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Respiratory physiotherapy and strategies associated with ventilatory support in neonates with neonatal respiratory distress syndrome: an integrative literature review

Fisioterapia respiratória e estratégias associadas ao suporte ventilatório em neonatos com síndrome do desconforto respiratório neonatal: uma revisão integrativa da literatura

Fisioterapia respiratoria y estrategias asociadas al soporte ventilatorio en neonatos con síndrome de dificultad respiratoria neonatal: una revisión integradora de la literatura

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ABSTRACT

Objective: To describe the role of respiratory physiotherapy and strategies associated with ventilatory support in the management of neonates with Neonatal Respiratory Distress Syndrome (RDS), as well as the main clinical outcomes related to these practices. **Methods:** This is an integrative literature review with a descriptive approach, conducted in the SciELO, PubMed, PEDro, BVS/Bireme, and LILACS databases. Initially, 187 articles were identified, of which 10 studies were included in the final sample after duplicate removal and application of the eligibility criteria. Eligible studies included full-text articles published between 2021 and 2026, in Portuguese and English, with quantitative, qualitative, mixed, observational, or experimental approaches, addressing the role of respiratory physiotherapy in neonates with RDS or neonatal respiratory distressin hospital settings or neonatal intensive care units. **Results:** The ten analyzed studies suggested that respiratory physiotherapy may contribute to improvements in ventilatory parameters, reduction in respiratory rate, optimization of gas exchange, and decreased duration of mechanical ventilation and hospitalization. It was also observed that approaches associated with ventilatory support presented more favorable clinical outcomes, especially when applied in an individualized manner. **Final considerations:** The analyzed studies suggest that respiratory physiotherapy may positively contribute to the clinical stability and respiratory improvement of neonates with RDS. However, the methodological heterogeneity of the included studies demonstrates the need for further research with greater scientific rigor to strengthen the available evidence.

Keywords: Respiratory physiotherapy, Neonates, Respiratory distress syndrome.

RESUMO

Objetivo: Descrever a atuação da fisioterapia respiratória e de estratégias associadas ao suporte ventilatório no manejo de neonatos com Síndrome do Desconforto Respiratório Neonatal (SDRN) bem como os principais desfechos clínicos relacionados a essas práticas. **Métodos:** Trata-se de uma revisão integrativa da literatura, de abordagem descritiva, realizada nas bases de dados SciELO, PubMed, PEDro, BVS/Bireme e LILACS. Inicialmente, foram identificados 187 artigos, dos quais, após a remoção de duplicidades e aplicação dos

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critérios de elegibilidade, resultaram 10 estudos incluídos na amostra final. Foram considerados elegíveis artigos completos, publicados entre 2021 e 2026, nos idiomas português e inglês, com abordagem quantitativa, qualitativa, mista, observacional ou experimental, que abordassem a atuação da fisioterapia respiratória em neonatos com SDRN ou síndrome do desconforto respiratório neonatal em ambiente hospitalar ou em unidades de terapia intensiva neonatal. **Resultados:** Os dez estudos analisados sugeriram que a fisioterapia respiratória pode contribuir para melhora dos parâmetros ventilatórios, redução da frequência respiratória, otimização das trocas gasosas e diminuição do tempo de ventilação mecânica e de internação. Observou-se ainda que abordagens associadas ao suporte ventilatório apresentaram desfechos clínicos mais favoráveis, especialmente quando aplicadas de forma individualizada. **Considerações finais:** Os estudos analisados sugerem que a fisioterapia respiratória pode contribuir positivamente para a estabilidade clínica e melhora respiratória de neonatos com SDRN. Entretanto, a heterogeneidade metodológica dos estudos incluídos demonstra a necessidade de novas pesquisas com maior rigor científico para fortalecimento das evidências disponíveis.

Palavras-chave: Fisioterapia respiratória, Neonatos, Síndrome do desconforto respiratório.

