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# EXPRESSION OF PRENATAL COLOSTRUM

# EXPRESSÃO DE COLOSTRO PRÉ-NATAL

# EXPRESIÓN DEL CALOSTRO PRENATAL

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# Abstract

**Introduction:** Prenatal Colostrum Expression is a practice that has become increasingly important in preventing complications associated with breastfeeding. This technique is particularly important in high-risk pregnancies, especially when there is a likelihood of early separation of mother and newborn or delayed lactogenesis II. Prenatal Colostrum Expression essentially aims to prevent the early introduction of breast milk substitutes, minimizing adverse effects on the newborn and promoting adherence to exclusive breastfeeding. **Objective:** To analyse the benefits, risks and recommendations of prenatal colostrum expression for maternal and child health, based on the existing scientific literature. **Methodology:** The methodology adopted was based on a narrative review of the available scientific literature, with the aim of gathering, analyzing and synthesizing the existing evidence on Prenatal Colostrum Expression. Studies addressing the clinical indications, potential benefits, associated risks and practical recommendations of this intervention were considered. **Results:** The literature consulted points to relevant benefits of Prenatal Colostrum Expression, namely in stabilizing the newborn's blood glucose and strengthening maternal confidence, although some concerns persist about the discomfort and safety of the practice. **Conclusion:** Knowledge about this practice is still limited, in terms of its indications, limitations, safety and benefits. Although existing studies indicate that there is no evidence of complications with this practice, more studies are needed to consolidate the existing scientific evidence.


**Keywords:** Breast Milk Expression; Colostrum; Pregnancy; Prenatal Care.


# Resumo

**Introdução:** Expressão de Colostro Pré-Natal é uma prática que tem vindo a ganhar relevância na prevenção de complicações associadas à amamentação. Esta técnica assume particular importância em gravidezes de risco, nomeadamente quando existe probabilidade de separação precoce de mãe e recém-nascido ou atraso na lactogénese II. A Expressão de Colostro Pré-Natal visa essencialmente evitar a introdução precoce de substitutos do leite materno, minimizando os efeitos adversos para o recém-nascido e promovendo a adesão ao aleitamento materno exclusivo. **Objetivo:** Analisar os benefícios, riscos e recomendações da prática de expressão de colostro pré-natal para a saúde materno-infantil, com base na literatura científica existente. **Metodologia:** A metodologia adotada baseou-se na realização de uma revisão narrativa da literatura científica disponível, com o intuito de reunir, analisar e sintetizar a evidência existente sobre a Expressão de Colostro Pré-Natal. Foram considerados estudos que abordam as indicações clínicas, os potenciais benefícios, os riscos associados e as recomendações práticas desta intervenção. **Resultados:** A literatura consultada aponta para benefícios relevantes da Expressão de Colostro Pré-Natal, nomeadamente na estabilização da glicémia do recém-nascido e no reforço da confiança materna, ainda que persistam algumas preocupações quanto ao desconforto e à segurança da prática. **Conclusão:** O conhecimento sobre esta prática ainda é limitado, no que se refere às suas indicações, limitações, segurança e benefícios, apesar dos estudos existentes indicarem que não existe evidência de complicações com esta prática, mais estudos são necessários para consolidar a evidência científica existente.


