Section One
The Knowledge You Need…

1

The Who, What, Where, When, and Why of Play

After reading this chapter the reader will

1. Recognize the universality of play across the globe and across species.
2. Compare and contrast play and playfulness.
3. Describe the characteristics of play.
4. Describe the multiple influences on children's play choices and play places.
5. Identify the typical patterns of development of play in humans.
6. Summarize theories of why children play.

Play is training for the unexpected.
—Mark Bekoff

A substantial body of work exists describing the many theories and beliefs about why we play, documenting the developmental processes that occur in the play of children and establishing that humans are not the only creatures that participate in this activity. New information about play, garnered through the study of species other than humans as well as through the ability to examine the brain in new ways, has increasingly justified the importance of play. This chapter forms the backbone for the following chapters on playful intervention in this text, providing an overview of that literature and an explanation of our commitment to play in our practice. This knowledge base is crucial to inform therapeutic reasoning when analyzing and promoting play and consulting with clients regarding the nuances and complexities of play. In this chapter we answer the "w" questions of play: Who plays, what is play, what do children play, when does play occur, where does play occur, and why do children play?

Who Plays?

Play is often considered something that only children do. However, adolescents and adults play as well. Play may look different in the infant, young child, teen, or adult, but play of some form occurs in most all individuals depending on how you define or describe play. Some use different terms for play at various ages; for example, the word "play" is used primarily for the activities of infants, toddlers, and children, whereas "recreation" or "leisure" is the term often used for adults (Sutton-Smith, 1997). If one uses recreation or leisure for the play of adults, then one could say adults do not "play." Adults, however, are certainly capable of play, and some adults are in fact quite playful. However, many adults are not taught how to play with children and, if not raised themselves with playful parents, may not actively seek to engage in play with children (Singer & Singer, 1992, 2001).

Most all children play. There is evidence of a variety of toys and games indicating that children have played throughout history since the ancient Greeks, Sumerians, and Egyptians (Barnes, 2006). Children in both modern societies and hunter-gatherer societies play (Gosso et al., 2005; Kamei, 2005). Children across the globe in diverse cultures play. Both homeless children and even children in refugee camps can and do play (Boxill & Beaty, 1990; Harrington & Dawson, 1997; Scarlett, Naudeau, Salonius-Pasternak, & Ponte, 2005).[1] Children with disabilities also play, although children with severe cognitive

Some adults are quite playful.

Many adults still enjoy dressing up.

disabilities may not demonstrate all forms of play. Some research has suggested that play may be limited or absent in children who later grow into violent adults (S. Brown, 1998, Brown, 2006). Play therefore appears to be a universal aspect of *typical* child development.

In addition to humans of all ages, nonhuman species play too. Dogs play, cats play, and rodents play, and elaborate play has been observed in both ravens and primates (Bekoff & Byers, 1998; Burghart, 2005; Heinrich & Smolker, 1998). Play has been observed even in turtles, lizards, and fish (Burghart, 2005). Because play is observed in all orders of mammals, play probably exists in even the earliest mammals to evolve (Burghart, 1984, 2005). Similar to the human species, play is primarily observed in juvenile animals, and often juveniles are each other's preferred play partners. However, when no juveniles are available, adult primates will play with their young just as adult humans often do (Biben, 1998).

Some believe that human play is different because humans pretend. However, pretend play may be more related to language ability than species. In primates who have been trained to use language, there is some evidence of pretend play (Gomes & Martin-Andrade, 2005). Chimps who have learned sign language have been noted to pretend with dolls, and Koko the gorilla, who also signs, has been noted to play with dolls as well. Although pretense is not pervasive and symbolism is not typical in apes, these language-trained primates may be in a "zone of proximal evolution"[2] (Gomes & Martin-Andrade, 2005).

These differences between the play of humans and nonhumans and between adults and children lead us nicely into the discussion of the difficulty in defining play. Is it play when a gorilla carries a doll? Is it play when dogs chase a stick? Is it play when adults are interacting with children in a game and are purposely limiting their own abilities to make the game more fair and even for the child? Just what is play anyway?

What Is Play?

