Chapter - II

REVIEW OF RELATED LITERATURE

Research scholar made an attempt to locate literature related to the study. The relevant studies pertaining to the basketball of specific importance are given below:

Holland\(^1\) conducted a study on the predictive value of selected Variables in determining the ability to play basketball in small high school. Measures included speed, agility, reaction time, shooting ability pulling ability, height, weight, age and previous experience. The criterion was the rating of the basketball playing ability of each squad member by his coach. The most variables were experience, ball handling, agility, pulling ability and shooting ability. The weighted index with \( r = .76 \) was basketball ability score \( (1.54) \); number of years experience \( +(0.28) \); score on speed dribble \( +(0.26) \); score on wall volley \( +(0.15) \); score on shooting test \( -10.11 \).

\(^1\)Kenneth A. Holland, "The Predictive Value of Selected Variables in Determining the Ability to Play Basketball in Small High School." * Completed Research in Health Physical Education and Recreation* 7 (1965) : 37.
Gordon\textsuperscript{2} conducted a study on the prediction of basketball playing ability of college women by selected tests. Basketball playing ability was predicted from: cardio-vascular capacity, leg power, super body strength and endurance, body composition, body height. Subjects were twenty women varsity basketball players from two colleges, ten from each college. Field tests were selected and administered for each of the variables. Reliability was determined by test retest procedure on six randomly selected subjects. Separate prediction equations were developed for five criterion measures: an ability rating consisting of four offensive - defensive descriptive terms, the Tutko-Richards General Personality Rating, a composite score of the two measures, the Null comparative Rating Scale which utilized game statistics, and a ranking of the player by the coach. The data were analyzed by the stepwise Multiple Regression Programme. The best prediction equation was found to be: basketball ability = 9.053 + 1.364 (12 min. run) - 0.113 ht.

Dahl\textsuperscript{3} Studied the relationship of jump shooting ability in Basketball to selected measurable traits. College basketball players (N=24) were tested on 11 independent variables and three criterion variables, accuracy from 10 feet, From 21 feet and total accuracy. Wrist


strength and flexibility correlated significantly with 10 feet accuracy, wrist strength, hand size and hand reaction correlated significantly with 21 feet accuracy.

Battles\textsuperscript{4} conducted a study on the prediction equation for selection of women Inter-collegiate basketball team members. The purpose of this study was to develop a prediction equation for selection of women inter-collegiate basketball team members. The subjects for the investigation thirty three females who were participating in women's basketball of three colleges in Florida. Each subject completed a personal data form, the Athletic Motivational Inventory (AMI), the known basketball test, Sargent Jump test, and field goal speed test. Selected anthropometric measurements were also obtained from each subject. Each head coach and each assistant coach were asked to rank each member of the team in order of low each contributed to team success. Three different team rankings were included in the statistical analysis. The ranking were head coach's ranking, the assistant coach's ranking and the average rankings of the head and assistant coaches. Significant correlations (.05 level) were found to exist between the head coaches rankings and age and college basketball experience, and between the average of the head assistant coaches ranking and college basketball experience. Results of stepwise multiple regression indicated

that players ranked high by head coaches tended to score on a combination of physical and psychological variables. These variables included college basketball experience, height, vertical jump, mental toughness and the AMI total score. Assistant coaches tended to select players with high scores on psychological variables which included interest, responsibility mental toughness and aggression. The average ranking of the head coach and the assistants favored players with college basketball experience responsibility, mental toughness, age and self-confidence. Mental toughness was the only variable which consistently appeared regardless of the method of ranking.

Strain\(^5\) conducted a study on the predicting future high school basketball player success as measured by estimated varsity game point production from individual sophomore game statistics. During the year 1961 through 1968, 30 junior and 21 seniors of the Rapid City High School basketball varsity teams, who had completed the sophomore, junior and senior basketball season, furnished the data for the formularization of 3 predictive equations from the relationship of individual sophomore game statistics and varsity point production. In the development of the multiple regression equation, 5 predictor variables, successful free throw average per game, field goal

percentage, and rebound percentage were correlated with the success variables as measured by varsity point production.

