



Friends and Fitness:

Research-Based Intervention to Enhance
Social Communication and Motor Skills

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Parents want Social Skills!!

- ▶ Functional communication skills
- ▶ Reduction in problem behavior
- ▶ Happy and fulfilling life
 - Participate in school—succeed academically
 - Friends
- ▶ Conversation

“Social Interaction skills are critical to successful social, emotional, and cognitive development. Effective social skills allow us to elicit positive reactions and evaluations from peers as we perform socially approved behaviors” (Ladd & Mize, 1983)

Ladd, G. W., & Mize, J. (1983). A cognitive-social learning model of social skill training. *Psychological Review*, 90, 127-157.

Conversation

- ▶ A **conversation** is **communication** between multiple people. It is a **social skill** that is not difficult for most individuals. For a successful conversation, the partners must achieve a workable balance of contributions. A successful conversation includes mutually interesting connections between the speakers or things that the speakers know.

Speech ≠ Conversation

- ▶ Many parents and teachers know from experience that teaching children with autism to talk is no guarantee that they will engage in conversation (McClannahan & Krantz, 2005).
- ▶ Many children with autism will learn to request and they will learn to respond to the directions of others, but will lack the ability to engage in reciprocal conversations

McClannahan, L. E. & Krantz, P. J. (2005). *Teaching Conversation to Children with Autism: Scripts and Script Fading*. Bethesda, Maryland: Woodbine House.

How do we choose an approach?

Strategies to Improve Social Skills

- ▶ Applied Behavior Analysis
- ▶ Cognitive Behavioral Therapy
- ▶ Social Stories
- ▶ Social Scripts
- ▶ Teaching the "Hidden Curriculum"
- ▶ Video Modeling

<http://www.autismspeaks.org/news/news-item/ian-research-findings-social-skills-group>

The National Autism Center's and National Standards Project 2009

Findings and Conclusions
ADDRESSING THE NEED FOR
EVIDENCE BASED
PRACTICE GUIDELINES FOR
AUTISM SPECTRUM DISORDERS

NAC PROJECT

- ▶ Team of 20 experts
- ▶ 755 Studies included
- ▶ Goals:
 1. Identify the level of research support currently available for educational and behavioral interventions used with individuals (below 22 years of age) with Autism Spectrum Disorders (ASD).
 2. Help parents, caregivers, educators, and service providers make treatment decisions. accuracy.
 3. Identify limitations of the existing research

<http://www.nationalautismcenter.org/pdf/NAC%20Findings%20&%20Conclusions.pdf>

Established Treatment

- X Antecedent Package (99)
- X Behavioral Package (231)
- ▶ Comprehensive Behavioral Treatment for Young Children (22)
- X Joint Attention Intervention (6)
- X Modeling (50)

Established Treatment

- X Naturalistic Teaching Strategies (32)
- X Peer Training Package (33)
- X Pivotal Response Treatment (15)
- ▶ Schedules (12)
- X Self-management (21)
- X Story-based Intervention Package (21)

Viewing Social Communication as a Behavior Analyst

B. F. Skinner

"Verbal Behavior"

$MO/Sd \rightarrow R \rightarrow Sr$

Understanding Behavior

Antecedent \rightarrow Behavior \rightarrow Consequence



MO=Motivative Operations

► Variables that change the value of the reinforcer

1. Establish the effectiveness of a reinforcer for a particular time/situation
2. Increase the likelihood that a behavior will occur

Characteristics of ABA

- All skill domains addressed
- Skills broken into small components, defined in observable, measurable terms
- Effective for building skills and reducing problem behaviors in people with and without disabilities
- Scientific demonstrations of effectiveness is essential
- Highly individualized

Characteristics of ABA

- Continuously evolving
- Individual needs are assessed by direct observation and measurement
- Each component skill taught through many learning opportunities
- Multiple learning opportunities contrived
- Simple skills built systematically into more complex repertoires

Teach missing components

- ▶ “Instead of assessing treatments across the spectrum, we need to focus on analyzing them within the spectrum” (Bellini, p. 101)
- ▶ Match instructional strategies to skills deficits
 - (Bellini, 2006)

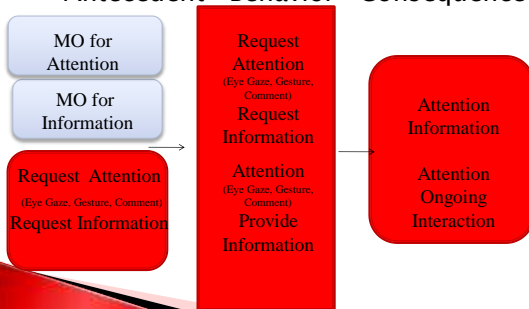
What components are needed for social interaction?

- ▶ “Communication for social interaction requires a fundamental desire to interact with others and obtain new information and perspectives” Mirenda, p. 248
- ▶ A. Desire to interact/share attention
- ▶ B. Desire to obtain new information
- ▶ C. Desire to obtain new perspectives

Mirenda, P. & Iacono, T. (2009). *Autism Spectrum Disorders and AAC*. Baltimore, Maryland: Paul H. Brookes Publishing Company.

