

## Breastfeeding and Weight Gain in Hospitalized Premature Newborns

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### Abstract

**Objective:** To analyze in the scientific literature the weight gain of hospitalized premature newborns, in exclusive breastfeeding.

**Methods:** This is an integrative literature review, carried out in the Virtual Health Library database, with the following descriptors: breastfeeding, weight gain, premature newborn.

**Results:** The results show that human milk is known as the ideal and unique food for any newborn up to six months of age due to its balanced nutritional composition and immunization properties. The mother's own breast milk should be used in the preterm's feeding, due to improved growth/development and better physiological adaptation to meet nutritional needs. The premature mother's milk has a higher concentration of calcium, sodium, proteins, electrolytes, minerals, calories and various anti-infective properties.

**Conclusion:** The results found show that premature newborns on exclusive breastfeeding show better weight gain compared to those who use other milks.

**Keywords:** Breastfeeding; Weight Gain; Premature Newborns; Nursing Care; Neonatal ICU

### Introduction

The weight gain of premature newborns fed their own mother's own breast milk is higher than those fed with milk from the human milk bank and or mixed milk [1].

According to the World Health Organization (WHO), in exclusive breastfeeding the child receives only breast milk, direct from breast or milked, or human milk from another source, without other liquids or solids, with the exception of drops or syrups containing vitamins,

oral rehydration salts, mineral supplements or medications and in mixed breastfeeding the child receives breast milk and other types of milk [2].

Breast milk is the most suitable food for feeding premature newborns and which provides greater weight gain in low birth weight neonates. However, there is, in general, a low incidence of successful breastfeeding of premature infants, particularly those who are hospitalized [3].

Even if the mothers of premature infants show a desire to breastfeed, this process is permeated by difficulties that occur from the hospital unit to the moment after discharge. It is recommended to work on emotional issues involving breastfeeding and weight gain and to clarify doubts about choosing the ideal food [4].

Prematurity does not prevent the practice of exclusive breastfeeding, however weight gain is higher among those newborns with better conditions of growth and intrauterine maturation [5]. Weight gain is the ideal food permeated by numerous questions. Exclusive breastfeeding continues to be the most defended food among scholars for better weight gain [4].

Among the care provided to hospitalized premature newborns, strict control of weight gain, in addition to intensive care, stands out. Long-term hospitalizations as well as exposure to hospital infection interfere with the growth and development of neonates. This can be observed when performing a rigorous clinical evaluation of neonates through physical examination, anamnesis, monitoring of anthropometric, biochemical and body composition measurements. Studies show that weight is the most reliable measure in the assessment of the nutritional situation of the newborn and that breast milk is the food that presents the best response in weight gain, due to its total absorption [1,5].

### Aim of the Study

This study aimed to analyze in the scientific literature what is described about weight gain of premature newborns hospitalized, in exclusive breastfeeding.

### Methods

This is an observational, retrospective, literature review study on breastfeeding and weight gain in hospitalized premature newborns, elaborated from the following guide question: "What are the recommendations indicated by the literature on exclusive breastfeeding in the weight gain of premature newborns?".

To search for articles published on the established theme, health terminology consulted in health science descriptors (DECS) was used, where the respective descriptors were identified: premature newborns, breastfeeding and weight gain. To enable the search, the Boolean operator AND was used among the descriptors (premature newborns AND breastfeeding AND weight gain)

The inclusion criteria adopted in the present study were: article, full text, published in Portuguese language, main subject related to the study theme (premature newborn, breastfeeding, weight gain and neonatal intensive care unit). The editorials, letters to the editor and studies that did not address the theme related to the objective of the study were excluded.

The research in the database of the Virtual Health Library (VHL) was carried out in October 2019 and from the results found in the search were reviewed the articles found in order to extract the information that facilitated the elaboration of this work. Next, a sinoptic table was elaborated with information from the articles selected for the study.

