ANTROPOMETRY AND PHYSICAL CONDITIONS OF DOMINANT DETERMINATION ON BASKETBALL ATHLETE

Ardhian Tomy Kurniawan[1], M. Furqon Hidayatullah[2], Muchsin Doewes[3]

1) Master Program in Sports Science, Sebelas Maret University, Surakarta, Indonesia

2)3) Department of Sports Science, Postgraduate Program, Sebelas Maret University, Surakarta, Indonesia

Email: ardhiantomy10@gmail.com[1], furqon@uns.ac.id[2], doewes2000@yahoo.com[3]

ABSTRACT

The purpose of this study was to determine anthropometry and dominant physical conditions to determine the achievement of 12-16 year old basketball athletes. This study used a population of basketball players aged 12-16 years in basketball clubs in Solo Raya, which numbered 60 players. The sampling technique in this study used a purposive sampling technique. The technique of collecting data uses tests and measurements. Factor analysis in this study was carried out using the SPSS version 20.0 program with KMO and Bartlett's Test.

The results showed that after analyzed using confirmatory factor analysis with KMO and Bartlett's Test, the dominant anthropometric factors had an effect on basketball games, namely arm range, height, length of leg, leg length, foot length, weight, and width of the foot. While the dominant physical condition factors influence basketball games, namely arm power, leg power, speed and agility. There are two factors in physical conditions which are included in the category of weak or less dominant after the athlete 12-16 years are flexibility in the box, and hand eye coordination.

INTRODUCTION

Basketball is currently in great demand in Indonesia, especially in the Solo Raya region in particular. Evidently the number of basketball competitions followed by young people who sit in junior high schools and high schools, but not a few also the competition which was followed by groups of students and all ages even for early age competition is now being developed, especially in the city of Surakarta. The large number of basketball clubs in the Solo Raya region that are developing at this time makes basketball sport so popular because in addition to being a cheap community entertainment, basketball can also be an additional source of income for athletes.

Wooden (1966: 84) argues, , "Basketball is a mental game and this fact probably more apparent in shooting than it is in any fundamental". Mental development and maturity of champions in basketball are as important as technical, physical and tactic coaching. In addition, biological aspects should not be underestimated in the initial selection of athletes. Seeing from the biological aspects which include potential (basic body abilities), functions of body organs, body structure and posture and nutrition, there are elements of the physical condition and body structure and posture that are of concern to maximize achievement. Physical condition is a very necessary prerequisite in an effort to improve the achievement of special children aged 12-16 years, it can even be said as a basic necessity that cannot be postponed or bargained again.

Biological or physical factors that are related to the structure, posture and ability of genetically determined biomotor, are one of the determinants of achievement consisting of basic components, namely: strength, endurance, explosive power , speed (speed), flexibility (flexibility), agility, balance and coordination are still possible for development to be developed in accordance with the limits of biomotor abilities in young athletes who are still growing and developing (Astrand, 1986: 213).

Anthropometry or posture influences exercise, especially to achieve high achievement (sports achievements). To achieve high achievement, physical characteristics and certain body postures are needed in accordance with the demands of the sport they follow. In accordance with the Characteristics of Basketball anthropometric elements that must be considered include size (Bloomfield, Ackland, and Alliot, 1994: 51). Anthropometry involves measuring external body parts. There are two types of anthropometric measurements, namely body dimensions and those related to somatotropy. Anthropometry can be interpreted as body size or external size of body parts. In relation to physical measurement, anthropometry is a standard technical unit for systematic measurement of the body as a whole or parts of the body (Malina, Bouchard and Bar-Or, 2004: 42).

The aspect of physical condition is the most important part in all sports, especially to support other aspects such as technique, tactics, and mentality. Physical conditions are very decisive in supporting the athlete's duties in the match so that they can perform optimally. (Harsono, 1988: 153) explains that "the athlete's physical condition plays a very important role in his training program". The physical training program must be well planned and systematic and aimed at increasing physical fitness and functional abilities of the body system so as to enable athletes to achieve better performance. Athletes who have a good level of physical fitness will avoid the possibility of injuries that usually occur if someone is doing heavy physical labor. If a person has a good physical condition, he is able to perform physical tasks without experiencing excessive fatigue. Physical conditions are very supportive for athletes to compete, so that in the competition athletes do not experience fatigue which means and will avoid injury that can interfere with their appearance. Therefore the role of physical conditions is very necessary in sports.

Sajoto (1995: 8) suggests fostering physical conditions in sports that if an athlete wants to excel must have physical conditions such as strength, endurance, muscular power, speed, coordination, flexibility (agility), agility (balance), balance (balance), reaction (reaction) and accuracy (accuracy).

