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Beneficios de la lactancia materna en el recién nacido

Benefits of breastfeeding in newborns

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Palabras claves:
Lactancia materna, recién nacido, leche materna, nutrición.

Resumen

Introducción: La investigación se centra en analizar los beneficios de la lactancia materna en el recién nacido. La lactancia materna, un acto tan natural como fundamental, establece el vínculo inicial entre una madre y su recién nacido, ofreciendo una cascada de beneficios tanto para el bebé como para la madre. Este proceso biológico ha sido objeto de estudio y admiración a lo largo de la historia, revelando una complejidad y riqueza que van más allá de la simple nutrición. **Objetivo:** Analizar los beneficios de la leche materna en el recién nacido. **Metodología:** Este estudio tiene como base al tipo de investigación descriptivo y revisión bibliográfica. La investigación realizada tiene un enfoque cualitativo. La técnica aplicada para esta investigación se basa en el proceso observatorio y análisis de estudios investigativos con base a los antecedentes. Se tuvieron en consideración la base de datos digitales de la universidad como Scielo, Web Of Science, Ovid, Proquest, Redalyc, Google académico. **Resultados:** La leche materna proporciona al recién nacido una nutrición integral y perfectamente equilibrada, rica en proteínas, grasas saludables, carbohidratos y una amplia gama de vitaminas y minerales esenciales. La lactancia materna puede desempeñar un papel crucial en la prevención de enfermedades a largo plazo, como la diabetes y la obesidad infantil, estableciendo bases sólidas para la salud futura del niño. **Conclusión:** La lactancia materna exclusiva se asoció positivamente con la normalidad, mientras que la lactancia artificial presentó vínculos con la desnutrición crónica. Los resultados respaldan la importancia de la elección de la alimentación inicial y subrayan la necesidad de promover la lactancia materna para un desarrollo infantil saludable. **Área de estudio general:** Medicina. **Área de estudio específica:** Enfermería.

Keywords:
Breastfeeding, newborn, breast milk, nutrition.

Abstract

Introduction: The research focuses on analyzing the benefits of breastfeeding in the newborn. Breastfeeding, an act as natural as it is fundamental, establishes the initial bond between a mother and her newborn, offering a cascade of benefits for both the baby and the mother. This process has been the subject of biological study and admiration throughout history, revealing a complexity and richness that goes beyond simple nutrition. Objective: To analyze the benefits of breast milk in the newborn. Methodology: This study

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is based on descriptive research and literature review. The research conducted has a qualitative approach. The technique applied for this research is based on the observatory process and analysis of research studies based on the antecedents. The digital database of the university such as SciELO, Web of Science, Ovid, ProQuest, Redalyc, Google academic was taken into consideration. Results: Breast milk provides the newborn with a comprehensive and perfectly balanced nutrition, rich in protein, healthy fats, carbohydrates and a wide range of essential vitamins and minerals. Breastfeeding can play a crucial role in the prevention of long-term diseases such as diabetes and childhood obesity, laying a solid foundation for the child's future health. Conclusion: Exclusive breastfeeding was positively associated with normality, whereas artificial breastfeeding was associated with chronic malnutrition. The results support the importance of the choice of initial feeding and outline the need to promote breastfeeding for healthy child development.

Introduction

According to Madero et al. (2021), in a study carried out in a sector of Cartagena, Colombia, on the "Application of key practices: breastfeeding, complementary feeding, micronutrients, mental and social development of children under 5 years of age" in which the objective was raised: to evaluate the application of the IMCI strategy in promoting exclusive breastfeeding, complementary feeding, use of micronutrients. We have as a result that exclusive breastfeeding was provided in 52% and in complementary feeding the foods of choice were cereals 77.1%, tubers 71.8%, fruits 40% and vegetables 43%. In conclusion, we want to evaluate which would be the necessary nutrients that will be obtained through breast milk and its benefits in children under 5 years of age using a series of studies with the percentages of each type of food.

