



## DIR/Floortime and Autism Spectrum Disorders

### Overview and Summary of Scientific and Public Support

#### Definition of DIR/Floortime

The **D**evelopmental, **I**ndividual Difference, **R**elationship-based (**DIR®/Floortime™**) Model is a developmental, interdisciplinary framework that enables clinicians, parents and educators to construct a comprehensive assessment and intervention program based on the child's and family's unique developmental profile<sup>1, 2</sup>. It enables the individual working with the child to enter the child's world, bring the child into a shared world, and, from there, interact with the child in ways that build the foundations for social, emotional, and intellectual development. The profile includes understanding the child's emotional, social, and intellectual level; individual differences in motor, sensory, and language functioning; and the existing caregiver, child and family functioning and interaction patterns.<sup>3 4 5</sup>

Built on years of research in developmental psychology<sup>6, 7</sup> that underscores the importance of early relationships and family functioning<sup>8</sup>, the DIR/Floortime Model also integrates research contributions from various disciplines, such as speech and language pathology<sup>9, 10, 11</sup>, occupational therapy<sup>12, 13, 14</sup>, social work<sup>15</sup>, and marriage and family therapy. Neuroscience research lends further support to developmental interventions<sup>16, 17</sup>. Early relationships and reciprocal interactions between infants and caregivers appear vital for the creation of healthy brain development, including for example wiring the pre-frontal cortex. These diverse contributions provide a rich structure so that clinicians can understand the child and family's unique profile.<sup>18 19 20</sup> This understanding is crucial for implementing a comprehensive assessment and intervention program for children with autism spectrum disorder (ASD) as well as related special needs conditions<sup>21</sup>.

The objectives of the DIR/Floortime Model are to build the healthy foundations<sup>22, 23</sup> necessary for a child to develop social, emotional, and intellectual capacities<sup>24</sup>. As stressed in the general literature that promotes healthy emotional and social development<sup>25, 26</sup>, two of the key elements to building these foundations are: spontaneous communication<sup>27</sup> between children and their caregivers and nurturing relationships<sup>28</sup>, that promote joyful and pleasant engagement<sup>29</sup>. These two elements are basic components of the DIR/Floortime Model.

Importantly, the National Research Council of the National Academy of Sciences, in their 2001 landmark report, *Educating Children with Autism*<sup>30</sup>, called for tailoring the treatment approach to unique features of the individual child and recommended to give priority to interventions that promote functional, spontaneous communication.

Children with ASD differ from one another—in the ways they engage, relate, and communicate and in the ways they respond to sensations and plan and sequence their actions. These differences mean that each child requires an intervention approach tailored to his uniqueness, an intervention that must also consider the home setting. A family where both parents work full-time or where a single parent struggles to put food on the table<sup>31</sup> has different needs and dynamics than a family where one parent stays home with the child full-time. Thus, each family and team working with the child needs a choice of interventions to formulate a program that optimizes the development for that particular child. The goals of that program, regardless of the approach used, must be to strengthen the child’s core deficits, namely: building the foundations for relating, communicating and thinking. The DIR/Floortime Model is especially beneficial to children with Autism Spectrum Disorders (ASD) and other developmental and/or emotional challenges<sup>32</sup>

The DSMIV-TR criteria describe the triad of deficits for children with ASD, which includes qualitative impairments in social interaction and communication as well as restrictive repetitive patterns of behavior, interests, and activities. The DIR/Floortime model provides a roadmap to address these core deficits. It emphasizes the basic foundations of relating, communicating and thinking and builds the core developmental, social, and emotional capacities. Within this framework to build strong foundations, it addresses symptoms such as stereotypical behaviors, self stimulation, and self absorption<sup>33</sup>.

## **Scientific, Professional, Government, and Public Support**

The DIR/Floortime Model has been described by the [Centers for Disease Control and Prevention](#) (CDC), [Easter Seals](#), and [Autism Speaks](#) as one of the most common interventions for children with ASD. The DIR/Floortime Model has been featured in several news articles, including “[A Tale of Two Schools](#)” (Time, May 2006), and “[Reaching an Autistic Teenager](#)” (New York Times, October 17, 2008). ABC News reported on this latter story with a segment during [Good Morning America](#), emphasizing the importance of social-emotional development to healthy intellectual growth. [ABC News](#) also recently interviewed (April 2009) Erik Linthorst, the producer of the film “Autistic-Like: Graham’s Story”, who describes his [journey from ABA to DIR/Floortime](#) with his son Graham. Elaine Hall, the producer of the Emmy Award winning HBO documentary, [AUTISM: THE MUSICAL](#) has publicly acknowledged how the DIR/Floortime model helped her son and inspired this documentary and [The Miracle Project](#).

