

EFFECT OF SELECTED WEIGHT TRAINING EXERCISE AND PLYOMETRIC TRAINING ON EXPLOSIVE STRENGTH OF ATHLETES

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ABSTRACT

The purpose of the present investigation was to find out the effects of selected weight training exercises and plyometric exercises on explosive strength of college athletes. . Sixty male college athletes (23.17 ± 1.87 years of age), who volunteered to participate in this study were randomly selected. All the selected students expressed their enthusiasm and willingness to participate as subjects. The selected athletes were divided into three equal groups, namely Experimental group-I, Experimental group-II and control group. Experimental group I was given plyometric exercises, experimental group II was given weight training exercises and control group was not given any Experimental treatment except of their regular workouts. Experimental Group-I performed plyometric drills i.e. Hopping on one leg:, Hopping, Bounding and Box Jumps and Depth Jumping. Experimental Group-II performed the weight training exercises i.e. Leg press, Overhead press, Half squat, Bench press, Calf raise, and Barbell Extension. The leg press, half squat, calf raise exercises. The standing broad jump was the criterion measures used to measure explosive strength of the college athletes. The statistical analysis of data showed that there was significant difference on the effect of plyometric training and weight training exercises on explosive power. The significant improvement in explosive strength was seen more on plyometric group and weight training group than control group

Keywords: Plyometric training, Explosive Strength, College athletes

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INTRODUCTION

Plyometric exercises are based upon the belief that a rapid lengthening of a muscle just prior to contraction will result in a much stronger contraction. The added contractile strength is believed to be done to stretching of muscle spindles involved in mitotic reflex and resulting in an increased frequency of motor unit discharges stimulations of other receptors and increased number of activated motor units.

Plyometrics exercises are used to improve maximum strength and speed of movement which result in an increase of explosive power. Dynamic in nature, these exercises satisfy the basic training principles of specificity, practice with movements similar in nature and speed to the skills or events for which one is trained. Though plyometric training is relatively new in India, this training technique has been used extensively in USSR and America since the early 1960's. Early researches on plyometrics were made with a little interest in hopping and bounding drills. In recent years the method of plyometrics has become a part of the training methods in sports and games (Wilf & Freeman, 1984).

Plyometrics consists of exercises commonly used to enhance explosive power via the stretch-shortening cycle (SSC), (Michael et al., 2001; Rahimi, 2005). The stretch component of the SSC refers to the eccentric muscle action, whereas the shortening refers to the concentric muscle action (Michael et al., 2001). Elastic energy is stored in the tendo-muscular system during the eccentric action (Michael et al., 2001). This is accomplished by optimizing the stretch-shortening cycle, which occurs when the active muscle switches from rapid eccentric muscle action to rapid concentric muscle action (Luebbers et al., 2003; Lachance et al., 1995; Wagner et al., 1997).

Plyometric exercises are specialized, high intensity training techniques used to develop athletic power (strength and speed). Plyometric training involves high-intensity, explosive muscular contractions that invoke the stretch reflex (stretching the muscle before it contracts so that it contracts with greater force). The most common plyometric exercises include hops, jumps and bounding movements. One popular plyometric exercise is jumping off a box and rebounding off the floor and onto another, higher box. These exercises typically increase speed and strength and build power.

Stone & O'Bryant, (1986) and Adams et al. (1992) suggested that this combination of weight training and plyometric training may provide a more powerful training stimulus to the vertical jumping performance than either weight training or plyometric training alone. It seems that researchers have not come to an agreement about the relative effectiveness of plyometric training compared with weight training or the combination of both in the development of explosive power performance. Therefore, the purpose of the present investigation was to find out the effects of selected weight training exercises and plyometric exercises on explosive strength of college athletes.

METHODOLOGY

Selection of Subject:

Sixty male college athletes (23.17 ± 1.87 years of age), who volunteered to participate in this study were randomly selected for this purpose. All of the subjects participated in inter-collegiate level sports and games competitions and none were being trained by means of a plyometric and weight training program. All of the subjects had successfully passed a physical exam and completed a medical history questionnaire in which they were screened for any possible injury or illness. They were also healthy without any physical disabilities that might

have influence the scores The subjects received all the necessary information about the study's procedures. All the selected students expressed their enthusiasm and willingness to participate as subjects.

The selected athletes were divided into three equal groups, namely Experimental group-I, Experimental group-II and control group. Experimental group I was given plyometric exercises, experimental group II was given weight training exercises and control group was not given any Experimental treatment except of their regular workouts.

Training Protocols:

Two training groups trained five days per week for a period of six weeks. Training exercises were given in the morning and evening for duration of 90 minutes per day from Monday to Friday. All workouts were given after warming up. Warming up was concluded with numbering exercises, Before the initiation of the training periods, the subjects of all the groups were instructed about the proper execution of all of the exercises to be used during the training period for all training regimens. This assured good orientation and helped the subjects to explore better.

A pilot study was conducted before finalising the training program to ensure that intensity and duration of the program were within the limits of the subjects' capacity to produce the desired effect. The training load was given on the basis of the athlete's strength and his capacity to withstand the load for a period of time.

The subjects in the plyometric group (Experimental Group-I) performed the following plyometric drills:

1. Hopping on one leg: Hopping should be considered as running on one leg. The other leg does not remain passive but punches hand forward landing with feet. Both knees should be released. It is more important in developing physical fitness components such as explosive power, strength and speed
2. Hopping, Bounding and Box Jumps: Bounding is an exaggeration of the running action. The athlete emphasis a vigorous thrust off the ground and step high up and forward. The progressive thigh is driven at waist height and parallel to the ground landing employ an active reach for the ground. After hopping bounding jumping drills as per the work schedule was given, the subjects were given drills on jump over hurdles and depth jump. This will increase the subject's agility, endurance and flexibility
3. Depth Jumping: To perform depth jumping the subjects stand on top of the box and drop off to the ground it was done in single leg and double leg. He should not jump off the box.

The subjects in the weight training group (Experimental Group-II) performed the following weight training exercises : Leg press, Overhead press, Half squat, Bench press, Calf raise, and Barbell Extension. The leg press, half squat, calf raise exercises were used to strengthen the leg muscles and the remaining exercises in overhead press and barbell extension were used to strengthen the arm muscles

Initial and final scores on speed were collected using standard tests before and after the experimental period. And the collected data were subjected to statistical treatment.

TEST ADMINISTRATION

The standing broad jump (Yobu, 1988) was the criterion measures used to measure explosive strength of the college athletes. The criterion measure is explained below:

Purpose : To measure the explosive power of legs. Materials: Tape, Jumping pit. Procedure: The student stands behind a take off line with his feet several inches apart.

Before jumping, the student dips at the knees and swings the arm backward. He then jumps forward by simultaneously extending the knee and standing the arms forward three trials are permitted. Scoring: The scoring is the distance between the take off line and the nearest points where any part of the student body touches the floor. Best performance out of three trials is taken as his score. Rules: Three trials were given. The measurement was done from the take off lane to the point where the body touched the floor nearest to the take off lane.

RESULTS AND DISCUSSION

The collected data on the explosive strength prior to and after 6 weeks of plyometric and weight training exercises were statistically analysed using Analysis of Covariance (ANACOVA). The level of significance was set at .05 level. To test the significant differences between the groups and to determine which group performed better, Scheffe's Post-hoc test (Clarke and Clarke, 1972) was applied. The ANACOVA for explosive strength scores of college athletes for Plyometric, Weight training and control groups are presented table 1 to 3.

TABLE I
ANALYSIS OF VARIANCE OF PRE-TEST AND POST-TEST SCORES ON
EXPLOSIVE STRENGTH OF COLLEGE ATHLETES

Source of Variance	df	Sum of Squares (x)	Sum of Squares (y)	Mean Square (x)	Mean Square (y)	F-ratio (x)	F-ratio (y)
Between Sets	2	0.437	2.065	0.219	1.032	1.1.8	17.00*
Within Sets	57	7.004	3.433	0.123	0.060		

Significance at .05 level, $F_{.05}(2, 56) = 2.77$

It is evident from Table 1 that the significance difference was not found among initial means of three group athletes, as the obtained F-value of 1.18 was less than the required $F_{.05}(2, 57) = 2.77$. So, it is demonstrated that the random assignment of the subjects for three groups (Plyometric, Weight training and control group) was successful.

The significance difference was found among final means of three group athletes, as the obtained F-value of 17.00 was high than the required $F_{.05}(2, 57) = 2.77$. So, it was found that there was significant improvement due to treatment on the subjects.

The adjusted mean scores to test the significance differences among three groups ((Plyometric, Weight training and control group) was determined using ANACOVA.

TABLE 2
ANALYSIS OF COVARIANCE OF PRE-TEST AND POST-TEST SCORES ON
EXPLOSIVE STRENGTH OF COLLEGE ATHLETES

Source of Variance	df	Sum of Squares (x)	Sum of Squares (y)	Sum of Squares (x y)	Mean Square (y × x)	SD (y × x)	F-ratio
Between Sets	2	0.437	2.065	1.675	0.837	0.240	14.60*
Within Sets	56	7.004	3.433	3.221	0.058		

Significance at .05 level, $F_{.05}(2, 56) = 2.77$

As mentioned in table 2 that the obtained f-value of 14.60 was greater than the required value of 2.77 at .05 level of significance. Hence the null hypothesis was rejected and researcher's hypothesis that there would be significant difference due to plyometric and weight training exercises was accepted at .05 level.