Lewis\(^6\) conducted a study on a comparison of three method of conditioning upon strength, speed, endurance and selected basketball skills. Male college students (N = 90) participated in a 12 week training and conditioning programme. The subjects were randomly placed in one of 3 treatment groups and were identified as the traditional group, usually characterized by conventional exercise; the resistive exercise group, utilizing a combined isometric – isotonic technique of exercise using the Exer-Genic exerciser; and the control group in which no formal conditioning too place. The post test findings showed a significant difference on the scores made by the resistive exercise group as compared with the other two groups on all 4 criterion variables indicating that the combined isometric-isotonic method of conditioning was effective.

Amusa\(^7\) conducted a study on the relationship between playing ability and selected measures. Forty six subjects were well...

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conditioned soccer players with at least two years playing experience on the college level they were tested for running speed, power, agility max Vo2, strength, anaerobic capacity and flexibility in addition eleven anthropometric measurements consisting of skin fold and body diameters were taken. Soccer playing ability served as the criterion measures.

Harbin⁶, conducted a study on differences in the physical fitness levels between home school students and public school students were investigated. The presidents challenge physical fitness and sports test battery was used to measure the physical fitness levels. The statistical analysis indicated that the home school students were significantly more physically fit than the public school students in the areas of upper body strength and endurance, flexibility and cardiovascular endurance. There was no significance difference in abdominal strength and endurance between home school and public school students comparisions made with the state scores revealed that students from south Alabama scores higher than the Public school students across the state of Alabama, with the exception of upper body strength and endurance and cardiovascular endurance for formal public school students. When the data from this research were compared to the

national norms, 56% of the female home school students, 48% of the male home school students 39% of the male public school students, and 35% of the female public school students scored above the 50th percentiles. Since physical fitness assessment of home school students is a new field of research, there is a paucity of empirical evidence to support or reject these findings.

Pritipal\(^9\), conducted a study to know the effect of strength improvement on technical skills of basketball players. They found that improvement in strength in the case of poorly and moderately conditioned sportmen was a significant positive effect on other components of physical fitness and also on simple technical skills like passing in basketball, but there was a negative effect on complex technical skills like shooting in basketball.

Malhotra and subramania\(^10\), study indicated that compared to pre competitive training, the off season training had a significant effect on the general physical fitness and skill in basketball players. The study also indicated that the combined training (training for the general fitness, the specific game fitness and technique and tactics) did not


result in any improvement in strength, agility, flexibility or explosive power. On the contrary it resulted in drop in values of most of the tests, specially flexibility and speed endurance to a significant level. Only in endurance running there was an observed improvement. On the other hand there was significant improvement in speed, endurance, strength, explosive power and dynamic strength of arm and shoulders as a result of the off-season training.

Toner\textsuperscript{11} investigated the relationship of selected physical fitness and mood variables to success in female high school Basketball candidates. The study examined the relationship of physical fitness, skills, and mood variables success in female high school Basketball players being chosen to become varsity players. McNair’s profile of mood states, Cooper's 12 minute run test, AAPHER jump and reach test, AAHPER shuttle run test, 30 yard dash, AAPHER under basket test, speed dribble test were administered to eighty one female high school Basketball candidates. Each of the three teams was treated on three separate occassions during the regular afternoon practice time for the teams. At the end of the testing and evaluation period, the few of coaches on the basis of their observations during drills and scrimmage competition independently related each candidate as either a

\textsuperscript{11} Mark Keven Toner, "The Relationship of Selected Physical Fitness, Skills and Mood Variables to Success in Female High School Basketball Candidates, "\textit{Dissertation Abstracts International}, 42 (March 1982) : 3909 - A.
successful or an unsuccessful performer. Discriminant analysis procedures supported the following hypothesis (a) the fitness factor, skill testing and personal factors (known together as pre-season variables) were successful indicators of group membership while the POMS variables were to a lesser extent (b) the battery of tests pre-season and POMS did correlate with coach's ratings.

