Social Skills Intervention: Children with Autism Spectrum Disorder

Indexing Metadata/Description

› **Procedure:** Social Skills Intervention: Children with Autism Spectrum Disorder

› **Synonyms:** Social Skills Intervention, Social Communication Therapy, Social Skills Therapy, Pragmatic Therapy, Social Communication Therapy

› **Area(s) of specialty:** Autism spectrum disorder

› **Description/use:** Social skills are defined as verbal and nonverbal behaviors that result in effective interpersonal communication.\(^{16,17}\) Examples of these behaviors include smiling, making eye contact, establishing joint attention, initiating communication, interpreting verbal and nonverbal cues, considering another’s perspective, making comments, asking and responding to questions, responding empathetically, and giving and acknowledging compliments\(^{16,19}\)

› **Indications:** Children with autism spectrum disorder (ASD) often have social communication and social skills deficits that can negatively affect academic and social development.\(^{16}\) They might benefit from therapy that directly targets these skills. Please see **Nature of symptoms**, below

› **CPT codes**

* 92507 Treatment of speech, language, voice, communication, and/or auditory processing disorder, individual
* 92508 Treatment of speech, language, voice, communication, and/or auditory processing disorder, group, two or more individuals

› **Reimbursement:** Reimbursement for therapy will depend on insurance contract coverage; no specific agencies are applicable for this condition

Indications for Social Skills Intervention

› Social skills impairment in children with ASD has direct and indirect consequences that may indicate a need for therapy.\(^{11}\) Social deficits in children with ASD have been linked to increased loneliness, risk for rejection among typically developing peers, mood and anxiety problems, and academic and occupational underachievement.\(^{11}\) In individuals with intellectual disability and ASD, negative social behaviors have been shown to predict problems such as stereotypy, aggression, and property destruction\(^{18}\)

› Need for therapy is determined by the individual with ASD, the individual’s family, and/or educational professionals

Guidelines for Use of Social Skills Intervention

› Intervention programs should be designed to facilitate generalization of skills outside of the treatment setting.\(^{16}\)

› The speech-language pathologist (SLP) can support families of children with ASD by providing family-centered intervention through a collaborative partnership.\(^{19}\) Because of the complex, multidimensional nature of the deficits associated with ASD and the culturally specific nature of social skills, it is important that a multidisciplinary approach to treatment be employed in the development of Individual Family Service Plans (IFSPs)
and Individualized Education Programs (IEPs). To ensure generalization of skills within the school setting, it is important for teachers/teacher aides to be involved in treatment planning and delivery.

**Contraindications/Precautions to Social Skills Intervention**

- Social skills deficits can vary with comorbid disorders outside of ASD. For example, social skills needs of children with attention deficit hyperactivity disorder (ADHD) will be different from the social skills needs of children with social anxiety disorder. It is important to recognize the variability of social abilities among children with ASD.\(^{17}\)

**Examination**

**Contraindications/precautions to examination:** Because of the complex, multidimensional nature of the deficits associated with ASD, it is important that a multidisciplinary approach to assessment be employed, with caregivers providing information regarding the child’s social skills in different environments.