**Results**

The results of scientific productions obtained through research in the VHL by the association of terms in the research guideline totaled 49 complete texts, being: 39 in English, 08 in Portuguese and 2 in Spanish. Of these, 35 were available in MEDLANE, 13 in LILACS, 03 in BDNF-nursing and 01 in Index Psicologia - Scientific Technical Journals.

After selecting the 08 texts in Portuguese, 01 was excluded because he did not find the full text and 01 for not answering the main question of the present study. Next, a thorough reading of the remaining 06 articles was performed.

Nº Authors/year of publication	Newspaper	Title	Main conclusions
Rhuama Karenina Costa e Silva; Nilba Lima de Souza; Richardson Augusto Rosendo da Silva; John the Baptist of Silva; Naira Beatriz Pinto Raulino Ladisláo; Samara Isabela Maia de Oliveira, 2014.	Electronic Journal of Nursing.	Weight gain in preterm infants related to milk type.	The study demonstrates that breast milk in mothers of premature infants is in fact the one that best feeds and provides greater weight gain in underweight neonates.
Anelize Helena Sassái; Kayna Trombini Schmidt; Bruna Caroline Rodrigues; Sueli Mutsumi Tsukuda Ichisato; Ieda Harumi Higarashi; Sonia Silva Marcon, 2014.	Brazilian Journal of Nursing.	Preterm infants: breastfeeding and weight evolution.	Breastfeeding was associated with lower weight and lower gestational age at birth. Weight gain showed a positive correlation with gestational age and birth weight, maternal age and breastfeeding at 15 days after discharge. Being premature did not prevent breastfeeding; however, weight gain was higher among those born with better conditions of growth and intrauterine maturation.
Mariana Ramalho Cruz; Luciana Tavares Sebastian, 2015.	Communication disorders.	Breastfeeding in preterm infants: knowledge, feelings and experiences of mothers.	The results of this study indicate that, although mothers of premature infants express a desire to breastfeed, this process is permeated by difficulties that occur both in the work process in the hospital unit and in the maternal experience after their return to the home. Thus, health professionals, including the speech therapist, should make efforts to support mothers for success in the breastfeeding process of premature infants.
Juliano Vidal Barbosa Filho; Renata Junqueira Pereira; José Gerley Diaz Castro, 2016.	Science, Care and Health.	Effects of the use of human milk fortifying in preterm newborns of very low weight.	The average weight gain in the study period was significantly higher in the group that received breast milk with additive. Regarding length and head circumference, no statistically significant differences were observed between the groups. It is observed that the use of additive in raw or processed human breast milk provides better weight gain, favoring the recovery of nutritional status.
Érika Ozela Augusto; Maria Eunice Begot da Silva Dantas; Andrezza Ozela de Vilhena; Hamilton Mendes de Figueiredo, 2014.	Revista Paraense de Medicina	Growth of preterm infants with very low weight hospitalized in neonatal ICU in the state of Pará.	Although they do not directly interfere with weight gain and head circumference growth, the presence of the mother and the route of administration of the diet are factors that can contribute to the adequate growth of patients. It is essential to adopt measures that ensure the satisfactory evolution of patients.
Márcia Koja Breigeiron; Maitê Nunes de Miranda; Ana Olívia Winiemko de Souza; Luíza Maria Gerhardt; Melissa Tumelero Valenteb; Maria Carolina Witkowski, 2015.	Revista Gaúcha de Enfermagem.	Association between nutritional status, exclusive breastfeeding and hospital stay of children.	Inadequate nutritional status and early weaning were not risk factors for the longer hospital stay in this sample.

**Table 1:** References addressed in the integrative review according to the author/year of publication, journal, title and main conclusions.

Source: Virtual Health Library (VHL).

### Discussion

After birth premature newborns are submitted to a weight loss in the first days of life, this fact is due to the redistribution of fluids and their catabolism that does not receive sufficient nutritional intake, thus achieving a satisfactory weight gain in these children is extremely difficult due to the immaturity of numerous organs, especially the gastrointestinal [1].