The word "play" is used in multiple fashions and has many connotations. Early usage of the term often was related to motion, for example, the motion of the fingers in "playing" a musical instrument (Burghart, 2005). People use the word "play" as a noun, as in the dramatic theater productions put on stage. People can also use the word to discuss

[1] "Play is now understood to be one of the most effective ways of helping children living in the aftermath of disasters and the midst of wars to begin healing" (Murphy, 2005). Additionally, play is recognized as a child's right across the globe. Article 31 of the United Nation's *Convention on the Rights of the Child* (1989) states, "Parties recognize the right of the child to rest and leisure, to engage in play and recreational activities appropriate to the age of the child and to participate freely in cultural life and the arts." A multitude of countries (193 thus far) have ratified this document (see *http://www.unhchr.ch/pdf/report.pdf*). Once signed, a country is bound by international law to adopt the document's human rights protections for children, including the right to play. Sadly, the United States has not yet ratified this document (see *http://childrightscampaign.org/crcindex.php*). However, the American Occupational Therapy Association has issued a statement affirming a child's right to play (see *http://www.aota.org/News/Media/Statements/41043.aspx*).

[2] The term "zone of proximal evolution" is adapted from the work of Vygotsky (1978) from "zone of proximal development" described later in the chapter.

Most mammals play.

sensory experiences, as in observing the "play" of light on the surface of the ocean. Modern usage of the word "play" in terms of children's behavior suggests an activity that is "spirited, voluntary and fun" (Burghart, 2005, p. 23). People can also play dead, play the radio, play with food, play it safe, or make a play for something.

Many have attempted to define the word "play," and we begin with their examples. Huizinga (1955) was an early author who described play as something occurring for its own sake. His definition stated that play was fully absorbing, included some element of uncertainty, involved illusion or exaggeration, and was clearly not real to those doing it. Fagan (1984) defined play as "performance . . . of active behavioral interactions that enable the player to adjust to and create its own environment, both ecological and social" (p. 169). Sutton-Smith (1997) defined play as novel adaptation similar to the evolutionary struggle for survival. Burghart (2005) suggested this definition, which could encompass both animal play and human play: "Play is repeated, incompletely functional behavior differing from more serious versions structurally, contextually, or ontogenetically, and initiated voluntarily when the animal is in a relaxed or low stress setting" (p. 82). Some authors define play very broadly in the way children define play, as "almost anything enjoyable" (Scarlett et al., 2005, p. 4). Similarly, the National Institute for Play defines play as "a state of being that is intensely pleasurable. It energizes and enlivens us. It eases our burdens, renews a natural sense of optimism and opens us up to new possibilities."[3] Each of these definitions works for some or many forms of play, but not all. The play of humans is difficult to define concisely, but people generally believe they know it when they see it.

The idea that play is more of an *attitude* than a *thing* has been considered as well. Playfulness as an attitude or a disposition appears easier to define and measure (Barnett, 1990). Many authors have worked at both defining playfulness and creating measures of it (Barnett, 1990, 1991; Lieberman, 1965, 1966; Skard & Bundy, 2008). Millar (1968) suggested that playfulness is about creative possibilities and removing constraints. Rubin, Fein, and Vandenberg (1983) suggested that play could be defined with three dimensions: disposition, behavior, and contexts. Considering the importance of the playful attitude for play, Ferland (2005) defined play as a subjective attitude in which pleasure, interest, and spontaneity are combined and that is expressed through freely chosen behavior where no specific performance is expected. The criteria used for many of these authors included the motivation source, goal orientation, degree of stimuli domination, flexibility, affect, rule boundaries, and active involvement of the person observed. Each of these aspects occurred in degrees, and, as the relative combination of them increased, an activity was more likely to be described as playful or play (Rogers et al., 1998).

Although there is some consensus regarding the characteristics of play (see **Figure 1-1**), differences of opinion do exist. As reminded by Sutton-Smith and Kelly-Byrne (1984), play can often be idealized by adults in Western cultures. For example, not all play is fun. Some play is scary. Play can be dangerous and risky. Some play is cruel, and children are left out. Play can be about struggles

[3] see *http://www.nifplay.org/front_door.html*

Learning Activities

1. Think about the words and the concepts of play and playfulness. How are they similar and different? Can you compare and contrast the two terms?
2. In lieu of trying to create one definition that captures play, many authors have instead generated lists of characteristics that describe play. There is typically consensus regarding the characteristics included in such lists, and the words "fun" or "pleasurable" often top the lists. Consider the list of characteristics in **Figure 1-1** that play activities demonstrate. Does the list seem to capture all forms of play?

for power and dominance. Sometimes play is not voluntary; children often must defer to more powerful or dominant children. Some play is highly sexualized. And not all play is free and flexible; some play is highly rule bound and structured (Sutton-Smith & Kelly-Byrne, 1984). Thus lists of characteristics of play help, but even with these lists, there is not complete consensus.