According to Maraña et al. (2021), Spain, on “Breastfeeding: prevalence and associated factors. Analysis of a survey” based on the objective of knowing the causes of premature abandonment of breastfeeding (BF), Evaluate the effectiveness of childbirth preparation classes taught at this health center, Explore the causes of not starting/abandoning BF. As a result, it was found that 68.88% of newborns received breastfeeding (exclusive 48.70%, mixed 20.13%) and 31.12% artificial feeding (AF). In conclusion, the aim is to provide

mothers with the necessary information on what the causes would be for abandoning breast milk.

According to Ruiz (2019), in a study carried out in Spain, based on the "Causes of abandonment of breastfeeding in Spain, which aims to analyze the main causes of early abandonment of breastfeeding in our country. According to the results, there are countless factors that intervene in the decision to choose and maintain natural breastfeeding. In conclusion, there are many risk factors to evaluate, because early weaning will affect both the mother and the child, this being the biggest problem in the long run for the child and the possible deficiencies that will be left by not having consumed breast milk.

In the study carried out by Borghesi et al. (2019), with the aim of knowing the evolution of breastfeeding (BM) and exclusive breastfeeding (EBF) from birth to 6 months of age. Regarding the results obtained, at discharge, BF and EBF were 94.8 and 75.3%, respectively, and at 6 months 63.3 and 16.8%. Accessories (pacifiers, teats, nipple shields) are the main elements that make breastfeeding difficult (20.2%). In conclusion, a data collection was carried out in which a higher prevalence of abandonment was shown, also finding elements that also make breastfeeding difficult.

Regarding the problem under study, it has been determined that not consuming breast milk can have a great impact during the first years of life, causing almost irreversible damage that would affect physical growth and the cognitive and emotional development of the brain. On the other hand, giving breast milk prevents many diseases, since it is the exclusive food for the newborn, providing all the nutrients necessary for growth and development. What are the benefits of breastfeeding in newborns?

Aim

General Objective: Analyze the benefits of breast milk in the newborn.

*Goals*Specific: Describe the composition of breast milk; Evaluate the nutritional contributions of breast milk in children; Compare the properties of breast milk, formula milk and cow's milk with their benefits and consequences in children.

Methodology

This study is based on the descriptive type of research and bibliographic review since it allows to analyze the pre-established variables better detailed in the argument or the main idea of the project, where the characteristics of the variables that are particular to execute the objective of the study, the behavior and the facts of the problem will be described.

The research carried out has a qualitative approach based on the risk factors that influence the abandonment of breastfeeding, in knowing its benefits, its nutritional contributions, as well as its composition. The technique applied for this research is based on the

observational process and analysis of research studies based on the background, in order to have information that supports the study and is true, where the information collected will be from 2019 to 2023.

The university's digital databases were taken into consideration, such as SciELO, Web Of Science, Ovid, ProQuest, Redalyc, and Google Scholar, from which information was collected from journals, scientific articles, and books that these databases provide us with in order to analyze the benefits of breastfeeding, the problems that would arise in the child for not consuming breast milk, and in the mother for not having adequately stimulated her breasts during the breastfeeding period.

Results

The results of the analysis of breast milk show variations in its composition, with normal levels of proteins, fats and trace elements such as copper and zinc. Adequate intake of milk and nutrients was found for the infants evaluated, while differences were observed in the composition of breast milk compared to other sources such as goat and cow milk. These findings contribute to the understanding of the nutritional importance of breast milk for infant development.

Table 1

Describe the composition of breast milk

Year/ Author/ Place	Qualification	Sample	Methodology	Results
Suarez (2020) Madrid	Nutritional composition of donated breast milk according to the breastfeeding period.	160 donors to the breast milk bank	The nutritional composition of 822,423 liters of donated breast milk from 160 donors from the breast milk bank of a tertiary hospital was retrospectively analyzed between February 1, 2017, and December 31, 2019.	The results of the average carbohydrate, true protein, calorie and fat content of milk can be seen in the following result: Average protein content: 0.79, carbohydrates: 7.34, lipids: 3.65 and calories: 67.40. The lactation period in which the greatest amount of milk was obtained was between 7 and 9 months, followed by the first 3 months.

