

# Studying the Acceleration of Wound Healing with *Channa Striata* Extract on Post Sectio Caesarea Patients: Literature Review

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Abstract: Caesarean section delivery can have specific impacts on the mother, particularly injuries to the perineal area. During the injury recovery process, it is common to experience illness. Therefore, it is important for mothers to have a good intake of food, especially protein, which can increase the speed of wound healing. Postoperative hematological changes are characterized by leukocytosis in the inflammatory phase due to a lack of blood fluid. Infections can occur during the postpartum period due to inadequate nutrition in mothers, which can hinder the healing process of caesarean section wounds. The lack of protein is a major contributor to the problem of postpartum mothers with caesarean section wounds, as it inhibits the healing process. This research aims to determine the impact of protein utilization on the healing process of caesarean section surgery patients. The research methodology employed in this study is a literature review. The regulations provide a detailed description of the cycle for conducting regular audits. The survey of 7 journals revealed that this administration had high protein utilization, produced significant results, and had a significant impact on the injury healing process in post-caesarean section patients. The majority of respondents who received high protein utilization medication were able to process complex repairs more quickly than those who did not receive medication.

## 1 INTRODUCTION

The postpartum period is the time from the delivery of the placenta until the woman's return to her pre-pregnancy state. This period typically lasts around 4 and a half months. The requirements during the postpartum period depend on the woman's birth history, with special consideration given to those who have undergone Cesarean delivery. It is worth noting that Indonesia still has a high birth rate. Most delivery methods used in Indonesia are unrestricted, but a significant proportion of births occur via caesarean section. In 2019, 62.7% of births in Indonesia were without complications, while 28.9% were via caesarean section. This high incidence rate increases the risk of complications, including contamination of the caesarean wound. A 2020 study conducted by Nih Luh Putu at Sanglah General Hospital in Denpasar involved 554 mothers with various indications who underwent caesarean section. During the postpartum period, proper wound healing is greatly influenced by post-delivery care.

The recommended rate for caesarean sections in a

country is between 5-15% per 1000 births worldwide, a figure that remains unknown to the World Health Organization (WHO) (WHO, 2021). The rate of caesarean section deliveries in private clinics is higher than that in government health clinics, with private clinics accounting for over 30% of deliveries, while government clinics account for only 11%. For instance, in Indonesia, 15.3% of 20,591 mothers who gave birth in the last 5 years did so via caesarean section, exceeding the WHO's recommended maximum of 5-15% (RI, 2020). Caesarean section (SC) procedures increase the risk of death twofold compared to vaginal births due to infection, blood loss, and damage to internal organs. Additionally, deliveries by caesarean section have a higher morbidity rate.

One variable related to caesarean section (CS) is the level of weakness (Memon et al., 2022). CS can result in respiratory problems, decreased body temperature, impaired digestive function, and significant blood loss during medical procedures, which can lead to weakness (Titi & Aminah, 2022). Iron deficiency in post-pregnancy mothers can interfere with their ability to carry out maternal duties,

including cooperation with their child and lactation cycle. This is due to tiredness and paleness caused by the deficiency, which can also disrupt nutritional status (Primadina et al., 2019). Postoperative discharge is often caused by infections, particularly uterine disease or endometritis, bladder and liver injuries. Crooked repair after caesarean section (SC) can take several weeks assuming no disease occurs and can last for one year or more until the scar strengthens. The risk of contamination or sepsis often increases after the fifth day of care for SC wounds, which are usually difficult to treat. Therefore, careful wound stitching is necessary (Sale et al., 2020).

