Research Abstracts

This is the fifth in a series of abstracts taken from completed research studies funded by the American Occupational Therapy Association (AOTA) and the American Occupational Therapy Foundation (AOTF) over the past 12 years. Abstracts are being published three times during 1991, after which time the backlog of completed studies will have been eliminated. Thereafter, abstracts will be published annually.

A Study of Reliability and Validity of a Preschool Play Scale
Nancy Parry Bledsoe, MS, OTR. Jayne T. Shephard, MS, OTR.
On file at AOTF.

Childhood play is a major arena for the development of knowledge, skills, and attitudes that permit productive adult behavior. Occupational therapists must assess and treat play dysfunction to facilitate normal development. The purpose of this study was to examine the reliability and validity of a play assessment tool, the Preschool Play Scale. Ninety children were observed and rated on the Preschool Play Scale, Lunzer's Scale of Organization of Play Behavior, and Farran's Social Play Hierarchy. Data were analyzed with bivariate correlation coefficients. Significant results suggest that the Preschool Play Scale will yield objective, stable, and valid measurements of play for nondysfunctional preschool children when administered by trained observers. Recommendations for further study of the Preschool Play Scale are given.

A Study of Black Preschool Children's Performance on the Miller Assessment for Preschoolers
Rose Mary Martin, MS, OTR.
On file at AOTF.

This study examined the performance of 76 black preschool children on the Miller Assessment for Preschoolers (MAP) in comparison to test norms. The sample's MAP performance was also examined for significant differences in relation to sex and income level. Results revealed that the sample performed significantly differently from the test norms on the MAP Total Score, Foundations, Nonverbal, and Complex Tasks indexes. No significant differences were found between male and female subjects' MAP test scores or between lower-income and middle-income subjects' scores. Results indicated that although there were generally fewer than expected observed scores in the extremely high and low percentile categories, more than expected observed scores were found in the middle percentile categories. The researcher therefore concluded that the sample performed within a normal range of developmental abilities as shown by the comparisons with the MAP's norms.

Relationship of Upper Extremity Weight-Bearing to Hand Skills of Boys With Cerebral Palsy
Karin J. Barnes, MS, OTR.

The purpose of this study was to obtain data on the relationship between a commonly used treatment technique, weight-bearing on extended arms, and the reach, grasp, and release skills of 3 boys with spastic cerebral palsy. A multiple-baseball-across-subjects research design was used. With the possible exception of one arm of one subject, the results indicated that the technique had a positive relationship with the prehension skills of the 3 boys. Direct and systematic replication is warranted to determine generalizability of this technique. Although the results of studies of isolated techniques, such as weight-bearing on upper extremities, cannot be generalized to total treatment procedures, such as the neurodevelopmental treatment approach, they do provide tentative support for the use of commonly used techniques and direction for studies of total treatment approaches.

Reliability of the Behavioral Assessment Scale of Oral Functions in Feeding
Kenneth Ottenbacher, PhD, OTR. Bonnie Swanton Dauck, OTR. Valerie Graham, OTR. Marcia Gevelinger, OTR. Christine Hasselt, OTR.

Oral facilitation is a commonly used treatment intervention in programs for persons with developmental disabilities, but there is little evidence sup-
Supporting the efficacy of this work in normalizing feeding patterns. One obvious impediment to research in the area of oral motor habilitation is the lack of evaluation or assessment instruments with reported reliability and validity. The Stratton Behavioral Assessment Scale of Oral Functions in Feeding was administered to 46 institutionalized students while they were being routinely fed by aides. Examiners (occupational therapists) scored the feeding behaviors independently, without conferring with each other or with the aides. Within 10 days of the initial administration, one of the examiners readministered the assessment. Interrater and test-retest reliability coefficients were computed, but the results, which ranged from .68 to .84, are considered only marginally acceptable by current standards of instrument development. These results may even have been inflated by the experience of the examiners. The difficulty of measuring performance in severely and profoundly handicapped populations is exacerbated by the low incidence of the disorders, the heterogeneity of the population, and the restricted range of functional performance.

A Comparative Study of Vestibular Function and Motor Proficiency in Children With Down Syndrome and Age-Matched Children With Other Forms of Mental Retardation

Pamela Hellman, MA, OTR. On file at AOTF.

The purpose of this study was to compare the postrotary nystagmus, prone extension, supine flexion, and motor proficiency scores of children with Down syndrome and other age-matched children with mental retardation to the existing normative data. Tests designed to assess these four variables were administered individually to 17 children with Down syndrome and 15 children with mental retardation. No significant differences were found between the two groups in any of the four tested variables. However, a significant difference in postrotary nystagmus and motor proficiency scores was noted between the normative data and children with Down syndrome.

An adjunct purpose of this study was to determine if any of the four variables were related in children with Down syndrome and children with mental retardation. Significant correlations were found between the prone extension and motor proficiency scores in the subjects with Down syndrome, the subjects with mental retardation, and the total sample. These results in combination with the correlations found between the supine flexion and motor proficiency scores of the subjects with mental retardation and the total sample support the importance of postural stability in the acquisition of motor skill. The additional correlation found between the prone extension posture and the supine flexion posture in the total sample may suggest an overall muscle tone deficit specifically related to tonic muscle contractions. These results suggest that treatment approaches emphasizing sensory input and modulation may be more effective in the achievement of postural stability and motor proficiency than are traditional motor programs currently seen in special educational settings.