**History**

- **History of present illness/injury for which the social skills intervention is indicated**
  - **Mechanism of injury or etiology of illness:** Document when ASD was first diagnosed and when communication difficulties were first noted.
  - **Course of treatment**
    - **Medical management:** Medical management will vary according to the child’s presenting symptoms and comorbid disorders. Note any other therapy that the child has received.
    - **Medications for current illness/injury:** Determine what medications the physician has prescribed; are they being taken?
      - Medications that are used sometimes to treat symptoms of ASD include:
        - **Antidepressants:** Antidepressants have been used to treat repetitive behaviors and anxiety as well as control aggression in children with ASD; the usefulness of these medications is not confirmed.\(^{8}\)
        - **Antipsychotic medications:** These drugs are used to reduce stereotyped behaviors, decrease hyperactivity, and minimize aggression.\(^{8}\)
        - **Stimulants:** Stimulants may be used to decrease hyperactivity in individuals with ASD.\(^{8}\)
        - **Antianxiety drugs:** Antianxiety drugs have been used to reduce anxiousness and symptoms of panic disorders associated with ASD.\(^{8}\)
    - **Diagnostic tests completed:** Usual tests for this condition are the following:
      - When ASD is suspected, a physician or other qualified healthcare professional will administer a screening. If a screening indicates the possible presence of ASD, a comprehensive diagnostic evaluation should be conducted by a multidisciplinary team (e.g., psychologist, neurologist, psychiatrist, SLP). In addition, an audiologist might test for hearing problems.
    - **Home remedies/alternative therapies:** Document any use of alternative therapies (e.g., acupuncture) and whether or not they help.
    - **Previous therapy:** Document whether patient has had occupational or physical therapy for this or other conditions and what specific treatments were helpful or not helpful.
    - **Aggravating/easing factors:** Are there situations in which the child’s social skills are better or worse?
    - **Nature of symptoms:** Document nature of symptoms. Communication deficits and social skills deficits in children with ASD depend on the severity the disorder and any accompanying cognitive deficits. Severity is classified using three levels (Level 3 = requiring very substantial support, Level 2 = requiring substantial support, Level 1 = requiring support) and depends on the extent of social communication impairments and restricted, repetitive patterns of behavior.\(^{1}\)
      - The following are deficits in social communication in individuals with ASD as described by the *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* (DSM-5):
        - “Deficits in social-emotional reciprocity, ranging, for example, from abnormal social approach and failure of normal back-and-forth conversation; to reduced sharing of interests, emotions, or affect; to failure to initiate or respond to social interactions”\(^{1}\) (p. 50)
        - “Deficits in nonverbal communicative behaviors used for social interaction, ranging, for example, from poorly integrated verbal and nonverbal communication; to abnormalities in eye contact and body language or deficits in understanding and use of gestures; to a total lack of facial expressions and nonverbal communication”\(^{1}\) (p. 50)
- Examples of these social communication deficits are:
  - Reduced responsiveness to others’ communication (i.e., failure to respond to name)\(^2\)
  - Echolalia (immediate or delayed imitation of what is heard)\(^2\)
  - Incorrect use of pronouns (e.g., when referring to themselves, children with ASD may say “you” instead of “me”)\(^2\)
  - Unusual word use (using made-up words or attaching idiosyncratic meanings to words)\(^2\)
  - Difficulty telling narratives (e.g., do not refer appropriately to characters in a story, errors in syntax)\(^2\)
  - In addition to social communication deficits, children with ASD exhibit restricted and repetitive patterns of behavior described in the \textit{DSM-5}. For more information on these behaviors, see \textit{Clinical Review...Communication Disorders: Autism Spectrum Disorder (ASD) in Children}; Accession Number:5000013236

- \textbf{Rating of symptoms}: Use a visual analog scale (VAS) or 0-10 scale to assess symptoms at their best, at their worst, and at the moment. Several rating scales have been developed to assess communication skills of children with ASD. See \textit{Relevant tests and measures}

- \textbf{Pattern of symptoms}: Document changes in symptoms throughout the day and night, if any (AM, mid-day, PM, night); also document changes in symptoms due to weather or other external variables

- \textbf{Sleep disturbance}: Document any difficulty sleeping. Children with ASD might experience disrupted sleep schedules due to effects of some medications

- \textbf{Other symptoms}: Document other symptoms patient is experiencing that could exacerbate the condition and/or symptoms that could be indicative of a need to refer to physician, psychologist, or social worker (e.g., anxiety, difficulty sleeping)

- \textbf{Psychosocial status}: Document other symptoms the child may be experiencing that could exacerbate the condition and/or symptoms that could be indicative of a need to refer to physician or social worker (e.g., anxiety, seizures, difficulty sleeping, self-injurious behavior). Poor social skills are associated with greater levels of mental health problems (e.g., anxiety) in children with ASD\(^{32}\). High levels of parental stress due to behavior problems associated with ASD might warrant counseling/support services for families\(^{23}\)

- \textbf{Hearing}: Has the child’s hearing and vision been screened? If hearing loss is suspected, refer to an audiologist for a full evaluation. If vision loss is suspected, refer to an optometrist

- \textbf{Barriers to learning}
  - Are there any barriers to learning? Yes\___/No\___
  - If Yes, describe

\textbf{Medical history}

- \textbf{Past medical history}: Document when ASD was first diagnosed and when communication difficulties were first noted
  - ASD would be suspected by the following indicators in young children:
    - Delayed language development\(^1\)
    - Lack of social interest\(^1\)
    - Unusual social interactions\(^1\)
    - Odd play patterns (e.g., lining toys up but not playing with them)\(^1\)
    - Repetitive behaviors emerging during toddler stage\(^1\)

- \textbf{Previous history of same/similar diagnosis}: Is there a history of developmental delay in any area?

