Chapter 3
Neurodevelopmental Disorders

Neurodevelopmental disorders are associated with behaviours that are observed early in development and create significant impairments in the ability to achieve expected developmental milestones.

Case Example: Jason

Jason is a creative, highly intelligent 16-year-old who’s recently been diagnosed at the Manitoba Adolescent Treatment Centre (MATC) with a Generalized Anxiety Disorder. At the age of seven he was also diagnosed with Asperger’s syndrome. When the CYCP met with Jason, he told her that he had no friends at school, and that he was feeling nervous and anxious almost all the time. He said that he still really liked the academic “parts” of school, particularly his math and science courses. Jason’s mother verifies that Jason is becoming increasingly anxious in all social situations. Jason also told the CYCP that he prefers to be alone. He knows he’s different from other kids, and although that makes him feel upset, he has no interest in making friends. Jason’s anxiety is now also causing him extreme distress in exam situations and when doing homework. Because he’s entirely focused on getting good grades, he’s tending to obsess and perseverate about assignments as well. When he’s not studying, he usually spends his leisure time playing video games. There has been a referral back to MATC for a psychiatric assessment, since the level of anxiety Jason is experiencing is significantly disrupting his daily functioning.
Learning Objectives

1. Define developmental psychopathology and distinguish between the seven general categories of neurodevelopmental disorders.

2. Summarize the primary features of Autism Spectrum Disorder (ASD).

3. Summarize the psychological explanations for neurodevelopmental disorders, with an emphasis on ASD.

4. Define theory of mind and explain how it relates to ASD.

5. Explain whether inclusiveness is always the preferred approach for every young person with an ASD.

6. Describe the psychological approaches used in treating neurodevelopmental disorders.

7. Summarize interventions that CYCPs could use with children diagnosed with ASD.

Chapter Overview

In this chapter we explore the diagnoses that are among those first identified in the course of one's development. Although young children are still developing various skills and abilities, certain expectations or norms exist in relation to when a young person should begin to use language to communicate, read, and problem solve. Why do some children fail to develop certain skills and abilities? From a psychological perspective, this chapter will identify those neurodevelopmental disorders presented in the DSM-5 and summarize their major symptoms and characteristics. Psychological explanations and approaches to intervention for those diagnoses that CYCPs are most likely to encounter in their work are presented.

In the CYC sections of this chapter, we introduce the main principles of strength-based practice with children and youth affected by one of the neurodevelopmental disorders: Autism Spectrum Disorder (ASD). We present a variety of theoretical causes of the ASDs; discuss the notion of “ableism” and the principles of inclusion; and suggest ways everyone can work to reduce labelling and stigma. As well, we examine the key features of ASDs and present interventions for the Autism Spectrum Disorder umbrella that fit well with a CYC approach.

Why do we focus primarily on ASD? Although CYCPs won’t likely work exclusively with young people diagnosed with an ASD or another neurodevelopmental disorder (except ADHD), it’s important to have a solid foundational knowledge of the difficulties these children may experience. In any given youth population, CYCPs will likely be engaged with some children who are affected by neurodevelopmental difficulties, and so you’ll need to be aware of the sensory integration problems that affect many children and youth with special needs. However, given CYCPs’ limited involvement this area of practice, most of the DSM-5 categories of the neurodevelopmental disorders of children and youth are briefly introduced in the psychology section only. If this is an area of interest for you, we encourage you to explore it more fully. (ADHD, which is also categorized as a neurodevelopmental disorder in the DSM-5, is the subject of Chapter 4 and so is not discussed in this chapter.)
WHAT IS A DEVELOPMENTAL DISORDER?

From a psychological perspective, human development is associated with specific age-related changes in the physical, social-emotional, and cognitive domains. Early developmental changes lay the foundation for future developmental change. For example, learning to differentiate between basic sounds in language lays the foundation for later ability to combine these sounds into specific words with particular meanings. Accordingly, problems that arise early in development (e.g., the inability to distinguish between such basic sounds as s and z) are likely to have lasting impacts on later development (e.g., the inability to read or understand language). Developmental psychopathology is the study of how disorders emerge in the course of one's development and how they change or persist over time (Scott, 2012). The primary focus in this area of psychology is to identify the specific processes that underlie a particular behaviour pattern that creates distress or impairs functioning. For example, knowing that deficits in the ability to sustain attention and in inhibiting behaviour underlie the symptoms of ADHD allows these limitations to be addressed and altered so as to maximize functioning and future developmental changes. Thus, it’s important to keep in mind that although this group of disorders tends to occur early in one’s development, it doesn’t mean that early identification and interventions are not important.

Before moving on to a discussion of the psychological approach of developmental disorders, examine your own ideas and assumptions about one particular developmental disorder, Autism Spectrum Disorder (one form of which was previously referred to as Asperger's), in the Think About It! exercise.

Think About It! Exercise: Experiences of Autism Spectrum Disorder

My greatest fear is myself
Control is not absolute; a constant struggle to maintain
It drains my strength.
I am always tired: I never get enough sleep.
Events beyond my control happen around me:
I do things that scare me, if I’m confused or angry or tired,
I slip up and my body takes over.
Watching your life like a void is scary. It takes an
Effort of will to take control again and not just let it happen
I’m afraid of what I feel. Emotions weakens my control,
Making its grip easier to break.
When I think, I sometimes think of letting go, just
Letting it all slip away. It hurts fighting all the time.
I just want peace and rest.

—Daniel Woodhouse, a poem about living with Asperger’s (in Atwood, 1999, p. 160)

What are your thoughts after reading this poem describing the experience of living with Autism Spectrum Disorder? Can you better imagine what fears and concerns someone with this diagnosis might have? Do you think that a person like Daniel might be vulnerable to depression? When he writes “It hurts fighting all the time” and “I just want peace and rest,” what does this suggest about him, or about anyone with ASD? Might you be concerned about suicide ideation? Do you know anyone who struggles with an ASD? Does this poem change your thoughts in any way?
WHAT IS A NEURODEVELOPMENTAL DISORDER? 
THE PSYCHOLOGICAL PERSPECTIVE

Although all psychological disorders are influenced to some degree by neurological factors, the DSM-5 distinguishes those disorders that are primarily neurological in nature in the general category of **neurodevelopmental disorders** (APA, 2013). Because they’re largely neurologically based, disorders in this grouping are observed early on in the child’s development. However, the challenges associated with these disorders continue through the life course. General impairments in this category include the following:

- deficits in general mental abilities (e.g., problem solving, planning, abstract thought)
- deficits in specific areas of learning (e.g., mathematics, spelling)
- deficits in communication (e.g., difficulty producing or understanding speech)
- deficits in social communication and interaction
- deficits in motor skills (e.g., motor or vocal tics)

Similar to all disorders identified in the DSM-5, the developmental deficits associated with these disorders interfere with young people’s personal, academic, and social functioning, creating impairments in a number of different areas.

**DSM-5 Categories**

Neurodevelopmental disorders are considered together in a single chapter in the DSM-5. Let’s briefly review this general category before considering the specific symptoms of those diagnoses you’re most likely to encounter in your CYC practice.

**Neurodevelopmental Disorders**  
The DSM-5 identifies 20 distinct diagnoses in the category of neurodevelopmental disorders organized into seven general categories. Although each category consists of disorders that appear early on in development and are associated with academic, social, and other impairments in functioning, they are distinguished on the basis of the nature of the impairment. Since one of these general categories, Attention-Deficit/Hyperactivity Disorder, is discussed at length in Chapter 4, we omit it from our discussion in this chapter. Refer to Box 3.1 for an overview of the general categories and the specific diagnoses in each grouping.

**Neurodevelopmental Disorders: Diagnoses and Criteria**

As noted earlier, the DSM-5 groups the neurodevelopmental disorders into seven general categories. In the discussion that follows, we summarize the criteria for the five disorders most likely to be encountered by CYCPs in their practice.

**Intellectual Disabilities**  
**Intellectual disability (ID)** or **Intellectual Developmental Disorder** is associated with both intellectual and adaptive functioning that is below the average or expected norms for the developmental age. These deficits must be observed before the age of 18 in order for this diagnosis to be applied. The DSM-5 identifies three domains in which deficits are observed: (1) conceptual (e.g., problem solving, abstract...
When young people are diagnosed with an ID, the level of severity is specified according to the level of their adaptive functioning. Four categories of severity are identified across each of the three domains mentioned above. Specifically, severity can be identified as mild, moderate, severe, or profound. As you might imagine, then, there is great variability with respect to specific abilities for those diagnosed with this disorder, ranging from mild deficits that go unnoticed in everyday activities to profound impairments in which the individual may be unable to care for himself. It’s interesting to note that although low intelligence quotient scores are mentioned as a factor associated with this diagnosis (i.e., below 70–75 on tests where the average is 100), the primary emphasis is on level of adaptive functioning, not on scores of intelligence.

**Communication Disorders** Communication disorders are associated with deficits in speech, language, and communication. *Language Disorder*, for example, is associated
with the limited use of speech that is below what the individual can understand. **Social (Pragmatic) Communication Disorder** is associated with difficulties in the social aspects of communication and includes difficulties following the rules for social communication (e.g., taking turns in conversation, knowing that a pause in speech can be an invitation to speak further). Childhood-Onset Fluency Disorder (stuttering) is also included in this general category of neurodevelopmental disorders.

**Autism Spectrum Disorder**  
*Autism Spectrum Disorder (ASD)* is associated with early deficits in social communication and interaction that continue in the individual’s development. Impairments are observed in two general areas: (1) social communication and interaction, and (2) restricted, repetitive interests or behaviours. These symptoms must result in significant impairment in daily functioning and be observed early in development. The DSM-5 requires that the level of severity of impairment be noted in each of the two general areas noted above, with severity being defined in relation to requiring (1) support, (2) substantial support, or (3) very substantial support (APA, 2013). Note that this specification of severity replaces the earlier DSM diagnostic categories of Asperger’s Disorder (associated with relatively low levels of impairment) and *Pervasive Developmental Disorder* (associated with significant impairments), which are no longer included in DSM categorical system.

One of the most noted consequences of these deficits is the failure to establish social relationships (Wong & Kasari, 2012), which is an important developmental milestone at various ages and an indicator of mental health. Accordingly, the DSM-5 requires three additional criteria be met in order for the diagnosis of ASD to be applied: (1) deficits in social-emotional reciprocity (e.g., failure to respond to social interactions);
(2) impaired nonverbal communication (e.g., abnormalities in eye contact or body language); and (3) impaired ability to develop and maintain relationships (e.g., absence of interest in peers; APA, 2013). An impairment often noted in the context of ASD includes a deficit in joint attention, the ability to share an interest in an object with another person by pointing or looking at what another person is pointing at. A second characteristic of ASD includes repetitive and restricted patterns of behaviour or interests. For example, a child diagnosed with an ASD may spend hours arranging blocks into a single straight line.

