A Study on the Co-Relation of Basketball Playing Ability with Motor Fitness and Health-Related Fitness of Females

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Abstract **- The goal of this study is to see if there is a link between basketball ability and motor fitness and health-related fitness in female basketball players. N=100 female high-standard (university players) and low-standard (university players) players were used in this investigation (Intercollegiate players). They were chosen from Osmania University's associated colleges in Telangana, India, and their ages ranged from 18 to 23 years. The subjects had at least one year of previous basketball playing experience, and only individuals who had represented their respective college teams were chosen as subjects. Grip Strength (Hanging) test was conducted to determine the maximum isometric strength of the hand and forearm muscles (Motor Fitness). Breathing is used to assess a subject's ability to hold their breath for longer periods. (Physical fitness) and dribbling to assess a player's ability to play (performance ability) It has been determined that high-standard (university players) players are more efficient in terms of motor fitness, health-related fitness, and playing skill than low-standard players (intercollegiate players).**

Index Terms **- motor fitness, health-related fitness, dribbling, and ability to perform.**

I.INTRODUCTION

Basketball players are frequently recommended a resistance-training program due to the necessity of strength, power, and muscular hypertrophy. While many basketball players engage in resistance training, the benefits of this type of physical preparation are hotly discussed. Given that these are athletes with specialized or special needs, research on resistance-trained athletes such as bodybuilders, Olympic lifters, or powerlifters often investigates dedicated programs focusing entirely on hypertrophy, power, or strength development. Team sport athletes, such as an American football lineman, a basketball centre, or a game of rugby forward, need a balance of strength, power, and hypertrophy to be successful, and their needs differ from those of powerlifters or bodybuilders. Researchers and practitioners must first have a good understanding of the physiological systems responsible for strength and power development to generate new concepts in resistance training. Unfortunately, even when athletes are closely supervised by medical staff, the great volume and intensity of training conducted by elite team sport athletes may raise the risk of overuse injuries. As a result, studies looking into the effects of a training intervention frequently focus on resisted movements that aren't necessarily sport-specific. The investigator sought to research and emphasize the success levels of university-level basketball players on the specified physical, physiological, anthropometrical, psychological, and performance characteristics, keeping the above aspects in mind.

Identifying, recruiting, and enrolling athletes with a high degree of basketball playing ability (BPA) is a common goal of competitive collegiate basketball programs, as is developing these players' BPA with the most effective conditioning methods and approaches. As a result, understanding factors linked to the greatest levels of BPA is critical. However, because of the wide range of approaches used in prior studies, the parameters linked to BPA have yet to be properly defined. Anthropometric measurements (e.g., weight, height), performance measures (e.g., vertical jump, leg power), and basketball-specific metrics were all considered (e.g., playing time, skills tests). Individuals with a higher BPA were defined as 1) playing collegiate basketball rather than being a non-athlete; 2) being a starter rather than a non-starter, or 3) being one of the five players on the team with the most minutes played.

McKenzie Gillam (1985) contrasted thirteen college basketball players with 14 physical education majors who were not active in varsity sports two weeks following their last competitive game to find the physical and anthropometric attributes required for playing college basketball. Three anthropometric parameters were discovered to have a substantial impact on participation. Basketball players were 10.53 cm taller and 9.39 kg heavier than non-participants in terms of lean body weight.There were no variations in total body weight, % body fat, or fat weight between the two groups. Basketball players had a lower endomorph (3.33) value than other athletes. The health-Carter somatotype analyses revealed no other distinctions in body types. Physical characteristics that influence basketball ability have also been identified. In terms of acceleration, maximal speed, and agility, collegiate athletes were found to be superior to non-athletes. Basketball players had more power (154.12 kg-m/sec) than non-players (135.20 kg-m/sec). The players' general muscular endurance was 35 percent higher than the non-players. The two groups did not differ significantly in isotonic measures of upper and lower extremity muscle strength. Basketball players (46.4 ml/kg.m) and non-participants (42.7 ml/kg.m) had no significant difference in estimated maximal oxygen consumption. The lower back and posterior thigh flexibility were also not found to be a role in basketball involvement. These findings could be particularly valuable in the recruiting of basketball players and the development of training programs to improve playing skills.

Comfort et al., (2011) compared the strength and power attributes of forwards and backs in a squad of elite English rugby league players to previously published Australian literature. Participants were all regular first-team players for an English Super league club and were all excellent English rugby league players. Sprint timings of 5, 10, and 20 meters, agility, vertical jump, 40-kg squat jump, isometric squat, and concentric and eccentric isokinetic knee flexion and extension were all included in the testing.To compare results between forwards and backs, independent t-tests were utilized, with paired samples t-tests used to compare bilateral differences from isokinetic evaluations and agility tests. The findings show that forwards have stronger absolute strength and power than backs; however, when body mass is taken into consideration and relative measurements are evaluated, the backs outperform the forwards.

II METHODOLOGY

The goal of this study is to see if there is a link between basketball ability and motor fitness and health-related fitness in female basketball players. N=100 female high-standard (university players) and low-standard (university players) players were used in this investigation (Intercollegiate players). They were chosen from Osmania University's associated colleges in Telangana, India, and their ages ranged from 18 to 23 years.