Reilly (1974) likened the task of defining play to "defining a cobweb" and stated, "only the naïve could believe from reviewing the evidence of the literature that play is a behavior having an identifiable nature. While common sense may confidently assert that there is such a thing as play, the literature assumes a rather weak position about what this phenomenon is" (p. 113). Burghart (2005) similarly suggested that the problems with defining play are "legendary" (p. 49).

Figure 1-1 Common Characteristics of Activities Defined as Play

- Flexibility
- Spontaneity
- Intrinsic motivation
- Nonliteral or symbolic use of objects
- Voluntary engagement
- Free choice
- Elicitation of positive affect (fun/enjoyable)
- Lack of functional purpose or goal
- Often resembles real behaviors but lacks the consequences

Information compiled by the authors from a variety of sources cited in this chapter

However, here we offer a definition of play to provide a shared understanding for this book. For the purposes of this book, we state that *play is any activity freely entered into that is fun or enjoyable and that is appropriately matched to one's skill to represent an attainable challenge.* Our definition is similar to others in the literature but different from many as well. We have included each portion of this definition for specific reasons. For example, the inclusion of fun and enjoyment is intended to give voice to the importance and meaning of play as described by children themselves. If play is defined as children define play, play is fun (Heah, Case, McGuire, & Law, 2007; Miller & Kuhaneck, 2008; Scarlett et al., 2005; Wiltz & Fein, 2006). Using "fun" in our definition of play, however, provides us with yet another dilemma. "If we could come up with a workable definition of fun and measure it objectively, we would still be left with the begging question 'why is this particular behavior fun?'" (Heinrich & Smolker, 1998, p. 28). For many children and adults, fun means that the game or toy provides an appropriate level of challenge (Ayres, 1979, 2005; Csikszentmihalyi, 1990; Miller & Kuhaneck, 2008; Vygotsky, 1978). Therefore our definition captures the importance of the "just right challenge" for play to be fun. This concept of the need for the "just right challenge" (Ayres, 1979, 2005) in play is one we explore later in the chapter and throughout the book. Finally, the idea of play as voluntary and freely entered into is included because of the literature on the importance of intrinsic motivation for fun and play. Thus someone else may suggest or structure play, but the child is intrinsically motivated to participate. This definition is purposefully broad to allow us to encompass the range of play of children with disabilities and particularly those with autism, as well as the sport and leisure of teenagers. Speaking of this range of play then brings us to the next topic: What are the different types of play?

Question: What is play?

Answer: Play is any activity freely entered into that is fun or enjoyable and that is appropriately matched to one's skill to represent an attainable challenge.

What Are the Different Types of Play?

Often, because of the difficulty defining and explaining play as one large construct, play has been divided into different categories or types. Some authors have divided play simply into two categories, play and exploration, whereas

others have created elaborate lists of multiple forms of play behaviors. Often, the categories of play behaviors follow developmental sequences and thus intermingle play forms with developmental achievements. Just a few of the categorization schemes are provided here as examples to familiarize the reader with this terminology for later sections of the chapter.

Some separate exploratory behaviors and play (Burghart, 2005; Hutt, 1966), stating that exploratory behaviors occur with novel objects and allow the child to determine the properties of the object, whereas play emerges once the child understands the object and then seeks to determine what he or she can *do* with it. Others find this distinction less important. For example, Power (2000) suggested that perhaps a category halfway between the two is needed that corresponds to the combination of play and exploration that often co-occurs.

There are many other descriptions of play types; one older categorization of play created by Belsky and Most (1981) lists 11 different types of play (**Figure 1-2**). Others suggest play can simply be categorized as social or nonsocial, or symbolic (pretend) or nonsymbolic/sensorimotor. McGhee (1984) makes a distinction between play that is interesting but not humorous, and playful play, which has elements of humor and incongruity. Power (2000) lists five categories of play: locomotor, solitary object, social object/pretend, play fighting, and parent–child play. Bateson (2005) lists solitary, imaginative, symbolic, verbal, social, constructive, manipulative, and rough and tumble as forms or categories of play. Finally, a recent categorization scheme from the National Institute for Play[4] suggests seven types or patterns of play (see **Figure 1-3**). Although the categories described by the National Institute for Play fit nicely with the broad scope of occupational therapy, these categories have not been widely used thus far in the literature. One can see how over time, the thinking regarding types of play has changed, and one can see how certain categorization schemes intertwine with developmental patterns.

