CHAPTER - II

REVIEW OF RELATED LITERATURE

This chapter deals with literature related to the present study. The research scholar has gone through all the available literature and the literature found relevant to the present study has been presented in this chapter.

Ghosh\(^1\) conducted a study on selected co-ordinative abilities on 15 male sprinters and 15 male jumpers of L.N.I.P.E. with the purpose to find out the co-ordinate ability between the all of track events and abilities & fields events. The variables selected for the study were orientation ability, Differentiation ability, Reaction ability, Balance ability and Rhythm ability. T. Ratio on all the variables for males and females was applied on the basis of the results following conclusion were drawn :-

1. In case of Orientation ability and reaction ability there was a significant difference between the sprinters and jumpers

2. On the other hand in case of differentiation ability, Balance ability and Rhythm ability there was no significant difference between the sprinter and jumper.

3. It was observed from the findings of the study that the co-ordinative abilities of sprinters and jumpers did not differ completely.

Senan conducted a study on selected co-ordinative abilities on Ninety undergraduates male students from L.N.I.P.E. with the purpose to compare the coordinative abilities of Bachelor of Physical Education students of L.N.I.P.E.. The variables selected for the study were orientation ability, Differentiation ability, Reaction ability and Balance ability. F-ratio was applied, which was followed by LSD Post-hoc comparison test to determine the significance between paired means. The levels of significance was set at .05 level. On the basis of the results following conclusion were drawn: - (1) Orientation abilities of first year and IIrd year B.P.E. students were better than second year B.P.E. students and in differentiation ability and section ability second year students were better than other two groups. All three groups had almost the same levels of balancing ability. (2) In orientation ability first year performed significantly better than second year and there was no significant difference between first

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year and third year also. (3) in case of balance ability between the groups, there was no significant difference.

Gautam\[^3\] conducted a study on selected co-ordinative abilities on twenty five female basketball players of L.N.I.P.E. with the purpose to determine the relationship of co-ordinative abilities to shooting performance in basketball. The variables selected for the study were Orientation ability, Differentiation ability, Reaction ability, Balance ability and Rhythm ability. The relationship of coordinative abilities to shooting performance in basketball was established by using product moment correlation. On the basis of the results no significant relationship of co-ordinative abilities to shooting performance in basketball was found.

\[^{\checkmark}\text{MoL N.G.\[^4\] conducted at study on co-ordinative abilities on twenty male Hockey players of L.N.I.P.E. with the purpose to find out the relationship of selected co-ordinative abilities to shooting performance in Hockey. The variables selected for the study were Orientation ability, Differentiation ability, Reaction ability, Balance ability and Shooting ability.}\]


Product moment correlation was applied to find out the relationship of co-ordinative abilities performance. On the basis of the result following conclusions were drawn.

1. No significant relationship of co-ordinative abilities to shooting performance in Hockey was found.

2. This study also showed that shooting ability did not only depend upon coordination but many other factors may effect it.

Rawal⁵ conducted a study on coordinative abilities on fifteen male basketball players and fifteen handball players of L.N.I.P.E. with the purpose to compare the co-ordinative abilities of basketball and handball players. The variables selected for the study were Orientation ability, Differentiation ability, Reaction ability, Balance ability and Rhythm ability. The comparison of various selected co-ordinative ability was done by using ‘t’ test. On the basis of the result following conclusion were drawn.

1. Basketball and handball players differ significantly in Balance ability and Reaction ability.

2. Basketball and Handball players do not differ significantly in Orientation abilities, Differentiation ability, Rhythm ability.

Bakshi\(^6\) conducted a study on co-ordinative abilities on Nineteen swimmers and nineteen runners of L.N.I.P.E. with the purpose to compare two groups of sports persons (Swimmers and Runners) in co-ordinative abilities. The variables selected for the study were Orientation ability, Differentiation ability, Reaction ability, Balance ability, Rhythm ability. For analysing the data 't'-test was employed. On the basis of the study no significant difference between the co-ordinative abilities of swimmers and runners was found.

Kumar P.A.\(^7\) conducted a study on co-ordinative abilities on two hundred and forty boy studying in central school No. 1 Gwalior with the purpose to find out the co-ordinative abilities between ten to sixteen years of age. The variables selected were Orientation ability, Differentiation ability, Reaction ability, Balance ability. For finding out the significance of different of means among various groups an analysis of variance (F-ratio) was applied, which was followed by scheffe's test of post-hoc comparisons to determine


the significance between the paired means. On the basis of the results following conclusions were drawn :-

1. Performance of boys, ranging in age between ten and sixteen years, in co-ordinative abilities increased as the age advanced.

