Effect of Plyometric Training on Leg Explosive Strength and Long Jump Performance of College Students

The main aim of the study was to find out the effect of plyometric training on explosive strength and long jump performance of college students. The study was conducted on thirty (30) male students were randomly selected from Dr. Babasaheb Nandurkar College of Physical Education, Yavatmal (Mahaashtra) as subjects. The environmental conditions, daily routine work of the subjects were same. Ages of the subjects were ranging from 22 to 28 years. All the subjects are divided into two groups of 15 subjects in each group. One is treated as Experimental group (N=15) and second one is Control group (N=15), attempt was made to maintain homogeneity in grouping as far as possible. The Experimental group underwent plyometric training, three days in a week for duration of nine weeks. The Control group did not participate in any special training programme apart from their regular activities as per their curriculum. Before involving their training programmee pre and post test were administered to measure selected variables namely: explosive strength and long jump performance. To find out the leg explosive strength, vertical jump was used and long jump performance was also recorded. The data was statistically analyzed by using of analysis of covariance (ANCOVA). The result of the study showed that there was a significant improvement in the performance of experimental group. It was concluded that plyometric training effect on leg explosive strength and long jump performance of college students.

**Keywords**: Leg explosive strength, Plyometric training, Long jump.

**DR. P.K. PRADHAN**

**Introduction**: Every student is in need of basic fitness and motor components along with performance in the fundamental skill. Everybody knows that the strength is major aspect to success in modern games and sports. The standard of sports performance rises due to improvement of skill and scientific training & coaching. Each training means has its own specific effect of the performance capacity. For this purpose, students have been trained with varied physical training; namely resistance training, interval training circuit training plyometric training & so on. Plyometric training is a specific exercise for the enhancement of explosive power that includes strength and power. It is used to increase the speed of force of muscular contractions, providing explosiveness for a variety of sport specific activities. This training involves and uses practicing plyometric movement to toughen tissues and train nerve cells to stimulate a specific pattern of muscle contraction. So the muscles generate as strong a contraction as possible in the shortest amount of time.

Volleyball by its nature depends on quick and explosive movements. For that reason alone, plyometric exercises are especially valuable to volleyball athletes. These exercises combine strength with speed of movement to produce power. By using the myotatic stretch reflex of the muscle to produce an explosive reaction, plyometric is believed to be the link between speed and strength. They enhance muscle elasticity and help athletes maximize power production. The plyometric method is ranked among the most frequently used methods for conditioning in volleyball. Volleyball players can benefit immensely from these types of exercises, as the same explosiveness and power is needed for the development of a good spike or block.

**Methodology**: The study was conducted on thirty (30) male college students were randomly selected from Dr. Babasaheb Nandurkar College of Physical Education, Yavatmal as subjects. The environmental conditions, daily routine work of the subjects were same. Ages of the subjects were ranging
from 22 to 28 years. All the subjects are divided into two
groups of 15 subjects in each group. One is treated as
Experimental group and second one is Control group, attempt
was made to maintain homogeneity in grouping as far as
possible. The Experimental group underwent 9 weeks
plyometric training, thrice in a week on alternate days for the
duration of nine weeks, whereas the control group was not
given in any special training programme apart from their
regular activities as per their curriculum. Before involving
their training programee pre and post test were administered
to measure selected variables namely: explosive strength and
long jump performance.

**Statistical Technique :**

The obtained data were statistically analyzed by using
ANCOVA to see whether any significant differences between
the means of pre and post test scores of experimental and
control group on selected variables. It has been presented in
table-1.

**Observations and Discussion :**

Within the limitation of the study following results are
drawn in table 1.

The results presented in table-1 shows significant
difference between the experimental and control group on
Explosive Strength and long jump performance. The
derivate 'F' ratio of 102.06, 56.62 respectively for adjusted
post test means were higher than the table value of 4.21
required for significance at .05 level of confidence for
df.(1,27). It is inferred from the result of the study that
there were significant influence on selected variables
through the plyometric training programme. It is attributed
to the fact that plyometric training programme might be
influence to improve leg muscular strength. Therefore,
long jump performance may be improved among the
college students.

**Conclusion :**

The findings of the study showed that there was

 significant improvement in leg explosive strength and long
jump performance due to the influence nine weeks plyometric
training programme.

**References :**

1 Michal.K.M. “ Comparative effect of Depth Jump and
jump squat on vertical jumping ability”, Unpublished Master degree

2 Bucher, C.A. “Foundation of physical education and

3 H. Toumi, et. al, “Effect of Eccentric Phase Velocity of
plyometric training on the vertical jump”, International Journal of

Venus publication, Gwalior, 2000, p 276.