

# The Effectiveness of Green Bean and Spinach Juice in Increasing Breast Milk Production in Postpartum Mothers at PMB Sumiati, East Belitung 2025

Riega Alindi<sup>1</sup>, Madinah Munawaroh<sup>2</sup>, Hidayani<sup>3</sup>

<sup>1,2,3</sup>Universitas Indonesia Maju, Jakarta

E-mail: [eghemanggar@gmail.com](mailto:eghemanggar@gmail.com)1, [Madinahmh21@gmail.com](mailto:Madinahmh21@gmail.com)2, [hidayani.031@gmail.com](mailto:hidayani.031@gmail.com)3

## ABSTRACT

Breast milk production is a physiological process influenced by various factors, including maternal nutrition. Low breast milk production in postpartum mothers remains a common problem and impacts the success of exclusive breastfeeding. This study aims to determine the effectiveness of mung bean and spinach juice in increasing breast milk production in postpartum mothers. The method used was a qualitative study with a case study approach, involving two participants selected through purposive sampling. Each participant received an intervention in the form of consuming mung bean and spinach juice for nine days. Breast milk volume was measured using a measuring cup every day. The results showed a significant increase in breast milk production in both interventions. Breast milk volume increased from 20 ml to 130 ml in participants who consumed mung bean juice, and from 20 ml to 150 ml in participants who consumed spinach. These differences in results indicate that both are effective in increasing breast milk production, but spinach consumption produces higher results. In conclusion, mung bean and spinach juice can be used as alternative complementary nutritional therapies to increase breast milk production in postpartum mothers.

**Keywords:** Breast milk, postpartum mothers, green bean juice, spinach, nutrition, breast milk production

## INTRODUCTION

The Infant Mortality Rate (IMR) in Indonesia is around 24 per 1,000 live births, and the IMR is projected to decrease to 16 per 1,000 live births in 2024. UNICEF and the World Health Organization (WHO) are calling for increased support for breastfeeding mothers in Indonesia, including during the first week of a child's life when early, exclusive breastfeeding is crucial. Over the past six years, Indonesia has seen a surge in exclusive breastfeeding rates during the first six months of a child's life – from 52% in 2017 to 68% in 2023. However, significant challenges remain at the newborn stage. (WHO, 2023).

According to the WHO (World Health Organization), 35.5% of infants (under 6 months) worldwide receive exclusive breastfeeding. The WHO's target for exclusive breastfeeding by 2025 is 50% of infants under six months of age.(Ministry of Health of the Republic of Indonesia, 2021).

Breast milk is the best source of nutrition for babies, offering numerous benefits for development, growth, and health. Successful breastfeeding is inextricably linked to the mother's role in breastfeeding. Good knowledge and support from healthcare professionals in Early Initiation of Breastfeeding (IMD) can help mothers exclusively breastfeed for 6 months and continue breastfeeding for up to 2 years.(Ambarwati et al., 2021).

Based on health profile data from the Bangka Belitung Islands Province, only 68.20 percent of infants under 6 months old receive exclusive breastfeeding, out of the 80 percent target. Meanwhile, the coverage of infants under 6 months receiving exclusive breastfeeding in 2023 in East Belitung Regency was 67.05 percent. Overall, East Belitung's performance at 52.30% is still far from the 80% target. In East Belitung itself, there are seven community health centers (Puskesmas), but only one, in Manggar, met the exclusive breastfeeding coverage target.(Profile of the Bangka Belitung Islands Provincial Health Office, 2023).

Breast milk production is the result of breast stimulation by the hormone prolactin. When a baby begins to suckle, two reflexes occur that cause milk to flow. One factor that can influence milk production is the mother's nutrition. If the mother's diet does not provide adequate nutritional intake, the milk-producing glands in the breasts will not function properly, ultimately affecting milk production.(Lisca et al., 2024).

Breast milk production can be influenced by many factors. The main ones are hormonal factors, namely prolactin and oxytocin. A baby sucking on the breast stimulates neurohormones in the nipple and areola. This stimulation is transmitted to the pituitary gland via the vagus nerve and then to the anterior lobe. When the stimulation reaches the anterior lobe, prolactin is released, enters the bloodstream, and reaches the mammary glands, where it stimulates them to produce milk. Oxytocin stimulates milk production. Babies have a reflex called the rooting reflex, which causes the release of oxytocin when placed near the breast. A deficiency in these two hormones will make it difficult to produce the milk needed for breastfeeding.(Nani et al., 2023). One way to increase breast milk production is by consuming mung bean juice, as it contains various nutrients, including protein, iron, and vitamin B1. Protein helps build muscle cells, accelerates recovery, increases endurance, and helps you feel full longer. The iron content increases hemoglobin, thus preventing anemia.(Nani et al., 2023).

