PROCEEDING

ASEAN FORUM AND INTERNATIONAL CONFERENCE ON SPORT SCIENCE AND TECHNOLOGY (AFICSST)

Bali, Indonesia, 8-11 August 2014

"Bridging The Gap In The Advancement Of Sport Sciences And Technology Implementation Among South East Asia Countries"

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CONTENS

ASSESSMENT PHYSICAL FITNESS FOR TENNIS PLAYERS

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ABSTRACT

Revolution of the game at this recently change quite rapidly. The changes are not just happen in terms of the pattern of the game alone, but the length of time the game is also included in it. In a tennis game, play duration can not be predicted in advance, therefore a tennis player should be able to prepare with good physical fitness. To monitor the level of physical fitness of tennis players accurately requires a reliable assessment instrument. Based on the problems then this article will present a description of the assessment that is used to assess the fitness level of tennis players.

The method used in this research is the study of the relevant literature, expert opinion of of tennis, and the measurement of physical conditioning expert, and on the basis of some research results so that it can be concluded that is a proper assessment can be used to assess the level of physical fitness of tennis players. Several series of assessments to measure the level of physical fitness of tennis players among which are: (1) screening for the condition of tennis players, (2). measurement of the posture of tennis players, (3). skeletal muscle system testing of tennis players, (4). administration of the questionnaire to the tennis players, 5). overall health testing, and (6). perform a series of batteries assessment of the components of physiological conditioning biomotor of tennis players. With the standardized assessment instrument is expected to provide knowledge and can be used as a guide for the tennis coaches to prepare the physical fitness condition of tennis players. Also his instrument will help the tennis coach to monitor the level of physical fitness the tennis players periodically.

Keywords: Assessment, Physical Fitness, Tennis.

INTRODUCTION

Along with the advancement of science and technology in the game of tennis, if observed, tennis trend is currently prioritizing the speed game and power game,with the level of accuracy that is so amazing. If at first a lot of tennis players play with baseliner pattern (Bjorn Borg, Chris Evert and Ivan Lendl) through the race of the consistency of the shot, the modern tennis era brought the game features that rely on speed and power games.

In a tennis game, the length of time a tennis player in a match can not be predicted in advance. In the match of the Australian Open 2013 Semi Final between Novak Djokovic opposed Stanislas Wawrinka lasted for 4 hours 53 minutes. Australian Open 2013 Final between Novak Djokovic and Andy Murray lasted 5 hours 57 minutes. From these facts can certainly be imagined how important the level of readiness, excellent physical endurance, for a tennis player. To have physically fit, of course, is a necessary program of physical exercise, which is programmed properly, in a period, which is long enough.

To monitor the level of physical fitness of tennis players, is needed an appropriate assessment instrument and reliable, so the coach can keep up with the level of physical fitness of tennis players periodically. Some assessment to measure the level of physical fitness of tennis players in the protocol has been designed and developed by some experts of physical conditioning. Through this article will describe some test instruments for conducting assessment of physical fitness for tennis players that can be used to see the level of the physical condition of a tennis player. With the instruments that can be used to measure the level of physical fitness of tennis players precise and reliable, it is expected to be very helpful in putting together an exercise program, modifying, and evaluating programs of physical fitness exercises tennis players appropriately.

The Nature of Tennis Games

Stroke technique in the game of tennis by Douglas (1992: 28-29) can basically be divided into three kinds, namely: groundstrokes (forehand & backhand groundstrokes groundstrokes), volley (forehand volley and backhand volley), and serve. The characteristics of the tennis game can be categorized in this type of open skill, because the success of blow influenced by environmental factors, such as; sunlight, wind direction, type of surface and the opponent playing field (Cayer, 1988: 26).

The Role of Physical Condition for Tennis Players

According Sukadiyanto (2002: 47) as good as any technical abilities possessed a tennis player, without the support of good physical fitness, the tennis player will have difficulty in the game. Despite the smaller size of a tennis court (when compared to the size of a football field), and by looking at the characteristics of the game of tennis, where the ball is moving very fast, the player must move quickly covering field to hit the ball with emphasis on accuracy (precision) and control the ball. In addition, tennis matches also take place in marathon, while the length of time a tennis match can not be predicted, then in addition to the level of technical mastery, mental rigidity, the demands of the physical condition of readiness, is in the top priority.