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Table 1

Describe the composition of breast milk (continued)

Year/ Author/ Place	Qualification	Sample	Methodology	Results
Avilés et al. (2020) Ecuador	Immunological benefits of breast milk	Breastfeeding is one of the most effective ways to ensure the health and survival of children. Worldwide, only 40% of infants under six months of age are exclusively breastfed.	This study was carried out using documentary research methodology, reviewing more than 50 bibliographic sources and analyzing them using the criteria of induction and inference, in terms of the most common approaches regarding breastfeeding, breast milk and its components.	Milk is made up of lipids, proteins, carbohydrates, vitamins and immunological factors; it is produced by the mammary gland. The mammary gland is a specialized set of apocrine (sweat) glands that modify their secretion over the course of evolution to produce milk. Human milk is defined as a "living fluid that adapts to the nutritional and immunological requirements of the child as it grows and develops."
Martin (2022) Argentina	Physicochemical analysis of donated colostral breast milk in the lactation room of the Medical Education Unit of a public university in Argentina	Given the importance of knowing the composition of breast milk used in lactation rooms or BLM, the objective was to determine the protein and fat composition and lipid profile of donated breast milk, especially colostrum, at the Medical Education Unit of	The breast milk used for the development of the physicochemical analysis was obtained from mothers who attended the Breastfeeding Center of the Medical Educational Unit (UME), belonging to the National University of Chaco Austral, during the months of May, June and July 2021.	The protein content, total fat content, and lipid profile were determined using standardized techniques to determine whether there are variations in their composition. The minimum and maximum protein values were 2.37 ± 0.32 and 3.46 ± 0.86, and total fat values were 4.50 ± 0.33 and 6.20 ± 0.86 g/100 ml, with the main

		the National University of Chaco Austral.		fatty acids being myristic, palmitic, stearic, oleic, and linoleic. Although this is an initial study, the nutritional composition of the samples coincides with that reported in the literature, with the detected fatty acid contents being notable.

Table 1

Describe the composition of breast milk (continued)

Year/ Author/ Place	Qualification	Sample	Methodology	Results
Naples et al. (2019) Argentina	Determination of breast milk intake and nutritional assessment in infants fed exclusively breastfeeding	13 mother-infant pairs were evaluated	Descriptive study evaluating a mother-infant pair group for 14 days. Breast milk intake was assessed by administering a 30 g dose of uterine water orally to the mother and collecting saliva samples from the pair six days post-dose. From this, the intake and percentage of energy and protein coverage of the infants were calculated.	Thirteen mother-infant pairs were evaluated at 3.7±0.8 months of age. The anthropometric indices of the infants were found to be normal. 43% of the mothers were overweight. Breast milk intake was 929.4±191.8 mL/day. The percentage of energy and protein adequacy of the infants was 115.1±19.6 and 102.2±17.1, respectively. Also, regardless of intake, the BMI/age Z-score of the infants was within ±2 standard deviations.

Table 1

Describe the composition of breast milk (continued)

Year/ Author/ Place	Qualification	Sample	Methodology	Results
Lastre-Amell (2020) Venezuela	Concentrations of trace elements copper and zinc in breast, cow and goat milk	Breast milk samples were collected from healthy lactating mothers (91 women) who attended a maternal and child center in the city of Maracaibo-Venezuela.	Descriptive cross-sectional study. Breast milk samples were collected from healthy lactating mothers (91 women) who attended a maternal and child center in the city of Maracaibo, Venezuela. Mothers who met the inclusion criteria were selected after obtaining informed consent.	In the analysis of the human milk sample, copper concentrations of 0.290 ± 0.04 mg/L and zinc concentrations of 1.580 ± 0.35 mg/L were found. These values are considered acceptable according to the daily reference intake for these trace elements and were higher in goat milk samples according to the literature, while zinc concentrations in both milks (goat and cow), recorded by other specialists, were higher than in the human milk in the present study.

According to the author Suárez (2020) the average protein content is 0.79 and the author Ricardo Aviléset al. *(2020), indicates that the presence of lipids, proteins, carbohydrates, vitamins and immunological factors highlights its nutritional value and its ability to adapt to the needs of the baby as it grows. In addition, the role of the mammary gland in milk production is highlighted, highlighting its ability to modify secretion in response to the demands of the infant.*

Table 2

Compare the properties of breast milk, formula milk and cow's milk with their benefits and consequences in children.