Elements of physical training given in accordance with the characteristics of the sport in general are developed and in accordance with the condition of the athlete itself. Of the ten physical components, the author will only explain what is related to basketball. When playing basketball, it takes physical exercises that support athletes in playing basketball, namely speed, strength, agility, flexibility of knickers, coordination, power and endurance aerobics.

Based on the description above it is known that anthropometric factors and physical conditions have a very important role and influence the achievement of an athlete's technical achievements. Therefore there is a need for research using anthropometric factors and physical conditions as well as their influence on improving basic basketball techniques.

METHODOLOGY

This study used a population of basketball players aged 12-16 years in basketball clubs in Solo Raya, which numbered 60 players. The sampling technique in this study used a purposive sampling technique. The technique of collecting data uses tests and measurements. Measurements were taken to determine height, weight, length of legs and tests to determine the level of ability to run speed, thigh muscle strength, agility, flexibility of bowels, ankle coordination, leg muscle power, arm muscle power and aerobic endurance which the data was used as the basis for forming sample groups in basketball.

The data collection technique of this research was carried out by the procedure arranged as follows: (1) preparing the tools to be used, (2) preparing the research sample, (3) taking the data including the independent variable test and the dependent variable carried out in two days. Data from the test results are used in data analysis for hypothesis testing.

The collected data is then verified and tabulated to be processed quantitatively by factor analysis from multivariate statistics using SPSS version 20.0 software so that it can be reduced to just a few factors, calculating the average score of each factor in the important and performance variables, describing the position of the average score of the important variable in the importance-performance matrix transformation.

RESULT AND DISCUSSION

From the results of factor analysis through SPSS media, we obtained 2 factors which are summaries of the 12 factors analyzed, namely:

Tabel Component Matrix^a

	Component	
	1	2
RL	.962	-.008
TB	.949	-.010
PTo	.933	.015
PT	.884	-.016
PTK	.875	.057
BB	.873	.255
PWL	.824	-.151
LTK	.780	.158
PWT	.480	-.346
KL	.184	.854
KC	-.304	.810

Extraction Method: Principal Component Analysis

1. **Factor 1: range of arms, height, length of bow, leg length, foot length, weight, arm power, foot width, leg power.**

   There is a group of samples that the ability of basketball lies in the range of arms (0,962), height (0,949), length of bow (0,933), leg length (0,844), foot length (0,875), weight (0,873), arm power (0,824) , foot width (0.780), leg power (0.480). Because all nine have positive correlation values, the greater the value of these variables the higher the basketball's ability.

2. **Factor 2: agility and speed**

   There is a group of samples that the ability of basketball lies in agility (0.854) and speed (0.810). Because the four have positive correlation values and are above 0.5, the greater the value of these variables the higher the basketball's ability.

From the results of the discussion it can be explained that anthropometric factors as a whole 7 variables are the dominant factors for determining athlete achievement. In the dominant physical condition factor is the power leg in the rotated component matrix which is 0.480, the arm power is 0.824 and for the less dominant variable or whose value is below 0.5 are arm muscle power, flexibility of the token, and hand eye coordination.

From the results above, it is known that there are several variables that are eliminated, including flexibility. Delayed flexibility because of the movement in basketball games flexibility plays a less dominant role, although the flexibility of a player can help in the movement of his agility, but according to data flexibility is not a dominant factor.

Furthermore, the eliminated is a coordination variable, this is very related to the length of time someone has practiced basketball and his talent. In a certain age most clubs in Indonesia do not make talent selection, even players starting to take an interest in baket in old age are somewhat late, so the club must start everything from scratch, hoping that they can still maximize their existing potential. coordination was very possible to be eliminated due to data collection, not all children in the club started basketball training at the same age, besides the difference in the quality of training programs between big clubs and small clubs also became the elimination of coordination factors so that improvement in coordination skills was still in the development process, the results different is very likely if research is conducted at a club that has the same quality of coaching because coordination should be an important important factor in basketball games.

CONCLUSION

Based on the research that has been taken, this study concludes that the dominant physical factors in playing basketball with athropometry factor analysis and physical condition factors, namely 12 existing variables are processed and analyzed by confirmatory factor analysis to determine which factor is dominant against basketball games.

After analyzing using confirmatory factor analysis with KMO and Bartlett's Test, the dominant anthropometric factors influence basketball games, namely arm range, height, length of leg, leg length, foot length, weight, and width of the foot.

While the dominant physical condition factors influence basketball games, namely arm power, leg power, speed and agility. There are two factors in physical conditions which

are included in the category of weak or less dominant after the athlete 12-16 years are flexibility in the box, and hand eye coordination.

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