To restore this weight and start weight gain, it is important to start feeding the newborn as early as possible. In this sense, breastfeeding is considered the safest and most efficient way to feed the child early in life and thanks to the immunological components present, it is possible to promote great benefits for the physical and mental health of the mother and baby [6]. Thus, breastfeeding practices, specifically exclusive breastfeeding, can determine the best prognosis, besides developing affective relationships between the binomial through intimate contact between them before touch, exchange of looks, crying and verbal communication of the mother with the child, thus fully strengthening the affective bond between both [7].

Human milk is known as the ideal and unique food for any newborn up to six months of age due to its balanced nutritional composition and immunization properties. It is extremely important to use breast milk, preferably from the mother herself, in the feeding of low-weight premature newborns, due to the improvement in growth/development and better physiological adaptation to meet nutritional needs [8].

It is noteworthy that there are differences in the composition of breast milk of mothers of full-term and premature neonates, so at the time of exclusive breastfeeding it is interesting to make the preferential use of the mother's own milk to her premature child [1]. According to the literature, milk extracted by the mother of the premature child has a higher concentration in calcium, sodium, proteins, electrolytes, minerals, calories and various anti-infectious properties [7].

For many puerpers breastfeeding is considered a biologically natural and possible act, however for many mothers especially primiparous women, this experience is accompanied by doubts, apprehension and difficulties. However, the knowledge of this practice, the emotional state and the desire to breastfeed the puerperal woman can also interfere in the success of breastfeeding and in the absorption of nutrients by the child and, consequently affecting the weight gain [7].

According to the American Academy of Pediatrics, the evaluation of the weight gain of premature newborns is very complex, as there are several factors that influence weight, such as nutrition, maturity, nutritional status at birth, milk volume milked and milking frequency. The daily monitoring of weight gain is considered an excellent parameter to evaluate the prognosis of premature newborns, since they determine nutritional alterations in a reliable manner [9].

The result of the average weight gain in newborns of extreme low birth weight using mixed milk, followed by newborns of very low birth weight fed with exclusive breast milk of the mother, it was found that the milk for the premature infant produced by the mother herself presented better response, because it contained nutrient to meet the specific needs of the premature infant [1].

Studies show that newborns who received breast milk with additive obtained rapid weight gain, which can be explained by the greater supply of proteins and calories offered and the better energy-protein balance, which reflected in recovery of nutritional status [8].

However, exclusive breastfeeding is considered the safest and most complete food for the neonate, because there are several aspects that make breast milk suitable for feeding the newborn, such as ease of digestion, facilitates weight gain, reduces the risk for necrotizing enterocolitis and acts in immune protection, consequently reduces mortality [1].

Breast milk varies in terms of its composition in daily form and throughout the breastfeeding period, providing infants with specific nutrients suitable for each age and situation. Thus, there is no technique capable of artificially reproducing the complete and dynamic effects of bioactive substances present in human milk [1].

However, the studies recognize the difficulty and obstacles to the manipulation of premature infants hospitalized to measure weight gain, knowing and recognizing nutritional status is essential in order to establish an adequate therapy to ensure the recovery of the hospital's health during hospitalization, as well as to plan the guidelines for discharge [10].

In view of the above, the nursing team plays a fundamental role in the care of the binomial, because it has knowledge about the limitations of the premature newborn, but also an understanding and technical competence to help and guide the mother in this process, either during milking, to administer it via orogastric tube, as well as when it is possible to breastfeed the newborn.

Among the attributions and competencies of nursing in this phase, we highlight the administration of breast milk via orogastric tube, gavage, and the control of absorbed milk, since gastric emptying tends to be slow the premature the more premature the newborn, as well as the control of weight, with daily weight of the newborns (when possible) and strict water balance.

For this purpose, nursing has the Systematization of Nursing Care - SAE, a scientific medium that provides scientific technical support for nursing work. The SAE process is coordinated by the nurse, however performed by the entire nursing team, so it must be constructed respecting the individuality of each patient and must be known to the entire nursing team, so that it is well executed. Table 2 brings part of the SAE process to promote breastfeeding in premature neonates, with interventions and justifications.