2. The improvement indifferent co-ordinative abilities with the advancement of age, was not uniform.

3. Improvement in balance ability was faster when compared with other tested co-ordinative abilities.

4. Differentiation ability of the boys increased with age but it was not significant between the adjacent age groups

5. Reaction ability of the boys improved steadily with the increase in age.

Hota\(^8\) conducted a study on selected co-ordinative abilities on twenty male football players studying at L.N.I.P.E. with the purpose to find out the relationship of co-ordinative abilities to playing ability in Soccer. The variables selected for the study were Orientation ability, Differentiation ability, Reaction ability, Balance ability, Rhythm ability and Playing ability.

To find out the relationship of co-ordinative ability to Soccer playing ability. The collected datas were subjected to person's product moment correlation. On the basis of the result following conclusions were drawn :-

1. Co-ordinative abilities namely Orientation ability, Reaction ability and Rhythm ability are significantly related to playing ability.

2. Differentiation ability and Balance ability are not significantly related to playing ability performance.

3. Co-ordinative ability plays very crucial role in football performance.

Sreejit\(^\circ\) studied the psychomotor performance variation among players of Basketball, Volleyball and Badminton. The subject were tested on reaction time, speed of arm movement, multilimb coordination, arm had steadiness and finger dexterity. The significance of difference in performance among the players of different sports on the selected psychomotor variables were analysed by means of once way analysis of variance. He included that :

1. Basket ball and volleyball players exhibit marked difference in their hand reaction time.

2. Basket ball and volleyball players exhibit marked difference in their speed of arm movement but to lesser as compared to the hand reaction time.

3. Basket Ball, Volley Ball and badminton players did not exhibit any marked difference in their multi limb coordinative, arm hand steadiness and finger dexterity.

Puri\textsuperscript{10} conducted a study on selected Motor fitness components on the members of Kabaddi and Kho-Kho team of L.N.I.P.E. with the purpose to find out the motor fitness components between Kabaddi and Kho-Kho players.

The variables selected for the study were speed, cardio respiratory endurance, agility and strength. 't' test was applied to find out the mean differences in various physical fitness components. On the basis of result following conclusion were drawn:

1. There is no significant difference in motor fitness components between Kho-Kho and Kabaddi players.

2. There is no significant relationship between kho-kho and kabaddi players in motor fitness components.

Slater and Hammel\textsuperscript{11} undertook another study to compare reaction time measures to visual stimulates and arm movement. The purpose of study was to compare reaction time measure for arm displacement and visual stimulus. Compare reaction time measures for selected group of physical education measures and liberal art measures. Analysis of the data revealed that only a modest relationship existed between the two reaction time measures. Significant difference in reaction time existed among several group for both reaction measures.

Dixit\textsuperscript{12} investigated that inter relationship of the reactions time, speed of movement and agility and their comparison among players from selected sports. She studied 48 male college student 12 subjects from each selected sports (Football, volleyball, kho-kho and Kabaddi) from L.N.I.P.E., Gwalior. She found that agility and speed of movement were significantly related with either the speed of movement or agility at 0.05 level of confidence.

\textsuperscript{11} A.T. Slater and Hammel, “Comparison of Reaction Time Measures to a visual stimulus and Arm Movement.” Research Quarterly 26 (December, 1995)

\textsuperscript{12} Poonam Dixit, “Inter relationship of reaction time, speed of movement and agility and their comparison among the players from selected sports.” (Unpublished Master’s Thesis, Jiwaji University, 1982)
Sisodia\textsuperscript{13} conducted a study on selected coordinative abilities on sixty Judokas studying at various standards at L.N.I.P.E. and Jiwaji University, Gwalior with the purpose to find out the effects of Transcendental Meditation on selected physiological variables and coordinative abilities in Judo. The variables selected for the study were reaction ability orientation, Different balance and Rhythm ability and physiological variables An aerobic power, vital capacity, resting respiratory rate, resting heart rate, body composition. ‘t’ test on all the subjects was applied. On the basis of the results following conclusion were drawn :-

(1) In case of an aerobic power performance, transcendental meditation did not improve performance significantly in comparison to the non meditations.

(2) In case of vital capacity transcendental mediation had not shown significant improvement among experimental groups as compared to the control group.

(3) In case of total body fat percentage, transcendental meditation had shown insignificant change in comparison to non meditations.

