

Autism Spectrum Disorder Part IV: Treatment for Children with ASD

Presenters:

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Learning Objectives

At the end of this educational activity, participants should be able to:

- Discuss the different evidence-based treatments for autism spectrum disorder (ASD).
- Identify different parent-mediated interventions.
- Determine the safety profiles of some Complementary and Alternative Medicine (CAM) for the treatment of ASD.
- Understand the role that telehealth can play in the treatment of ASD.
- Explain the role and principles of Applied Behavior Analysis (ABA) services as a form of treatment for children with ASD.
- Compare and contrast different types of ABA therapy and Relationship Development Intervention (RDI).
- Describe three different types of speech / language therapies to address the social communication impairment of children with ASD.

Introductions

Robin K Blitz, MD, FAAP, Developmental Pediatrician

- What does evidence-based treatment mean?
- Parent-mediated Intervention
- Use of Telehealth
- Psychopharmacology
- Complementary and Alternative Medicine (CAM)
- Special Education Services

Diana Davis-Wilson, DBH, LBA, BCBA, Behavior Analyst

- Developmental Interventions (RDI, ESDM, Floortime/DIR)
- Applied Behavior Analysis (ABA), different types and evidence

Jenna Turner, MEd, MS, CCC-SLP, Speech-Language Pathologist

- Language impairment in children with autism
- Speech / language therapies to address social communication

Evidence-Based Treatment



ASD Interventions

How to Choose?

- Evidence of effectiveness
- Professional judgement
- Family preference
- Capacity to implement intervention



Established Interventions

- Augmentative and Alternative Communication
- Behavioral Interventions
- Cognitive Behavioral Intervention
- Comprehensive Behavioral Treatment
- FDA approved medications
- Language Training (production)
- Modeling
- Natural Teaching Strategies

- Parent Training
- Peer Training Package
- Pivotal Response Training
- Schedules
- Scripting
- Self-Management
- Social Skills Package
- Story-based Intervention



CAM
Mindfulness
School Services

Parent-Mediated Interventions
Telehealth
Psychopharmacology

Parent-Mediated Intervention

- **Aims:**

- Improve parent knowledge and self-efficacy
- Decrease ASD severity through parents' use of intervention strategies

- **Parent training > education**

- Scahill et al, JAMA, 04.2015

- Project ImPACT
- Early Start Denver Model
- The PLAY Project
- OCALI
- The MIND Institute
- ReThink
- Cserv
- Books listed in References
- Autism Speaks Toolkits

Telehealth and ASD



- In rural communities, improved access to specialists
- Improve medication management
- Parent-Mediated Interventions using commercial companies
- Treating challenging behaviors at lower cost
 - Scott Lindgren, et al; February 2016, Pediatrics
 - 3 service delivery models:
 - In home therapy
 - Clinic-based telehealth
 - Home-based telehealth

Psychopharmacology

To Treat Comorbidities

- Anxiety / phobias
- OCD
- ADHD
- Depression
- Bipolar disorder
- Disruptive behavior

To Treat ASD Irritability

- Risperidone
- Aripiprazole



Complementary and Alternative Medicine

- Very little to no evidence of benefit
- **95%** of parents use some type of CAM therapy
- Levy and Hyman, Child Adol Psychiatr Clin N Am. 2008 October
- <http://www.autismspeaks.org/what-autism/treatment/complementary-treatments-autism>

- **Gluten-free diets:**
 - 88% of gluten-free foods for children are unhealthy
 - *Pediatrics, July 2018*

CAM and Autism

- **Nutrition**

- Gluten-free/Casein-free diets
- B6 and Mg
- Vitamin C
- Carnosine / carnitine
- Omega-3 fatty acids
- Combined hypervitamin therapy
- Digestive enzymes

- **Immunomodulation**

- Antifungals
- Antibiotics
- Probiotics / Prebiotics

- **Biochemical and Metabolic**

- Dimethyl glycine
- Trimethyl glycine
- Vitamin B12 shots

- **Sensory Integration**

- With OT
- Auditory Integrative therapy

- **Detoxification**

- Chelation

- **Manipulative and Body-based**

- Chiropractic
- Craniosacral
- Massage
- Therapeutic touch

- **Music and other expressive therapies**

- Music therapy
- Art therapy
- Drama or other theatrical activities

- **Other CAM Therapy**

- Vaccination delay, separation, or refusal
- Hippotherapy
- Prisms, vision therapy
- Dolphin Swim therapy
- Hyperbaric Oxygen