A Comparison of Service Provision Models in School-Based Occupational Therapy Services—A Pilot Study


Occupational therapists provide services to children within a number of service provision models. Although this literature discusses these models, there have been very few investigations to identify their effects. This pilot study compared the provision of direct service and collaborative consultation to 14 preschoolers and kindergartners randomly assigned to interventions. The attainment of individualized education plan (IEP) goals was used as the measure of educationally relevant child outcomes. Therapists and teachers completed an attitude survey before and after participating in the study. Results indicated that although children in both conditions achieved a similar percentage of IEP goals, teachers in the collaborative consultation condition reported much larger occupational therapy contributions to IEP goals and had more positive comments on the attitude scale. These results suggest that (a) similar levels of goal attainment can be achieved in direct service and in consultation and (b) the relationships that develop between therapists and teachers may lead to a more positive overall view of the learning environment and the contribution of occupational therapy to that environment. Further study is needed to identify additional service provision factors that contribute to successful program outcomes.

Occupational Therapy Outcomes: The Utilization of a Technological Device and Current Modes of Therapy in the Treatment of Children With Visual-Sequential Memory Deficits

Nancy Kamil, MS, OTR. Mary Driscoll, OTR. Marion Guild, OTR. On file at AOTF.

The ability to diagnose learning disabilities in young children has placed such great demands on remediation resources that technology must fulfill the personnel gap. A technological sequencing device (TSD) was designed as a therapeutic tool for use with children who show deficits in visual-sequential memory. The child, working alone on the machine, pushes three to six buttons in sequence to duplicate a pattern. If the sequence is correct, the display lights up a red button that also serves as a playback button for reinforcement. The TSD is equipped with four developmental levels of learning materials: each program contains activities in various categories (e.g., colors, numbers, sequenced story strips). The learning machine was tested on 12 children, each of whom was paired with another child who received traditional remediation. Both groups of children averaged gains of 1 year during the 3-month experiment. This study has validated the effectiveness of occupational therapy in daily clinical practice for children who show deficits in visual-sequential memory and has also validated the viability of technology as an alternate mode of therapy in the rehabilitation of children with neurological impairments.

Evaluation of Visual-Perceptual and Fine Motor Attributes of Children With Myelomeningocele

Eileen Julie Rosenbaum, MS. On file at AOTF.

This descriptive research study assessed visual-perceptual and fine motor abilities in a group of children
with myelomeningocele. The purposes of the study were to determine the level of functioning in each area and to analyze the relationship between fine motor coordination and visual-perceptual function in children with myelomeningocele. The research sample comprised 12 children with myelomeningocele, aged 4 years 10 months to 8 years 4 months. All of the children were evaluated on the Motor-Free Visual Perception Test and the fine motor composite of the Bruininks–Oseretsky Test of Motor Proficiency. The results of the two assessments indicated that the children with myelomeningocele had deficits in both visual perception and fine motor coordination. The deficit in visual perception was mild. The deficit in fine motor coordination was severe in children with myelomeningocele and associated hydrocephalus. These results indicate that a comprehensive occupational therapy evaluation and treatment program for children with myelomeningocele should include visual-perception and fine motor assessments. It was recommended that future research be undertaken to determine the most desirable methods of training to ameliorate the deficits in fine motor coordination and visual perception in children with myelomeningocele.

Gestural Imitation Abilities of Young Children With Down Syndrome
Carol W. Lunsford, MS, OTR.
On file at AOTF.

This research was designed to gain information about the development of imitation in young children with Down syndrome. The subjects were 20 infants, 11 to 38 months of age, who were encouraged to imitate six kinds of gestures: actions with and without objects, actions with and without sound, and actions that were visible and not visible to them (e.g., hand actions vs. facial gestures). As was hypothesized, children imitated actions with objects and actions that were visible to them with greater frequency; sound did not affect performance. The subjects exhibited a range of total performance scores at each age, which implies that developmental level is a more important factor than chronological age in the determination of performance trends. As with nondysfunctional infants, attention level affected performance and response time. The imitation responses examined here were evaluated in a structured setting, a precursor to spontaneous performance. Responses therefore indicate emerging skills and may be used as baseline levels in treatment planning.

An Analysis of the Relationship of Proximal and Distal Motor Control
Jane Case-Smith, EdD, OTR.
On file at AOTF.

Occupational therapists have adopted the proximal–distal theory of motor development as a principle of treatment. Although this principle is an integral part of such widely accepted theories as neurodevelopmental treatment, research has not validated the sequence of proximal to distal motor development. This study of 60 nondysfunctional infants, 2 through 6 months of age, investigated the relationship of proximal and distal motor function as measured by the Posture and Fine Motor Assessment of Infants. The results demonstrated that shoulder and pelvic control were significantly related to fine motor control. Head control was not related to fine motor function, and general postural control was not significantly related to grasp. These findings indicate that certain aspects of proximal motor development are related to distal motor development in nondysfunctional infants; however, the relationship varies according to which motor components are examined. The finding that control of grasp is not significantly related to proximal motor control has implications for occupational therapists.