According to Miguel Crespo et al. (1998: 146) the benefits that can be obtained, if the physical condition of the tennis players, are good, among which are: (1) The ability of the circulatory system and heart work better; (2) Can improve the performance of tennis players; (3) Delaying fatigue and can make a quick recovery after a workout or game; (4) Reduce the risk of injury; (5) Strength, speed, endurance, flexibility, and the ability of other biomotor be increased; (6) Motion is shown to be economical; (7) Recovery of body organs becomes faster after exercise; (8) Psychologically, the tennis player who has good physical qualities will be more confident and better prepared to face the challenges of training and game situations.

Assessment Physical Fitness Test for Tennis Players

To monitor and evaluate the development of the physical condition of a tennis player periodically required a precise and accurate assessment to see how far the condition of the physical fitness of tennis players. According Djemari Mardapi (2008: 1) assessment are all methods used to assess individual performance can be done through testing or through observation. With these instruments, it is expected that every tennis player or coach can monitor the progress of the physical condition of the tennis players from time to time.

According Machar Reid et al., (2003: 18-47) a coach must consider several steps that must be done if he wants to make an assessment to measure the level of physical fitness of tennis players. Before starting the stages of assessment, of course, a coach determines the destination (goal) that should be considered and reflected in the development of physical fitness level tennis players, such as the expected target by tennis players, so that they can prepare any of the process, with ripe, when of the expected peak performance can be achieved, and others.

The stages of assessment to determine the level of physical fitness of tennis players are as follows:

a) Conducting Screening (inspection / checking). Screening or examination consisted of medical screening and musculo skeletal screening. Medical screening is a thorough examination of the condition as well as to detect possible health risks of bodily injury of tennis players. While screening a musculo skeletal examination system which serves to examine skeletal muscle (musculo skeletal) tennis players to consider the posture / height, flexibility, strength, and balance.
b) Medical screening is a process that is very helpful to identify the parts of the body which allows the injured both in training and matches. Thus will provide sufficient knowledge to coaches and tennis players to prevent the injuries. Stages of medical screening will help to identify factors that may hinder performance tennis players.

c) Measuring the posture of tennis players. Measurement of height and weight tennis players, to see their anatomical shape. Armed with the knowledge of the anatomical shape of a tennis player, it is expected to be taken into consideration in preparing the training program to the tendency of the risk of injury if physical exercise program given.
d) Tests on the skeletal muscle system.Skeletal muscle testing is intended to see how far the posture, flexibility, strength, and stability tennis players can be observed. The parts of testing of the musculoskeletal system are generally done in the area: trunk / spine, shoulder girdle, elbow and forearm, wrist and hand, pelvic girdle, hip and thigh, knee and shank, ankle and foot.
e) Giving questionnaire to tennis players. Administration of the questionnaire is intended to explore the data as complete as possible on the background of a tennis player,and tennis players families that will not be found in the assessment the carried out in field. In general, the questionnaire contains several questions related to health conditions, family medical history, injury history has ever experienced,and the nutrition.
f) The medical examination of tennis players, which consists of: ear, nose, throat, skin, heart, chest, lungs, stomach, nerves, joints, and others.
g) Testing the components of physical fitness of tennis players

Batteries Physiological Assessment of Tennis Players

Various components and types of physical fitness assessment specifically for tennis players have been designed by experts in the tennis physical conditioning. Of various physical fitness assessment draft sequence the tennis player, the following table is presented biomotor components, and the types of tests that can be used to make an assessment of the physical fitness of tennis players.

