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EXTENDED ABSTRACT

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REASSESSING THE ROLE OF BODY COMPOSITION IN LEG POWER PERFORMANCE IN A YOUNG ADULT COHORT

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I. INTRODUCTION

Body Mass Index (BMI), waist circumference, and leg power are key indicators of physiological health, yet their interrelationships remain underexplored. Existing research largely focuses on athletes, leaving gaps in understanding recreational student populations. This study examines these correlations and identifies physiological characteristics in young adults, addressing limited research on the combined role of BMI, waist measurements, and leg power in this demographic [1,2].

II. Methods

This study included 40 young adults (20 males, 20 females), aged 18–25. BMI and waist circumference were measured using standard tools and protocols, while leg power was assessed using vertical jump tests recorded with the MyJump2 app. Data analysis utilized Pearson's Correlation Test and SPSS (version 25), with statistical significance set at p<0.05.

III. RESULTS AND DISCUSSION

A strong positive correlation (r = 0.902, p<0.001) was observed between BMI and waist circumference, indicating their interconnectedness in reflecting body composition trends. However, BMI showed a weak, non-significant correlation with leg power (r = 0.031, p>0.05), suggesting limited influence on vertical jump performance. Similarly, waist circumference also displayed a weak, non-significant correlation with leg power (r = 0.142, p>0.05) highlighting the importance of other factors like muscle strength in leg power outcomes.

	TABLE I
CORRELATIONS BETWEEN BMI,	WAIST CIRCUMFERENCE AND LEG POWER

		BMI	WC	LP
BMI	Pearson	1	.902**	.031
	Sig. (2-tailed)		<.001	.855
WC	Pearson	.902**	1	.142
	Sig. (2-tailed)	<.001		.397
LP	Pearson	.031	.142	1
	Sig. (2-tailed)	.855	.397	
	Ν	38	38	38



Fig. 1 A correlation between waist circumference and BMI shows a strong significance (r = 0.90, p < 0.001).

IV. CONCLUSIONS

This study reveals a strong relationship between BMI and waist circumference, emphasizing their utility in assessing body composition. However, neither BMI or waist circumference significantly impacts leg power in young adults, suggesting other determinants like muscle strength. These findings provide insights for targeted health assessments and further research on performance predictors in non-athletic populations.

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References

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