**Specific Learning Disorders** Specific learning disorders are associated with below average performance in specific areas of learning, including, reading, writing/expression, and mathematics. As you might imagine, deficits in these areas are typically observed early on in the school years, especially given the increased expectations for performance in these areas in early educational environments. Early diagnosis of a learning disorder is important because it predicts school drop-out rates (Wagner, 1990) as well as unemployment (Shapiro & Lentz, 1991). Specific learning disorders are generally assessed using intelligence tests (which assess overall intelligence) and achievement tests (which assess abilities in specific areas such as math, writing, and reading). Specific learning disorders are diagnosed when a significant difference exists between one's overall intelligence (which is average or above average) and scores on a particular achievement test (e.g., lower than average score on a mathematics test).

**Motor Disorders** Motor disorders are associated with impairments in the development and performance of coordinated motor skills. These impairments result in clumsy, uncoordinated movements that can interfere with daily life. For example, tic disorders are associated with vocal or motor tics—sudden, recurrent, and rapid vocalizations or movements. One specific type of tic disorder, Tourette’s Disorder, is associated with both motor and vocal tics that are first observed before age 18 and are present for more than one year. By comparison, persistent (chronic) motor or vocal tic disorder is associated with either motor or vocal tics but not both.

Before turning to a discussion of neurodevelopmental disorders from a CYC perspective, test your understanding of the diagnostic categories we've discussed by trying the Test Your Understanding exercise. Can you identify the disorder that most closely matches the description of each case?

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**Test Your Understanding: Case Examples of Neurodevelopmental Disorders**

Although an IQ test reveals that seven-year-old Blaine scores slightly above his peers in general intelligence, he has continued difficulty in writing and spelling; for example, rather than writing was he writes saw. Teachers find it difficult to read his writing on his assignments and tests.

Three-year-old Crystal is unresponsive to her mother’s attempts to draw her attention to various objects, including her brother playing in the yard. While her peers are now using language to communicate, Crystal remains silent and is unresponsive to attempts to interact with others.

Six-year-old Gordon has recently started to blink his eyes repeatedly, more so than needed. Now his parents have noticed that Gordon has also begun clearing his throat over and over again and shaking his head back and forth, particularly when he’s anxious or stressed.
A CYC APPROACH TO INTELLECTUAL DISABILITY: UNDERSTANDING NEURODEVELOPMENTAL DISORDERS

An important aspect of CYCPs’ mental health literacy is a working knowledge of diagnoses within the neurodevelopmental disorders umbrella. As Kiaras Gharabaghi (2010) points out, over the past decade, CYC practice has expanded into many areas that haven’t traditionally been within our professional domain, an expansion that includes work with children with ASD—the focus of this chapter’s CYC sections.

However, unlike disability, community, and developmental services workers, CYCPs aren’t specifically trained in this area. As Gharabaghi notes, although CYCPs generally take great pride in the expansion of the CYC field, we need to recognize that additional training, education, and experience are required in order to work successfully with children affected by such neurodevelopmental disorders (Gharabaghi, 2010). CYCPs need an overall understanding of ASD, the ability to recognize ASD impairments, and the ability to use effective interventions in helping these children and their families. After all, CYCPs working in all systems, and particularly in the mental health and school systems, will undoubtedly engage with young people with behaviours related to an ASD diagnosis.

Famous people throughout history have purportedly had autism; these include Wolfgang Amadeus Mozart, Albert Einstein, Abraham Lincoln, Benjamin Franklin, Ludwig van Beethoven, and Michelangelo, just to name a few. And yet these figures may not necessarily fit within the ASD spectrum. For example, there is controversy about whether Einstein was autistic: Temple Grandin believes he was, but many others feel that he wasn’t, even though he may have been eccentric and socially different. CYCPs need to be cautious in their observations and ensure that they don’t jump to conclusions about young people who may appear different from the norm or who may act in “nerdy” or bizarre ways.

The term autism comes from the Greek word autos, meaning “self”; it refers to extreme social withdrawal, signifying an isolated self. Victor, the eighteenth-century “Wild boy of Aveyron,” was thought to be a child with autism. In the 1960s, the DSM associated autism in children with child psychosis and Schizophrenia (Kendall & Comer, 2010). By the time of the DSM-IV-T-R (APA, 2000), Asperger’s and Pervasive Developmental Disorder-Not Otherwise Specified (PDD-NOS) were identified as developmental disorders rather than as Child-Onset Schizophrenia. The term PDD-NOS diagnosis was given to children in the autism spectrum who didn’t fit into the other DSM autism categories in the DSM IV-T-R (Kutscher, 2005). The DSM-5 has now categorized all the former titles under PDD into the ASD umbrella (APA 2012).

The DSM-5’s consolidation of autism, Asperger’s, Childhood Disintegrative Disorder, and PDD-NOS into one diagnostic category called “Autism Spectrum Disorder” has been controversial. Much of the resistance has come from autistic children’s parents and caregivers, who see autism as a much more serious issue than Asperger’s. For example, children with Asperger’s may lack social skills, but children with autism are quite often unable to talk or interact with others at all. Those who support the change in the DSM-5 point out that many school programs don’t adequately accommodate children and youth with Asperger’s, and so categorizing it with autism will help address that situation; in addition, the change will help ensure insurance coverage for treatment. According to the
DSM-5 task force revision website, the change was made because (1) the previous diagnoses weren’t sufficiently precise, and (2) since autism is defined by a common set of behaviours, it should be characterized by a single name according to the severity of symptoms along a continuum (APA, 2014). Nonetheless, in this text we explain the development of both autism and Asperger’s diagnoses, given that many people are familiar with both terms and in the belief that it’s important to be aware of the history of the autism spectrum disorders.

Autism and Asperger’s were first identified by Hans Asperger and Leo Kanner, respectively, in the 1940s (Mandal, 2014). In the United States, Dr. Kanner published a paper, Autistic Disturbances of Affective Contact, in which he described the behaviour of 11 children. At the same time, Dr. Asperger was studying children in Germany who had similar characteristics to those whom Kanner was observing, except without the same severe language delays. As Kanner’s paper was written in German, it was unknown in English-speaking countries until Uta Frith translated it in 1991. Meanwhile, in 1981, British psychiatrist Lorna Wing proposed that the condition be called Asperger’s syndrome. Kanner was the first physician to specialize in child psychiatry, and his paper on autism, together with Asperger’s work, has become the foundation of our understanding of ASD today (Mandal, 2014). We noted earlier that Asperger’s differs significantly from other ASDs in its preservation of linguistic and cognitive development; consequently, it’s often referred to as a “mild” form of autism. More specifically, these two conditions are distinguished by the severity of the symptoms and the absence of language delay. Children who were previously diagnosed with Asperger’s have good language and cognitive skills, although they typically use language in “different from the norm” ways. Their speech patterns may be unusual, lack inflection, or have a rhythmic nature; their speech can also be too formal and too loud or high pitched. Children with Asperger’s often don’t understand irony and humor and can’t follow the give-and-take of a conversation. They usually want interaction with others but don’t know how. Children with more severe autism, by contrast, appear to be completely uninterested in others; they’re often uncommunicative, and have limited or no eye contact. They often can’t engage in imaginative or creative play, and may engage in ritualistic behaviours, including arm flapping and rocking (Kutscher, 2005). All children with an ASD have difficulty reading others’ facial expressions, but children with higher functioning ASD frequently also have motor skill delays, may appear clumsy or awkward, like to collect categories of things, and are proficient in knowing various categories of information. Their interests in a particular subject may border on the obsessive, and although they may have good rote memory skills, they usually have difficulty with abstract concepts. They may be referred to as “eccentric,” “strange,” or even “obnoxious” (Kutscher, 2005).

Autism is often referred to as a “puzzle” because there are so many missing pieces in our understanding of this neurodevelopmental disorder.
Neurodevelopmental Disorders

While some individuals with autism experience “mental retardation,” now known as intellectual disability, by definition a person with Asperger’s does not exhibit a “clinically significant” cognitive delay and may in fact have average to above average intelligence (“Asperger syndrome,” 2015). CYCPs are likely to work with young people with what was formerly referred to as Asperger’s syndrome. The distinct behaviours usually seen these individuals are as follows: awkward motor coordination, flat tone of voice, failure to read social signals, awkward in social small talk, excellent recall of trivial detail, extremely limited sense of humour, narrow range of interests, and an obsessive impulse to argue and split hairs. There can also be inappropriate social habits, ritualized behaviours, and creativity (Jordan, 2006). Before turning to a discussion of prevalence, development, and comorbidity, consider the details of the opening case in relation to the psychological and CYC views of anxiety disturbances in Jason’s Case: Revisited.

HOW MANY YOUNG PEOPLE STRUGGLE WITH NEURODEVELOPMENTAL DISORDERS?

All evidence indicates that that autism has changed from being a relatively rare disorder to one that’s becoming very common (Paris, 2013). The prevalence of autism has been steadily increasing for the last 40 years; some sources indicate that ASD has increased by 600 percent in the last 20 years. In Canada, as in most other countries in the Western world, ASDs are more prevalent now than ever before, currently reaching “epidemic levels” with 1 in 200 children being diagnosed, compared with 1 in 10 000 just 10 years ago. An estimated 190 000 Canadian children now have an ASD (“Autism: Making sense of a confusing world,” 2009). The preliminary results of an epidemiological study conducted at the Children’s Hospital in Montreal in 2003–04 found an even higher prevalence rate of 1 in 147. This rate is consistent with other recent studies in the United States and United Kingdom, where rates of approximately 1 per 167 have been reported. A recent Government of Canada study indicates that the reasons for this increase are difficult to pinpoint. There may have been an actual rise in the condition among young children, or it may be explained by other factors, including a broadening of the definition of autism, increased public awareness, improved symptom recognition and diagnosis, and improved survey methodology (Norris, Pare, & Starky, 2006). The increase may also be due to greater exposure to environmental toxins affecting genetic mutations. However, it’s important for CYCPs to consider that, as with other so-called disorders discussed in this text, the increased

Jason’s Case: Revisited

Reread the opening case. Given the details in the case and the current difficulties Jason is experiencing, what type of ASD diagnosis (if any) do you think the school psychologist’s assessment will indicate? Identify specific details in the case and specific symptoms for the diagnosis/diagnoses to support your answer. Where on the ASD spectrum would you place Jason? Will this diagnosis be helpful to you in your support of Jason as a CYCP? Why or why not?
prevalence might very well be attributed to increased diagnosis, not so much from better recognition by health care practitioners but rather “the pathologizing of subclinical symptoms” (Paris, 2013, p. 142).

