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Federally Funded Study Reports that Intervention with PECS Leads to Rapid Gains in Speech and Communication Skills in Toddlers with Autism

The results of a high quality, well-controlled, federally funded study have shown that less than six months of intervention based on the Picture Exchange Communication System Manual, 2nd Edition (PECS; 1), results in rapid gains in picture-based communication skills in most nonverbal or minimally verbal toddlers with autism. In addition, as a group, the children who received PECS training experienced gains in speech production that were equivalent to children who received another well-established intervention, Pivotal Response Training (PRT), that is specifically designed to increase speech skills.

A study just published in the May, 2014, issue of the *Journal of Autism and Developmental Disorders* reports the results of an early intervention research study, funded by the National Institute of Mental Health (NIMH) at a cost of over one million dollars. The study was conducted by researchers at the University of California, and was designed to examine and compare the effects of two interventions on speech and communication skills in toddlers diagnosed with autism spectrum disorders: The *Picture Exchange Communication System* and *Pivotal Response Training*. The autism intervention researchers who conducted this study have been funded by the NIMH to develop and improve the effectiveness of both PRT and parent training intervention methods for children with autism for over 25 years.

Speech Gains

In this study, the researchers identified thirty-nine 18-month-old to 47-month-old children with a diagnosis of an autism spectrum disorder who were each speaking fewer than 10 words. These 39 children were then randomly assigned to receive either PECS or PRT intervention. Both interventions were administered through a combination of parent training and home-based intervention that was implemented by trained therapists, for a total of approximately 11 hours per week. The results showed that children in both the PECS and PRT intervention groups made significant gains in spoken language skills during the intervention period, with no differences in spoken language learning outcomes in the two groups of children (2). Overall, 78% of the children in the study exited the intervention with more than 10 functional spoken words, and the average number of spoken words gained during the six month intervention period was 83 for the children who received PECS and 71 for the children who received PRT (2). Because extensive previous research has shown that PRT is effective for improving speech skills in children with autism, the results of this new study provide evidence that PECS intervention results in speech gains that are similar to those from other established speech-based interventions for this population.

Communication Gains

While 78% of the children across both intervention types in the study spoke more than 10 functional words by the end of the intervention period, and the average child gained approximately 75 words during the intervention, the remaining 22% of the children in the study did not make such gains in their speech skills. However, in the group of children who received PECS training, all but one (95%) learned to communicate using pictures during the six month intervention period. These differences in communication outcomes in the children who did not learn to speak in the two groups during the intervention period may help explain why parents' overall satisfaction ratings were equivalent for the PECS and PRT intervention groups despite the fact that these same parents rated PECS as somewhat more difficult to implement.

Implications for Clinical Practice

Overall, the results of this study provide much-needed research evidence for the effectiveness of early behavioral intervention procedures for improving speech and communication skills in toddlers with autism spectrum disorders. To date, only a handful of studies of this scale and quality have been conducted on intervention for toddlers with autism spectrum disorders. While previous experimental research had established both PECS and PRT as evidence-based intervention practices for school-aged children with autism (3, 4), the results of this new study provide direct evidence that toddlers on the autism spectrum also make notable gains in speech and communication skills from intervention with PECS and PRT. In addition, unlike many previous autism intervention studies, the interventions were implemented directly in the homes of the participating families in this study, which provides evidence that PECS and PRT are both practical and effective for use in real-world settings.

For purposes of experimental control, the researchers who conducted this study separated PECS and PRT interventions from one another, so that the effects of these two established interventions could be compared with one another. However, the developers of PECS have consistently indicated that children receiving PECS should also receive separate, speech-based intervention services as part of a larger intervention program. The gains observed in the current study were the result of an average of only 11 hours PECS or PRT per week of intervention, whereas previous reports describe that interventions of similar intensity have been administered to toddlers with autism for as many as 20 per week (5). Therefore, it would be reasonable to implement PECS as the core communication and speech intervention for nonverbal and minimally verbal children, for 11 hours per week, in combination with PRT and other interventions for up to 9 hours per week. Then, as the child's speech skills develop and improve, the child can be transitioned to a primarily

speech-based communication with PRT as the primary speech/communication intervention. In this way, the initial use of PECS promotes rapid developments in both picture-based communication and speech skills, which are then continued and expanded through implementation of PRT in accordance with the child's progress in speech development.

References

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