ABSTRACT

Background:

Hamstring weakness and inadequate muscular hypertrophy are common concerns among gym-going individuals and athletes, often affecting performance and increasing the risk of injury. Intermittent hypoxic resistance training combined with Nordic hamstring exercise has recently gained attention for its potential to enhance muscular strength and hypertrophic adaptations through increased metabolic and neuromuscular stimulation.

Methodology:

Thirty healthy gym-going individuals were randomly allocated into an experimental group (n = 15) and a control group (n = 15). The experimental group received intermittent hypoxic resistance training combined with Nordic hamstring exercise, while the control group followed conventional resistance training. Outcome measures including hamstring muscle length, thigh girth, and one-repetition maximum (1RM) were assessed at baseline (Day-0), Week-2 (Session-6), and Week-4 (Session-12). Data were analyzed using descriptive statistics and Two-Factor ANOVA Without Replication with the level of significance set at $p < .05$.

Results:

Both groups demonstrated improvements in hamstring muscle length, thigh girth, and 1RM performance following the intervention period. However, greater improvements were observed in the experimental group. ANOVA analysis revealed a statistically significant difference between groups for 1RM performance, $F(1,2) = 19.49$, $p = .047$, indicating superior strength gains in the experimental group. The effect across assessment periods was not statistically significant, $F(2,2) = 14.16$, $p = .066$.

Conclusion:

The findings suggest that intermittent hypoxic resistance training combined with Nordic hamstring exercise is more effective than conventional resistance training alone for improving hamstring strength and hypertrophy-related outcomes among gym-going individuals.

Keywords: Intermittent hypoxic resistance training, Nordic hamstring exercise, hamstring strength, muscle hypertrophy, one-repetition maximum (1RM)

TABLE OF CONTENTS

SL NO.	TOPIC	PAGE NO.
1.	Abstract	vii
2.	Introduction (Chapter-1)	1-4
3.	Review of Literature (Chapter-2)	5-13
4.	Aims and Objectives (Chapter-3)	14-15
5.	Materials and Methods (Chapter-4)	16-21
6.	Statistical analysis (Chapter-5)	22-25
7.	Results (Chapter-6)	26-27
8.	Discussion (Chapter-7)	28-30
9.	Conclusion (Chapter-8)	31-34
10.	Limitations and Recommendation (Chapter-9)	35-37
11.	References	38-41
12.	Annexure i	43
13.	Annexure ii	44-46
14.	Annexure iii	47
15.	Annexure iv	48