Alerts and Advisories



- National Center for Complementary and Integrative Health
 - 20 nutritional supplements for treatment of ASD
 - 45 medications studied for treatment of ASD
- Food and Drug Administration
- Federal Trade Commission

Mindfulness

For parents / caregivers

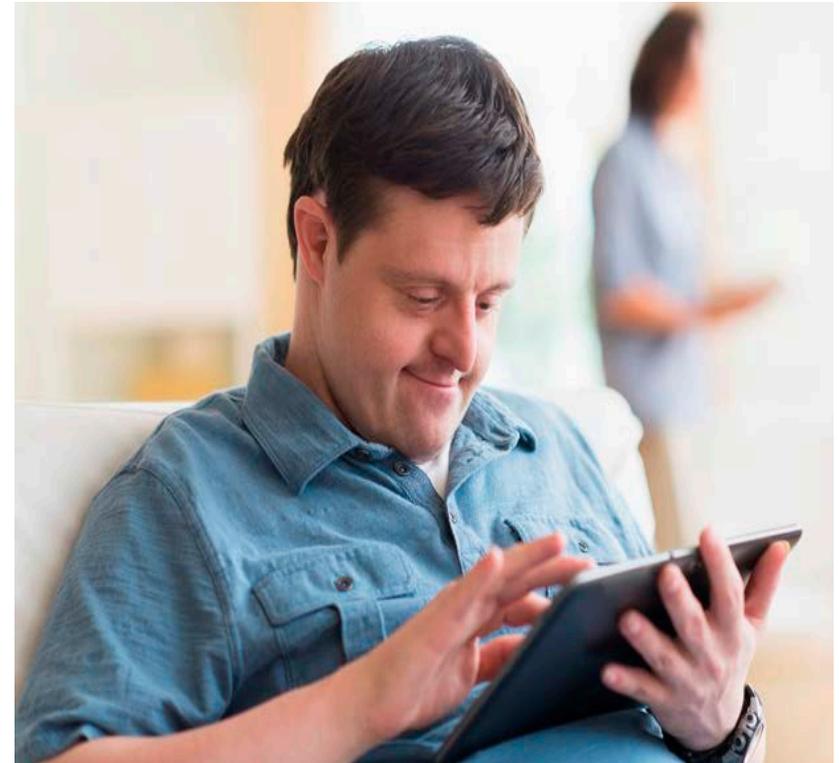
- Stress reduction, decreased anxiety and depression, improved interactions

For adolescents with ASD

- Reported increase quality of life and decrease in rumination
- Parents reported improved social responsiveness, social communication, social cognition, preoccupations, and social motivation

For adults with ASD

- Helped reduce anxiety and depression



Early Intervention Services

- **Children under 3 years old**
- **Part C of IDEA**
- **Developmental Delay / Disability**
 - Physical
 - Cognitive
 - Communication
 - Social or emotional
 - Adaptive
- **Individual Family Service Plan**

Interventions may include:

- Assistive Technology
- Audiology
- Family Training, counseling & home visits
- Nursing
- Nutrition
- Occupational therapy
- Physical therapy
- Psychological services
- Service coordination
- Sign Language
- Social work services
- Speech / language
- Special instruction
- Transportation