The adjusted mean value of three groups ((Plyometric, Weight training and control group) and the required mean difference as calculated by using Scheffe's test are presented in Table 3 and mean scores as depicted in figure 1.

TABLE 3
ORDERED ADJUSTED MEANS FOR EXPLOSIVE STRENGTH TESTED FOR SIGNIFICANCE USING SCHEFFE'S TEST

Plyometric Group	Weight Training Group	Control Group	MD	Confidence Interval (CI)
2.08	2.10	-	0.02	0.06
2.08	-	2.45	0.37*	
-	2.10	2.45	0.35*	

Significance at .05 level

As presented in table 3 that all three groups ((Plyometric, Weight training and control group) adjusted mean differences were significantly different between plyometric training group-control group and between weight training group- control group at .05 level. However, there was no significant difference between plyometric training group- weight training group.

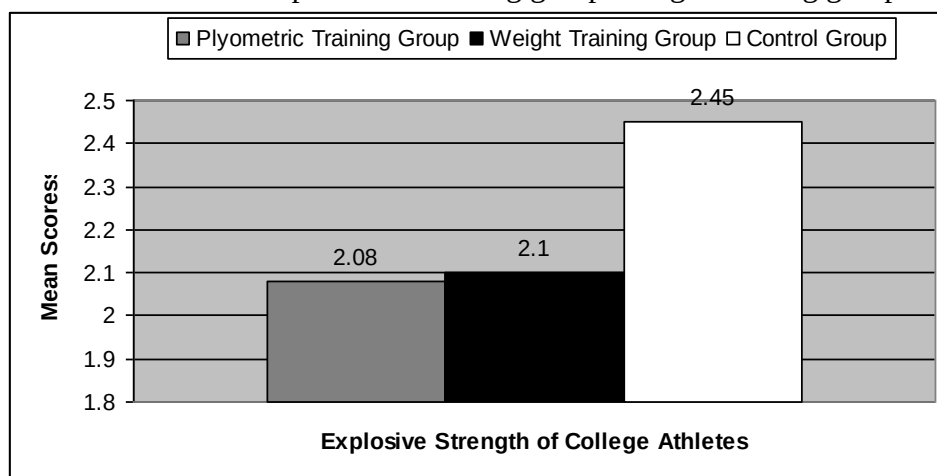


Fig.1: Mean Scores of Plyometric Group, Weight Training Group and Control Group on Explosive Strength of College Athletes

DISCUSSION

The results of the study showed that there was significant difference on the effect of plyometric training and weight training exercises on explosive power.

The scores were analysed through ANACOVA and found that there was significant differences between the groups in explosive strength.

It was also documented that due to weight training exercises there was significant mean gains over control group. The findings of this study were in agreement with the findings of Mullai (1987), who found that plyometric exercises improved sprinting ability. The findings of this study were also in agreement with the findings of Watson (1983), who found that plyometric exercises were better than weight training exercises in improving physical fitness of the subjects.

CONCLUSIONS

Based on the results and discussions of the study, it was concluded that

1. There was no significant difference between weight training exercises and plyometric training after the experimental treatments.

2. There was significant improvement in explosive strength on plyometric group than control group and weight training group than the control group.

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A COMPARISON OF SELECTED PHYSICAL VARIABLES BETWEEN UNIVERSITY AND STATE LEVELS BASKETBALL PLAYERS

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ABSTRACT

The purpose of this study was to compare selected physical variables between University and State levels Basketball players. For the purpose of this study, sixty Basketball players (thirty University level and thirty state level) were randomly selected as subjects. All the subjects belong to the state of Uttar Pradesh and their ages were between 17 and 25 years. For this purpose following physical variables were selected: Arm Strength, Grip Strength and Wrist Flexibility. Arm strength was measured by Roger's formula (pull ups + dips) ($w/10 + H - 60$). Grip Strength was measured by grip dynamometer and the Wrist Flexibility was measured by Goniometry. To compare arm strength, grip strength and wrist flexibility between university level and state level basketball players "t" test was computed. The result reveals that there were significant difference between university and state levels basketball players in their right and left grip strength. The result also reveals that there were significant difference between university and state levels basketball players in arm strength. Whereas, there were no significant difference between university and state level basketball players in their right and left wrist flexibility.

Keywords: Participation levels, Flexibility, strength, Hand grip, Wrist

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INTRODUCTION

Grip strength, arm strength, wrist flexibility and certain anthropometric measurements appear to be contributing factors in basketball performance. A player needs supple wrists, in order to pass the ball at different speed as well as to deceive the opponents with sudden wrist movements in either direction. Besides this one of the most common element in the game of basketball is shooting this can possibly be executed effectively if a player possesses better arm strength besides longer arms. The purpose of this study was to compare selected physical variables between University and State levels Basketball players.

METHODOLOGY

Selection of Subjects:

For the purpose of this study sixty Basketball players (thirty University level and thirty state level) were randomly selected as a subjects. All the subjects belongs to the state of Uttar Pradesh and their ages were between 17 and 25 years.

Instrumentation :

For this purpose following physical variables were selected: Arm Strength, Grip Strength and Wrist Flexibility. Arm strength was measured by Roger's formula (pull ups + dips) ($w/10 + H - 60$) (Clarke & Clarke,). Grip Strength was measured by Grip dynamometer and the Wrist Flexibility was measured by Goniometer.

RESULTS AND DISCUSSION

To compare arm strength, grip strength and wrist flexibility between university level and state level basketball players "t" test was used. The level of significance was set . at 0.05 level and data pertaining to the comparison of arm strength, grip strength and wrist flexibility between university and state level basketball players has been presented in Table 1 to 5 and depicted figure 1 to 5.

TABLE 1

SIGNIFICANCE OF DIFFERENCE BETWEEN UNIVERSITY AND STATE LEVEL BASKETBALL PLAYERS IN RIGHT GRIP STRENGTH

Participation Levels	Mean	MD	σ DM	t-ratio
University level	58.90	11.44	1.50	7. 14*
State level	47.54			

*Significant at 0.05 level

t.05 (58) = 2.00

Table 1 reveals that there were statistically significant differences between university and state level basketball players in right grip strength, as the obtained t-value of 7.14 was greater than the t.05 (58) = 2.00

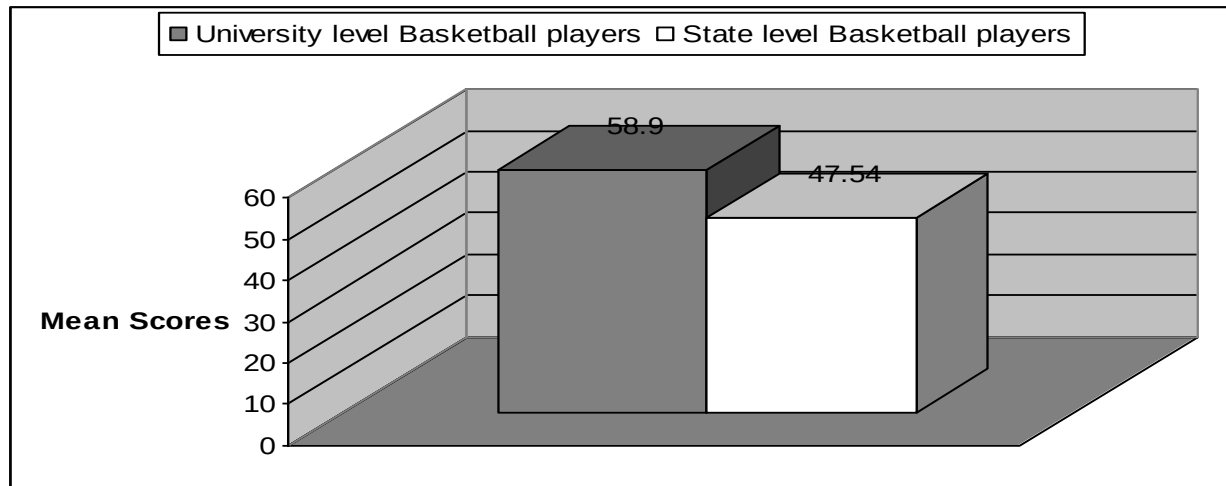


Fig.1: Mean Scores on Right Hand Grip Strength of University and State Levels Basketball Players.

