

Effect of Oral Stimulation on Feeding Performance of Preterm Infants: A Systematic Review

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ADMINISTRATIVE INFORMATION

**Support** - None.

**Review Stage at time of this submission** - Completed but not published.

**Conflicts of interest** - None declared.

**INPLASY registration number:** INPLASY2024100083

**Amendments** - This protocol was registered with the International Platform of Registered Systematic Review and Meta-Analysis Protocols (INPLASY) on 18 October 2024 and was last updated on 18 October 2024.

INTRODUCTION

**Review question / Objective** The research question is structured using the PICO format (Population, Intervention, Comparator, Outcome):  
Population (P): Preterm infants  
Intervention (I): Oral stimulation  
Comparator (C): Standard procedure  
Outcome (O): Feeding performance  
The specific question addressed is: "What is the importance of oral stimulation (I) compared to the standard procedure (C) in improving feeding performance (O) in preterm infants (P)?"  
Outcome Measures: The primary outcome is the feeding performance, assessed using several measures:  
Milk transfer rate  
Total milk intake volume  
Feeding performance/sucking patterns  
Time to start oral feeding  
Independent oral feeding

Effective breastfeeding  
Early hospital discharge.

**Rationale** Prematurity presents numerous challenges for newborns. One of the major difficulties is centered around the feeding process and the need for specific interventions to ensure the safety and effectiveness of swallowing.

**Condition being studied** Oral stimulation in the sucking/feeding process of preterm newborns.

METHODS

**Search strategy** The search was conducted by two independent researchers in the following databases: PubMed Central, SciELO, LILACS, and databases accessed via the EBSCOHost platform (CINAHL Complete, Cochrane Collection Plus, Nursing & Allied Health Collection, and Medic Latina).

No restrictions on publication period or language were applied.

The search terms included:

"Speech Therapy" (MeSH) and "Stimulation" (entry term)

"Infant, Premature" (MeSH) and "Preterm infant" (entry term)

"Sucking behavior," "Breastfeeding," "Feeding behavior" (MeSH), and "Breastfeeding," "Wet nursing" (entry term)

Boolean operators (AND, OR) were used to combine the descriptors, with proximity operators and truncation to maximize the search.

**Participant or population** Preterm newborns.

**Intervention** Oral stimulation in the sucking/feeding process.

**Comparator** Standard neonatal care - set of practices and interventions performed to promote the health and well-being of newborns.

This includes medical assistance, monitoring, and support for newborns, focusing on the prevention, early diagnosis, and treatment of conditions that may threaten life or development."

**Study designs to be included** primary studies (i.e. Clinical Trials; Cohort Studies; Case-Control Studies).

**Eligibility criteria** Inclusion criteria: Primary studies on preterm infants (born at 25-36 weeks gestation) with feeding difficulties, stable without the need for mechanical ventilation, and exposed to oral stimulation and non-nutritive sucking programs.

Exclusion criteria: Duplicate articles, editorials, grey literature, case studies, secondary studies, and studies involving infants with primary diagnoses unrelated to the research question were excluded. Articles were not excluded based on the level of evidence.

**Information sources** The search was conducted in the following databases: PubMed Central, SciELO, LILACS, and databases accessed via the EBSCOHost platform (CINAHL Complete, Cochrane Collection Plus, Nursing & Allied Health Collection, and Medic Latina).

**Main outcome(s)** The primary outcome is the feeding performance, assessed using several measures:

Milk transfer rate

Total milk intake volume

Feeding performance/sucking patterns

Time to start oral feeding

Independent oral feeding

Effective breastfeeding

Early hospital discharge.

**Additional outcome(s)** Not applicable.

**Data management** Selection of studies:

1. All results retrieved by the search strategy for potential eligibility were imported to Rryan software to remove duplicates.

2. Two review authors independently assessed the titles and abstracts to select studies and reviews potentially including eligible studies.

3. After screening the search results, full-text assessment was done for study selection according to the Eligibility criteria

4. Eligibility was independently assessed with disagreement resolved by consensus with a third review author

Data extraction and management:

Data extraction was performed by using a prospectively designed standardized data extraction form.

**Quality assessment / Risk of bias analysis**

Studies were evaluated using the Quality Assessment Tool for Quantitative Studies, assessing six factors: sample representativeness, study design, confounding factors, blinding, data collection, and retention rates.

The overall quality of each study was rated as strong, moderate, or weak.

**Strategy of data synthesis** The selection of studies followed the PRISMA guidelines, with a flowchart illustrating the process.

Studies were organized in a table according to their characteristics, and a detailed narrative synthesis was performed based on the outcomes related to feeding performance in preterm infants.

**Subgroup analysis** None planned.

**Sensitivity analysis** Not applicable.

**Language restriction** No.

**Country(ies) involved** Portugal.

**Keywords** Oral stimulation; Premature; Preterm infant; Sucking behavior; Breastfeeding; Feeding behavior.

**Dissemination plans** The systematic review results will be submitted for publication in a relevant peer-reviewed academic journal to ensure scientific scrutiny and to reach a specialized audience.

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### Contributions of each author

Author 1 - Ines Figueiredo - Conceptualisation; Methodology; Data collection; Formal Analysis & first draft.

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