CHAPTER – V
SUMMARY

The purpose of the study was two dimensional kinematical analysis of set shot among basketball players. Sixty inter-varsity or national level male basketball players of three different height groups i.e. 5’5” to 5’8”, 5’9” to 6’ and 6’ 1” to 6’4” (20 in each group) were selected as subjects for the study. The age of the subjects ranged between 18 to 30 years. The subjects were explained about the objective of the study. The data was obtained from two given positions of any successful attempt: i. Moment of stance in set shot and ii. Moment of release of ball in set shot. Kinematical variables chosen for the two mentioned positions in set shot were angle at right ankle joint, angle at left ankle joint, angle at right knee joint, angle at left knee joint, angle of right hip joint, angle of left hip joint, angle at right shoulder joint, angle at left shoulder joint, angle at right elbow joint, angle at left elbow joint, angle at right wrist joint, angle at left wrist joint, angle of release of the ball, height of center of gravity of the shooter at moment stance, height of center of gravity of the shooter at moment of release of ball, time to perform the course and displacement of center of gravity. Total ten attempts were given to each subject and the successful shots marked as score out of ten as criterion measure of performance in the study. Four Digital Video cameras Sony 2100 series were used in order to
register the technique of set shot while attempting free throw in Basketball. The films were analyzed by using standard motion analyzer. Only two selected moments were analyzed. The purpose of the study was further extended to find out the correlation between the selected kinematical variables and the performance of the subjects in set shot and to study the significance of difference in selected kinematic variables among three different height groups while performing set shot. With regard to purpose of the study techniques of product moment correlation, regression, one way ANOVA and post hoc were applied. Level of significance was fixed at 0.05.

The study revealed that the selected variables have no significant relationship with the performance in set shot in basketball at moment of stance. Results also found that the variables i.e. angle at left shoulder joint, angle at right hip joint, angle at left hip joint, angle at right elbow joint, angle at left elbow joint, angle at left wrist joint and height of center of gravity of the shooter at moment of release of ball have no significant relationship with the performance in set shot in basketball at the moment of release of ball. The obtained value of coefficient of correlation of the displacement of center of gravity too exhibited no significant relationship with the performance of set shot of different height group players in basketball. The results revealed that the some variables i.e. angle at right ankle joint, angle at left ankle joint, angle at right knee joint, angle at left knee joint, angle at right shoulder joint, angle at right wrist joint and angle of release of the ball have significant relationship with the performance in set
shot in basketball at moment of release and put impact on performance of set shot.

Height wise analyses of kinematical variables revealed that angle at right ankle joint, angle at left ankle joint, angle at right knee joint, angle at left knee joint, angle at right shoulder joint, angle at left wrist joint and height of center of gravity of the shooter at moment of stance were significantly different. Whereas angle at left shoulder joint, angle at right hip joint, angle at left hip joint, angle at right elbow joint, angle at left elbow joint and angle at right wrist joint were found not significant at moment of stance in relation to height differences among three different height groups. The study revealed that height groups in angle at right ankle joint, angle at left ankle joint, angle at right shoulder joint, angle at left shoulder joint, angle at right elbow joint, angle at left elbow joint, angle at right wrist joint, angle at left wrist joint and height of center of gravity of the shooter at moment of release were significantly different. The obtained F value of the displacement of center of gravity too exhibited significant difference among different height group players in basketball. Whereas angle of release of ball, angle at right knee joint, angle at left knee joint, angle at right hip joint and angle at left hip joint were found not significantly different during moment of release of ball. Study of height wise analysis of time to perform the course also showed no significant difference among three different height groups. It was found that all the three groups were significantly different in angle of right and left knee joint at moment of stance and height of center of gravity at moment of release. In the study third group (6’1” to 6’4”) was found significantly different
from the other two groups in angle of right and left ankle joint at moment of stance. First group (5’5” to 5’8”) was found significantly different from the other two groups in angle of right shoulder joint, left wrist joint and height of center of gravity at moment of stance. Study exhibited that first and third group was significantly different in angle of right ante left ankle joint at moment of release of ball. In the angles of right and left shoulder joint at moment of release of ball first and second group (5’9” to 6’) was found significantly different. It was also found that in the angles of right and left elbow joint at moment of release of ball first group was significantly different from other two groups. First group was also found significantly different from other two groups in displacement of center of gravity of the shooter. Second and third group was found significantly different in angle at right and left wrist joint during moment of release of ball.