TABLE 2
SIGNIFICANCE OF DIFFERENCE BETWEEN UNIVERSITY AND STATE LEVELS BASKETBALL PLAYERS IN LEFT GRIP STRENGTH

Participation Levels	Mean	MD	σ_{DM}	t-ratio
University level	54.41	12.76	1.51	6.71*
State level	41.65			

*Significant at 0.05 level

$t_{.05(58)} = 2.00$

Table 2 reveals that there were statistically significant differences between university and state level basketball players in left grip strength, as the obtained t-value of 6.71 was greater than the $t_{.05(58)} = 2.00$

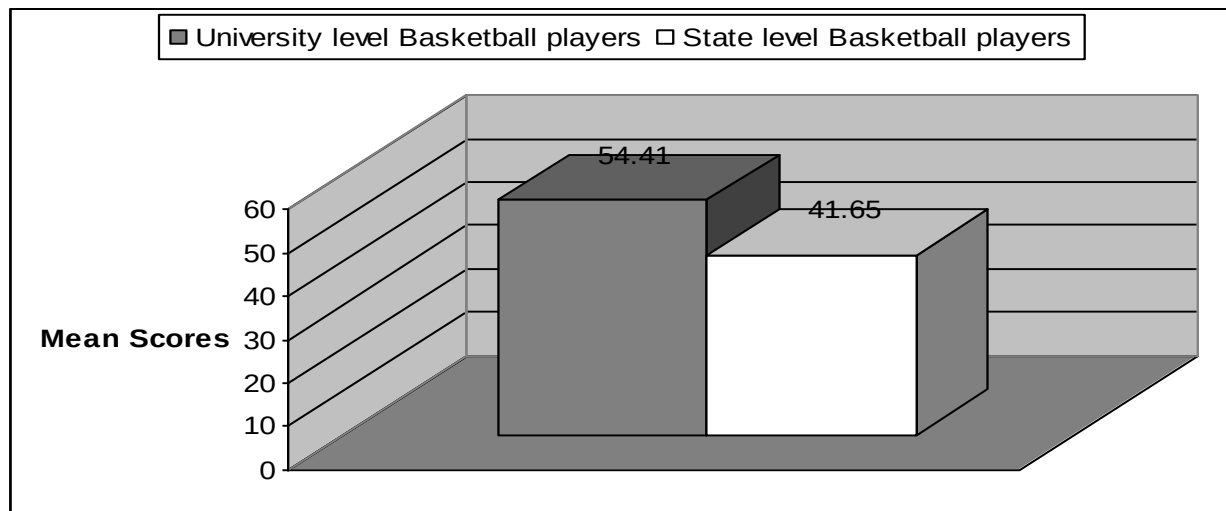


Fig.2: Mean Scores on Left Hand Grip Strength of University and State Levels Basketball Players

TABLE 3
SIGNIFICANCE OF DIFFERENCE BETWEEN UNIVERSITY AND STATE LEVELS
BASKETBALL PLAYERS IN ARM STRENGTH

Participation Levels	Mean	MD	σ DM	t-ratio
University level	4832.54	866.73	195.43	4.90*
State level	3965.81			

*Significant at 0.05 level

t.05 (58) = 2.00

Table 3 reveals that there were statistically significant differences between university and state level basketball players in arm strength, as the obtained t-value of 4.90 was greater than the t.05 (58) = 2.00

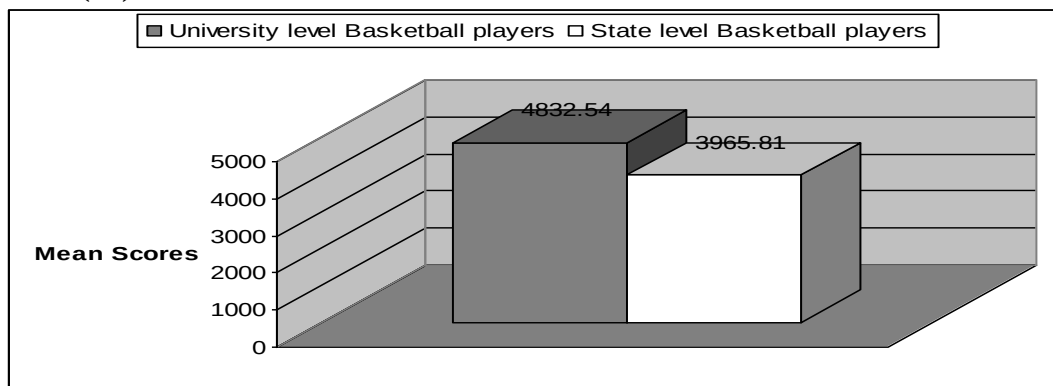


Fig.3: Mean Scores on Arm Strength of University and State Levels Basketball Players

TABLE 4
SIGNIFICANCE OF DIFFERENCE BETWEEN UNIVERSITY AND STATE LEVELS
BASKETBALL PLAYERS IN RIGHT HAND
WRIST FLEXIBILITY

Participation Levels	Mean	MD	σ DM	t-ratio
University level	69.12	2.87	2.65	1.62
State level	66.25			

Insignificant at 0.05 level

t.05 (58) = 2.00

Table 4 reveals that there were statistically significant differences between university and state level basketball players in right hand wrist flexibility, as the obtained t-value of 1.62 was less than the required t-value to be significant.

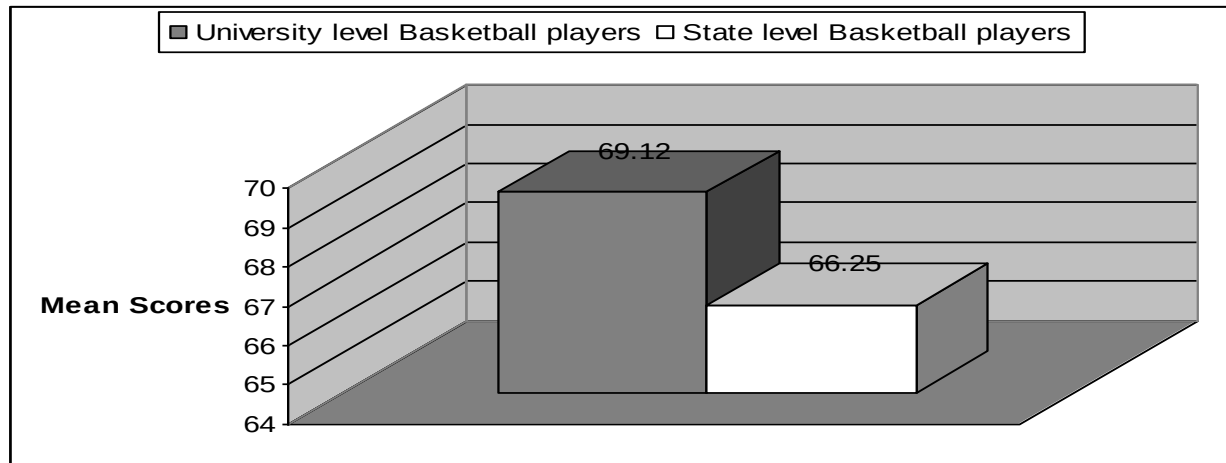


Fig.4: Mean Scores on Right Hand Wrist Flexibility of University and State Levels Basketball Players

TABLE 5
SIGNIFICANCE OF DIFFERENCE BETWEEN UNIVERSITY AND STATE LEVELS BASKETBALL PLAYERS IN LEFT HAND WRIST FLEXIBILITY

Participation Levels	Mean	MD	σ DM	t-ratio
University level	68.76	3.22	2.47	1.39
State level	65.54			

Insignificant at 0.05 level

$t_{.05(58)} = 2.00$

Table 4 reveals that there were statistically significant differences between university and state level basketball players in left hand wrist flexibility, as the obtained t-value of 1.39 was less than the required t-value to be significant.

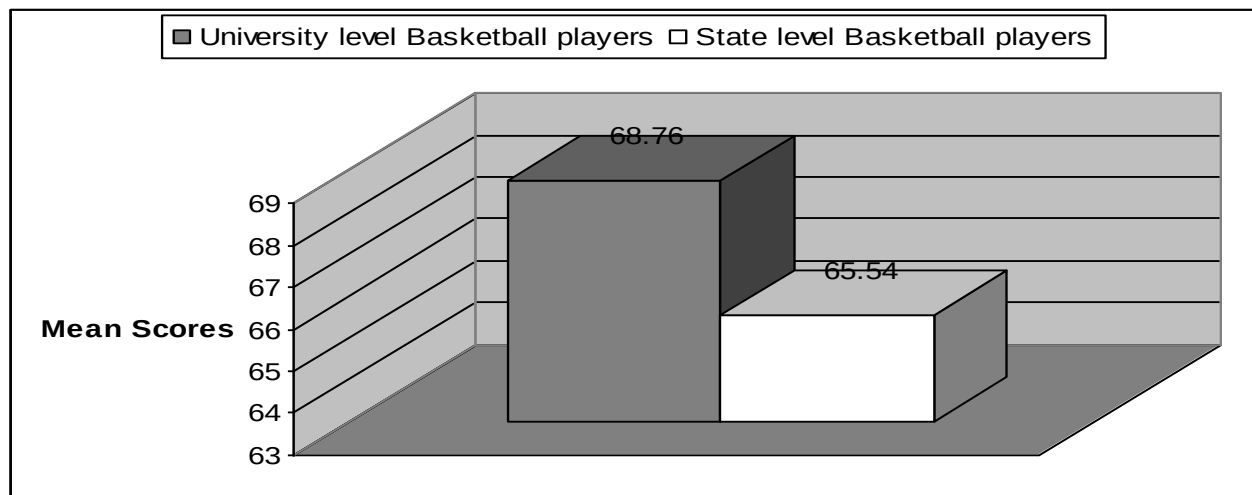


Fig.5: Mean Scores on Left Hand Wrist Flexibility of University and State Levels Basketball Players

CONCLUSIONS

1. There were significant difference between university and state levels basketball players in their right grip strength, left grip strength and arm strength.
2. Similarity was found between university and state level basketball players in their right and left wrist flexibility variables.

