

# Study Of Information And Characteristics Of Handball Athletes

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**Abstract.** . Information about handball in Indonesia has not yet spread throughout society so that the sport has not been widely played among the people of Indonesia. The purpose of this study is to describe and identify information and knowledge about handball and the needs of handball players. The method used is the Systematic mapping study which is systematic. The articles cited for reference were published between 2004-2018. The study map was taken from various reviews related to reviews of research results and articles about handball, characteristics of handball players, needs in handball games. The results of this study describe the information and characteristics of handball players who require endurance, speed, agility, arm muscle strength, muscle explosive power and throwing accuracy.

**Keywords:** Physical condition, handball athlete, handball

## 1 Introduction

Handball is a sport that is relatively new in Indonesia. Handball is a sport that uses a small ball media and is played in teams of 14-16 players per team with 7 core players including goalkeepers and the rest are reserve players. This handball sport requires players with excellent abilities and skills. Each player must be able to make decisions quickly and accurately in every opportunity/decision in his game.

Mahendra in (1) said "Handball is a team game where the ball as a tool is played with one/both hands". The ball can be given to teammates by throwing or bouncing. Handball is a sport that combines basketball and football. Because handball has basic techniques that resemble basketball techniques such as passing, dribbling, shooting, and others. But this sports field is more like a football field but with a smaller size and uses two goals.

Increasing the enthusiasm of people who like Handball is a challenge for the players of this handball sport. The large number of human resources for coaches, referees and other supporting staff in Handball is one of the benchmarks for the development of this sport. The increasing quantity of human resources who develop the Handball sport needs to be anticipated with adequate quality and competency improvements. This can have an impact on improving the quality of coaches and improving overall athlete achievement in handball.

According to Mustofa quoted by (2) explaining that the history of handball began in 1928 with the formation of the International Amateur Handball Federation (IAHF) which was ratified to coincide with the Olympics de Amsterdam with chairman Avery Brundage from the USA. After 1936 the members of the IAHF became 23 countries and continued with the championship which is usually called the "Berlin Olympic Games" in the city of Berlin,

Germany. Finally, in 1946 at the suggestion and invitation of Denmark and Sweden, the eight countries that pioneered the International Handball Federation. The eight countries are; Denmark, Finland, France, Netherlands, Norway, Poland, Sweden and Switzerland.

## 2 Method

The method used in this study is the Systematic mapping study. This paper presents a study of 3 main subject areas. The method used revolves around the main variable entities of handball history in Indonesia, handball game rules, physical condition of handball players. Found and peer reviewed articles identified by search engines PubMed, Crossref, GoogleScholar articles, Scopus and publications by local universities. The following is a concept map of this study approach.

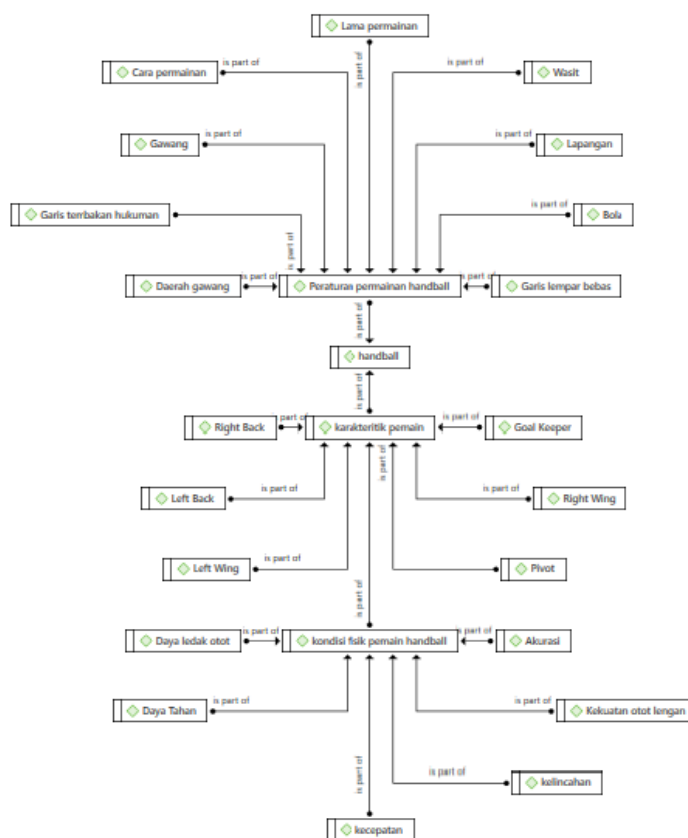


Fig. 1. Inter Connection Concept Map Field of study.