Early Childhood Special Education*

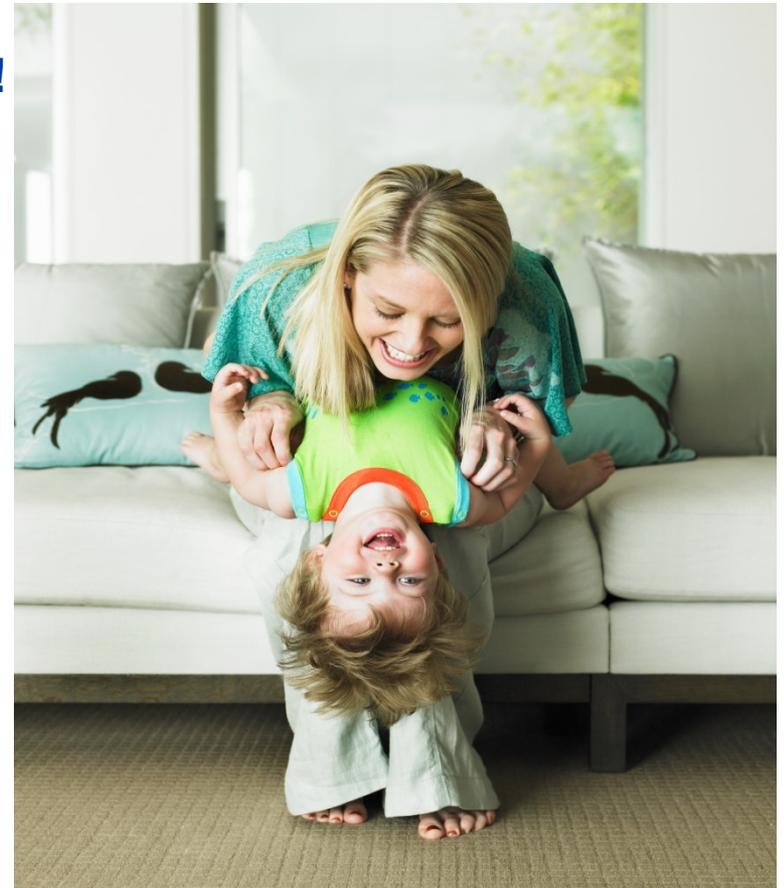
***Also called Special Needs Preschool or Developmental Preschool**

Child does not need to be potty-trained!!

3-5 years old

IEP under:

- Developmental Delay
- Preschool Severe Delay
- Speech / Language Impairment
- Hearing Impairment
- Vision Impairment
- Varies by State



School Services After Preschool

IEP Under:

- Autism
- Intellectual Disability
- Speech / Language Impairment
- Specific Learning Disability
- Other Health Impairment
- Vision / Hearing Impairment
- Orthopedic Impairment
- Multiple Disabilities
- Emotional Disability
- Traumatic Brain Injury

504 Plans:

- ADHD
- Chronic Illness
- Anxiety / Depression
- High-functioning Autism / Asperger
- Milder impairments that do not reach criteria for IEP

School Transition IDEA: Disability Education Act Amendments 1997

Coordinated set of activities for a student with a disability that:



- Is outcome-oriented and promotes movement from school to post-school activities
- Includes post-secondary education, vocational training, integrated employment, continuing and adult education, adult services, independent living, or community participation
- Is based on the student's needs
- Takes into account the student's preferences and interests
- Includes instruction, related services, community experiences, the development of employment and other post-school objectives
- May include acquisition of DLS and functional vocational evaluation

Summary

- Multimodal treatment is important:
 - Medical
 - School interventions
 - Therapies
 - Behavioral Treatment
- Use Evidence-based Treatments
- Consult with family and person with ASD



Autism & Evidence-Based Treatment Options

Dr. Diana Davis Wilson, DBH, BCBA, LBA
Aspen Behavioral Consulting



| | DIR/Floortime | Relationship Development Intervention (RDI) | Early Start Denver Model | Applied Behavior Analysis |
|--------------|---|--|--|--|
| Type | Developmental | Developmental | Developmental + Science of Learning & Behavior | Science of Learning & Behavior |
| Audience | Infants, Toddlers and Pre-K with Developmental Disorders | All individuals with ADD, ADHD & Other Disorders | Infants, Toddlers and Pre-K with Developmental Disorders | Wide range of individuals of varying ages |
| Key Features | <ul style="list-style-type: none"> Greenspan Method Interactive exercises intended to promote milestone development. Child led based on Five Key Steps <ul style="list-style-type: none"> Observation Approach Follow the child's lead Extend and expand play Child closes the circle of communication | <ul style="list-style-type: none"> Parent-led Focus on flexibility of thought, emotional regulation and perspective taking. Emphasis on "building blocks" of social behavior. <ul style="list-style-type: none"> Referencing Emotion-sharing Experience-sharing | <ul style="list-style-type: none"> UC-Davis MIND Institute Combines Relationship-based strategies and applied behavior analysis Strong emphasis on parent training Child-Led | <ul style="list-style-type: none"> Increase desired behavior Decrease undesired behavior Maintain behaviors Generalize Behaviors |
| Cost | PLAY Project - \$3500-4500/year (Solomon et. al 2014) | Dynamic Connections (approx.) - \$5000/Year | Not Published | \$43,000-\$54,000/year |

