



## SUPPLEMENT

## The association between animal source food intake and growth among preschool children in Jakarta

Agus Hidayatulloh<sup>1,2</sup>, Umi Fahmida<sup>1,3</sup>, Risatianti Kolopaking<sup>3,4</sup>, Titus Priyo Harjatmo<sup>5</sup>, Pritasari<sup>5</sup>

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

Link to DOI:

[10.25220/WNJ.V09.S1.0025](https://doi.org/10.25220/WNJ.V09.S1.0025)

**Citation:** Hidayatulloh A, Fahmida U, Kolopaking R, Harjatmo T P, Pritasari. The association between animal source food intake and growth among preschool children in Jakarta. World Nutrition Journal. 2025 September 29, 9(S1): 30.



**Copyright:** © 2025 by the authors. This article is an open access article distributed under the terms and conditions of the Creative Commons Attribution (CC BY) license (<https://creativecommons.org/licenses/by/4.0/>).  
<http://www.worldnutrijournal.org>

1. Department of Nutrition, Faculty of Medicine, Universitas Indonesia-Dr. Cipto Mangunkusumo General Hospital, Jakarta, Indonesia
2. Department of Nutrition, Poltekkes Kemenkes Palangka Raya, Central Kalimantan, Indonesia
3. Southeast Asian Ministers of Education Organization-Regional Centre for Food and Nutrition (SEAMEO REFCON)-Pusat Kajian Gizi Regional (PKGR) Universitas Indonesia, Jakarta, Indonesia
4. Faculty of Psychology, Syarif Hidayatullah State Islamic University, Banten, Indonesia
5. Department of Nutrition, Poltekkes Kemenk Jakarta II, Jakarta, Indonesia

### Abstract

**Background:** Animal-source foods (ASF) are a source of high-quality protein and bioavailable micronutrients such as iron and zinc, which are important for the growth of preschool children. However, despite high ASF intake, malnutrition in Jakarta is above the national prevalence. The types of ASF consumed may have contributed to this.

**Objective:** This study aims to investigate the association between ASF intake and height-for-age Z-scores (HAZ) among preschool children aged 4–6 years in Jakarta.

**Methods:** This study used a cross-sectional design involving 189 pairs of parents and their children aged 4–6 years, recruited purposively in 27 daycares and early childhood education centres in Jakarta. Sociodemographic data were collected using a structured questionnaire. The ASF intake was collected using a past-week FFQ and the multi-pass 24-hour dietary recall to estimate the frequency and intake of different ASFs, including eggs, milk, and flesh foods (i.e., meat, poultry, fish, and organ meat). Height was measured by a trained enumerator and converted to HAZ using WHO Anthro-Plus. Data analysis was performed using Spearman's correlation test.

**Results:** HAZ was positively associated with intakes of protein ( $r=0.196$ ,  $p=0.008$ ), protein from ASF ( $r=0.185$ ,  $p=0.012$ ), milk ( $r=0.268$ ,  $p<0.001$ ), and flesh foods ( $r=0.448$ ,  $p<0.001$ ). Egg intake was not significantly associated with HAZ.

**Conclusion:** ASF, particularly in the form of flesh foods, is important for the optimal growth of preschool children and should therefore be promoted to ensure their intake is sufficient.

**Keywords:** animal-source foods intake, growth, HAZ, preschool children

### Corresponding author:

Umi Fahmida

Department of Nutrition, Faculty of Medicine,  
Universitas Indonesia

Email: [umi.fahmida@ui.ac.id](mailto:umi.fahmida@ui.ac.id)