Tabel 1. Series of batteries Tes Physiological Assessment of tennis players

The Component of Physical Fitness	Field Test	Laboratory Test
Anthropometrics Test	1. Height test 2. Weight test	Beside measure the height and weight, it's also test the thickness of fat in the body use skinfold caliper in 7 areas and triceps, biceps, subscapular, supraspinatus, mid-abdominal, front thigh dan medial calf
Flexibility Test	All the flexibility test that use in musculoscreening. Item of flexibility test in musculo screening scheletal such as: trunk/spine, shoulder girdle, elbow and forearm, wrist and hand, pelvic girdle, hip and thigh, knee and shank, dan ankle and foot.	All the flexibility test that use in musculo screening. some flexibility test that used in screening musculo scheletal such as: trunk/spine, shoulder girdle, elbow and forearm, wrist and hand, pelvic girdle, hip and thigh, knee and shank, dan ankle and foot
Aerobic Endurance Test	The tennis player aerobic endurance test can be measured by using those item test below: 1. Multistage Fitness Test. 2. Aerobic Cooper. 3. 1½ Mile Run	The laboratory test that used to aerobic endurance test: VO2 Max Test, like: staged track test, use treadmill or use ergocycle
Anaerobic Endurance Test	The instrumen to measure endurance of anaerobik can use Tennis Specific Agility Endurance Test, like: 1. Planned agility test. 2. Spider drill.	The instrumen to measure endurance of anaerobik can use Tennis Specific Agility Endurance Test, like: 1. Planned agility test. 2. Spider drill. 3. Killer Line Sprint (Ann Quinn)

The Component of Physical Fitness	Field Test	Laboratory Test
	3. Kilier Line Sprint (Ann Quinn)	
Strength Test	*The Item test that used to measure strength such as:* *1. The Push-Up Test.* *2. Grip Strength Test* *3. Maximum Bodyweight Dips.* *4. Maximum Bodyweight Chin-ups*	
Upper Body Power Test	Some instrument that can be used to measure upper power body such as: 1. Overhead Medicine Ball Throw Test. 2. Sidearm Medicine Ball Throw Test (right and left hand)	the instrument to measure upper power body in laboratory such as: 1. Service (ball) Speed. 2. Raquet Velocity
Lower Body Power Test	Some instrument that can be used to measure lower power body such as: 1. Vertical Jump Both Leg. 2. Vertical Jump Right Leg. 3. Vertical Jump Left Leg. 4. Vertical Jump With Three Step Run-Up. 5. Standing Long Jump/Hop.	Generally, instrument to measures upper power body in laboratory is Elastic Potential (derived from force plat form data)
Speed test	Instrument that usually used for measure the player speed such as: 1. Fast running 20 meters 2. Fast running 10 meters 3. Fast running 5 meters	Test instrument laboratory that used to measure the player speed is fast running 5 meters or fast running 10 meters with electronic timing gates
Agility and Coordination Test	Test item that usually used for measure the agility and coordination player such as: 1. Movement to the forehand side 2. Movement to the backhand side 3. Backward movement test 4. Pannet agility test 5. The hexagon test 6. Sprint 20 yards 7. Spider drill	Laboratory test that usually used for measure the agility and coordination such as: 1. Movement to the forehand side 2. Movement to the backhand sid 3. Backward movement test 4. Pannet agility test (use electronic timing gates)

(Source: Reid , Machar: Quinn ,Ann: Crespo, Miguel, 2003: 29 - 46).

CONCLUSION

The level of success of a tennis player can be affected by several factors, one of these factors is the physical condition of fitness when playing. Trend of the modern game of tennis currently, relying on speed and power game along with the level of accuracy of the shot, which is so high. With the trend of the game, of course, excellent physical condition is necessary for a tennis player. The length of time a tennis player in a match can not be predicted in advance, so that the physical condition of the preparation program absolutely must be done correctly and programmed.

Preparation of appropriate training programs, and monitoring the progress of the physical condition of the exercise program for tennis players gradually, must be done carefully. Therefore we need a proper assessment to assess the level of ability, and physical condition of tennis players progress periodically, on the basis of the components biomotor are expected to possess by a tennis player. The assessment instrument that can be used to measure the level of physical fitness of tennis players consists of: screening for the condition of tennis players, measuring the posture of tennis players, musculoskeletal system testing of tennis players, giving questionnaires to tennis players, testing overall health, as well as perform assessment batteries to the test circuit components of biomotor.

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