(4) The balance ability improved significantly as compared to control group.

(5) With regard to lean body weight transcendental meditation was found to be ineffective for experimental group as compared to control group.

Beise and pearly\(^{14}\) took up a study of relation of reaction time speed and agility of the big muscle groups to certain sports skill. Three groups were selected, first was selected on the basis of demonstrated skill either tennis, golf or archery, 24 players were selected, second was deleted in physical education activities (these who failed to achieved average skill 14 subjects), third was selected of those student who scored very low in braches motor tests. The group consisted of six 10w groups and eight high groups 't' test was applied.

Reddy\(^{15}\) conducted a study on motor Behaviour and selected coordinative abilities on sixty subjects from Government lady Noyce Secondary school for Deaf, Ferozshah Kotla, New Delhi, programme on motor behaviour and selected coordinative abilities of deaf and dumb students. The variables selected for the study were:

1. Kinesthetic perception (a) Distance Perception Test (b) Bass Kinesthetic Test (c) Kinesthetic Test

2. Accuracy (a) overhead throw for accuracy. In order to assess selected coordinative abilities, three variables were selected: (a) Balance (b) Rhythm (3) Reaction, ‘t’ test on all the variables for the subjects. On the basis of the results following conclusion were drawn:-(1) The significant effect of physical education programme on kinesthetic perception. The regular programme helped the subjects to perceive their body movement, developed precision, alertness of mind and body. (2) Accuracy improved due to regular involvement in physical activity (3) the score of rhythm improved after eight weeks of participation in physical education program. The rhythm is closely associated with balance and kinesthesia. (4) Reaction scores improved due 60 their participation in physical education (6) on the whole results showed that the students improved significantly in coordianvei abilities after their active involvement in physical activity which comprised of gymnastics, athletics and yoga.

Lewin\textsuperscript{16} (1967) stated that in 3 years to 7 years of age, there is a rapid development of co-ordinative abilities.

Coreper\textsuperscript{17} (1954) conducted a study on the early school age population and found that results of the kinesthetical ability in the beginning of school age is relatively rarely marked, but it develops very rapidly in the early school years i.e., 7 years to 10 years. At 12-13 years the first high point of development is achieved, after this 75% of the total growth during early period is achieved (maximum upto 12 to 13 years).

Teichert\textsuperscript{18} (1964) reported that the rhythmic ability and other coordinative abilities develop at a fast pace.

Lewin\textsuperscript{19} (1965) reported that balance ability and rhythmic ability attains a good levels in the pre-school age.

\textsuperscript{16} Lewin, K.: Kommereziehung in Vorschulalter. (Physical Education in Pre-School Age). Leipzig, DHFk, 1967 (Manuscript).

\textsuperscript{17} Coreper, H.U.A.: Deutsche Nachkriegskinder, Stuttgart: George Thieme-verlag (German children after war) co-ordinative Fahigkeiten, 1954 P.P.-41.


\textsuperscript{19} Lewin, K.: Turnen in Vorschulalter, (gymnastic in pre-school age) Volk and wissen, Volkseignar Verian, Berlin.
Zimmerman\textsuperscript{20} and Nicklich (1981) conducted a study in which they stated that a six week training programme showed 20\% increase in performance of coordinative abilities (orientation ability, differentiation ability, balance ability and coupling ability). It was also found that the sportsmen high level of coordinative abilities can learn the technical skill more quickly and with better quality.

Herzberg\textsuperscript{21} (1970) reported that one single test can not give sufficient information regarding coordinative abilities that is why he suggested that a battery of tests should be develop for this purpose.

Lutter Schroder,\textsuperscript{22} (1972) applied motorical test of complex reaction ability and he found that the development of complex reaction ability attains its optimum in early adult age i.e. 17 years to 23 year. This shows rapid


development in early school age. In boys the development goes on with low
growth rate. The complex reaction ability stagnates in girls before sexual
maturity.

Dankert\textsuperscript{23} (1972) conducted research on the rhythmic ability of boys
and girls. He found that the rhythmic ability develop very rapidly till 13 years
among boys and 17 year among girls. After this the development slows down
and may be stagnated. The rhythmic achievement of 23 years old students may
not be better than that of the 13 year old boys.

\textsuperscript{23} Dankert, O., Dielze, J., Ludemann, Dider Einfluss des Training der Rhythmussfähigkeit in
sportschwimmen (effect of training of rhythmic ability in swimming). Ko-ordinative
Fähigkeiten, 1972, P-126.