



SUPPLEMENT

Investigating associations between nutritional status, body composition, eating behavior, and somatotype with physical fitness among urban adult women

Received 19 September 2025
Accepted 22 September 2025
Published 29 September 2025

Link to DOI:

[10.25220/WNJ.V09.S1.0017](https://doi.org/10.25220/WNJ.V09.S1.0017)

Citation: Hanisah S F, Purwaningtyas D R. Investigating association between nutritional status, body composition, eating behavior, and somatotype with physical fitness among urban adult women. World Nutrition Journal. 2025 September 29, 9(S1): 22.



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Abstract

Background: Reduced physical fitness increases the risk of non-communicable diseases (NCDs) such as obesity, hypertension, and type 2 diabetes. In urban Indonesia, this is particularly concerning, with over 33.9% of adult urban women classified as obese. Although nutritional status, body composition, eating behavior, and somatotype may affect fitness, few studies have explored these relationships within this population.

Objectives: This study aims to explore the associations between these factors and physical fitness among urban adult women.

Methods: A cross-sectional study was conducted involving 80 purposively selected adult women from five urban cities in West Java and Jakarta. Nutritional status was assessed through anthropometric measurements, and body composition was evaluated using the Omron BIA. Eating behavior was measured using the Dutch Eating Behavior Questionnaire (DEBQ), while somatotype was classified using the Heath-Carter method. Physical fitness was assessed through step tests (cardiorespiratory fitness), handgrip and sit-up tests (muscle strength), push-up and plank tests (muscular endurance), and the sit-and-reach test (flexibility). Pearson and Spearman correlation analyses were performed at a 95% confidence interval.

Results: Significant associations ($p < 0.05$) were found between muscular strength and nutritional status, body composition (body fat, trunk muscles, fat mass index, and fat-free mass), and ectomorph somatotype. Muscular endurance was linked to body composition (total muscle mass, arm muscle, leg muscle, arm fat, and leg fat), eating behavior, and endomorph somatotype. However, cardiorespiratory fitness showed no significant correlation.

Conclusion: Targeted interventions addressing nutritional status, body composition, and somatotype-specific training may enhance physical fitness and reduce NCD risk among urban women.

Keywords: body composition, eating behavior, nutritional status, physical fitness, somatotype

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