Local factors such as wound management practices, hypovolemia, infection, and the presence of foreign objects in the wound can influence wound healing. Additionally, wound-related factors like infection, edema, and bleeding can also impact healing. Other common factors that can affect healing include age, nutrition, steroid use, sepsis, maternal diseases such as anemia and diabetes, medications, and indications for spontaneous cesarean delivery (Safitri, 2022). Pharmacological treatment for preventing disease and accelerating wound healing has so far involved the administration of anti-infective drugs. In addition to anti-infective drugs, postpartum women require high-quality, nutritious food with sufficient calories to aid in the healing of wounds after a cesarean section. The diet should include vegetables and organic products, particularly those high in protein. Consuming protein-rich foods can aid in the healing of surgical wounds for postpartum mothers (Mayang & Dewi, 2023). This is because protein is essential for the formation of new tissue and plays a crucial role in the wound healing process.

According to Marlina Ginting's 2019 research at the Binjai TNI Emergency Clinic, 15.35% of the general public lacked information on treating liver injuries resulting from caesarean sections. This lack of information can increase the risk of infection in the caesarean section wound. One issue during pregnancy via caesarean section is contamination of the liver wound, which can spread to other tissues such as salpingitis and peritonitis. Efforts that can support wound healing include ensuring adequate nutrition and minerals, maintaining cleanliness of caesarean section wounds, and proper preparation. The post-pregnancy period following a cesarean delivery requires good and proper care, including nutrition.

Several studies conducted by Dian Zuitna in 2021 have shown that protein supplements, particularly those containing egg and snakehead fish, can aid in the healing of caesarean section wounds. The research indicates that snakehead fish has higher protein levels,

which can accelerate the wound healing process. Snakehead fish contains 25.2 grams of egg white protein per 100 grams, which is 60% more than that found in plasma (3.3-5.5 gr/dl). In relation to this investigation, scientists are interested in providing Evidence-Based Case Report mediation to post-Caesarean section patients by consuming snakehead fish. Snakehead fish is easily accessible to the general public and is not difficult to consume.

## 2 METHODS

This literature review examines the relationship between dietary restrictions and the length of healing of caesarean section wounds. Only articles that were available in full text form were included in the study. The search for articles was conducted on several databases, including ScienceDirect, PubMed, Google Scholar, and EBSCO. The inclusion criteria were strictly followed, and the selected articles were systematically collected and examined. The search was limited to articles published between 2015 and 2020. The search process yielded seven articles that met the inclusion and exclusion criteria for this systematic review. The inclusion criteria require full-text journals with abstracts, introductions, research methods, research results and discussions, as well as conclusions and suggestions. The research method employed a systematic review approach using the Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) guidelines.

## 3 RESULTS AND DISCUSSION

The article search yielded 30 results, which were then filtered using inclusion and exclusion criteria. Ultimately, 7 articles from 30 journals were selected that met the research criteria.

Based on the review of the seven journals, it was found that the intervention groups that consumed snakehead fish and eggs showed significant improvement in the wound healing process of post-cesarean section mothers due to high protein consumption. The treatment was administered at varying frequencies of 3 to 24 days with different amounts of protein consumption. Both snakehead fish and eggs are effective in the wound healing process. Out of the 7 reviewed journals, 4 did not specify the number of interventions given to the treatment group, while the other 6 stated that the number of treatments given varied.

Table 1.

