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Autism Treatment Reviews for Physicians: The Take-home Messages By Peggy Halliday, MEd, BCBA, Zachary Houston, MS, BCBA, Elisabeth Kinney, MS, BCBA & Scott M. Myers, MD

Although screening and early recognition of autism spectrum disorders (ASDs) are important, the role of the primary healthcare provider does not end with diagnosis. Management responsibilities after the diagnosis of ASDs include providing high quality medical care and guiding families to effective interventions and accurate information sources. Primary healthcare providers, such as pediatricians, family physicians, nurse practitioners, and physician assistants, may take part in any or all of these duties in addition to making referrals to subspecialists and coordinating services.

In a national survey conducted in 2007, pediatricians and family physicians reported low self-perceived competency in providing care for children with ASDs and a desire for education (Golnik, Ireland, & Borowsky, 2009). Fortunately, in recent years, literature reviews and guidelines have been published which summarize the evidence and help medical professionals to manage their patients with ASDs. In this article, we summarize the treatment recommendations of five reviews that have been published in the medical literature in the last four years, including the American Academy of Pediatrics (AAP) guidelines (Carr & LeBlanc, 2007; Myers & Johnson, 2007; Golnik, Ireland, & Borowsky, 2009; Myers, 2009; Carbone, Farley & Davis, 2010; Munshi, Gonzalez-Heydrick, Augenstein, & D'Angelo, 2011).

General Management Issues

Broad treatment goals include improving quality of life by: (1) correcting or minimizing the core deficits (social impairment, communication impairment, and restricted, repetitive behaviors and interests) and associated deficits, (2) maximizing functional independence by facilitating learning and academic achievement, acquisition of self-care and daily living skills, and development of play and leisure skills, and (3) eliminating or minimizing problem behaviors that interfere with functioning (Myers & Johnson, 2007; Myers, 2009). Most interventions that are helpful for achieving these goals are carried out by parents and professionals such as teachers, therapists, and behavior specialists- not by physicians. However, efforts to optimize health are likely to have a positive impact on educational progress and quality of life.

The medical home model of care, which is advocated for children with ASDs and other special healthcare needs, includes provision of care that is accessible, continuous, comprehensive, family-centered, coordinated, compassionate,

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and culturally effective (Myers, 2009). Reviewers point out that in the case of patients with ASDs, office visits and physical examinations may be challenging and require extra time and effort.

In addition to issues specific to their neurodevelopmental disorder, individuals with ASDs have the same basic healthcare needs as other children and they benefit from routine health promotion and disease prevention efforts, including immunizations. In some cases, medical therapy may play an important role in treating problem behaviors such as aggression and self-injury, either by treating a coexisting psychiatric or neurologic condition or addressing an underlying medical problem (such as an ear infection or constipation) to alleviate pain or discomfort (Myers & Johnson, 2007; Myers, 2009; Carbone, Farley, & Davis, 2010; Munshi, Gonzalez-Heydrick, Augenstein, & D'Angelo, 2011). Currently, medical therapies are directed at specific symptoms or coexisting conditions rather than the ASD itself. For example, children with ASDs who have seizures or gastrointestinal problems (such as chronic diarrhea or constipation) should be evaluated and treated the same way as any other child with these symptoms would be evaluated and treated.

Educational/Habilitative/Behavioral Interventions

Easy access to the Internet has resulted in widespread dissemination of both information and misinformation about treatments for ASDs. Fortunately, medical professionals can help manage the care of their patients with ASDs by drawing upon published literature reviews and

guidelines to guide families toward evidence-based educational treatments. There is general agreement among well-researched guidelines that educational treatment should begin early and treatment goals should be comprehensive. Treatments should strive to minimize core social, communication, and behavioral deficits, and to maximize self-care, academic independence, and leisure skills, while at the same time decreasing aberrant behaviors that interfere with functioning (Myers & Johnson, 2007; Myers, 2009). Early diagnosis and early intervention are associated with best outcomes for children with ASDs. However, in the United States the average age of identification is still older than

four despite the ability to identify ASDs as early as two years of age (Carr & LeBlanc, 2007).

The role of the physician should include guiding families to empirically supported educational and habilitative practices and helping them evaluate the appropriateness of educational services being offered (Myers & Johnson, 2007). Of the many educational methods available for the treatment of ASDs, some methods, such as facilitated communication, have been proven to be ineffective. Others, like auditory integration training, dolphin-assisted therapy, holding therapy, vision therapy, or therapeutic touch lack evidence to show efficacy in treating individuals with ASDs (Myers, 2009). The three general categories of early

childhood educational programs most often used, and which differ in basic philosophy, are behavior analytic, developmental, and structured teaching.

There are five decades of controlled studies in university and community settings showing the effectiveness of applied behavior analysis (ABA) based interventions in helping remediate social and language impairments as well as helping children make sustained gains in IQ, academic performance, and adaptive skills, compared to children in control groups (Carr & LeBlanc, 2007; Myers & Johnson, 2007; Munshi, Gonzalez-Heydrick, Augenstein, & D'Angelo, 2011). Early and intensive behavioral interventions (or EIBI) are skills-

“The role of the physician should include guiding families to empirically supported educational and habilitative practices and helping them evaluate the appropriateness of educational services being offered.”

based treatment approaches based on the science of applied behavior analysis. EIBI program models differ but share a philosophy of starting when children are very young, intensity of treatment (25-40 hours per week), a focus on communication, social, and pre-academic repertoires, and the use of teaching methods derived from the principles of operant conditioning (Carr & LeBlanc, 2007).

Such programs should be individualized and based on assessment (Carr & LeBlanc, 2007). Behavioral therapy can be provided by an early intervention program, a special education program through a school, or by therapists in private practice. Caregivers who are interested in

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pursuing this treatment approach should be referred to the Behavior Analyst Certification Board to locate a professional qualified to oversee such a program. Programs based on developmental theory include the relationship development intervention (RDI) and developmental, individual-difference, relationship-based model (DIR, also known as “floor-time”). Social deficits are the primary focus of both interventions, and both are popular and relatively widespread in their dissemination; however, no well-controlled studies documenting their effects have been published. Furthermore, the basic developmental theories upon which RDI and DIR are based have not been tested. When considering these interventions, the lack of empirical support should be considered.

Structured teaching is best exemplified by Project TEACCH (Treatment and Education of Autistic and Related Communication-Handicapped Children). The goal of structured teaching is to use strategies like visual supports, individual work stations which minimize distractions, and picture schedules to aid with transitions. These strategies cater to the learning styles of many individuals with autism. The National Research Council considers Project TEACCH a “plausible” intervention; however, there are currently no well-controlled studies of its outcomes.

Many educational treatments for children and adolescents with ASDs, despite their popularity, have not been adequately evaluated, and some do not meet criteria for “well-established” treatments due to a lack of robust experimental designs, independent replications or peer-reviewed published data. This does not necessarily mean that they are ineffective; however, efficacy has not been established and replicated in well-designed clinical studies (Carr & LeBlanc, 2007).