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COMPARISON OF SPORT FACILITIES IN CENTRAL AND STATE SCHOOLS IN CHHATTISGARH

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ABSTRACT

The purpose of this study was to compare the existing physical education facilities in Central schools with State schools of Bilaspur region in accordance with the standards laid down in the National Plan of Physical Education proposed by Government of India. The study was conducted by administering a questionnaire to the Principals /Physical Education Teachers of Central Schools and State Schools of Bilaspur Region. Survey method was used to assess the Physical Education facilities in Central Schools and State Schools of Bilaspur region. No statistics were involved in the study. The research scholar put the collected data in tables for assessment of the-existing facilities in accordance with the standards prescribed by the National Plan of Physical Education only the average was calculated To analyzing the data. The survey revealed the true picture facts, draw backs. Weakness, difficulties as well as a few strong points.

Keywords: Sports facilities, central school, State School, Bilaspur region

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INTRODUCTION

Physical education and education are two sides of same coin. Physical education is education through meaningful physical activities and it is an integral part of general education. Physical education is "an integral part of total education process which has its aim – the development of physically, mentally, emotionally and socially fit citizen through the medium of physical activities which have been related with a view of realizing these outcomes.

Physical education is an old and fundamental education. The first physical education was the parent who taught his son to throw a spear, to climb a tree, to leap a brook, to do all those things that were important for a youth to learn in the tribal life of uncivilized man. Over the century the civilized social scene has changed tremendously, ways of living have profoundly altered, and new stresses have pressed upon the old biological problems of man. The need to learn to throw a spear has passed but the need to throw remains, the need to climb a tree is gone, but the urge to comb appears in every child, the need to leap a brook rarely occurs, but the necessity to leap arises again and again in the urgent jumping and leaping of youth. The patterns developed by nature are old and fundamental forms. Which their demands in a highly industrial and complex present.

Facilities are the basic need to make the programme successful. Facilities include ground equipment, gymnasium hall, Swimming pool and finances etc. The achievement of the programme depends upon its available facilities. It is stated that recent trend is to enrich the programme of physical education and demands enough space and allied facilities which are largely responsible for the success of the programme. The facilities for physical education play an important part in the relation of acquiring educational objectives. The objectives achieved are respect to others, friendship, to learn and appreciate new skills, guide and help the youngsters. Keeping in view the production of good citizen.

Physical education facilities and programmes are not frills to educational programme. As the classroom furniture, laboratory, libraries, drawing-hall and other things are necessary, similarly physical education facilities have a high order of priority in the total educational step up.

But the extent of facilities like playgrounds, track and field, gymnasium, swimming pools etc. determines the level up to which physical education percolate to the masses. Regarding the availability of facilities, responsibility goes in the part of the government and the management of the institution.

But the reluctance on the part of managements towards physical education is a great set back. The need for classroom, classroom furniture, laboratories, libraries etc. are accepted as essential but facilities for physical education are grudgingly provided. This responsibility can be successfully discharged if we realize the need of attractive programme, standard facilities, as well as trained, enthusiastic dedicated teachers of physical education. Programme facilities and personnel as well as conducive environment and similar factors which make a strong chain in fulfillment of the desired aim. Though leadership plays an important part and may be considered to be uppermost by many, it has to be accepted that facilities and other factors are also equally vital. The fact remains that any weak link in chain would result in the poor achievement of the aim.

Facilities should be designed and constructed with one central purpose in view to serve particular kinds of educational programme. Large range planning for physical education facilities is a continuous process of anticipating and prepared to meet facility needs. Functional facilities are the result of thorough and well organized planning. The time, effort, and expenditure thus invested will be amplified manifold in functional facilities at the lowest

possible costs. Such facilities necessitate the use of extensive outdoor and indoor activity area as well as expensive equipment and service facilities. A well organized plan for a proposed structure therefore, helps to clarify the priority of needs and hastens the decision to provide the facility.

Several plans, schemes and commissions were set up to popularize physical education. National plan of physical education and recreation was first prepared in 1956 by the Union Ministry of Education. Tenth's plan included useful guidelines for a syllabus of physical education for primary and secondary schools. The Government of India framed a multi purpose programme of physical education for implementation in secondary school in 1965. The review committee on the ten years school curriculum headed by Shri. Ishwar Bhai J. Patel had laid special emphasis in physical education in schools.

The scholar intends, keeping in mind the adequate value of imparting physical education and sports to the students to find out minimum requirement to fulfill the condition and as such he engaged himself to investigate the facilities of physical education in the central and state schools of Bilaspur region. The purpose of the present study was to compare and analyses the sport facilities and physical education programme in central schools and state schools of Bilaspur region.

METHODOLOGY

Sources of Data:

Twelve central and state schools of Bilaspur Region and thirty three state schools of Bilaspur Region were selected for the study.

Construction of the Questionnaire:

The questionnaire was framed and constructed under the supervision of the advisor and other experts in field, with utmost care and seriousness of the purpose, taking into consideration the maximum coverage of the area of the field concerned with relevant aspects needed for the study. The Questionnaires were arranged in logical order and each question worked clearly to receive desired response without undue problem.

The questionnaire were prepared taking consideration various aspects like general information, sports facilities, physical education teacher equipments, budget, library facilities, books, journals, etc., so as get maximum worthwhile detailed and meaningful information from the sample.

Administration of the Questionnaires:

Copies of the questionnaire with covering letters and self addressed envelopes were mailed to Principal/Physical education teachers of fifteen central schools and forty five state schools of Bilaspur Region with the request that they would give correct and accurate answer and send the completed questionnaires to the investigator by post at their earliest convenience. In addition to this the investigator made personal visits and had interviews with the various Principal/Physical education teachers& other Physical Education personnel and also discussed with them their problems and difficulties of sports facilities, physical education teacher, equipments, budget, library facilities, books, journals, etc. Apart from the initial mailing of the questionnaires, aids to responses in terms of reminders and follow-ups were made timely in order to ensure maximum response.

RESULTS AND DISCUSSION

The present study surveyed and critically analyzed the sports facilities in selected central and state schools of Bilaspur districts. The responses obtained from the questionnaire survey were carefully and systematically compiled with the frequencies of the responses for each of the question with specific categorizations. The ratios indication of physical education teacher-

student in Central and State schools of Bilaspur District is presented in Table 1.

TABLE 1
INDICATION OF PHYSICAL EDUCATION TEACHER- STUDENTS RATIO IN
CENTRAL AND STATE SCHOOLS

Type of School	No. of Teachers	No. of Students	Teachers : Students
Central Schools	35	16074	1:459.25
State Schools	44	22066	1:501.50

The data present in Table1 shows that the mean physical education teacher- student ratios in central and state schools were 1:459.25 and 1:501.50 respectively. The usually accepted ratio is one physical education teacher for every 250 students on the rolls of higher secondary school. It is minimum requirement for every school as prescribed in National Plan of physical education. No one of the central as well as state schools fulfilling this aspect.

The percentage indication of Central and State schools in Bilaspur district having Gymnasium is presented in Table 2.

TABLE 2
PERCENTAGE INDICATION OF SCHOOLS HAVING GYMNASIUM

Type of Response	Central Schools		State Schools	
	Frequency	percentage	Frequency	percentage
Yes	04	33.33	01	3.03
No	08	66.67	32	96.97

Table 2 denotes that 33.33 % of Central Schools in Bilaspur have Gymnasium, while the 3.03% State schools have the facility of Gymnasium.

The percentage indication of Central and State schools in Bilaspur district having Swimming pool is presented in Table 3.

TABLE 3
PERCENTAGE INDICATION OF SCHOOLS HAVING SWIMMING POOL

Type of Response	Central Schools		State Schools	
	Frequency	percentage	Frequency	percentage
Yes	02	16.67	00	00
No	10	83.33	33	100

Table-3 denotes that 16.67 % of Central Schools have Swimming pool, while the State schools do not have any Swimming pool.

The percentage indication of Central and State schools in Bilaspur district having athletic track in Central and State schools is presented in Table 4.

TABLE 4
PERCENTAGE INDICATION OF SCHOOLS HAVING ATHLETIC TRACK

Type of Response	Central Schools		State Schools	
	Frequency	percentage	Frequency	percentage
Yes	08	66.67	08	24.24
No	04	33.33	25	75.76

Table 4 indicates that 66.67 % of Central Schools have Athletic track, while the 24.24 % State schools have the facility of Athletic track.

The percentage indication of Central and State schools in Bilaspur district having football grounds is presented in Table 5.

TABLE 5
PERCENTAGE INDICATION OF SCHOOLS HAVING FOOTBALL GROUND

Type of Response	Central Schools		State Schools	
	Frequency	percentage	Frequency	percentage
Yes	08	66.67	08	24.24
No	04	33.33	25	75.76

Table-5 indicates that 66.67 % of Central schools have Football grounds, while the 24.24 % State schools have the facility of Football grounds.

The percentage indication of Central and State schools in Bilaspur district having Basketball Courts is presented in Table 6.