RESUMEN

Objetivo: Describir la actuación de la fisioterapia respiratoria y de las estrategias asociadas al soporte ventilatorio en el manejo de neonatos con Síndrome de Dificultad Respiratoria Neonatal (SDRN), así como los principales desenlaces clínicos relacionados con estas prácticas. **Métodos:** Se trata de una revisión integradora de la literatura, con enfoque descriptivo, realizada en las bases de datos SciELO, PubMed, PEDro, BVS/Bireme y LILACS. Inicialmente, se identificaron 187 artículos, de los cuales, tras la eliminación de duplicados y la aplicación de los criterios de elegibilidad, se incluyeron 10 estudios en la muestra final. Fueron considerados elegibles artículos completos, publicados entre 2021 y 2026, en portugués e inglés, con enfoque cuantitativo, cualitativo, mixto, observacional o experimental, que abordaran la actuación de la fisioterapia respiratoria en neonatos con SDRN o dificultad respiratoria neonatal en ambiente hospitalario o en unidades de cuidados intensivos neonatales. **Resultados:** Los diez estudios analizados sugirieron que la fisioterapia respiratoria puede contribuir a la mejoría de los parámetros ventilatorios, reducción de la frecuencia respiratoria, optimización del intercambio gaseoso y disminución del tiempo de ventilación mecánica y hospitalización. También se observó que los enfoques asociados al soporte ventilatorio presentaron desenlaces clínicos más favorables, especialmente cuando se aplicaron de forma individualizada. **Consideraciones finales:** Los estudios analizados sugieren que la fisioterapia respiratoria puede contribuir positivamente a la estabilidad clínica y a la mejoría respiratoria de neonatos con SDRN. Sin embargo, la heterogeneidad metodológica de los estudios incluidos demuestra la necesidad de nuevas investigaciones con mayor rigor científico para fortalecer la evidencia disponible.

Palabras clave: Fisioterapia respiratoria, Neonatos, Síndrome de dificultad respiratoria.

INTRODUCTION

Neonatal Respiratory Distress Syndrome (RDS) is characterized as a respiratory disorder associated with pulmonary immaturity and surfactant deficiency in the production of pulmonary surfactant, a substance essential for alveolar stability and for the proper performance of gas exchange (GARATE LAC, et al., 2024). This alteration favors alveolar collapse, reduces lung compliance, and compromises ventilation and oxygenation in the newborn, directly compromising neonatal survival and requiring immediate therapeutic interventions. Thus, RDS stands out as one of the main causes of morbidity and mortality in Neonatal Intensive Care Units (NICUs), especially among premature newborns, reinforcing the need for therapeutic strategies aimed at clinical stabilization and recovery of respiratory function (NASCIMENTO MEB, et al., 2024).

The syndrome predominantly affects neonates with a gestational age of less than 35 weeks and is recognized as one of the leading causes of mortality in this population group. Studies indicate that neonates

diagnosed with this condition may present high mortality rates and, among survivors, many develop chronic hypoxemia, often requiring prolonged oxygen therapy after the 36th week of life. These findings highlight the severity of RDS in the neonatal period and reinforce the importance of clinical interventions capable of reducing respiratory complications and improving patient prognosis. Furthermore, the prevention of RDS is also associated with adequate prenatal monitoring, since the absence of proper prenatal care significantly increases the risk of developing this pathology (TAVARES AB, 2019; SWEET DG, 2019).

In addition to respiratory instability, neonates with RDS are also more vulnerable to complications such as prolonged hospitalization, recurrent infections, bronchopulmonary dysplasia, and delays in neurodevelopment, especially among extremely premature infants. The need for invasive ventilatory support and prolonged oxygen therapy may further increase the risk of pulmonary and systemic complications, directly impacting neonatal prognosis and quality of life after hospital discharge. In this context, early therapeutic interventions become essential not only for respiratory stabilization, but also for minimizing long-term complications associated with neonatal respiratory failure. Therefore, comprehensive and individualized care provided in NICUs is fundamental for improving survival rates and reducing adverse outcomes in this highly vulnerable population (SIMÕES ADMF, 2019).

