



Interventions

Learning about evidence-based interventions

About this section

Each child or adult with autism is unique and as a result, each autism intervention plan should be tailored to address his or her specific needs. Treatment for autism is usually a very intensive, comprehensive undertaking that involves the child's family and a team of professionals. Some programs may take place in your home with professional specialists and trained therapists or may include training for you to serve as a therapist for your child under the supervision of a professional. Some programs are delivered in a specialized centre, classroom or preschool. It is not unusual for a family to choose to combine more than one treatment method. The terms "treatment" and "therapy" may be used interchangeably. The word "intervention" may also be used to describe a treatment or therapy.

This section provides an overview of the many different treatment methods for autism. The descriptions are meant to give you general information. Individualized treatment plans should be developed based on your child's comprehensive evaluation of strengths and challenges. For many children, autism is complicated by medical conditions, biological issues and symptoms that are not exclusive to autism. These are important to consider in developing their plan of care.

How is Autism Treated?

Your child's treatment program will depend on his or her needs and strengths. Therapies include a wide range of tools, services and teaching methods that you may choose to use to help your child reach his or her potential. Some of these therapies may be used together. For example, occupational therapy or speech language therapy are often integrated into one of the intensive therapy programs described here as core symptom therapies or if medical causes for sleep disturbances are ruled out, a behavioural intervention might be used to address them.

Treatments for associated symptoms address challenges commonly associated with autism, but not specific to the disorder. If your child has biological or medical conditions such as allergies, food intolerances, gastrointestinal issues or sleep disturbances, these will need to be treated too. Treatment programs may combine therapies for both core symptoms and associated symptoms. Many of the therapy methods described here are very complex and will require more research on your part before you get started. Whenever possible, observe the therapies in action. Talk to experienced parents and make sure you have a thorough understanding of what is involved before beginning any therapy for your child.

TREATMENT FOR THE CORE SYMPTOMS OF AUTISM

Most families use one type of intensive intervention that best meets the needs of their child and their parenting style. The intensive interventions described here require multiple hours per week of therapy and address behavioural, developmental and/or educational goals and have been developed specifically to treat autism. During the course of treatment, it may be necessary to re-evaluate which method is best for your child.

Therapies are not always delivered in a "pure format." Some intervention providers who work primarily in one format may use successful techniques from another format. Before we get into the types of therapies available, it is helpful to take a step back and look at the bigger picture. Although research and experience have increased our knowledge surrounding autism, it remains a complex disorder that impacts each child differently. However, many children with autism have made remarkable progress with the right combination of therapies and interventions. Each challenge must be addressed with an appropriate therapy. No single therapy works for every child. What works for one child may not work for another. What works for one child for a period of time may stop working. Some therapies are supported by research that shows their efficacy, while others are not. The skill, experience and style of the therapist are critical to the effectiveness of the intervention. Before you choose an intervention, you will need to investigate the claims of each therapy so that you understand the possible benefits and risks for your child. At first, all of these techniques – ABA, VB, PRT, DTT, ESDM, among others – may seem like alphabet soup to you. You may be confused now, but you will be surprised at how quickly you become "fluent" in the terminology of autism therapies.

You should also see your pediatrician/family physician for more information, so that you can be confident you are making informed choices as you begin to narrow down your options.

WHAT IS APPLIED BEHAVIOURAL ANALYSIS (ABA)?

Behaviour analysis was originally described by B.F. Skinner in the 1930s. You may have learned about Skinner and “operant conditioning” when you studied science in school. The principles and methods of behaviour analysis have been applied effectively in many circumstances to develop a wide range of skills in learners with and without disabilities. Behaviour analysis is a scientifically validated approach to understanding behaviour and how it is affected by the environment. In this context, “behaviour” refers to actions and skills. “Environment” includes any influence – physical or social – that might change or be changed by one’s behaviour. On a practical level, the principles and methods of behaviour analysis have helped many different kinds of learners acquire many different skills – from healthier lifestyles to the mastery of a new language. Behaviour analysis focuses on the principles that explain how learning takes place. Positive reinforcement is one such principle. When a behaviour is followed by some sort of reward, the behaviour is more likely to be repeated. Through decades of research, the field of behaviour analysis has developed many techniques for increasing useful behaviours and reducing those that may cause harm or interfere with learning. Applied Behaviour Analysis (ABA) is the use of these techniques and principles to bring about meaningful and positive change in behaviour. Since the early 1960s, ABA has been used by thousands of therapists to teach communication, play, social, academic, self-care, work and community living skills and to reduce problem behaviours in learners with autism. There is a great deal of research that has demonstrated that ABA is effective for improving children’s outcomes, especially their cognitive and language abilities. Over the past several decades, different models using ABA have emerged, all of which use behavioural teaching. They all use strategies that are based on Skinner’s work. ABA is often difficult to understand until you see it in action. It may be helpful to start by describing what all of the different methods of ABA have in common. ABA methods use the following three step process to teach:

An **antecedent**, which is a verbal or physical stimulus such as a command or request. This may come from the environment or from another person or be internal to the subject;

A resulting **behaviour**, which is the subject’s (or in this case, the child’s) response or lack of response to the antecedent;

A **consequence**, which depends on the behaviour, can include positive reinforcement of the desired behaviour or no reaction for incorrect responses. ABA targets the learning of skills and the reduction of challenging behaviours. Most ABA programs are highly structured. Targeted skills and behaviours are based on an established curriculum. Each skill is broken down into small steps and taught using prompts that are gradually eliminated as the steps are mastered. The

child is given repeated opportunities to learn and practice each step in a variety of settings. Each time the child achieves the desired result, he or she receives positive reinforcement, such as verbal praise or something else that the child finds to be highly motivating. ABA programs often include support for the child in a school setting with a one-on-one aide to target the systemic transfer of skills to a typical school environment. Skills are broken down into manageable pieces and built upon so that a child learns how to learn in a natural environment. Facilitated play with peers is often part of the intervention. Success is measured by direct observation and data collection and analysis – all critical components of ABA. If the child isn't making satisfactory progress, adjustments are made.

One type of ABA intervention is **Discrete Trial Teaching** (also referred to as DTT, “traditional ABA” or the Lovaas Model, for its pioneer, Dr. Ivar Lovaas). DTT involves teaching individual skills one at a time using several repeated teaching trials and reinforcers that may or may not be intrinsically related to the skill that is being taught.

Who provides traditional ABA or DTT?

A Board Certified Behaviour Analyst (BCBA) specializing in autism will write, implement and monitor the child's individualized program. Individual therapists, often called “trainers,” (not necessarily board certified) will work directly with the child on a day-to-day basis.

What is a typical ABA therapy session like?

Sessions are typically two to three hours long, consisting of short periods of structured time devoted to a task, usually lasting three to five minutes. 10 to 15 minute breaks are often taken at the end of every hour. Free play and breaks are used for incidental teaching or practicing skills in new environments. Effective ABA intervention for autism is not a “one size fits all” approach and should never be viewed as a “canned” set of programs or drills. On the contrary, a skilled therapist customizes the intervention to each learner's skills, needs, interests, preferences and family situation. For those reasons, an ABA program for one learner might look somewhat different from a program for another learner. An ABA program will also change as the needs and functioning of the learner change.

What is the intensity of most ABA programs?

Most ABA programs consist of 25 to 40 hours per week of therapy. Families are also encouraged to use ABA principles in their daily lives.

WHAT IS VERBAL BEHAVIOUR THERAPY?

Verbal Behaviour (VB) therapy teaches communication using the principles of Applied Behaviour Analysis and the theories of behaviourist B.F. Skinner. By design, **Verbal Behaviour** therapy motivates a child, adolescent or adult to learn language by connecting words with their

purposes. The student learns that words can help obtain desired objects or other results. Verbal Behaviour therapy avoids focusing on words as mere labels (cat, car, etc.). Rather, the student learns how to use language to make requests and communicate ideas focusing on understanding *why* we use words.

In his book *Verbal Behavior*, Skinner classified language into types, or “operants.” Each has a different function. Verbal Behaviour therapy focuses on four word types. They are:

Mand: A request, such as “Cookie,” to ask for a cookie

Tact: A comment used to share an experience or draw attention, such as “airplane” to point out an airplane

Intraverbal: A word used to answer a question or otherwise respond, such as “Where do you go to school?” “Castle Park Elementary”

Echoic: A repeated, or echoed, word, such as “Cookie?” “Cookie!” (important as the student needs to imitate to learn)

Verbal Behaviour therapy begins by teaching mands or requests as the most basic type of language. For example, the individual with autism learns that saying “cookie” can produce a cookie. Immediately after the student makes such a request, the therapist reinforces the lesson by repeating the word and presenting the requested item. The therapist then uses the word again in the same or similar context.