TABLE 6
PERCENTAGE INDICATION OF SCHOOLS HAVING BASKETBALL COURT

Type of Response	Central Schools		State Schools	
	Frequency	percentage	Frequency	percentage
Yes	10	83.33	08	24.24
No	2	16.67	25	75.76

Table-6 indicates that 83.33% of Central schools in Bilaspur have Basketball courts, while the 24.24 % State schools have the facility of Basketball courts.

The percentage indication of Central and State schools in Bilaspur district having Volleyball courts is presented in Table 7.

TABLE 7
PERCENTAGE INDICATION OF SCHOOLS HAVING VOLLEYBALL COURT

Type of Response	Central Schools		State Schools	
	Frequency	percentage	Frequency	percentage
Yes	11	91.67	20	60.61
No	01	8.33	13	39.39

Table-7 indicates that 91.67% of Central schools have Volleyball courts, while the 60.61% State schools have the facility of Volleyball courts.

The percentage indication of Central and State schools in Bilaspur district having Badminton Courts is presented in Table 8.

TABLE 8
PERCENTAGE INDICATION OF SCHOOLS HAVING BADMINTON COURT

Type of Response	Central Schools		State Schools	
	Frequency	percentage	Frequency	percentage
Yes	11	91.67	20	60.61
No	01	8.33	13	39.39

Table-8 indicates that 91.67% of Central schools have Badminton courts, while the

60.61% State schools have the facility of Badminton courts.

The percentage indication of Central and State schools in Bilaspur district having Table tennis is presented in Table 9.

TABLE 9
PERCENTAGE INDICATION OF SCHOOLS HAVING TABLE -TENNIS

Type of Response	Central Schools		State Schools	
	Frequency	percentage	Frequency	percentage
Yes	10	83.33	12	36.36
No	02	16.67	21	63.64

Table-9 indicates that 83.33 % of Central schools have Table Tennis, while the 36.36% State schools have the facility of Table Tennis.

The percentage indication of Central and State schools in Bilaspur district having Kho-Kho court is presented in Table 10.

TABLE 10
PERCENTAGE INDICATION OF SCHOOLS HAVING KHO-KHO COURT

Type of Response	Central Schools		State Schools	
	Frequency	percentage	Frequency	percentage
Yes	11	91.67	30	90.91
No	01	8.33	03	9.09

Table-10 indicates that 91.67 % of Central schools have Kho-Kho court, while the 90.91% state schools have the facility of Kho-Kho court.

The percentage indication of Central and State schools in Bilaspur district Kabaddi court is presented in Table 11.

TABLE 11
PERCENTAGE INDICATION OF SCHOOLS HAVING KABADDI COURT

Type of Response	Central Schools		State Schools	
	Frequency	percentage	Frequency	percentage
Yes	11	91.67	31	93.94
No	01	8.33	02	6.64

Table-11 indicates that 91.67 % of Central Schools have Kabaddi court, while the 93.94% State schools have the facility of Kabaddi court.

The percentage indication of Central and State schools in Bilaspur having facilities of sport equipments is presented in Table 12.

TABLE 12
PERCENTAGE INDICATION OF SCHOOLS HAVING FACILITIES IN SPORTS EQUIPMENT

Type of Response	Central Schools		State Schools	
	Frequency	percentage	Frequency	percentage
Adequate	11	91.67	27	81.82
Not Adequate	01	08.33	06	18.18

Table-12 indicates that 91.67 % of Central Schools have adequate sport equipments, while the 81.82 % of State schools did not have the adequate facility of equipments.

The percentage indication of Central and State schools in Bilaspur district having annual budget for equipments is presented in Table13.

TABLE 13
PERCENTAGE INDICATION OF SCHOOLS HAVING ANNUAL BUDGET OF SPORTS

Type of Response	Central Schools		State Schools	
	Frequency	percentage	Frequency	percentage
Less than Rs.50000/-	02	16.66	19	57.57
Rs.50001/ to Rs.1,50000/-	06	50.00	13	39.39
More than Rs.1,50000/-	04	33.33	01	3.03

Table-13 indicates that 33.33 % of Central Schools have annual budget for sport more than Rs. 150000/-, while only 3.03 % of State schools have this provision.

The percentage indication of Central and State schools in Bilaspur district having total land allotted for sport fields is presented in Table 14.

TABLE 14
PERCENTAGE INDICATION OF SCHOOLS ALLOTTED LAND FOR SPORTS FEILDS

Type of Response	Central Schools		State Schools	
	Frequency	percentage	Frequency	percentage
0-2 Acre	08	66.67	20	90.91
2-5 Acre	00	00.00	03	9.09
Above 5 Acre	04	33.33	00	00.00

The above table 14 of percentage indication of land allotted for existing sport fields indicates that, 66.67 % of central schools and 90.91 % of state schools have,0 acre to 2 acres of land and none of central schools and 9.09 % of state schools have 2- 5 acres, 33.33 % of central schools and none of state schools had more than 5 acres of land of land allotted for sport fields.

The percentage indication of Central and State schools in Bilaspur district having sport magazines in library is presented in Table 15.

TABLE 15
PERCENTAGE INDICATION OF SCHOOLS HAVING SPORTS MAGAZINES

Type of Response	Central Schools		State Schools	
	Frequency	percentage	Frequency	percentage
Less than 50	07	58.33	25	75.75
51 to 100	01	8.33	06	18.18
More than100	04	33.33	02	6.06

Table 15 indicates that 33.33 % of Central Schools have books more than 100 sport magazines in library, while only 6.06 % of State schools have this provision.

The percentage indication of Central and State schools in Bilaspur district having play fields is presented in Table 16.

TABLE 16
PERCENTAGE INDICATION OF SCHOOLS HAVING PLAY FIELDS

Type of Response	Central Schools		State Schools	
	Frequency	percentage	Frequency	percentage
Yes	11	91.67	31	93.94
No	01	8.33	2	6.06

Table-16 indicates that 91.67 % of Central schools have play fields, while the 93.94 % State schools have the facility of play fields. The graphical representation of percentage indication of schools having play fields is shown in Figure 12.

CONCLUSIONS

Within the limitations of the study and on the basis of analysis of data the following conclusions may be drawn:

1. The Physical Education Teachers pupil ratio in Central Schools is 1:459.25 and State Schools is 1:501.50. Neither the Central Schools nor State Schools are fulfilling the requirement of one Physical Education Diploma holder for every 250 students, which is recommended by the National Plan of Physical Education.
2. The study shows that the Central Schools are better relatively than State Schools in this aspect. Gymnasium and Swimming pool facilities are quite inadequate in both Schools.
3. The study shows that the more than three-fourth of Central Schools and State schools have the facilities of play fields.
4. The study shows that Athletic Track and Football grounds were available more than one and half of the central schools, whereas less than one-fourth of state schools had Athletic Track and Football grounds.
5. The study shows that Fifty percent of central schools had hockey grounds, whereas less than one-fourth of state schools had hockey grounds.
6. The study reveals that more than three-fourth of central schools had Basketball courts, Volleyball courts, Badminton courts, Kabaddi and Kho – Kho courts, Table-Tennis facilities.
7. The study reveals that more than fifty percent of state schools had Volleyball courts, Badminton courts, Kabaddi and Kho - Kho courts facility and less than one-fourth of state schools had Basketball courts and more than one-fourth of state schools had Table-Tennis facilities.
8. The data reveals that 91.67 percent of Central Schools have adequate equipments, whereas only 81.82 percent of State schools have adequate equipments.
9. The annual budget for Physical Education, Table 24 shows that 33.33% of Central schools can spend more than Rs.150000/- per annum on sports and Physical Education, whereas only 3.03 % of State schools can spend the same amount.
10. The study reveals that 41.57 per cent of Central Schools have more than ten acre allotted land, whereas 30.31 percent of State Schools have this provision.
11. The study reveals that 33.33 percent of Central Schools have the adequate sport fields but none of State Schools have adequate sport fields according to the standards laid in the National Plan of Physical Education.
12. The study reveals that Central schools had adequate library facilities, whereas State schools had not adequate library facilities.

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CONSTRUCTION OF RATING SCALES FOR FOREHAND AND BACKHAND OVERHEAD CLEAR IN BADMINTON

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ABSTRACT

The purpose of the study was to construct the rating scales for Forehand and Backhand Overhead Clear in badminton. Thirty men badminton players, who participated in the M. P. state university badminton tournament conducted by Vidya Niketan Samiti College, Bhopal (M.P.) from 8th - 10th September 2008, were randomly selected to serve as subjects for this study. Validity of the rating scales was established by correlating the scores on forehand (0.795) and backhand overhead clear (0.78) in badminton with the scores obtained by administering the Lockhart and McPherson Badminton Test. Inter class correlation coefficient by analysis of variance method was employed to compute the reliability of the rating scales for forehand (0.829) and backhand overhead clear (0.892) through three trials administrated by the same tester. Objectivity of the rating scales for forehand overhead clear was 0.728 and was 0.768 for backhand overhead clear through three trials administrated independently by three different testers.

Key Words: Rating Scale, Forehand Overhead Clear, Backhand Overhead Clear

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INTRODUCTION

Badminton at its best; a game of swift and graceful movement of power play contrastingly highlighted by a delicacy of touch, of wrong footing deception, of incredible retrieving and lightening interception, and of varied chess-like tactics of singles, doubles and mixed doubles each an absorbing and different game in its own. Rating scales are, in fact, a means of objectifying subjective evaluations. In other words with the rating scale, the teacher can assign a numerical value to qualitative judgments. The purpose of the study was to construct the rating scales for Forehand and Backhand Overhead Clear in badminton.