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| Available Research | 12 peer reviewed studies with a total of 300 participants dx w/ ASD or I/DD | 1 peer reviewed study with participants dx w/ ASD | 8-10 peer reviewed studies | Thousand of peer reviewed studies |
| Current Research Findings | <ul style="list-style-type: none"> • Studies lack strong experimental design • Evaluation studies found methodological limitations | <ul style="list-style-type: none"> • Uncontrolled Single group study | <ul style="list-style-type: none"> • P-ESDM did not yield differing results from control group | <ul style="list-style-type: none"> • Almost all have positive results • Strong EIBI Studies |
| Future Research Needs | Evaluate DIR using strong Experimental Design | Evaluate RDI using strong Experimental Designs | Evaluate ESDM using strong Experimental Designs | <ul style="list-style-type: none"> • Replication over age 12 • Effectiveness across time |
| Treatment Consideration | Untested and should be considered carefully. | Untested and should be considered carefully. | Preliminary at best, should be considered carefully | Evidence-based when supervised by a qualified behavior analyst |

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Applied Behavior Analysis

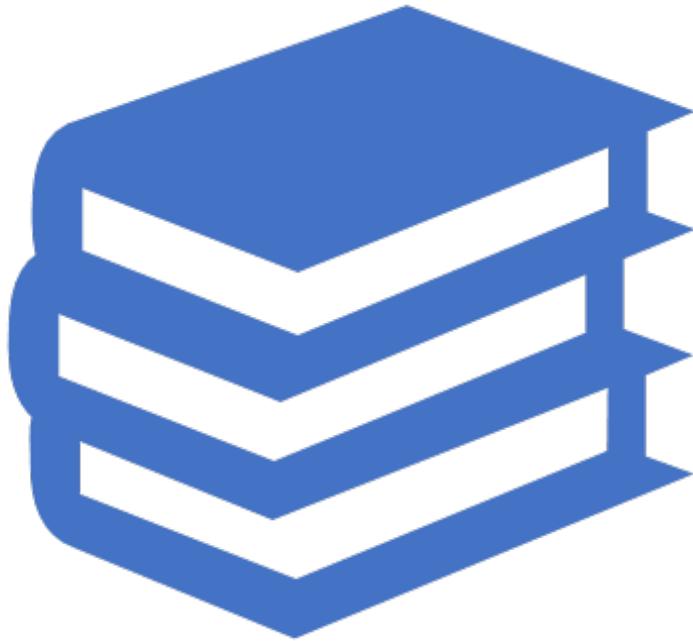
ABA is the design, implementation, and evaluation of environmental modifications to produce an improvement in socially significant behavior

ABA uses direct observation, measurement, and functional analysis of the relations between the environment and behavior

ABA focuses on treating behavioral difficulties by changing the individual's environment including antecedents and consequences

Applied Behavior Analysis

- **United States Surgeon General, 1999:**
 - ABA is the only treatment endorsed by the U.S. Surgeon General Surgeon for children with autism
 - “Thirty years of research demonstrated the efficacy of applied behavioral methods in reducing inappropriate behavior and in increasing communication, learning, and appropriate social behavior.”
- **American Academy of Pediatrics, 2007:**
 - “The effectiveness of ABA-based intervention in ASDs has been well documented through 5 decades of research Children who receive early intensive behavioral treatment have been shown to make substantial, sustained gains in IQ, language, academic performance, and adaptive behavior as well as some measures of social behavior, and their outcomes have been significantly better than those of children in control groups.”



Applied Behavior Analysis

Diverse field

- Vast numbers of procedures
- Vastly different problems are addressed

No single approach

- Rather, it's a collection of common principles

Data-based/Research proven results

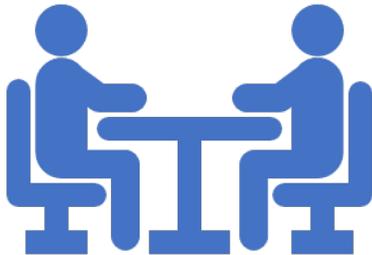
- What we do works and we collect data in vigilance for change or ineffective procedures



But isn't ABA
just for kids
with Autism?

