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**EXTENDED
ABSTRACT**

Comparison of Physical Fitness Between UiTM Seremban Muay Thai and Silat Olahraga Athletes

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I. INTRODUCTION

Combat sports such as Muay Thai and Silat Olahraga demand high levels of physical fitness, encompassing strength, endurance, agility, and power to perform optimally during competition. While both disciplines involve striking techniques, they differ significantly in movement patterns, tactical approaches, and training emphases, which may lead to distinct physical fitness profiles [1]. Muay Thai emphasizes continuous striking, clinching, and powerful kicks, often requiring superior anaerobic endurance and lower-limb power [2]. In contrast, Silat Olahraga involves rapid, strategic offensive and defensive movements, relying heavily on agility, flexibility, and short bursts of explosive strength [3]. Despite growing participation in these sports at the university level in Malaysia, comparative studies focusing on their athletes' physical fitness profiles remain limited. A better understanding of these differences can provide valuable insights for coaches and sport scientists to tailor training programs based on sport-specific demands. Therefore, this study aims to compare physical fitness components between Muay Thai and Silat Olahraga athletes from Universiti Teknologi MARA (UiTM) Seremban.

II. METHODS

Twenty-two untrained Muay Thai and Silat Olahraga athletes (aged 19–26) from UiTM Seremban completed tests on body composition, muscular endurance (sit-ups), muscular strength (1RM deadlift), and muscular power (vertical jump). Descriptive statistics summarized demographic data, while independent t-tests and regression analysis examined intergroup differences and fitness relationships, with standardized rest intervals between tests.

III. RESULTS AND DISCUSSION

A. Athlete Characteristics

Table 1 presents the demographic and anthropometric characteristics of the Muay Thai and Silat Olahraga athletes from UiTM Seremban. Both groups had an identical mean age of 21.0 years, with Muay Thai athletes showing slightly higher variability ($SD = 2.10$) compared to Silat athletes ($SD = 1.84$). In terms of body weight, Silat Olahraga athletes had a higher mean weight (65.2 ± 20.2 kg) than Muay Thai athletes (60.6 ± 9.74 kg), with a wider range of values (44.0 to 102.0 kg for Silat vs. 45.9 to 78.6 kg for Muay Thai). Similarly, the mean

Body Mass Index (BMI) was higher in the Silat group (24.4 ± 5.93) compared to the Muay Thai group (21.7 ± 2.78), with respective ranges of 17.9–35.4 and 18.7–28.5. However, no statistically significant differences were observed between the two groups for age, weight, or BMI ($p > 0.05$). These findings suggest that the two athlete groups were generally comparable in basic physical characteristics, allowing for fair comparisons in subsequent physical fitness analyses.

TABLE I
ATHLETES' CHARACTERISTICS

	Type Of Sports	Mean (SD)	Minimum	Maximum
Age	Muay Thai	21.0 (2.10)	19.0	25.0
	Silat Olahraga	21.0 (1.84)	19.0	24.0
Weight	Muay Thai	60.6 (9.74)	45.9	78.6
	Silat Olahraga	65.2 (20.2)	44.0	102
Bmi	Muay Thai	21.7 (2.78)	18.7	28.5
	Silat Olahraga	24.4 (5.93)	17.9	35.4

B. Comparison Between Muay Thai and Silat Olahraga on Physical Performance

Table II presents the comparison of physical fitness parameters between Muay Thai and Silat Olahraga athletes from UiTM Seremban. Although none of the differences reached statistical significance ($p > 0.05$), several trends are notable and reflect sport-specific physical demands. The Muay Thai athletes demonstrated higher mean values in muscular endurance (34.0 ± 8.71 reps) and muscular power (22.2 ± 5.28 cm) compared to Silat athletes (28.2 ± 7.88 reps and 19.9 ± 3.25 cm, respectively). These trends are consistent with the training characteristics of Muay Thai, which involve repetitive striking, clinch work, and continuous engagement that enhance both endurance and lower-limb power output [1]. Explosive movements such as roundhouse kicks and knee strikes may contribute to better horizontal power expression as measured in the standing broad jump test.

Conversely, Silat Olahraga athletes recorded a slightly higher mean in muscular strength (95.7 ± 28.89 kg) compared to Muay Thai athletes (92.5 ± 24.89 kg). This could be

attributed to the strength-oriented components of Silat training, which involve body control, stance transitions, and grappling manoeuvres that demand upper-body and core strength [4][5]. In terms of body composition, Silat athletes had a higher BMI (24.2 ± 5.93) and greater muscle mass (29.9 ± 5.39 kg) than Muay Thai athletes (BMI = 21.7 ± 2.78 ; muscle mass = 33.7 ± 7.1 kg), though again, these differences were not statistically significant. Interestingly, Muay Thai athletes showed a lower body fat percentage ($17.5 \pm 9.02\%$) than their Silat counterparts ($22.9 \pm 8.36\%$). This may reflect the higher cardiovascular and metabolic demands of Muay Thai training, which includes pad work, sparring, and conditioning circuits aimed at reducing excess fat while maintaining lean muscle mass [2].

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TABLE II
COMPARISON BETWEEN MUAY THAI AND SILAT OLAHRAGA ON PHYSICAL PERFORMANCE

	Group Muay Thai (Mean \pm SD)	Group Silat Olahraga (Mean \pm SD)	t(df)	p
Muscular Endurance	34.0 \pm 8.71	28.2 \pm 7.88	1.643 (20.0)	0.116
Muscular Strength	92.5 \pm 24.89	95.7 \pm 28.89	-0.277 (20.0)	0.785
Muscular Power	22.2 \pm 5.28	19.9 \pm 3.25	1.231 (20.0)	0.233
Bmi	21.7 \pm 2.78	24.2 \pm 5.93	-1.367 (20.0)	0.187
Muscle Mass	33.7 \pm 5.71	29.9 \pm 5.39	1.613 (20.0)	0.122
Body Fat Percentage	17.5 \pm 9.02	22.9 \pm 8.36	-1.442 (20.0)	0.165

IV. CONCLUSIONS

This study highlights notable differences in physical performance between Muay Thai and Silat Olahraga athletes. Overall, while no statistically significant differences were observed between groups, the data suggest that Muay Thai training may favour endurance, power, and leanness, whereas Silat training may enhance strength and muscle mass development. These trends emphasize the importance of tailoring conditioning programs to meet the unique physical demands of each martial art, supporting athletic development through sport-specific training approaches.

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