METHODOLOGY

Subjects:

Thirty men badminton players, who participated in the M. P. state university badminton tournament conducted by Vidya Niketan Samiti College, Bhopal (M.P.) from 8th – 10th September 2008, were randomly selected to serve as subjects for this study.

Criterion measures:

The criterion measures for this study was the playing ability scores obtained by administering the Lockhart and McPherson Badminton Wall Volley Test. On the basis of opinion empirical views of experts and after carefully examining the related literature, the skills i.e. forehand and backhand overhead clear were ascertained for the construction of rating scales.

The coaches and managers of the teams were consulted at personal level to conduct the test on Badminton players, and a rapport was established with them for the testing programme. All those incharge of teams, coaches and managers were made fully conversant with the study. Tentative times were finalized with them. The researcher approached each player after giving proper and timely information before the test was conducted.

Administration of Tests:

Before administering the test, the subjects were briefed about the purpose of the study and details of the test were explained to them. The subjects were given sufficient number of trials to enable them to become absolutely familiar with the test. To ensure uniform testing conditions, the subjects were tested in the morning and evening sessions after warming-up during practice sessions. The duration of test administration was set in a manner so that fatigue may not occur. Though no special technique was used to motivate the subjects, the subjects were very co-operative throughout the test.

Collection of Data:

The skills (forehand and backhand overhead clear) for which the rating scales have been prepared were further subdivided into ten components in consultation with the experts including physical education teachers, selectors, officials and the N.I.S. trained coaches. The details of each component were prepared and then the rating scales were distributed to the experts for further comments, views and suggestions for improvement. The experts were consulted personally by the research scholar, and modified the rating scales based on their views and suggestions before finally preparing the rating scales. Each of the components of forehand and backhand overhead clear in badminton was scored on 5-4-3-2-1 basis.

RESULTS AND DISCUSSION

Data using the prepared rating scales were obtained independently from three badminton experts on all the subjects. The subjects were asked to perform the selected skills i.e. forehand and backhand overhead clear in a non-competitive situation. The judges were given five point rating scales to evaluate the performance on the forehand and backhand overhead clear in badminton. The average of the score assigned independently by each of the three badminton

experts was the final score of the rated player on forehand and backhand overhead clear. A maximum score of fifty was possible on each rating scale. Validity of the rating scales was established by correlating the score on forehand and backhand overhead clear in badminton with the scores obtained by administering Lockhart and McPherson Badminton Test. Results thus obtained has been presented in Table-1.

Interclass correlation by analysis of variance method was employed to compute the reliability of the rating scales for forehand and backhand overhead clear through three trials administrated by the same tester. Analysis of Variance for reliability estimates and the obtained reliability coefficient (R) values for the rating scales have been presented in Table-2.

The data obtained as a result of the administration of rating scales separately and judged by three badminton experts who noted the performance of the subjects independently were correlated in order to obtain objectivity coefficients. Analysis of variance for objectivity estimates for the rating scales and the objectivity coefficient (R) values have been presented in Table-3.

TABLE 1
RELATIONSHIP OF THE RATING SCALE SCORES FOR FOREHAND AND BACKHAND OVERHEAD CLEAR TO THE CRITERION

S. No.	Variable Correlated with Criterion	Correlation 'r'	Coefficient
1	Forehand Overhead Clear	0.795*	
2	Backhand Overhead Clear	0.780*	

*Significant at 0.05 level, $r_{0.05}(28) = 0.361$

Table-1 revealed that there was significant relationship between independent variables i.e. forehand and backhand overhead clear rating scale scores and the criterion i.e. Lockhart and McPherson Badminton Wall Volley Test scores. Therefore it is evident that independent variables were highly related to the criterion.

TABLE 2
ANALYSIS OF VARIANCE FOR RELIABILITY ESTIMATE FOR THE RATING SCALES ON FOREHAND AND BACKHAND OVERHEAD CLEAR IN BADMINTON

Skill	Source of Variance	Sum of Squares	Degree of Freedom	Mean Squares	F - Ratio	Inter - Class Correlation
Forehand Overhead Clear	Subjects	701.156	29	24.178		
	Trials	20.689	2	10.344	2.50*	0.829**
	Interaction	239.978	58	4.136		
	Total	961.823	89			
Backhand Overhead Clear	Subjects	942.989	29	32.517		
	Trials	0.822	2	0.411	0.117*	0.892**
	Interaction	203.178	58	3.503		
	Total	1146.989	89			

*Insignificant at 0.05 level, ** Significant at 0.05 level, tab F 0.05(58,2) = 3.15, $R_{0.05}(28) = 0.361$,

Table–2 revealed that the obtained inter class correlation values for the rating scales were 0.829 and 0.892, significant at 0.05 level because required value with 28 degree of freedom was 0.361. Hence the scales have been considered reliable.

TABLE 3
ANALYSIS OF VARIANCE FOR OBJECTIVITY ESTIMATE FOR THE RATING
SCALES ON FOREHAND AND BACKHAND OVERHEAD
CLEAR IN BADMINTON

Skill	Source of Variance	Sum of Squares	Degree of Freedom	Mean Squares	F - Ratio	Inter -Class Correlation (R)
Forehand Overhead Clear	Subjects	344.900	29	11.893	1.533*	0.728**
	Trials	10.067	2	5.033		
	Interaction	187.933	58	3.240		
	Total	542.900	89			
Backhand Overhead Clear	Subjects	702.100	29	24.210	1.037*	0.768**
	Trials	11.667	2	5.833		
	Interaction	326.333	58	5.626		
	Total	1040.100	89			

*Insignificant at 0.05 level $F_{0.05}(2, 58) = 3.15$

** Significant at 0.05 level $R_{0.05}(28) = 0.361$ $N = 30$

Table–3 revealed that the obtained inter class correlation values for the rating scales were 0.728 and 0.768, significant at 0.05 level because required value with 28 degree of freedom was 0.361. Hence the scales have been considered objective.

DISCUSSION

Analysis of data on forehand and backhand overhead clear in badminton indicated that the constructed rating scales were found to be reliable. The findings of the study further reveal that the rating scales for forehand and backhand overhead clear in badminton were also found to be objective. The significant values showed that the directions for administration of the test were specific and clear for performance as well as evaluation.

CONCLUSIONS

Within the limitations of the present study, the following conclusions were drawn: -

- 1.The rating scales for forehand and backhand overhead clear in badminton showed significant relationship with the criterion.
- 2.The newly developed rating scales for forehand and backhand overhead clear in badminton meet the criterion of scientific authenticity i.e. the scales were reliable, objective and valid.

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A STUDY OF COMPETITIVE BEHAVIOUR OF NATIONAL LEVEL PLAYERS OF BALL BADMINTON

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ABSTRACT

The present study was undertaken to study the competitive behaviour and their relationship with performance of National level male and female Ball badminton players. One hundred male and female athletes, who represented their respective States of India and voluntarily participated in the study, were selected as the subjects of the study. Competitive Behavior scale by Harris and Harris were administrated on all subjects during the competitions. For testing the hypothesis and significance of difference among the probable occurrence of obtained responses, the level of significance chosen was .05. Means and standard deviations were computed for all the variables. Percentage was calculated to analyze the sub areas of subjects on competitive Behavior scale. Person's Product moment method of correlation coefficient was used to find out the relationship competitive Behaviors and National of National level male and female player's ability which revealed that no significance relationship existed between selected variables and National level student ability.

Key words: Competitive behaviour, National level, Playing ability, Performance

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INTRODUCTION

Nowadays the level of competition has reached the nerve breaking stage. Only separately fit players or team can think of achieving a success at high level. Success in games seems to be dependent in part on Psychology status and trait the case of athletics personality profile in concert with knowledge of their past experience, coach's rating anatomic and physiological characteristics and so on can enhance the of prediction in a number of sports.

Competition is one of the outgrowths of modern life. It is a nature human activity which is inevitable in life and the education process should assist in the preparation of individuals for the battle of life. Competition provides the means by which one can show one's worth through success.

All sports lead to competition. Competition is a conscious struggle or rivalry in which an individual seeks to gain in terms of performance. Competition is a special phenomenon (Individual attempt to get success in their performance "excelling" "doing better" "surpassing" are source of the expressions which are generally used to denote competition)

Competitive sports are a place where the young and super challenging players fight for supremacy and records. The players are sophisticatedly prepared by experts, sports scientists and coaches to tussle among themselves, hence to win and then to enjoy their dreams and fruits of the efforts put in for years together. The fact is that today players are simply stronger, faster and more efficient than yesterdays and tomorrows may be still better.

Athletes are highly charged with "Psychological Electricity", energy which rarely permits either spectator or athlete to stand ideally by and not become emotionally involved with the highly visible nature of sports, together with those who participate. The physical power to gather the emotional strength needed to perform well inevitably changes the hearts and the minds of coaches and players alike.