In many communities, an “eclectic” treatment approach is used which combines ABA, structured teaching, and a developmental approach. While there are many differences between the approaches, there are also areas in which they borrow from one another. For example, behavioral programs address social interactions like joint attention and imitation, borrowing from developmental approaches, as well as utilizing visual strategies borrowed from structured teaching; some developmental models and structured teaching approaches use behavioral techniques to meet their teaching goals. However, studies which have compared outcomes from the eclectic approach groups to intensive ABA groups have shown more favorable outcomes in the ABA groups, raising questions about the efficacy of

eclectic educational methods. There is a growing agreement that effective early childhood intervention for children with ASDs should include the following components (Myers & Johnson, 2007):

- ⇒ Starting early, even before a definitive diagnosis has been made;
- ⇒ Intensive teaching for at least 25 hours a week, all year long;
- ⇒ One-on-one and small group instruction, with low student-to-teacher ratios;
- ⇒ Parent or caregiver training;
- ⇒ Ongoing measurement and data analysis in order to individualize instruction as required;
- ⇒ Structured environments, including visual schedules, clear physical boundaries and predictable routines;
- ⇒ Strategies to promote generalization and maintenance of learned skills;
- ⇒ Assessment based curricula that includes functional communication, social skills, self-management, cognitive and academic skills and functional adaptive skills to increase independence;
- ⇒ Reduction of disruptive behavior using strategies that employ functional assessment.

Psychotropic Medications

Medications that are used to produce behavioral, emotional, or cognitive changes are known as psychotropic medications. Psychotropic medications have not been proven to correct the core social communication deficits of ASDs, and they obviously do not teach skills. However, medications are sometimes effective for treating associated problem behaviors or coexisting psychiatric conditions that interfere with educational progress, socialization, health and safety, and quality of life (Myers & Johnson, 2007; Myers, 2009; Munshi, Gonzalez-Heydrick, Augenstein, & D’Angelo, 2011).



Examples of problems that might potentially be targeted with psychotropic medications include irritability, aggressive or self-injurious behavior, ADHD symptoms (inattention, distractibility, impulsivity, and hyperactivity), anxiety, mood disorders, and sleep problems. The best evidence of effectiveness of psychotropic medications for specific symptoms in people with ASDs comes from independently replicated studies involving randomized,

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double-blind, placebo-controlled trial designs, with adequate sample sizes and well-characterized study populations.

The atypical antipsychotic medications, risperidone and aripiprazole, are currently the only medications with U.S. Food and Drug Administration-approved labeling specific to ASDs [for the symptomatic treatment of irritability, including aggressive behavior, deliberate self-injury, and temper tantrums in children and adolescents with autism] (Myers & Johnson, 2007; Myers, 2009; Munshi, Gonzalez-Heydrick, Augenstein, & D'Angelo, 2011). There is also substantial evidence that these medications and others such as methylphenidate, guanfacine, and atomoxetine are helpful for attention-deficit/hyperactivity disorder (ADHD) symptoms in some individuals with ASDs. Some evidence supports the use of the atypical antipsychotics risperidone and aripiprazole and possibly selective serotonin reuptake inhibitors (SSRIs; such as fluoxetine or fluvoxamine) and the anticonvulsant medication, valproate, for repetitive and rigid behaviors associated with ASDs. However, the largest published controlled trial did not demonstrate that citalopram, a SSRI, was superior to placebo for repetitive behavior associated with autism. Melatonin may be effective for those who have difficulty falling asleep at night.

Functional assessment often reveals that problem behaviors in individuals with disabilities, including ASDs, serve as a way to reach an outcome such as attention, access to a preferred object or activity, or escape from a demand or non-preferred activity. In these cases, behavioral interventions are the most effective treatments, and they should be used before medication is considered (Myers & Johnson, 2007; Carr & LeBlanc, 2007; Myers, 2009; Carbone, Farley, & Davis, 2010; Munshi, Gonzalez-Heydrick, Augenstein, & D'Angelo, 2011). Even when medication is used, behavioral strategies are important, and there is growing evidence that the combination of behavioral intervention with medication results in better outcomes, with lower doses of medication required (Munshi, Gonzalez-Heydrick, Augenstein, & D'Angelo, 2011). In the case of rapid onset or intensification of problem behaviors, children with ASDs should be evaluated by their physicians to rule out potential medical causes, such as a hidden source of pain or discomfort. Middle ear infections, dental abscesses, reflux esophagitis, constipation, medication side effects, menstrual periods, or other medical problems may be identified and treated, and resolution of the underlying medical issue may alleviate the behavioral difficulties.

All medications can have adverse effects, and it is important for healthcare providers to only prescribe medications with which they have sufficient expertise. When the decision is made to start a therapeutic trial of medication, the specific target symptoms or behaviors for the medication should be identified, and a plan should be in place for monitoring of outcomes, including desired effects and adverse, or undesired, effects (Myers & Johnson, 2007; Myers, 2009; Carbone, Farley, & Davis, 2010). This could be done using a tool as simple as a daily behavior data sheet, counting the desired outcomes and associated signs of adverse or undesirable reactions. Once done, this can be compared to a baseline of data obtained before the medication was put in place (Munshi, Gonzalez-heydrick, Augenstein, & D'Angelo, 2011).

The treatment reviews noted some of the common pitfalls of treatment with psychotropic medication. For example, although monotherapy (use of a single medication) is desirable, patients with complex problems are sometimes treated with more than one psychotropic medication (polypharmacy). There is very little information available about combinations of medications, and it is critical that physicians have a good understanding of the potential interactions among medications and monitor closely for adverse effects, especially if the individual being treated has limited communication skills and is unable to clearly identify if something is not right. Because of the widespread use of the Internet and the highly-variable quality of available information, it is common for parents and other care providers to be exposed to strong advocacy for treatments that have not been shown to be effective in properly designed scientific studies. It is important for physicians to be aware of the empirical evidence behind the treatments they are considering and strive to ensure that the most safe and effective interventions (based on well-designed scientific

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studies) are the ones that are selected (Carr & LeBlanc, 2007).

Complementary and Alternative Medicine

Complementary and alternative medicine (CAM) has been defined by the National Center for Complementary and Alternative Medicine (NCCAM) as “a group of diverse medical and health care systems, practices, and products that are not presently considered to be part of conventional medicine” (NCCAM, 2000). The NCCAM has organized CAM practices into five domains: mind-body medicine, manipulative and body-based practices, energy medicine, biologically-based practices, and alternative medical systems, such as homeopathy and naturopathy, which may utilize therapies found in the other four domains.

Many CAM therapies from all 5 of the NCCAM domains have been advocated for the treatment of children with ASDs. The reviews that address CAM therapies state that the vast majority have been inadequately evaluated and cannot be recommended for treatment of ASDs based on the available evidence (Myers & Johnson, 2007; Carr & LeBlanc, 2007; Carbone, Farley & Davis, 2010). Potential risks of CAM treatments include direct toxic effects of biological agents or manipulative techniques, presence of contaminants, interactions with prescribed medications, interference with appropriate nutrition, interruption or postponement of valid therapies, and unwarranted expenditure of time, effort and financial resources (Myers & Johnson, 2007; Carr & LeBlanc, 2007; Carbone, Farley & Davis, 2010).

CAM interventions are sometimes divided into two categories, biological and nonbiological; although this is a misnomer because ultimately, the mechanism of action of any effective intervention would necessarily be through impacting central nervous system biology. The most thoroughly evaluated biological CAM treatment for autism, the

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Shout Outs, Accolades, and Appreciations! By Kerry Ann Conde, MS, BCBA

ASAT would like to recognize those individuals and organizations who strive to support our mission. Specifically, we would like to thank and send a “shout out” to...

