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**EXTENDED  
ABSTRACT**

# Evaluating Combined Intermittent Fasting and Resistance Training Effects on Body Composition in Physically Active University Students

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## I. INTRODUCTION

Intermittent fasting (IF) and resistance training (RT) have independently shown promise in weight management and body composition improvement (1). However, their combined short-term effects, especially among physically active individuals with normal body composition, remain underexplored. This study investigates how integrating IF and RT influences weight loss, fat reduction, and muscle preservation in UiTM Seremban FSR students, addressing crucial gaps in diet-exercise interaction research beyond obese populations.

## II. METHODS

Twelve physically active UiTM Seremban FSR students underwent a 4-week intervention combining 16:8 intermittent fasting and thrice-weekly resistance training. Participants were grouped by body weight. Pre- and post-intervention assessments used foot Bioelectrical impedance analysis to measure body weight, fat percentage, and lean mass. Caloric intake followed the estimated energy requirement with a deficit. Circuit-based resistance sessions included upper and lower body exercises, with controlled fasting and standardized pre-measurement conditions.

## III. RESULTS AND DISCUSSION

### A. Combined IF and RT Yields Superior Weight Outcomes

The IF+RT group showed the only weight loss (−0.400 kg), while the IF-only and RT-only groups gained weight. Gender and Body mass index subgroup differences were not analyzed. These results suggest the combination of intermittent fasting and resistance training is more effective for short-term weight loss than either intervention used in isolation.

TABLE I  
PAIRED SAMPLE T-TEST COMPARING PRE- AND POST- INTERVENTION ON BODY WEIGHT, FAT MASS AND LEAN MASS MUSCLE

Variables	M (Pre)	SD (Pre)	M (Post)	SD (Post)	t	df	p
Body weight	62.483	10.071	62.817	10.047	-1.22	11	0.001
Fat Mass	19.583	5.415	19.392	5.133	0.53	11	0.001
Lean Muscle Mass	33.683	3.218	33.317	3.443	0.92	11	0.001

### B. Resistance Training Preserves Lean Muscle During Fasting

Lean body mass decreased slightly in the IF-only group (−0.233 kg) but remained unchanged in both RT and IF+RT groups. This suggests that resistance training preserves muscle mass during caloric restriction. No group increased muscle mass, likely due to limited intervention length, moderate training intensity, or suboptimal protein intake (3).

TABLE II  
DESCRIPTIVE STATISTICS AND MEAN BETWEEN GROUPS ON LEAN MUSCLE MASS

Group	M	SD	N
IF	-0.233	0.351	3
RT	0.000	0.265	3
IF+RT	0.000	0.436	3

### C. IF+RT Outperforms Other Methods in Body Composition

The combination of intermittent fasting and resistance training (IF+RT) resulted in favourable changes in body composition, including weight reduction, preservation of lean mass, and minimal fat gain (+0.133 kg). Although these changes did not reach statistical significance, the IF+RT group demonstrated the most positive overall trend.

## IV. CONCLUSIONS

Combining intermittent fasting with resistance training resulted in modest weight loss and preserved lean mass among active university students. Although statistical significance was not reached, the IF+RT approach showed the most favourable trends. These findings support IF+RT as a promising short-term strategy for improving body composition in non-obese individuals [2].

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#### REFERENCES

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