**Palavras-chave:** Colostro; Cuidado Pré-Natal; Extração de Leite; Gravidez.


# Resumen

**Introducción:** La extracción prenatal de calostro es una práctica que ha ido ganando relevancia en la prevención de complicaciones asociadas a la lactancia materna. Esta técnica es especialmente importante en los embarazos de alto riesgo, sobre todo cuando existe la probabilidad de una separación precoz de la madre y el recién nacido o un retraso en la lactogénesis II. La extracción prenatal de calostro pretende esencialmente prevenir la introducción precoz de sucedáneos de la leche materna, minimizando los efectos adversos sobre el recién nacido y promoviendo la adherencia a la lactancia materna exclusiva. **Objetivo:** Analizar los beneficios, riesgos y recomendaciones de la extracción prenatal de calostro para la salud materno-infantil, a partir de la literatura científica existente. **Metodología:** La metodología adoptada se basó en una revisión narrativa de la literatura científica disponible, con el objetivo de recopilar, analizar y sintetizar la evidencia existente sobre la Expresión Prenatal de Calostro. Se consideraron los estudios que abordaban las indicaciones clínicas, los beneficios potenciales, los riesgos asociados y las recomendaciones prácticas de esta intervención. **Resultados:** La literatura consultada apunta a beneficios relevantes de la Expresión Prenatal de Calostro, concretamente en la estabilización de la glucemia del recién nacido y en el fortalecimiento de la confianza materna, aunque persisten algunas preocupaciones sobre las molestias y la seguridad de la práctica. **Conclusión:** El conocimiento sobre esta práctica es todavía limitado, en cuanto a sus indicaciones, limitaciones, seguridad y beneficios. Aunque los estudios existentes indican que no hay evidencia de complicaciones con esta práctica, se necesitan más estudios para consolidar la evidencia científica existente.


**Descriptores:** Calostro; Atención Prenatal; Extracción de Leche Materna; Embarazo.

# Introduction

Exclusive breastfeeding is widely recognized as the most complete and healthy way to feed newborns (NB). It is defined as the sole supply of breast milk, whether through direct breastfeeding, expressed milk or donated milk, including, if necessary, oral rehydration solutions, vitamins, minerals or medicines[1]. The World Health Organization (WHO) recommends exclusive breastfeeding for the first 6 months of life, continuing as a supplement to oral feeding until the age of 2[2]. This allows infants to receive the nutrients, vitamins, minerals and proteins essential for their healthy development[3].

It provides numerous benefits, both in the short and long term, for both mother and baby, contributing to the prevention of chronic diseases such as obesity and diabetes and at the same time promoting a more balanced and lasting health[4].

Studies suggest that breastfeeding should be started as soon as possible after birth, preferably in the first hour of life, the so-called "golden hour"[5], since NBs who are breastfed in the first hour of life are more likely to continue breastfeeding for the following 6 months, reducing the risk of infant mortality[3].

Breast milk, particularly colostrum (the first milk produced), is a rich source of proteins and vitamins. In addition to its high nutritional value, it is also rich in immunological components, namely immunoglobulins, lactoferrin and lysozyme, which play a crucial role in maturing and strengthening the NB's immune system[6]. These elements provide protection against infections, promote the integrity of the gastrointestinal mucosa and contribute significantly to the healthy development of the digestive system in the neonatal phase[3].

Despite the many scientifically proven benefits of breastfeeding, getting started can be a real challenge for some women. Difficulties such as delayed lactogenesis (milk production process) or ineffective milk transfer to the NB are frequently reported[1].

NBs of mothers whose pregnancy has been classified as high risk, including conditions such as diabetes, hypertension, epilepsy or other chronic pathologies, are more likely to require admission to neonatal intensive care[7]. This circumstance can imply an early and prolonged separation between mother and child, which tends to make it significantly more difficult to start breastfeeding[1].

The manual expression of colostrum during pregnancy has gained increasing prominence in recent years, especially in pregnant women with clinical conditions such as gestational diabetes, preterm births or caesarean deliveries[4]. In these contexts, where immediate breastfeeding may be temporarily compromised, formula milk is often administered in the first hours of the newborn's life. Prenatal Colostrum Expression (PCE) has thus emerged as a valuable alternative, allowing the baby to be offered breast milk even in the initial absence of direct breastfeeding[3]. In this way, it is associated with various benefits such as: acceleration of lactogenesis II, reduction of breast engorgement, less need for breast milk substitutes, greater stabilization of glycaemia in NBs at risk of hypoglycaemia and increased maintenance of exclusive breastfeeding up to 6 months of life[1].

The practice is recommended between 36 and 37 weeks of gestation[7], however, it may be associated with the release of oxytocin, which raises concerns about the possibility of inducing premature labor or spontaneous abortion[1]. Studies indicate that manual expression of colostrum, from 36 weeks of gestation onwards, is safe for most women and does not significantly increase the risk of preterm birth or other outcomes during pregnancy, provided it is practiced under the guidance of a health professional[3]. This practice gives women greater confidence in breastfeeding and the stored milk gives them a sense of security[8].