- **The Association for Behavior Analysis International** for reaching out to all 2012 members to share our special Autism Awareness Month call for subscriptions to Science in Autism Treatment
- **Deb Harris** from the ELIJA Foundation for listing ASAT on their home page: www.elija.org and in their January 2012 Newsletter
- **Behaviorbabe** (www.twitter.com/behaviorbabe) for supporting ASAT on Twitter
- **Autismoaba** (www.twitter.com/autismoaba) for supporting ASAT on Twitter
- **Zaira Santana** and **Adriana Cristóbal** for translations of ASAT material into Spanish
- **DJ Cindy Vero** of KTU 103.5 FM in NYC for her interview with David Celiberti and Barbara Wells showcasing ASAT and the Rock'n 4 Autism Awareness concert. Listen here: <http://tinyurl.com/ASATradio>
- **Dena Russell** of the Hoboken Special Needs Parent Group for spreading the word about ASAT's concert
- **Larry and Kathy Hannon** for sharing ASAT materials throughout April within their Dairy Queen stores in Maine
- **McLean in the Morning** for the Tyler McLean radio interview with David Celiberti <http://soundcloud.com/search?q%5Bfulltext%5d=David+Celiberti>

If you would like to share information about any initiatives you have undertaken to support ASAT, please write us at publicity@asatonline.org.



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hormone secretin, has been thoroughly evaluated and proven to be ineffective. Some of the under-evaluated biological CAM treatments that have been popular in recent years include hyperbaric oxygen, immunoregulatory interventions (such as dietary restrictions, immunoglobulins, and antiviral agents), detoxification therapies (such as chelation), various gastrointestinal treatments (such as digestive enzymes, antifungal agents, probiotics, yeast-free diets, vancomycin, and gluten- and casein-free diet), dietary supplements (large doses of vitamins, magnesium, folic acid), and even stem cell infusions. Examples of non-biological CAM therapies that have waxed and waned in popularity include auditory integration training, behavioral optometry, craniosacral manipulation, dolphin-assisted therapy, and facilitated communication, none of which has been proven to be effective.

The AAP has stated that pediatricians should: (1) critically evaluate the scientific evidence of efficacy and risk of harm of various treatments and convey this information to families, (2) help families understand how to evaluate scientific evidence and recognize unsubstantiated treatments and pseudoscience, and (3) insist that studies that examine CAM treatments be held to the same scientific standards as all clinical research (Myers & Johnson, 2007). This requires open lines of communication and families should not be discouraged from sharing information about any CAM treatments that they may be considering (Myers & Johnson, 2007). According to a recent survey, only 36-62% of caregivers who used CAM therapies for their children with ASD shared that information with their child's primary care physician, yet they indicated that that they wanted more information on CAM therapies from physicians (Myers & Johnson, 2007). If families are reluctant to disclose CAM treatments to their child's physicians, the physicians may inadvertently prescribe medication that has a potential interaction with the CAM treatment. When speaking with families, physicians should encourage families to seek additional information if:

- The treatment is based on overly simplified scientific theories;
- It is claimed that the therapy is effective for multiple different unrelated conditions or symptoms;
- It is claimed that children will respond dramatically and some will be cured;
- Support for the treatment is based on case reports and anecdotes rather than carefully designed studies;
- There is a lack of reference to peer-reviewed scientific literature or, denial of the need for controlled studies, or the existing literature directly contradicts the claims of proponents of the CAM treatment;
- The treatment is said to have no potential or reported adverse effects.

Conclusions

All treatments should be based on sound, plausible theoretical constructs and objective scientific evidence of efficacy. When treatments are evaluated, well-designed, and appropriately controlled studies using rigorous methodologies are required to prove that the observed effects are attributable to the intervention being studied. In the published scientific literature, the evidence is strongest for behavior analytic strategies for both teaching new skills and reducing problem behaviors in children with ASDs. In some cases, when serious problem behaviors remain after a function-based approach has been utilized, a trial of psychotropic medication may be warranted to target certain specific symptoms, usually in conjunction with behavioral interventions. By providing their patients with ASDs with ongoing high-quality medical care and guiding them to effective interventions, healthcare providers can help to maximize important outcomes including functional independence and quality of life.

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Message from SIAT Co-editor, Josh Pritchard, PhD, BCBA

Wow! Each issue of the Science in Autism Treatment leaves me amazed. Each quarter we have such great content contributors for our issue. As with any publication, we have great ideas and articles pitched for the issue that for some reason or another tend to lag behind schedule. Each issue, as this happens, we say things like, well, this might be a short issue. We always strive to balance the endless amount of information with compassion for you, our readers in mind. We try not to create 100 page issues! However, even when we shift content from a planned issue to the next (and this happens every issue), we still find our pages filled to the brim. I have edited several professional science-based newsletters before, and one of the most difficult roles has been to scrounge up enough content to pull together a 3-4 page newsletter worth reading. Because of our stellar volunteer contributors (too numerous to mention by name here!), this is not a problem that we encounter.

We are seeing a lot of discussion about the "epidemic that is autism" in the news and social media. As Dan mentioned in this issue ([p 14](#)), this is sure to generate an even larger amount of treatment options that are simply not supported by science, evidence, and sometimes even logic. As an organization, we see an enormous amount of work ahead in our future to try and keep abreast of all those who are trying to cash in on the vulnerable families affected. I urge you to take a moment and look at our board and our volunteers. You will notice that this is a group of very busy professionals, parents and science advocates who give freely because they care. From our tireless president supported by his veteran officers to the newest board members, we are a busy, productive group. I marvel at how much ASAT accomplishes with a 100% volunteer board. However, the best is yet to come. I think 2011 will pale in comparison to what ASAT has in store for 2012. Here is where you come in. We need support.



In 1999, when SIAT began, it cost \$15 per year. With inflation calculated, that would be about \$20 today. If you find SIAT informative, and you want to support science-based treatment of autism, we ask that you consider donating at least that much. Any amount helps us to accomplish our mission. Our children deserve better than much of what passes as "treatment" for autism. Help us make sure they get what they deserve: <http://asatonline.org/donate>.

Yours in Science,

ASAT conference by Denise Grosberg, MA BCBA

We are very pleased to announce that for the first time ever, the Association for Science in Autism Treatment and Bilinguals Inc. Pediatric Therapy (<http://www.bilingualsinc.com/>) co-hosted an autism conference on April 3, 2012 titled Science and Technology: Driving Autism Intervention. This all day conference took place at Baruch College in New York City, bringing together the

families of children with autism access and learn about scientifically validated treatments and interventions. This confer-



ber, who spoke about improving observational learning skills in children with autism. Also of note was a workshop entitled "Technology and Learning: developing innovative teaching methods for individuals with autism spectrum disorders," presented by ASAT Vice President Mary McDonald, and "Using the Principles of Science in Everyday Educational Practices with Young Children with Autism," presented by ASAT Board Member Daniel W. Mruzek.

shared agenda of both organizations to help ALL

ence featured autism specific vendors, networking opportunities and educational presentations by ASAT members. Our keynote speaker was Bridget Taylor, Psy.D., BCBA-D and ASAT Board mem-

ASAT

Providing Accurate, Science-Based Information - Promoting Access to Effective Treatment

Review of Randomized Control Trial of DIR/Floortime Therapy: “Learning through interaction in children with autism: Preliminary data from a social-communication-based Intervention” by Sara Gershfeld, MA, BCBA and Tristram Smith, PhD

Background

Parents and clinicians frequently face the issue of making informed decisions amongst heated debates over the most effective approaches for treating young children with autism (Prizant & Wetherby, 1998). Of the current approaches used to treat autism, there lies a continuum ranging from intensive discrete-trial-training, to behavior analytic treatment that combines many different instructional methods, to social-pragmatic and developmental approaches. This article provides a basic description of a class of interventions that have recently received increased attention – Developmental Social Pragmatic (DSP) interventions.

Casenhiser, Shanker and Stieben (2011) evaluate DSP as a method of improving social interaction skills of children with autism spectrum disorder (ASD) and state that these different approaches may teach the same types of behavior, but approach them differently than a traditional behavioral approach.