Based on a literature review conducted by five journals, the results showed that giving boiled spinach leaves to increase breast milk production resulted in an increase in breast milk production. Spinach is a source of minerals, vitamins, and phytoestrogens, which are believed to increase lactation. Some of the nutrients contained in spinach are vitamin B6, protein, thiamin, folic acid, calcium, potassium, and vitamin B6. The vitamin B6 content in spinach will help provide a supply of breast milk production. In addition, spinach is also a source of folic acid, which is very important for breastfeeding mothers.(Hamim & Alifia Putri, 2020).

Based on a preliminary study conducted at PMB S from October to November 2024, out of 12 postpartum mothers, 6 reported that their breast milk supply was not smooth and produced little. Based on this phenomenon, the researchers were interested in determining the effect of administering mung bean juice and boiled spinach leaves on breast milk production in postpartum mothers at PMB S East Belitung in 2024.

## **METHOD**

This study uses a qualitative approach with a case study method to gain a deep understanding of the effectiveness of consuming green bean and spinach juice on increasing breast milk production in postpartum mothers with low breast milk production.(Notoadmodjo, nd)The study was conducted at PMB Sumiati, East Belitung in February 2025. Participants were purposively selected: two postpartum mothers with breast milk production of less than 90 ml per pump, willing to participate in the intervention for 9 days, and having a breastfed baby girl. The intervention was carried out by giving one participant mung bean juice and one participant spinach. The intervention results were measured by the increase in the volume of expressed breast milk each day during the treatment period.

Data collection was conducted through in-depth interviews, participant observation, and documentation. Interviews were conducted openly to allow participants to freely provide information. Direct observations were made of the intervention process and breast milk production. Documentation was used to support the results of the observations and interviews by recording breast milk volume, participant willingness, and other supporting files. The research stages included respondent identification, explanation and consent for the intervention, implementation of the intervention for 9 days, and measurement of breast milk volume before and after treatment. Researchers also controlled the intervention on days 1, 3, and 7 to ensure consistency of implementation.

**RESULTS****Table 1.** Results of Green Bean Juice Intervention

|                           | Giving Green Bean Juice     |                             |                         |
|---------------------------|-----------------------------|-----------------------------|-------------------------|
|                           | <b>Day 3<br/>Evaluation</b> | <b>Day 6<br/>Evaluation</b> | <b>Day 9 Evaluation</b> |
| Breast milk<br>production | 40 ml                       | 80 ml                       | 130 ml                  |

Based on the results of the assessment of increased breast milk production in primigravida mothers with green bean juice intervention, it was found that during the 9-day observation period, there was an increase in the mother's breast milk production as assessed by the amount of expressed breast milk assessed in 3 visits, namely on the third day, breast milk was 40 ml, on the sixth day, breast milk was 80 ml and on the last visit or the ninth day, the mother's breast milk was 130 ml.

**Table 2.** Results of Spinach Intervention

|                           | Giving Spinach              |                             |                         |
|---------------------------|-----------------------------|-----------------------------|-------------------------|
|                           | <b>Day 3<br/>Evaluation</b> | <b>Day 6<br/>Evaluation</b> | <b>Day 9 Evaluation</b> |
| Breast milk<br>production | 50 ml                       | 100 ml                      | 150 ml                  |

Based on the results of the assessment of increased breast milk production in primigravida mothers with spinach vegetable intervention, it was found that during the 9-day observation of the study, there was an increase in the mother's breast milk production as assessed from the amount of expressed breast milk assessed in 3 visits, namely on the third day of breast milk as much as 50 ml, on the sixth day of breast milk as much as 100 ml and on the last visit or the ninth day of breast milk as much as 150 ml.

**Table 3.** Comparison of Intervention Results of Green Bean Juice and Spinach Vegetables

|  | Midwifery Care Results |                |                |
|--|------------------------|----------------|----------------|
|  | <b>Visit 1</b>         | <b>Visit 2</b> | <b>Visit 3</b> |

|                    |       |        |        |
|--------------------|-------|--------|--------|
| Green Bean Juice   | 40 ml | 80 ml  | 130 ml |
| Spinach Vegetables | 50 ml | 100 ml | 150 ml |

Based on the results of the research conducted for 9 days by providing green bean juice and spinach vegetable interventions to each participant, the results obtained in the green bean juice intervention on the third day/first visit were that the amount of mother's breast milk was 40 ml, on the sixth and ninth days at the second and third visits the mother's breast milk was 80 ml 130 ml, during the intervention the mother experienced an increase in breast milk production of 110 ml during the visit.