Understanding Conversation/Social Interaction

Antecedent → Behavior → Consequence



Social Skills Training

- ▶ Joint Attention Training With Adults
- ▶ Peer Play
- ▶ Party Club (Pairing with reinforcement with adult directed activities)
- ▶ Social Communication Therapy Class
- ▶ Friends and Fitness

Koegel (2010) notes Pivotal skills

- ▶ Motivation
- ▶ Multiple Cues
- ▶ Initiation
- ▶ Self Management
- ▶ Empathy (in progress)

Motivation for Attention

- ▶ In typically developing children, joint attention interactions first occur between a child and his or her caregiver (Bakeman & Adamson, 1984, 1986).
- ▶ Presumably, typically developing children find the social interaction with their caregiver that results from joint attention to be enjoyable and reinforcing and that this, at least in part, is what motivates the child to continue to engage in joint attention (Bates et al., 1975; Bruner, 1983).

Joint Attention

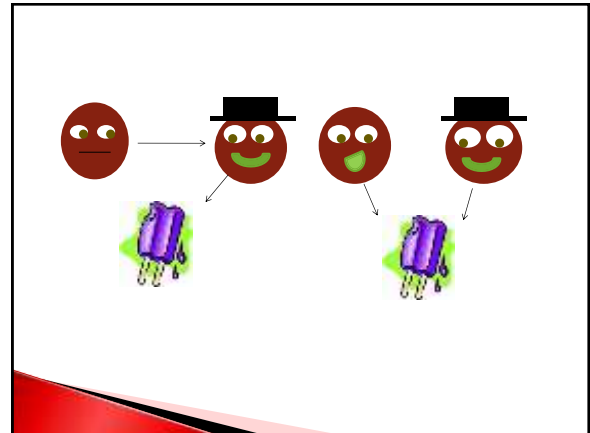
- ▶ Jones and Carr (2004)—Joint attention is an early developing social skills in which two people (usually a young child and an adult) use gesture and gaze to share attention with respect to interesting objects or events. Impairment in development of joint attention discriminates 80–90% of children with autism from those with other disabilities and it is important to develop this skill in early intervention efforts.

Joint Attention

- ▶ The important role that joint attention plays... skill often facilitate successful outcomes in children with autism (Drasgow and Halle, 1995; Durand, 1990).

Joint Attention

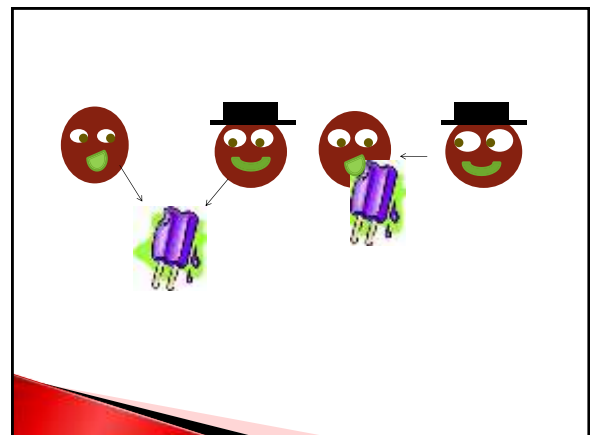
- ▶ There are two ways that a child engages in joint attention:
 1. The child either responds to another person's attention directive (Receptive skill)
 2. The child initiates joint attention with another person (Expressive skill)



Receptive Joint Attention May lead to Reinforcement via Tangibles

- ▶ When a child responds to other's bids for joint attention, he or she may have learned that looking where someone else is looking might likely be followed by reinforcing objects and events (Corkum and Moore, 1995, 1998; Matsuda & Omori, 2001; Moore & Corkum, 1994).

Corkum, V., & Moore, C. (1995). Development of joint visual attention in infants. In C. Moore & P. J. Dunham (Eds.), *Joint attention: Its origins and role in development* (pp. 61–84). Hillsdale, NJ: Erlbaum.



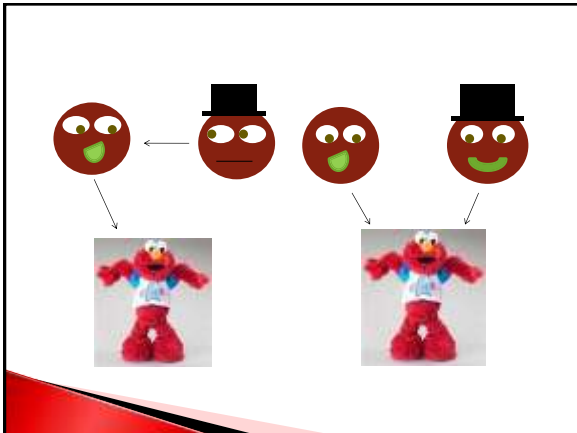
Receptive Joint Attention May lead to Reinforcement via Tangibles

- ▶ Corkum and Moore (1995) demonstrated that responding to bids for joint attention could be taught using conditioning.
- ▶ We cannot assume that this skill would transfer to initiation of bids for attention (mands for attention).