For example, most interventions acknowledge that eye contact is related to increased joint attention and language (Casenhiser, 2011). As such, interventions aim to teach children with autism to make eye contact. A DSP perspective might suggest that exhibiting eye contact is not what is important, but rather that it is imperative to share the eye contact in a social or play experience. Thus, Casenhiser (2011) reasons that a DSP model focuses on the function of the behavior to engage socially with a peer or adult, whereas a behavioral approach might look at the topography of the behavior as important independent of whether it occurs in a social experience or not (for example, attending to instruction). This basic assumption forms a divide between the DSP perspective

and a behavioral perspective.

Over the course of development of DSP approaches, treatment options such as the Hanen Method (Manolson, 1992), Relationship Development Intervention (RDI; Gutstein, 2001), and Developmental Individualized Relationship-based (DIR) Intervention (Greenspan & Wieder, 2006) have received attention from parents of individuals with autism despite a lack of research that uses the “gold standard” of research methodology – a randomized controlled trial.

In this study, Casenhiser and colleagues (2011) examine a DSP approach known as a developmental, individual-difference, relationship-based (DIR®) model, which is often interchangeably referred to as Floortime Therapy. The DIR®/Floortime approach focuses on helping individuals with ASD master skills related to communication, thinking through understanding of developmental milestones, respecting a child’s individual differences and challenges, and asserting the importance of building relationships with primary caregivers to encourage development. Although the theory behind this type of approach is well explored using anecdotal evidence in Greenspan and Weider’s book “Engaging Autism,” there is a lack of robust evidence to validate its effectiveness experimentally (Greenspan & Weider, 2006). As such, Casenhiser and colleagues evaluate the DIR®/Floortime approach as an intervention aimed at improving the socio-communication skills of individuals with autism using a randomized control trial.

Method

This study enlisted 51 children ranging from 2 to 5 years old. Though this highlights the relatively large

sample size, it is unclear how many children did not qualify for this study, did not enroll, or dropped out. Casenhiser and colleagues also mentioned that recruitment occurred with parents that were interested in receiving a DIR-based intervention. It is not articulated whether parents who were eligible but did not have a specific interest in DIR therapy were not included in this sample.

Numerous exclusionary criteria were applied that are not atypical for these types of comparison studies (Dawson et al., 2009). Twenty-five participants were assigned to a target group that received 2 hours of DIR®-based therapy per week and parent coaching at the Milton & Ethel Harris Research Initiative (MEHRIT). Twenty-six participants were assigned to a community group that received an average of 3.9 hours/week of a variety of different services ranging from an unspecified combination of speech therapy, applied behavior analysis (ABA), occupational therapy, social skills, day care, and/or other alternative treatments including diets and hyperbaric oxygen therapy.

Although the community group represents a diverse spectrum of treatments that a typical individual with autism might receive, neither treatment groups received intervention at the suggested intensity documented through experimental literature to show progress in a number of developmental domains. Additionally, the intervention received by the community group was well below the hourly level of researched low-intensity interventions (Eldevik, Eikeseth, Jahr, & Smith, 2006), despite numerous past research studies indicating that intensive behavioral intervention is more effective than eclectic therapy (Howard, Sparkman, Co-

(Continued on page 10)

Review of RCT continued...

hen, Green, & Stanislaw, 2005). Lastly, the authors did not indicate whether the community group participants received this eclectic combination of services from the same providers or if there were any standard methods documenting whether staff had the proper training necessary to administer the therapy used in the community group. For example, for an individual receiving ABA, training and supervision should assure competencies in a number of areas including experience designing and implementing comprehensive ABA programming for individuals with autism, which should involve areas ranging from “learning to learn” (e.g. listening, imitating, following directions), social interaction, self-care, school-readiness, communication, to play and leisure (Celiberti, Buchanan, Bleecker, Kreiss, & Rosenfeld, 2004). If these and other competency-based measures are not met, it is expected that an individual with autism receiving this type of service at any intensity or duration will likely make minimal (or at least less than optimal) progress. Thus, concerns can be raised regarding the control group chosen in this trial.

Treatment implementation for the target group occurred by licensed speech-language pathologists or occupational therapists. These staff members were trained for 3 weeks on a number of DIR® techniques. The authors do not address a basic question regarding external validity: Is the training received by these staff members aligned with the training level of typically trained DIR/Floortime therapists? The authors mention that there is a certification offered through Serena Weider, but many DIR/Floortime therapists do therapy without this certification. Even with a certification, there lacks a manual or guide used to standardize the intervention techniques. There is no measure of whether the providers implemented the intervention as intended by the developers of the intervention. Thus, it is difficult to say what occurred in the intervention session or how it could be replicated. As such, results of the study may not reflect those that would be observed if an individual with autism received this treatment in a natural setting.

Results & Data Analysis

Results indicated that there were no significant differences observed on all scales prior to treatment. Ratings were coded by trained staff blind to the treatment condition. After treatment, the researchers examined the relationship between participant group placement and 5 scale items (attention to activity, involvement, compliance, initiation of joint attention and enjoyment in interaction). Improvement was signifi-

cantly greater on these items than those made by the community group, except in the domain of compliance. In all measures, the community treatment group did worse at the end of 12 months except in the category of independent thinking.

Speech-language pathologist staff, blind to the participant condition, conducted pre- and post-assessments and found no significant difference on two standardized language scales (PLS-4, Zimmerman, Steiner, & Pond, 2006; CASL, Carrow-Woolfolk, 1999). A modified standardized measure had predictors of language change (mCBRS, Kim & Mahoney, 2004), but the authors noted that it was difficult to ensure validity since this scale had been modified following scale standardization. Caregiver behavior was also investigated and statistical differences showed that the MEHRIT group showed improvement on all items except a Sensory-Motor Support item. No significant associations for compliance were indicated in this scale either.

Though these results indicate some improvement based on the intervention, statistical significance only indicates that the differences between groups (however small) are not likely due to chance factors, but does not indicate that these differences are meaningful. It is also unclear how the group averages apply to individual children within the groups (for example, how many children within each group made significant gains or to what extent outcomes varied from child to child). In addition, because the intervention contained multiple components, it is uncertain how each component influenced the behavior of the parent and child.

Discussion

By standards of experimental autism literature, this experiment has notable strengths. Casenhiser and colleagues enrolled a relatively large sample size. The randomized control trial used a randomized design consisting of two groups – a treatment (“target”) group and a control group. Participants were randomly assigned to either group. Participants were paired based on age and baseline language level. This sampling procedure ensured that both treatment groups were similar before intervention. Well-established outcome measures were used to identify participant progress, and included an assessment of whether parents acquired new skills. The experiment also monitored the treatments obtained outside of the study.

Aside from these strengths, this study leaves considerable question regarding the validity of the treatment group improvement when compared with a poor-

(Continued on page 11)

Review of RCT

ly conceptualized control condition. This control condition was not a “no-treatment” control group, but instead was an undefined blend of procedures with no evidence of procedural integrity, at a level considered less than adequate in the research literature. A better comparison might have contrasted the MEHRIT treatment group with a no-treatment group; an eclectic group at the correct duration or dosage; or a group receiving a behavior-based treatment with high procedural integrity. In addition, results were significant on a modified scale, potentially lacking validity.

A significant area of treatment administration that did not show significant results was in the domain of compliance. Compliance is an important skill for individuals with autism, and many demonstrate opposition when required to complete basic tasks (Ducharme & Drain, 2004). The necessity of learning-to-learn skills such as compliance, attending, orienting, choice-making and simple imitation must be taught early in the intervention process before more complex skills, such as social communication and play, can be addressed (Luiselli, Russo, Christian, & Wilczynski, 2008). It is standard to ensure that a foundation for these skills is present before addressing some of the variables that were explored in this study.

