WWW.IJRPR.COM

International Journal of Research Publication and Reviews

Journal homepage: www.ijrpr.com ISSN 2582-7421

Influence of Mini Resistance Band Workout on Body Fat Percentage and Leg Explosive Power of College Men

R. Boopathi**, Dr. E. Amudhan**

*M. P. Ed., Research Scholar, **Associate Professor
Sri Ramakrishna Mission Vidyalaya Maruthi College of Physical Education, Periyanaickenpalayam, Coimbatore – 641020

ABSTRACT

The present study aimed to investigate the effect of a mini resistance band workout on selected fitness parameters and body composition variables among college men. A total of 30 male college students aged from 19-21 were selected and randomly divided into experimental and control groups. The experimental group underwent a structured mini resistance band training programme for a duration of six weeks while the control group followed their regular physical activity routine without additional intervention. Pre- and post-intervention assessments were conducted to measure criterion variables such as body fat percentage and leg explosive power. Data were statistically analyzed using paired 't' tests to evaluate inter-group differences. The results indicated that the experimental group showed significant improvements ($p < 0.05$) in body fat percentage and leg explosive power compared to the control group. The study concludes that mini resistance band workouts are an effective, accessible, and low-cost method to enhance body fat percentage and leg explosive power among college men

Introduction

The pursuit of physical fitness is a lifelong journey that involves various aspects, including strength, endurance, flexibility, balance, and body composition. Among the different types of physical activity, resistance training has been widely recognized for its ability to improve muscle strength, enhance endurance, and influence body composition. Traditionally, resistance training has been associated with the use of free weights, machines, or bodyweight exercises. However, an emerging tool that has gained popularity in recent years is the mini resistance band.

Mini resistance bands are elastic bands, typically smaller in size than traditional resistance bands, designed to add resistance to exercises that target specific muscle groups. These bands are affordable, portable, and versatile, making them an attractive option for individuals who want to incorporate resistance training into their fitness routines without the need for large equipment or gym memberships. The use of mini resistance bands in various exercises such as squats, lunges, glute bridges, and shoulder presses can effectively engage multiple muscle groups and improve both muscular strength and endurance.

Despite the increasing popularity of mini resistance bands, there is a limited amount of research on their specific effects on fitness parameters like strength, endurance, flexibility, and body composition variables, including body fat percentage and muscle mass. Most existing studies on resistance training have focused on free weights or machines, with only a few investigations looking into the efficacy of resistance bands, particularly mini bands, as a standalone tool for improving overall fitness. This gap in research presents an opportunity to explore how mini resistance band training impacts various fitness variables and whether it can be an effective alternative to traditional resistance training methods.

Methodology

For the purpose of this research, 30 college men students aged between 19 and 21 years were selected from Sri Ramakrishna Mission Vidyalaya College of Arts and Science, Periyanaikenpalayam, Coimbatore. Based on a review of relevant literature and feasibility considerations, the following variables namely body fat percentage and leg explosive power were selected. Prior to the intervention, the subjects were oriented about the procedures to ensure clarity and cooperation. The reliability of the data and instruments was ensured through the use of validated tools, and the tester's competency was established through prior experience and training. Data were collected systematically before and after the intervention. The experimental design involved a structured mini resistance band training programme administered to the experimental group, while the control group maintained their regular routine. Appropriate statistical technique, paired t-tests, was employed to analyze the data and determine the significance of the training effects on the selected criterion variables.

RESULTS OF THE STUDY

TABLE-I

COMPUTATION OF 'T'-RATIO BETWEEN PRE AND POST TESTS ON BODY FAT PERCENTAGE OF EXPERIMENTAL AND CONTROL GROUPS

Group	Test	Mean	SD	DM	σ DM	't'	'P' Value
Experimental	**Pre**	20.15	10.19	1.55	0.12	12.42	0.01
	Post	18.61	10.05				
Control	**Pre**	23.82	13.57	0.01	0.10	0.13	0.90
	Post	23.81	13.36				

*Significant at 0.05 level

The results of the t-test for body fat percentage of college students revealed significant changes between the pre-test and post-test scores in both the experimental and control groups. In the experimental group, the mean of body fat percentage decreased from 20.15 (pre-test) to 18.61 (post-test), with a mean difference of 1.55, and standard error of difference between means of 0.12, and a 't'-value of 12.42, indicating a statistically significant reduction in body fat percentage. In contrast, the control group showed an increase in body fat percentage from pre-test mean of 23.82 to post-test mean of 23.81 with mean difference of 0.01, and standard error of difference between means of 0.10, and 't'-value of 0.13. Since the p value is lesser than 0.05, these findings suggest that the mini resistance band workout had a significant effect in reducing body fat percentage among college men in the experimental group.