Given this scenario, respiratory physiotherapy is of great importance in the clinical management of neonates affected by respiratory disorders, as it acts both in the prevention and treatment of pulmonary complications. Through specific techniques adapted to the physiological fragility of the newborn, physiotherapists assist in optimizing alveolar ventilation, improving oxygenation, and maintaining airway patency. These interventions favor the reduction of respiratory effort, promote lung re-expansion, and support the ventilatory weaning process, in addition to helping reduce the length of stay in NICUs (SIMÕES ADMF, 2019; ROCHA MESB, et al., 2023).

In this care context, physiotherapeutic practice involves different therapeutic strategies that may include non-invasive ventilatory support, monitoring of respiratory mechanics, secretion mobilization, and the application of techniques aimed at improving lung compliance and alveolar ventilation. When applied judiciously and based on scientific evidence, these interventions may help reduce respiratory complications, improve neonatal clinical stability, and support better survival outcomes (PONTES S, et al., 2021; GOMES A, 2021).

Recent studies have reinforced the importance of respiratory physiotherapy and non-invasive ventilatory support in neonatal intensive care units, especially in premature newborns with respiratory distress syndrome. A study published analyzed neonatal pain and physiological parameters during respiratory physiotherapy maneuvers in preterm infants with respiratory distress syndrome and demonstrated that properly applied physiotherapeutic interventions did not promote significant increases in pain indicators, while contributing to improvements in respiratory and physiological stability. These findings reinforce the safety of respiratory physiotherapy when performed according to neonatal clinical conditions and evidence-based protocols (SANTOS R, et al., 2025).

In addition, non-invasive ventilatory support strategies have also shown relevant applicability in neonatal respiratory care. Recent evidence regarding Continuous Positive Airway Pressure (CPAP) in premature newborns indicates that this modality contributes to alveolar stabilization, improvement of oxygenation, reduction of respiratory effort, and prevention of complications associated with invasive mechanical ventilation. The literature also highlights that the use of CPAP may reduce ventilatory instability and assist in maintaining pulmonary function in premature neonates with respiratory distress (CAVALCANTE GA, et al., 2025).

Furthermore, the integration between respiratory physiotherapy and ventilatory support has been increasingly discussed as an important strategy for improving neonatal outcomes in intensive care settings. The combination of individualized physiotherapeutic techniques with non-invasive ventilatory modalities may contribute to greater respiratory stability, optimization of pulmonary mechanics, and reduction of hospitalization time. These findings reinforce the importance of multiprofessional and evidence-based care focused on the specific clinical needs and physiological fragility of neonates admitted to NICUs (SANTOS R, et al., 2025).

Considering the complexity of RDS and the need for multiprofessional care in the treatment of critically ill newborns, it is essential to expand scientific knowledge regarding the physiotherapeutic interventions used in this context. The analysis of evidence available in the literature allows a broader understanding of the applicability, benefits, and possible limitations of these interventions, assisting in the improvement of care practices and in the qualification of care provided in neonatal units (AMORIM CB, 2025; CAO H, 2020).

Furthermore, the proper management of RDS does not depend solely on ventilatory support, but also on the integration of different therapeutic strategies that assist in stabilizing respiratory function and preventing associated complications. In this sense, respiratory physiotherapy may contribute significantly within the multiprofessional team, supporting clinical decision-making and the implementation of therapeutic approaches based on scientific evidence (COSTA KCS e CABRAL FD, 2022).

In light of the above, this study aims to describe the role of respiratory physiotherapy and strategies associated with ventilatory support in the management of neonates with Neonatal Respiratory Distress Syndrome, as well as the main clinical outcomes related to these practices.

METHODS

This study consists of an integrative literature review focused on the role of respiratory physiotherapy in neonates diagnosed with Neonatal Respiratory Distress Syndrome. This methodological approach was chosen because it allows the inclusion and synthesis of studies with different methodological designs, contributing to a broader and more comprehensive understanding of the scientific evidence related to the investigated topic.

The review was conducted using a descriptive approach, aiming to analyze the main respiratory physiotherapy interventions applied in neonates with RDS and their associated clinical outcomes.