Treating an individual with autism often encompasses biological, developmental and/or behavioral approaches to autism treatment. These approaches all aim to remediate the most pertinent symptoms of an individual with autism. Among behavioral and developmental approaches, there are misconceptions about the difference between these two approaches and the utility of both. Casenhiser (2011) attempts to validate Developmental Social Pragmatic (DSP) Interventions, specifically DIR®/Floortime (Prizant & Wetherby, 1998). Although this study provides an indication of the effectiveness of this approach, it should be independently replicated before it is considered empirically valid. DIR® is an emerging treatment, however families are urged to continue with treatments that are currently empirically supported.

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Focus on Science: The Pitfalls of Testimonials by Daniel W. Mruzek, Ph.D., BCBA-D

When searching for a great restaurant or choosing a movie to go see, often we consider the personal reports of neighbors, work associates and friends. Why not? Their “testimonies” give us a quick method for judging the probability that a particular restaurant or movie will be a good investment. Of course, our friends and associates are not always right, but their testimonials serve as either short-cuts or as corroboration of other sources of information (e.g., restaurant or movie reviews). As such, they contribute to efficient decision-making about relatively low-stakes events. We commonly see testimonials made by happy consumers presented by marketers of autism treatments. Indeed, testimonials are a standard feature on websites marketing pills, exercises, devices, interventions and therapies to potentially unwary consumers. Many testimonials take the form of simple, quoted statements (e.g., “The [marketed treatment] has had an amazing effect on my son!”). On the internet, video testimonials may be particularly compelling. Marketers know that the testimonials of some people, including attractive people, familiar celebrities, and people who may remind the potential consumer of him- or herself may be particularly effective. Adding pleasant theme music and using artful filming may complete the effect and increase the probability that families separate from their hard-earned money. But, how should we use testimonial evidence in selecting potential autism treatments? When confronted with testimonials about possible autism treatments, it is recommended that families be especially cautious, particularly when the testimonials are the only source of support for the intervention. Marketers can find a few individuals who provide testimony that their product is effective, even when the product is wholly ineffective. This is because, as consumers, our opinions about the quality of a product- including perceived effectiveness- are colored by our previous experience, what we have been told by others, and our expectations. Furthermore, because human behavior- including the behavior of individuals with autism- is variable (i.e., changes across time), a treatment benefit may appear to exist, even when it does not exist at all. For example, imagine that a marketer sold a “special” trampoline to 100 parents with the guarantee that daily use of the trampoline by their child would “open

learning channels” and “promote language acquisition”. Of those 100 parents, it is reasonable to expect that at least a small number of them- perhaps 5 or 10%- may report that the product “seems to help”, even if the trampoline is not at all effective as an intervention in the way described by the marketer. A savvy marketer is watching for members of this small subgroup of consumers as their source of new testimonials!

And, how about all of the parents who purchased the trampoline and, subsequently recognized that it did not “open learning channels” and



“promote language acquisition”? You can be assured that their opinions will not grace the marketer’s website, social media or glossy print advertisement. As a result, the marketers promote an illusion of product effectiveness where one may not exist at all.

It is for these reasons that parents and other consumers of autism “treatments” are cautioned to view testimonials skeptically. Testimonials are a wonderful way for business people to market merchandise but a poor way for families to determine true effectiveness of a treatment, device or intervention. Decisions regarding autism treatment are best guided by the scientific record, as supplied by trusted sources (e.g., a competent physician, psychologist or other autism expert). When it comes to making decisions about expensive autism interventions and the allocation of precious resources, persons with autism- and their families- deserve nothing less.

Have an idea for Focus on Science? Send it to:
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Treatment Summary: Son-Rise

We chose this issue’s treatment summary to illustrate the dangers that Dr. Mruzek warned us about on page 12: a treatment that relies extensively on testimonials as their evidence.

Description: The Son-Rise Program was developed and trademarked by Barry and Samahria Lyte Kaufman decades ago. The program offers training sessions to parents and others on how to implement home-based programs for children with a wide range of disabilities. The program is based upon the Kaufmans' own personal theories of learning and development. A central principle of the Son-Rise program is that parents must convey an attitude of “total acceptance” of their child including all of his/her behaviors. The training that the Kaufmans offer places emphasis not on the child’s skills, or behaviors, or challenges, but more on the parents and caregivers.



Research Summary: There have been no scientific studies of Son-Rise for individuals with autism spectrum disorders.

Recommendations: Researchers may wish to conduct studies with strong scientific designs to evaluate Son-Rise. Professionals should present Son-Rise as untested and encourage families who are considering this intervention to evaluate it carefully.

New CDC Autism Numbers Highlights the Need for Effective Treatment By Daniel W. Mruzek, PhD, BCBA-D

As many readers have no doubt heard by now, the Center for Disease Control (CDC) and Prevention’s Autism and Developmental Disabilities Monitoring (ADDM) Network recently reported that about 1 in 88 children has been identified with an autism spectrum disorder (ASD) in the United States, with the ASDs almost 5 times more common in boys (1 in 54) than in girls (1 in 252). These numbers represent a sizable increase over previous estimates of the occurrence of ASD and caught the attention of media outlets all over the world. The CDC attributed improved identification of autism, particularly in historically under-served populations, as one reason for the higher estimate of prevalence, but more research is needed to determine whether there actually are more individuals with autism than in the past. Regardless of all the factors that may be responsible for the increased prevalence estimate, these new estimates highlight the importance of helping families access effective treatment quickly and helping families and others distinguish science-based treatments from unproven or disproven treatments. For marketers of fad “treatments”, “miracle cures” and interventions lacking scientific validation, these

most recent CDC numbers are no doubt interpreted as signs of a “growth industry” for their trade. Unfortunately, this trade is too often conducted on the backs of individuals with autism, on the hopes of consumers trying to make the best treatment decisions, and at the expense of hard-earned family income.



As a non-profit, volunteer-driven organization dedicated to supporting individuals and families affected by autism, ASAT sees these new CDC numbers as a striking reminder that the need for scientifically validated autism interventions and supports has never been greater. This is true for young, newly diagnosed children who benefit from effective early intervention, for students with autism who, with proper supports, contribute to the richness of our schools, and for adults with autism who have a right to active,

meaningful participation in their communities. We invite you to team up with ASAT in taking a firm stand in the face of deceptive marketers and promoting effective, science-validated treatments for individuals with autism. Together, we can make a difference in the lives of individuals with autism and their families.