Consequently, for the purposes of this chapter—to clearly report the body of knowledge that exists in the realm of play preferences and play development—we use

Figure 1-2 Categories of Play

- Mouthing play
- Simple manipulation play
- Functional play (objects are manipulated appropriately)
- Relational play (objects are combined in a nonfunctional fashion, e.g., putting a toy banana on a doll bed)
- Functional-relational play (objects are combined appropriately, e.g., a toy banana on a toy plate or a baby doll on a toy bed)
- Enactive naming play (pretend without confirmation, such as when a young toddler places the play phone to his head without making any sounds)
- Pretend self-play (pretend activity on oneself, e.g., pretending to eat a toy banana)
- Pretend play other (pretending to feed a baby doll)
- Substitution play (using one object in pretend for another, e.g., using the toy banana as a telephone)
- Sequence pretend play (linked pretend schemes such as feeding the baby, then putting it to bed)
- Sequenced substitution play (same as sequenced play but with an object substitution)

Adapted from Belsky & Most, 1981

Figure 1-3 Seven Patterns of Play

- *Attunement play:* emotional and interactive play with caregivers
- *Body play and movement:* movement-related play that helps a child learn about the body
- *Object play:* play with toys and objects
- *Social play:* rough and tumble play, celebratory play
- *Imaginative and pretend play:* symbolic play
- *Storytelling and narrative play:* telling of or acting out of stories
- *Transformative-integrative and creative play:* play through the imagination, allowing creativity to emerge

Adapted from *http://www.nifplay.org/science_intro.html*

Question: What are the different types of play?

Answer: It depends on whom you ask. We like the categories described by the National Institute for Play.

[4] see *http://www.nifplay.org/science_intro.html*

the variety of play labels as they have been used by different authors in the past.

What Do Children Like to Play?

The toys children play with and the play activities children enjoy have changed over time. Evidence of early playthings suggests ancient and early peoples played with dolls, balls, rattles, drums, hobby horses, toy "men" or soldiers, games with rules, puzzles, and construction toys (Barnes, 2006). Although many of these toys and games remain, the advent of a variety of commercially available, technologically sophisticated toys has allowed new forms of play to emerge, such as video game play. In addition, changes in society and toy availability have also limited previously common play (Christakis, Ebel, Rivara, & Zimmerman, 2004; Levin & Rosenquest, 2001; Media Analysis Laboratory, 1998; Rivkin, 2006; Singer & Singer, 2001). Children today are less likely to play outside and generally spend more time in sedentary play (Clements, 2004; Rivkin, 2006; Singer & Singer, 2001) and children are much more likely to play with electronic toys and other digital media (Elkind, 2001; Singer & Singer, 2001).

Research throughout the past hundred years has carefully described the activities children like to play. The large body of literature allows us to make some generalizations regarding children's play preferences. First, children's play preferences change with age and the development of new skills. Second, children's play preferences vary by gender, although it is still unclear to what extent this is a function of biology or culture. Finally, children's preferences are influenced by the physical and sociocultural environment in which they live and play. Although the *content* of preferred play may have changed over time, development and gender appear to be stable factors influencing play preferences (Case-Smith & Miller Kuhaneck, 2008; Miller & Kuhaneck, 2008).

Age and Development

As children grow and learn, they progress through stages and exhibit different play behaviors (Benjamin, 1932; Cole & LaVoie, 1985; Fein, 1981; Garner & Bergen, 2006; Johnson, 2006; Lowe, 1975; Manning, 2006; Parten, 1932; Pellegrini, 2006; Piaget, 1962; Takata, 1974). Many authors have written about specific sequences in play development; one of the most familiar may be Piaget's cognitive levels in regard to play (Piaget, 1952/1972, 1962).

Piaget's stages are the sensorimotor stage, the preoperational stage, the stage of concrete operations, and the stage of formal operations. In the sensorimotor stage, the infant's reflexive behaviors eventually grow into independent interaction with the environment. The infant's sensorimotor behaviors become more intentional and more refined. Through processes of assimilation and accommodation, the infant learns about the world and begins to solve simple problems. By 2 years of age the toddler begins to use mental representation and begins more social interactions. Language skills grow during this period, and the child can use sensorimotor behaviors to solve problems. The child over time begins to have moral reasoning and eventually becomes focused on rules. From ages 7 to 11 years, the child is developing logical thought and can solve most concrete problems. During the next stage, the child's ability to think abstractly grows and emerges, and the child can use logic for an argument or to solve hypothetical problems. When considering Piaget's stages of cognitive development, one views the development of play as intertwined with cognitive development (Piaget, 1952/1975, 1962).