To guide the development of the review, the following research question was established: “What scientific evidence is available in the literature regarding the role of respiratory physiotherapy in neonates with Neonatal Respiratory Distress Syndrome?” The articles included in the analysis were retrieved from the electronic databases SciELO, PubMed, PEDro, BVS/Bireme, and LILACS.

For the search strategy, the following Health Sciences descriptors (DeCS/MeSH terms) were used: “respiratory physiotherapy,” “neonates,” “neonatal respiratory distress syndrome,” “newborn,” and “neonatal intensive care,” combined using the Boolean operators AND and OR according to the search specificity required in each database.

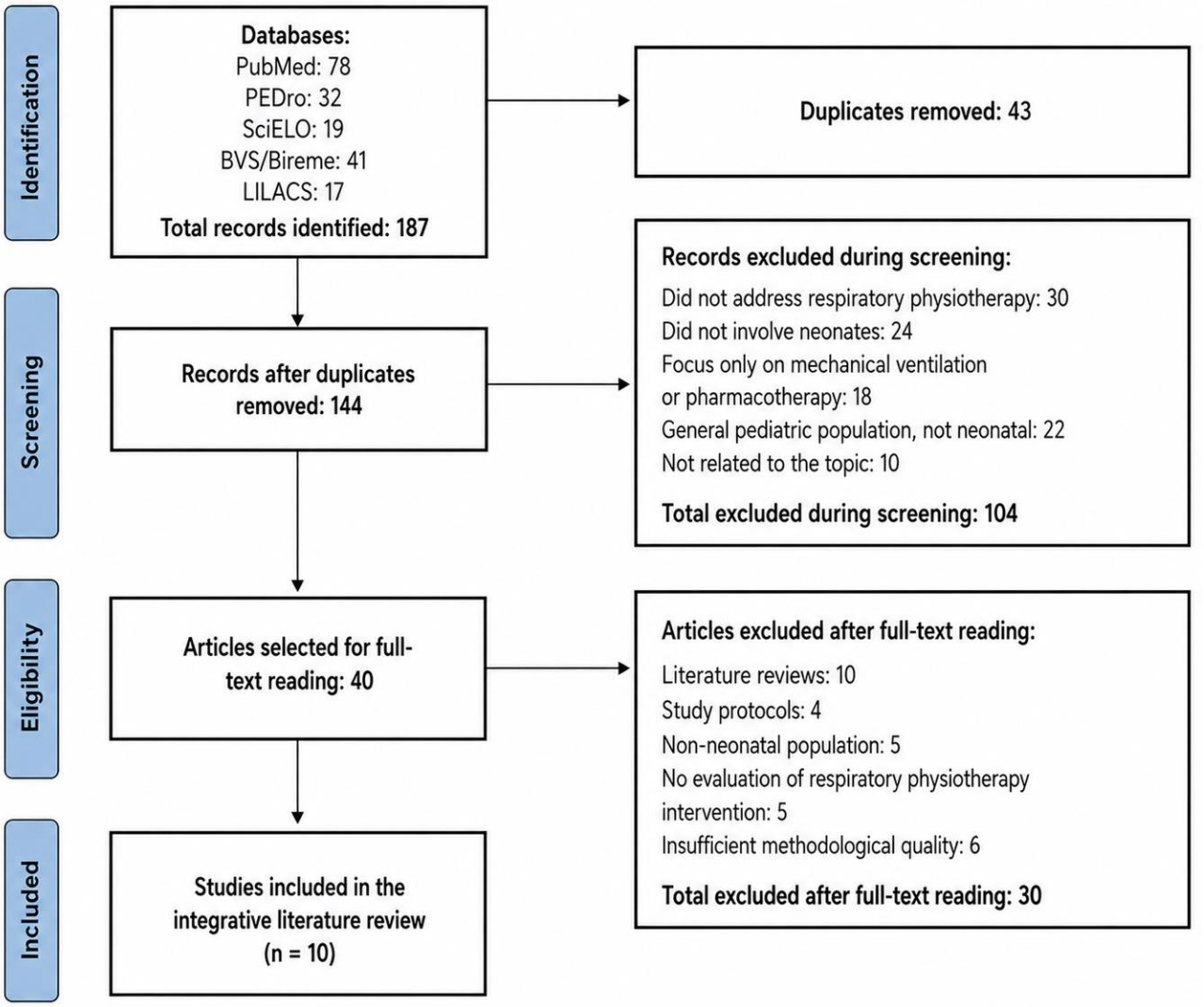
The inclusion criteria adopted for study selection were: full-text articles available in their entirety; published between 2021 and 2026; written in Portuguese or English; original studies with quantitative, qualitative, mixed, observational, descriptive, or experimental approaches; and studies addressing the role of respiratory physiotherapy in neonates with RDS or neonatal respiratory distress in hospital settings or neonatal intensive care units.