- \textbf{Comorbid diagnoses}: Ask patient about other problems, including diabetes, cancer, heart disease, complications of pregnancy, psychiatric disorders, and orthopedic disorders
  - Some individuals with ASD have co-occurring psychiatric disorders. Researchers in the United States investigated the co-occurrence of psychiatric disorders in 109 children with ASD from Boston and Salt Lake City who ranged in age from 5 to 17 years\(^4\)
    - 44\% of the sample had specific phobias such as fear of needles, shots, crowds, and loud noises\(^4\)
    - 37\% had obsessive compulsive disorder (OCD)\(^4\)
    - 31\% had ADHD\(^4\)
    - 10\% had major depression\(^4\)

- \textbf{Medications previously prescribed}: Obtain a comprehensive list of medications prescribed and/or being taken (including over-the-counter drugs)
- **Other symptoms:** Ask patient or patient’s family about other symptoms he or she is experiencing

- **Social/occupational history**
  - **Patient's goals:** Document what the child and/or child’s family hopes to accomplish with therapy and in general
  - **Vocation/avocation and associated repetitive behaviors, if any:** Things to consider: Does the child currently receive intervention services? If so, are they home, school, or clinic based? Does the child attend daycare or school? If the child attends school, what support services are in place?

- **Functional limitations/assistance with ADLs/adaptive equipment**
  - Obtain information on adaptive behaviors and adaptive equipment the child is using, such as augmentative or alternative communication (AAC) communication devices, hearing aids, glasses, or adaptive eating equipment
  - An instrument commonly used to assess adaptive behavior skills in children with ASD is the Vineland Adaptive Behavior Scales.\(^{(24)}\) The Vineland yields standard scores in the following domains: communication, socialization, daily living skills, and motor skills and provides a measure of maladaptive behavior (from birth to age 90 years)

- **Living environment:** With whom does child live (e.g., caregivers, siblings); document opportunities for social interaction outside of school

- **Relevant tests and measures:** (While tests and measures are listed in alphabetical order, sequencing should be appropriate to patient medical condition, functional status, and setting)
  - **Arousal, attention, cognition (including memory, problem solving):** If present, cognitive deficits associated with ASD can range from mild to profound. The evaluating or treating SLP should note the results of any neurological (MRI, CT), neuropsychological, or psychological/cognitive tests that have been completed
  - **Assistive and adaptive devices:** Individuals with ASD often require the use of AAC. AAC can be aided or unaided. Aided AAC requires external equipment such as picture books/cards, communication boards, or computerized speech-generating devices. Unaided AAC refers to communication techniques that the person can produce without external resources, such as manual signs, gestures, and facial expressions.\(^{(23)}\) Many individuals with ASD use a combination of both types, and AAC is often used in addition to oral language. Children with very little speech and/or oral language may benefit from a referral for an AAC evaluation. For additional information on use of AAC in assessment and treatment of a child with ASD, see *Clinical Review...Augmentative and Alternative Communication: Children with Autism Spectrum Disorder (ASD)*; Accession Number: 5000013321

- **Speech and language examination**
  - **Speech:** Assess articulation as needed
  - **Language:** Language assessment can include a combination of formal and informal measures. Most formal measures have not been validated on this population and can be used descriptively
    - Informal language measures: Informal language measures are useful for examining the child’s grammar, mean utterance length (MLU), vocabulary, and pragmatic skills, including responsiveness to communication, initiation of communication, use of greetings, use of questions and comments, and unusual or inappropriate communication.\(^{(2)}\) Elicitation measures may be used to encourage the child to communicate. The following are some techniques to elicit specific language functions such as requests, comments, and protests for an informal language sample for children:
      - Keep toys away from the child but within sight so that the child needs to request them\(^{(2)}\)
      - Eat a snack in front of the child without offering the food to the child (to elicit requests)\(^{(2)}\)
      - Provide a mystery box or opaque container with objects. When the child withdraws an object, the child may comment on the object\(^{(2)}\)
      - Engage in social routines (e.g., blowing bubbles) and provide an interruption so that the child may request continuation\(^{(2)}\)
      - Elicit requests of parts of toys or puzzles by offering some but not all of the parts\(^{(2)}\)
      - Pretend to misunderstand or to not hear the child in order to elicit a conversational repair\(^{(2)}\)
      - Provoke a comment by doing something silly (e.g., putting on a funny hat) or pointing to a noteworthy object (e.g., Band-Aid on a finger)\(^{(2)}\)
    - **Pragmatics/social communication:** It is recommended that SLPs use informal language samples or published assessment tools to evaluate pragmatic/social communication language. The following are examples of pragmatic tests and screening measures:\(^{(2)}\)
      - Communication and Symbolic Behavior Scales Developmental Profile (CSBS-DP)\(^{(3)}\): The CSBS-DP assesses expressive language, social communication, and symbolic abilities by means of a parent report and direct interactions
with a child. It has three parts: an infant-toddler checklist, a caregiver questionnaire, and a 30-minute behavior sample of the child. It can be used in all children aged 6 to 24 months and in children up to age 6 years who have a developmental age lower than 24 months. The checklist can be used independently or together with the other components and can be downloaded for free at http://firstwords.fsu.edu/pdf/Checklist_Scoring_Cutoffs.pdf