Pease\textsuperscript{12} conducted a study on the relationship of selected hand and wrist measurements to ability to shoot in basketball. In this study 64 college age males were selected as the subjects and he concluded that speed of hand was only significant predictor of the ability to shoot in Basketball.

Haehn\textsuperscript{13} conducted a study on Knox basketball test as a predictive measures of overall basketball ability in female high school basketball players. the four items of knox basketball test were administered to 198 girls from 9 MOSHSS during basketball try-outs and prior to any students being cut out from the team. The stepwise multiple regression procedure was used to analyse the predictive value of this test. The only test item that significantly predicted (p .05) the

\textsuperscript{12} G. Dale Pease, "Relationship of Selected Hand Wrist Measurements to Ability to Shoot in Basketball," Perceptual and Motor Skills 52 (December 1981) : 793.

selection of players to the varsity and junior varsity teams was the dribble shoot test. The dribble shoot test also correlated significantly with the coaches rankings of junior varsity players and varsity players. The speed pass and the speed dribble significantly predicted the deviation between the junior varsity and varsity players. Although the comparisons were significantly the skill tests accounted for only 11.1% to 28.3% of the total variation in the dependent variables.

Atkinson\textsuperscript{14} conducted a study on prediction of performance in tennis, handball, and badminton from certain physical traits regression equations using traits and class commitment as predictors were developed for determining potential skill in beginning tennis, badminton and handball for college men. The physical traits used were: agility, power, hand eye coordination and visual ability. Skill level was determined by a round robin tournament in each sports. Subjects were 140 college men enrolled in beginning classes for each sports and taught by the whole-part method.

The controlled subjects included 138 subjects enrolled in at the beginning classes and taught by part method. Another purpose of the study was to determine if practice in the sport would significantly improve scores in the physical traits. A period + was used to compare

experimental and control groups. Conclusions were class commitment
is probably an integral part of skill attainment in the sports studied,
students taught tennis and badminton by the whole part method
experience greater gain in agility and hand eye coordination, students
taught tennis by the part metod experience greater gains in shoulder
girdle power.

Clarke\textsuperscript{15} developed a study of validation of a basketball potential
skill test. The study was concerned with the development of basketball
potential skill test and the examination of its validity, reliability and
objectivity. A subjective analysis of the game and a review of pertinent
literature resulted in the identification of three player success factor
areas, anaerobic power, hand eye coordination, and agility, seven tests
of these areas were administered during 1971 - 72 to forty four
basketball oriented students who had divided themselves into sub
groups of twenty five candidates and nineteen non candidates by
individual decisions regarding inter-collegiate basketball candidacy.
Biserial correlation was utilized to determine valiity coefficient for each
test with the most valid in each area comprising the final battery.

\textsuperscript{15} James William Clarke, "Development of Validation of a Basketball Potential
Those retained were jump and reach (work) anaerobic power, 30 second under basket shot, hand eye coordination, four way boomrang agility, validity, objectivity and reliability were computed and they were .915, .994 and .896 respectively. A multipule regression equation was developed.

Gallagher\textsuperscript{16} conducted a study on the relationship of agility to performance in women’s intercollegiate basketball. The hypothesis was that high positive relationship would exist between items of the test (McCanliff Agility Components Test) and performance were not supported. The lack of evidences to support the hypothesis was attributed to some unexpected peculiarities of the sample and several recommendations were made for continued investigations.

Raymond\textsuperscript{17} investigated the characteristics of potential college basketball players. Basketball coaches from 4-classes of institutions were surveyed in an attempt to identify those characteristics coaches demanded most important in recruiting potential school athletes. The four classes of institutions were: state colleges, private colleges, state universities and private universities. Thirty six characteristics were


analysed under five categories: attitude and personality, playing experience, physical qualities, mental ability and financial need. Mean ratings were determined for each characteristic and each category. No significant difference was found between the types of institutions and the qualities looked for in the recruiting practices.

Gilbert\(^{18}\) investigated a study of selected variables in predicting basketball players. It was demonstrated that a battery of 4 independent variables selected from a total of 10, best reflect composite basketball ability and performance at the college level. These four variables are ability criterion, arm strength, penny-cup test, and speed pass. However, since the derived multipule \(r\) of .95 was not reached. This limits the utilization of this battery as a predictive measure of basketball ability.