Asperger’s syndrome has become a diagnostic fad that is being applied to all kinds of “nerdy” people. Needless to say, we have no biological markers to confirm the diagnosis. Of course, the DSM V has not hesitated to expand the boundaries of the autistic spectrum. (Paris, 2013, pp. 142–143)

According to another study (Arehart-Treichel, 2014), the prevalence of autism, Attention-Deficit Hyperactivity Disorder, Obsessive-Compulsive Disorder, and Tourette syndrome in Denmark, Finland, Sweden, and Western Australia has increased between 100 and 700 percent between 2000 and 2011. The report indicates that environmental factors, such as rising average age of parents, may contribute to the trend, but that increase in awareness is likely to be the largest factor. Better and more accurate identification of children on the spectrum and earlier diagnosis account for much of the increase, which some refer to as an epidemic of diagnosis (Arehart-Treichel, 2014).

In Canada, estimates of learning disability suggest that it’s one of the most common disabilities in children up to 14 years of age (Statistics Canada, 2001). Specific learning disorders vary in their occurrence, with Mathematics Disorder observed in 6 percent of the population (Gross-Tsur, Manor, & Shalev, 1996) and Reading Disorder (the most common) occurring in approximately 5–15 percent (Popper et al., 2003). Estimates of those with intellectual disability in Canada suggest that 2 percent of the general population is affected (including all levels of severity; Cooper & Smiley, 2012).

NEURODEVELOPMENTAL DISORDERS AND DEVELOPMENT

Although adolescence is a difficult transition for all youth, it’s obviously challenging for those with an ASD. For some with ASD, adolescence can be a time of major gains; for others it can cause deterioration in their overall behaviour and skills. Prevalence rates of deterioration in behaviours and skills at puberty have been reported to be as high as one-third to one-half of children with “low level” autism. Some adolescents with autism may engage in violent and self-injurious behaviours (Perisse et al., 2010).

One important point for CYCPs to consider is that this deterioration in behaviour may be related to the youth’s increasing awareness that he or she is different from peers. Many youth with an ASD can be unaware of their overall deficits and have a tendency to experience the cause of their difficulties as external to themselves (blaming others); they can also be generally lacking in insight about their overall functioning. In addition, it’s common for children with an ASD to approach adolescence with a history of peer rejection and bullying. Such bullying, along with a history of school difficulties like Jason’s, will invariably contribute to an overall low self-esteem and self-doubt. Children and adolescents with ASD can be aware of their deficits and are at high risk of developing depression and an increased risk of suicide ideation as a result, as we see in Daniel’s poem at the beginning of the chapter.
COMORBIDITY

Many children and adolescents with ASD have other mental health difficulties. And given these young people’s inability to communicate feelings of upset, anxiety, or distress, it can be difficult to identify depression or anxiety symptoms, particularly for those CYCPs, teachers, and/or direct caregivers who have little knowledge or understanding of ASD. Moreover, given their impairment in nonverbal expression, children and youth with ASD may not appear to be depressed. The possible consequences of an undiagnosed clinical depression can be serious: these young people could experience total withdrawal, increased obsessional behaviour, and even suicide ideation. As it can be for all youth, suicide is often seen as the only answer to ending the young person’s overwhelming emotional pain and distress (“Depression, suicide risk and autism,” 2015).

ASD can co-occur with Schizophrenia. In two large studies that have examined the co-occurrence of Childhood-Onset Schizophrenia (COS) with autism, it was found that COS is preceded by and comorbid with ASD in 30–50 percent of cases. Epidemiologic and family studies find a strong association between the two disorders. Evidence seems to suggest that risk genes and/or rare small chromosomal variants are shared by Schizophrenia and autism (Rapoport et al., 2009).

Age of onset is the key in differentiating childhood schizophrenia from autism. Children with schizophrenia have a period of relatively normal adjustment followed by the onset of the severe symptoms of schizophrenia, whereas autism is evident very early in life. Specifically, autism is usually apparent by age three whereas childhood onset schizophrenia typically appears in the seventh year of life. (Kendall & Comer, 2010, pp. 167–168)

As well, ASD is also often comorbid with ADHD; the anxiety disorders, including OCD; and sensory integration problems. There may also be cognitive delays, neurological disorders, and learning disorders; medical issues include sleep difficulties, GI problems, and other genetic disorders.

Generally speaking, children and youth with ADHD typically have the capacity to empathize with others but can rarely can inhibit their behaviour long enough to show empathy. Children on the autistic spectrum, by contrast, seem to lack empathy, and although they may also appear to have a short attention span, it’s more likely related to their difficulty interpreting situations (Kutscher, 2005). It’s important, then, for CYCPs to observe for and differentiate between the two areas of difficulty in functioning for ADHD and ASD.

It has been suggested that a significant brain-based connection exists not only between autism and ADHD, OCD, and sensory integration, but also between autism and ODD and Bipolar Disorder (Kennedy, Banks, & Grandin, 2002). Recall that information is carried across synapses by the neurotransmitters—including serotonin, dopamine, noradrenaline, and acetylcholine—and that each neurotransmitter plays a critical role in brain functioning. Recent research into gene mutations has shown that some genes fail to regulate the neurotransmitters well enough to allow the brain to maintain attention, eliminate distractions, and control impulses. Many of these gene mutations have been discovered to be cross-linked in several neurological or “brain-based” disorders, like ADHD, autism, and Bipolar Disorder. Our growing knowledge of autism may suggest that all the so-called disruptive behaviours, including ADHD, ODD, and CD, may “actually be
layers of higher functioning and very high functioning autism” (Jordan, 2006, p. 187). In fact, a significant proportion of children with severe behavioural and intellectual impairments are believed to carry mutations in key neurodevelopmental genes (Jordan, 2006). Refer to Box 3.2 to review some common myths about ASD.

**EXPLAINING NEURODEVELOPMENTAL DISORDERS: PSYCHOLOGICAL PARADIGMS**

Since neurodevelopmental disorders are associated with early deficits in cognitive and social functioning, it’s not surprising that the biological approach has been most influential in explaining these disorders. However, as for all psychological disorders, a complex interaction of biological and environmental factors are assumed to be associated with the onset of these disturbances. The best evidence for these disturbances is consistent with the biological paradigm, and so we present evidence associated with this approach in detail. The psychodynamic, cognitive, behavioural, and sociocultural factors are discussed together in the Psychological and Social Factors section below.

**Biological Paradigm** According to the biological paradigm, neurodevelopmental disorders are largely determined by genetics and damage to brain structures. But not all individuals exhibit such markers, and so identifying specific causes is challenging.

**Heredity and Genetics.** A variety of genetic conditions has been associated with intellectual disabilities. The most common of these includes Down syndrome, in which the individual has an extra 21st chromosome (i.e., three instead of the expected two). The role of genetics has also been implicated in reading disorders (Popper et al., 2003), with specific genes consistently linked to these disturbances (Cope et al., 2012; Zou et al., 2012). Genetic predisposition also appears to play a role in ASD (Ozonoff et al., 2011; Volkmar,
Klin, & Schultz, 2005), although it’s unclear which genes are responsible, and the exact way in which they influence the onset of ASD is complex (Addington & Rapoport, 2012).

**Brain Structures.** In the case of intellectual disabilities, a great number of factors that damage the developing brain have been found to cause deficits. These include prenatal factors (e.g., alcohol during pregnancy resulting in Fetal Alcohol Spectrum Disorder (FASD), a condition characterized by a range of learning disabilities; Douzgou et al., 2012), oxygen deprivation at birth, and head injuries during early development (Kaski, 2012). *Subtle brain damage* has been associated with learning disabilities, including difficulties processing specific basic sounds (phonemes) that make up a particular language. However, such damage hasn’t been observed in all individuals with a learning disability, which might explain the significant variation in types of learning difficulties (Popper et al., 2003).

In the case of ASD, abnormalities have been observed in the amygdala, the structure associated with the processing of such basic emotions as fear and anger. One theory proposes that in those with ASD the amygdala becomes enlarged early in development, which is associated with heightened fear and anxiety that may result in social withdrawal. An increased and persistent stress response stimulates the release of cortisol, a stress hormone that damages the amygdala resulting in fewer neurons in this structure as the individual develops (Lombardo, Chakrabarti, & Baron-Cohen, 2009). The high rate of comorbidity between ASD and intellectual disability further supports the role of brain damage in the onset of these disorders.

**Neurotransmitters.** The neurotransmitter oxytocin has been investigated in relation to deficits in social interaction and communication. Oxytocin has been demonstrated to play a role in enhancing positive feelings when we connect emotionally with other people as well as developing a sense of trust in others. Wermter et al. (2010) found a relationship between ASD and the genes that influence how this neurotransmitter exerts influence in the brain.

**Psychological and Social Factors** Although psychological and social variables aren’t considered the most significant factors in determining neurodevelopmental disorders, they can play a role in influencing the outcome of any one of these disorders for a particular youth. For example, outcomes for specific learning disorders have been found to be associated with various social factors, including socioeconomic status, child management practices, and school supports (Gregg, 2009). Other research suggests that early intervention for those with ASD is associated with better later language development (Wong & Kasari, 2012) and long-lasting improvements in intellectual and educational functioning (McEachin, Smith, & Lovaas, 1993). In general, then, psychological and social factors are viewed not as causes of these disorders, which are essentially genetically and/or neurobiologically determined, but rather as affecting the level of functioning.

**A CYC LENS ON THE PSYCHOLOGICAL PARADIGMS: A HOLISTIC CONCEPTUAL MODEL**

In the 1940s, researchers and clinicians believed that autism was caused by poor parenting and the lack of attachment skills of the mother. The idea was that these “refrigerator mothers,” as they were called, didn’t really want their children and thus did not bond with them. This theory has long since been dismissed, but the stigma associated with it has
persisted. CYCPs must recognize, then, that autism is a biological, brain-based disorder that is in no way caused by family dysfunction or inadequate parenting.