The spinach intervention resulted in 50 ml of breast milk production on the first visit/third day, and 100 ml and 150 ml on the sixth and ninth days, respectively, on the first, second, and third visits. The spinach intervention also increased breast milk production by 130 ml. Comparing the results of the interventions, the spinach intervention resulted in a higher increase in breast milk production compared to the green bean juice intervention.

## DISCUSSION

### The Effect of Green Bean Juice on Increasing Breast Milk Production

The mung bean juice intervention was conducted on participants for nine days, with observations on the third, sixth, and ninth days. On the third day, the mother's breast milk production increased from 20 ml to 40 ml at the initial visit. On the sixth day, the mother's breast milk production increased again to 80 ml, and on the ninth day, it increased to 130 ml. According to the journal by Parvati & Dewi (2023) by title The Effect of Consuming Green Bean Juice on Breast Milk Flow in Breastfeeding Mothers. The results of the study show that The effect of consuming green bean juice on the smooth flow of breast milk in postpartum mothers in the Keang Maros Community Health Center Working Area in 2018. Green beans contain lactagogum (a substance that can increase and facilitate breast milk production) and it has been scientifically proven that green beans, which contain natural vitamin B complex, can help improve the health of breastfeeding mothers and help breast milk production.

According to researchers' assumptions, green bean juice given to breastfeeding mothers has many benefits, because green beans contain... The nutritional value is quite high, including protein, carbohydrates, calcium, phosphorus, vitamin B1, vitamin C, and fat. Green beans also contain polyphenols and amino acids. Polyphenols and amino acids influence the hormone

prolactin, which works to produce breast milk. After breast milk is produced, the hormone oxytocin causes the muscle cells around the alveoli to contract, thereby pushing the milk towards the nipple. The contents of green beans are beneficial for increasing breast milk production. The intervention was carried out according to the schedule, and postpartum mothers drank green bean juice as scheduled, in the morning and evening for 9 days of the study.

### **The Effect of Spinach on Increasing Breast Milk Production**

The spinach intervention was administered to participants for nine days, with observations on the third, sixth, and ninth days. On the third day, the mother's breast milk production increased from 20 ml to 50 ml at the initial visit. On the sixth day, the mother's breast milk production increased again to 100 ml, and on the ninth day, it increased to 150 ml.

According to the journal by Mastuti et al. (2024) by title *The Effect of Sweet Potato Leaf Boil and Spinach Leaf Boil on Breast Milk Production in Postpartum Mothers at Sri Rahayu Mastuti Pre-natal Care Center in 2024*. Spinach is a source of minerals, vitamins, and phytoestrogens, which are believed to increase lactation. Some of the nutrients contained in spinach are vitamin B6, protein, thiamin, folic acid, calcium, potassium, and Vitamin B6. The vitamin B6 content in spinach will help provide breast milk production. In addition, spinach is also a source of folic acid, which is very important for breastfeeding mothers. (HAMIM, nd) According to researchers, boiled spinach leaves have the potential to increase breast milk production in breastfeeding mothers due to their essential nutritional content, such as iron, vitamin A, vitamin C, and folate.

This nutrient plays a vital role in maintaining healthy breast tissue and increasing blood flow to the breasts, which contributes to better milk production. Therefore, regularly consuming boiled spinach leaves can have a positive lactagogue effect by improving the quality and quantity of breast milk in breastfeeding mothers. (Mastuti et al., 2024).

Researchers believe that green vegetables, including spinach, are rich in vitamins, minerals, and phytoestrogens, which are believed to increase breast milk production. Spinach contains vitamin B6, protein, thiamin, folic acid, calcium, and potassium. The vitamin B6 content in spinach also helps support breast milk production. Therefore, regularly consuming spinach during breastfeeding will significantly increase breast milk production. Postpartum mothers

should consume spinach according to the recommended schedule, which includes other foods such as rice and side dishes, and consume the vegetables in one meal.

### **Comparison of the Results of Interventions of Green Bean Juice and Spinach Vegetables on Increasing Breast Milk Production**

Researchers found that there was a comparison between participants given green bean juice and spinach vegetable interventions. Participants given green bean juice intervention for 9 days experienced an increase in breast milk production from the initial mother's expressed breast milk obtained as much as 20 ml to 130 ml, this means that the mother's breast milk production has increased. It turns out that the participants given spinach vegetable intervention for 9 days also experienced an increase in breast milk production from the initial mother's breast milk only as much as 20 ml to 150 ml on the last day of the study, this means that both participants with different interventions both experienced an increase in breast milk production only with different values.

