

# Speech and cognitive development in children undergoing long-term hospitalization

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**Abstract:** This article examines the psychophysiological condition of children undergoing long-term treatment in medical institutions, with particular attention to the risks of social detachment and the distinctive features of their speech development. The study investigates the social isolation that emerges during hospitalization and its adverse effects on the functioning of speech centers in the brain. The novelty of this research lies in demonstrating the efficacy of a rehabilitation approach that integrates not only conventional medical treatment, but also a five-stage model for stimulating speech intention, specialized breathing exercises, and articulation gymnastics. Additionally, the article provides practical recommendations for preserving cognitive functions and facilitating the social reintegration of hospitalized children into everyday life.

**Keywords:** hospitalization; children's speech, rehabilitation, Broca's area, Wernicke's area, speech ontogenesis, articulation gymnastics, diaphragmatic breathing, social adaptation, prevention of sensory and motor aphasia

## 1. Introduction

It is well established that prolonged illness can fundamentally alter the course of a child's development. Extended periods of medical treatment, frequent hospital visits, restricted physical activity, and reduced social participation can diminish a child's motivation to learn and erode their self-confidence. Addressing these challenges and ensuring continuity in a child's education requires close collaboration with families and caregivers.

## 2. Educational and Rehabilitative Framework for Hospitalized Children

Creating a specially adapted educational environment for children receiving long-term inpatient care, preventing their academic disengagement, and implementing targeted pedagogical support are essential responsibilities for educators, clinicians, and policymakers alike. The following dimensions are central to providing effective education for children with prolonged medical needs:

1. Learning environment: Ensuring the right to education through the organization of structured lessons within the inpatient hospital setting.

2. Pedagogical support: Providing psychological and educational assistance to children through coordinated efforts between educators and medical staff.

3. Legal basis: Regulating children's rights to education in medical and preventive care facilities in accordance with relevant government decisions.

### 3. Psychophysiological Impact of Hospitalization on Speech and Cognition

These measures exert a positive influence on children's rehabilitation and contribute to their social adaptation. A child's language and speech can be regarded as a mirror of their engagement with life. Preserving verbal activity during extended treatment is a vital requirement for maintaining stable brain function. Through communication, children are able to express their pain, fears, and aspirations. When the communicative needs of hospitalized children go unmet, their inner world becomes progressively impoverished. For this reason, every conversation, every story read aloud, and every warm word spoken within the hospital setting carries therapeutic value comparable to medical intervention. Speech represents an invisible yet indispensable bridge connecting a child to life, to the future, and to their peers.

One of the most critical problems arising during long-term inpatient treatment is sensory deprivation - a marked restriction in the range of impressions and information a child receives from the external world. The monotony of the inpatient environment leads to a reduction in associative connections within the cerebral cortex, which in turn causes a deterioration of cognitive processes, including attention, memory, and logical thinking.

In children with restricted mobility who are confined to bed rest for extended periods, disruptions to the mechanics of external respiration create a risk of hypoventilation. From a physiological standpoint, shallow breathing lowers the oxygen saturation of the blood, which in turn inhibits brain activity. Maintaining engagement in educational and creative activities within the hospital environment helps to preserve the child's sense of self-efficacy and personal development.

### 4. Conclusion

In conclusion, the rehabilitation of children undergoing long-term treatment in medical institutions must not be confined to pharmacological intervention alone. This is a complex, multidimensional process that must encompass the preservation of cognitive capacity, the stimulation of speech development, and the activation of the respiratory system. Only through the harmonious integration of medical, psychological, and pedagogical measures can a child's full personal development be safeguarded and their successful adaptation to life after hospitalization be ensured.

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