VIEWPOINT

Through play, children with autism can hone thinking skills

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At least 100 times a day, my toddler repeats this refrain: “Daddy, can you play with me?”

Strewn across my living room floor are the Lego pieces, action figures, toy cars and countless other random objects that serve as the roads, spaceships, food and everything else my toddler’s characters need in the course of his pretend play. All he wants is to have fun, but every time he sits down (or stands up) to play, I know that he is unconsciously practicing countless skills he will need as he develops.

Play provides some of a child’s first opportunities to rehearse social interactions, generate novel ideas, toy with symbolism and develop narratives — skills that serve us later in life, particularly in our highly social world. Indeed, children who engage in more complex play early in development show greater social competence at later ages[1]. Add the opportunity to invite another person to play, or to follow another’s lead, and the foundation for working with others is set.

For children with autism, however, these opportunities do not present themselves so easily. Yet play is still an important developmental tool for these children. For clinicians, it represents a key arena for delivering therapies that could improve a child’s social skills, language and certain cognitive capacities.

Particular play:

Many children with autism show unusual features in their play starting early in life[2,3]. These include reduced creativity and imagination, such as recreating scenarios from a television show verbatim. The play of children with autism also tends to have a persistent sensorimotor or ritualistic quality. For example, a child might repetitively arrange toys to mimic some observed play activity.

These play characteristics were part of the diagnostic criteria for autism for many years, but are not listed in the newest edition of the "**Diagnostic and Statistical Manual of Mental Disorders" (DSM-5).** Still, the way children with autism play can provide clues to what skills they lack and highlight areas that warrant intervention.

In assessing children with autism, clinicians look at several different types of play. Symbolic play includes the use of objects or actions to represent other objects or actions. In autism, symbolic play is often delayed, and spontaneous play is less frequent, less complex and lacks the novelty that typically developing children demonstrate[4,5,6].

Functional play involves actions such as throwing balls, pushing cars back and forth, and stacking and knocking over blocks. Sensorimotor play involves the body: A child might practice jumping, pat playdough or pour water.

Children with autism are often typical in their functional and sensorimotor play at age 3, but they show poorer pretend play skills than their typical peers do[7]. If we did not see the intact functional play, we might attribute the unusual pretend play in children with autism to cognitive challenges. But because functional and sensorimotor play require an array of learning and memory skills, we think that differences in pretend play do not result solely from cognitive problems.

Flexible thinking:

Cognitive abilities, language skills and executive functions such as self-control and mental flexibility all influence the development of play and its application to clinical settings. Autism affects all these domains.

In children without autism, pretend-play abilities are associated with performance on measures of self-control more than cognitive ability (learning and memory)[8]. For example, differences in the ability of typical preschoolers to pretend to do something and suspend reality relate to their performance on tests of self-control that require waiting or choosing a counterintuitive response[9].

Play skills are also tied to language. Some researchers have proposed that the ability to talk to yourself draws from executive function, such as working memory, and allows typically developing preschoolers and young children to engage in pretend play.

Likewise, in children with autism, the nature of pretend play appears to correspond with language ability and intelligence, even in minimally verbal children, and preschool play skills can predict the later language development in these children[10,11].

Earlier this year, my colleagues and I reported that individual differences in executive function — specifically, self-control and working (short-term) memory — predict pretend-play skills in children with autism both at the time of their assessment and later in life[12]. Interestingly, this pattern

depends on language ability: For children with significant language difficulties, cognitive ability — not executive function — predicts later pretend-play skills.

Teaching with toys:

Together, these findings highlight pretend play as an important arena for clinical care. Many children with autism are missing out on the opportunities and benefits of pretend play.

Still, the relationship between executive function, language and pretend play provides new avenues for treatment. Developing therapies to improve executive function, for example, can help children with autism benefit from pretend play, which creates natural learning opportunities for a prepared mind.

Pretend play itself can be considered a form of treatment — one that costs nothing, requires no professional training and can happen anywhere. What's more, by capitalizing on existing therapies designed to improve language abilities, clinicians can enhance a child's executive function — thereby maximizing a child's ability to engage in pretend play. Doing so should then feed back into a child's cognitive and social skills and emotional well-being.

Play is critical for every child, providing opportunities to practice the skills that we employ as adults during social interactions, academic pursuits and professional responsibilities. As I consider the mess of toys in my living room, I hope every parent has the opportunity to see their child take advantage of the therapeutic richness provided simply by playing.

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