- Social Responsiveness Scale, Second Edition: A caregiver-report rating scale and/or teacher rating scale to identify the presence and severity of social impairment within ASD (2.5 years to adulthood)
- Children’s Communication Checklist-2 U.S. Edition (CCC-2): A screening checklist of pragmatic language skills that can be completed by parents and teachers for children and adolescents. The child’s skills can be compared to a norm-referenced sample. For ages 4 years to 16 years, 11 months
- Social inventory: A 25-item measure of behavioral aspects of social competence for children aged 7-10 years. Items form to scales: Prosocial Orientation (17 items) and Social Initiative (8 items). The inventory can be filled out by parents or teachers and children are rated on a 5-point scale. It is available for free at http://www.education.uci.edu/childcare/pdf/questionnaire_interview/Social%20Competence%20Inventory.pdf
- Autism Social Skills Profile: A 49-item measure that produces a Total Social Functioning score and three sub-scores, Social Reciprocity, Detrimental Social Behaviors, and Participation/Avoidance; each item is rated on a 4-point scale
- Functional Communications Profile-R: A measure that provides an inventory of a child’s communication abilities in 9 communication areas: sensory/motor, speech, attentiveness, voice, pragmatic/social, expressive language, receptive language, fluency, and oral. For ages 3 years to adult
- Vineland Adaptive Behavior Scales, 2nd Edition: An individually administered measure of adaptive behaviors for ages birth through 90 years. Provides scores in 3 domains: Communication, Daily Living, and Socialization through parent/caregiver interview or rating form or teacher rating form
- Test of Narrative Language: A standardized measure that examines narrative comprehension and production for children aged 5 to 11 years

- Social awareness: For very young children (i.e., preschool children) with ASD, assessment for social awareness should be included in the evaluation. Examples of formal tests for social awareness include:
  - Imitation Battery: A 9-item assessment of imitation ability; includes Manual Acts, Actions on Objects, and Oral-Facial Movements
  - Preschool Imitation and Praxis Scale: A 30-item assessment of gestural, facial, and procedural task imitation in young children

- Oral structure and oral motor function: As needed, assess the child’s oral motor skills during speech, imitation of motor movements, diadochokinesis tasks, and strength testing tasks in order to identify or rule out a motor-based speech-language disorder
- Special tests specific to diagnosis: Specially trained physicians and psychologists diagnose ASD. Diagnostic tools can include a parent/caregiver report as well as diagnostic evaluation instruments. Refer to previous evaluation reports

Assessment/Plan of Care

- Contraindications/precautions
  - ASD is usually diagnosed in very young children; therefore, precautions to evaluation will also be determined by the patient’s age and family concerns. It is recommended that parents and/or caregivers be involved in all assessment procedures
- Diagnosis/need for social skills intervention: The need for social skills intervention for children with ASD will be determined after a dynamic evaluation and with input from the child, the family, and/or educational professionals. The impact of social deficits on communication, education, peer interaction, and general well-being should be considered
- Prognosis: Prognosis will vary with the severity of the ASD as well as with cognitive ability, language ability, and comorbid diagnoses (e.g., ADHD, anxiety disorder)
- Referral to other disciplines: Referral to a behavior psychologist or behavior specialist may be warranted to assist with behavioral therapy and/or challenging behaviors. Refer to a nutritionist if food preferences and mealtime aversions interfere with nutritional intake. Refer to an occupational therapist for a sensory processing assessment. Social services can assist the family in negotiating assistance systems (e.g., medical services, daycare)
Treatment summary: Treatment for social skills/social communication deficits in children with ASD varies with the age and abilities of each child. Examples of target social behaviors include maintaining conversation, initiating conversation, initiating play, using appropriate play skills, maintaining eye contact, and taking other’s perspective. Social skills interventions include peer training, adult or peer modeling, script/script fading, priming, direct instruction, reinforcement, video modeling, and group social skills training (SST). The following are reviews and meta-analyses that have examined the effects of social skills interventions with children who have ASD:

- Researchers synthesized 10 years of social skills intervention studies for children and adolescents with ASD. They found that social stories, peer-mediated intervention, and video modeling all met criteria for evidence-based interventions; however, only video modeling demonstrated high effectiveness as an intervention strategy. Cognitive behavioral training showed promise, but more research is needed to demonstrate it as an evidence-based practice.
- Researchers reviewed 10 articles published before February 2007 on SST interventions for children with Asperger’s syndrome or high-functioning autism. SST programs are designed to teach children social skills to successfully navigate their social environment (e.g., assimilate into their peer group). Diverse approaches were used in the 10 articles reviewed (e.g., behavioral models in a clinic or classroom setting, community practice, homework assignments to increase generalization). Researchers found that 7 out of the 10 studies reported positive outcomes; 3 studies reported no treatment effects. The researchers cited several limitations to the intervention literature on SST: lack of common definition of social skills, methodological limitations (e.g., lack of group designs, small sample sizes, lack of unblinded observer ratings), lack of generalization of treatment effects to people/environments outside of treatment setting, and lack of follow-up assessments.

Other considerations: The SLP needs to be aware of cultural considerations when assessing communicative functioning and social skills and when developing treatment goals. Social communication needs of the child should be considered with respect to the cultural, familial, and community setting.
interventions appeared to have moderate to strong effects on social skills. Most studies included in this meta-analysis had acceptable to high methodological quality. Review authors concluded that children with ASD would likely benefit from peer-related social skill interventions within school settings. 

- In a review of articles that investigated technology to teach social skills to children with ASD, researchers found support for the use of technology to be integrated into interventions for social skills deficits. They also found that the most prevalent technology used was video technology to model appropriate skills and to deliver feedback. Most of the studies focused on conversational skills and about a fourth of the studies addressed play skills.

- Researchers synthesized 66 studies of interventions to increase social behavior for individuals with autism (preschool-adult) published between 2001 and 2008. They concluded that intervention utilizing social skills groups has sufficient evidence to characterize it as established evidence-based practice and that video modeling has enough support for a promising evidence-based practice. Other findings included:
  - The methods and techniques of Applied Behavior Analysis (ABA) were the most common intervention components used across studies. Common ABA elements include prompting and reinforcement, imitation and modeling, and self-monitoring. ABA was often used in conjunction with other intervention types such as video modeling and peer training. The authors concluded that there is much support for the use of ABA.
  - There is evidence that parent training is effective in enhancing social skills of preschool children, but there is a lack of evidence to support this training for older individuals with ASD.
  - There is sufficient evidence that naturalistic techniques are effective in teaching imitation and joint attention for preschool children, but there is no evidence that naturalistic techniques are effective for older children.
  - Interventions involving peers has strong support.

- **Group-based SST:** SST involves teaching specific skills, such as initiating conversation and responding appropriately, through behavioral and social learning techniques. Other goals include increasing social motivation and reducing interfering behaviors.
  - Researchers identified and performed a meta-analysis of 5 randomized controlled trials of social skills group interventions for individuals aged 6-21 years with ASD (published prior to 2011). They concluded that there is some evidence that social skills groups improve overall social competence and lead to better friendships and less loneliness among those with ASD. Studies were all performed in the United States and focused on children with average or above-average intelligence.
  - In a literature review, researchers identified 14 empirical studies of group-based SST for children and adolescents diagnosed with ASD and identified several intervention strategies that showed promise or merited further investigation. The researchers concluded that targeted skills can be improved but that improvement may be limited to those specific targeted skills; in addition, there is little evidence that skills generalize outside the setting in which they are learned. Promising group-based SST strategies include:
    - Strategies for increasing social motivation: foster self-awareness and self-esteem, develop a nurturing and fun environment in which to learn and practice social skills, practice new skills in conjunction with previously mastered skills, errorless teaching.
    - Strategies for increasing social initiations: make social rules explicit and concrete (use visuals), model age-appropriate initiation strategies, use natural reinforcers such as following the child’s lead or talking about topic of interest, teach simple scripts for common social situations.
    - Strategies for appropriate social responding: teach social response scripts, reinforce appropriate responses, model and role-play skills.
    - Strategies for reducing interfering behaviors: use predictable and structured teaching, review appropriate and inappropriate behaviors through video, use behavior charts for positive behavior.
    - Promote skills generalization: coordinate and plan for peer involvement, provide opportunities for student to use skills with multiple people, involve parents in training, provide opportunities for student to practice skills between sessions in safe and natural settings.