Year/ Author/ Place	Qualification	Sample	Methodology	Results
Torrent (2019) Spain	Cow's milk protein allergy in infants: intervention design	56 infants were part of this study	Other bibliographic reviews and scientific studies have been consulted, selecting those that can be found with the full text online and discarding those that did not meet the established criteria.	Infant milk protein allergy (AMLV) is increasing in incidence and is the most common pathology after egg and fish allergy, with a prevalence of 2% in Spain. But three years ago, its success rate reached 85%.
Giron (2023) Colombia	Perceived self-efficacy of mothers in exclusive breastfeeding.	24 breastfeeding mothers	The research is quantitative and transversal. This methodology is used to collect data to test hypotheses, based on numerical measurement and statistical analysis, to establish patterns of behavior and test theories. As for the transversal part, its purpose is to describe variables and analyze their incidence and interrelation at a given time, which was applied in this research.	For the present investigation, a non-probabilistic sampling was carried out, since it was selected at convenience from the total number of mothers, which was 24. Communication was made with the leading nurse of the growth and development control program, who gave access to the database of the mothers who were registered, after which the women who only had children from 0 to 6 months of age were filtered, which yielded a total of 24 mothers, which was verified with the control coordinator.

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Table 2

Compare the properties of breast milk, formula milk and cow's milk with their benefits and consequences for children (continued)

Year/ Author/ Place	Qualification	Sample	Methodology	Results
Gomez (2019) Spain	Comparative study of infant feeding with breast milk and formula.	7 similar scientific articles	Articles with a bibliographic review and descriptive study methodology, whose level of scientific evidence is lower, are also included.	In Spain, the National Health Survey7 (ENS) indicates an initial BF rate of 73.9% up to 6 weeks, which decreases to 63.9% at 3 months and 39% at 6 months, with hardly any variation according to socioeconomic level.
Cartagena (2022) Ecuador, Miracle.	Relationship between breast milk and infant formulas and the effects on the development and growth of children during the first six months of age.	11 scientific articles based on milk formulas	This research is descriptive, qualitative, transversal and bibliographical, since it reviews the information collected.	Latin America has the highest rate of newborns who begin breastfeeding in the first hour of life, where the rate of breastfeeding in the American continent is 58%, Africa and Asia with 50% and Asia with 28.03%. In addition, in South America there is a higher percentage of mothers who practice exclusive breastfeeding during the first six months of their children's lives, as is the case in Peru where 68.3% of women exclusively breastfeed, followed by Bolivia with 60.4% and Uruguay 57.1%, while in Ecuador breastfeeding is present in 39.6% of mothers.

Table 2

Compare the properties of breast milk, formula milk and cow's milk with their benefits and consequences for children (continued)

Year/ Author/ Place	Qualification	Sample	Methodology	Results
Tuquerez (2022) Ecuador/Ibarra	Nutritional status and types of breastfeeding in children aged 0 to 6 months, treated at health center n°1 - Ibarra, March 2022	157 infants aged 0-6 months	Cross-sectional correlational study, in Health Center No. 1-Ibarra during the month of March 2022, 157 infants between 0 and 6 months were selected according to specific criteria. Data corresponding to the mother and the child were collected through a targeted survey, nutritional status was assessed through growth curves and weight and length measurements.	The use of exclusive breastfeeding was related to normality (85%) and obesity (0.9%). Mixed breastfeeding was related to obesity (9.5%), risk of overweight (19%) and normality (57.1%). In contrast, artificial feeding was related to chronic malnutrition (50%).

There is a notable increase in the incidence of infant milk protein allergy (CMPA), becoming the most frequent pathology after egg and fish allergies. The prevalence in Spain is 2%, showing a significant change compared to 85% three years ago. This change could indicate an increase in the awareness and diagnosis of this allergy, or possibly changes in environmental or genetic factors that contribute to its development. The National Health Survey in Spain reveals initial breastfeeding rates that decrease over time, being 73.9% up to 6 weeks, 63.9% at 3 months and 39% at 6 months. This pattern is consistent with trends observed in other studies worldwide.