Importantly, children don’t have to say the actual word to receive the desired item. In the beginning, he or she simply needs to signal requests by any means. Pointing at the item represents a good start. This helps the student understand that communicating produces positive results. The therapist builds on this understanding to help the student shape the communication toward saying or signing the actual word. Verbal Behaviour therapy uses “errorless learning.” The therapist provides immediate and frequent prompts to help improve the student’s communication. These prompts become less intrusive as quickly as possible, until the student no longer needs prompting. Take, for example, the student who wants a cookie. The therapist may hold the cookie in front of the student’s face and say “cookie” to prompt a response from the child. Next, the therapist would hold up the cookie and make a “c” sound to prompt the response. After that, the therapist might simply hold a cookie in the child’s line of sight and wait for the request. The ultimate goal, in this example, is for the student to say “cookie” when he or she wants a cookie – without any prompting. VB and classic ABA use similar behavioural formats to work with children. VB is designed to motivate a child to learn language by developing a connection between a word and its value. VB may be used as an extension of the communication section of an ABA program.

Who provides VB?

Verbal Behaviour therapy is provided by VB-trained psychologists, special education teachers, speech therapists and other providers.

What is the intensity of most VB programs?

VB programs usually involve 30 or more hours per week of scheduled therapy. Families are encouraged to use VB principles in their daily lives.

WHAT IS PIVOTAL RESPONSE TREATMENT (PRT)?

Pivotal Response Treatment, or PRT, was developed by Dr. Robert L. Koegel, Dr. Lynn Kern Koegel and Dr. Laura Shreibman at the University of California at Santa Barbara. PRT was previously called the Natural Language Paradigm (NLP), which has been in development since the 1970s. It is a behavioural intervention model based on the principles of ABA. PRT is one of the best studied and validated behavioural treatments for autism. Derived from ABA, it is play-based and child-initiated. Its goals include the development of communication, language and positive social behaviours and relief from disruptive self-stimulatory behaviours. Rather than target individual behaviours, the PRT therapist targets “pivotal” areas of a child’s development. These include motivation, response to multiple cues, self-management and the initiation of social interactions. The philosophy is that by targeting these critical areas, PRT will produce broad improvements across other areas of sociability, communication, behaviour and academic skill building. Motivation strategies are an important part of the PRT approach. These emphasize “natural” reinforcement. For example, if a child makes a meaningful attempt to request a stuffed animal, the reward is the stuffed animal – not a candy or other unrelated reward.

Who provides PRT?

Some psychologists, special education teachers, speech therapists and other providers specifically are trained in PRT. The Koegel Autism Center offers a PRT Certification program.

What is a typical PRT therapy session like?

Each program is tailored to meet the goals and needs of the individual learner and his or her school and home routines. A session typically involves six segments during which language, play and social skills are targeted with both structured and unstructured interactions. As the child progresses, the focus of each session changes to accommodate more advanced goals and needs.

What is the intensity of a PRT program?

PRT programs usually involve 25 or more hours per week. Everyone involved in the child’s life is encouraged to use PRT methods consistently in every part of his or her life. PRT has been described as a lifestyle adopted by the affected family.

WHAT IS THE EARLY START DENVER MODEL (ESDM)?

The Early Start Denver Model (ESDM) is a comprehensive behavioural early intervention approach for children with autism, ages 12 to 48 months. The program encompasses a developmental curriculum that defines the skills to be taught at any given time and a set of teaching procedures used to deliver this content. It is not tied to a specific delivery setting, but can be delivered by therapy teams and/or parents in group programs or individual therapy sessions in either a clinic setting or the child's home. Psychologists Sally Rogers, Ph.D., and Geraldine Dawson, Ph.D., developed the Early Start Denver Model as an early-age extension of the Denver Model, which Rogers and colleagues developed and refined. This early intervention program integrates a relationship-focused developmental model with the well-validated teaching practices of Applied Behaviour Analysis (ABA). Its core features include the following:

- **Naturalistic applied behavioural analytic strategies**
- **Sensitive to normal developmental sequence**
- **Deep parental involvement**
- **Focus on interpersonal exchange and positive affect**
- **Shared engagement with joint activities**
- **Language and communication taught inside a positive, affect-based relationship**

The Early Start Denver Model is the only comprehensive early intervention model that has been validated in a randomized clinical trial for use with children with autism as young as 18 months of age. It has been found to be effective for children with autism across a wide range of learning styles and abilities.