- Authors of a randomized controlled trial conducted in the United States compared social skills outcomes in 69 children with ASD (ages 8 to 11) after participation in either a 12-week cognitive-behavioral group-based treatment program or a facilitated play group. Both groups participated in 90 minute sessions one time per week. The intervention group (n=35) participated in a program called Seaver-NETT (nonverbal communication, emotion recognition, and theory of mind training). The activities in the intervention group were guided by the treatment manual for Seaver-NETT and included visual aids, didactic instruction, and functional activities to reinforce social skills (e.g., role-playing), as well as a token.
system for positive reinforcement. Additionally, parents participated in a 30-minute parent-education group and given homework tasks. Treatment outcome measures were the Social Responsiveness Scale, Griffith Empathy Measure, and the CCC-2. After the 12 weeks of intervention, outcome measures indicated a medium effect size as compared to baseline in terms of improved social behaviors and social cognition for the intervention group. Higher verbal IQ at baseline was associated with better treatment outcomes (27)

**Peer/sibling training or peer-mediated intervention:** Peer/sibling training involves teaching peers and siblings to facilitate social interactions with children with ASD through direct instruction, adult modeling, prompting, and reinforcement

Authors of a review of communication-based interventions for children with autism reported that peer/sibling training is promising and is based on 20 years of single-subject studies (9)

In a randomized controlled trial, researchers in the United States compared the relative effectiveness of a peer-mediated approach (PEER) to a child-assisted approach (CHILD) in improving social skills of high-functioning children with ASD in general education classrooms. (10) Participants included 60 children with ASD (in grades 1-5 and with IQ > 65) and 815 typically developing children. Participants were in 56 classrooms in 30 different schools across the Los Angeles area. The two interventions were delivered in 6 weeks with a total of twelve 20-minute sessions provided 2x week. The participants with ASD were randomized to receive the CHILD intervention, the PEER intervention, both interventions, or neither intervention

- CHILD: Treatment was delivered in individualized sessions to the child with ASD during recess or lunchtime and focused on improving specific social skills with multiple opportunities for practice (role playing) during sessions with adult coaching, modeling, and feedback. Skills that were targeted were based on the needs of the individual child (e.g., entering a game) (10)

- PEER: Group SST was based on positive social modeling by peers. Peers met in a group format with a trained interventionist for 20 minutes twice weekly during recess or lunchtime and practiced facilitating and engaging children with social needs on the playground. For example, they were taught how to identify appropriate and inappropriate behaviors on the playground as well as to recognize isolated children and to engage them in a game. The student with ASD was never identified to maintain the student’s confidentiality (10)

- Measures included the Social Network Survey, a social network salience ratio score, playground observation of peer engagement, and a teacher questionnaire that assessed social skills (10)

- The authors concluded that the PEER intervention produced greater social involvement than the CHILD intervention and that improvements in PEER intervention socialization were maintained for up to 3 months after treatment ended (10)

In a multiple-baseline study across participants in the United States, researchers investigated the effects of training two 6-year-old children with ASD and 2 peers on social skills during center time activities in inclusive classrooms. (20) The researchers measured the number of initiations and responses at baseline and during treatment. The intervention had two parts: 1) a 4- to 5-minute training session that occurred before data collection in which participants with ASD and their peers were trained to ask and answer questions (e.g., “Can I use the glue?”). 2) During center time, the researcher prompted both participants and peers to ask and answer questions. The intervention resulted in significant increases in social initiations and responses in both participants with ASD. Researchers described the important features of the study as follows: 1) utilizing center time activities to enhance social interactions between peers, 2) using inclusive settings to enhance social interactions, 3) using teacher-directed instruction with prompting and reinforcement, and 4) the participation of students with ASD and their typically developing peers