The 2nd Annual Rock'n 4 Autism Awareness Concert: We rocked, we rolled, and we raised awareness for science-based autism treatment by Denise Grosberg, MA, BCBA and David Celiberti, PhD, BCBA-D

The 2nd Annual Rock'n 4 Autism Awareness Concert, co-hosted by ASAT and Hoboken-based HOPES CAP, Inc., rocked out on Saturday afternoon, April 28th. Beautiful weather and an enthusiastic crowd contributed to the success of this indoor/outdoor event. Some highlights included:

- Attendees enjoyed two sets from the Fuzzy Lemons, a popular and beloved family-friendly rock band. The kids tore up the dance floor!
- We were lucky to have another guest appearance by NY Jets Player, Mike Devito, who was available for pictures and autographs! Thank you to Joe Epstein who took photographs of concert attendees with Mike, as well as to Emily Krohn and Angel Davila who took wonderful photographs throughout the event.
- Hoboken Mayor Dawn Zimmer stopped by and spoke to the crowd (Just a few days earlier, Mayor Zimmer had declared April 25th as Autism Awareness Day in Hoboken).
- ASAT Board members Barbara Wells, Ruth Donlin, Mary McDonald, Marianne Clancy, Peggy Halliday and David Celiberti, ASAT Externs Lauren Schnell, Dena Russell, Caitlin Reilly, and Germaine Ibrahim and Clinical Corner Coordinator Nicole Pearson were on hand to ensure a successful event. We were grateful to be joined by 50 volunteers including individuals from HOPES CAP Inc., Autism New Jersey, Hoboken Mommies, Starbucks, Stevens Institute of Technology and Hoboken Volunteers.
- Over 100 local businesses contributed money, merchandise and/or services to make the event a success. We listed all donors who contributed money, services, or items worth over \$200 on page 15. Attendees vied over some silent auction items such as a Jets-signed football, a summer pool pass, artwork, gym memberships, and a hotel stay in San Juan, just to name a few.
- Barbara Wells and David Celiberti were interviewed by Cindy Vero from KTU Radio in NYC. Listen here: <http://tinyurl.com/ASATradio>



Aside from organizing a spectacular, family-friendly event here in Hoboken for families of children with autism and the broader community, our goal was to leave an indelible imprint in the local area with respect to awareness of autism, its treatment, and access to high-quality information to guide treatment decisions. Some of the many **local** initiatives that will be funded by this benefit concert include:

- Comprehensive compilations of resources for families of children with autism and service providers who are attending this event, provided at no charge.
- Creation of autism lending libraries in HOPES Hoboken locations and one location in Plainfield, NJ; as well as an additional lending library for the Hoboken Special Needs Parent Group.
- Full scholarships for several local parents to attend autism-related conferences.
- Information packets to be shared with local pediatricians for distribution to parents of children with autism. Future plans include making this information available to family physicians serving adults with autism as well; and
- Financial assistance for the Hoboken Special Needs Parent Group, which is committed to supporting the broader community of parents of children with special needs.

Additionally, some of the many **national** initiatives that will be supported by this benefit concert included:

- Creation of a resource booklet for pediatricians and primary care physicians: *Beyond an ASD Diagnosis: Supporting Families Over the Lifespan*.
- Identification of 3000 new family members and service providers in the US who will receive free subscriptions to *Science in Autism Treatment*; and
- Translation of printed material about autism treatment into Spanish.

We are already beginning to plan for next year's concert!



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Heartfelt thanks to HOPES CAP Inc. for being such a wonderful partner in planning and hosting this incredible event!

Clinical Corner: Expanding Interest

My child is doing well with many of his ABA programs, even the ones that focus on play. Unfortunately, he doesn't play with most of the toys that we give him, and he has worked for the same five things since our program began a year ago (marshmallow peeps, Thomas trains, tickles, Wiggles songs, and raisins). What can I do to expand his interests and maybe even get those interests to function as reinforcers for teaching targets?

**Answered by Tanya Baynham, MS, BCBA
Program Director, Kansas City Autism Training Center**

Inherent in a diagnosis of autism is the fact that the child will engage in restricted or repetitive behavior and may also have restricted interests. Expanding those interests, specifically in the areas of toys and play, is an important programming goal as it can result in a number of positive effects. First, rates of socially appropriate behaviors may increase while rates of inappropriate behaviors may decrease. For example, engaging a child in looking at a book may decrease his stereotypic behaviors or passivity (Nuzzolo-Gomez, Leonard, Ortiz, Rivera, & Greer, 2002). Second, interest expansion can lead to new social opportunities for children and enable greater flexibility when bringing them to new environments. For example, a child with a new preference for coloring may be taken to a restaurant because he will sit and color the menu, or he can attend Sunday school because he will color a picture when directed. Third, the addition of new reinforcers in ABA programs may help prevent satiation or allow you to allocate more highly preferred items for difficult teaching targets and less preferred items for easier targets.

Stocco, Thompson, and Rodriguez (2011) showed that teachers are likely to present fewer options to individuals with restricted interests and allow them to engage longer with items associated with those restricted interests. The authors suggest one possible reason for this is that teachers might be sensitive to the negative behaviors (e.g., whining, pushing the toy away) that can accompany the presentation of a new toy. The results of this study prompt us to be aware of our own role in potentially limiting a child's access to novel experiences or activities and to find effective ways of expanding a child's interests without evoking tears and other negative behavior.

Most importantly, make reinforcer expansion a teaching focus and take data. First, track the number of different toys and activities with which your child engages to identify your child's current patterns. Then, measure the effects of your attempts at reinforcer expansion on your child's behavior. Ala'i-Rosales, Zeug, and Baynham (2008) suggested a variety of measures that can be helpful in determining whether your child's world is expanding. These include: number of toys pre-

Expanding the preferences, interests and play repertoires of children with autism can be challenging but the benefits of doing so, including greater flexibility and improved social behavior, make the efforts worthwhile. In this edition of Clinical Corner, Tanya Baynham offers practical and fun strategies that both parents and teachers can use to successfully expand the interests of children with autism in the areas of toys and play.

*Nicole Pearson, PsyD
Clinical Corner Coordinator*

sented, number of different toys approached/contacted across a week (in and/or out of session), engagement duration with new toys, and affect while engaging with toys. It is sometimes helpful to track changes across specific categories (e.g., social activities, food, social toys, sensory toys, etc). If your child only watches Thomas videos, you may narrow the focus to the category "videos" in order to track expansion of interests to different types of videos. Keeping in mind the previous point about a teacher's role in expanding a child's interests, you may also want to set goals to ensure changes in teacher behavior such as, "Present three new items each day."

Once data are being taken, it is important to implement procedures likely to expand your child's interests. One way to expand toy play is to present, or pair, a preferred item with the item you want to become more preferred (Ardoin, Martens, Wolfe, Hilt and Rosenthal, 2004). Here are a few examples:

- Use peeps as the game pieces in a game you want your child to enjoy, then eat the peeps at different points during the game;
- Sing a favorite song as you help your child up the ladder of an unfamiliar slide on the playground; and
- Tickle your child before turning each page while reading a book.

A second way to expand interests is to think about why your child engages in those restricted interests. If he likes Thomas because of the happy face, put Thomas stickers on a ringstacker. If he likes Thomas because of the wheels, present other vehicles with wheels. If your child likes peeps because they blow up in the microwave, put Mentos in a cola bottle or use baking so-

(Continued on page 17)

Clinical Corner continued...

da to make a volcano. If he likes peeps because they are squishy, use marshmallows in art projects or in a match by feel game. A third way to expand interests is described by Singer-Dudek, Oblak, and Greer (2011), who demonstrated that some children will engage more with a novel toy after simply observing another child receiving reinforcers after playing with it. To apply these findings to your child, the teacher could give Thomas trains to a sibling who just played with novel items such as play dough or shaving cream.

The methods described may only be effective in producing functional play if your child has the skills necessary to engage appropriately with the toys. If your child is not spontaneously playing with toys with which he has been taught to engage, consider the following potential reasons: the play skill may not have been taught to a natural criterion where the child has “mastered” it independently, the program may include a verbal instruction required for the child to begin playing, the teacher may place the toy in front of the child or present it in a visually different way from how it would be on a shelf (e.g., a puzzle or ring-stacker taken apart versus assembled). These features can become discriminative for playing with the object. If spontaneous play is the goal, consider fading any verbal instructions, adding teaching steps until the child is selecting the toy from a shelf or its natural place in the home, and teaching the child how to initiate the play sequence without any teacher interaction.