In view of the widely recognized benefits of exclusive breastfeeding, as well as the challenges faced by mothers at the beginning of this process, it is pertinent to deepen our understanding of PCE. The growing attention this practice is receiving justifies the need to systematize and analyse the available scientific evidence on its effects. In this context, this narrative review aims to analyze the benefits, risks and

recommendations of the practice of prenatal colostrum expression for maternal and child health, based on the existing scientific literature.

# Methodology

In order to gain a better understanding of this subject, a narrative literature review was carried out with the aim of analyzing the benefits, risks and recommendations of the practice of prenatal colostrum expression for maternal and child health, based on the existing scientific literature.

A search was carried out in PubMed, CINAHL and DOAJ, selecting studies published between 2015 and 2025, written in Portuguese or English, with full access. Descriptors defined according to DeCS (Health Sciences Descriptors) and MeSH (Medical Subject Headings) were used: "Breast Milk Expression", "Colostrum", "Pregnancy" and "Prenatal Care". Boolean operators were used to construct the following research equation: ("prenatal care" OR "antenatal care") AND "breast milk expression" AND "pregnancy".

# Development

In order to present the results, we chose to present them in thematic form, so as to organize the information in a clearer and more coherent way, facilitating the analysis and understanding of the results obtained.

## Physiological and practical bases of the prenatal expression of colostrum

Breastfeeding is one of the most effective global public health interventions for promoting infant health and improving survival rates[9]. It plays a central role in providing human milk to infants and is the most complete and physiological form of infant nutrition[3]. In this way, human milk represents a food of excellence, adapted to the needs of the NB, promoting harmonious growth and adequate physical and neurological development of the baby[4].

The practice of exclusive breastfeeding is widely recommended during the first 6 months of life, continuing as a supplement to oral feeding until the age of 2, as it provides the nutrients, vitamins, minerals and proteins necessary for healthy metabolic development and the maturation of the immune system[2]. The benefits associated with breastfeeding extend far beyond the neonatal period and have a positive impact throughout the entire life cycle[4]. In addition to its favorable impact on the development and protection of the child, breastfeeding also contributes to the physical and emotional health of the breastfeeding woman[1]. Despite the widely recognized advantages, less than half of infants are breastfed adequately and in accordance with current international recommendations[9].

Colostrum, often referred to as "first milk" or "golden liquid", is the initial secretion produced by the mammary glands during pregnancy and in the first few days after birth[10]. It has a thick texture with a yellowish color and is released as a fluid, highly concentrated in bioactive components, playing an essential role in the nutritional and immunological start-up of the newborn[6]. It is composed of immunoglobulins, lactoferrin, lysozyme, leukocytes, growth factors and other elements with immunomodulatory and anti-infectious action, which provides significant protection against pathogens in the first hours of life[3]. It also contains a variety of nutrients and proteins that promote the maturation of the gastrointestinal tract[6].

This fluid differs markedly from transitional milk (produced between the third and tenth day postpartum) and mature milk (from the second week onwards). Colostrum has higher levels of proteins and antibodies, while being lower in fat and carbohydrates[3]. Transition milk, in turn, represents an adaptation phase, progressively increasing the energy and lipid content, while mature milk stabilizes the macronutrient composition, adjusting to the infant's growth and development needs[7].

It is in this sense that the "golden hour", the critical period corresponding to the first hour of the newborn's life, stands out as the ideal time to start breastfeeding[3]. NBs who are breastfed at this time are more likely to be exclusively breastfed until 6 months of age, thus drastically reducing the risk of infant mortality and contributing to their healthy development[8].

Despite the existing scientific evidence on the importance of breastfeeding as early as possible, many newborns are fed breastmilk substitutes in the first hours of life, often associated with logistical or clinical factors, such as caesarean deliveries or hospitalization in neonatology units[9]. This practice can compromise the transfer of colostrum from the mother to the NB, the success of breastfeeding and the benefits associated with it[6].