Success in competitive sports places high psychophysical demands on the participants. They have to be physically fit, technically sound and tactically prepared to have a grip over the competitive situation. However, their psychological aliveness to the situation has been described by -any to be of paramount importance. At the time of competition, the psyche of the players which moves them to use their physical fitness, tactical and technical preparedness at its maximum. Sports of all competitive level, i.e. in sports arena, become more of a psychological phenomenon than physical.

METHODOLOGY

Selection of Subjects

One, hundred and twenty male and female national level players were randomly selected among the player representing their respective states in national level Ball badminton competition held at Bangalore (Karnataka) during the session 2012-13. Their age ranged from 21 years and above. Keeping in view the importance of the competitive Behaviour in this study, the following variable had been selected.

Description of Questionnaire and collection of Data

The competitive Behavior questionnaire designed by Harris and Harris was used to assess the Behavior of player during competition which consists of fifty statements the subject is required to respond to the statement according to the frequency of occurrence of Behavior i.e. "always" "some time" and "never" in competitive situation. The best desired response has been given one point, sometime 2 points, least desired Behavior 3 points.

In order to ensure full co-operation from the subjects The researcher had a meeting with players in presence of their respective coaches. The purpose of study was made clear by

explanation in order to ascertain that there was no ambiguity among the subjects regarding the effects which they had to put in for the successful completion. The entire subject voluntarily extended their full cooperation and the player of respective team ensured that the subjects were made available for the collection of data as and when required.

RESULTS AND DISCUSSION

To assess that National level male and female Athletes selected 100 players competitive behaviors. Analysis of mean and standard deviation were computed. The level of significance was set at .05 levels. The data collected on competitive Behavior of National level players was analyzed using percentages and chi-square test and data pertaining to this have been presented in Table 1

TABLE 1
CHI-SQUARE ANALYSIS AND PERCENTAGE OF RESPONSES ON COMPETITIVE BEHAVIOR
OF NATIONAL LEVEL MALE AND FEMALE PLAYERS

S. NO.	Competitive Behavior	Response			Chi
		Always	Sometimes	Never	
1.	I perform much better in practice than in completion.	53 (42.50)	51 (42.50)	16 (13.33)	21.65*
2.	Having important people watch me perform bothers me.	12 (10.00)	28 (23.33)	80 (66.66)	63.2*
3.	Before completion I have difficulty in sleeping.	22 (18.33)	48 (40.00)	50 (41.66)	12.2*
4.	I worry about what others think of my performance.	22 (18.33)	24 (20.00)	74 (61.66)	43.2*
5.	What make a mistake during competition I have difficulty	29 (24.16)	53 (44.16)	38 (31/36)	7.35*
6.	I find that my mind wanders during competition.	10 (8.33)	19 (15.83)	91 (75.83)	98.55*
7.	I follow a specific routine when preparing for competition.	96 (80.00)	13 (10.83)	11 (9.16)	117.6*
8.	I make more mistakes when the pressure is on and the score is	11 (9.16)	41 (34.16)	68 (56.66)	40.65*
9.	I feel like I panic in close competition situations.	11 (9.16)	41 (34.16)	68 (56.66)	40.65*
10.	I berate myself during the competition when I made dumb	61 (50.83)	45 (37.5)	14 (11.66)	28.55*
11.	When the coach or a teammate yells at me] I have difficulty concentrating during the rest of the game.	49 (20.00)	34 (28.33)	62 (51.66)	19.4*

Table (Continued)

12.	It takes me a little while to work out the butterflies in my stomach & settle into the game.	49 (40.83)	23 (19.16)	48 (40.00)	10.85*
13.	In important competitions, I am afraid that I will not play as well as I can.	19 (15.83)	37 (30.83)	64 (53.33)	25.65*
14.	Playing to my Potential is very important to me.	100 (83.33)	9 (7.50)	11 (9.16)	25.65*
15.	I am a "cloth Player" in Pressure situations.	91 (75.83)	18 (15.00)	11 (9.16)	135*
16.	I am able to concentrate in a positive manner on the upcoming completion while warming up and	96 (82.5)	20 (16.56)	04 (3.33)	120.8*
17.	I have my own game worked out in my head in detail.	99 (82.5)	09 (7.5)	21 (10.00)	130.6*
18.	I get nervous and worry before Important competitions.	19 (15.83)	41 (34.16)	60 (50.0)	21.05*
19.	My thoughts wander out of control before competition.	20 (16.66)	29 (24.16)	71 (59.16)	37.05*
20.	I am easily distracted and irritated prior to performance.	33 (27.5)	34 (28.33)	53 (44.16)	6.35*
21.	I need some time to myself prior to a completion in order to mentally	45 (37.5)	27 (22.)	48 (40.00)	6.45*
22.	I perform best when I know the specifics about what I am to do, when, and with whom	87 (72.5)	26 (21.66)	07 (5.83)	87.35*
23.	The more difficult the challenge, the better I perform.	85 (70.83)	26 (21.66)	09 (7.50)	79.55*
24.	I perform best when I am nervous and worried.	39 (32.5)	37 (30.83)	44 (36.66)	0.65*
25.	I perform best when I am relaxed, calm and confident.	103 (85.83)	12 (10.00)	05 (4.16)	194.4
26.	I mentally go over everything I can in preparation for the competition.	86 (71.66)	20 (17.50)	14 (11.66)	79.8*
27.	When I am really concentrating on the coach's instructions called from the sidelines	26 (21.66)	42 (35.00)	52 (43.33)	8.6*
28.	When I am really concentrating on the game, I miss the coach's instructions called from the sidelines.	29 (24.16)	35 (29.16)	56 (46.66)	10.05*
29.	I enjoy competition more than practicing for it.	88 (73.33)	15 (12.50)	17 (14.19)	86.45*
30.	I perform best when my coach and teammates me. compliment	64 (53.33)	34 (28.33)	22 (18.33)	23.4*
31.	I can recall everything that happened during the competition after it is over.	88 (73.33)	21 (17.50)	11 (9.16)	87.65

Table (Continued)

32.	I replay the competition in my head and see/feel myself playing as I would like to have Played.	77 (64.16)	37 (30.83)	06 (5.00)	63.65*
33.	I set my own performance goals for each practice.	78 (65.00)	30 (25.00)	12 (10.00)	58.2*
34.	I set my own performance goals for each competition.	83 (69.16)	21 (17.50)	16 (13.33)	69.66*
35.	After the each competition is over I feel that I could have performed better than I did.	83 (69.16)	32 (26.66)	05 (4.16)	78.45*
36.	If I could "psych out" my opponents, I would.	59 (49.16)	35 (29.16)	26 (21.66)	14.55*
37.	I worry about getting injured when I perform	20 (16.66)	20 (16.66)	80 (66.66)	60.00*
38.	After a competition I think about how I played and what I can do to improve my next performance.	91 (75.83)	22 (18.33)	07 (5.83)	100.3*
39.	When the official makes a bad call, I let it pass and come back to focus on what is happening.	74 (64.66)	28 (23.33)	18 (15.00)	44.6*
40.	I make many trips to the toilet before a competition.	24 (20.00)	29 (24.16)	67 (55.83)	27.65*
41.	I feel weak and practically sick just before the game.	12 (10.00)	25 (20.83)	83 (69.16)	71.45*
42.	I try not to think about the upcoming competition because it makes me too nervous.	17 (14.16)	22 (18.33)	81 (67.50)	63.35*
43.	Just before the competition, I feel that I cannot remember anything.	36 (30.00)	26 (21.66)	58 (48.33)	13.4*
44.	My performance is consistently at or near my potential.	73 (60.83)	37 (30.80)	10 (8.33)	49.95*
45.	I enjoy practices more than competition because there is less pressure to perform.	57 (47.5)	32 (26.66)	31 (25.83)	10.85*
46.	If my mind wanders during competition, I can refocus immediately back to what is happening.	92 (76.66)	18 (15.00)	10 (8.33)	102.2*
47.	The larger the crowd, the more nervous I get.	13 (10.83)	13 (10.83)	94 (78.33)	109.3*
48.	It someone important to me comes to watch me play, I am more nervous than usual.	12 (10.00)	13 (10.83)	95 (79.66)	113.4*
49.	I think a lot about how I play and how I want to Play when I am away from practice and completion.	74 (61.66)	27 (22.50)	19 (15.83)	44.15*
50.	I can see and feel myself clearly performing just as I wish when I mentally rehearse my skills and strategies in my "mind's eye".	56 (49.166)	46 (38.33)	15 (12.5)	25.55*

Insignificant at .05 level, $\chi^2_{.05}(2) = 5.99$

It is evident from Tables 1 that National level Ball badminton male & female players significantly differ in responses to different competitive situations, as the χ^2 values was more than the required value of $\chi^2_{.05}(20) = 5.99$, except in the case of statement No. 24 i.e. "I perform best when I am nervous and worried" for which the responses yield a χ^2 values of 0.65 which is much less than the required value of 5.99.

DISCUSSION

Descriptive analysis of data on various National level male and female players indicates that National level players Significantly differ in response to different competitive situations.. When the responses of players on competitive Behavior scale were tested on probability of equal occurrence it was found that the National level male and female players differed significantly in their responses on all the questions, except question No. 24 as the χ^2 value of 0.65 was much less than the required value of $\chi^2_{.05}(2) = 5.99$.