The exclusion criteria consisted of duplicate articles, review studies, simple abstracts, dissertations, theses, letters to the editor, book chapters, articles published prior to 2021, studies written in Spanish, and studies not directly related to the proposed theme.

After the search process, the studies were selected through the reading of titles and abstracts, followed by full-text analysis of potentially eligible studies. Subsequently, the selected articles were organized into a summary table containing the following information: author, year, objective, methodological design, and main results, in order to support the descriptive and comparative synthesis of the findings.

For better visualization of the study selection stages, a flowchart (**Figure 1**) is presented below, illustrating the phases of identification, screening, eligibility, and inclusion of articles according to the criteria established for this integrative literature review. The study selection process was organized according to PRISMA recommendations.

Figure 1 - Flowchart of the article selection process.



Source: Rodrigues IT, et al., 2026.

RESULTS

The studies included in this integrative literature review addressed different respiratory physiotherapy interventions applied to neonates with RDS, which were organized into main categories according to the therapeutic approach used. Among the identified interventions were manual respiratory physiotherapy techniques, non-invasive ventilatory support strategies, airway clearance techniques, integrated rehabilitation protocols such as PROMPT, and combined therapeutic approaches associated with mechanical ventilation. The studies also demonstrated methodological variability, including randomized clinical trials, observational studies, quantitative studies, and descriptive investigations, reflecting the diversity of physiotherapeutic practices adopted in neonatal intensive care settings.

Regarding the main clinical outcomes, the most frequently reported findings included improvements in oxygen saturation, reduction in respiratory rate, optimization of pulmonary ventilation, enhancement of respiratory mechanics, reduction in mechanical ventilation duration, shorter hospitalization time, greater extubation success, and improved neonatal clinical stability.

Some studies also evaluated neonatal pain and safety during physiotherapeutic interventions, indicating that properly applied techniques did not increase pain levels or adverse clinical events. Overall, the analyzed studies suggest that integrated and individualized therapeutic strategies may provide beneficial effects in the respiratory management of neonates with RDS.

Table 1 - Articles selected for the discussion.

