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Effect Of Thera-Band And Circuit Training On Selected Body Composition Variables On Middle Aged Men

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Abstract: This study investigates the impact of circuit training and Thera-band exercises on Body Mass Index (BMI) and Percentage of Body Fat among middle-aged men. A pre-test and post-test experimental design was employed, with participants divided into Circuit Training Group (CTG), Thera-band Group (TBG), and a Control Group (CG). Data were analyzed using Analysis of Covariance (ANCOVA) to assess the effectiveness of the interventions. Results revealed significant improvements in BMI and Percentage of Body Fat in both intervention groups, with circuit training demonstrating the highest effectiveness. These findings emphasize the importance of structured training programs in optimizing body composition and overall health in middle-aged men.

Keywords: Circuit training, Thera-band exercises, Body Mass Index, Percentage of Body Fat, middle-aged men.

INTRODUCTION

Maintaining optimal body composition is essential for overall health and well-being, particularly among middle-aged men who experience age-related metabolic and physiological changes. Excess body fat and increased BMI are associated with various health risks, including cardiovascular diseases, diabetes, and musculoskeletal disorders. Effective training programs are crucial for managing these risks and enhancing physical fitness.

Circuit training and Thera-band exercises are widely used to improve body composition and muscular fitness. Circuit training consists of sequential high-intensity exercises that target multiple muscle groups, thereby improving cardiovascular endurance and metabolic rate. Thera-band exercises, which involve resistance training using elastic bands, enhance muscular strength, flexibility, and endurance with minimal joint impact. However, limited research has explored the comparative impact of these training modalities on BMI and Percentage of Body Fat in middle-aged men.

This study aims to evaluate the effects of circuit training and Thera-band exercises on BMI and Percentage of Body Fat among middle-aged men, providing insights into effective training strategies for health improvement.

METHODOLOGY

A total of 45 middle-aged men were randomly assigned to three groups: Circuit Training Group (CTG), Thera-band Group (TBG), and Control Group (CG), with 15 participants in each group. The intervention lasted for eight weeks, during which the experimental groups underwent structured training while the control group maintained their usual routine.

Circuit Training Group (CTG): Performed a series of bodyweight and resistance-based exercises in a high-intensity, low-rest format to maximize calorie expenditure and muscle engagement.

Thera-band Group (TBG): Engaged in resistance exercises focusing on muscle endurance, stability, and flexibility using Thera-bands.

Control Group (CG): Continued their regular daily activities without additional training interventions.

BMI and Percentage of Body Fat were measured before and after the intervention. ANCOVA was applied to determine statistical differences between the groups.

Results and Key Findings

The analysis of covariance (ANCOVA) for BMI and Percentage of Body Fat demonstrated significant differences among the groups.

BMI

The analysis of covariance on BMI of the pre-test and post-test scores of Circuit training (CTG), Thera-band exercise (TBG), and control group (CG) is shown in Table 1.1.

TABLE 1.1

THE ANALYSIS OF COVARIANCE ON BODY MASS INDEX OF THE PRE-TEST AND POST-TEST SCORES OF CIRCUIT TRAINING (CTG), THERA-BAND EXERCISE (TBG), AND CONTROL GROUPS (CG).

TEST	CTG	TBG	CG	SOV	SOS	DF	MS	Obtained 'F" Ratio
Pretest								
Mean	26.10	26.18	26.00	Between	.226	2	.113	.022
S.d	2.46	2.60	1.57	Within	124.71	42	5.11	
Post Test								
Mean	22.08	23.48	25.42	Between	84.7	2	42.35	10.29*
S.d	2.06	2.48	1.38	Within	172.7	42	4.11	
Adj Post Test								
Mean	22.07	23.41	25.49	Between	89.08	2	44.54	49.54*
				Within	36.85	41	.899	

* Significant at .05 level of confidence.

(The table values required for significance at a .05 level of confidence for 2 and 42 and 2 and 41 are 3.22 and 3.23 respectively).