Joint attention

There are two ways that a child engages in joint attention:

- ▶ The child either responds to another person's attention directive (Receptive skill)
- ▶ The child initiates joint attention with another person. Directing the other person to adopt the child's own attentional focus (Expressive skill—Mand or request for attention)
(Charman, 1997, 1998; Mundy & Gomes, 1998).



A. Desire to Interact/Share Attention (Joint Attention)

Motivation for Attention (Function)

- ▶ Teach Motivation for attention and ongoing interaction

Topography (Form)

- ▶ Method/Structure for gaining and maintaining attention and ongoing interaction

What are the necessary skill?

Dawson, Meltzoff, Osterling, Rinaldi, and Brown (1998) pointed out that “unless children with autism are taught that social stimuli are interesting, rewarding, and meaningful, they may not be as likely to acquire more complex communicative or social skills” (p. 484).

Dawson, G., Meltzoff, A. N., Osterling, J., Rinaldi, J., & Brown, E. (1998). Children with autism fail to orient to naturally occurring social stimuli. *Journal of Autism and Developmental Disorders*, 28, 479–485.

Establish Attention as a Reinforcer

Carr and others suggest that part of building social motivation for joint attention and other social interaction skills “necessitates establishing the value, for the child, of interacting with a partner. One plausible way to increase the probability of interaction is to establish the partners of joint attention as generalized reinforcers” (Carr et al., 1994; Magito McLaughlin, 1999).

Pairing with Reinforcement

- ▶ By repeatedly pairing the presence of the adult (or peer) with a wide variety of preferred reinforcers, the adult is established as a generalized reinforcer (Skinner, 1953).
- ▶ Because the presence of the adult has now become a discriminative stimulus that signals the likely presence of preferred reinforcers, the child seeks proximity to and contact with the adult (Carr et al., 1994).

PAIRING

Neutral Stimulus ↔ Reinforcing Stimulus

- Adult
- Peer
- Light-up Balls
- Thomas the Train
- Flaming Hot Cheetos
- Piggy Back Ride
- Cars Movie

After pairing many times, adult or peer presence or attention becomes a conditioned reinforcer.

Does Pairing lead to Joint Attention?

Joint Attention Training

- ▶ Researchers have begun to examine joint attention as one positive outcome of broader social skills intervention programs not directly targeted at joint attention.
- ▶ Bakeman and Adamson (1984) coded behaviors of supported joint engagement (in which the trainer manipulates the toy to support the target child's joint attention) and coordinated joint engagement (in which the child with autism is actively involved in playing with the object looking at both the object and the peer).

Joint Attention Training

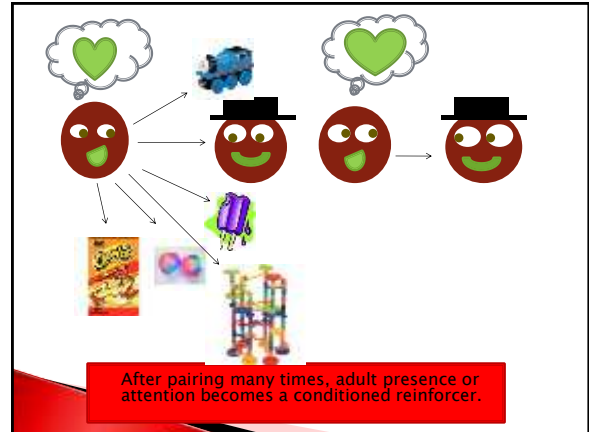
- ▶ During supported joint engagement, the child is primarily object-focused, while the partner "complements this engagement".
- ▶ The procedure resulted in an 80% increase in joint attention (supported and coordinated joint engagement combined) from pre- to post-intervention.

Joint Attention Training

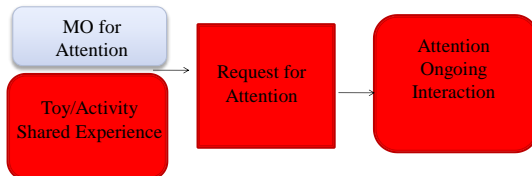
- ▶ Further, Pierce and Schreibman (1995) and Baker (2000) demonstrated positive affect on joint attention even when the intervention strategy used did not specifically target joint attention.

Receptive Joint Attention May lead to Reinforcement via Tangibles

- ▶ Corkum and Moore (1995) demonstrated that responding to bids for joint attention could be taught using conditioning.