In a holistic conceptual model, we examine the interplay between all possible theories of cause (or etiology) in all systems. Although it’s still not known what causes the brain differences in people with ASD, researchers believe that both genetics and environment play a significant role (Centers for Disease Control and Prevention, 2015a). Autism tends to run in families. Among identical twins, if one twin has autism, the other is up to 90 percent likely to be affected as well. In addition, parents who have one child with ASD have a 2–10 percent chance of having a second child who is also affected. It’s been suggested that ASD might result from a disruption in early fetal brain development caused by defects or mutations in genes that control brain growth and regulate how brain cells communicate with each other, but that this may result from the influence of environmental factors (like toxins) on gene function (National Institute of Neurological Disorders and Stroke, 2014).

Another U.S. study found that “if it were possible to eliminate the many different reasons children are born too early, too small, and/or delivered by Cesarean, the number of children with ASD would be reduced by 12–13%” (Schieve et al., 2014, p. 1). And in a University of Missouri study, Dr. Judith Miles (2011) discovered that the children with autism seen in her clinic fell into two discrete groups: two-thirds physically resembled their families and one-third did not. The first group, which she referred to as having “essential autism,” tended to have fewer language and social disabilities and higher intelligence test scores, and were more likely to have siblings or other relatives with autism. The second group, referred to as having “complex autism,” had “dysmorphic features,” including smaller head size, oddly spaced teeth, and unusually placed ears. These children were more likely to have epilepsy and to exhibit the more severe behaviors associated with autism, such as autism and self-injury. These findings appear to differentiate between genetic and environmental causes of ASD, with the latter including in-utero exposure to such toxins as drugs, alcohol, or infections or disease (Miles, 2011). There is some evidence suggesting that ASD’s etiology involves fever infections in the pregnant mother or young child. Most infections result in fever that is routinely controlled with aspirin or acetaminophen. The blocking of fever inhibits processes that have evolved over millions of years and that protect against microbial attack. Immune mechanisms in the central nervous system are part of this protective process. It has been thus theorized that fever suppression using aspirin or NSAIDs could cause autism (Torres, 2003).

With the dramatic rise in ASD prevalence over recent years, many other environmental toxins, including mercury, lead, pesticides, automobile exhaust, and flame retardants, have been suggested as causes of autism. Certain geographic areas and parental occupational statuses have also been associated with higher ASD rates. Such links have similarly been suggested in dramatic increases in other childhood diseases, including asthma and child cancers. There has also been a widespread fear that vaccines—particularly the measles-mumps-rubella (MMR) vaccine with its mercury-containing thimerosal—cause autism, although no scientific evidence supports this theory. That the introduction of the MMR vaccine was not followed by a surge in ASD diagnoses is just one of the epidemiological findings that have disproved the vaccine theory. According to Canada’s National Advisory Committee on Immunization, Health Canada affirms that there is no legitimate safety reason for parents to avoid
thimerosal-containing vaccines. Nonetheless, few vaccines available in Canada now contain this chemical (Norris, 2006). Recent research has examined the role of nutrition, digestive problems, and sensitivities to certain foods as factors that may contribute to autistic behaviour in children. Results indicate that children with autism may be unable to digest two kinds of protein: gluten, found in grains like wheat, barley, and oats; and casein, found in dairy products. Further aggravating the problem is the fact that these same foods tend to be craved by children with ASD. Eliminating or restricting the presence of these proteins in the diet of children with ASD has been found to improve their behaviour (Norris, 2006). In addition, scientists have noted that some children with ASD have excessive amounts of the yeast *Candida albicans* in their intestinal tract. As the yeast grows, it releases toxins into the bloodstream and it is theorized that these toxins may contribute to autistic behaviours. These observations are consistent with the other digestive abnormalities seen in children with autism and may be related to poor intestinal absorption of some nutrients.

Theories of biological causes are supported by the association of both physical and neurological disorders with autism. It is also suggested that some children's developing brains are more “fragile” than others and hence more vulnerable to exposure to environmental toxins (Peeples, 2012).

Bruce Perry and Maia Szalavitz propose an *intense world theory* to explain autism. Researchers are beginning to discover that although “difficulties with empathy are clearly involved, not all aspects of empathy are equally impaired and some may actually be enhanced” (Szalavitz & Perry, 2010, p. 73). A device (similar to a lie detector) that measures changes in skin temperature may communicate these children's emotional discomfort and signal an impending tantrum. The success of this device is evidence of the increasing understanding of autism as a combination of emotion, stress, and sensory dysfunction in brain development, and may explain that the social deficits seen in a child with ASD could be secondary to heightened fear and sensory issues.

This would mean that something similar to the cause of social problems in neglected children is responsible for those problems in autistic children: extreme patterns of stress response system activation and a lack of appropriate stimulation at the right time. Being constantly bombarded with too much information in itself is stressful; autistic children might act like traumatized children, because for them normal experiences can be so overwhelming as to be traumatic. (Szalavitz & Perry, 2010, p. 87)

The *intense world theory* suggests that the brains of children with an ASD may fail to receive the social input required for the development of social skills not because the brain's social areas are damaged but because of sensory (and consequently emotional) overload. An approach known as *sensory integration intervention*, for example, would therefore aim to mitigate the source of this sensory distress. The authors conclude that if this theory is borne out, stories of children with ASD will “have extra relevance to everyone . . . so do the stories of neglect. The social brain needs social experience to function; like a muscle, it won’t grow if you don’t use it” (Szalavitz & Perry, 2010, p. 95).

In summary, whereas we know that ASD is a developmental disability caused by differences in the brain, we still don’t know exactly what causes these differences for all children who develop an ASD. There appear to be multiple causes of ASD, although most of them are not yet known.
Autistic Spectrum Disorders. By about age four, children begin to understand that other people have thoughts and feelings just as they do. The theory of mind (TOM) refers to our capacity to recognize these in other people by creating a picture of our own thoughts and feelings; we can then predict some of their behaviours and anticipate a response. Since what goes on in other people’s minds isn’t visible to us, such predictions remain a “theory” we create for ourselves. TOM is also sometimes referred to as the ability to “mind read,” not to be confused with the cognitive distortion of mind reading (Attwood, 1999).

Youth with ASD seem to have great difficulty conceptualizing and appreciating the feelings and thoughts of others (Attwood, 1999). And because they’re unable to link others’ observed behaviour with their inner feelings, these children can neither understand nor predict others’ behaviour. This means that they’re unable (not unwilling) to have empathy for others. The absence of TOM is thus the root of most difficulties people with ASD experience in their communication and social interaction.

The ability to interpret nonverbal cues and correctly identify others’ emotions obviously helps children communicate effectively. If children can’t sense their listeners’ level of interest or interpret their body language, they won’t know, for example, that their long monologues are boring to others. Similarly, the rude remarks individuals with high-functioning autism or Asperger’s are known to make result from the inability to anticipate how their comments might offend or hurt other people. This absence of theory of mind is known as mind blindness (Attwood, 1999). Among the methods clinicians and researchers use to establish the presence of theory of mind in children is the “Sally Anne” test developed by Professor Uta Frith (Baron-Cohen, Leslie, & Frith, 1985).

While the Sally Anne test might be assessing mind blindness, we are curious as to why mind blindness has become such an essential part of describing autism. Over the course of our lives, we have encountered many people without autism who live their lives without empathy for other people and their communities. Though the Sally Anne test sounds pretty simple and straightforward, autism is more complex. (Laursen & Yazdgerdi, 2012, p. 46)

Some suggest that children with Asperger’s may be able to intellectualize or imagine what a person is thinking or feeling but can’t emotionally recognize what to do in response. This inability to see the relevance of applying knowledge to a particular situation or problem is known as the lack of a central drive for coherence (Attwood, 1999). For example, after children with Asperger’s take the favourite toy of another child and are asked how they think the other child felt, they can give the correct answer—but apparently the thought wasn’t in their mind at the moment they took the toy (Attwood, 1999). Obviously it can be very difficult to make sense of situations or interact socially when you “can’t see the forest for the trees,” which is sometimes referred to as living in a fragmented world. Although children and youth with ASD or Asperger’s may also perform poorly on tasks that demand the processing of details into a meaningful whole, their performance on tasks that demand processing of details can also be exceptional (Attwood, 1999). It is theorized that people with ASD have difficulties with the brain’s executive functioning, as do those with ADHD, FASD, ODD, and schizophrenia. Executive functioning of the brain refers to those higher order thought processes that are necessary to guide our behaviour; these processes include planning, working memory, mental flexibility, response initiation, response inhibition, and impulse control. Neuropsychological studies originally
Neurodevelopmental Disorders
showed that executive functioning took place in the pre-frontal cortex; however, more recent neuroimaging studies have shown that executive functioning is associated with many different regions of the frontal lobes (Robinson et al., 2009).

Difficulties with executive function can be manifested in many different ways. Some children pay attention to minor details and fail to see how these details fit into a bigger picture while others have difficulty with abstract and complex thinking, maintaining attention, or organizing their thoughts and actions. Executive functioning difficulties can also be associated with poor impulse control and the failure to consider the consequences of their actions. In the words of Temple Grandin, “I cannot hold one piece of information in my mind while I manipulate the next step in the sequence” (Grandin, 2010).

Eighteen-year-old Sarah was reported to the Crisis Stabilization authorities after she was seen wandering the streets late at night. Sarah was talking to herself and appeared very distraught. The crisis team escorted Sarah to a homeless shelter, where, upon intake, her parents were contacted and arrived soon after. In the intake interview, her parents indicated that Sarah had been having a great deal of difficulty with her anger over the last two months, and had been running away from home frequently. They reported that since early childhood Sarah had had very few friends, poor school achievement, and extreme defiance toward teachers. Sarah had recently refused to attend school entirely. Her parents indicated that Sarah was now often violent at home, hitting and spitting at her mother. Since childhood, Sarah has been fascinated with china dolls and now had an extensive collection that she played with daily. Her parents reported that Sarah can remember the telephone numbers of everyone she’s ever known. She can also memorize car licence plates immediately. Sarah told the shelter’s intake worker that for the past two months she’s been hearing “mean,” commanding voices telling her to hit people (these are known as auditory hallucinations). She was referred to a psychiatrist, and a diagnosis of ASD with psychosis was made. The brief-treatment team will work with Sarah and her parents with a plan for outpatient family support and daily group programming at the Child and Adolescent psychiatric community-based centre.

Describe how Sarah’s symptoms/diagnosis might be explained and treated from each of the following paradigms: biological, behavioural, cognitive, sociocultural, and holistic. For each paradigm, what additional information about Sarah’s situation and history would you need to know more about?

WHERE DO YOU STAND?