No	Title	Author, Year	Aim	Method	Sample	Result
1.	Healing Post Sectio Caesarea (SC) Wounds With Snakehead Fish Extract (Channa Striata)	Ummah & Ningrum. 2020	analyzing the effect of snakehead fish extract on Post Sectio Caesarea (SC) wound healing	The research design uses quasi-experimental with pretest-posttest control group design	The population was all 30 post-SC postpartum mothers at Permata Hati Hospital Malang, a sample of 30 people divided into 2 groups (15 people each in the treatment and control groups).	The results showed that there was a difference in the reduction of wound status ( $p = 0.001 < 0.05$ ). Statistically, it can be concluded that there is an effect of administering snakehead fish (Channa striata) extract on the healing of post-sectio-caesarea (SC) wounds in postpartum mothers. Snakehead fish has the highest albumin content, speeding up the wound healing process.
2.	The Effect of Giving Gabus Fish on the Healing Process of Postoperative Sectio Caesarean	Tetty Junita Purba et al., 2020	The study aims to determine the effect of Gabus fish on the healing process of sectio caesarean	This research uses a quasi-experimental method, data is analyzed using the Fisher's Exact Test with the Spearman correlation test.,	The sample in this study consisted of 34 mothers who gave birth by CS	The results obtained were that most of the intervention group experienced fast wound healing, 14 people (82.4%) and the control group experienced slow wound healing, 13 people (76.5%). The statistical test results show $p$ value = 0.002
3.	The Effect of Snakehead Fish (Channa Striata) Extract on Blood Leukocyte Number and Cesarean Section Wound Healing	Suryanti. Et al., 2019	to explain the effect of snakehead fish extract on blood leukocyte counts and wound healing in post-caesarean section patients.	The research method used is True-experiment Design. The instrument for measuring the number of leukocytes is the Hematology Analyzer Method, while wound healing uses the REEDA Scale	The sample consisted of 26 postpartum mothers who were divided into 2 groups, 13 mothers were included in the intervention group (receiving snakehead fish extract) and the remaining 13 were included in the control group (receiving standard therapy).	Administration of snakehead fish extract affected the number of blood leukocytes with a $p$ -value of 0.003. On average, wound healing occurred on day 8 with a $p$ -value of 0.001. Based on the results above, it can be concluded that administering snakehead fish extract 700 mg 2 1 for 7 days to patients after caesarean section has an effect on the number of blood leukocytes and wound healing.
4.	Correlation of Cock Fish Consumption to Healing Circumcision Wounds in Desa Lestari Dadi-Pegajahan Serdang Bedagai	Andilala et al., 2022	to find out how the relationship between the influence of snakehead fish consumption on wound healing after circumcision	The research method used in this scientific work is a grounded method, using a qualitative approach	Community of the Whole Village (Dadi-Pegajahan Sustainable Village)	Through direct observation on the sixth day it was discovered that the protein content in snakehead fish was higher than other types of fish, the albumin content in snakehead fish reached 6.22%
5.	The Effect of Consuming Snakehead Fish on Sectio Caesarea Wound Healing	Gurusinga . 2022	determine the effect of snakehead fish on SC wound healing	Pretest and posttest quasi-experimental design method,	Sample of 16 post partum SC mothers on days 2-14	The results obtained were that there was an effect of snakehead fish consumption on wound healing with a $p$ value of $0.02 < 0.05$ .

Table 1 (cont).

No	Title	Author, Year	Aim	Method	Sample	Result
6.	The Effect of Giving Snakehead Fish on the Healing of Sectio Caesarea Wounds in Postpartum Mothers in the Working Area of the Ciasem Subang Health Center in 2020	Nurhikmah et al., 2020	to determine the effect of giving snakehead fish on the speed of SC wounds in postpartum mothers in the working area of the Ciasem Subang Community Health Center in 2020	Quasi Experimental research design which is Posttest With Control Group	The sample in this study consisted of 32 women giving birth by CS, consisting of 16 treatment groups and 16 control groups	The statistical test results showed that the SC wound acceleration score for the treatment group on day 7 was an average of 2.25; while in the control group the average was 3.69.
7.	The Effect of Consuming Snakehead Fish Floss to Accelerate Healing of Perineal Wounds in Postpartum Women	Selvianti & Nilawati, 2021	to determine the effect of consuming snakehead fish floss on the healing of perineal wounds in postpartum mothers	using a Nonequivalent Control Group quasi-experimental design.	A sample of 40 postpartum mothers who would consume snakehead fish floss was obtained through purposive sampling.	The average wound healing time for the case group was 4.73 days, while in the control group the average wound healing time was 6.68 days. Statistical tests using the independent simple T-Test obtained a value of $p$ value = $0.000 < 0.05$ , so it can be concluded that snakehead fish floss has an effect on healing perineal wounds in postpartum women