Understanding Requests for Attention Antecedent→Behavior→Consequence



Receptive Joint Attention May lead to Reinforcement via Tangibles

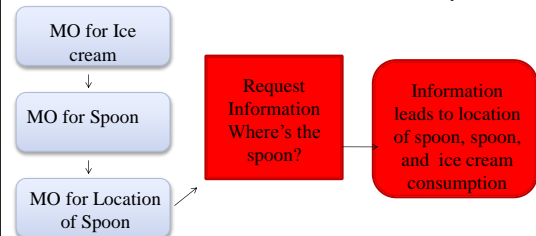
- ▶ We cannot assume that receptive joint attention or responding to bids for attention will lead to development of initiation of bids for attention (mands for attention).
- ▶ Requests for attention and information can also be conditioned. What are the language and learning prerequisites necessary to teach verbal requests for attention or information?

Procedure

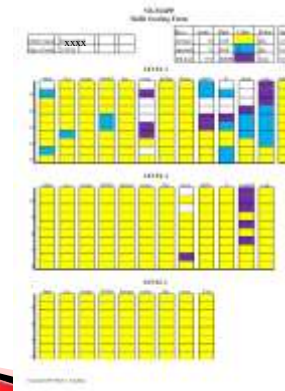
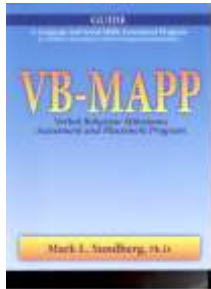
- ▶ Contrive MO for attention (parent withdraws)
- ▶ Trainer prompt the learner to use selected form to request attention (Look! Watch me!)
- ▶ Parent provides lavish attention and additional reinforcement
- ▶ Many training trials are conducted
- ▶ Fade reinforcement to natural consequences
- ▶ Ensure that attention is not followed by "work" in the form of additional questions or requests

Asking Questions

Antecedent→Behavior→Consequence



Verbal Behavior Milestones Assessment and Placement Program



VB MAPP Social Milestones (18–30 month level)

- ▶ Spontaneously participates in activities with other children and spontaneously verbally interacts with them (initiates physical interactions, requests, sustained social play, follows peer instruction, request peer participation)

VB MAPP Prerequisites Level 2 (18–30 month level)

- ▶ Frequent and spontaneous requests and multiword requests primarily controlled by motivation
- ▶ Labels items and actions and combine nouns and verbs to label with minimum of 200–300 word expressive vocabulary
- ▶ Receptive language skills include receptive identification of items in a variety of situations, ability to follow instructions to do a motor task and ability to follow noun-verb instructions.

VB MAPP Prerequisites (18–30 month level)

- ▶ Imitates novel actions and specific words and phrases
- ▶ Selects or names items from a book or group of items when told feature, function, class for greater than 50 items and can respond to Who? What? and Which? questions regarding feature, function, or class of items presented

VB MAPP Prerequisites (18–30 month level)

- ▶ Verbally responds to more than 90 phrases or questions including what, who or where questions without items present. (The Center--mutual interests with peers)
- ▶ Clear articulation and beginning to emit 2–3 word utterances

Motivation for the Group

- ▶ Onlooker, observes briefly
- ▶ Occasional, brief, unsuccessful attempts at joining play
- ▶ Wandering
- ▶ Self-stimulatory Behavior

- ▶ Deficits in social communication/social skills and motor skills in children with autism spectrum disorder restrict access to the social and health benefits of group exercise provided by participation in recess, gym class, community sponsored sports offerings and games played at family gatherings.

Motivation for the Group

- ▶ Personal experience/Interest as a fitness enthusiast
- ▶ Eric Perez
- ▶ FABFA Convention
- ▶ Fitness community at the IABA conference

Motivation for Group-Eric

- ▶ Longstanding love of working with children and fitness dating back to YMCA employment as a youth sports coach and director of afterschool program
- ▶ Director of Sport Program selected Eric's group for children with special needs because of abilities in the areas of; differentiating instruction, motivation, and persistence.
- ▶ After leaving YMCA, established adult-oriented business but never lost interest in working with children
- ▶ Excited for opportunity to partner for this class

Physical Activity Facts

- ▶ Regular physical activity in childhood and adolescence improves strength and endurance, helps build healthy bones and muscles, helps control weight, reduces anxiety and stress, increases self-esteem, and may improve blood pressure and cholesterol levels.
- ▶ Physical Activity Guidelines Advisory Committee. *Physical Activity Guidelines Advisory Committee Report, 2008*. Washington, DC: U.S. Department of Health and Human Services; 2008.

Physical Activity Facts

- ▶ The U.S. Department of Health and Human Services recommends that young people aged 6-17 years participate in at least 60 minutes of physical activity daily.
- ▶ Collingwood TR, Sunderlin J, Reynolds R, Kohl HW 3rd. Physical training as a substance abuse prevention intervention for youth. *Journal of Drug Education* 2000;30(4):435-451.

Physical Exercise Facts

- ▶ When children and adolescents participate in the recommended level of physical activity—at least 60 minutes daily of Moderate Vigorous —multiple health benefits accrue.

Physical Exercise Facts

- ▶ There is substantial evidence that physical activity can help improve academic achievement, including grades and standardized test scores.
- ▶ The articles in this review suggest that physical activity can have an impact on cognitive skills and attitudes and academic behavior, all of which are important components of improved academic performance. These include enhanced concentration and attention as well as improved classroom behavior.
- ▶ Increasing or maintaining time dedicated to physical education may help, and does not appear to adversely impact, academic performance.