## Clinical indications for the practice

The practice of PCE has attracted growing interest in the field of perinatal care, especially in pregnant women with specific clinical conditions, such as diabetes mellitus or gestational diabetes, chronic or pregnancy-induced hypertension, as well as in cases of elective caesarean sections[3]. These women have an increased risk of difficulties in the early initiation of breastfeeding, in particular the inability to provide the first feed to the NB within the first hour of life (a critical period for the transfer of passive immunity, the stimulation of lactogenesis II and the promotion of maternal-infant bonding)[11].

Scientific evidence shows that NBs of mothers with diabetes are more likely to develop hypoglycemia in the first hours of life, and the introduction of breast milk substitutes is common[7]. As a solution to the use of breastmilk substitutes, the pregnant woman can opt for PCE, which can be carefully stored in appropriate conditions and taken to hospital at the time of delivery[4]. If supplementation is necessary, this colostrum can be administered to the NB during their hospital stay. This practice proves to be an effective strategy for ensuring the continuity of exclusive breastfeeding from the first days of life[8].

In this context, colostrum stands out as an element of excellence, given that its specific nutritional composition favours a smoother metabolic transition after birth, contributing to the effective stabilization of blood glucose levels. Compared to formula milk, colostrum is more efficient at preventing blood glucose fluctuations, offering a safe and physiological alternative for the NB's initial metabolic control[6].

The presence of metabolic conditions, such as polycystic ovary syndrome and metabolic syndrome, which can negatively interfere with both the development of mammary gland tissue and the hormonal signaling essential for adequate milk production[7].

PCE corresponds to the practice of manual expression and collection during pregnancy, the aim of which is to create a reserve available for administration to the NB after birth. This strategy ensures a supply of breast milk in the first few hours of life, minimizing the need to resort to breast milk substitutes[4]. It is recommended to start expressing colostrum manually between 36 and 37 weeks of pregnancy, twice a day, for a period of 10 minutes each. The colostrum collected is frozen and after thawing can be administered as a supplement or instead of direct breastfeeding, when this is compromised[1].

## Potential benefits of the practice

Historically, there have been concerns that PCE could interfere with hormones such as oxytocin that trigger the spontaneous onset of labor[8]. However, new studies describe that colostrum stimulation is not associated with uterine hyperstimulation or fetal compromise, as long as it is practiced under the guidance of a health professional[7].

PCE began as a strategy aimed at preparing pregnant women for breastfeeding, and has been used as a tool aimed at improving maternal confidence and achieving better breastfeeding results[8]. For mothers, especially those who are nulliparous or diagnosed with diabetes, this practice can boost confidence in their ability to breastfeed, acting as an instrument of empowerment[7].

Learning the manual expression technique before giving birth promotes knowledge about the physiology of lactation, while allowing practical preparation for feeding the NB. These factors translate into greater maternal safety and a smoother transition to breastfeeding in the immediate postpartum period[1]. It is a strategy with significant benefits for both the mother and the NB. For babies, this procedure ensures a valuable nutritional resource in the first moments of life, especially in cases where there are immediate feeding difficulties after birth[8].

The availability of previously collected colostrum is especially relevant in clinical situations such as maternal diabetes or caesarean deliveries, contributing to the prevention of neonatal hypoglycemia and reducing the need to resort to artificial milk supplements during hospitalization[12]. However, other studies report that women who experienced colostrum expression in pregnancy reported negative emotions such as pain and discomfort, shame, fear of early induction of labor, causing harm to the fetus, disappointment at the inadequate volume of milk expressed[8].

### Risks and concerns

Although PCE is considered a viable option, its safety is still questionable[1]. Studies have analyzed the relationship between the occurrence of maternal complications, such as early onset of labor, blood loss, maternal hypoglycemia, as possible side effects of PCE[8]. In the fetus, decreased fetal movements, or a higher incidence of admissions to neonatal intensive care units, low birth weight or low Apgar score at birth. However, no correlation was found between these possible complications and PCE[7].