**Video modeling:** The purpose of video modeling is to teach a child with ASD a particular communication skill through observational learning. The child may watch a peer performing the target skill or him/herself (video self-modeling)

Steps in the video modeling approach (9)

- Videotaped images are made of a target behavior or skill
- The child watches the video clips
- After viewing the clips, the child practices the skills with a therapist
- The child then practices the skill in other settings to provide for generalization
- The child observes the videotape again as necessary

Authors of a review of communication-based interventions for children with ASD reported that there is evidence from multiple studies to support the use of video modeling in increasing social engagement of children with limited verbal skills. There is also support for the use of video modeling to teach play behaviors to children with ASD (9)
In a study conducted in the United States with 2 males (ages 11 and 12) with ASD, researchers used DVDs of animated superheroes to directly train social skills. Sessions were each 90 minutes, occurring twice per week over the course of 5 weeks. While watching the animated superheroes, researchers used didactic instruction to identify and explain target social skills observed in the DVDs. After viewing the DVD and discussing target social skills, each subject participated in role-play situations in which they were given feedback on specific social skills. Following participation in this program, both boys exhibited immediate, moderate improvements in social skills as measured by the ASSP. Additionally, in communication probes after the intervention, generalization of social skills was observed. Researchers suggested further research into the effectiveness of this type of superheroes social skills training to determine efficacy.

**Parent training:** In a study conducted in the United States that included 61 children who were enrolled in a larger, multisite intervention study, researchers investigated the effect of parent training on the social communication abilities of minimally verbal children with ASD. Children were only included in this study if they had 20 or fewer functional vocabulary words and spent over 70% of their time focused on objects or otherwise unengaged with people. Intervention took place over the course of 6 months and focused on teaching the children’s parents how to implement strategies to increase joint attention, symbolic play, engagement, and regulation with their children. Examples of strategies included imitation and language modeling, developing appropriate play routines, and encouraging joint attention. After completion of the intervention program, researchers reported statistically and clinically significant group improvements in joint engagement between parent and child; increased joint engagement is related to improved social communication skills over time. In this study, some parents were able to implement strategies successfully after only watching the researchers demonstrate the strategies; however, most parents learned best during direct, one-on-one coaching with the researchers.

See Description, and Guidelines for Use of Social Skills Intervention above

<table>
<thead>
<tr>
<th>Problem</th>
<th>Goal</th>
<th>Intervention</th>
<th>Expected Progression</th>
<th>Home Program</th>
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<tbody>
<tr>
<td>Poor social skills or social communication skills</td>
<td>Improve social communication</td>
<td><strong>See above for interventions</strong> Intervention approach will be determined by a comprehensive assessment of language that includes formal and informal measures</td>
<td>The child will improve social skills/social communication skills. The expected progression may vary with the presence or absence of cues, the environment, the communication partner, and the communicative task</td>
<td>A home program is recommended for generalization of skills</td>
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**Desired Outcomes/Outcome Measures**

› Improved social communication abilities
  • CSBS-DP
  • Social Responsiveness Scale, Second Edition
  • CCC-2
  • Social inventory
  • Functional Communications Profile-R
  • Vineland Adaptive Behavior Scales, 2nd Edition
  • Test of Narrative Language
  • ASSP

› Decreased effects of poor social skills (e.g., anxiety, depression)
  • Parent report and teacher report
Maintenance or Prevention
› Early intervention is recommended for children with ASD and children with signs/symptoms of ASD who have not been diagnosed yet[26]

Patient Education

Coding Matrix
References are rated using the following codes, listed in order of strength:

- M Published meta-analysis
- SR Published systematic or integrative literature review
- RCT Published research (randomized controlled trial)
- R Published research (not randomized controlled trial)
- C Case histories, case studies
- G Published guidelines
- RV Published review of the literature
- RU Published research utilization report
- GI Published quality improvement report
- L Legislation
- PGR Published government report
- PFR Published funded report
- PP Policies, procedures, protocols
- X Practice exemplars, stories, opinions
- GI General or background information/texts/reports
- U Unpublished research, reviews, poster presentations or other such materials
- CP Conference proceedings, abstracts, presentation

References