Moderate Vigorous Physical Exercise Reduces Stereotypy

- ▶ "...experimental literature indicates that physical exercise can positively influence both appropriate and inappropriate behaviors, including stereotypy.."
- ▶ According to Kern, Koegel and Dunlap (1984) .."15 minutes of continuous vigorous physical activity was always followed by a reduction in stereotypy.
- ▶ Kern, Koegel, & Dunlap (1984). The influence of vigorous versus mild exercise on autistic stereotyped behaviors Journal of Autism and Developmental Disorders, 14(1).

Component Analysis

- ▶ What are the missing skills needed to participate in athletic activities and reap the social and physical benefits?

What component skills are needed for Recess play?

- ▶ Peers are Paired with Reinforcement
- ▶ Motivation for attention and ongoing interaction
- ▶ Physical skills to execute sport/activity
- ▶ Tact rules and ability to follow rules
- ▶ Tact the ongoing activity
- ▶ Social Skills
 - Intermediate Level Social Skills
 - Ability to Join Activity
 - Simple Negotiation
 - Emotional Regulation (Good Sport)

Goals

- Specific skills in three domains: social communication/social skills, logical inferencing, and motor skills were selected for treatment.

Social Skills Selection

- ▶ The Assessment of Basic Language and Learning Skills-Revised (Partington, and/or the Verbal Behavior Milestones Assessment and Placement Program (Sundberg, 2008) were used as a guide for selection of social skills
- ▶ Other resources consulted

SCORE	GOAL	CRITERIA	NOTES
1/10 Returns greetings	The student will return greetings from adults	Student returns greetings from people without any prompts	Count each independent greeting. Observe 2 people
1/10 Asks peers for items	The student will ask peers for single items	Student asks peers for items without any prompts	
1/10 (L) The student will follow a physical instruction with a peer	The student will physically imitate peers' simple motor tasks	2 times in a 10 minute observation in a community setting	
1/10 (L) The student will independently respond to requests such as "no," "yes," "same as you," "different," "going to go"	The student will independently respond to requests such as "no," "yes," "same as you," "different," "going to go"	2 times in a 10 minute observation in a community setting	
1/10 (L) Responds to 5 different group instructions at approximately 100%	Independently or with assistance of peers, the student will respond to group instructions at approximately 100%	2 times in a 10 minute observation in a community setting	
1/10 (L) 12/12 Responds correctly	When prompted a signifier responds by: requesting assistance	3 times in 10 minute observation	
1/10 (L) (L) Responds to 5 different group instructions at approximately 100%	When offered a preferred item, the student will take the item from peers, both peers want adults	2/10 usually take items from peers but sometimes take items from peers and adults who are more than 3 feet away	
1/10 (L) (L) Responds to 5 different group instructions at approximately 100%	The student will assist another student without prompting using a clip holding a bucket while the other child puts water	2 times in a 10 minute observation	

Daily Progress Notes



(Please complete at every session.)

Child's Name: _____

Therapist	Time	Date	Client Name
Behavior	Problem Behavior	Comments	
	1 2 3 4 5		
Greeting	1 2 3 4 5		
Much to Power	1 2 3 4 5		
Responds Phys	1 2 3 4 5		
Initiates Phys	1 2 3 4 5		
Group Interaction	1 2 3 4 5		
Accepts Items	1 2 3 4 5		
Drop Item	1 2 3 4 5		
Accepts Handout	1 2 3 4 5		
Self Name: Circle	1 2 3 4 5		
Self Size: Active	1 2 3 4 5		

Directed Comments:

[illegible][illegible][illegible]

THE CENTER
FOR EARLY INTERVENTION

Daily Progress Notes Friends and Pals Advanced

Child's Name: _____

Therapist: _____ Time: _____ Date: _____

Behaviors	Target Behavior Number of Instances					Comments
	1	2	3	4	5	
Good greetings	1	2	3	4	5	
Eye gaze use	1	2	3	4	5	
Game Pals	1	2	3	4	5	
Emotions/Pals	1	2	3	4	5	
Adjust behavior	1	2	3	4	5	
Offer assistance	1	2	3	4	5	
Problem-solving	1	2	3	4	5	
Join peers	1	2	3	4	5	
Cooching	1	2	3	4	5	

General Comments: _____

Therapist Signature: _____

THE CENTER
FOR EARLY INTERVENTION

Daily Progress Notes Friends and Pals Advanced

Child's Name: _____

Therapist: _____ Time: _____ Date: _____

Behaviors	Target Behavior Number of Instances					Comments
	1	2	3	4	5	
Good greetings	1	2	3	4	5	
Eye gaze use	1	2	3	4	5	
Game Pals	1	2	3	4	5	
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Join peers	1	2	3	4	5	
Cooching	1	2	3	4	5	

