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Relationship Between Explosive Strength, Speed, and Agility Among UiTM Negeri Sembilan Football Players

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I. INTRODUCTION

Football is a high-intensity intermittent sport that involves repeated sprinting, rapid acceleration, and frequent changes of direction. Explosive strength, defined as the ability to produce maximal force in minimal time, is commonly regarded as an important determinant of sprint and agility performance [1]. However, previous findings have reported inconsistent relationships between explosive strength and performance-related variables. Therefore, this study aimed to examine the relationship between explosive strength, speed, and agility among UiTM Negeri Sembilan football players.

II. METHODS

A quantitative cross-sectional correlational design was employed. A total of 26 male football players aged 19-25 years were selected using purposive sampling. Explosive strength was assessed using the Standing Broad Jump (SBJ), speed was measured using the 30 m sprint test, and agility was evaluated using a 10 m agility shuttle test. Each participant performed three trials per test, and the best score was recorded. Data were analysed using Pearson's correlation coefficient (r) via Jamovi software.

III. RESULTS AND DISCUSSION

A weak and non-significant relationship was observed between explosive strength and speed ($r = -0.294$, $p > 0.05$). This suggests that SBJ was not significantly associated with 30 m sprint time. Although explosive strength may contribute to early acceleration, sprint performance over 30 meters is also influenced by running mechanics and neuromuscular coordination [2]. Therefore, explosive strength alone may not adequately predict sprint performance.

Explosive strength showed a very weak and non-significant relationship with agility ($r = -0.134$, $p > 0.05$). This indicates that lower-body explosive power was not a significant determinant of agility performance. Given that agility involves change-of-direction technique, balance, and coordination, performance outcomes are influenced by multiple interacting factors rather than explosive strength alone [3].

TABLE I
RELATIONSHIP BETWEEN EXPLOSIVE STRENGTH WITH SPEED
AND AGILITY

		30 m sprint test (s)	10 m agility shuttle test (s)
SBJ (m)	Pearson's r	-0.294	-0.134
	p-value	0.153	0.524

IV. CONCLUSIONS

Explosive strength was not a significant predictor of speed or agility among UiTM Negeri Sembilan football players. These findings highlight the importance of adopting a holistic training approach that integrates sprint mechanics, change-of-direction technique, and neuromuscular coordination rather than relying solely on explosive strength development. Future research should examine specific sprint phases and involve larger samples to further clarify this relationship.

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