As you can see, the psychological and CYC perspectives are similar in their approaches to neurodevelopmental disorders. Intense world theory, theory of mind, and executive functioning theories are consistent with both the CYC and psychological paradigms. After considering the explanations for ASD from these perspectives, try the Take Action! exercise and apply your knowledge of these explanations for neurodevelopmental deficits to Sarah’s case. Where do you stand when it comes to the explanations for neurodevelopmental disorders? How do you think genetics and environment might interact to cause ASD? Would this be the case for Sarah?

Take Action! Exercise: Sarah’s Case

Eighteen-year-old Sarah was reported to the Crisis Stabilization authorities after she was seen wandering the streets late at night. Sarah was talking to herself and appeared very distraught. The crisis team escorted Sarah to a homeless shelter, where, upon intake, her parents were contacted and arrived soon after. In the intake interview, her parents indicated that Sarah had been having a great deal of difficulty with her anger over the last two months, and had been running away from home frequently. They reported that since early childhood Sarah had had very few friends, poor school achievement, and extreme defiance toward teachers. Sarah had recently refused to attend school entirely. Her parents indicated that Sarah was now often violent at home, hitting and spitting at her mother. Since childhood, Sarah has been fascinated with china dolls and now had an extensive collection that she played with daily. Her parents reported that Sarah can remember the telephone numbers of everyone she’s ever known. She can also memorize car licence plates immediately. Sarah told the shelter’s intake worker that for the past two months she’s been hearing “mean,” commanding voices telling her to hit people (these are known as auditory hallucinations). She was referred to a psychiatrist, and a diagnosis of ASD with psychosis was made. The brief-treatment team will work with Sarah and her parents with a plan for outpatient family support and daily group programming at the Child and Adolescent psychiatric community-based centre.

Describe how Sarah’s symptoms/diagnosis might be explained and treated from each of the following paradigms: biological, behavioural, cognitive, sociocultural, and holistic. For each paradigm, what additional information about Sarah’s situation and history would you need to know more about?
HELPING CHILDREN AND ADOLESCENTS WITH NEURODEVELOPMENTAL DISORDERS

Jason’s Case: Revisited

The CYCP who’s working with Jason in the classroom reports that, as a coping mechanism, he’ll often leave the room (or any other anxiety-provoking situation); he also tries to use the positive self-talk she’s taught him. However, these techniques are no longer helping him. Jason now stutters when he’s anxious; he’s been tapping his fingers on the desk constantly; and now he’s also blurting out inappropriate and offensive statements to his peers and teacher. When questioned after the fact, Jason says that he doesn’t know why he says certain things. He says he’s becoming increasingly frustrated by his constant anxiety, and hopes that the CYCP can help him learn ways to manage it. Jason wants to graduate and go to university to study physics. He’s motivated to learn ways to manage his anxiety; if he’s not able to overcome it, he says, he’s afraid that he’ll be unable to reach his education and life goals.

Psychological Approaches to Treatment

From a psychological approach, specific interventions are aimed at maximizing functioning despite early onset deficits in cognitive and social functioning. Here we consider some of the most studied and most typically utilized approaches to intervention.

Biological Paradigm Medical treatments do not help address the core symptoms that create impairment in neurodevelopmental disorders. Although some medications (e.g., antidepressants, antipsychotics) may help reduce specific symptoms of agitation and anxiety (Volkmar et al., 2009), they are not a cure by any means; Bryson, Rogers, and Fombonne (2003) argue that they should not be used to replace other forms of intervention and support. Medications for neurodevelopmental disorders are most often applied in cases of ADHD. As we discuss in Chapter 4, stimulant medications like Ritalin can be helpful in improving attention and decreasing impulsivity.

Psychological and Social Interventions Various educational strategies are used in the treatment of specific learning disorders. Emphasis is placed on direct, intensive instruction in the area of specific deficit (e.g., reading, writing, mathematics). In the case of ASD, behavioural approaches that emphasize the use of reinforcements in the development of specific skills have shown some success and are based on the assumption that those diagnosed with ASD can learn skills despite their cognitive and social impairments (Ferster, 1961; Lovaas, 1977). Social communication skills such as making requests and playing with others have been found to be increased through the use of specific reinforcements (e.g., being able to play with a toy that the child is interested in; Goldstein, 2002). The development of joint attention skills has also been found to benefit from behavioural interventions targeting social interaction early in development (Lawton & Kasari, 2012). Family interventions include parental education and supports for assistance in managing stressors associated with caring for a child diagnosed with ASD. Similar approaches targeting the development of specific skills are also utilized in the case of intellectual disability, and include communication training as well as specific skill development (e.g., Sigafos, Arthur-Kelly, & Butterfield, 2006). Specific behavioural approaches are discussed at length below.
CYC Approaches for Youth Struggling with ASD

Given the varying degrees of symptom severity on the ASD continuum, the overall needs of children and youth with an ASD, although sometimes similar, can also be very different. As we stress throughout this text, since the DSM-5 diagnosis cannot identify children’s strengths, capabilities, or needs, we must ensure that our interventions are individualized and tailored to each child’s unique characteristics. An overall understanding of the neurological disorders and a good knowledge of the ASDs will assist CYCPs when planning individualized CYC intervention strategies and treatment approaches.

**Strength-Based Relational CYC Practice**

A core foundational CYC value is to respect and advocate for the dignity and rights of all children, youth, and families regardless of race, gender, class, sexuality, ability, and so on. This includes children and youth with mental and physical developmental disabilities. The term *ableism* refers to the predominant belief in our society that physically and mentally able individuals are normal and that developmentally disabled persons are somehow abnormal; it also refers to the resulting discrimination or prejudice against those with any disability, including an ASD. In the ableist worldview, people who have disabilities must either strive to become the norm or keep their distance from able-bodied people. A disability is considered an inherently bad thing that must be overcome—an error or a failing rather than a consequence of human diversity akin to race, gender, or sexual orientation. Another type of ableism is the perception of mental illness or developmental disability as a tragedy, whereby developmentally disabled individuals are viewed with pity (Hehir, 2007). “An ableist perspective asserts that it is preferable for a child to read print rather than Braille, walk rather than use a wheelchair, spell independently rather than use a spell-checker, read written text rather than listen to a book on tape, and hang out with nondisabled kids rather than with other disabled kids” (Hehir, 2007, p. 8).

CYCPs should also be aware of the term *neurotypical*, which is used in the literature to refer to those who do not have an ASD. To combat ableism in your CYC practice, first recognize and discourage the use of all disrespectful language; don’t use it yourself, and challenge others around you if they use such words as *retarded, lame, idiot, cripple, insane, and crazy*. Second, embrace the principle of inclusiveness for all children and youth with physical and mental disabilities. Finally, be willing to advocate for young people with disabilities and have the courage to challenge those who are disrespectful toward them (Hehir, 2007).

Inclusiveness in education is a fundamental human right of children and youth with an ASD; however, may not be the best option for every child, every time. It may not prioritize the needs of the individual child or be able to provide the specialized education required, especially for those children with the most severe language and behaviour disorders. Not all teachers, educational assistants, or CYCPs will have the specific training or experience required for work with autistic children and youth. Moreover, children with autism are sometimes bullied in mainstream classrooms, and their needs may not be met amid the overall demands of the classroom upon the teacher (Harchik, 2014).

One of the most concerning negative consequences of inclusiveness is that children with ASDs may be targeted by other children in the mainstream classroom. Children and youth diagnosed with autism need to feel a sense of belonging, just as all young people do. These youth have the same joys and struggles as their “neurotypical” peers, even though they may lack the social skills to navigate their environment in the same way. Accordingly, support, caring relationships, and guidance from others are necessary. In a more specialized...
setting, children with an ASD are more likely to be safer from bullying and to receive from adults the special attention they need. These needs were well expressed by Norman, who, diagnosed with autism at an early age, said that for his entire life he'd searched for a sense of belonging, for friends his own age, for a club or any type of community in which he could just be himself and feel safe and at home. Norman found that these needs were met best in a program where all the young people had ASD (Laursen & Yazdgerdi, 2012).

Assessment

A number of rating scales are available to assist parents, professionals, and caregivers in identifying children who may have an ASD. (Keep in mind, however, that a thorough developmental assessment needs to be conducted by a medical practitioner or other clinician to confirm a diagnosis.) Online development assessment tools may be administered by teachers, CYCPs, and community service providers, and some can be used by parents and caregivers as well. These tools include the following (Autism Canada Foundation, 2011):

- The Ages and Stages Questionnaires (ASQ)
- The Communication and Symbolic Behavior Scales (CSBS)
- The Parent's Evaluation of Development Status (PEDS)
- The Modified Checklist for Autism in Toddlers (M-CHAT)
- A Screening Tool for Autism in Toddlers and Young Children (STAT)

Indicators to Recognize  All ASDs are characterized by social-interaction difficulties, communication challenges, and a tendency to engage in repetitive behaviours. However, as we’ve seen, symptoms and their severity vary widely across these three core areas. Symptoms may represent relatively mild challenges for those at the high-functioning end of the spectrum, and for others they may be more severe, as when repetitive behaviours and lack of spoken language interfere with everyday life. Thus, it is critical to observe symptoms and assess their impact on the child’s day-to-day functioning and development. Figure 3.1 illustrates the differences in symptom occurrence associated with ASD and those forms of ASD previously known as Asperger’s. (Recall that PDD-NOS stands for Pervasive Developmental Disorder-Not Otherwise Specified.)

Figure 3.1 Symptom Overlap in Autism Spectrum Disorder

Despite their common symptoms, there are significant differences in symptom occurrence associated with ASD (autism) and those forms of ASD previously referred to as Asperger’s.

Source: Capaldi, n.d.
During CYCPs’ observation and assessment processes, it’s also critical to keep in mind that children with an ASD commonly internalize their thoughts and feelings by retreating into fantasy. They may develop a complex imaginary world with imaginary friends. Whereas this type of escape can be an adaptive strength in childhood, when it occurs in adolescence or early adulthood it may lead to a pattern of escape and social withdrawal that can become a serious concern (Attwood, 1999).

Alternatively, young people with ASD can externalize their thoughts and feelings, blaming and denying any responsibility for problems with others. This can often lead to anger, arrogance, retaliation, and even attacking others with physical violence (Kutscher, 2005). They may also be victim of retaliation from others who were attacked.

Another, more constructive way for young people with ASD to externalize their thoughts and feelings is to imitate the ways of their socially successful peers. To reinforce this behaviour, CYCPs can recognize and praise these efforts.