General Comments: _____

Therapist Signature: _____

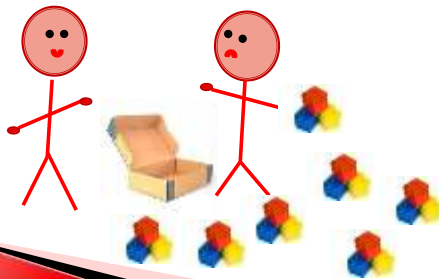
Session Format

- ▶ Social Skills Warm up/Lesson
- ▶ Physical Warm up
- ▶ Rating
- ▶ Game/Fitness Circuit
- ▶ Mini Lesson
- ▶ Game/Fitness Circuit
- ▶ Closing

Offering Help

Offering Help

1. Decide if Someone needs help

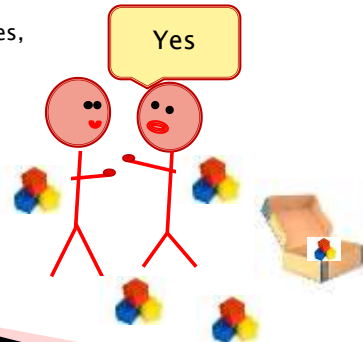


2. Ask "Do you need Help?"



3. Do it!

If they say Yes,
Do it!



Session Format

- ▶ Social Skills Warm up/Lesson
- ▶ Physical Warm up
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- ▶ Game/Fitness Circuit
- ▶ Mini Lesson
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- ▶ Closing

Selection of Exercises

Warm up

- ▶ ABLLS-R motor skills assessment
- ▶ Ongoing assessment of athletic skills
- ▶ Incorporated simple and complex skills
- ▶ Establish basic exercises which they might encounter in multiple venues
- ▶ Immediately incorporate new moves with known moves

Selection of Exercises

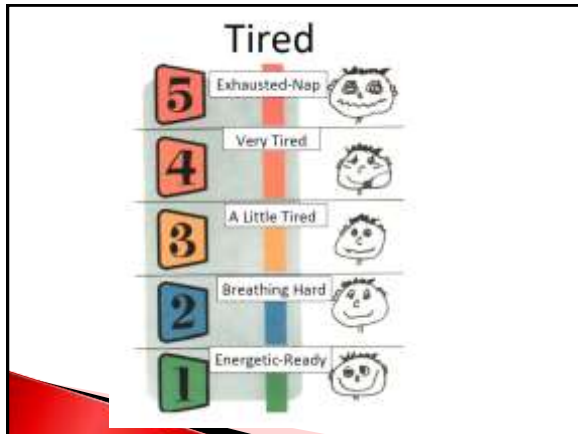
Stretch

- ▶ ABLLS-R motor skills assessment
- ▶ Ongoing informal assessment of skills
- ▶ Basic Yoga Poses
- ▶ Many of the children had some yoga experience
- ▶ Traditional Track and Field Stretches

Game Selection

- ▶ Combination of Games
- ▶ Cooperative games that involve peer interaction
- ▶ Amped up by Eric
- ▶ Actual Games
- ▶ Successful activities from YMCA
- ▶ Activities that could be applied immediately





Additional Lessons Learned

- › Start Immediately/Minimize wait time
- › Language
- › Tricky talk
- › Pre-teach Receptive instructions
- › Kids readily imitated Eric—everything he did
- › Use caution with “fooling around”
- › Using concrete language
- › Minimizing/Simplify language and maximizing modeling of exercises
- › Rely on Center staff to prompt
- › Center staff specially trained

Figures of speech

- › Give me some love
- › Bring it in
- › Push it back
- › Sista
- › Bro
- › Shades
- › Lid
- › Eyes on Me
- › Jumping the gun
- › Shifting it into high gear
- › Running out gas
- › Breaking the record
- › Killed it
- › Nailed it
- › You're killing me

Winter Olympics

Unit Example
8–10 sessions





<http://www.youtube.com/watch?v=JmD5VR7668E>



Events

- ▶ Alpine skiing
- ▶ Biathlon
- ▶ Bobsleigh
- ▶ Cross Country Skiing
- ▶ Curling
- ▶ Figure Skating
- ▶ Freestyle Skiing

Winter Olympic Games



- ▶ **Winter Olympic Games** is a major international **sporting event** that occurs once every four years
- ▶ This month, the Winter games begin.



Sochi, Russia

- ▶ The Winter Olympic Games are taking place in Sochi, Russia



Events

- ▶ Alpine skiing
- ▶ Biathlon
- ▶ Bobsleigh
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- ▶ Curling
- ▶ Figure Skating
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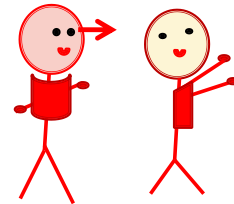
What sport? Skiing



Being A Good Sport

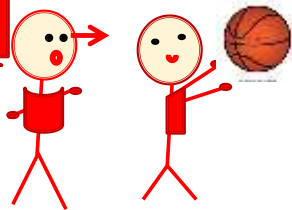
Being a Good teammate

1. Watch your teammate



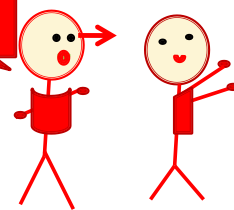
2. Cheer when your teammate takes his turn

Go ___ go!
You can do it!
Come on



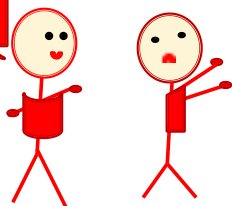
2. Cheer when your teammate does a great job

You did it!
Great Job!
Sweet!
Awesome!