Author/year	Objectives	Study design	Main results
LEMOS JL, et al. (2025)	To evaluate the effects of the RTA method in moderate preterm infants, analyzing its influence on respiratory and clinical parameters	Randomized clinical trial	The RTA method improved respiratory parameters, reduced respiratory rate, and was safe, with no increase in pain
RAJAN M, et al. (2025)	To compare three post-extubation respiratory support modalities — non-invasive ventilation (NIV), nasal BiPAP, and nasal CPAP — using the RAM cannula in preterm neonates with respiratory distress syndrome	Randomized, quantitative, and comparative clinical trial	No difference in extubation failure, but N-BiPAP showed longer ventilation and hospitalization time; gestational age ≥29 weeks and higher birth weight were predictors of success
SHARATH H, et al. (2024)	To investigate the effect of physical rehabilitation based on the PROMPT approach (oromotor stimulation, manual airway clearance, positioning, and tactile stimulation) in a preterm infant with RDS	Clinical case report	The PROMPT protocol improved respiratory function and clinical stability, indicating benefits as a complementary approach in neonatal ARDS management
LACERDA ROSEIRA MEC, et al. (2024)	To identify the main physiotherapeutic techniques used in patients diagnosed with RDS	Cross-sectional, descriptive, quantitative study	Predominant use of Expiratory Flow Acceleration (EFA) and Prolonged Slow Expiration (PSE), improving ventilation and secretion clearance
SINGH K, et al. (2024)	To evaluate the effects of respiratory physiotherapy in preterm neonates with respiratory distress syndrome	Quantitative study	Respiratory physiotherapy contributed to improvements in respiratory and clinical outcomes, with a reduction in disease severity among preterm neonates with respiratory distress syndrome
MACEDO JC, et al. (2024)	To compare two secretion removal techniques in preterm infants under mechanical ventilation	Randomized clinical trial	Both techniques improved respiratory parameters, but TAFE showed better results, with higher oxygen saturation, lower respiratory rate, and less pain
AHMED W, et al. (2023)	To compare the efficiency and safety of NHFOV versus NIPPV after extubation	Randomized clinical trial	NHFOV required less oxygen; lung ultrasound predicted extubation success
HAMED A and MOHAMED RS (2022)	To investigate the effect of respiratory physiotherapy in neonates under mechanical ventilation	Experimental quantitative study	Improved respiratory parameters and reduced ventilation and hospitalization time
AMARAL JQ, et al. (2022)	To identify techniques used in NICUs in Rio Grande do Sul	Observational, quantitative, descriptive study	Physiotherapy improved ventilation, stability, and reduced complications
DING F, et al. (2021)	To investigate the efficacy and safety of non-invasive respiratory support methods after extubation	Quantitative, comparative, prospective study	SNIPPV and SNIPPV + NCPAP demonstrated higher extubation success, suggesting that combined ventilatory support strategies may contribute to favorable and safe clinical outcomes in neonates

Source: Rodrigues IT, et al., 2026.

DISCUSSION

When analyzing the study by Lemos JL, et al. (2025), it is observed that the application of the RTA method in moderate preterm infants promoted improvements in respiratory parameters, especially with a reduction in respiratory rate, without an increase in pain, suggesting the safety and potential benefits of the technique. This result indicates that physiotherapeutic interventions aimed at reorganizing respiratory mechanics can directly

contribute to the clinical stabilization of the neonate. Similarly, Singh K, et al. (2024), through a study involving preterm neonates undergoing regular respiratory physiotherapy maneuvers throughout hospitalization, found that the intervention contributed to improved respiratory function and reduced severity of the clinical condition, clearly highlighting the importance of physiotherapy as an essential intervention in the management of RDS.

In this context, there is agreement among the studies in indicating that systematically applied physiotherapeutic interventions may contribute to clinical improvement (LEMOS JL, et al., 2025; SINGH K, et al., 2024). These findings suggest that respiratory physiotherapy may contribute to improvements in ventilatory mechanics and neonatal clinical stability, representing an important component in the management of RDS regardless of the specific technique used, as long as it is appropriately indicated and continuously applied.

Still within the scope of physiotherapeutic interventions, Sharath H, et al. (2024) applied the PROMPT protocol, which included oromotor stimulation, manual airway clearance, therapeutic positioning, and tactile stimulation, aiming to evaluate its influence on the respiratory function of a neonate with RDS. The authors observed improvements in respiratory function and greater clinical stability, indicating the benefits of an integrated approach. In contrast, Lacerda Roseira MEC, et al. (2024), through a study with NICU physiotherapists, investigated the most commonly used techniques in clinical practice, identifying a predominance of traditional methods, such as EFA and PSE, associated with improved ventilation and secretion clearance.

Thus, there is agreement regarding the effectiveness of respiratory physiotherapy, but divergence in the way interventions are applied. While one study highlights the benefits of a multimodal and integrated approach, the other demonstrates that clinical practice still relies on more segmented techniques. Overall, these findings indicate the need for greater alignment between scientific evidence and clinical practice, especially in incorporating more comprehensive strategies into neonatal care (SHARATH H, et al., 2024; LACERDA ROSEIRA MEC, et al., 2024).

