# THE EFFECT OF ONE EGG A DAY PROGRAM ON WEIGHT WITH STUNTING IN JETIS VILLAGE

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**ABSTRACT**

*Background: The nutritional status of toddlers is an important indicator of public health. Malnutrition during infancy can impact growth, cognitive development, and the risk of chronic disease in the future. Eggs are a source of high-quality animal protein and have the potential to be a simple intervention to improve the nutritional status of toddlers.*
*Objective: To determine the effect of the 1-egg-a-day program for 1 month on the weight of stunted toddlers.*
*Methods: A quasi-experimental study with a pre-test, post-test, and control group design was conducted on 18 toddlers aged 6–59 months in Jetis Village. The intervention group was given 1 boiled egg daily for 30 days, while the control group received no intervention. Weight was measured using a calibrated scale. Data analysis used a paired t-test due to the normally distributed data. Results: The average weight gain of toddlers was 0.3 kg with a p-value of 0.0001. The highest increase was 0.8 kg.*
*Conclusion: The 1-egg-a-day program for 1 month had a significant effect on weight gain of toddlers in Jetis Village.*

**KEYWORDS** eggs, nutritional intervention, stunting, weight



## INTRODUCTION

Stunting is a condition of growth failure due to chronic malnutrition and repeated infections, characterized by height for age being below -2 SD of the child growth standard (Indah Budiastutik & Muhammad Zen Rahfiludin, 2019). Stunting remains a major public health problem in Indonesia. The national prevalence of stunting continues to decline, from 21.5% in 2023 to 19.8% in 2024. However, this remains above the 2024 RPJMN target of 14.2%, so further reductions are needed until 2029 (Kementrian Kesehatan Republik Indonesia, 2025). Sukoharjo Regency recorded a remarkable achievement, with the prevalence of stunting decreasing from 24.3% in 2023 to just 14.57% in 2024 (Admin, 2025).

Stunting in toddlers has an impact on inhibited physical growth, cognitive and social development during childhood and increases vulnerability to chronic diseases in adulthood (Beal et al., 2018). In addition, stunting is also associated with chronic malnutrition and easy exposure to infectious diseases such as diarrhea, lung infections, etc., which further worsen the condition of malnutrition (Larson et al., 2023). Stunting can hinder a child's ability to develop to their full potential and negatively impact the future of the community and the country.

Adequate and balanced nutrition is crucial for preventing stunting in children. Providing nutrient-rich foods is essential for children. Research shows that children with stunting have lower levels of zinc, vitamin C, and total antioxidants compared to children without stunting. Therefore, stunted children need to receive the necessary macronutrients and micronutrients. Zinc is an essential micronutrient for the body and plays a crucial role in protecting the body from free radicals, regulating the immune system, and supporting bone growth and height. Therefore, adequate zinc intake is crucial for addressing stunting (Iannotti et al., 2017; Larson et al., 2023).

Eggs are a source of quality animal protein containing vitamins, minerals and essential amino acids which are important for children's growth, including zinc (Anwar et al., 2024; Iannotti et al., 2017). Eggs are a convenient and nutrient-rich source of animal protein. Zinc plays a role in bone growth and development by supporting the function of osteoblasts and chondrocytes, which are crucial for height growth. Zinc deficiency can lead to growth disorders and increase the risk of stunting in children. Eggs are a readily available and inexpensive source of animal protein. Several studies have shown that daily egg supplementation can improve linear growth and weight gain in stunted children (Papat Patimah, 2023). Previous studies have shown that people given eggs experience increased growth and weight gain compared to those not given eggs. Eggs can improve children's nutrition by adding them to food supplements. However, animal protein consumption among Indonesian toddlers remains low due to economic constraints and family consumption patterns (Anwar et al., 2024; Headey et al., 2018).

Interviews with cadres in Jetis Village revealed that 18 toddlers still had stunting. The prevalence of stunting in Sukoharjo Regency decreased from 24.3% in 2023 to only 14.57% in 2024. This significant decline in Sukoharjo provides a strong basis for the importance of village-based interventions. Jetis Village, Sukoharjo Regency, already has a stunting reduction program, but it is not yet optimal. This study aims to identify the effect of providing one egg a day for 1 month on toddler weight as an effort to prevent stunting in Jetis Village, Sukoharjo Regency.

## RESEARCH METHOD

This study used a quasi-experimental design with a pre-test post-test design without a control group. This study was conducted in Jetis Village in October-November 2024. The sample of this study were toddlers in Jetis Village with underweight, indicated by the BB curve on the KMS being below the normal line. Inclusion criteria: aged 6-59 months, willing to consume eggs every day for 1 month. Exclusion criteria: having an allergy to eggs, having a chronic disease. The intervention group received 1 boiled egg every day for 30 days. Toddlers who were willing to be respondents would have their weight measured at the beginning, then the intervention of giving eggs every day, then after 1 month the weight was measured. The instruments used were scales and recording sheets.

## RESULT AND DISCUSSION

This study involved 18 toddlers in Jetis Village, Sukoharjo Regency. The intervention consisted of giving them an egg once a day for one month. The following are the characteristics of the respondents who participated in the study.