Harper\(^{19}\) conducted a study of the effect of two physical conditioning programmes on cardio-respiratory fitness of 25 college men. The subjects were placed into three group on the basis of maximum oxygen consumption one group participated in a modified


army conditioning programme and second group in interval training involving running. The third group (control) participated recreational activities. The group met five days per week for seven weeks. Cardiorespiratory efficiency was measured with the help of the Harvard step Test. The results showed that both interval training and army trained groups improved significantly in their cardio-respiratory efficiency. The control group did not improve significantly.

Westering\textsuperscript{20} studied two Physical conditioning methods, intense, intermittent, and conventional to determine their effect on physical fitness tests and time spent in each conditioning programme was twice that of the intense-intermittent group in a six-week period, while a significantly higher degree of physical fitness was obtained through the use of an intense intermittent conditioning programme. Athletic coaches who are concerned about tightly scheduled practice sessions and conditioning procedures will find an answer in intense-intermittent conditioning programme. Physical educator could also develop a higher level of physical fitness and have more time for the instructional phase of their programme.

\textsuperscript{20}Forrest Westering, A Comparison of Two Types of Physical Fitness Conditioning Programme of High School Athletics, "Completed Research in Health, Physical Education and Recreation" 3 (1961) : 37.
Childness\textsuperscript{21} conducted a study on a factor and discriminant analysis to identify and determine the effectiveness of selected physical variables in predicting a successful basketball performer. The purpose of this study was to identify the components of high school basketball playing ability and to construct and evaluate a tool for classifying successful and unsuccessful high school basketball players. Twenty-four test items were selected through a review of the related literature as valid measures of the components of high school basketball playing ability. The test items were administered to 106 high school basketball players and the resultant data were analyzed through the utilization of the principle axes method of factor analysis with various criterions for rotation. Seven factors were isolated and six factors were identified as agility, speed, relative muscular endurance, basketball speed manipulation, gross muscular strength, total body movement time and manual dexterity. One factor was unidentifiable in terms of common test items with high factor of loadings. The test batteries were conducted the first consisting of seven items loading highest on the isolated factors, the second was composed of ten test items. The first battery was utilized in a discriminant function analysis classified as successful and unsuccessful basketball players. The result of this study indicated that

\textsuperscript{21} James Thomas Childness, "A Factor and Discriminant Analysis to Identify and Determine the Effectiveness of Selected Physical Variables in Predicting a Successful Basketball Performer" Dissertation Abstract International 33 (November 1972): 2148 - A
the components of basketball playing ability could be isolated, measured and utilized to construct and evaluate tool for classifying successful and unsuccessful players.

Philip\textsuperscript{22} conducted a study on the effect of weight training on the accuracy of basketball jump shooting. Subjects (N = 40) were men with playing experience. After orientation and test for shooting accuracy at 12 and 18 feet and strength of upper extremity, subjects were assigned to four treatment groups. During four week period all subjects practiced 100 jump shot five days a week. Group one practiced jump shot at a distance of 12 feet groups two at the same distance and trained with weight three days per week, group three jump shot at 18 feet, group four used the same distance and trained with weight three days per week. Tests given after the experimental period were identical in initial test the $P < .05$ was used to reject hypothesis. Weight training had no effect upon jump shot accuracy. Practice at each distance resulted in improvement in accuracy. Improvement in 12 feet was greater than at 18 feet. Improvement was specific to the practiced distance. Weight training increased finger flexion strength, but improvement in other segments of the upper extremity were not significant.

Ellen conducted study on the relationship of height and weight to the performance of college women and selected basketball skill test. A – 3 item basketball test (push pass, half minute shoot, and bounce and shot) was administered to 100 college women who participated in the intramural basketball tournament. Four group of each were selected to represent the extremes in height and weight, height had a statistically significant relationship with weight and combined test and with the bounce and shoot when weight was held constant comparison of means between the heavy and light group however showed that the only significant differences was between height and weight.

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