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## **EXTENDED ABSTRACT**

EDITOR | ADAM LINOBY

# INVESTIGATING HANDGRIP STRENGTH AND FLEXIBILITY AS INDEPENDENT FITNESS INDICATORS AMONG MALAYSIAN UNIVERSITY STUDENTS

Mohamad Fardeen Aqasha Mohamad Shah, Iqbal Husaini Aziz, Wan Mohd Syafiq, Adam Linoby, Razif Sazali, Muhammad Zulqarnain, Amrun Haziq, & Yusandra Md Yusoff\*

Faculty of Sports Science and Recreation, Universiti Teknologi MARA, Negeri Sembilan Branch, Seremban Campus, Negeri Sembilan, MALAYSIA

\*Corresponding author: yusandra@uitm.edu.my

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## I. INTRODUCTION

Handgrip strength and flexibility are vital components of physical fitness, often linked to overall health and athletic performance. Despite their importance, the relationship between these measures remains underexplored, especially in young adults. This study examines handgrip strength, flexibility, and their correlation among university students, aiming to enhance the understanding of fitness assessments and inform strategies for promoting health in this demographic [1].

## II. METHODS

Handgrip strength was measured using a digital hand dynamometer, with participants using their dominant hand to record the highest value from three attempts [2]. Flexibility was assessed using the sit-and-reach test, with participants reaching forward three times, and the best distance recorded [3]. The study included 23 university students aged 18–25 from UiTM Seremban 3, selected based on specific eligibility criteria and informed consent.

## III. RESULTS AND DISCUSSION

### A. Handgrip Strength in University Students

The mean handgrip strength was 34.3 kg, ranging from 18.8 kg to 59.0 kg, with males significantly outperforming females. Outliers at both extremes highlighted individual variability in strength levels.

### B. Flexibility in University Students

The mean flexibility score was 18.4 cm, with values spanning 7 cm to 30 cm. Females exhibited higher flexibility, with notable outliers demonstrating both exceptional and limited flexibility.

### C. Correlation Between Handgrip Strength and Flexibility

A weak positive correlation ( $r = 0.162$ ) between handgrip strength and flexibility was observed, though not statistically significant ( $p = 0.460$ ), reflecting limited association.

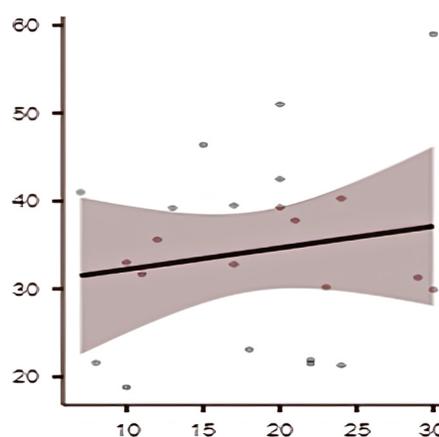


Fig. 1 Correlation between handgrip strength and flexibility among university students.

## IV. CONCLUSIONS

This study found significant gender differences in handgrip strength and flexibility among university students. While both variables showed notable individual variability, their correlation was weak and not statistically significant. These findings suggest that handgrip strength and flexibility may function independently, underscoring the need for distinct fitness assessments.

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