Table 1. Respondent Characteristics

| No | Indicator | Minimum | Maximum | Frequency |
|---|---|---|---|---|
| 1 | Gender | | | |
| | - Boy | | | 12 |
| | - Girl | | | 6 |
| 2 | Age | | | |
| | - infant (6-12 month) | | | 1 |
| | - toddler (1-3 years old) | | | 8 |
| | - pre school (3-5 years old) | | | 9 |
| 3 | Weight | | | |
| | - pre weight | 7.1 | 14.3 | |
| | - post weight | 6.8 | 14.5 | |
| | - post pre difference | -0.3 | 0.8 | |

Table 1 shows that the majority of toddlers are boys. Fifty percent of toddlers are in the preschool age category (3-5 years). The highest weight gain for toddlers was 0.8 kg, and the minimum weight change was a loss of 0.3 kg. The finding that most toddlers in this study were boys aligns with previous studies showing that boys have a higher prevalence of stunting than girls. A study in Ghana found that boys were more susceptible to stunting than girls, with an odds ratio of 1.54 (95% CI: 1.25–1.90) (Macheka et al., 2021). Biologically, boys are more susceptible to infections and environmental stress than girls. Boys' relatively weaker immune systems early in life make them more susceptible to infectious diseases, which impact nutritional intake and growth (Thurstans et al., 2020).

The results of this study align with research conducted in Karanganyar Regency, which found that the highest prevalence was in children aged 36-59 months. This occurs because this age group faces many growth and developmental challenges. Children's exploration period and picky eating phase can lead to growth disorders if nutritional intake is inadequate (Astuti et al., 2024).

The results of the Shapiro-Wilk normality test yielded a p-value of 0.197 (>0.05). This indicates that the data were normally distributed. A paired t-test was used to determine the difference in toddler weight before and after the intervention of daily egg feeding for one month. The table below shows the results of the test of differences in toddler weight before and after the intervention.

Table 2. Weight difference test before and after the intervention

| Indicator | Mean | Std. Deviation | Std. Error Mean | 95 % CI of the difference | | t | df | Sig. (2 tailed) |
|---|---|---|---|---|---|---|---|---|
| **Weight post_pre** | 0.333 | 0.3162 | 0.0745 | 0.1761 | 0.4906 | 4.472 | 17 | 0.0001 |

Table 2 shows that the average weight gain for toddlers was 0.3 kg. Weight changes were measured after one month of intervention, including one egg a day. The paired t-test analysis yielded a p-value of 0.0001 (p-value <0.05). This p-value indicates a significant difference in data before and after the intervention. This suggests that the one-egg-a-day intervention is effective in increasing toddler weight in Jetis Village.

Research results show that a one-egg-a-day program for one month can increase toddler weight. This is consistent with findings that daily egg consumption is associated with increased child growth. Eggs provide high-quality animal protein, which supports tissue formation and weight gain (Iannotti et al., 2017). These results are in line with a meta-analysis of 9 interventions which showed a significant difference in the group given eggs compared to the control group, namely a greater increase in body weight of 0.7 kg in the treatment group (Larson et al., 2023).

Eggs contain a lot of iron, protein, calories and fat as supporting factors for toddler weight growth. The iron in eggs plays an important role in helping the process of forming new cells, supporting optimal growth, while protein as a building material is very necessary for babies and toddlers to make new cells and is an element that forms various body organ structures such as bones, muscles, teeth and others (Rahayu et al., 2025).

Providing eggs daily has a very significant impact on weight gain in stunted toddlers. Egg administration can be an alternative intervention to improve the nutritional status of stunted toddlers. This research aligns with several previous studies that suggest that egg administration has significant potential to improve nutritional status in children, especially those with stunting. For example, research at the Purwodadi I Community Health Center (Puskesmas) showed that supplemental feeding (PMT) containing eggs had an effect on weight gain in toddlers aged 1-5 years below the red line. Providing eggs can help improve the nutritional status of stunted toddlers, as they are a source of high-quality protein necessary for growth (Susanti et al., 2016). In addition, sufficient protein intake from eggs can improve the body weight and nutritional status of stunted children (Haryani et al., 2023).

Eggs contain high-quality protein, essential fatty acids, and other micronutrients such as vitamins A, D, and iron, which play a vital role in supporting children's growth and development. The protein in eggs has a high biological value, meaning the body can efficiently absorb and use it to repair and build body tissues, including muscles and other vital organs (Larson et al., 2023). In addition, the healthy fat content in eggs provides an important source of energy, especially for children who need extra calories to support their growth, such as stunted children. Providing eggs every day can correct existing nutritional deficits, thus contributing to significant weight gain (Rahayu et al., 2025; Sudargo et al., 2018). Providing eggs as part of a supplementary feeding intervention is highly relevant in the context of stunting reduction in Indonesia.

Intervention programs involving highly nutritious foods, such as eggs, are an affordable and accessible solution to improving children's nutritional status. Daily egg feeding programs can be integrated with existing supplementary feeding programs for stunted toddlers to increase the intervention's effectiveness in preventing and improving stunting (Patmawati et al., 2024). These findings reinforce the importance of locally sourced, readily available, affordable, and highly nutritious food-based interventions. Egg provision can be incorporated into a routine program to increase animal protein intake in toddlers, especially in areas with a high prevalence of malnutrition (Headey et al., 2018)

## CONCLUSION

Based on the results of the paired t-test with a p-value of 0.0001, it can be concluded that providing eggs daily for one month has a significant effect on weight gain in stunted toddlers. This intervention has been shown to provide positive benefits in improving the nutritional status of toddlers, which is consistent with previous research showing that protein intake from eggs can accelerate the recovery of toddlers' nutritional

status. Therefore, providing eggs can be an important part of stunting management strategies in Indonesia and can be integrated into broader health and nutrition programs.

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