The child learns to act in social situations by becoming another child. Some children with Asperger's can be remarkably astute in their observation abilities, copying gestures, tone of voice, and mannerisms. This can be a constructive way of achieving social inclusion if the child mimics an appropriate role model. Unfortunately, some adolescents with Asperger's syndrome may imitate socially popular but notoriously bad guys at school. (Kutscher, 2005, p. 107)

CYCPs must consider and assess any environmental factors that may trigger challenging behaviours. Parents, teachers, CYCPs, or other caregivers may inadvertently reinforce ongoing difficult or maladaptive behaviours. In some instances, a mismatch between the classroom educational or behavioural expectations and the cognitive ability of the child to respond appropriately may be entirely responsible for the child’s disruptive behaviours. Functional analysis of behaviour (ABA) completed by a behaviour specialist or CYCP in the setting in which the problems occur will identify factors in the environment that exacerbate or maintain the problematic behaviour.

CYCPs must also be aware of signs that may indicate the child is affected by Tourette's or sensory difficulties. Tourette syndrome signs are divided into three categories. Motor signs are characterized by repetitive involuntary movements or tics, including eye blinking, facial twitches, and arm and leg jerking. Vocal signs include repeated throat clearing, grunting, barking, or shrieking. Palilalia is the repetition of one’s own words, and echolalia is the repetition of another’s words. (CYCP: “Jason, can you point to your shoe?” Jason: “Can you point to your shoe?” CYCP: “Jason, use your finger and point like this to your shoe.” Jason: “Point like this to your shoe” (Kendall & Comer, 2010).

Behavioural signs include obsessive and/or compulsive behaviours such as continuous checking, closing and opening a door, and making and unmaking the bed. Sometimes a youth might develop a compulsion to commit an inappropriate sexual gesture or to shout obscenities in public (Artwood, 1999). In catatonia, a youth demonstrates an absence of speech (mutism), absence of movement (akinesia), and maintenance of imposed postures (catalepsy). A diagnosis of catatonia is given when these behaviours seriously interfere with daily functioning. Other abnormalities of behaviour that can be seen in catatonia are a reversal of day and night; tremors, eye rolling, dystonia, an odd stiff posture, freezing in postures, etc.; excitement and agitation; and repetitive, ritualistic behaviour (Wing & Shah, 2000).
Sensory Difficulties. Sensory processing, also called sensory integration (SI), refers to the way the nervous system receives messages from the senses and turns them into appropriate motor and behavioural responses. Whether you’re reading a book or eating a salad, successful completion of the activity requires that your brain process and integrate the sensations. Sensory Processing Disorder (SPD), also known as sensory integration dysfunction, occurs when sensory signals don’t get organized properly into the appropriate responses. (Controversially, the DSM-5 doesn’t list SPD; one of the arguments against its inclusion was that it more properly belongs with ADHD or ASD.) SPD is like a traffic jam in which certain parts of the brain don’t receive the information they need to correctly interpret sensory information. If sensory difficulties aren’t recognized or treated effectively, motor clumsiness, behavioural problems, anxiety, depression, school failure, and other impacts may result (“About SPD,” 2015).

SPD can affect children and youth in only one of their senses (e.g., the sense of touch) or in multiple senses. Children with autism can be oversensitive (hypersensitive) or undersensitive (hypo-sensitive) in any or all of the senses. About 40 percent of children with ASD are extremely sensitive to sound and touch and yet often have very low levels of pain. For some, the mere anticipation of a sensory experience can lead to extreme anxiety or a panic attack. One youth with SPD may over-respond to many physical sensations, finding clothing, physical contact, light, sound, food, or any other sensory input to be extremely unpleasant or even unbearable. Another youth might under-respond and show little or no reaction to stimulation, including pain or extreme hot and cold, which can, of course, be dangerous. In some children the sensory processing of messages from the muscles and joints is affected; their posture and motor skills could be affected in turn. Other children and youth may have a need for overstimulation and an appetite for sensation that’s in perpetual overdrive. These children are frequently misdiagnosed, and consequently inappropriately medicated, for ADHD (“About SPD,” 2015).

Here is a brief review of the most commonly seen forms of sensory integration dysfunctions.

Sensitivity to sound: For children with SPD, there are three main types of sounds that can cause extreme discomfort: sudden, unexpected noises (dog barking, phone ringing); high-pitched, continuous noises (lawnmower, electric mixer); and complex or multiple sounds (shopping centres or school hallways). Children with extreme sensitivity to sound will also be distracted or disturbed by low modulating background noise, such as an air conditioner or the hum of a fan. These children’s experience of these sounds is analogous to the way most of us would react to the sound of fingernails scraping down a blackboard (Attwood, 1999). Listening to music several times a day can significantly reduce a child’s problematic responses to sound (Attwood, 1999).

Sensitivity to touch: For most children with ASD the common forms of touch used in social greetings or gestures of affection are perceived as overwhelming. There can be an extreme sensitivity to a single touch or to the touching of certain parts of the body. Temple Grandin describes her acute tactile sensitivity: “As a baby, I resisted being touched and when I became a little older I can remember stiffening, flinching and pulling away from relatives when they hugged me” (Grandin, 1984, p. 155). Some children hate handling certain textures, such as fingerpaints or playdough, and many
types of clothing items can cause distress. Grandin (1984) found that deep pressure, squeezing, rubbing, and staying in small spaces helped her with her tactile sensitivity.

**Sensitivity to taste and texture of food**: Some young children with ASD or Asperger’s seem extremely fussy in their choice of food. This is not a behavioural problem in which the child is being deliberately defiant, but rather a physiological reaction and a real consequence of SPD.

**Visual sensitivity**: This can include a sensitivity to colours and to illumination as well as distortion of visual perception. Some children with ASD report being “blinded by brightness.”

**Sensitivity to smell**: Some people with Asperger’s find that specific strong smells can be overpowering. Cologne, perfume, and household cleaning items can be perceived as extremely offensive and should be avoided.

**Lack of sensitivity to pain**: Children with autism or Asperger’s may not show a response to the levels of pain that others would consider unbearable. The consequences can be dangerous, as they may not learn to avoid some actions. If a child with ASD shows minimal response to pain, caregivers must be extremely vigilant for any signs of an infection, burn, or illness (Attwood, 1999).

**Synaesthesia**: In this rare condition, an individual receives a sensation in one sensory system but experiences it in another modality. Synaesthesia comes from the Greek words syn (together) and aesthesis (perception). People with synaesthesia might experience colours or tastes when they read words or hear sounds; others may experience any combination of tastes, smells, shapes, colours, or touches. People are generally born with synaesthesia, and it runs in families. This condition isn’t specific to those with Asperger’s (Attwood, 1999), but it’s important to recognize that it could be present.

See Table 3.1 for a checklist of behaviours that characterize ASD.

### Intervention

Given the risk that significant developmental delays will compound over time, early intervention is critical for children with ASD. Such interventions are designed to minimize developmental delays and maximize the children’s chances of reaching “normal” milestones.

For CYCPs in the classroom setting, features common to most good intervention programs for children include the following: (1) selecting or developing curriculum that emphasizes selective attention, imitation, language, play, and social skills; (2) caring and highly supportive teaching environments; (3) predictability and routine; (4) a functional approach to problem behaviours; (5) a long-term educational plan to prepare for transitioning classroom placements; and (6) parental involvement in educational planning and treatment (Kutscher, 2005). Most of these can be applied to other settings as general principles to guide interventions.

**Behavioural and Cognitive-Behavioural Techniques for CYCPs** Cognitive behavioural therapy is not recommended for children with ASD, since the application of learned skills to the real world following this therapy has been problematic. However, many other types of behavioural interventions can be successfully used with
Table 3.1: Behavioural Indicators Checklist: Autism Spectrum Disorders

- Speech patterns may be unusual, lack inflection, or have a rhythmic nature.
- Speech can be formal and too loud or high pitched.
- Often do not understand irony and humour.
- Desire interaction, but don’t know how to engage.
- Uninterested in others: uncommunicative, limited eye contact, no language.
- Difficulty with imaginative or creative play.
- May engage in ritualistic behaviours including arm flapping and/or rocking.
- Difficulty reading others’ facial expressions.
- Frequently have motor skill delays; may appear clumsy or awkward.
- Frequently like to collect categories of things.
- May be proficient in knowing various categories of information.
- Obsessive; good rote-memory skills.
- Difficulty with abstract concepts.
- Usually has a flat tone of voice.
- Narrow range of interests.
- Often has an obsessive impulse to argue and split hairs.
- “Refreshing” honesty.
- Tantrums.
- Often have sensory difficulties.
- Can have obsessive and/or compulsive behaviours.
- Can demonstrate inappropriate sexual gestures or shouting obscenities in public.
- Can show catatonia: an absence of speech (mutism), absence of movement (akinesia), imposed postures (catalepsy).

Children with ASD; most are “prescribed,” and therefore CYCPs can readily employ them in a classroom or home setting.

The most successful, empirically supported approaches to treating children with ASD are based on behavioural theory (Steele, Elkin, & Roberts, 2008); among the most effective of these is applied behaviour analysis (ABA). ABA, formerly known as “behaviour modification,” is the process of observing children’s behaviour so as to develop an intervention plan. It’s most frequently used as a behaviour management tool, but can be also used to teach social, motor, and verbal behaviours and to manage challenging and/or self-harm behaviours (Steele, Elkin, & Roberts, 2008).

While ABA is most often used in a classroom environment, CYCPs can use informal behaviour analysis in many settings to help in assessment and in understanding a child’s behaviour. ABA is particularly helpful in teaching desired behaviours. Because children with ASD don’t naturally pick up these behaviours on their own, ABA combines behavioural observation with positive reinforcement or prompting at each step of a desired new
behaviour. The aim is to use the least intrusive prompts possible while still leading to the desired response. Prompts can include verbal cues, visual cues, and demonstration.

ABA involves intensive training of ABA therapists, extensive time for the child spent in ABA therapy (20–40 hours per week), and weekly supervision by experienced clinical supervisors known as “certified behaviour analysts” (Steele, Elkins, & Roberts, 2008). CYCPs, although uncertified in ABA, can use its principles in a variety of ways; for example, recording direct observations, conducting a functional analysis of the relationship between the triggers or cues in the environment and the undesirable behaviour, and helping to teach and encourage the desired response from the child.

In teaching new behaviours, the first step in ABA is to analyze the behaviour using the **ABC model**. A refers to **antecedent**: the directive or request for the child to perform an action. B refers to **behaviour**: the child’s successful performance of the task, or noncompliance, or non-response. C refers to the **consequence**: the therapist’s reaction, ranging from strong positive reinforcement (a reward, such as a special treat; verbal praise) to strong (depending on the riskiness of the behaviour) negative response, “No!”