Who provides ESDM?

An ESDM therapist may be a psychologist, behaviourist, occupational therapist, speech and language pathologist, early intervention specialist or developmental pediatrician. What's important is that the therapist has ESDM training and certification. Parents can also be taught to use ESDM strategies. Parental involvement is a crucial part of the ESDM program. If your child is receiving ESDM therapy, the instructor will explain and model the strategies for you to use at home.

What is the intensity of most ESDM programs?

ESDM programs usually involve 20 to 25 or more hours per week of scheduled therapy. Families are encouraged to use ESDM strategies in their daily lives.

What is a typical ESDM session like?

ESDM is designed to be highly engaging and enjoyable for the child, while skills are systematically taught within a naturalistic, play-based interaction. Some skills are taught on the floor during

interactive play while others are taught at the table, focusing on more structured activities. As the child develops social skills, peers or siblings are included in the therapy session to promote peer relationships. ESDM can be delivered in the home, the clinic or a birth-to-three or developmental preschool setting.

WHAT IS FLOORTIME (DIR)?

Floortime is a specific therapeutic technique based on the **Developmental Individual Difference Relationship Model (DIR)** developed in the 1980s by Dr. Stanley Greenspan. The premise of Floortime is that an adult can help a child expand his or her circles of communication by meeting the child at his or her developmental level and building on his or her strengths. Therapy is often incorporated into play activities – on the floor. The goal of Floortime is to help the child reach six developmental milestones that contribute to emotional and intellectual growth:

- Self regulation and interest in the world
- Intimacy or a special love for the world of human relations
- Two-way communication
- Complex communication
- Emotional ideas
- Emotional thinking

In Floortime, the therapist or parent engages the child at a level the child currently enjoys, enters the child's activities and follows the child's lead. From a mutually shared engagement, the parent is instructed on how to move the child toward increasingly complex interactions, a process known as "opening and closing circles of communication." Floortime does not separate and focus on speech, motor or cognitive skills but rather addresses these areas through a synthesized emphasis on emotional development. The intervention is called Floortime because the parent gets down on the floor with the child to engage the child at his or her level. Floortime is considered an alternative to and is sometimes delivered in combination with ABA therapies.

Who provides Floortime?

Parents and caregivers are trained to implement the approach. Floortime-trained psychologists, special education teachers, speech therapists or occupational therapists may also use Floortime techniques.

What is a typical Floortime therapy session like?

In Floortime, the parent or provider joins in the child's activities and follows the child's lead. The parent or provider then engages the child in increasingly complex interactions. During the preschool program, Floortime includes integration with typically developing peers. Ideally, Floortime takes place in a calm environment. This can be at home or in a professional setting. Floortime sessions emphasize back-and-forth play interactions. This establishes the foundation

for shared attention, engagement and problem solving. Parents and therapists help the child maintain focus to sharpen interactions and abstract, logical thinking.

What is the intensity of most Floortime programs?

Floortime is usually delivered in a low stimulus environment, ranging from two to five hours a day. Families are encouraged to use the principles of Floortime in their day-to-day lives.

WHAT IS RELATIONSHIP DEVELOPMENT INTERVENTION (RDI)?

Like other therapies described in this tool kit, **Relationship Development Intervention (RDI)** is a system of behaviour modification through positive reinforcement. RDI was developed by Dr. Steven Gutstein as a family-based behavioural treatment using dynamic intelligence and addressing autism's core symptoms. RDI aims to help individuals with autism form personal relationships by gradually strengthening the building blocks of social connections. This includes the ability to form an emotional bond and share experiences.