Several previous studies have suggested a correlation between abstinence and the healing time of Sectio Caesarea wounds. The review found 10 diary entries that explored the relationship between dietary restrictions and the healing time of Sectio Caesarea wounds, with differences in strategy and testing being assessed. Furthermore, mothers who have recently given birth are expected to receive information regarding the healing process of a Caesarean section incision. It is imperative that healthcare professionals are able to provide clear explanations to mothers who have undergone this medical procedure in order to meet their health needs, as it directly impacts the healing process of the incision. Complications that can occur shortly after a Caesarean section include post-operative infections such as uterine contamination or endometritis, urinary tract infections, and liver injury. These infections are responsible for approximately 90% of post-operative complications and can increase the maternal mortality rate (MMR) (Daniati, 2022).

Women who undergo the Caesarean section medical procedure may face a risk of vaginal health-related diseases ranging from 5% to 20%. The incidence of disease after undergoing the Caesarean section medical procedure is significant, as it causes

pain to the mother (Wulan Anggraeni, 2019). Proper nutrition is essential for injury recovery, as the physiological process of wound healing depends on the availability of protein, nutrients (especially vitamins A and C), and minerals. Collagen is a protein composed of amino acids obtained by fibroblasts from the protein they consume. L-ascorbic acid is expected to aid in collagen synthesis. Vitamin A can mitigate the negative effects of steroids on injury healing. Zinc, a minor component, is crucial for epithelial structure, collagen synthesis, and collagen fiber integration (Anwar & Safitri, 2022). Adequate nutrition is necessary for the body to heal after medical procedures. The process of wound healing is dependent on the availability of protein, vitamins (particularly vitamins A and C), and minerals. Therefore, proper nutrition is usually required for wound healing (Rusnedy et al., 2023). Good nutrition for the wound healing process includes fat, protein, carbohydrates, vitamin A, zinc, and vitamin C. These nutrients play a crucial role in the wound healing process, the duration of the healing process, the strengthening of wound tissue, and the prevention of infection. Proper nutrition is crucial, especially for postpartum mothers with perineal or caesarean wounds. It is important to consider not only the

amount of food consumed but also the nutrients it provides. The frequency, quantity, and timing of meals all play a role in maintaining good nutrition. Fish, eggs, and meat are good sources of essential nutrients for the body.

Breastfeeding mothers require additional calories to support both the healing process and the production of breast milk for their babies (Solehati, 2020). Adult women typically require 2200 kilocalories, while breastfeeding mothers require an additional 700 kilocalories during the first six months after giving birth (Solehati, 2020). Mothers who have undergone a cesarean section and restrict their diet, as advised by their parents, may experience a slower healing process. This can be attributed to a decrease in nutritional intake. Conversely, mothers who have adequate sustenance will experience a faster injury recovery cycle. Conversely, mothers who have adequate sustenance will experience a faster injury recovery cycle. These findings were reported by Haerani et al. (2021). Dietary forbearance is a behavioural practice of abstaining from certain foods due to social taboos that have been passed down through generations. Certain groups have legends about restricted food sources, such as breastfeeding. Despite lacking scientific evidence, some still believe that consuming certain foods while breastfeeding can cause negative effects, such as festering wounds and bad-tasting breast milk (Yanti, 2019).

#### 4 CONCLUSION

The nutritional status of postpartum mothers has a significant impact on the wound healing process. Nutritional status refers to the body's condition resulting from food consumption and nutritional intake. Nutrients aid in metabolic processes and the maintenance and formation of new tissue (Viyana, 2023). Nutritional status is a reflection of the balance between the body's need for nutrients to maintain normal bodily functions, produce energy, and obtain other nutritional intake. Following surgery, the body requires nutrition to aid in maintaining health and healing wounds. These nutrients can be obtained from foods that contain protein, carbohydrates, and fat, which are available from various animal and vegetable sources. These nutrients can be obtained from foods that contain protein, carbohydrates, and fat, which are available from various animal and vegetable sources. These nutrients can be obtained from foods that contain protein, carbohydrates, and

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