In infancy, play begins to emerge and differentiate from exploration (Garner & Bergen, 2006; Piaget, 1952, 1962). Actions that occur by chance begin to be repeated purposely. In play, the infant learns what he or she can do with objects and body parts that provide enjoyment. In this infant stage, the enjoyment received is typically sensory in nature, although enjoyment can occur from social interactions as well. Because infants cannot tell people when they are playing or not playing, adults infer this from their cues. Infant cues for play include smiles, giggles, positive affect, and the desire for repetition of a motion or action. As infants grow and develop, imitative abilities

Infant social play and positive affect.

begin to figure prominently in play, and simple turn-taking emerges. Infants learn from adults to read play from nonplay and over time learn to invent their own games and provide cues to others to signal that what they are doing is also play. These skills of reading play cues begin early in infancy with games like "peekaboo," and by the second year of life, children are creating their own games with their own play cues (Garner & Bergen, 2006).

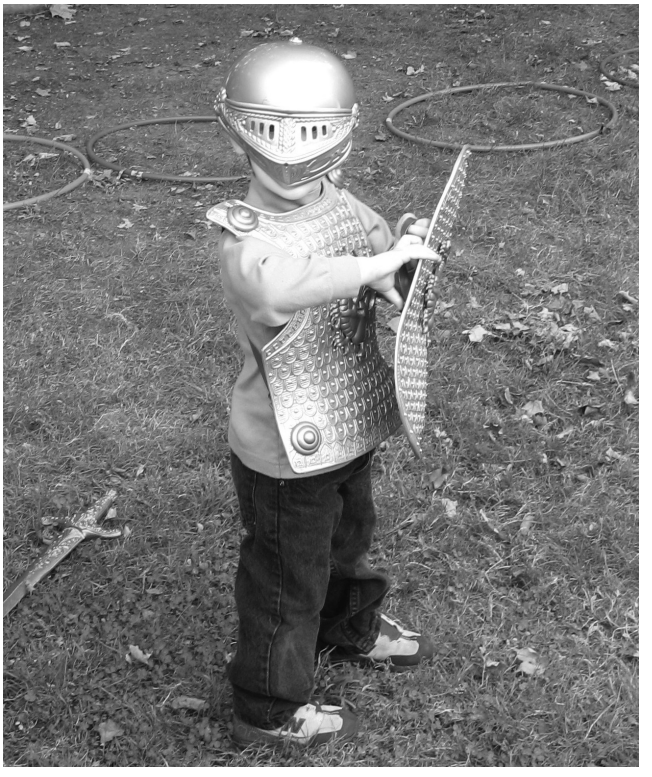
Object play and sensorimotor play predominates at young ages. Noticeable preferences for specific objects may be observed as early as 3 months of age, although a favorite toy is indicated by less than 50% of infants that young (Furby & Wilke, 1982). Closer to 90% of infants prefer one favored object by 1 year of age (Furby & Wilke, 1982). Object play progresses from single-object use to combined object play (Gowen, Johnson-Martin, Goldman, & Hussey, 1992). Single-object play is seen in infancy and decreases from 7 to 18 months of age as the child begins to combine objects in greater frequency. Object play also progresses from use of an object indiscriminately to the use of an object in a way that demonstrates understanding of its unique features (Gowen et al., 1992). Early object play is sensorimotor in nature, with much mouthing, banging, and waving. Later object play involves using objects as they are intended. Children about 1 year of age investigate and explore new objects primarily, but by 15 months, discriminative play is more common (Garner & Bergen, 2006).