Here are some final strategies to consider when expanding your child’s interests:

- ⇒ Prioritize toy rotation. Depending upon the number and diversity of toys with which your child engages, you may rotate toys on an hourly, daily, weekly, or monthly basis. Removing a high preference commonly used toy from the rotation can result in increased approach and engagement with other toys;
- ⇒ Provide the toy you want to become reinforcing for “free” in addition to the toy your child chooses during a reinforcement break;
- ⇒ Teach skills that lead to independent initiations of activities (e.g., scanning and selecting among

- large sets or on shelves, requesting items out of view, requesting while watching television commercials);
- ⇒ Teach the skill of making forced choices (presenting a few options and asking the child to choose) and then offer forced choices of items that you would like your child to explore. Associating these items with choice may motivate your child to engage with them; and
- ⇒ If your child does not initiate play, make sure component skills of games are mastered before teaching the play activity. For example, teach “Ned’s Head” or “Memory” once your child can match. Introduce “Hi Ho Cheerio” only after your child can count objects.

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ASAT

Providing Accurate, Science-Based Information - Promoting Access to Effective Treatment

Media Watch Update by Barbara Jamison, Media Watch Coordinator

- ◆ [ASAT Responds to ABC's "From Miracle to Nightmare" \(January 08, 2012\)](#)
ABC's Chris Cuomo provides a stunning expose on facilitated communication and the horrific effects on the family of a child with autism.
- ◆ [ASAT Responds to AP's "School accused of putting autistic student in bag" \(January 12, 2012\)](#)
A startling and sad example of what can happen when school personnel "are neither prepared nor equipped to meet the unique needs of students with autism."
- ◆ [ASAT Responds to NY Times story "A French Film Takes Issue With the Psychoanalytic Approach to Autism" \(January 22, 2012\)](#)
NY Times journalists Jolly and Novak take on the French psychoanalytic community and its abysmal failure to provide safe, effective treatment for autism. Read response by Catherine Maurice (author of Let Me Hear Your Voice and Founding Member of ASAT) and David Celiberti (ASAT President).
- ◆ [ASAT Responds to Star Tribune piece "Autism foundation's IRS filings raise eyebrows" \(January 27, 2012\)](#)
Thumbs up to Star Tribune reporter Jane Friedmann for her article alerting consumers to so-called autism organizations who prey on unsuspecting donors.
- ◆ [ASAT Responds to LA Times story "Families Cling to Hope of Autism Recovery" \(January 30, 2012\)](#)
Writer Alan Zarembo of the LA Times highlights the work of Ivar Lovaas and the field of applied behavior analysis, but ASAT calls him to task about what is lacking in his article.
- ◆ [ASAT Responds to the Cape Cod Institute Program \(February 02, 2012\)](#)
The Cape Cod Institute Summer 2012 Program lists several autism treatment approaches as "evidence-based comprehensive treatments." But what research actually exists to back up that claim?
- ◆ [ASAT Responds to News.com.au's "Cost of autistic children cripples parents up to \\$50,000 a year" \(February 14, 2012\)](#)
"The reality is that thousands and thousands of Australian children with autism will soon become thousands and thousands of young adults with autism..."
- ◆ [ASAT Responds to Irish Times article "French film ban raises autism issue" \(February 17, 2012\)](#)
We commend reporter Paul O'Donoghue for bringing to light France's unsubstantiated psychoanalytical theory and approach to treatment of people with autism.
- ◆ [ASAT Responds to Des Moines Register's "Autistic man struggles in Iowa's mental health system" \(February 23, 2012\)](#)
ASAT applauds journalist Tony Leys for revealing the "heart-breaking reality that many individuals with autism in Iowa face when they enter an adult system that is ill-equipped to address more severe behavioral needs."
- ◆ [ASAT Responds to Huffington Post's "The Autism Vaccine Controversy and the Need for Responsible Science Journalism" \(March 31, 2012\)](#)
Once an idea is promulgated and perpetuated in the media, it can be difficult to retract from the sphere of public thinking – even if it has been discredited.
- ◆ [ASAT Responds to UPI.com's "Doctor fired over autism treatment" \(April 5, 2012\)](#)
Why did a NJ hospital dismiss a neuroscientist over the proposed use of hyperbaric oxygen therapy for patients with autism?
- ◆ [ASAT Responds to Palm Beach Post's "Autism rate rises; disorder now affects 1 in 88 children" \(April 12, 2012\)](#)
Writers O'Connor and Elmore report on the latest CDC autism prevalence rates, but ASAT calls them to task about misleading information in their article.

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Research Review: RCT of a Manualized Social Treatment for High-Functioning Autism Spectrum Disorders

Lopata, C., Thomeer, M. L., Volker, M. A., Toomey, J. A., Nida, R. E., Lee, G. K., Smerbeck, A. M., & Rodgers, J. D. (2010). RCT of a manualized social treatment for high-functioning autism spectrum disorders. *Journal of Autism and Developmental Disorders*, 40, 1297-1310.

Reviewed by: Jessica Rothschild, Caldwell College

Why research this topic?

Individuals with high-functioning autism spectrum disorders (HFASDs) often have difficulty understanding abstract concepts, non-literal language, and identifying facial expression. In addition, they may have a limited range of interests and engage in repetitive behavior that others regard as socially inappropriate. These difficulties may collectively interfere with social relationships across their lifespan. However, little research is available on interventions that might improve social relationships. The purpose of this randomized clinical trial was to evaluate a social intervention program based on a manual developed by the authors.

What did the researchers do?

Thirty-six children with HFASD between the ages of 7 and 12 were randomly assigned to a treatment group or a wait-list control group. In the treatment group, teaching was conducted in a group format that focused on improving peer interaction, expanding children's range of interests, and helping them interpret facial expression and non-literal language. Each meeting began with 20 minutes of intensive instruction, based on a published curriculum (*Skillstreaming*). The instruction sequence included defining each skill, modeling the skill, identifying the individual's needs, role-playing, providing feedback, and assigning homework. After the instructional time, participants engaged in a 50-minute cooperative activity to practice the skills taught during instruction and then reported which skills they used. A point system was implemented in which children received points for using their new social skills and lost points if they engaged in problem behavior or did not follow rules.

This newsletter contains two article summaries that examine ways to improve social skills in children with autism, assessed through group designs. Landa, Holman, O'Neill, and Stuart (2011) looked at the effects of a classroom-based intervention on the social development of 48 2-year-olds. Lopata, Thomeer, Volker, Toomey, Nida, Lee, Smerbeck, and Rodgers (2010) investigated a published curriculum's (*Skillstreaming*) effects on 36 7-12 year olds' peer interaction skills. We are also introducing our first summary of a research review. In general, a research review is a compilation of multiple studies that all investigate one particular topic or intervention. The purpose of the review is to present conclusions on the overall effectiveness of a particular intervention based on the current research. The topic evaluated in this research review is The Picture Exchange Communication System. Enjoy!

Sharon A. Reeve, Ph.D, BCBA-D
SIAT Research Corner Coordinator

What did the researchers find?

Results of standardized testing measures revealed a statistically significant improvement in social skills performance for the treatment group when compared to the wait-list control group. The areas of social knowledge and understanding of idioms revealed the greatest statistically significant effect. Parent and staff rating measures also revealed that the participants engaged in higher levels of targeted social skills after treatment.

What are the strengths and limitations of the study? What do the results mean?

The results of the direct child measures and behavioral ratings suggest that the manualized program provided intensive instruction, targeted appropriate social skills based on the social deficits those individuals with HFASDs experienced, and increased these social skills. Some limitations of the study included a lack of clearly defined skills which could possibly result in inaccuracies in the measurement of these skills and a lack of follow-up data to indicate if the treatment gains were maintained over time. Both of these limitations should be addressed in future studies.