The six objectives of RDI are:

Emotional Referencing: the ability to use an emotional feedback system to learn from the subjective experiences of others

Social Coordination: the ability to observe and continually regulate one's behaviour in order to participate in spontaneous relationships involving collaboration and exchange of emotions

Declarative Language: the ability to use language and non-verbal communication to express curiosity, invite others to interact, share perceptions and feelings and coordinate your actions with others

Flexible Thinking: the ability to rapidly adapt, change strategies and alter plans based upon changing circumstances

Relational Information Processing: the ability to obtain meaning based upon the larger context; solving problems that have no "right-and wrong" solutions

Foresight and Hindsight: the ability to reflect on past experiences and anticipate potential future scenarios in a productive manner

The program involves a systematic approach to working on building motivation and teaching skills while focusing on the child's current developmental level of functioning. Children begin work in a one-on-one setting with a parent. When the child is ready, he or she is matched with a peer at a similar level of relationship development to form a "dyad." Gradually, additional children are added, as are the number of settings in which the children practice, in order to help the child form and maintain relationships in different contexts.

Who provides RDI?

Parents, teachers and other professionals can be trained to provide RDI. Parents may choose to work together with an RDI-certified consultant. RDI is somewhat unique because it is designed to

be implemented by parents. Parents learn the program through training seminars, books and other materials and can collaborate with an RDI-certified consultant. Some specialized schools offer RDI in a private school setting.

What is a typical RDI therapy session like?

In RDI, the parent or provider uses a comprehensive set of step-by-step, developmentally appropriate objectives in everyday life situations, based on different levels or stages of ability. Spoken language may be limited in order to encourage eye contact and nonverbal communication. RDI may also be delivered in a specialized school setting.

What is the intensity of most RDI programs?

Families most often use the principles of RDI in their day-to-day lives. Each family will make choices based on their child.

WHAT IS TEACCH?

The **TEACCH® Autism Program** is a clinical, training and research program based at the University of North Carolina – Chapel Hill. TEACCH, developed by Drs. Eric Schopler and Robert Reichler in the 1960s, was established as a statewide program by the North Carolina legislature in 1972 and has become a model for other programs around the world. TEACCH developed the intervention approach called “Structured TEACCHing”, an array of teaching or treatment principles and strategies based on the learning characteristics of individuals with ASD, including strengths in visual information processing and difficulties with social communication, attention and executive function. In response to this profile of strengths and challenges, Structured TEACCHing includes:

- **External organizational supports to address challenges with attention and executive function**
- **Visual and/or written information to supplement verbal communication**
- **Structured support for social communication**

Structured TEACCHing is not a curriculum, but instead is a framework to support achievement of educational and therapeutic goals. This framework includes:

- **Physical organization**
- **Individualized schedules**
- **Work (activity) systems**
- **Visual structure of materials in tasks and activities**

The goal of Structured TEACCHing is to promote meaningful engagement in activities, flexibility, independence and self-efficacy. Structured TEACCHing strategies are integrated into other evidenced-based practices.

What does TEACCH look like?

TEACCH programs are usually conducted in a classroom setting. TEACCH-based home programs are also available and are sometimes used in conjunction with a TEACCH-based classroom program. Parents work with professionals as co-therapists for their children so that TEACCH techniques can be continued in the home.

Who provides TEACCH?

TEACCH is available at the TEACCH centers in North Carolina and through TEACCH-trained psychologists, special education teachers, speech therapists and other providers in other areas of the country.

WHAT IS SOCIAL COMMUNICATION/EMOTIONAL REGULATION/TRANSACTIONAL SUPPORTS (SCERTS)?

Social Communication/Emotional Regulation/ Transactional Support (SCERTS) is an educational model developed by Barry Prizant, PhD, Amy Wetherby, PhD, Emily Rubin and Amy Laurant. SCERTS uses practices from other approaches including ABA (in the form of PRT), TEACCH, Floortime and RDI. The SCERTS Model differs most notably from the focus of “traditional” ABA by promoting child-initiated communication in everyday activities. SCERTS is most concerned with helping children with autism to achieve “Authentic Progress,” which is defined as the ability to learn and spontaneously apply functional and relevant skills in a variety of settings and with a variety of partners.

The acronym “SCERTS” refers to the focus on:

“**SC**” **Social Communication**: Development of spontaneous, functional communication, emotional expression and secure and trusting relationships with children and adults

“**ER**” **Emotional Regulation**: Development of the ability to maintain a well-regulated emotional state to cope with everyday stress and to be most available for learning and interacting

“**TS**” **Transactional Support**: Development and implementation of supports to help partners respond to the child’s needs and interests, modify and adapt the environment and provide tools to enhance learning (e.g., picture communication, written schedules, and sensory supports); specific plans are also developed to provide educational and emotional support to families and to foster teamwork among professionals.