TABLE 1.2

SCHEFFE'S TEST FOR ADJUSTED POST-TEST MEAN DIFFERENCES ON BMI

CTG	TBG	CG	MD	CI
22.07	23.41	-	1.34	**1.61***
22.07	-	25.49	3.40*	
-	23.41	25.49	2.08*	

* Significant at .05 level of confidence.

BMI Analysis: The pre-test scores showed no significant differences among the groups ($F = 0.022$, $p > 0.05$). However, post-test and adjusted post-test results revealed significant differences ($F = 10.29$ and $F = 49.54$, respectively, $p < 0.05$). Post hoc analysis confirmed that circuit training resulted in the greatest reduction in BMI, followed by Thera-band exercises, while the control group showed minimal change.

PERCENTAGE OF BODY FAT

The analysis of covariance on Percentage of Body Fat of the pre-test and post-test scores of Circuit training (CTG), Thera-band exercise (TBG), and control group (CG) is shown in Table 4.1.

TABLE 4.1

THE ANALYSIS OF COVARIANCE ON PERCENTAGE OF BODY FAT OF THE PRE-TEST AND POST-TEST SCORES OF CIRCUIT TRAINING (CTG), THERA-BAND EXERCISE (TBG), AND CONTROL GROUPS (CG).

TEST	CTG	TBG	CG	SOV	SOS	DF	MS	Obtained 'F" Ratio
Pretest								
Mean	24.33	24.39	24.20	Between	.269	2	.134	.986
S.d	3.43	3.47	2.30	Within	408.16	42	9.71	
Post Test								
Mean	19.51	21.19	23.49	Between	119.88	2	59.94	7.52*
S.d	2.82	3.40	2.07	Within	334.49	42	7.96	
Adj Post Test								
Mean	19.49	21.13	23.58	Between	126.98	2	63.49	47.3*
				Within	54.99	41	1.34	

* Significant at .05 level of confidence.

(The table values required for significance at a .05 level of confidence for 2 and 42 and 2 and 41 are 3.22 and 3.23 respectively).

The study's findings revealed a significant difference in Percentage of Body fat among the Circuit Training, Thera-band exercise, and control groups based on the adjusted post-test means. Due to the significant F ratio for the adjusted post-test, the results were further analysed using Scheffe's post hoc test, with the findings detailed in Table 4.2.

TABLE 4.2

SCHEFFE'S TEST FOR ADJUSTED POST-TEST MEAN DIFFERENCES ON PERCENTAGE OF BODY FAT

CTG	TBG	CG	MD	CI
19.49	21.13	-	1.64	**1.55**
19.49	-	23.58	4.09	
-	21.13	23.58	2.45	

* Significant at .05 level of confidence.

Percentage of Body Fat Analysis: Pre-test scores were not significantly different ($F = 0.986$, $p > 0.05$), whereas post-test and adjusted post-test scores indicated substantial improvements ($F = 7.52$ and $F = 47.33$, respectively, $p < 0.05$). Post hoc tests revealed that circuit training was the most effective in reducing body fat percentage, followed by Thera-band exercises, with the control group showing negligible improvement.

DISCUSSION

Findings suggest that both circuit training and Thera-band exercises effectively improve BMI and Percentage of Body Fat among middle-aged men. Circuit training proved to be the most effective, likely due to its high-intensity nature, which promotes calorie burn and fat loss. The results align with previous studies highlighting the benefits of circuit training in enhancing metabolic rate and overall fitness. Thera-band exercises, although slightly less effective than circuit training, still showed notable improvements. Their lower impact makes them a viable option for individuals with joint concerns or mobility limitations. The control group's lack of significant change further emphasizes the necessity of structured exercise programs in managing body composition.

CONCLUSION

This study concludes that circuit training and Thera-band exercises significantly improve BMI and Percentage of Body Fat among middle-aged men, with circuit training showing the highest effectiveness. These findings provide valuable insights for health professionals and fitness trainers in designing targeted training programs to promote weight management and physical well-being. Future research should explore long-term effects, analyze additional health parameters, and investigate the impact of these training modalities on other physiological and psychological aspects of health.

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