- Best known for treating individuals with developmental disabilities and Autism.
- Applied behavior analysis contributes to a full range of areas including:
 - AIDS prevention
 - Conservation of natural resources
 - Education
 - Gerontology
 - Health and exercise
 - Industrial safety
 - Organization Behavior Management
 - Language acquisition
 - Littering
 - Medical procedures
 - Parenting
 - Seatbelt use
 - Severe mental disorders
 - Sports
 - Zoo management and animal care

Critical Elements of ABA Treatment



1. Description of behavior at baseline
2. Establish small units of behavior to build upon
3. Direct observational data
4. Function-based & value focused Intervention
5. Management of the treatment environments
6. Direct assessment, analysis, and adjustments to the treatment plan
7. Written treatment protocols that are implemented repeatedly, frequently, and consistently across multiple environments
8. Direct support
9. Training of family and other involved professionals
10. Supervision by a Behavior Analyst

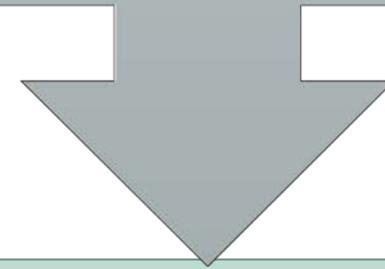
Appropriate Settings for ABA Treatment



- Home
- Clinic/Out-Patient
- Community setting
- School settings
- Residential
- Hospital/In-Patient

Who can implement ABA Treatment?

The overall goal of treatment is to promote optimal functioning in the natural environment.



Therefore, with supervision by a behavior analyst everyone should be involved in treatment:

Direct Support Staff

Family Members

School/Educational
Staff

Specialty Providers

Types of Applied Behavior Analysis

Comprehensive ABA

Early Intensive Behavior Intervention

Targets gains in developmental trajectory

Multi-Assessment/ Multi-Domain Treatment Approach

Skill Acquisition

Behavior Reduction

Focused ABA

Consultation & Training

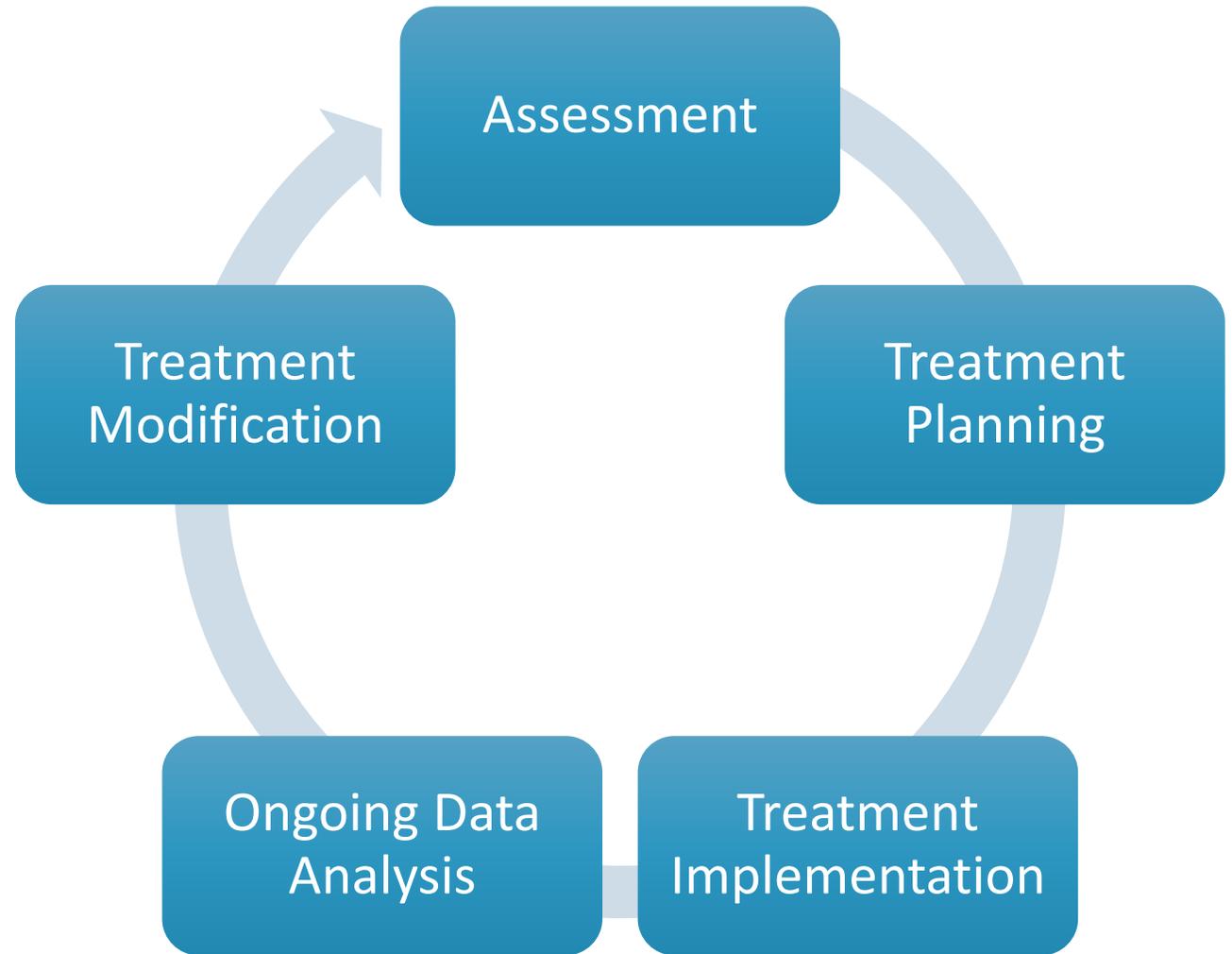
Transition Planning

Precise Assessment /Limited Domain Treatment Approach

Examples of Limited Domains

Behavior Reduction

**What To Expect in
Applied Behavior
Analysis Treatment**





Evidence-Based ABA Approaches

- Discrete Trial Instruction
- Pivotal Response Training/Treatment
- Script/Script Fading
- Self-Management
- Functional Assessment
- Incidental Teaching
- Modeling
- Functional Communication Training
- Chaining
- Shaping
- Errorless Learning
- EIBI
- Direct Instruction
- Verbal Behavior
- Video Modeling
- Lovaas
- Peer mediated social skills training
- Precision Teaching
- Picture Exchange Communication System (PECS)



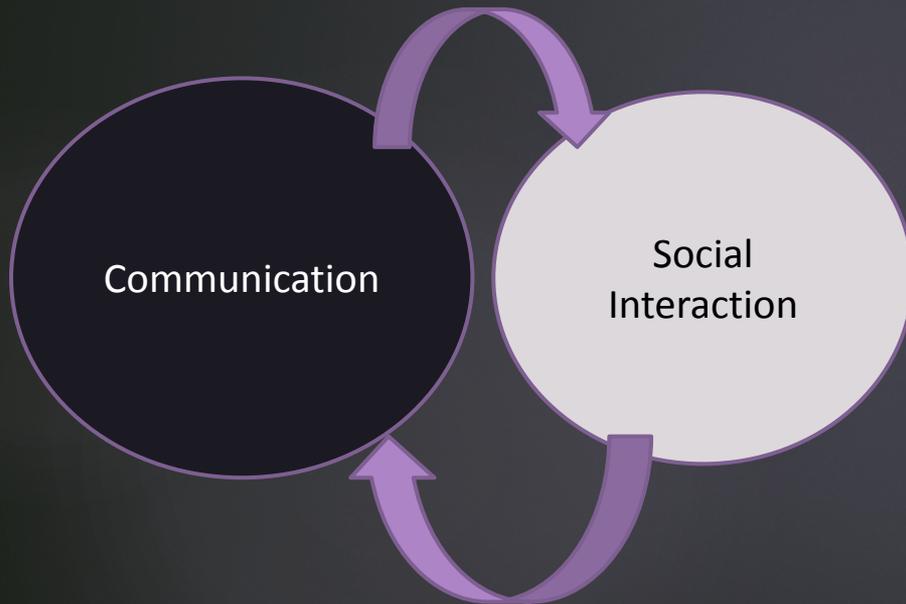
Treatment Strategies for Speech and Language for Children With Autism

JENNA TURNER, M.ED., MS, CCC-SLP

PEDIATRIC SPEECH AND LANGUAGE SPECIALISTS

SCOTTSDALE, AZ

Relationship Between Communication and Social Interaction



- ▶ Impaired communication affects social interaction!
- ▶ Impaired social interaction affects communication!

