

Acute Effects of Plyometric Exercise on Maximum Squat Performance in Female Athletes of Sikkim

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Background

To enhance the explosive power, Plyometric training activities are frequently used by a wide range of athletes. With the advent of newer methods of training, role of plyometrics and its effects needs to be understood and incorporated in training and rehabilitation protocols. Number of reviews on the benefit of plyometric training focus on male participants. Furthermore, there is a dearth in literature relating to female athletes and plyometric training especially in Sikkim. Thus, this study examines the acute effects of plyometric exercise on maximum squat performance in female athletes of Sikkim.

Study Design – Repeated Measures Design – A Cross Sectional Study.

Outcome measure – 1RM lift.

Participants - Eligible 30 female athletes of Sikkim participated in 3 testing sessions separated by at least 6 days of rest.

Method

During 1st testing session the 1RM was assessed on back squat exercises. Prior to that the subjects performed dynamic stretching (10 minutes) for warm up. Subjects then performed 5 sub maximal sets of 1–8 repetitions before attempting a 1RM lift. Subjects rested for at least 4 minutes between 1RM trials. During the first testing session (S1) subjects performed a series of sets with increasing load until their 1RM was determined. During the 2nd and 3rd testing sessions subjects performed in counterbalanced order either 3 double-leg Tuck Jumps (TJ) or 2 Depth Jumps (DJ) 30 seconds before each 1RM attempt.

Result

Plyometric exercise DJ and TJ performed before 1RM attempt significantly increased 1RM squat performance which is 9.733 Kgs and 4.467 Kgs respectively when compared with the results from the first testing session, which did not include plyometric exercise 3.867 Kgs. Also, DJ when performed before squat performance resulted in a significantly higher 1RM lift than the TJ ($p < 0.05$).

Conclusion

The data suggest that both TJ and DJ performed before 1RM testing may enhance squat performance in trained female athletes when compared with dynamic stretching for warm up alone. But DJ was more triumphant in escalating the performance than TJ.

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