**The Role of Medication** Psychotropic medications are almost always used to manage the difficult, disruptive, or troublesome behaviours that accompany an ASD. These include aggression, self-injurious behaviour, repetitive behaviors (e.g., perseveration, obsessions, compulsions, and stereotypic movements), sleep disturbance, mood lability, irritability, anxiety, hyperactivity, inattention, and destructive behaviours.

However, there are no medications that directly treat the social and language impairments seen in individuals with ASD. The medications used most frequently for children and adults with ASD include antipsychotics (e.g., risperidone), selective serotonin reuptake inhibitors (SSRIs) to treat mood and repetitive behaviors, and stimulants and other medications used to treat attention deficits and hyperactivity. *The evidence base is good for using atypical antipsychotics (e.g., risperidone and aripiprazole) to treat challenging and repetitive behaviors, but there are also significant side effects associated with the use of these drugs* [italics ours]. (Lindgren & Doobay, 2011, p. 15)

Surveys indicate that approximately 45 percent of children and adolescents and up to 75 percent of adults diagnosed with ASDs will be treated with psychotropic medication. When medications are used for behaviour management with children with ASD, all potential benefits and adverse effects should be explained, informed consent should be obtained, baseline data regarding behaviours and somatic complaints should be collected, and potential strategies for dealing with treatment failure should be planned (Myers & Johnson, 2007). The suggestions by Gerry Fewster cited in Chapter 1 (p. xx) will also assist you in this area.

**Psychoeducation and Individual Counselling** Psychoeducation in the form of social skills intervention, whether individually or in a small groups, is very successful with children and youth with ASD. This method builds social interaction skills; for example, how to initiate and maintain a conversation. Most social skill group meetings include instruction, role-playing or practice, and feedback. In this way learners with ASD acquire and practise skills that will promote positive social interactions with peers.

One strength-based intervention technique, called the power-card strategy, focuses on a child’s special interest so as to motivate improvement in behaviour and social skills.
Most children with ASD have a keen special interest. The power-card strategy is especially beneficial, then, as it takes into account the unique characteristics of children and youth with autism. The strategy begins with a brief scenario or character sketch describing how the hero solves a problem; then the power card recounts how the child can use the same strategy to solve a similar problem. For example, whether at home or at school, whenever nine-year-old Nancy loses a game, she has a tantrum; the following card addresses the behaviour.

The Power-Puff Girls like to play games. Sometimes they win the game. When they win games the Power Puff Girls feel happy. They might smile, give each other a high five or say “yea!” But sometimes they lose the game. When they lose games the Power-Puff Girls might not feel happy. They might take a deep breath, say “good job” to their friend or say, “maybe next time.” The Power-Puff Girls want everyone to have fun playing games. They want you to remember these three things when playing games the Power-Puff way:

1. Games should be fun for everyone.
2. If you win a game you can smile, give a high five, or say, “yea!”
3. If you lose a game you can take a deep breath, say “good job” to your friend or “maybe next time.” (Stock, Shearer, & Meester, 2004)

**Sensory integration therapy (SIT)** involves the use of pressure, weight, and movement techniques to alter children’s sensory experiences. For example, specific sensory activities (e.g., swinging, bouncing, brushing) help children regulate their sensory responses. SIT is usually conducted by trained occupational therapists, but CYCPs, parents, and caregivers can employ many of its facets. For many children with autism, the reported outcomes of these play-type therapies and activities include better ability to focus, improved overall behaviour, and lowered anxiety (Cheng & Boggett-Carsjens, 2005). The wearing of weighted clothing and blankets is still frequently used in SIT, although this practice is controversial (Cheng & Boggett-Carsjens, 2005).

Cheng and Boggett-Carsjens (2005) suggest a variety of specific SIT interventions, as summarized here.

To reduce excess sensory input:

**Visual:** Try to use dimmed lighting; allow the child to use sunglasses; have the child sit at the front of the class; allow the child to avoid eye contact when answering a question that requires concentration.

**Touch:** Always avoid unexpected touch; avoid giving a child light touch, but instead give a soothing firm touch and pressure (e.g., massage); in school, when the child is lining up with peers, allow the child to be at the front or end of the line to avoid jostling with other children.

**Auditory:** Aim to reduce sound stimulation; for example, covering one’s ears, using earplugs; listening to soothing music. In general, quiet, soft sounds are calming.

**Oral:** Seek out certain textures and tastes to calm the child. Allowing the child to suck on candies or through a straw can be calming.

**Movement:** Avoiding movement, or using soothing movement. In general, slow, continuous movement (e.g., rocking in a rocking chair) is calming.
Relaxation techniques (such as muscle relaxation and deep breathing) help the nervous system stay calm. When calmer, a person is better able to handle stress (such as sensory stimuli; Cheng & Boggett-Carsjens, 2005).

To increase sensory stimulation:

Visual: Give many sources of visual stimulation: use high-contrast/brightly coloured handouts, use lots of hand gestures and movement when speaking, and use different visual media to keep things visually interesting.

Touch: Allow the use of hand “fidgets” (e.g., a stress ball) in class to increase stimulation; use tactile activities such as playdough or clay; use textured washcloths to help children wake up in the morning.

Sound: Allow background music to study, or background white noise/music to sleep.

Movement: Give frequent breaks so that the child can move around and stretch; use inflatable-ball chairs that permit movement; allow the child to stand at his or her desk to complete work.

Olfactory: Use incense or aromatherapy candles.

Oral: Allow chewing gum, hard candies, spicy foods, ice chips, water.

Modulating activities are sensory interventions that help the nervous system regain a sense of harmony/balance. These activities include, for example, massage and stretching, and can be used with all children regardless of whether they are under- or over-aroused (Cheng & Boggett-Carsjens, 2005).

SIT is not an evidence-based treatment approach; however, it is widely used and supported by anecdotal evidence, and the number of books (e.g., The Out-of-Sync Child), websites, and workshops devoted to SIT suggest that many have found its techniques helpful.

Family Support Interventions Families of children with ASD are known to experience emotional and psychological difficulties. For example, research shows that over half of mothers report significant psychological distress; this has been associated with low levels of family support and with bringing up a child with higher levels of challenging behaviours. Mothers were more likely to report lower levels of support if they were a single
parent, were living in poor housing, or were the mother of a boy with ASD. It is vital, then, that CYCPs appreciate the stresses involved for these families, and that they incorporate a CYC family-focused approach in their intervention plan.

Families and CYC staff in mental health centres both report that when children with ASD enter puberty, they often become increasingly difficult to manage, usually due to an escalating pattern of violence. Such violence can take the form of physical aggression toward others and explosive, unpredictable outbursts. Consider just one treatment centre in Toronto: half of the children diagnosed with an ASD had threatened another person with a knife; two had stabbed another person; and four of the five children with Asperger’s had made verbal threats to kill a family member. Moreover, nine of the 10 children admitted had histories of harming themselves (e.g., head banging, slapping themselves, hair pulling), and two children with Asperger’s had made suicidal threats.

Ensuring the emotional health of family members is a critical aspect of an overall treatment plan. We can support families by educating them about ASD, helping them obtain access to resources, providing emotional support, and assisting them in advocating for their children’s needs. In some cases, referring parents to more professional counselling or other appropriate mental health services may be required.

We recognize, of course, that families have the best understanding of their child’s needs, and will provide their own unique suggestions for the treatment plan. In addition, including parents in interventions will help them feel a greater competence as parents—and that in itself will decrease stress and increase the overall well-being of the family (Marshall & Mirenda, 2002). Refer to Box 3.3 for intervention techniques to use in your work with youth diagnosed with ASD.

**Box 3.3**

**Techniques for CYC Intervention**

Emphasize school curriculum to focus on selective attention, imitation, language, play, and social skills.

Provide caring and highly supportive teaching and living environments.

Ensure structure, predictability, and routine.

Use a functional behavioural approach to assess and intervene with problem behaviours.

Ensure that the long-term educational plan focuses on transition in placements.

Use family support, and ensure parental involvement in interventions.

Use strengths and any intrinsic interests in play-interaction interventions.

Teach social skills.

Use sensory integration techniques when needed.

Focus on relationship-based techniques; for example, consider using the DIR Floortime approach (see below).

**Prevention: Advocacy, Community, and School-Based Strategies**  
An important area for CYC advocacy is combating the stigma, bullying, and labelling that children with ASD may experience. One promising school-based intervention is the DIR (developmental, individual difference, relationship-based) Floortime model. **DIR Floortime** is a treatment approach that first assesses children’s intrinsic level of interest and
then, through a play interaction, incorporates it into an interest shared between the child and teacher (Hess, 2013). This approach fits well with CYC practice, as it's based on relational work (being in a relationship “right here, right now”) and on development (meeting children where they’re at).

The Floortime model has two foundational constructs: first, practitioners follow the children’s lead and join them in their world; second, they pull them into a “shared world” to help the children master sequential social and emotional developmental levels. A developmental assessment is part of the DIR approach; CYCPs, caregivers, and parents can assess the developmental level of children using their own knowledge and/or the tools available at the website (“DIR and the DIR Floortime approach,” 2015).

The DIR approach focuses on teaching children to problem-solve so that they may develop interactions with people in their environment while allowing the brain to integrate its sensory-regulatory, communication, and motor functions. Empirically, neuroscience is increasingly supporting the developmental focus of CYC interventions, regardless of the area of difficulty (“DIR and the DIR Floortime approach,” 2015).

A follow-up study of 16 children diagnosed with an autistic spectrum disorder (ASD) revealed that with the DIR/Floortime approach, a subgroup of children with ASD can become empathetic, creative, and reflective, with healthy peer relationships and solid academic skills. This suggests that some children with ASD can master the core deficits and reach levels of development formerly thought unattainable with a family-oriented approach that focuses on the building blocks of relating, communicating, and thinking. (Greenspan & Wieder, 2005, p. 39)

Another school-based intervention is relationship development intervention (RDI). Developed by Dr. Steve Gutstein, RDI is based on a theory of “dynamic intelligence,” defined as the ability to think flexibly—to see the grey areas, not just the black and white. RDI has a strong focus on developing interpersonal relationships. Gutstein stresses that “neurotypical” children (i.e., children who don’t have autism) develop dynamic intelligence through guided play and involvement with their caregivers, something that children with autism are unable to do. Instead of relying on “static intelligence” (that is, the ability to know information or memorize facts), neurotypical children rely on this dynamic intelligence to flexibly respond to novel situations. The purpose of RDI is to help children with autism build dynamic intelligence and respond appropriately to such situations (Morris, 2008). According to Gutstein, autistic children have six main areas of deficits: (1) the ability to use an emotional feedback system to learn from the subjective experiences of others; (2) the ability to observe and continually regulate one’s behaviour in order to participate in relationships involving collaboration and exchange of emotions; (3) the ability to share perceptions and feelings by using language and nonverbal communication to express curiosity and invite others to interact; (4) the ability to adapt, change strategies, and alter plans based on changing circumstances (flexible thinking); (5) the ability to obtain meaning from the larger context and to solve problems that have no right-and-wrong solutions (relational information processing); and (6) the ability to reflect on past experiences and anticipate potential future scenarios in a productive manner (foresight and hindsight). The goal of RDI, then, is to remediate these common deficits using individualized means for each child (Greenspan & Wieder, 2005).
Note that there is some controversy about using non-evidence-based interventions with children with autism.