## 3 Results And Discussions

### 3.1. History of Handball in Indonesia

In Asia the Handball Federation (Asian Handball Federation) was formed in 1974 at the time of the Asian Games in the city of Tehran which was then officially inaugurated in Kuwait

in 1967. In Indonesia, if we look at the history sheet, it turns out that the National Sports Week (PON) to II, which was held in Jakarta, handball played by 11 players once filled the event even though at that time there were only 4 participants in the match, namely: Greater Jakarta, West Java, Central Java and East Java (3). In addition to the II PON, handball also participated in the V Student Sports Week in 1960 in Medan. However, the 11-player handball game did not progress until it became unpopular (4).

### 3.2. Handball Game Rules

Handball game is played by 6 people and 1 goalkeeper. The goal of the game is to get the ball into the opponent's goal as much as possible. Handball is played by 6 players and 1 goalkeeper using a court with a length of 40 meters and a width of 20 meters with a time of 2x30 minutes for men and 2x20 minutes for women, the weight of the ball in handball is about 425-475 g and the ball diameter is 54-60 cm. Penalty on handball occurs because the first foul results in a player being warned a yellow card from the referee then a second foul yellow card which is a suspension for 2 minutes from the field. During those 2 minutes a team plays without one player. Players may return after the suspension period has ended and enter the field via the substitution area.

Handball game is played by 2 teams each consisting of 7 players or 6 players and 1 goalkeeper. The game starts from the middle of the court by the team that gets the task of attacking and the other team gets the task of defending. How to throw the ball is by passing by hand, dribbling with 3 steps, and how to enter the ball by shooting from the outer half circle in front of the goal. The goal of handball is to get as many balls into the opponent's goal as possible. This game is a bit similar to soccer, but what distinguishes handball from soccer is how to move the ball using your hands.

#### 1) Court

A handball court measuring 40 m x 20 m with a dividing line in the middle and a goal in the middle of the two short sides. There is a line around the goal to mark the area that only goalkeepers can enter.

The rectangular field measures:

Field length: 40 meters

Field Width: 20 meters

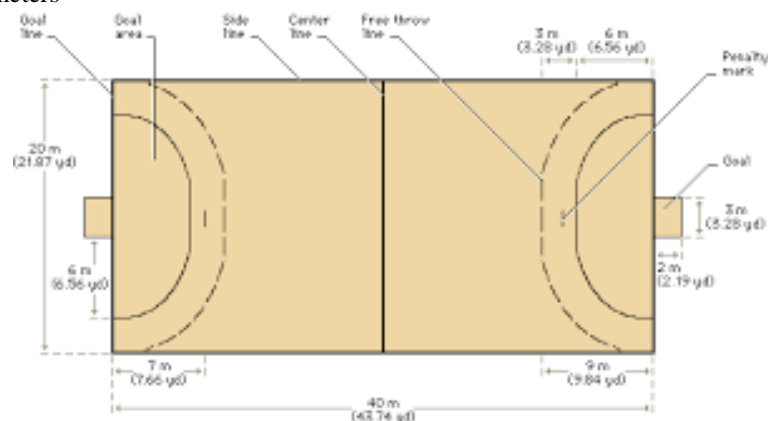


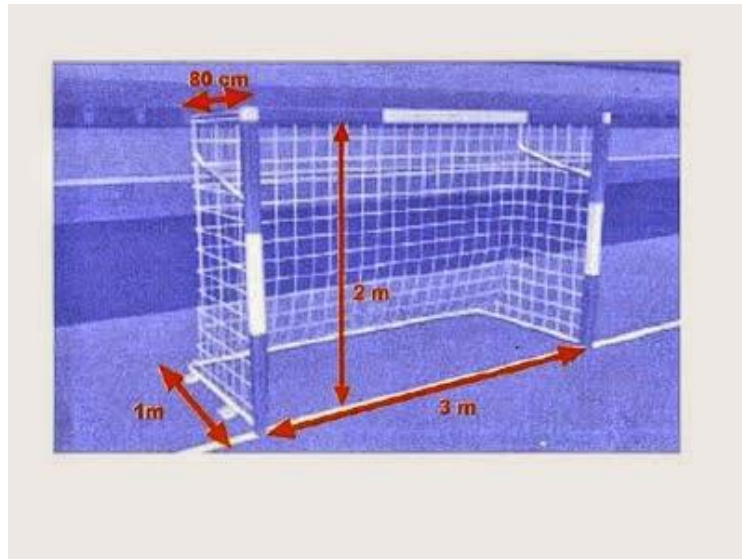
Fig. 2. (2) Handball Court

#### 2) Goal

The goalposts are rectangular in size with a size of 8x8 cm, while the dimensions of the goal are as follows:

Width of the goal: 3 meters

Goal height: 2 meters



**Fig. 2.** Handball Goal

3) Goal Area

The goal area is made a line 3 meters long, at a distance of 6 meters (end) and its ends are connected to the goal line, by forming a semicircle with a radius of 6 meters measured from the goal post.