FIGURE- 1

MEAN DIFFERENCE OF PRE AND POST-TESTS SCORES ON BODY FAT PERCENTAGE OF EXPERIMENTAL AND CONTROL GROUPS

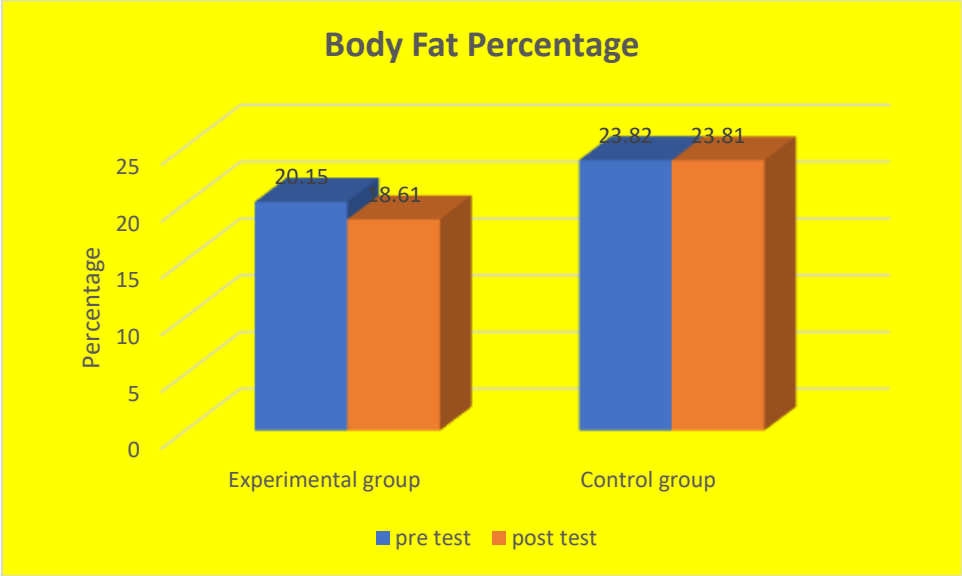


TABLE II

COMPUTATION OF 'T'-RATIO BETWEEN PRE AND POST TESTS ON LEG EXPLOSIVE POWER OF EXPERIMENTAL AND CONTROL GROUPS

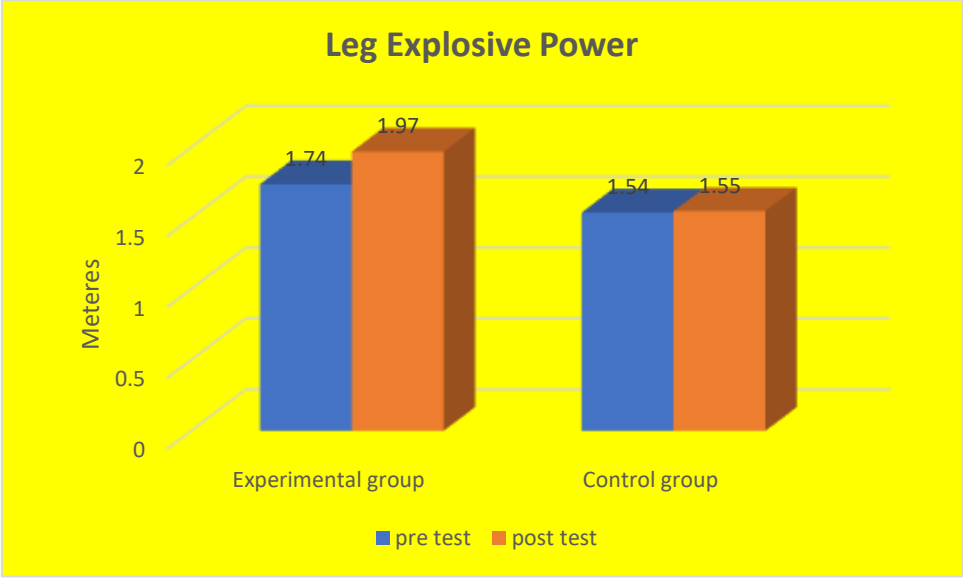
Group	Test	Mean	S.D	D.M	σ DM	't'	'P'Value
Experimental	**Pre**	1.74	0.30	0.23	0.04	5.73	0.01
	Post	1.97	0.28				
Control	**Pre**	1.54	0.29	0.01	0.05	0.14	0.89
	Post	1.55	0.30				