Research Review: The Effectiveness of the Picture Exchange Communication System (PECS) on Communication and Speech for Children with Autism Spectrum Disorders: A Meta-Analysis

Flippin, M., Reszka, S., & Watson, L. R. (2010). Effectiveness of the picture exchange communication system (PECS) on communication and speech for children with autism spectrum disorders: A meta-analysis. *American Journal of Speech-Language Pathology*, 19, 178-195.

Reviewed by: Kathleen Moran, Caldwell College

Why this topic?

The Picture Exchange Communication System (PECS), based on the principles of applied behavior analysis, is a popular approach for teaching children with autism to communicate by selecting pictures and handing them to a communication partner. Due to the lack of systematic reviews of the effectiveness of the standard PECS protocol on communication and speech outcomes for children with autism, the purpose of this review was to conduct a meta-analysis (a method for statistically combining results across studies) to integrate research findings in the current PECS literature.

What did the researchers do?

The researchers reviewed and included eleven studies published in English peer-reviewed journals. The included articles were published between 1994 and 2009 from four different databases. The researchers used different combinations of four words during their search (PECS, Autism, Picture Exchange Communication System, and Bondy and Frost). The researchers included only articles that had at least one child participant with autism.

What did the researchers find?

The researchers concluded that PECS is effective in helping children with autism use pictures to communicate; however, evidence that PECS helps children acquire vocal speech is not as strong, perhaps because the quality and quantity of research on speech outcomes has been insufficient to produce a clear pattern of results. The researchers also established three child characteristics that may be pretreatment identifiers of children with autism likely to respond to PECS: limited motor imitation, strong object exploration, and limited joint attention.

What were the strengths and limitations of the study? What do the results mean?

Although PECS is well-researched compared to other communication interventions, this review should be viewed with caution because there is still only a small number of controlled empirical studies evaluating PECS, especially for speech outcomes. Also, if PECS does lead to vocal speech, it is unclear from the available research which of its components is responsible for this development. Another limitation of the studies is that they did not measure how accurately PECS was implemented. A further concern is that the studies did not show clear evidence that children’s speech and picture communication are maintained and generalized from training to novel settings when using PECS. Strengths of the review included careful procedures for identifying studies and abstracting information from them. For example, the researchers included tables summarizing the specifics of each study, outcome measures, identification of excluded studies and reasons for exclusion, and citations for all studies (excluded and included) referenced. In addition, they conducted reverse searches and cross-referenced results with articles listed on the PECS official research page. The researchers also included a brief overview of PECS in the beginning of the study.

Further research should include assessment of speech development outcomes based on PECS intervention, increased documentation of procedural integrity across studies, evaluations of generalization and maintenance of PECS, comparisons of PECS to alternative treatments, and examinations of potential influence of pre-intervention characteristics.

Research Review: Intervention targeting development of socially synchronous engagement in toddlers with autism spectrum disorder: A randomized controlled trial

Landa, R. J., Holman, K. C., O'Neill, A. H., & Stuart, E. A. (2011). Intervention targeting development of socially synchronous engagement in toddlers with autism spectrum disorder: A randomized controlled trial. *Journal of Child Psychology and Psychiatry*, 52, 13-21.

Reviewed by: ToniAnne Giunta, Caldwell College

Why review this topic?

Autism Spectrum Disorders (ASDs) are characterized by deficits in social skills and communication in areas including recognition and use of facial expression, imitation, reciprocity in interaction, social/affective signaling, joint attention, symbolic behavior, language understanding, and conventional use of gestures. These deficits can greatly limit opportunities for language and social learning. However, little research is available on interventions intended to alleviate such deficits. To address this gap, the present study tested interventions for improving socially engaged imitation (SEI), imitation of joint attention (IJA), and shared positive affect (SPA) in two-year-old children with autism. The primary questions were (a) are there differences in outcome measures of SEI, IJA, and SPA with learners receiving a supplemental social curriculum in their intervention?; (b) are there differences in expressive language growth and nonverbal cognitive functioning with learners receiving a supplemental social curriculum?; and (c) will gains established during interventions maintain throughout a six-month follow-up?

What did the researchers do?

Forty-eight learners with ASD, ages 21-33 months, were randomly assigned to one of two groups: Interpersonal Synchrony (IS) and Non-Interpersonal Synchrony (Non-IS). Both groups received 2.5 hours of classroom-based intervention per day for four days a week over a six-month period. Instruction included discrete-trial teaching and pivotal-response treatment, with an emphasis on the use of highly motivating tasks, materials, and natural consequences. Target skills were selected from the Assessment, Evaluation, and Programming System for Infants and Children developmental curriculum. Parent education classes supplemented classroom instruction. The IS group received more opportunities to (a) respond to and initiate joint attention to objects, people, and events (e.g., by placing interesting pictures on the walls to increase the likelihood of using these skills); (b) imitate others during social interactions (e.g., modeling social targets and providing prompts when necessary); and (c) share positive affect (e.g., introducing activities that involved imitation of peers and adults performing silly actions with objects). Learners were assessed using the Communication and Symbolic Behavior Scales Developmental Profile (for IJA and SPA), an imitation assessment (for SEI), and the MSEL developmental tests (for expressive language and nonverbal cognition).

What did the researchers find?

The researchers found significant differences in outcomes between groups for SEI, but not for IJA and SPA (i.e., more SEI performed by the IS than Non-IS group). They also found significantly higher levels of nonverbal cognition for the IS group at the follow-up, but minimal differences in expressive language between the groups. In regard to growth over time (i.e., timing, rate, and direction of change that provides insight to whether intervention gains remain after termination of the intervention), the IS group showed significantly more growth over time and more rapid growth on every outcome measure when compared to the Non-IS group.

What are the strengths and limitations of the study? What do the results mean?

This was the first study conducted that assessed the effects of a classroom-based intervention on social development for two-year-olds. The findings show that gains in social development can be made in relatively brief periods of time. Future research, however, is warranted in many areas, including in (a) determining whether toddlers with ASD who develop SEI learn more efficiently within other domains of development and (b) separating the components of the intervention to determine which ones are most effective in increasing social development. Furthermore, a control group was not included, making it difficult to infer that gains in secondary outcomes were affected by the interventions alone.

International News by Danlela Fazzlo, PhD, BCBA-D

In this issue we are celebrating the variety of countries represented in *Science and Autism Treatment's* subscriptions and welcoming a new country. We now have a subscription from Russia. добро пожаловать!

We know that autism is in every country and the challenges we face in disseminating science in autism treatment and debunking pseudoscience are also reality everywhere.



Below are the top countries outside of the United States with the most subscribers. If you have suggestions about how we can improve our reach, or if you would like to share an international story, write to us at

international@asatonline.org.

Finally, we have translated two flyers into Spanish; one with content about our website and one with information about our newsletter. They will be on our website soon, but if you need one you can request by email at international@asatonline.org.

Looking forward to hearing from you!

- Canada
- United Kingdom
- Australia
- Ireland
- India
- Brazil
- Israel
- New Zealand
- Philippines



With your help, we are reaching out to more and more people every day, united in their commitment to accountability, respect, and science in autism treatment. Individuals with autism deserve nothing less! Join us on [Facebook](https://www.facebook.com/ASATOnline) (www.facebook.com/ASATOnline) to stay connected and get immediate content updates on:



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In addition to our Advisory Board, a number of individuals lend their time and talents to support ASAT's mission and initiatives. As you can see, we have individuals who support each aspect of our organization. If you want to assist, please email us at info@asatonline.org

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