Regarding specific respiratory physiotherapy techniques, Macedo JC, et al. (2024) compared conventional respiratory physiotherapy with TAFE, evaluating parameters such as respiratory rate, oxygen saturation, and pain. The results demonstrated improvements in both groups; however, TAFE showed superior outcomes, with better clinical results and greater patient comfort. In comparison, Amaral JQ, et al. (2022), through a study conducted in NICUs, analyzed physiotherapy performance in clinical practice, demonstrating a high use of respiratory physiotherapy, with improvements in ventilation, clinical stabilization, and reduction of respiratory complications, without distinguishing between specific techniques.

It is understood that the studies converge in recognizing the relevance of respiratory physiotherapy in neonatal care, although they differ when it comes to comparing techniques (MACEDO JC, et al., 2024; AMARAL JQ, et al., 2022). While some findings indicate better performance of specific interventions, the other study highlights the overall benefits of physiotherapy without emphasizing superiority. Thus, although the the available evidence suggests beneficial effects of physiotherapy, the appropriate choice of technique may positively influence clinical outcomes.

Despite the positive findings identified in the analyzed studies, important methodological and clinical heterogeneity was observed among the included investigations. Differences were identified regarding gestational age, neonatal clinical severity, ventilatory support modalities, intervention protocols, frequency of physiotherapeutic application, and evaluated outcomes. In addition, some studies presented small sample sizes and different methodological designs, which may limit the generalization of the findings. These aspects demonstrate that, although respiratory physiotherapy presents promising results in neonatal care, the available evidence should still be interpreted with caution, especially considering the variability of clinical contexts and therapeutic approaches.

Regarding non-invasive ventilatory support, Rajan M, et al. (2025), through a comparative clinical trial with preterm neonates, evaluated three non-invasive ventilation modalities (NIV, BiPAP, and CPAP) in the post-extubation period, analyzing outcomes such as extubation failure, duration of ventilation, and length of hospital stay. The authors did not identify significant differences in extubation failure among the groups, although they

observed a longer duration of ventilation with the use of N-BiPAP. They also highlighted that gestational age ≥29 weeks and higher birth weight were predictors of success. Similarly, Ahmed W, et al. (2023) compared non-invasive high-frequency oscillatory ventilation (NHFOV) with conventional non-invasive ventilation (NIPPV), observing a lower oxygen requirement with NHFOV, but no differences in other clinical outcomes.

Overall, the studies are consistent in indicating that different ventilatory modalities yield similar results in key clinical outcomes. In general, these findings suggest that the success of ventilatory support does not depend exclusively on the technique used, but also on neonatal clinical factors, reinforcing the need for individualized treatment (RAJAN M, et al., 2025; AHMED W, et al., 2023).

Finally, when analyzing combined treatment strategies, Ding F, et al. (2021), through a study with 120 preterm neonates, evaluated different non-invasive ventilation modalities, comparing NCPAP alone, SNIPPV, and the combination SNIPPV + NCPAP, observing greater extubation success in the groups that used combined strategies. In contrast, Hamed A and Mohamed RS (2022), through an experimental study with neonates undergoing mechanical ventilation, evaluated the effect of adding respiratory physiotherapy to conventional treatment, identifying improvements in respiratory parameters, as well as reductions in ventilation duration and hospital length of stay.

Thus, these two studies indicate that combining different therapeutic strategies may provide better clinical outcomes than isolated interventions. The findings make it clear that combined approaches, integrating ventilatory support and respiratory physiotherapy, highlight the importance of a multiprofessional approach in neonatal care (DING F, et al., 2021; HAMED A and MOHAMED RS, 2022).

Among the most cited and commonly used techniques, EFA and PSE stand out, as they are more frequently applied in clinical practice within neonatal units, mainly due to their effectiveness in secretion clearance and improvement of ventilation (LACERDA ROSEIRA MEC, et al., 2024). In addition to these, TAFE has also gained prominence, showing superior results compared to conventional physiotherapy in some respiratory parameters and in patient comfort, as well as RTA, which proved to be safe and effective in improving respiratory mechanics (LEMOS JL, et al., 2025).