Sampling techniques

Osmania University's affiliated college basketball teams that competed in the Intercollegiate Women's Basketball Tournament were chosen as a sample. As a result, the study region (jurisdiction) was selected as the colleges of Osmania University as a sample for this study. The study's participants were 100 Osmania University Inter-Collegiate women's basketball players.

Selection of subjects

100 women intercollegiate basketball players, ranging in age from 18 to 23, were chosen from various colleges associated with Osmania University in Telangana, India. The subjects had at least one year of previous basketball playing experience, and only individuals who had represented their respective college teams were chosen as subjects.

Selection of variables and tests.

Motor fitness components were measured by the following test, hanging on horizontal bar assessed by Grip Strength.

The health-related parameternamely Breathing was measured by hold the breath for a longer time.

Performance Evaluation

The criterion variables like the playing ability of the selected Basketball players were assessed by three qualified Basketball coaches, which was taken as the performance factor. The guidelines for assessment were provided by the investigator. Each coach rated the playing ability of the selected players on 10 points scale for each subject. The ratings given by the

coaches on each subject were added and divided by three to make the individual score of the subject. The correlation between the coaches on the performance ratings was highly correlated (r=0.87). The model was calculated, as well as the correlation of all variables in the system, and finally, the interpretation of the results has been done to arrive at the results.

Tools used

Collection of Data

To measure the criterion variables, the investigator gave N=100 Osmania University Inter-Collegiate women basketball players physical, physiological, and performance skill tests. During their Special Coaching Camp and Inter-Collegiate Tournament, the investigator collected data from the subjects before their matches. The investigator effectively described the study's goal to the participants. It was made a point to ensure that the subjects gave it they're all. After examining all of the items, the participants' data for physical, physiological, and performance skill tests were collected, and the overall test scores for each subject were calculated.

Grip Strength

Purpose

The purpose of this test was to measure the maximum isometric strength of the hand and forearm muscles.

Breath-holding time

Purpose

The purpose was to measure the ability of the subject to hold their breath for a longer time.

Dribbling (Control Dribble)

Purpose: To measure skill in handling the ball while the body is moving.

III RESULTS AND DISCUSSION

Table-01 Indicating Multiple Regressions R values of all Variables among 100 students.

Variables		R	R^2	SE	Coefficient	t	P
Motor Related Variables							
	Hanging	16	26	28.76	-1.87	-1.64	<0.05 sig
Health-Related Variables							
	Breathing	89	7	29.04	-0.22	-0.88	<0.05 sig
Performance variables							
	Dribbling	83	6	29.05	-0.16	-0.82	<0.05 sig

Table 01 Above table shows the relationship between subjects and the variables of physical, physiological, and performance.

Hanging: Relationship between grip strength and basketball players was not significantly correlated r=0.20 p<=0.05level. The R^2 was the determination of covariance between independent and dependent variables. The dependent variable influenced 26% on the independent variable. The standard error was 28.76viability from the dependent variable. The t (99)-1.64 was significant at p<0.05 level.

Breathing: Relationship between breathing and basketball players was significantly correlated r=0.20 p<=0.05level. The R^2 was the determination of covariance between independent and dependent variables.

The dependent variable influenced the 07% independent variable. The standard error was 29.04viability

from the dependent variable. The t (99)-0.88 was significant at p<0.05 level.

Dribbling: Relationship between dribbling and basketball players was significantly correlated r=0.20 p<=0.05level. The R^2 was the determination of covariance between independent and dependent variables. The dependent variable influenced the 6% independent variable. The standard error was 29.05viability from the dependent variable. The t (99) -0.82 was significant at p<0.05 level

IV CONCLUSION

In terms of the usefulness of this study, which looks at the programs for young female basketball players, I'd like to point out that university players are more efficient in terms of motor fitness, health-related fitness, and playing skills than low-standard players

(intercollegiate players). Coaches will be able to analyse the outcomes and improve future performances as a result. As a result, feedback is critical for athletes to enhance their performance. I concluded that the assessment procedure should be repeated every three to six months to keep track of the players' growth and to guarantee that it is up to current with the players' training demands. Coaches should evaluate their players' performance frequently to verify that they are adhering to the training regimen. The goal of this study is to look into the relationship between female basketball players' basketball playing ability and their motor fitness and health-related fitness to improve and enhance their performance as well as provide a guideline for basketball coaches at all levels in preparing and designing quality and effective training programs.

V RECOMMENDATIONS

1. Based on the findings of this study, it is suggested that more performance variable tests be included to aid in the screening and selection of exceptional basketball players at all levels.
2. It is also suggested that, in addition to the motor and health-related characteristics, psychological variables be added.
3. Because basketball is made up of a range of individual and collective abilities that are performed in a competitive match, physical and physiological aspects are insufficient, thus future research should include technique, tactics, and strategies in addition to technique.
4. Apart from that, professionals should use these findings to develop new training approaches for improving basketball performance.
5. The researcher also advises that a similar study might be conducted on men volunteers by removing negative elements and replacing them with positive ones.

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