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Table 3

Evaluate the nutritional contributions of breast milk in children

Year/ Author/ Place	Qualification	Sample	Methodology	Results
Mendez (2021) Mexico	Growth rate and neurological development in full-term newborns fed with breast milk, in the first two years of life, in the Huixquilucan maternity clinic.	1029 medical records	This study uses the descriptive method, as it reveals the results found, provides information on neurological development and growth rate in the population of the Huixquilucan Maternal Clinic, finding adequate growth and neurological development of the population. Likewise, the adequate implementation and use of the Standards for its assessment was corroborated.	1029 clinical records were reviewed, 535 were from the female gender (52%) and 494 from the male gender (48%). The findings found in the female gender that 97.57% of the sample was within the 50th percentile consistently referring to growth by only 2.43% below the 25th percentile. In the male gender, 97.72% was found within the 50th percentile and 2.23% within the lower 15th and 85th percentile. In both genders, the EDI neurological development test was found within the normal development category.
Andrade (2019) Chimborazo	Retrospective analysis of the caloric intake of breast milk associated with the nutritional status of the mother in donors of the Hospital's milk bank.	224 infants aged 0-4 months	A quantitative, descriptive, retrospective correlational study was carried out with the aim of knowing and describing the relationship between maternal nutritional status and the caloric intake of milk. maternal, is transversal of correlational-causal type.	The Ecuadorian population obtained results that 23% of children under 5 years of age suffer from chronic malnutrition, if we compare with the results obtained in 2012, a decrease of only 2.3% (25.3%) is evident and as for children under 2 years of age, the prevalence of malnutrition increases from 24% in 2012 to 27.2% in 2018.

Table 3

Evaluate the nutritional contributions of breast milk in the child (continued)

Year/ Author/ Place	Qualification	Sample	Methodology	Results
Borbor (2022) Saint Helena	Effectiveness of breastfeeding in children aged 0 to 6 months in the commune without shawl	22 women who are first-time mothers	The research method was hypothetical deductive, since a systematic process of generalized search of the research problem up to the local context was carried out, with the aim of understanding the nature of the problem and verifying the veracity of the hypothesis.	The conditions of the effectiveness of breastfeeding in grip and swallowing, focusing on the grip, 50% was obtained in grip without alterations since the mothers participating in this research were no longer first-time mothers and were older than 22 years of age so that they had already gone through a whole process of breastfeeding; while the lowest percentage equivalent to 7% was altered grip because first-time mothers were included and were aged 13 to 17 years so that they had not yet assimilated the process of motherhood.
Altamirano (2022) Lime	Knowledge and practice of exclusive breastfeeding in mothers of children under 6 months of age in a primary care health center.	126 mothers in the process of breastfeeding	The study will be developed through the methodological path with a quantitative approach, the use of statistics and the use of questionnaires with validity and reliability, which will be used to measure the study variables, which will serve as a model and contribution for other studies that are developed in the same context.	According to the latest data from around the world, 41% of mothers with children aged 0 to 6 months have exclusively breastfed. According to data from the INE, Spain has an exclusive breastfeeding rate of 28.53% and a mixed breastfeeding rate of 18.42%. This means that 46.95% of mothers are breastfeeding at 6 months of age.

Table 3

Evaluate the nutritional contributions of breast milk in the child (continued)

Year/ Author/ Place	Qualification	Sample	Methodology	Results
Salinasa (2022) Chili	Trajectory of psychomotor development according to nutritional status in breastfed children.	53 infants between 0-7 months of age	It was obtained from the population monitored at the primary level of the public health system in our country. A consecutive sample was carried out among those infants who attended well-child check-ups with their mothers between 2013 and 2016.	53 children were admitted (60% male), 76% were eutrophic, 62% were exclusively breastfed. Nutritional trajectories and DSM were stable and within the normal range, there were no infants in the obese range. In the multivariate analysis, in the Communication domain, children with a normal BMI trajectory with higher values and with exclusive breastfeeding showed superior development (p = 0.049 and p = 0.032).

