

Program Abstract

Overview

The *INFANT STIMULATION AND PHYSICAL THERAPY* program was developed to address both cognitive and motor developmental areas for children with mild to severe spastic diplegia, a form of cerebral palsy. This program is an early intervention program that lasts twelve consecutive months and incorporates both an infant stimulation curriculum (first six months) followed by neurodevelopmental physical therapy (months seven-twelve).

The *INFANT STIMULATION AND PHYSICAL THERAPY* curriculum is both center- and home-based. Parents (or primary caregivers) meet bi-weekly for one-hour sessions at a clinic for twelve months where they receive training in the daily home administration of the program.

The first six months of the program, parents or primary caregivers meet with a child development therapist and receive infant stimulation training structured around checklists and specific behavioral objectives. Parental compliance was originally monitored at each treatment visit and through home visits by a supervising therapist.

The second six months of the program, parents or primary caregivers meet with a physical therapist and receive physical therapy training structured around checklists and specific behavioral objectives. Parental compliance was originally monitored at each treatment visit and through home visits by a supervising therapist.

Staffing Requirement/ Training

The *INFANT STIMULATION* curriculum requires a child development specialist trained to deliver the infant stimulation portion. A certified physical therapist trained in neurodevelopmental physical therapy, delivers the second portion of the program, *PHYSICAL THERAPY*. Parents or other primary caregivers are trained in both curricula for the daily home implementation of the program. An independent social worker along with the child development specialist and physical therapist originally conducted periodic home visits.

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<i>Program Materials</i>	This EIPARDD program package contains one complete set of curriculum materials needed to implement this program.		
<i>FOCUS</i>	<input type="checkbox"/>	Psychosocial risk factors	
	<input type="checkbox"/>	Risk factors during pregnancy or birth	
	<input checked="" type="checkbox"/>	Physical impairment or disadvantage	
	<input type="checkbox"/>	Cognitive or language delay or disorder	
	<input type="checkbox"/>	Autism spectrum disorders	
<i>Delivery</i>	<input checked="" type="checkbox"/>	Center-based	
	<input checked="" type="checkbox"/>	Home-based	
	<input type="checkbox"/>	Other	
<i>Direct Participants</i>	<input checked="" type="checkbox"/>	Child	
	<input type="checkbox"/>	Parent	
	<input checked="" type="checkbox"/>	Child and Parent together	
<i>Child's Age at Start of Program</i>	<input type="checkbox"/>	Pre-Birth to 12 months	<input checked="" type="checkbox"/> 12 to 24 months
			<input type="checkbox"/> 25 to 36 months
<i>Duration</i>	<input type="checkbox"/>	Up to 3 months	
	<input checked="" type="checkbox"/>	4 to 12 months	
	<input type="checkbox"/>	13 to 24 months	
	<input type="checkbox"/>	25 to 36 months	
	<input type="checkbox"/>	More than 36 months	

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Evaluation Design

The effectiveness of the use of the *INFANT STIMULATION AND PHYSICAL THERAPY* program has been reported in two published studies (Palmer et al. 1988, 1990). To assess the effectiveness of this intervention, a total of 48 infants (12 to 19 months of age), with mild to severe spastic diplegia) were randomly assigned to receive either 6 months of infant stimulation followed by 6 months of neurodevelopmental physical therapy (test group), or 12 months of neurodevelopmental physical therapy (contrast group).

Study Participants

Participants were referred to the Kennedy Institute for Handicapped Children, Department of Pediatrics of The Johns Hopkins University School of Medicine and Department of Epidemiology of The Johns Hopkins University School of Hygiene and Public Health, in Baltimore, Maryland. Participating children (n=48) were up to 12 to 19 months of age at time of referral and the intervention continued until children reached between 24 to 31 months of age.

Assessments

Primary assessments of children's development were conducted after 6 and 12 months of the intervention. The following three commercially distributed developmental evaluation instruments were used for the assessments:

- Bayley Scales of Infant Development (motor and mental subscales)
- Vineland Social Maturity Scale, and
- Stanford-Binet Intelligence Scale

In addition, after 12 months of intervention, secondary assessments were conducted using the Home Observation for Measurement of the Environment (HOME), the Roth Mother-Child Relationship Evaluation and the Carey Infant Temperament Questionnaire.

Summary of Results

At the six-month assessment, infants in the test group demonstrated statistically significant improvements in key developmental outcomes compared to infants in the contrast group. Infants who received the Infant Stimulation curriculum had improved motor outcome (Bayley motor quotient: 58.1 versus 49.1), improved cognitive outcome (Bayley mental quotient: 75.5 versus 65.6), and were more likely to walk (percent walking 10 steps: 35% versus 12%) compared to infants in the contrast group who only received neurodevelopmental therapy.

At 12-months evaluation, the test group (infant stimulation & physical therapy) continued to show improved motor outcome

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(Bayley motor quotient: 63.3 versus 47.9) and were more likely to be walking independently: 73% versus 36%, compared to infants in the contrast group who received only neurodevelopmental therapy. However, there was no longer any statistically significant difference between the test group and contrast group with regard to cognitive outcomes. Social development (Vineland scores) did not differ at either 6 or 12-month time points.

Furthermore, twenty psychosocial variables were analyzed as secondary assessments at 12 months post-therapy utilizing the HOME, Roth-Mother Child Relationship Evaluation and Carey Infant Temperament Questionnaire. The results of these secondary outcomes showed only one statistically significant difference among the variables analyzed. Mothers with infants in the contrast group (neurodevelopmental therapy only) showed a greater improvement in emotional and verbal responsiveness and this change was noted in the HOME sub scores (mean score change in contrast group= 1.2, test group= 0.3). However, the degree of change was small. No baseline differences were seen in any of the outcome variables.

The EIPARDD Program Package

An Expert Scientist Panel selected the *INFANT STIMULATION AND PHYSICAL THERAPY* program for Sociometrics' *Early Intervention Program Archive to Reduce Developmental Disability (EIPARDD)*. The curriculum materials were obtained from the original developer of the program. Following acquisition of all materials, *EIPARDD* staff developed this *Program Summary*, assembled the evaluation resources, and prepared the *EIPARDD* program package. Finally, Sociometrics' archiving work was reviewed and approved by the original developer.

Contact Information

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