Several well conducted studies are showing efficacy of interventions that incorporate a developmental approach, are tailored to the children’s individual abilities, strengthen parent-child interaction and relationships, and focus more on joint attention, social engagement and

reciprocity, and symbolic play, core deficits in ASD<sup>34, 35, 36, 37, 38, 39</sup>. The DIR/Floortime Model incorporates all the above elements and is widely disseminated by a strong network of well trained DIR/Floortime professionals, all of whom hold clinical licenses or teaching credentials in their own disciplines, and have years of experience in working with infants and young children with ASD and their families. Moreover, thousands of parents have attended DIR/Floortime conferences and workshops since the early 1990s. Training opportunities keep expanding with the DIR Institute Certificate Program and the new distance learning doctoral program, offered by the Interdisciplinary Council on Developmental and Learning Disorders (ICDL)<sup>40</sup>.

The first study to show initial evidence for the DIR/Floortime Model was published in 1997<sup>41</sup>. Greenspan & Wieder reviewed charts of 200 children who were diagnosed with autistic spectrum disorder, and who were part of a cohort of children seen by the authors over a period of 8 years. All children met the criteria of autism or pervasive developmental disorder not otherwise specified (PDD-NOS) as described in DSM-III-R and DSM-IV, and scored in the autism range on the Childhood Autism Rating Scale<sup>42</sup>. All 200 cases received a comprehensive relationship and developmentally based intervention program for at least two years, under the supervision of Dr. Stanley Greenspan and/or Dr. Serena Wieder. The children ranged in age from 22 months to 4 years, with the majority between 2.5 and 3.5 at the initial evaluation. The goal of the review was to reveal patterns in presenting symptoms, underlying processing difficulties, early development, and response to intervention in order to generate hypotheses for future studies. Based on the findings of this study, Greenspan and Wieder hypothesized that different underlying processing patterns seemed to include a difficulty in connecting affect and sequencing capacities and could be a possible common denominator, suggesting that difficulties with relating and intimacy are often secondary to underlying processing disturbances. They also suggested that the difficulty in engaging in complex purposeful gestural communication could be an early marker, and that contrary to traditional beliefs, a significant number of children may have relatively better functioning in the first year with a regression in the second and third years when these more complex skills are required for social interaction. According to the authors, the chart review suggested that a number of children with autistic spectrum diagnoses are, with an appropriate intervention program, capable of empathy, affective reciprocity, creative thinking, and healthy peer relationships. The authors also concluded that the intervention approach used in these children, focusing on individual differences, developmental level, and affective interaction could be especially promising. Greenspan and Wieder described that after two years of intervention, 58% of treated children showed improvements and no longer met the criteria for ASD.

The results of the 200 case series led them to publish in the year 2000 the full description of the DIR/Floortime Model (ICDL, 2000). In 2005, Greenspan and Wieder published a ten to fifteen-year follow up study (since the start of treatment) of 16 children diagnosed with ASD that were part of the first 200 case series and were part of the 58% of children who showed great improvements<sup>43</sup>. The children were all boys, ranged in age between 12 and 17, with a mean of 13.9 years. All these children had received a comprehensive relationship and developmentally based intervention program, including Floortime at home and DIR consultation, for at least two years (maximum 5), between ages 2-8.5 years old, under the supervision of Dr. Stanley

Greenspan and/or Dr. Serena Wieder. The authors described that after ten to fifteen years since receiving the intervention, these children became empathetic, creative, and reflective adolescents, with healthy peer relationships and solid academic skills. Based on these findings, the authors suggested that some children with ASD can master the core deficits and reach levels of development formerly thought unattainable.

The DIR/Floortime Model also served as the theoretical framework to develop the Greenspan Social-Emotional Growth Chart (SEGC) (Greenspan, 2004)<sup>44</sup>. This norm-referenced surveillance and screening of key social-emotional milestones in infants and children from birth to 42 months of age is now part of the new Bayley Scales Kit of Infant and Early Childhood Development. Published by PsychCorp, the SEGC was field tested on a representative sample of 1,500 infants and young children and it is now offered as a surveillance and screening instrument for Autism Spectrum Disorders, with a sensitivity of 87% and specificity of 90%.

In 2007 Dr. Solomon and colleagues<sup>45</sup> published an evaluation of The PLAY Project Home Consultation (PPHC), a widely disseminated program that trains parents of children with autism spectrum disorders in the DIR/Floortime model. Sixty-eight children 2 to 6 years old (average 3.7 years) completed an 8–12 month program where parents were encouraged to deliver 15 hours per week of 1:1 interaction. Pre/post ratings of videotapes by blind raters using the Functional Emotional Assessment Scale (FEAS) showed significant increases ( $p \leq 0.0001$ ) in child subscale scores. That is, 45.5 percent of children made good to very good functional developmental progress. Overall parents' satisfaction with PPHC was 90 percent. Despite some limitations, the pilot study of The PLAY Project Home suggests that the model has potential to both enhance developmental progress of young children with autism and to be a cost-effective intervention.