**Alternative Healing**  Many parents use alternative therapies to assist in the treatment of autism. Natural alternatives include vitamin therapies (increasing the amount of folic acid, vitamin A, vitamin B6, and vitamin C); a gluten-free diet, and a casein (milk products) free diet. Other alternative healing approaches include energy therapy, such as Reiki and healing touch; neurofeedback; movement therapy; music therapy; acupuncture; and animal therapy. None of these are evidence based.

The *Horse Boy* is a highly recommended documentary film about Rowen, a young boy with autism who had regular tantrums and was not yet toilet trained. After his father sees how calm he is around animals, particularly horses, the family goes to Mongolia to ride horses and seek the help of shamans; his father's instinct tells him that the trip will have a healing effect on the boy. They travel far north to the region where Indigenous people herd reindeer—and where the most powerful shaman in Mongolia is reputed to live. After his experience with the shaman, all of Rowan’s worst behavioural issues, including the tantrums, completely stop; he becomes toilet trained; and he begins interacting with other children. This is a wonderful film about a boy with autism and his family’s struggle (www.horsebomovie.com/OurStory.php).

**Holding Therapy.** Although we emphatically disagree with holding therapy and it has received no empirical support, we include it here so that CYCPs will be aware of its use with children with autism and attachment disorders. Holding therapy is associated with significant dangers, including physical and psychological harm to the child.

Holding therapy (or so-called “caring physical restraint”) is based on two theories: that autism results from a disturbance in the relationship between baby and mother, and that this attachment can be created or repaired by forcing the child to experience adult control through physical closeness. Holding has been theorized to restore and strengthen the bond between child and caregiver; the child is thought to develop closeness with the caregiver after the child realizes that his or her anger cannot break the parent–child bond. A factor in the development of holding therapy as an acceptable intervention is assumed to have been Temple Grandin’s suggestion in one of her books that as a child she’d been greatly comforted by physical pressure, and so had constructed what she called a “squeeze machine” that would give her the experience of pressure without human touch, which she much disliked. Some proponents of holding therapy for autistic children suggested that their treatment was parallel to Grandin’s squeeze machine; they are, in fact, very different.

Holding therapy consists of forced holding by a therapist or parent until the child stops resisting or until a fixed time period has elapsed. The carer doesn’t usually release her hold until the child surrenders and looks into the carer’s eyes. The carer then returns the child’s gaze and exchanges affection. The therapy has been used to treat a wide range of children with an attachment disorder, including children with autism, Oppositional Defiant Disorder, Conduct Disorder, Attention-Deficit Hyperactivity Disorder, learning disabilities, and depression (“Holding therapy and autism,” 2014). Again, we are opposed to its use.

**Relational CYC Practice**  Any relational approach based on good CYC practice will be effective in engaging children and youth with ASD, provided you have the required training and experience. There are many prescribed approaches that
CYCPs could explore further for inclusion in their repertoire. One of these is gentle teaching, which has been used for years with young people with special needs. One of the authors of this text encountered this approach some time ago when it was introduced into a secure residential facility for youth as an alternative to using physical restraint.

**Gentle teaching** is a way of being with children in a safe, loving manner that focuses on building relationships and interpersonal interactions. Its goal is to create a trusting bond between caregiver and child—not necessarily with the aim of stopping problem behaviours (except, of course, those related to safety of self and others), but rather to focus on the caregiver’s ability to be gentle in the face of aggression or disregard from the child (“Gentle teaching,” 2014). The main principles on which this approach is based are unconditional love, valuing, acceptance, interdependence, companionship, and community. Its intervention guidelines (which correspond with CYC practice principles) are as follows:

1. Speak to children in a quiet and calming way (no loud voices or shouting).
2. Give directions precisely, with few words (remove extraneous language that complicates the processing task).
3. Respond gently in all interactions with youth (speaking respectfully, using touch if appropriate).
4. Limit your frustration responses and angry outbursts (i.e., respond, don’t react).
5. Reinforce positive behaviours through hugs, pats on the back, smiles, and verbal praise.
6. Don’t react impulsively (behave consistently within the theoretical framework).
7. Don’t reinforce inappropriate behaviour.

Refer to Box 3.4 for specific communication strategies that can be used in your work with those diagnosed with ASD.

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**Box 3.4**

**CYC Communication Strategies**

- Recognize and challenge the use of disrespectful language by anyone.
- Embrace the principle of inclusiveness wherever appropriate.
- Be willing to advocate for children and young people with disabilities.
- Think outside the box for interventions and be open to alternative therapies: consider nutrition, Reiki and healing touch, neurofeedback, play and movement therapy, yoga, mindfulness-based stress reduction (MBSR), music therapy, and animal therapy.
- Listen carefully to young people when they tell you what they need.
- Be acutely aware of any heightened arousal.
- Assess for sensory difficulties and reduce or increase sensory integration.
- Teach MBSR self-soothing and relaxation techniques.
- Teach social skills, coping, skills, and feelings identification.
- Be careful with use of touch; follow the child’s lead.
- Use such approaches as DIR Floortime and gentle teaching.
Where Do You Stand?

While no one intervention is right for all children with ASD or other neurological disorders, there is much we can do to help them realize their potential. As with all CYC interventions, we focus on establishing trust in relationships, identifying and building on strengths, and teaching skills designed to help young people with ASD to cope. We can use functional behaviour analysis to help children learn to manage difficult behaviours; work to eliminate self-harming or dangerous behaviours; teach social interaction and communication skills; and assist with identified sensory integration problems.

Grandin (2014) notes that while a treatment method or an educational method that will work for one child may not work for another, the most important thing is not to delay: the one common denominator for all young children is that early intervention does work, and seems to improve the prognosis (Grandin, 2014).

### Jason’s and Sarah’s Cases: Viewpoint Challenge Exercise

Reread the cases of Jason and Sarah. Which intervention approach might you try with each? Why? Do you agree that in the case of neurodevelopmental disorders, the psychological paradigm and CYC approaches to intervention are more similar than they are for other disorders discussed in this text?

### CHAPTER SUMMARY

- **Developmental psychopathology** refers to the study of how disorders emerge in the course of one’s development and how they change or persist over time.

- **Neurodevelopmental disorders** are observed early on in the child’s development. Impairments in this category include deficits in general mental abilities; in specific areas of learning, communication, and social interaction; and in motor skills.

- From both the psychological and CYC perspectives, neurodevelopmental disorders are considered to be largely determined by biological factors interacting with environmental factors, although the young person’s psychological and social variables can play a role in influencing the outcome of any one of these disorders.

- The basic CYC principles for working with children and youth diagnosed with an ASD include the ideas of ableism and inclusion. Educational and behavioural strategies are utilized as well as parent support and education.

- Psychological interventions target specific areas of impairment and also include the use of educational and behavioural strategies as well as parent support and education.

- Interventions most likely to be used by CYCPs in the case of ASD include SIT, Floortime, RDI, gentle teaching, observation, the ABC model, functional or applied behaviour analysis, and social skills training.
Critical Thinking Questions

1. Why do you think ASDs are now more prevalent in Western society than ever before?
2. Does it make sense to you that the DSM-5 includes ADHD together with ASD and other neurodevelopmental disorders? What do they have in common? How are they distinct?
3. What do you think causes autism? Why do you think there is such a strong parent movement advocating against vaccines in the belief that they cause autism? Conduct a Web Quest on this topic and report back to your learning group.
4. Why do you think some children and adolescents with ASD can be very aware of their own deficits and yet unable to have empathy for others?
5. Do you think inclusiveness is always the preferred approach for every child and youth with an ASD, or is a specialized approach sometimes preferred? Why or why not?
6. Do you think ADHD and ODD might actually be forms of high-functioning autism?
7. How would you establish a caring relationship with a child or youth with autism when social relationships can be so threatening or unwanted?

Key Terms

ABC model, xx
applied behaviour analysis (ABA), xx
Asperger's syndrome, xx
Autism Spectrum Disorder (ASD), xx
catatonia, xx
central drive for coherence, xx
communication disorders, xx
developmental psychopathology, xx
DIR Floortime, xx
echolalia, xx
executive functioning, xx
gentle teaching, xx
intellectual disability (ID) or intellectual developmental disorder, xx
intense world theory, xx
joint attention, xx
motor disorders, xx
neurodevelopmental disorders, xx
neurotypical, xx
palilalia, xx
relationship development intervention (RDI), xx
sensory integration therapy (SIT), xx
sensory processing, or sensory integration (SI), xx
Sensory Processing Disorder (SPD), or sensory integration dysfunction, xx
specific learning disorders, xx
synaesthesia, xx
theory of mind (TOM), xx
Tourette syndrome, xx

Supplementary Readings


**Online Resources**

Occupational Therapy Innovations, www.ot-innovations.com (Focuses on sensory modulation, cognition, and mental health.)
Uta Frith’s selected publications, https://sites.google.com/site/utafrith/recent-publications
Recent research on autism causes, www.cdc.gov/ncbddd/autism/articles.html
Autism/Asperger’s information, www.childswork.com/Autism-Asperger-s-Syndrome
“Expansion to what end?,” www.cyc-net.org/cyc-online/cyconline-sep2010-gharabaghi.html (Kiaras Gharabaghi’s delightful story in which he challenges our pride in the CYC profession’s expansion into other areas, including work with children with autism.)
“Hope for Autism and Asperger’s Syndrome: My Story” video, www.youtube.com/watch?v=OV_CcmLlaw4 (A 17-year-old describes her experience as a child with autism.)
Synaesthesia video, www.vimeo.com/36252713 (This video follows a main character and his experiences with synaesthesia.)