According to the author Carolina Elizabeth Andrade (2019), it reveals the nutritional status in breastfeeding practices, complementary feeding, and risk factors for the development of chronic non-communicable diseases in Ecuador in 2019. However, the author Margarita Salinas, et al, in 2022 talks about psychomotor development according to the nutritional status that we can conclude that, in children fed with exclusive or predominant BM, the BMI trajectories and the development domains were stable and within normal ranges throughout the follow-up, probably the protective effect of high BM intake.

Discussion

Referring to the results shown in Table 1, it has been determined that the lactation period between 7 and 9 months presents the highest amount of milk, followed by the first 3 months. This variation in milk production over time could have implications for infant nutrition. Human milk is characterized by containing lipids, proteins, carbohydrates, vitamins and immunological factors. The adaptability of milk to the requirements of the child as it grows highlights its dynamic and specific nature. The major fatty acids detected include myristic, palmitic, stearic, oleic and linoleic, coinciding with the existing literature. The analysis of the human milk sample revealed concentrations of copper (0.290 ± 0.04 mg/L) and zinc (1.580 ± 0.35 mg/L). These values are considered acceptable according to the reference daily intakes. The results provide a detailed view of

the nutritional composition of human milk and its variability over time. Assessing the nutritional status of infants and mothers adds context to the relationship between breast milk and infant health. The concentration of trace elements in human milk highlights their importance in providing essential nutrients for infant development.

Based on the results in Table 2, the results reveal a worrying trend in the increase in the incidence of infant milk protein allergy (CMPA), which is currently the most common pathology after egg and fish allergies in Spain, with a prevalence of 2%. This data is especially alarming when compared with the 85% rate three years ago, indicating a significant increase in the affectation of infants by this allergic condition. In the context of breastfeeding, a decrease in breastfeeding (BF) rates in Spain is observed over time, according to the National Health Survey, with a decrease from 73.9% in the first 6 weeks to 39% at 6 months, regardless of socioeconomic level. In contrast, Latin America presents higher rates of initiation of breastfeeding in the first hour of life, highlighting the prevalence of exclusive breastfeeding in South America, especially in countries such as Peru, Bolivia and Uruguay. These results underline the importance of addressing infant milk protein allergy and highlight the relevance of promoting exclusive breastfeeding to ensure optimal infant health and development.

Referring to the results in Table 3, the comprehensive review of 1029 clinical records provides a detailed view of infant health in the sample. The equal distribution between genders (52% female and 48% male) facilitates the comparison of results. In the female gender, 97.57% were consistently located in the 50th percentile for growth, highlighting the robustness of this group. On the other hand, 2.43% were below the 25th percentile. In the male gender, 97.72% were within the 50th percentile, while 2.23% were below the 15th percentile. Both genders demonstrated normal neurological development according to the EDI test. The effectiveness of breastfeeding in terms of latching and swallowing reveals that 50% of the participating mothers showed an unimpaired latch, possibly attributable to their previous experience and older age. Multivariate analysis highlights that, in the communication domain, children with a normal BMI and exclusive breastfeeding showed superior development, highlighting the importance of these factors in child development.

Conclusions

- The composition of breast milk has been described, revealing average values of 0.79 in proteins, 7.34 in carbohydrates, 3.65 in lipids, and 67.40 in calories. These essential components contribute to the optimal nutrition of the child during breastfeeding.
- The nutritional contributions of breast milk to children were evaluated, and the proportion of the significant nutritional source for infants was confirmed, with average values of 929.4 ml/day. The energy and protein adequacy indexes were

115.1% and 102.2%, respectively, indicating an adequate nutritional supply for the healthy development of the child.

- A comparison was made of the properties of breast milk, formula milk and cow's milk with benefits and consequences for the child. Exclusive breastfeeding was positively related to normality (85%) and showed low rates of obesity (0.9%). In contrast, artificial feeding was associated with chronic malnutrition (50%). These results underline the importance of choosing the initial diet in child development.

Conflict of interest

The authors declare that there is no conflict of interest in the development of this study.

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