Mung bean juice increases breast milk production due to the presence of polyphenols and amino acids that influence the hormone prolactin, which works to produce breast milk by entering the bloodstream to the breasts and then regulating the cells in the alveoli to produce breast milk. Spinach itself increases breast milk production because it contains minerals and vitamins, as well as phytoestrogens, which are believed to increase lactation. Some nutrients contained in spinach are vitamin B6, protein, thiamin, folic acid, calcium, potassium, and vitamin B6. The vitamin B6 content in spinach will help provide a supply of breast milk production.

Furthermore, spinach itself is easy to cook and eat with side dishes, so when eating rice, you'll often have vegetables included. The green beans themselves are first cooked by boiling them until soft, then blending them to separate the water and the juice. This isn't as easy as making spinach, which can be eaten immediately after cooking.

The results of the study showed that green bean and spinach juice were effective in increasing breast milk production in breastfeeding mothers, this is in accordance with the research conducted. Parvati & Dewi (2023), the research results show that The effect of consuming green bean juice on the smooth flow of breast milk in postpartum mothers. And the results of the study Mastuti et al. (2024) Boiled spinach leaves have the potential to increase breast milk production in breastfeeding mothers due to their essential nutrient content, such as iron, vitamin

A, vitamin C, and folate. These nutrients play a crucial role in maintaining healthy breast tissue and increasing blood flow to the breasts, which contributes to better milk production. Therefore, regular consumption of boiled spinach leaves can have a positive lactagogue effect by improving the quality and quantity of breast milk in breastfeeding mothers.

## CONCLUSION

Based on the observation results, it can be concluded that the intervention of providing green bean juice and spinach for 9 days to primigravidarum postpartum mothers at TPMB Sumiati showed a significant increase in breast milk production. Providing green bean juice increased the amount of expressed breast milk from 20 ml to 130 ml, while providing spinach increased breast milk production from 20 ml to 150 ml. This shows that both interventions are effective in increasing breast milk production, but the intervention with spinach gave higher results than green bean juice, with a difference of 20 ml increase. Thus, spinach is more effective in increasing breast milk production in postpartum mothers than green bean juice.

## BIBLIOGRAPHY

- Ambarwati, Candra, D., & Nuzuliana, R. (2021). Lactation Management for Exclusively Breastfeeding Mothers. *Journal of Midwifery and Reproduction*, 5(1), 20–28.
- Hamim, AP (ND). Therapy of Giving Boiled Spinach Leaves to Increase Breast Milk Production in Postpartum Primiparous Mothers with Caesarean Section.
- Hamim, & Alifia Putri. (2020). Therapy of Giving Boiled Spinach Leaves in an Effort to Increase Breast Milk Production in Postpartum Primiparous Mothers with Caesarean Section. *Pelni Nursing Academy Jakarta Jakarta*.
- Ministry of Health of the Republic of Indonesia. (2021). *Ministry of Health of the Republic of Indonesia: Indonesian Health Profile 2020*. Jakarta.
- Lisca, Mona, S., & Jayatm, I. (2024). The Effectiveness of Red Spinach and Katuk Leaf Vegetables on Smooth Breast Milk Production in Postpartum Mothers at the Sobang Community Health Center, Pandeglang Regency, Banten Province in 2023. *Jurnal Kesehatan Unggul Gemilang*, 8, 5.
- Mastuti, Rahayu, S., Darmi, S., & Sugesti, R. (2024). The Effect of Giving Boiled Sweet Potato Leaves and Boiled Spinach Leaves on Breast Milk Production of Postpartum Mothers

at Pmb Sri Rahayu Mastuti in 2024. *Innovative: Journal of Social Science Research*, 7772–7781.

Nani, Ayu, S., & Jumiatur, J. (2023). Qualitative Study of Breast Milk (ASI) Provision in Infants Aged 0-6 Months in the Patebon II Community Health Center Area, Kendal Regency. *Indonesian Journal on Medical Science*, 10(1), 77–82.

Notoatmodjo. (ND). Notoatmodjo, S. *Health Research Methods*. Jakarta: Rineka Cipta. 2018.

Parwati, & Dewi. (2023). The Effect of Consuming Green Bean Juice on Breast Milk Flow in Breastfeeding Mothers. *Journal of Pharmaceutical and Health Research*, 4(2), 220–224.

Profile of the Bangka Belitung Islands Provincial Health Office. (2023). . Profile of the Bangka Belitung Islands Provincial Health Office.

Who. (2023). World Breastfeeding Week: UNICEF and WHO Call on the Government and Stakeholders to Support All Breastfeeding Mothers in Indonesia During Covid-19.