The PLAY model has evolved from a small, university-based, clinical program into a low-cost train-the-trainer model that has the capacity to be disseminated nationally. The state of Michigan Autism Workgroup, convened by the Dept of Health, includes the PLAY Project among the accepted therapies. The PLAY Project, available in a dozen regions of the state, serves hundreds of children in Michigan and is supported by such well-respected agencies as Easter Seals and Mott Children's Health Center Flint. Furthermore, [Easter Seals Crossroads](#) (Easter Seals 2009) has contracted with P.L.A.Y. Project and is beginning to implement this intervention into all of its charter locations. Through the support of a \$1.85 million grant from the National Institute of Mental Health (NIMH), Richard Solomon, MD, is conducting a three-year randomized, controlled, and blinded clinical trial with research-design guidance from Michigan State University, and community-outreach support from Easter Seals. Drawing participants from five Easter Seals autism service locations, the study compares the outcomes of 60 children who participate in The P.L.A.Y. Project with the outcomes of 60 children who receive standard, community interventions, making it the largest study of its kind. Before and after the 12-month intervention, each child is assessed with a battery of tests to measure developmental level, speech and language, sensory-motor profile, and social skills. By training parents to participate in their child's intervention, the program also promises to be cost-effective. The P.L.A.Y. Project costs under \$4,000 per year, in comparison with other interventions that cost \$40,000 to \$60,000 per year.

To further investigate the efficacy of the DIR/Floortime Model, researchers at the [Milton and Ethel Harris Research Initiative](#), at the York University in Canada, are conducting a randomized controlled trial study. The specific aims of this preliminary study are: to assess (1) the efficacy of a 12 months of intensive DIR/Floortime treatment; (2) the magnitude of the gains made by children receiving 24 months of DIR/Floortime treatment; and (3) the neurophysiologic changes that occur as a result of intensive treatment for autism. The study target interventions for children ages 30-51 months old. Of all the changes that the researchers think are occurring in the brain as a result of DIR/Floortime therapy, one of the most important is a shift from ventral to dorsal systems in the Medial Prefrontal Cortex<sup>46</sup>. Ventral systems are more active when performance is emotion-driven and are more susceptible to interference from anxiety and negative emotions, whereas dorsal systems are more active when performance requires cognitive control, such as response inhibition and self-monitoring. The first results will be presented at the [2009 Annual ICDL Conference](#).

A recent article published by Zwaigenbaum and colleagues<sup>47</sup> highlights the challenges related to early detection, diagnosis, and treatment of ASD in very young children. The authors outline the principles of effective intervention for infants and toddlers with suspected or confirmed diagnosis of ASD, including responsive and sensitive care-taking, enriched language environments using responsive rather than directive interaction styles, environments that provide opportunities for toddlers to take initiative in their learning, and interventions that are individualized and targeted to specific skills. Furthermore, the authors underscore that existing programs for older children “cannot simply be extrapolated” to younger children.

## **The Interdisciplinary Council on Developmental and Learning Disorders, ICDL**

The Interdisciplinary Council on Developmental and Learning Disorders (ICDL) is a non-profit organization founded by Stanley Greenspan, MD, and Serena Wieder, PhD. Its mission is to engage in, develop, conduct, support, and disseminate programs, research, seminars, and publications on the prevention and treatment of emotional and development disorders in infancy and childhood. ICDL has been a pioneer in its work to advance the identification, prevention, and treatment of developmental and learning disorders. Through its research, training and publications, ICDL extends knowledge of developmental processes and provides a framework ([DIR®/Floortime Model](#)) for understanding and improving interventions with infants, children and adults with challenges in relating, communicating and thinking, including autism spectrum disorders.

ICDL’s [Advisory Board](#) consists of nationally and internationally renowned professionals in the field of infant mental health and developmental disorders.

ICDL’s cutting edge publications include, among others, the [CDC/ICDL Collaboration Report on a Framework for Early Identification and Preventive Intervention of Emotional and Developmental Challenges](#), the [Clinical Practice Guidelines: Redefining the Standards of Care](#)

[For Infants, Children, and families with Special Needs](#), [The Journal of Developmental and Learning Disorders](#), and the [Diagnostic Manual for Infancy and Early Childhood \(ICDL-DMIC\)](#).

ICDL was approved by the state of California to start a degree granting institution, the *ICDL Graduate School*, and offer the first [PhD in Infant Mental Health and Developmental Disorders](#).

ICDL's [DIR® Institute has trained a cadre of world class professionals](#) across multiple areas of expertise. It is extending the reach of the DIR®/Floortime™ model as a fundamental component of intervention programs for individuals with difficulties in relating, communicating and thinking, including autism spectrum disorders.

ICDL has successfully offered 3-day [annual conferences](#) since 1997. Thousands of parents and professionals from multiple disciplines, states and countries have attended these conferences, allowing for rich interdisciplinary dialogue with scientists involved in the most innovative research in the field. Over the past eleven years as ICDL has grown, so has its group of creative and innovative parents. It is awe inspiring how many parents want to share their journey, their ideas and their support with one another through different [online parenting resources](#) and [tributes](#) to the DIR/Floortime model.

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