The main complication arising from this practice is related to the early onset of labor, due to the fact that breast stimulation can increase the circulation of endogenous oxytocin, contributing to uterine irritation, which can trigger contractions and lead to preterm labor[1]. Although uterine contractions are common during PCE, there was no evidence of damage to the fetus or signs of preterm labor[7].

Recent studies have shown that PCE performed after 36 weeks of pregnancy and under the guidance of health professionals trained in breastfeeding is generally safe and does not significantly increase the risk of preterm labor or fetal impairment[3]. Most women who practice PCE report feelings of confidence, security, self-knowledge, familiarity with their breasts and feeling more prepared for breastfeeding in the postpartum period[13].

However, PCE can trigger feelings of embarrassment, anxiety, fear and frustration, associated with pain and discomfort during the act of expression. These feelings stem from the fear of causing preterm birth or harm to the baby, as well as a low volume of colostrum extracted or even the inability to extract it[12].

### Role of the Specialist Nurse in Maternal and Obstetric Health Nursing in the PCE

The Specialist Nurse in Maternal and Obstetric Health Nursing has a privileged position when it comes to promoting breastfeeding, as they are able to provide direct assistance to pregnant women[14]. As the holder of information, it is the Specialist Nurse in Maternal and Obstetric Health Nursing responsibility to promote, encourage and support breastfeeding, and not just to provide assistance, but also to promote and educate[15]. As well as being responsible for clarifying doubts, fears and uncertainties, they have a duty to increase maternal confidence, self-esteem and security[14]. To this end, they need to develop theoretical and practical skills in order to provide up-to-date care based on scientific evidence[16].

Through educational activities, the Specialist Nurse in Maternal and Obstetric Health Nursing becomes the first-line agent in providing instruction and guidance on the best ways to offer breast milk to infants, ensuring that this occurs correctly and safely[16]. PCE should be carried out whenever the pregnant woman wishes, or when clinically indicated, and it is the responsibility of the Specialist Nurse in Maternal and Obstetric Health Nursing to provide prior instruction and adequate monitoring, ensuring that PCE is carried out safely and effectively[14]. They should provide information on how to massage the breast, the correct placement of the fingers, move-

ments for a more effective expression, minimizing the occurrence of pain or discomfort, as well as managing expectations, in order to avoid feelings such as anxiety and frustration[15].

Educate the pregnant woman about possible warning signs, such as prolonged or frequent uterine contractions, vaginal blood loss, general malaise, advise her to cease manual expression and seek medical advice to assess her well-being and that of the fetus[17]. Guidance from health professionals trained in breastfeeding is important for a safe and more effective PCE. In this way, the role of the Specialist Nurse in Maternal and Obstetric Health Nursing becomes essential for the success of this practice[3].

### Guidelines and directives from Health Organizations (WHO, UNICEF and Professional Associations)

PCE has been recognized as a safe and beneficial practice, especially in contexts where mother-baby separation is anticipated, such as caesarean section or the birth of NBs with specific needs (children of mothers with diabetes or other conditions), which may compromise the early initiation of breastfeeding[18,19].

This practice, when conducted in an ethical, informed and safe manner, contributes significantly to the promotion of exclusive breastfeeding (BF) from the first hours of life, in line with the principles advocated by the Baby-Friendly Hospital Initiative (BFHI), promoted by the World Health Organization (WHO) and the United Nations Children's Fund (UNICEF)[19].

The Standards for Maternity Care Units, developed by the Midwifery Unit Network and translated by the Portuguese Association of Obstetric Nurses (APEO), advocate a woman-centered approach, where the training of Specialist Nurse in Maternal and Obstetric Health Nursing includes specific skills to support evidence-based practices, such as PCE[20]. According to the recommendations of bodies such as the DGS, it is essential that the decision to start PCE is individualized, based on a risk-benefit assessment for each woman and carried out only after professional advice. The procedure should be explained in detail, including the correct manual PCE technique, the essential hygiene conditions and the safe storage of colostrum, in order to minimize the risk of infection or obstetric complications[21].