Autism and Receptive Language Problems

Difficulty understanding:

- ▶ Vocabulary
- ▶ Word meanings and relationships
- ▶ Underlying grammar and syntax
- ▶ Concepts
- ▶ Memory challenges
- ▶ Processing

Autism and Expressive Language Problems

- ▶ Impaired acquisition of words and word combinations
- ▶ Grammar and Syntax
 - ▶ e.g., pronoun reversals
- ▶ Word retrieval
- ▶ Language formulation
- ▶ Narrative language
- ▶ Conversation
 - ▶ Repetitive talking about their own narrow topics of interest
 - ▶ Use of scripted language
 - ▶ Echolalia – repetition of words spoken by other people
 - ▶ Unusual use of words
 - ▶ e.g., neologisms – inventing new words

Autism and Social Cognitive Problems

Difficulty with the following:

- ▶ Weak social attention
 - ▶ Orienting to people in a social environment
 - ▶ Joint attention
- ▶ Recognizing intent
- ▶ Taking the listener's perspective
- ▶ Inflexible thinking / behavior
- ▶ Detail focused (weak main idea)
- ▶ Weak reading of social cues
- ▶ Weak ability to execute a plan

Autism and Social Communication Problems

Trouble with managing conversations:

- ▶ Turn Taking
 - ▶ Give and take of conversation
- ▶ Initiation / Responding
 - ▶ Linking what they say to what was just said
- ▶ Repairing / Revising
 - ▶ Monitoring reactions of others and making verbal adjustments as needed
- ▶ Interrupting and blurting

Autism and Social Communication Problems

Trouble with managing conversations, continued:

- ▶ Feedback to speaker - verbal and nonverbal
- ▶ Topic Selection and Management
 - ▶ Introduction
 - ▶ Maintenance
 - ▶ Asking appropriate comments and questions
 - ▶ Changing Topics
 - ▶ Engaging in conversation on unfamiliar topics

Autism and Problems Interpreting and Using Nonverbal Communication

- ▶ Difficulty interpreting:
 - ▶ Body language (posture and positioning)
 - ▶ Gesture
 - ▶ Facial expression
 - ▶ Eye gaze (shifts)
- ▶ Weak ability to integrate social cues resulting in:
 - ▶ Difficulty reading the situation
 - ▶ Limited social awareness as to how s/he is perceived

Treatment

- ▶ Speech Language Pathologist's Role: Evaluate and describe the communication disorder and social concerns in relation to the autism
- ▶ Treatment is based on:
 - ▶ Age
 - ▶ Understanding of language
 - ▶ Ability to expressively communicate
 - ▶ Intellectual development
 - ▶ Social development
 - ▶ Behavior

Treatment for Severely Challenged

- ▶ Benefit from *intensive* interventions to encourage more functional communication systems
 - ▶ Verbal
 - ▶ Augmentative communication (computer, tablets, electronic devices) (Wong et al., 2015)
 - ▶ Speech Generating Devices
 - ▶ Sign language or gestures
 - ▶ Pictures, photos, objects, written words
 - ▶ PECS – Picture Exchange Communication System
 - ▶ Video modeling

Treatment for Young Children

- ▶ Goal to improve foundational language skills and precursors to language, including:
 - ▶ Eye contact
 - ▶ Joint attention
 - ▶ Play skills
- ▶ Relationship-based interventions
 - ▶ More than Words[®] Hanen[®] Program (Carter et al., 2011)
 - ▶ Eight parent training sessions
 - ▶ Social communication and back-and-forth interaction
 - ▶ Play and imitation skills

Treatment for Young Children

- ▶ Relationship-based interventions, continued
 - ▶ Integrated Play Groups
 - ▶ Ages 3-11, paired with typical peers
 - ▶ Play, drama, dance, yoga, visual arts, cultural activities

School Age

- ▶ Highly integrated treatment models
 - ▶ TEACCH[®] Autism Program
 - ▶ Strong routine
 - ▶ Physical structure of environment
 - ▶ Visual supports of daily activities
 - ▶ SCERTS Model[®] (Rubin, Prizant, Wetherby, Laurent, & Rydell, 2013)
 - ▶ Social Communication, Emotional Regulation, Transactional Support
 - ▶ Social Stories[®] (Reichow et al., 2008)

School Age

- ▶ Highly integrated treatment models, continued
 - ▶ Ziggurat model combined with the Comprehensive Autism Planning System (CAPS) (Myles et al., 2007)
 - ▶ Underlying Characteristics Checklist
 - ▶ Individual Skills and Strengths Inventory
 - ▶ Highly individualized goals and treatment plan
 - ▶ Social Thinking® (Crooke & Winner, 2016)
 - ▶ Teach social cognition
 - ▶ Through “...modeling, naturalistic intervention, reinforcement, visual supports”