4) Free throw line

The free throw line (9 meters line) is the dotted line, drawn 3 meters outside the goal line area.

5) Punishment shot line

The penalty shot line or penalty line is 7 meters from the goal line and 1 meter long parallel to the goal line.

6) Ball

The shape of the ball must be round and the outside is made of rubber or of leather or other synthetic material. Ball size:

For men: ball weight: 425 – 475 grams

Diameter: 58-60 cm.

For girls: ball weight: 325 – 400 grams.

Diameter: 54-56 cm.

7) Game time

The duration of the game is divided into 2 rounds, namely:

For men: 2x30 minutes with a break of 10 minutes.

For girls: 2x 20 minutes with a break of 10 minutes.

8) Referee

Handball matches are led by 2 referees, both referees have the same authority assisted by a timer.

#### 9) Player

Each team consists of 12 players, but only 7 players are on the court including a goalkeeper. The rest are substitutes during the game. They enter and leave the court of play must cross the substitution line.

Here are the positions of handball player:

1. Attacking or deffending Positions
2. LW - Left Wing OD - Outside defender
3. LB - Left Back HD - Half Defender
4. CB - Center Backor playmaker FD - forward Defender
5. RB - Right Back GK - goal keeper
6. RW - Right Wing
7. PV – Pivot

### 3.3. Physical Condition of Handball Player

#### 1) Durability

In the game of handball, endurance is very important because the game time is long enough if it is not balanced with strong endurance, it cannot produce a maximum score. In conducting an endurance test, you can use a beep test to determine the ability of VO<sub>2</sub>max. VO<sub>2</sub>max is the ability of the cardiovascular system to send oxygen to the muscles, which at that time was used as the main point in motion, the data can also be used to see the ability of athletes' aerobic and cardiovascular fitness levels (5). In the process of increasing endurance, consistent exercises are carried out, and one of the good exercises for that is 12-minute running, multistage running and running up and down hills.

#### 2) Speed

A handball athlete must be able to have good speed because it can be seen that the game of handball is a game with a fast flow, especially in defense and attack movements, so it requires the ability to run fast and agile. The concept to optimize the game of handball is by doing continuous exercises to improve physical condition. There are several ways that can be done to increase speed with depth jump exercises.

#### 3) Agility

In accordance with the description in the speed sub-chapter that handball requires agile body movements, this is because in one field there are 14 players who are divided into 2 teams with the main goal being the opponent's goal. The existence of 14 players by winning one ball of course requires a good body agility skill to be able to get the ball. In knowing agility, you can use an Illinois agility run test, where an athlete must be able to complete a movement pattern that has been arranged in the fastest time (6)

#### 4) Arm muscle strength

Arm muscle strength is a basic physical condition that needs to be mastered because increasing arm muscle strength can reduce motion errors or injuries in the training process. Handball game is a game that mostly involves the hands as the driving force, techniques in handball that are often heard are holding the weight (ball) with a tight grip (catching) and also throwing (passing), where the alignment can work well if there is a touch of strength. arm muscles (6)

#### 5) Muscle Explosion

Explosive power is the ability of muscles to produce as much force as possible in a short time. Increasing the explosive power of the leg muscles can use box jump exercises because they can train the lower muscles. The box jump can be done by jumping onto the block box and then dropping back down in a backward position according to the initial attitude (6)

#### 6) Throwing Accuracy

Accuracy is the ability to hit the intended target correctly. In the game of handball, the goal is the goal, meaning the accuracy of the player in throwing the ball into the goal.

The following are the physical conditions of handball players based on their position:

1. Left Wing: Speed, agility, endurance, arm muscle strength, muscle explosive power, throwing accuracy.
2. Left Back : Speed, agility, arm muscle strength, endurance, throwing accuracy.
3. Center Back: Speed, agility, arm muscle strength, endurance, throwing accuracy.
4. Right Back: Speed, agility, arm muscle strength, endurance, throwing accuracy.
5. Right Wing: Speed, agility, endurance, arm muscle strength, muscle explosive power, throwing accuracy.
6. Pivot: Endurance, arm muscle strength, muscle explosive power, agility, throwing accuracy.
7. Goal Keeper: Speed, agility, arm muscle strength, muscle explosive power, endurance, throwing accuracy.

### **Conclusion**

Handball is a sport that is relatively new in Indonesia. Handball is one type of sport that uses a small ball media and is played in teams of 14-16 players per team with 7 core players including goalkeepers and the rest are reserve players.

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