Therefore, in order for PCE to be effective and safe, some essential requirements must be guaranteed. Firstly, it is essential that the pregnant woman receives clear, evidence-based information about the procedure, including its benefits, indications and possible discomforts[20].

In this context, the role of the Specialist Nurse in Maternal and Obstetric Health Nursing is central to educating and supporting the pregnant woman throughout this process. They should provide evidence-based information on the potential benefits and risks of the NIPC, clarify doubts and myths, and ensure that the woman understands all the stages of the procedure. In addition, it is up to them to identify possible clinical contraindications, adapt the recommendations to the individual context and promote the empowerment of the pregnant woman to make informed decisions[21].

The role of health professionals in this process goes beyond mere practical instruction. The Specialist Nurse in Maternal and Obstetric Health Nursing, together with the multidisciplinary team, must educate, support and empower the pregnant woman, promoting self-confidence and reducing the anxiety associated with PCE. They should also ensure continuous monitoring, reviewing the technique, assessing the volumes collected, advising on the safe storage of colostrum and planning its use after the birth of the baby, especially in specific situations (e.g. neonatal hypoglycemia)[19,20].

Implementing this practice in a hospital setting requires a structured protocol. It is proposed that, at the antenatal appointment, the Specialist Nurse in Maternal and Obstetric Health Nursing identifies women who are candidates for PCE (for example, mothers with diabetes, a history of breastfeeding difficulties, or a risk of mother-baby separation) and offers individualized education on the subject. The woman should be trained in the manual expression technique and instructed to start PCE daily, with regular supervision[19,20].

On admission to hospital for the birth, she should be asked to bring previously collected colostrum, duly labeled, stored and transported in the cold. After birth, colostrum can be administered to the newborn in the cases indicated above, thus reinforcing the transition to exclusive breastfeeding, in accordance with the Ten Steps to Successful Breastfeeding[19].

### Maternal perceptions of colostrum expression: Satisfaction and challenges in living the practice

Maternal perceptions of PCE are profoundly influenced by emotional factors such as confidence, fear, shame and one-off experiences, and these aspects are widely discussed in the scientific literature. Several authors point out that the process of PCE can be experienced ambivalently by mothers: on the one hand, there is a sense of pride and satisfaction at being able to feed their newborn with a food that is recognized as valuable; on the other hand, there are often feelings of insecurity, anxiety and fear of not being able to extract enough, especially when the practice is carried out in a hospital environment or in front of health professionals[22].

For many women, this practice represents an opportunity to actively contribute to the wellbeing of the NB, especially when there are some limitations to starting breastfeeding, such as in cases of caesarean section, prematurity or children of mothers with diabetes. However, this experience is not without its challenges[18,19,20].

Maternal confidence is seen as a facilitating factor, promoting greater adherence to practice and satisfaction with the process[23]. However, the fear of not living up to expectations, of feeling pain or of being judged can trigger feelings of shame and embarrassment, especially in contexts where PCE is necessary due to difficulties in direct breastfeeding[24].

On the one hand, confidence and relief tend to emerge when the woman feels guided, respected and included in the process, especially when she understands the positive impact of colostrum in the baby's first days of life. On the other hand, reports of fear of doing something "wrong", shame associated with exposing the body or even doubts about the effectiveness of the technique are not uncommon. These insecurities are particularly acute when there is no clear explanation from the professionals or when the woman doesn't feel listened to in her doubts and fears[18,19,20].

This is where the importance of empathetic communication and well-founded information becomes key elements for a positive experience of the practice. The Standards for Maternity Care Units stress that the care provided to pregnant women should be person-centered, with an emphasis on respecting their autonomy, validating their emotions and providing ongoing informational support. This approach allows women to feel more secure, understood and involved in their own maternity process, reducing stress and increasing adherence to the practice[20].

In a complementary way, the Baby-Friendly Hospital Initiative[19] reinforces that clear communication, emotional support and women's empowerment are essential for the success of breastfeeding and associated practices, such as the PCE. This initiative advocates that women should be informed about the benefits of colostrum from the time they are pregnant, that they should be monitored individually and that they should receive encouragement so that they feel confident and capable.

