Summary

Sports and games involve competition. Without competition, there is no game. Competition provides a forum within which people strive to become competent, to become excellent. The opportunities for rivalry within sport are many and varied: team against team, individual against individual, individual against a record, individual against a previous best performance, individual against a physical barrier. Competition involves individuals and groups striving for excellence within the rules and traditions that make up a sport, including all the festival characteristics that give the sport additional flavour and meaning.
Sport participation is good preparation in handling everyday events. Because sport involves both victory and defeat, it provides people with opportunities to experience success and failure. And the lessons of these experiences are believed to be unique and valuable. Sport is essentially different from the rest of our lives. In everyday life one seldom faces the opponents in a direct manner. But in sport, opponents are faced directly, scores are always complete, and people have no doubts about when the games are over. Actions in sport have a moral component that is usually only related to a particular sport setting. And the consequences of those actions have no serious meaning for life apart from sport.

Today’s world is a world of competition, the rivalry to reach the top and excel each other so much. Every aspect that contributes for the excellence is carefully looked in and one of such aspects is the selection of the right person for the right event in sports and games, during which normally a choice of selection is given to the player or the athlete. The players without knowing their inherent potential make wrong selection suiting to the individual concerned and are not able to reach the top of the ladder of sports arena.
Sports participation and appreciation have become an integral part of life. Competitive sports make tremendous demands on the physical conditioning, vitality, endurance and mental powers of the participants. Only the finest can play to the best of their ability. Each sport has its own pattern, muscle load, tempo and duration. Today, the people of every country are more concerned with physical fitness than ever before as it has become the vital part of winning sports competition.

The sporting motto “Bigger, faster and Stronger” is heard almost as frequently as the Olympic motto “Faster, higher and stronger”. There is no doubt that athletes are running faster, heavier weights are being lifted or implements are being thrown further. The word “stronger” in both mottos is the only term applied specifically to one of the vital fitness qualities, namely strength, a factor that is fundamental to all forms of improved performance.

Sport has symbolic power because essential testing and refinement of skill and mastery are classified as human challenges. Sport translates simple themes into complex
dimensions of style and, in so doing, provides dramatic satisfaction. It enhances experiences by requiring and rewarding stylistic decisions about how to be and how best to triumph. The spirit of sports will bring out the best in the sportsmen, the fruit of hard training, of perfect synthesis of mind and body; the reward being strengthening the bonds of friendship; breaking the barriers of race, religion, culture, politics and ideology.

Physical fitness is one of the most important factors that determine the performance level of an individual. Sports performance depends largely on physical fitness factors such as strength, speed, power, endurance, flexibility and various abilities requiring co-ordination. Sports activity is a physical activity which is not possible without these motor abilities. Fitness factors are most important for predicting athletic performance. Natural ability is the promise of potential but fundamentals are the foundation of excellence.

In this context the researcher made an attempt to identify the unique training modality for strength and speed development among the isolated, combined and complex trainings.
The study was designed to investigate the efficacy of isolated, combined and complex training and detraining on strength and speed development. Arm Strength, Leg Strength, Explosive Strength, Strength Endurance, Speed, Stride Length, Stride Frequency and Speed Endurance were selected as dependent variables. The weight training, plyometric training, weight and plyometric training and detraining programmes have been selected as independent variables.

To achieve the purpose of the study, forty five men students studying Bachelor’s degree in Engineering in, Sudharsan Engineering College, Sathiyamangalam, Pudukkottai District, Tamilnadu, India were selected as subjects. The age of the subjects’ ranged from 18 to 21 years; height ranged from 161 to 170 centimeters and weight is 55 to 63 kilograms.

The selected subjects were divided at random into three groups of fifteen each (n=15), Group I underwent weight training, Group II underwent plyometric training and Group III underwent combined weight and plyometric training. The experimental groups underwent their respective training programmes for the duration of twelve weeks with three days per week in addition to the regular programme in the curriculum.
The training programme was scheduled for one session in a day. The training schedule was administered for experimental groups as presented in appendices. During the training period the experimental groups underwent their respective training programme three days per week (alternate days) for twelve weeks in addition to their regular programme of the course of study as per their curriculum. Group I underwent weight training, Group II underwent plyometric training and Group III underwent combined training (Combined group trained for strength and speed in alternate sessions), for three days per weeks for twelve weeks.

After the training period, the detraining effects were assessed by every 10 days from the last session of the training. Like that four cessations were followed. During the detraining period, the subjects were advised not to do any specific exercises.

The data pertaining to this study were examined by using two way (3x6) factorial ANOVA with last factor repeated measures. Whenever the main purpose usually lies in the interaction, it is sufficient to discuss the interaction effect only, unless some special circumstances exist, interest in testing the main effects is usually limited. Hence, whenever the obtained F-ratio for interaction effect was found to be significant, the simple effect test was used as a follow up test. Since, three groups and six different
stages of test were compared, whenever the obtained f-ratio value in the simple effect was significant the Scheffe’s test was applied as post hoc test to determine the paired mean differences, if any. In all the cases .05 level of significance was fixed.

**Conclusions**

From the analysis of the data, the following conclusions were drawn.

1. All the experimental groups namely weight training, plyometric training and combined weight and plyometric training groups have achieved significant improvement on Arm Strength, Leg Strength, Explosive Strength, Strength Endurance, Speed, Stride length, Stride Frequency and Speed Endurance.

2. Significant differences were found among weight training, plyometric training, combined weight and plyometric training groups towards improving the selected criterion variables such as Arm Strength, Leg Strength, Explosive Strength, Strength Endurance, Speed, Stride length, Stride Frequency and Speed Endurance.
3. It is also concluded that, combined weight and plyometric training is found to be better than weight training and plyometric training towards improving Arm Strength, Leg Strength, Explosive Strength, Strength Endurance, Speed, Stride length, Stride Frequency and Speed Endurance.

4. There was no significant reduction in the performance of selected strength and speed parameters during the first and second cessation of detraining period.

5. Significant reduction in the performance of selected strength and speed parameters were found during the third and forth cessation of detraining period.

**Recommendations**

1. In the present study, it was concluded that strength and speed parameters were improved by combined weight and plyometric training. Hence, it is recommended to the coaches, trainers and physical educators to adopt these findings to improve speed and power parameters for their players.
2. A similar study may be conducted by selecting biochemical variables as criterion variables.

3. A similar study may be attempted by selecting the state or national level athletes or players as subjects.

4. A similar study may be conducted on female subjects.

5. A similar study may be undertaken and its influences on psychological and physiological parameters may be assessed.