More integrated interventions have also been highlighted, such as the PROMPT protocol, which combines oromotor stimulation, airway clearance, positioning, and tactile stimulation, demonstrating that broader approaches can also provide important benefits. In the field of ventilatory support, modalities such as CPAP, BiPAP, NIV, NIPPV, NHFOV, NCPAP, and SNIPPV were widely discussed, especially in the post-extubation scenario (RAJAN M, et al., 2025; AHMED W, et al., 2023 and DING F, et al., 2021).

An important point observed in the overall findings is that almost all studies converge in demonstrating clinical benefits associated with respiratory physiotherapy; however, not all identify a single technique as superior in every situation. In other words, there is agreement regarding the importance of physiotherapy, but variability exists in terms of the best way to apply it (AMARAL JQ, et al., 2022; LACERDA ROSEIRA MEC, et al., 2024).

Furthermore, the studies also reveal a gap between what the literature identifies as promising and what is most commonly used in clinical practice. In practice, neonatal units tend to rely more on well-established and standardized techniques, such as EFA and PSE. In contrast, the literature also highlights more integrated approaches and comprehensive protocols that address not only ventilation but also motor, sensory, and functional aspects of the neonate (SHARATH H, et al., 2024; LACERDA ROSEIRA MEC, et al., 2024). This does not mean that one excludes the other, but rather indicates that there is still room to better align scientific evidence with clinical practice, particularly through professional training, team qualification, and the development of more comprehensive care protocols.

Overall, the studies indicate that combined approaches may be associated with more favorable outcomes than isolated interventions, especially when respiratory physiotherapy is associated with ventilatory support (DING F, et al., 2021; HAMED A and MOHAMED RS, 2022). This integration favors improvement in respiratory parameters, reduces complications, and contributes to a more stable recovery.

Another important aspect observed in the literature is that not all respiratory physiotherapy techniques are equally applicable in every neonatal condition. The choice of intervention should consider factors such as neonatal fragility, clinical stability, gestational age, presence of pain, ventilatory support in use, and the experience of the multidisciplinary team. More invasive or intensive techniques may not be appropriate for highly unstable neonates, reinforcing the importance of individualized therapeutic planning and continuous clinical monitoring. Therefore, the implementation of respiratory physiotherapy in neonatal intensive care units should be based not only on protocol standardization, but also on careful evaluation of the specific needs and clinical conditions of each patient.

Thus, based on the analyzed findings, it is understood that respiratory physiotherapy may provide beneficial and safe clinical outcomes in neonates with RDS; however, its effectiveness depends on the appropriate selection of techniques, timing of application, neonatal clinical stability, and the integration of individualized care strategies. These findings reinforce the importance of evidence-based physiotherapeutic interventions adapted to the clinical needs and respiratory conditions of each neonate.

FINAL CONSIDERATIONS

Based on the analyzed studies, respiratory physiotherapy in the management of neonates with RDS may contribute to improvements in ventilatory mechanics, optimization of gas exchange, and neonatal clinical stabilization. The findings also suggest that different techniques, such as EFA, PSE, TAFE, RTA, and integrated protocols, may be associated with favorable clinical outcomes. However, no universally superior technique was identified, as the observed results appear to be influenced by individual clinical factors and neonatal conditions. In this context, individualized care may represent an important component of neonatal management, considering factors such as gestational age, birth weight, severity of the clinical condition, ventilatory support in use, and timing of intervention. Furthermore, combined therapeutic approaches involving respiratory physiotherapy and ventilatory support were associated with potential benefits related to reductions in mechanical ventilation duration, length of hospitalization, and respiratory complications. Overall, the findings suggest that integrated and multiprofessional management strategies may contribute to respiratory care in neonates with RDS. Nevertheless, the interpretation of these results should be undertaken with caution, given the methodological heterogeneity and variability among the included studies. Therefore, further research with greater methodological rigor is needed to strengthen the available scientific evidence and support clinical decision-making in neonatal care.

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