What does a SCERTS session look like?

The SCERTS model favours having children learn with and from other children who provide good social and language models in inclusive settings, as much as possible. SCERTS is implemented using transactional supports put in place by a team, such as environmental accommodations and learning supports like schedules or visual organizers.

Who provides SCERTS?

SCERTS is usually provided in a school setting by SCERTS-trained special education teachers or speech therapists.

Treatment for Biological & Medical Conditions Associated with Autism The next section of this tool kit covers a number of what are frequently called “related services.” These services are therapies that address symptoms commonly associated with autism, but not specific to the disorder.

SPEECH-LANGUAGE THERAPY (SLT)

Most autism behavioural intensive therapy programs include speech-language therapy. With a variety of techniques, **speech-language therapy** addresses a range of challenges often faced by persons with autism. For instance, some individuals on the autism spectrum are non-verbal, while others love to talk but have difficulty using conversational speech and/or understanding the nuances of language and non-verbal cues when talking with others. Speech-language therapy is designed to coordinate the mechanics of speech with the meaning and social use of language. Such a program begins with an individual evaluation by a speech-language pathologist to assess an individual’s verbal aptitudes and challenges. From this evaluation, the pathologist sets goals that may include mastering spoken language and/or learning non-verbal communication skills such as signs or gestures. In each case, the goal is to help the person communicate in more useful and functional ways. The speech language pathologist can provide therapy one-on-one, in a small group or in a classroom setting. Therapists who work with children have additional specialized training.

One approach used in speech-language therapy is **Prompts for Restructuring Oral Muscular Phonetic Targets (PROMPT)**. PROMPT is a physical-sensory approach to therapy in which a therapist uses touch and pressure to an individual’s jaw, tongue and lips to help him or her develop motor control and the proper oral muscular movements to speak. Speech therapists need to be fully trained in order to provide PROMPT therapy.

OCCUPATIONAL THERAPY (OT)

Occupational therapy (OT) addresses a combination of cognitive, physical and motor skills. Its goals include helping a child or adult gain age-appropriate independence and participate more fully in life. For a person with autism, occupational therapy often focuses on skills for appropriate play or leisure skills, learning and self-care skills. Therapy begins with a certified occupational therapist evaluating the person’s developmental level as well as related learning styles, social abilities and environmental needs. Based on this evaluation, the therapist determines goals and selects strategies and tactics for enhancing key skills. For instance, goals may include independent dressing, feeding, grooming and use of the toilet, along with improved social, fine

motor and visual perceptual skills. Typically, occupational therapy involves half-hour to one-hour sessions with a frequency determined by the individual's needs. In addition, the person with autism practices strategies and skills – with guidance – at home and in other settings including school. OT is provided by certified occupational therapists.

SENSORY INTEGRATION (SI) THERAPY

Many children and adults with autism have challenges in processing sensory information such as movement, touch, smell, sight and sound. **Sensory integration (SI) therapy** identifies such disruptions and uses a variety of techniques that improve how the brain interprets and integrates this information. Occupational therapy often includes sensory integration. Other times it is delivered as a stand-alone therapy. Certified occupational and physical therapists provide sensory integration therapy. The therapist begins with an individual evaluation to determine a person's sensitivities. From this information, he or she plans an individualized program that matches sensory stimulation with physical movement to improve how the brain processes and organizes incoming information. As such, the therapy often includes equipment such as swings, trampolines and slides. Sensory integration therapy can allow a child or adult with sensory integration difficulties to become more "available" for learning and social interactions. Family members and teachers often find that its techniques can have calming effects, reinforce positive behaviour and help with transitions between activities.

PHYSICAL THERAPY (PT)

Many children and adults with autism have challenges with motor skills such as sitting, walking, running and jumping. **Physical therapy (PT)** focuses on problems with movement that cause real-life limitations. In particular, physical therapy can improve poor muscle tone, balance and coordination. Certified physical therapists deliver physical therapy beginning with an evaluation of a individual's physical abilities and developmental level. They then design programs of activities that target areas of challenge. Typically, therapy sessions run a half hour to an hour and include assisted movement, various forms of exercise and the use of orthopedic equipment. The needs of the child or adult receiving services should determine the frequency of these sessions.