CONCLUSIONS

Based on the analysis and within the limitations of the study following conclusions were drawn:

1. It was observed that there was no significant relationship between selected biomechanical variables at the moment of stance and the performance of set shot of different height group players in basketball. Therefore, these selected variables at moment of stance put no impact on the performance of set shot.

2. There was no significant relationship between the variables i.e. angle at left shoulder joint, angle at right hip joint, angle at left hip joint, angle at
right elbow joint, angle at left elbow joint, angle at left wrist joint, height of center of gravity of the shooter at moment of release of ball and the performance of set shot of different height group players in basketball. Therefore, these selected variables at moment of release of ball put no impact on the performance of set shot.

3. Some of the selected biomechanical variable i.e. angle at right ankle joint, angle at left ankle joint, angle at right knee joint, angle at left knee joint, angle at right shoulder joint, angle at right wrist joint and angle of release of the ball at moment of release of the ball were found significantly related with the performance of set shot of different height group players in basketball and therefore, these selected variables at moment of release of ball put there impact on the performance of set shot.

4. Significant relationship was observed between time to perform the course and the performance of set shot of different height group players in basketball. Therefore, selected variable puts impact on the performance of set shot.

5. There is no significant relationship found between the displacement of center of gravity and the performance of set shot of different height group players in basketball and therefore, the selected variable puts no impact on the performance of set shot.

6. Angle of release of the ball made highest impact (29%) in the performance.

7. Time to perform the course had lowest impact (7%) in the performance.
8. Multiple regression analysis revealed that predictions regarding performance in set shot can be made, by developing multiple regression equations on the basis of selected kinematical variables.

9. Collective impact of angle of release of the ball, angle at right wrist joint at moment of release and angle at right shoulder joint at moment of release in performance was about forty five percent.

10. Significant difference among different height groups were found in angle at right ankle joint, angle at left ankle joint, angle at right knee joint, angle at left knee joint, angle at right shoulder joint, angle at left wrist joint and height of center of gravity of the shooter at moment of stance.

11. Third group (6’1” to 6’4”) was significantly different from the other two groups in angle at right and left ankle joint at the moment of stance in set shot.

12. Angle of knee joint (right and left) at the moment of stance was significantly different among three groups.

13. First group (5’5” to 5’8”) was significantly different from the other two groups in angle at right shoulder joint, angle at left wrist joint and height of the c.g. at the moment of stance in set shot.

14. No significant difference among different height groups were found in angle at left shoulder joint, angle at right hip joint, angle at left hip joint, angle at right elbow joint, angle at left elbow joint and angle at right wrist joint at moment of stance.
15. Significant difference among different height groups were found in angle at right ankle joint, angle at left ankle joint, angle at right shoulder joint, angle at left shoulder joint, angle at right elbow joint, angle at left elbow joint, angle at right wrist joint and angle at left wrist joint at moment of release of ball.

16. Height of center of gravity during the moment of release in set shot of all the three groups was significantly different from one another.

17. A significant difference was found between first (5’5” to 5’8”) and third group (6’1” to 6’4”) at the angle of right and left ankle joint during the moment of release in set shot.

18. A significant difference was found between first (5’5” to 5’8”) and second group (5’9” to 6’) at the angle of right shoulder joint during the moment of release.

19. Left shoulder joint angle at the moment of release in set shot was significantly different in second group (5’9” to 6’) from the other two groups.

20. Significant difference was found in first group (5’5” to 5’8”) from the other two groups at the angle of left and right elbow joint during the moment of release.

21. A significant difference was found between second group (5’9” to 6’) and third group (6’1” to 6’4”) at the angle of right and left wrist joint during the moment of release.
22. At the angle of release of ball, right knee joint, left knee joint, right hip joint and left hip joint during the moment of release of ball no significant difference among the groups were found.

23. Displacement of center of gravity was significantly different in first group (5’5” to 5’8”) from the other two groups.

24. Time to perform the course was not significantly different among three groups.
RECOMMENDATIONS

Based on the conclusions drawn in this study the following recommendations have been made:

1. Similar Studies can also be conducted on female basketball players.

2. The study may be undertaken with large number of variables like velocity, equilibrium as the factors contributing to performance.

3. 

4. Similar study may be under taken to analyze the other techniques of basketball and other games.

5. Similar study may be conducted by using more sophisticated equipments of different level.

6. This study can be conducted on national and international teams.