*Significant at 0.05 level

The results of the t-test for leg explosive power of the selected college men revealed significant changes between the pre-test and post-test scores in both the experimental and control groups. In the experimental group, the mean of leg explosive power increased from 1.74 (pre-test) to 1.97 (post-test), with a mean difference of 0.23, and standard error of difference between means of 0.04, and a t-value of 5.73, indicating a statistically significant increase in leg explosive power. In contrast, the control group showed no significant increase in leg explosive power from pre-test mean of 1.54 to post-test mean of 1.55 with mean difference of 0.01, and standard error of difference between means of 0.05, and 't' value of 0.14. Since the p value is lesser than 0.05 these findings suggest that the mini resistance band workout had significant effect in increasing leg explosive power among college men in the experimental group.

FIGURE- 2

MEAN DIFFERENCE OF PRE AND POST-TESTS SCORES ON LEG EXPLOSIVE POWER OF EXPERIMENTAL AND CONTROL GROUPS



Discussion on Findings

The present study aimed to examine the effect of a mini resistance band workout on body fat percentage and leg explosive power among college men. The findings reveal that the structured mini resistance band training programme significantly reduced body fat percentage in the pre-test compared to the post-test of experimental group.

The significant reduction in body fat percentage of the experimental group supports earlier research done by Anderson et al. (2008) found that resistance band exercises was effective training means in reducing body fat percentage in sedentary individuals, affirming the practicality and effectiveness of elastic resistance training modalities.

The findings also reveal that the structured mini resistance band training programme significantly enhanced leg explosive power. The significant improvement in the leg explosive power of the experimental group supports with earlier research done by Hughes et al. (2016), who reported that incorporating elastic resistance in lower body training can lead to significant neuromuscular adaptations and leg explosive power improvements. The use of mini resistance bands in dynamic movements such as squats, jump squats, and lunges likely contributed to the increased leg explosive power.

Additionally, the progressive overload built into the six-week training programme mirrors the training principles recommended by ACSM (2011), reinforcing the importance of gradually increasing resistance and complexity to stimulate continued physiological adaptation.

Taken together, the results of this study support the use of mini resistance bands as a viable, low-cost, and accessible tool for reducing body fat percentage and enhancing leg explosive power in college-aged men. The findings not only extend the current literature on elastic resistance training but also provide practical applications for physical education professionals, coaches, and fitness trainers working with young adults in resource-limited settings. Furthermore, it is observed that mini resistance band training using minimal equipment could reduce body fat percentage and improve leg explosive power comparable to traditional weight training in untrained young adults.

Conclusions

The study concludes that mini resistance band workouts significantly reduce body fat percentage and improve leg explosive power in college men. The structured training programme led to reductions in body fat percentage and notable gains in leg explosive power. These results demonstrate the effectiveness of mini resistance bands as a low-cost, portable, and efficient alternative to traditional resistance training. Given their accessibility and ease of use, mini bands can be a valuable addition to fitness routines, particularly in settings with limited resources or equipment, making them ideal for promoting physical fitness among college populations.

References

1. Colado, J. C., & Triplett, N. T. (2008). Effects of a short-term resistance programme using elastic bands versus weight machines for sedentary middle-aged women. Journal of Strength and Co nditioning Research, 22(5), 1441–1448.
2. Hughes, C. J., Hurd, K., Jones, A., & Sprigle, S. (2016). Resistance training with elastic bands: Theoretical and practical applications for improving functional performance. International Journal of Sports Physical Therapy, 11(5), 749–760.
3. Anderson, K., & Behm, D. G. (2008). The impact of instability resistance training on balance and stability. Sports Medicine, 35(1), 43–53.
4. Page, P., Labbe, A., & Topp, R. (2010). Clinical force production of Thera-Band® elastic bands. Journal of Orthopaedic & Sports Physical Therapy, 40(5), A57.
5. American College of Sports Medicine (ACSM). (2011). ACSM's Guidelines for Exercise Testing and Prescription (8th ed.). Lippincott Williams & Wilkins.