SOCIAL SKILLS

Individuals with autism often have a great deal of difficulty with social interactions. In recent years, social skills training, in both one-on-one and peer group settings, has become a very common treatment for addressing this particular challenge. Social skills taught during training sessions range from skills like eye contact to more difficult skills like inviting a peer for a playdate. Studies have shown that this type of intervention program can significantly improve social competence and social skill development. Though social skills training is not an official or

certified form of therapy, professionals like social workers, speech therapists and psychologists often focus largely on improving social skills when supporting both children and adults with autism. In addition, parents, family members and other caregivers can be taught effective ways to help improve the social skills of their loved ones with autism both inside and outside the home on a regular basis.

PICTURE EXCHANGE COMMUNICATION SYSTEM (PECS)

Picture Exchange Communication System (PECS) is a learning system that allows children with little or no verbal ability to communicate using pictures. PECS can be used at home, in the classroom or in a variety of other settings. A therapist, teacher or parent helps the child to build a vocabulary and to articulate desires, observations or feelings by using pictures consistently. The PECS program starts by teaching the child how to exchange a picture for an object. Eventually, the individual is shown how to distinguish between pictures and symbols and use them to form sentences. Although PECS is based on visual tools, verbal reinforcement is a major component and verbal communication is encouraged. Standard PECS pictures can be purchased as a part of a manual or pictures can be gathered from photos, newspapers, magazines or other books.

AUDITORY INTEGRATION TRAINING

Auditory Integration Training (AIT), sometimes called sound therapy, is often used to treat children with difficulties in auditory processing or sound sensitivity. Treatment with AIT involves the patient listening to electronically modified music through headphones during multiple sessions. There are different methods of AIT, including the Tomatis and Berard methods. While some individuals have reported improvements in auditory processing as a result of AIT, there are no credible studies that demonstrate its effectiveness or support its use.

GLUTEN FREE, CASEIN FREE DIET (GFCF)

Much has been said about the **gluten free, casein free (GFCF) diet** and its use to help individuals with autism. Many families with children newly diagnosed with autism wonder if it's something their child should follow. The GFCF diet was first developed for people with celiac disease, a disorder that involves a severe reaction to gluten in the diet. Gluten is found in wheat products such as bread and other bakery goods but also in a wide variety of other food products. Casein is a protein most associated with dairy products and has potential to cause severe reactions in certain individuals. When used appropriately, the GFCF diet is safe and can help avoid these severe health problems. The theory behind its use in autism is that if a person is having GI responses to these products, the resulting inflammation may damage the lining of the intestine and as a result lead to absorption of molecules that are not normally absorbed by healthy

intestines. Some evidence suggests that these molecules or the inflammation they cause can interact with the brain in ways that cause problems such as anxiety, mood abnormalities, mental difficulties and perhaps worsen the behavioural symptoms of autism. That said, while the GFCF diet has been used in the autism community for a couple of decades, there is minimal evidence that it improves autism-related behaviours.

Families choosing a trial of dietary restriction should make sure their child is receiving adequate nutrition by consulting his or her pediatrician or a nutrition specialist. Dairy products are the most common source of calcium and Vitamin D for young children. Many young children depend on dairy products for a balanced, regular protein intake. Alternative sources of these nutrients require the substitution of other food and beverage products, with attention given to the nutritional content. Substitution of gluten-free products requires attention to the overall fiber and vitamin content of a child's diet. Vitamin supplements may have both benefits and side effects. Consultation with a dietician or physician is recommended for the healthy application of a GFCF diet. This may be especially true for children who are picky eaters.

CONCLUSION

Choosing a treatment path for your child may feel overwhelming. Remember to work closely with your child's treatment team and explore all of your options. Choosing a treatment path for your child may feel overwhelming. It is important to remember that just as each child with autism is different, so is each child's response to treatments. Remember to work closely with your child's treatment team and explore all of your options. Your child's team will consist of many different members. They will help you to address all areas of your child's life and assist you in making decisions about your child's treatment, education, recreation and health. It may be helpful to collect information about a therapy that you are interested in trying and speak with your pediatrician, as well as your intervention team members, in order to discuss the potential risks/benefits and establish measurable outcomes and baseline data.