move	0.76	0.65	0.78	0.66
11.	flexion of trunk	0.75	0.67	0.75	0.66
12.	sit and reach	0.93	0.92	0.94	0.93
13.	wrist flexibility	0.70	0.93	0.71	0.94
14.	Speed anticipation	0.87	0.57	0.87	0.59
15.	Run 20 m	0.91	0.76	0.91	0.77
16.	Run 40 m	0.94	0.82	0.94	0.85
17.	Shuttle run	0.74	0.77	0.95	0.79
18.	Hexagonal obstacle test	0.76	0.89	0.80	0.90
19.	Standing broad jumps	0.69	0.70	0.68	0.71
20.	vertical power jumps	0.83	0.69	0.83	0.71
21.	throwing a ball	0.76	0.72	0.79	0.73
22.	grip dynamometer	0.74	0.75	0.75	0.76
23.	Sit-up	0.65	0.67	0.66	0.66
24.	Push-up	0.64	0.65	0.65	0.67
25.	<i>Multistage FitnessTest</i>	0.91	0.89	0.92	0.91

Based on the table above it can be concluded that the predictive validity tests for men's table tennis = 0.87, to women = 0.85 validity categories both including to good and has a significant difference at the level ($p = 0.05$).

4. CONCLUSIONS

A physical test instruments for table tennis players who put forward some sports experts implied the existence of a phenomenon that potential players must be known accurately the physical domain. In relation to sports achievements in the future, the phenomenon can be analyzed so process of developing achievement more effective and efficient.

Table tennis game that much more using hand skills component requires good physical condition in terms of stroke technique, to produce a good punch, the player in addition to having the correct stroke technique also needs to use.

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