CONCLUSIONS

Within the limitations of the present study the following conclusions may be drawn :

1. 44.16% of National level male & female players feel that they always perform better in practice than competition. 42.50% players some time performed better in competition and 13.33% players performed better competition than practice.
2. 10.00% of players always feel bothered when the important people are watching the competition, 23.33% of players sometime bothered the presence of important people and 66.66% of players never bothered the presence of important people watching the performer.
3. 18.33% of players have always difficulty in sleeping before competition where as 40.00% of players have sometime difficulty in sleeping and 41.66% of them never had any difficulty in sleeping before competition.
4. 18.33% of players always worry about what others think on their performance; 20.22% of players sometimes worry about what others think and 61.66% players never worried what others think of their performance.
5. 24.16% of players have always a difficulty in regaining the concentration after committing a mistake, where as 44.16% of players have sometime in difficulty in regaining the concentration.
6. 31.66% of players never had any difficulty in regaining concentration, after committing a mistake. 75.83% of players were found that their mind never wanders during competition.
7. 80.00% of players always prepared a specific routine for competition, where as 10.83% sometime prepared a specific routine, and 9.16% of players never prepared any routine for competition.
8. 9.16% of players make more mistake when the pressure in on and the score is close, but 34.16% of players sometime make mistakes when pressure is on and 56.66% of players never had any problem under pressure or when the score is close.
9. 9.16% of players always felt panic during close competitive situations where as 34.17% of players felt sometime panic; and 56.66% never had any panic during close competitive situations.
10. 50.83% of players always berate when they make some mistakes during competition, where as 37.58% of players sometime berate when they make some mistakes and 11.66% of players never berate when they make mistakes during competition.

11. 20.00% of players always have difficulty in concentration when the coach or team mate shouts at them; where as 28.33% players sometime had difficulty in concentration and 51.66% of players never had any difficulty in concentration when the coach or team mate shout at me.
12. 40.83% of players always little to settle into the game or warm up the game, 19.16% of players sometime take little time to settle and 40.00% of players never settled (ate the game).
13. 15.83% of players are always afraid that they may not be able to perform in an important competition; whereas 30.83% of players Sometime afraid of their performance and 53.33% of players are never afraid of their performance in an important competition.
14. 83.33% of players feel that playing to their potential is very important, where as 7.50% of players feel sometime and 9.16% of players never felt that playing to their potential is very important.
15. 75.83% of players feel that they are cloth athlete or they are under control in pressure situations where as 15% of players sometime feel that they are cloth athlete and 9.17% players never felt they are cloth athlete in pressure situations.
16. 81.00% players are always able to concentrate positively even while warming up for the for the upcoming contest, 16.56% of players sometimes could concentrate positively; and 3.43% of players never able to concentrate positively even during warming up for the upcoming contest.
17. 15.83% of players always had own game plan in their mind while only 7.5% players had sometimes these game plan in their mind and 10% of players never had any game plan.
18. 15.83% of players always get worried and nervous before the competitions; where as 34.16% players sometimes get worried and 50.00% of players never get worried or nervous before the competitions.
19. 16.66% of players were found always that their thought wanders out of control before competition where as 24.16% of players felt sometime; and 59.16% never had any problem in their thoughts before competitions.
20. 27.50% of athlete always easily distracted and irritated prior to the performance, while only 25.33% of players sometimes distracted and 44.16% of players never distracted and irritated priors to the performance, while only 25.33% of players sometimes distracted and 44.16% of players never distracted and irritated prior to the performance.
21. 37.50% of players always need some time for the mental preparation prior to the competition; 22.50% of players sometimes need mental preparation before the competition, and 40% of players never need any mental preparation.
22. 72.50% National s players always feel that they perform best when they know about the specifics of the game (such as what to do, when to do, how to do, with whom, etc.) 27.66% players feel sometime; and 5.83% of players never felt any difference.
23. 70.83% of players always feel that they perform better when the challenge is more difficult, 21.66% of players feel sometimes they perform better if the challenge is more difficult where as 7.5% of players never performs better is more challenging situation.
24. 32.5% of players always perform better when they are nervous and worried, where as 30.83% players sometimes give their best and 36.66% of players never give their best when they are nervous and worried.
25. 85.83% of players always feel they perform best when they are relaxed, calm and confident 10.00% of players sometimes feel that they perform best when they are

- relaxed and 4.16% of players never feel they perform best when they are relaxed, calm and confident.
26. 26. 71.66% of players always prepare mentally in all the aspects of game; where as 17.50% of players sometimes prepare themselves mentally and 11.66% of players never do any mental preparation for the competition.
 27. 21.66% of National level players the coach's instruction when they are really concentrating on the game; 35.00% of players sometimes miss the coach's instruction and 43.33% players never miss the coach's instruction from side line when the players are really concentrating on the game.
 28. 24.16%) of players always have difficulty concentrating on what is happening when the things do not go as planned during the contest, where as 29.16% feel sometimes and 46.66% never had any difficulty concentrating on what is happening when the things do not go as planned.
 29. 73.33% players always enjoy competition rather than practicing for it, where as 12.50% players sometime enjoy competition and 14.16% players never enjoyed competition.
 30. 53.33% players always perform better when their coach or team complaints about him where as 28.33% players sometimes play their best and 18.33% of players never performed better even after the complained by the coach or team mates.
 31. 73.33% players could always recall the things happened during the competition after it is over, where as 17.50% of players sometimes recalled the happenings of the competition, and 9.16% of players never recalled the things happening in the competition.
 32. 64.16% of players replay the competition in their head and imagine how he would like to have played, where as 30.83% of players sometimes imagine the 5.00% of players never reply or imagines the way that he would like to have played.
 33. 65.00% of players always set their own performance goals for each practice session, 25.00% of players sometimes set their performance goals and 10.00% of players never set any performance goal in the practice.
 34. 69.16% of players always set their own performance goals in competition, 17.50% of players sometimes set own performance goals where as 13.33% of players never set any performance goals in competition.
 35. 69.16% of players always feel that they could have performed better than they had done, where as 26.67% of players sometimes feel and 4.16% of players never feel that they could have performed better than they had done.
 36. 49.16% of players always could 'Psyche out' their opponents, 29.16% of players sometime psyche out their opponents and 21.16% of players never psyche out their opponents.
 37. 16.66% of players always worried about being injured when they perform, 16.66% of players sometime worried about being injured and 66.66% of players never worried about being injured when they perform,
 38. 75.83% of players always after the competition, how they played and what can be done to improve their performance, 18.33% of players sometimes analyze their performance and 5.83 of players never analyze their performance after the game.
 39. 61.66% of players always let it pass and focus on what is happening when the official makes a bad call, where as 23.33% of players sometime let it go; and 15.00% of players never let it pass the officials bad call and could not focus on the game.

40. 20.00% of players always go many trips to the toilet before a competition, 24.16% of players go sometimes and 55.83% of players never go many trips to the toilet before competition.
41. 10.00% National players always feel weak and practically sick just before the game; where as 20.83% of players feel sometimes and 69.16% of players never feel weak and sick before the game.
42. 14.16% of players always try, not to think about the upcoming competition because it make them too nervous and 18.33% of players sometimes try not to think and 67.50% of players never try not to think about the upcoming contest.
43. 30.00% of players always feel that they can't remember anything just before the competition; where as 21.66% of players sometimes feel that they can't remember anything and 48.33% of players never feel that they can't remember anything.
44. 60.83% of players always feel that their performance is consistently at or near their potential where as 30.83% of players sometimes feel that their performance is at or near to their potential and 8.33% of players feel that their performance is at or near to their potential.
45. 47.50% of players always enjoy practice more than competition because of less pressure to perform whereas 26.66% of players sometimes enjoy practice more than competition and 25.83% of players never enjoy practice more than competition.
46. 76.66% of players always could refocus immediately back to see what is happening if the mind is wandering during competition, whereas 15.00% of players sometimes could refocus immediately if the mind was wandering during competition and 8.33% of players never could refocus their mind immediately.
47. 10.83% of players always get more nervous if the crowd is larger where as 10.83% of players sometimes feel more nervous and 78.33% of players never get nervous even if the crowd is larger.
48. 10% of players always feel nervous more than usual if someone important to them comes to watch them, 10.83% of players sometimes feel and 79.66% of players never feel nervous more than usual if someone important to them come to watch them.
49. 61.66% of players always think a lot away think a lot about how they play and how they want to play when they are away from practice and competition where as 22.50% of players sometimes think about how they play and how they want to play and 15.83% of players never think about how they play.
50. 49.16% of players always perform just as they mentally rehearse their skills and strategies where as 38.33% of players sometimes perform just as they wish and 12.50% of players never feel clearly perform just as they wish when they mentally rehearse their skills and strategies.
51. National level male and female players indicated the significant difference in the majority of responses in different competitive situations except question 24.

RECOMMENDATIONS

Psychological skill training should be implemented for the Players with poor psychological skills. The coaches must eliminate the recognition scheme to keep the recognition in proper perspective. The Players seeking the approval of coach or/and teammates must be made to understand that they are valued as people, not just as players who perform well. The players should be taught to shift attention. This study was mainly confined to players who represented

states in one particular year. It will be worthwhile to make a similar study on a larger population of players on both sexes and at various levels.

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