If your teammate can't do it Use Encouraging Words

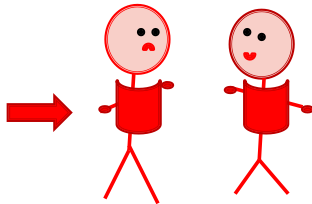
Nice Try!
Good Try!
You'll do
it next
time!



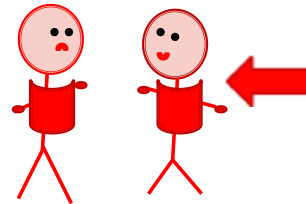
Being A Good Sport

Being a good loser

If you Lose, it's ok to feel a little sad.



If you Win, it's ok to feel Happy!



If you win or lose, Say "Good game"

Good Game!

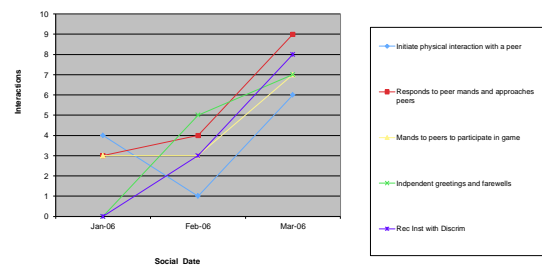


Good Game!



JM data

Independent Social Interactions Per Opportunity



RESEARCH and RESULTS

Camp

- Eric's interest in a Speed and Agility camp
- The Center had been conducting Friendship Camp (Social Skills) for several years
- The Recess Dilemma
- Why not combine forces?

Camp

- ▶ Theme: Social Detective/Sport Detective/Food Detective
- ▶ Week 1: Friendship Camp: Sports Edition
- ▶ Fundamental skills that were teachable and could translate easily to basic sports
- ▶ Soccer, Track and Field, Kickball
- ▶ Week 2: Friendship Camp: Recess Edition
- ▶ Recess Activities: Four Square, Tag, Freeze Tag, Monkey in the Middle, Red Light/Green Light
- ▶ Simple Negotiation

Introduction

- Deficits in social communication/social skills and motor skills in children with autism spectrum disorder restrict access to the social and health benefits of group exercise provided by participation in recess, gym class, community sponsored sports offerings and games played at family gatherings.

- ▶ The literature clearly identifies Behavioral Skills Training as an effective training package for teaching multiple step skills (Johnson et al., 2005, Gross, Miltenberger, Knudson, Bosch, & Breitwieser, 2007, Lumley, Miltenberger, Long, Rapp & Roberts, 1998, Wallace, Doney, Mintz-Resudek, & Tarbbox, 2004, Sarokoff and Sturmey, 2004).

- ▶ Several studies have effectively addressed socially valid behaviors, focusing on peer groups, promoting entrapment (Magg 2006) and multiple exemplar training across teachers, stimuli, and environments (Stokes & Baer, 1977) to enhance generalization.

Purpose

- The purpose of this study was to examine the effects of a behaviorally-based treatment package to improve social skills, inferencing, and motor skills for children with autism spectrum disorder age 6-11 within the context of a fitness based social communication group.

- Specific skills in three domains: social communication/social skills, logical inferencing, and motor skills were selected for treatment.
- Maintenance of effects at a three months follow up was probed.

Method

Participants

- Seven children with a diagnosis of autism spectrum disorder ages six to eleven with Intermediate or Advanced learner profiles according to the Assessment of Basic Language and Learning Skills-Revised (Partington, 2006), or the Verbal Behavior Milestones Assessment and Placement Program (Sundberg, 2008)

- Typically developing peers who received four hours of training in interacting and promoting social and motor skills in children with autism spectrum disorder, entrapment and self-reinforcement via a token system

Peer Training

Peers taught strategies

- Gaining attention
- Prompting requests
- Gaining attention and persisting until a child responds to a question or direction
- Reinforcing social attempts
- The primary intervention targets involved pairing with reinforcement, manding and initiating and maintaining interactions with the peer.
- Reinforcement System

Setting

- Local community center comprised of indoor meeting room with PowerPoint capabilities, kitchen area, and outdoor playing field

Procedures

- Each participant with autism spectrum disorder received treatment in a group format for 3 hours, 5 days per week for two weeks.

- Behavioral Skills Training including a brief explanation of the target skill with choral responding, modeling, guided practice, and feedback during application exercises was conducted.