In addition, Guideline number 002/2023 from the Directorate-General for Health stresses that monitoring of labour and the puerperium should be carried out by multidisciplinary teams that respect the individuality of the pregnant woman and promote safe and humanized environments[18]. These principles are equally applicable to the antenatal period, especially when less common practices are introduced, such as PCE[18,19,20].

In short, the experience of PCE is deeply linked to the way in which women are welcomed, listened to and accompanied by health professionals. Empathy, active listening and the sharing of appropriate information not only help to reduce feelings of fear and shame but also strengthen the relationship of trust between the woman and her caregivers, allowing her to take ownership of the experience as a gesture of love and care for her baby.

### Scientific evidence: limitations, inconclusive results and gaps in the literature

The need for scientific evidence in nursing practice is extremely important. PCE has been presented as a means of preventing breastfeeding complications from the outset, in situations considered to be at risk, such as the risk of hypoglycemia in NBs of mothers with gestational diabetes and/or diabetes mellitus, also associated with a possible delay in lactogenesis II[1].

However, the safety and efficacy of PCE continues to raise questions, due to the limitations found in the studies carried out on this subject[1]. Two studies report the lack of evidences on the efficiency of PCE on maternal and newborn outcomes[1,17].

One of the limitations presented in the available studies is that they are small samples, making it difficult to generalize the results[7,8]. The authors also point out as a limitation the existence of only one large-scale clinical trial which shows that no correlation has been established between PCE and maternal complications which could jeopardize well-being during pregnancy, such as early onset of labor or blood loss, as well as unfavorable outcomes for the NB, such as admission to neonatal intensive care services, low birth weight, or low Apgar score at birth[7].

In the study by Foudil-Bey *et al*[1] suggested that future studies should focus on clear hypotheses, in order to generate the publication and registration of protocols, describing the method of expression, the moment of intervention (gestational time), time of expression, which is still without consensus, with divergences in the guidelines given. More research and high-quality studies are needed to delineate the ideal time to start PCE, its safety and the impact on breastfeeding rates[8].

## Final Considerations

Although it is still a relatively recent practice and not very widespread in many contexts, PCE is proving to be increasingly relevant in the light of current scientific evidence. Throughout this study, it became clear that early preparation for breastfeeding, especially in higher risk situations such as gestational diabetes or caesarean section deliveries, can be an effective strategy for ensuring the early and exclusive start of breastfeeding.

The benefits of PCE during pregnancy go beyond simply providing the newborn with complete nutrition. This practice not only minimizes the need to resort to artificial formulas, but also helps stabilize the baby's blood sugar, reduces the risk of neonatal complications and strengthens the bond between mother and child in the first hours of life. For women, the process can also be empowering, promoting greater confidence in their ability to breastfeed and facilitating practical knowledge about the physiology of lactation.

Even so, concerns persist about the safety and efficacy of the practice, especially with regard to the possibility of inducing preterm labor and the lack of clear consensus on the ideal protocol for expression. The available studies, although promising, are largely small-scale and have methodological limitations, which highlights the need for more robust and systematized research.

It is essential to recognize that PCE is not without challenges and limitations. Some women report discomfort, anxiety, or doubts about the technique, and it is essential that this practice always be guided by a nurse specializing in maternal and obstetric health, especially to avoid risks such as premature induction of labor in cases of contraindication.

The role of the Specialist Nurse in Maternal and Obstetric Health Nursing is crucial in this context. It is this professional who has the competence to inform, support, train and accompany pregnant women in the practice of PCE, ensuring that it is carried out safely, consciously and respectfully of the woman's individuality. Empathetic communication, active listening and continuous support are crucial for women to feel safe and confident throughout the process.

The conclusion is that PCE, when properly guided and individualized, can be a valuable tool in promoting maternal and child health. However, for this practice to be integrated safely and effectively into perinatal care, specific training for health professionals, the development of institutional protocols and high-quality scientific studies to consolidate the

available evidence are essential. This reinforces the importance of an evidence-based approach, centred on women and geared towards humanizing care.

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