<b>Intervention</b>	<b>Justification</b>	<b>Authors' comment</b>
Team trained in the process of breastfeeding and/or artificial extraction of breast milk, through continuing education actions that treat physiological, anatomical aspects, benefits of breastfeeding through breastfeeding, milking, storage, breastfeeding techniques and more common problems.	Each professional directly involved in the care of the woman who wishes to breast feed or remove breast milk artificially, should be able to guide, support and help in the conduct of this process with this mother.	It is essential that health services promote moments of study and continuing education for health teams that work with mothers of premature infants, keeping up to date and sensitized to the process and its limitations.
Establish routines and procedures that support and promote breastfeeding	It is essential that it has consistency in the information produced by ICU professionals for mothers.	For this, it is necessary an establishment for the practice of any of the stages of breastfeeding or milking, known and followed by all of the team.
Guide mothers who are not able to breast-feed initially to artificially remove milk.	Stimulation in the first hours and until the first postpartum week is critical in the production of prolactin	The production of prolactin is essential for maintaining milk production, so it should be stimulated as early and continuously.
Start gavage with breast milk as soon as possible	The use of breast milk, even by gavage, brings comfort and encouragement to the mother; because it brings a feeling that it is feeding her baby and favoring its reestablishment.	The fact that the mother feels as part of the process of growth and improvement of the newborn's condition, favors the mental health of the mother, bond with the team and with the newborn..

To encourage breast-feeding as soon as possible.	The chance of success in the breastfeeding process is directly linked to when breast-feeding begins, when earlier, the greater the chance of success.	Thus, stimulating the mother in an enlightening way, removing all doubts, supporting the process of milk removal as well as the beginning of breastfeeding is a preponderant and priority factor for nursing.
Favor skin-to-skin contact as soon as the newborn is stable.	There is a correlation between skin-to-skin contact and breast milk production, as well as successful breastfeeding.	Skin-to-skin contact favors the re-establishment of the binomial bond, broken by the coldness of hospitalization of a premature infant who sometimes cannot be touched, encouraged by the mother.
Provide written material on the withdrawal, storage, in the period in which the mother must remove the milk.	The information described step by step favors the understanding of mothers of all stages to be followed.	It is essential that the material produced is simple and self-explanatory and that the team has knowledge of it, to remove any doubts that arise.
Regularly evaluate breast milk production.	Clarify all possibilities for any production change before relating to any problem.	It is essential that the team establishes a bond with the mother and maintains a clear and open dialogue with her, supporting and removing any doubt, insecurity that arises about the process.

**Table 2:** Nursing interventions to promote breastfeeding and breast milk extraction in the neonatal ICU.

Fonte: adapted hair authors from Tamez e Silva (2006) [11].

Regarding the limitations found for the elaboration of this article, the small number of publications found in Portuguese that address this theme, draws our attention, in view of the relevance of the theme, it is considered that it may be related to the minimum manipulation required by some premature newborns, which hinders the strict monitoring of weight.

**Conclusion**

The results show that newborns fed exclusive breast milk have better weight gain compared to those fed other types of milk.

Breast milk is a complete food and promotes increased affective bond of the newborn with the mother, improves the defense system due to the large supply of immunoglobulins and promotes greater protection against infections, flatulence, diarrhea or constipation, has digestibility and absence of allergenic factors, decreases the risk of respiratory failure, apnea and bronchopulmonary dysplasia, reduces the risk of obesity, promotes emotional, perceptual, motor, cognitive and physical growth and development.

In this perspective, stimulating exclusive breastfeeding is to provide the ideal food, more complete, better weight gain and consequently ensure a better prognosis in the treatment of hospitalized neonates.

In this sense, multidisciplinary work in this process stands out, because the mother should be supported and encouraged in the practice of breastfeeding, so the nursing team has a unique role, since these are the professionals who are closest to the mothers in the milking process for milking, for the beginning of breastfeeding to the breast and when this food is offered to the newborn, which favors the establishment of bond and trust between mother and team.

Thus, studies that seek to understand the creation of this bond, as well as the role of nursing in this process should be carried out, as they can strengthen teams in the development of this role.

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