- Video models were included for social skills and inferencing.
- Role play was included for social skills only.
- Each child with autism spectrum disorder was provided with a shadow who was an employee of The Center and received 4 hours of training on facilitation of the goals of the study as well as probe procedures and scoring criteria. Staff engaged in role play until proficiency was demonstrated and until a score of 80% or higher was achieved on a quiz containing the training content.

- ▶ Corrective feedback was provided to staff if needed by the lead instructor during training and throughout the study.

Measurement

- Baseline: Baseline cold probe data were collected for each skill for each participant during the initial session

▶ **Measurement**

- For social skills, the lead instructor would alert staff and peer models that a probe was about to be conducted. An instruction would be provided to the group and no prompting occurred. Shadows scored participant responses as Y or N for correct and incorrect/no response respectively. Some social skills contained several components (e.g. Finding a partner: get close, eye contact, mand) and each component was scored individually.

- ▶ Baseline for motor skills consisted of the personal trainer modeling each skill individually for each participant who was then asked to perform the skill. Personal trainer and lead instructor and/or shadow scored the response according to criteria as detailed above.

- Baseline for Inferencing consisted of viewing a 1-2 minute video of children engaging in a recess game and each participant was asked to tact the game. Probe data was collected as detailed above.

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Monkey in Spanglish Themed Vocabulary

• 6 Bananas



• 6 cups frozen pineapple



• 1 1/2 cups shredded coconut



• Water



Experimental Design

- AB design with maintenance probe across subjects
- IOA calculated using: Agreements/ (Agreements + Disagreements) and was greater than 80%.

Results

- Analysis of results reveal that all but one participant (who achieved a perfect score on social skills in baseline) demonstrated improvement in social skills and inferencing at the end of treatment and maintained higher levels of accuracy over baseline at the three month follow up.

- Results of motor skills probe were less consistent with 4/7 participants demonstrated improvement at the study's end and maintained at follow up; one subject achieving a perfect score on probe and maintaining, and two subjects exhibiting lower accuracy at study completion, but improvement at the three month follow up probe.

- Parent report indicated generalization of skills to other environments.
- Three participants are currently participating in community offered athletic activities.

Discussion

- Results suggest that this treatment package may be effective in improving social skills, inferencing, and fitness, and may promote greater community integration in athletically-oriented social activities.
- A major limitation is the complex treatment package which prohibits identification of critical independent variables.

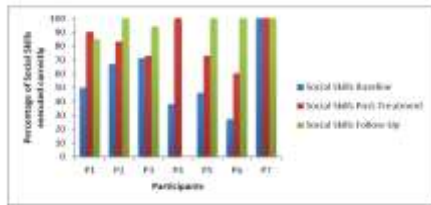


Figure 1. Percentage of social skills executed correctly by participants in baseline, post-treatment, and at three-month follow-up.

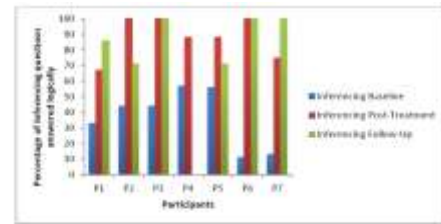


Figure 2. Percentage of inferring questions answered correctly by participants in baseline, post-treatment, and at three-month follow-up.

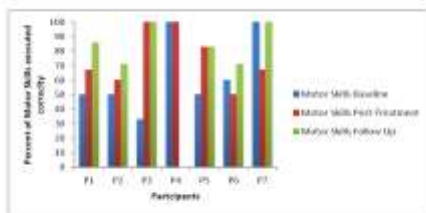


Figure 3. Percentage of motor skills executed correctly by participants in baseline, post-treatment, and at three-month follow-up.

Benefits of Physical Fitness

- ▶ Increase in physical fitness/athletic abilities
 - leads to confidence
 - Increased willingness to attempt new activities
 - Increase in interest and performance of outdoor activities
 - Increased ability to participate in community sponsored athletic opportunities
 - Opportunity to be a leader
 - Increased motivations for competition, desire to improve skills
 - Increase in energy
 - Improvement in general mood, focus, academic achievement

Life Long Skills

- ▶ In facilitated peer interaction, children are provided with guided practice in social skills, such as how to communicate, cooperate, and solve problems. They practice controlling their emotions and responding to the emotions of others. They develop the ability to negotiate.
- ▶ These are life long skills that will impact their quality of life.

"Social Interaction skills are critical to successful social, emotional, and cognitive development. Effective social skills allow us to elicit positive reactions and evaluations from peers as we perform socially approved behaviors" (Ladd & Mize, 1983)

Ladd, G. W., & Mize, J. (1983). A cognitive-social learning model of social skill training. *Psychological Review*, 90, 127-157.

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Prior Intervention

- ▶ Establish Motivation for Social Interaction
- ▶ Extensive Language Training
- ▶ Social Skills Training
- ▶ Recess Intervention with established game/activity with simple rules
- ▶ Suggestion of Facilitated Recess/Prompting
- ▶ Frustration