In Summary

- ▶ Therapy should continually target:
 - ▶ Foundational language skills
 - ▶ Eye contact
 - ▶ Joint attention
 - ▶ Play skills
 - ▶ Relationship building
 - ▶ Parent-child
 - ▶ Parent as therapist
 - ▶ Child-peer

In Summary

- ▶ Evidence base points to:
 - ▶ Visual supports
 - ▶ e.g., activity schedules, physical structure of room, social stories, scripts
 - ▶ Child-focused and led
 - ▶ Augmentative and Alternative Communication (AAC)
 - ▶ e.g., speech generating devices, PECS
 - ▶ Video modeling
 - ▶ Peer facilitation
 - ▶ Self-monitoring
 - ▶ e.g., social cognition

Resources and References



Early Treatments

| Resources | Link |
|------------------------------------|---|
| Project ImPACT | https://cd.ua.edu/speech-and-hearing-center/our-programs/project-impact/ |
| The PLAY Project | https://www.playproject.org/ |
| Autism Speaks Early Access to Care | https://www.autismspeaks.org/early-access-care |
| Early Start Denver Model | https://www.autismspeaks.org/what-autism/treatment/early-start-denver-model-esdm |

CAM

| Resources | Link |
|--|---|
| National Autism Center | www.nationalautismcenter.org |
| National Center for Complementary and Integrative Health | www.nccih.nih.gov |
| Autism Speaks | http://www.autismspeaks.org/what-autism/treatment/complementary-treatments-autism |
| Perrin, et al | Pediatrics 2012; 130;S77 |
| Use of Complementary treatments in ASD, Levy and Hyman | Child Adol Psychiatr Clin N Am. 2008 October |

Web-based

| Resources | Link |
|-------------------------------|--|
| CServ ABA therapy | www.cservtelehealth.com |
| ReThink | www.rethinkbenefits.com |
| Autism Speaks Family Toolkits | https://www.autismspeaks.org/family-services/tool-kits |
| UC Davis Mind Institute | http://www.ucdmc.ucdavis.edu/mindinstitute/ |
| OCALI | www.autisminternetmodules.org www.ocali.org/project/asd_intro |

Articles and Books

| Article/Book Title and Authors | Journal |
|--|---|
| The Clinician's Guide to Autism, John Harrington and Korrie Allen | Pediatrics in Review, 2014;35;62 |
| Telehealth and Autism: Treating Challenging Behavior at a Lower Cost Lindgren, et al | Pediatrics, February 2016, Vol 137/ Issue Supplement 2 |
| Teaching Social Communication to Children with Autism: A Manual for Parents | Brooke Ingersoll and Anna Dvortcsak |
| An Early Start for your Child with Autism: Using Everyday Activities to Help Kids Connect, Communicate, and Learn | Sally Rogers, Geraldine Dawson, and Laurie Vismara |
| Visual Supports for People with Autism: A guide for Parents and Professionals | Marlene Smith and Donna Sloan |

Interventions

- Association for Science in Autism Treatment (2018) www.asat.org.
 - Behavior Analyst Certification Board (2014). *Applied Behavior Analysis Treatment of Autism Spectrum Disorder: Practice Guideline for Healthcare Funders and Managers*. Retrieved from https://www.bacb.com/wp-content/uploads/2017/09/ABA_Guidelines_for_ASD.pdf.
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 - Solomon R., Van Egeren, L. A., Mahoney, G., Quon Huber, M. S., & Zimmerman, P. (2014). PLAY project home consultation intervention program for young children with autism spectrum disorders: A randomized control trial. *Journal of Developmental & Developmental Pediatrics*, 35(8), 475-485
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Speech and Language

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What's Next?

Autism Spectrum Disorder Series

Registration open!

- **Oct 2**, Part V: Dual Diagnosis of Down syndrome and ASD
optumhealtheducation.com/autism-part-V-2018-reg

Available on-demand!

- Part I: Overview - optumhealtheducation.com/autism-part-I-2018
- Part II: Medical Home Care - optumhealtheducation.com/autism-part-II-2018
- Part III: Genetics - optumhealtheducation.com/autism-part-III-2018

Registration opening soon!

- **Nov 6**, Part VI: Transition to Adult Care
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Q&A



Thank you!