

Conflict of interest: The authors declare no conflict of interest.

Funding: Not applicable.

Ethics committee approval: No. 5.007.430.

Registration: Not applicable.

<https://doi.org/10.1016/j.bjpt.2025.101365>

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EFFECTS OF TACTILE-KINESTHETIC STIMULATION ON PREMATURE NEWBORN IN NEONATAL ICU: SYSTEMATIC REVIEW

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Background: Premature newborns admitted to a neonatal intensive care unit are exposed to factors that compromise neurobehavioral organization. In addition to the disorganization of all organic subsystems due to immaturity and pathophysiological conditions, environmental risks are also present, ranging from noise and excessive light to painful invasive procedures and a lack of physical and emotional contact, directly impacting neuropsychomotor development.

Objectives: To investigate the effects of tactile-kinesthetic stimulation on the neuropsychomotor development of premature newborns admitted to the Neonatal Intensive Care Unit.

Methods: A systematic review based on the PRISMA method, using the PICO strategy, was carried out in the bibliographic databases: MEDLINE/PubMed, The Cochrane Library, Scopus, VHL, and Web of Science. This was based on the descriptors contained in Medical Subject Headings (MeSH) and Health Sciences Descriptors (DeCS), together with their subtitles organized with the Boolean operators OR and AND. The extracted data were decoded by RAYYAN, where the studies were screened. The risk of bias analysis was carried out using ROB2, evaluating the methodological quality of the included studies.

Results: In this study, six randomized clinical trials were included after blind analysis by two reviewers, with a review by a third reviewer excluding texts that were unavailable in full. The period of publication of the research was from 2009 to 2023, without continental restrictions, which applied tactile and/or kinesthetic intervention to premature infants in the neonatal ICU. The main effects were: weight gain and growth; improvement of motor performance; organized modulation of motor activity; facial relaxation; increased bone mineralization; tibial sound growth; and anthropometric measurements; improvement of deep sleep and control of neonatal pain.

Conclusion: Tactile-kinesthetic stimulation brings positive results for pain control and modulation of motor skills; however, it requires studies with aligned therapeutic proposals to delimit the real beneficial effects, with the application of pain assessment scales, behavioral state, and sleep-wake quality.

Implications: Sensorimotor stimulation optimizes the integral neuropsychomotor development of newborns, especially premature ones. It is a low-cost, non-pharmacological intervention that integrates a multidisciplinary team and parental care, with defined protocols and practical application from the intensive care unit being essential.

Keywords: sensorimotor stimulation, premature newborn, neonatal intensive care unit

Conflict of interest: The authors declare no conflict of interest.

Funding: The authors declare no funding.

Ethics committee approval: No. 093645/2021.

Registration: Not applicable.

<https://doi.org/10.1016/j.bjpt.2025.101366>

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THE EFFECTS OF MULTISENSORY AND TACTILE-KINESTHETIC STIMULATION ON NEWBORNS ADMITTED TO THE NEONATAL INTENSIVE CARE UNIT

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Background: The Neonatal Intensive Care Unit (NICU) environment is filled with stimuli that can be harmful to the neurodevelopment of newborns. The immaturity of the central nervous system (CNS), combined with vulnerability and exposure to potential hypoxic and ischemic events, increases neonatal morbidity and mortality. Early stimulation consists of sensory and motor techniques tailored to the specific age range of newborns, promoting greater interaction with their environment.

Objectives: This study aims to analyze the physiological effects of multisensory (olfactory, auditory, and gustatory) and tactile-kinesthetic stimulation in newborns admitted to the NICU.

Methods: An experimental, interventional, randomized controlled study was conducted involving 20 newborns with a corrected gestational age (CGA) between 33 weeks and 6 days and 41 weeks and 6 days, admitted to a NICU from December 2024 to January 2025. The intervention group received multisensory stimuli followed by tactile-kinesthetic stimulation, while the control group was monitored for 10 minutes without interventions. Data on heart rate (HR), respiratory rate (RR), oxygen saturation (SpO₂), and behavior were collected and assessed using the Brazelton Scale.

Results: The results showed an 8.3% increase in HR in the control group, without statistical significance, while the intervention group showed a significant 9.3% reduction in HR. No significant differences were observed in RR, SpO₂, and Brazelton scores between the groups ($p > 0.05$). Percentage variations were also reported.

Conclusion: Multisensory and tactile-kinesthetic stimulation reduced HR, leading to decreased pain perception and inhibition of the endocrine-metabolic stress response in newborns. In the long term, varied sensory stimulation fosters new neuronal connections in the developing brain, aiding in the acquisition of future skills and the process of speech and language learning. Therefore, implementing stimulation protocols in NICUs is recommended to support neurodevelopment.

Implications: Implementing multisensory and tactile-kinesthetic stimulation in NICUs supports neurodevelopment, reduces stress responses, enhances neural plasticity, and may improve cognitive, motor, and language development in newborns.

Keywords: Newborn, Neonatal Intensive Care, Physiotherapy Modalities, Neonatal Diseases, Sensory Modalities

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Funding: Not applicable.