



Research Progress of DIR/Floor Time Therapy in the Rehabilitation of Children with Autism Spectrum Disorder

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Abstract: This article reviews the research progress of DIR/Floor Time Therapy in the rehabilitation of children with Autism Spectrum Disorder (ASD). DIR/Floor Time Therapy is a child-centered, developmentally oriented intervention that focuses on building emotional connections and improving social interaction skills. The therapy promotes neuroplasticity, enhances social motivation, enriches emotional experiences, and improves communication skills. Clinical studies show that combining DIR/Floor Time Therapy with other interventions can improve behavior, social skills, and psychological function in ASD children. However, more randomized controlled trials are needed to validate its efficacy.

Keywords: Autism Spectrum Disorder, DIR/Floor Time Therapy, rehabilitation, child-centered, social interaction, neuroplasticity

1. Introduction

Autism Spectrum Disorder (ASD) is a group of neurodevelopmental disorders that emerge early in development. Its etiology remains unclear, potentially involving epigenetic abnormalities, environmental disturbances, early viral infections, and autoimmune factors.[1] Characterized by deficits in social interaction and communication, as well as restricted and repetitive behaviors, ASD further manifests as impairments in perception, cognition, emotion, thinking, motor function, self-care ability, and social adaptation, severely hindering the comprehensive development of children during critical periods. [2] Epidemiological studies indicate a significant rise in ASD incidence in recent years. Due to variations in screening criteria and diagnostic sensitivity across regions, prevalence fluctuates globally at approximately 1%, with a rate of about 0.7% among Chinese children aged 6-12 years. According to the latest estimates from the WHO, ASD now ranks first among all mental disabilities, becoming a major public health concern affecting children's health and development in China. [3] Current research shows a lack of drugs targeting core ASD symptoms or specific treatments, with high lifelong disability rates. Pharmacotherapy only alleviates associated psychiatric symptoms and cannot achieve effective intervention.[4] Thus, exploring new non-pharmacological interventions has become a new direction in ASD rehabilitation research. Numerous studies confirm that early intervention can effectively improve clinical symptoms, enhance quality of life, and improve prognosis in ASD children.[5] Therefore, identifying effective early intervention methods is crucial for their rehabilitation outcomes.

DIR/Floor Time Therapy is a key early intervention method for ASD children, highly regarded in countries like the United States.[6] It provides a theoretical framework for understanding ASD children's functional development and emotional characteristics, focusing on interpersonal relationships and social interaction as core training content. Guiding emotional resonance-based communication to promote developmental abilities, it is a child-centered, developmentally oriented early intervention approach that emphasizes building emotional connections, respecting children's interests and needs, and guiding interaction and learning in natural environments.[7] Conducted in familiar settings, the therapy helps children improve problem-solving skills through joyful, unstructured interactions with parents or therapists. However, existing research provides limited support for its efficacy compared to other interventions, necessitating more randomized controlled trials to clarify its actual impact on ASD children's developmental skills. This study explores the research progress of DIR/Floor Time Therapy in ASD rehabilitation to inform clinical practice and advance ASD rehabilitation efforts.

2. Theoretical Foundations

Developed by American psychiatrist Stanley Greenspan, DIR/Floor Time Therapy centers on building emotional connections, guiding interaction and learning in natural environments while respecting children's interests to promote

developmental abilities .[8] Its theoretical foundations include: Child-centered approach.Emphasizing the child as the focus, adults act only as guides. Therapists or parents actively engage in children's interests rather than imposing preset tasks, stimulating intrinsic motivation and enhancing willingness to participate, thereby improving intervention effectiveness.[9] Emotional resonance communication: Focusing on shared emotional responses between children and caregivers to strengthen intimacy, facilitate effective communication, and build trust. By observing and responding to children's emotions and behaviors, caregivers establish emotional resonance, promoting emotional development and, in turn, social skills.[10] Interpersonal and social skills training: Creating interaction opportunities and emphasizing group emotional experiences to teach relationship-building. Therapists guide children to recognize others' emotions, express their own needs, and respond to others, improving social abilities through repeated practice.[11] Developmental stage-based intervention:Dividing child development into six stages self-regulation and interest in others, development of intimacy communication, complex interaction, emotional and ideological expression, and logical thinking. Interventions are tailored to the child's current stage to guide progression to higher levels.[12]

3. Mechanisms of Action

DIR/Floor Time Therapy exerts positive effects through multiple mechanisms: Promoting neuroplasticity.ASD involves abnormal neurodevelopment.Through emotional communication and interpersonal training, the therapy stimulates brain development, enhances neuroplasticity, and refines neural networks. Information processing during interactions strengthens neuronal connections, while emotional resonance activates emotion-related neural circuits, benefiting overall neurodevelopment.[13] Enhancing social motivation: ASD children often exhibit low social motivation, contributing to social deficits. The child-centered approach intrinsic motivation and interest in social activities. Positive emotional experiences from being understood and valued strengthen social motivation, encouraging more interactions and improving social performance.[14] Enriching emotional experiences.Critical for social interaction, emotional experiences are deficient in ASD. The therapy fosters emotional resonance, helping children recognize and express emotions (joy, sadness, anger) and learn regulation. This improves emotional cognition, reduces anxiety/depression, and promotes active social participation. [15]Improving communication skills.A core social ability, communication is impaired in ASD. Through interaction, children learn effective communication—recognizing others' cues, expressing needs, and responding appropriately. Nonverbal training (eye contact, facial expressions, gestures) enhances understanding of others' intentions, improving social adaptation. [16]

4. Clinical Studies

Clinical research on DIR/Floor Time Therapy remains limited, focusing primarily on combined interventions.Lu Ying et al [17] conducted a retrospective analysis of 66 ASD children, dividing them into an observation group (33 cases, routine treatment + repetitive transcranial magnetic stimulation + Floor-Time) and a control group (33 cases, routine treatment + repetitive transcranial magnetic stimulation). Outcomes showed the observation group had reduced stress responses, improved symptoms, cognition, and motor function (measured by ABC, CARS, and GMFM-88 scales). Li Enyao et al[8].randomized 40 ASD children into a treatment group (comprehensive rehabilitation + Floor-Time) and a control group (comprehensive rehabilitation alone). Assessments at 2, 4, and 6 months showed significantly lower scores in the treatment group ($P < 0.05$). Sun Chun[18]assigned 84 ASD children to a control group (ABA therapy) and an observation group (ABA + Floor-Time). The latter showed reduced symptom severity, improved positive behaviors, social skills, and psychological development.

5. Conclusion

DIR/Floor Time Therapy,centered on emotional connections and respect for children's interests, promotes development through interaction. Its theoretical foundations include child-centeredness, emotional resonance, social training, and stage-based intervention. Mechanisms involve enhancing neuroplasticity, social motivation, emotional experiences, and communication skills. Clinical studies show combined use with other therapies improves behavior, social skills, and psychological function. However, limited data requires more trials to validate efficacy. Recognizing ASD as a form of neurodiversity rather than a "disorder," our goal is to bridge "who they are" to "who they can become" through science and understanding.

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