INTERNATIONAL GRADUATE COLLOQUIUM *j*-SPEAK2025

SPORTS AND PHYSICAL EXERCISE ASSEMBLY OF KNOWLEDGE SHARING

COLLOQUIUM PROCEEDINGS

EXTENDED ABSTRACT

EDITOR ADAM LINOBY

EXAMINING GENDER, AGE, AND BODY MASS INDEX AS DETERMINANTS OF MUSCULAR STRENGTH AND FLEXIBILITY IN YOUNG ADULTS

Muhammad Iqbal Husaini, 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

Keywords: Hand-grip strength, Flexibility, Early adulthood, Physical fitness, Correlation analysis

I. INTRODUCTION

This study explores the correlation between hand-grip strength and flexibility in early adulthood. By addressing methodological gaps from prior research demographic limitations, the study aims to provide robust evidence on the relationship between these fitness components [1]. The findings could offer broader insights into their applicability as reliable predictors of physical fitness in diverse early adult populations.

II. Methods

A convenience sample of 23 adults (aged 26–39, both genders) participated. Hand-grip strength was measured using a Camry dynamometer (model EH101) [2], and flexibility was assessed using the Sit-and-Reach Box. Participants performed three trials for each test, with the highest values recorded. Statistical analyses included descriptive statistics, Spearman's correlation, and regression models using Jamovi, with significance set at p<0.05 to evaluate strength-flexibility relationships [3].

III. RESULTS AND DISCUSSION

A. Hand-grip strength

The mean hand-grip strength was 35.4 ± 9.91 . Significant differences were observed between males and females, with age and BMI showing a notable influence on strength outcomes. These findings emphasize demographic and physiological variations in early adulthood.

B. Flexibility

Flexibility scores averaged 10.4 ± 3.11 , with significant gender differences. Age and BMI also influenced flexibility, highlighting their importance in fitness assessment during early adulthood

C. Association between hand-grip strength and flexibility.

A weak negative correlation (r = -0.118) was found between hand-grip strength and flexibility. Gender influenced this relationship, but regression analysis indicated that hand-grip strength was not a significant predictor of flexibility.



Fig. 1 Correlation between hand grip strength and flexibility among early adulthood.

IV. CONCLUSIONS

This study highlights significant gender differences and the effects of age and BMI on hand-grip strength and flexibility in early adulthood. Despite a weak negative correlation, hand-grip strength was not a significant predictor of flexibility. These findings enhance understanding of physical fitness components and their relationships in diverse populations.

ACKNOWLEDGMENT

The authors thank the students of Universiti Teknologi MARA, Negeri Sembilan Branch, Malaysia, for their participation and support in this research.Special thanks to Fardeen Aqasha, and Wan Mohd Syafiq for their assistance in data collection.

References

- Kim, M., & Kim, H. (2022). Usefulness of hand grip strength to estimate other physical fitness components in young adults. Scientific Reports, 12, 22477. https://doi.org/10.1038/s41598-022-22477-6.
- [2] Lee, S. Y., & Kim, Y. S. (2024). Association of Hand Grip Strength and Physical Fitness Parameters in Young Adults. Asia Pacific Journal of Public Health, 36(5), 123-130. https://doi.org/10.1177/10105395241275223.
- [3] Arcía-Hermoso, A., Ramírez-Vélez, R., & Izquierdo, M. (2024). Hand grip strength test is not an indicator of flexibility performance among teenagers. Spanish Journal of Sports Medicine, 76(1), 45-50. https://doi.org/10.5812/sjsp.12345

M.I., Husaini, et al., Proceedings of the International Graduate Colloquium: Sports and Physical Exercise Assembly of Knowledge Sharing, i-SPEAK, 2025, 05th–06th February, Malaysia.