The second year of life is important as symbolic play begins to take hold. As the child matures, symbolic play and more complex pretense and role play emerge (Fein, 1981; Gowen et al., 1992). Pretend play expands from simple pretense, such as talking into a play phone, to more complex pretense, such as feeding a baby doll. Initially, a child requires props for pretense, and early props must look quite real. Over time, the need for these replicas

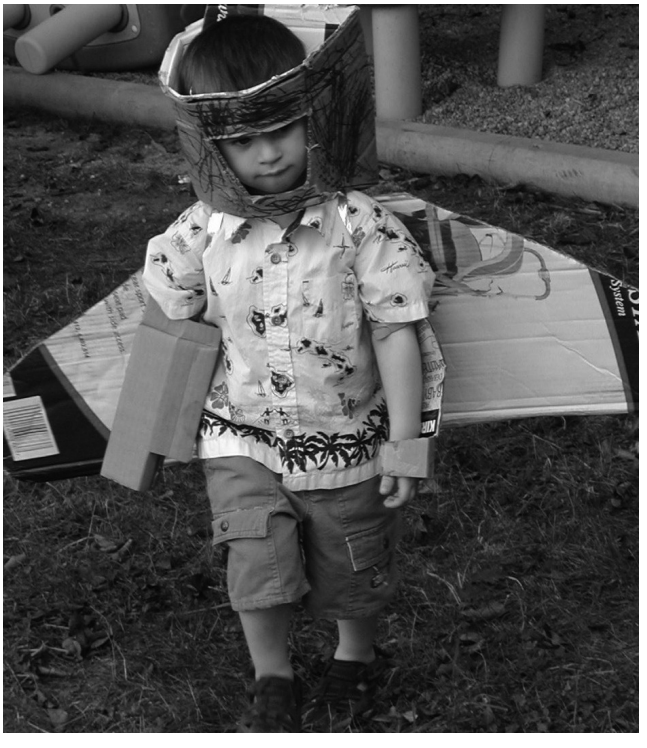
Early infant play is exploratory and manipulative.

Toddlers enjoy play that combines objects.

Pretend play flourishes initially with realistic props.



Realistic props also help early role play to flourish.



Pretend play does not require expensive commercial props—a variety of costumes can be made from household materials.

Eventually props do not need to look very realistic—these pots, pans, and spoons serve quite well as drums for the preschool-age child.

diminishes and objects can be substituted for other objects. Eventually, props are not needed as a child imagines their existence while playing (Garner & Bergen, 2006).

The preschool period brings with it greater language abilities and a significant emphasis on pretend play (Fein, 1981). Children of this age often pretend with toys of a variety of media, for example, creating pretend games while completing a puzzle or building with Legos. Pretend play can occur while drawing or painting or while climbing on a structure in a playground. Pretend play is often strongly connected with emotions and feelings. Children act out experiences they have had and desires that they cannot actually experience outside of play. Pretend play is also more and more social as children age (Garner & Bergen, 2006; Johnson, 2006).

With the increase in the social aspects of pretense, the ability to read and send cues is crucial because pretend actions often can look identical to the real action. How do people know a child is pretending? They must infer from the behaviors; they see facial expressions, smiles, different eye gaze, and positive affect. Contextual cues may help as well, such as a child pretending to be asleep in a location where he or she would not normally be sleeping. Generally, a child who is pretending may wish to take turns in the "game" with another. These contextual cues assist adults in the determination that the child is playing (Garner & Bergen, 2006).

Throughout early childhood, active play is a preferred form and children often seek to defy or challenge gravity.

Preschool also brings a greater level of activity (Halverson & Waldrop, 1973; Pellegrini & Smith, 1998a/b, 2003) and a variety of gross motor and playground play that appears sensory seeking in nature. Preschool-age children love to swing, spin, run, climb, hang, jump, and be upside down (Chew, 1985; Sandseter, 2007). Why is movement so important for young children? While the vestibular apparatus is fully formed at birth, functionally it continues to develop for many years as children move, explore, and play (Cherng, Chen, & Su, 2001; Lai & Chan, 2002). These sensory-rich activities that children engage in during preschool correspond with significant new motor skills as children learn to balance on one foot, hop, skip, gallop, and challenge gravity.

Elementary school-age children play somewhat differently (Johnson, 2006). In school, pretend play diminishes as peer play increasingly occurs outside the classroom on the playground and is made up of more physical or social games. Boys tend to engage in rough and tumble play, whereas girls tend to engage in games such as jump-rope, rhyming games, and other social forms of play. Pretending still may occur in the home or after school. Pretend play during this period is quite complex and often more tied to reality than it was in preschool. For example, children may pretend to be famous singers. The amount of preparation that goes into play during this stage is substantial. Younger children just want to play, whereas older children want to properly set the stage (Johnson, 2006).

Games with rules emerge as very important to both genders. Board games and video games become very popular. During this time, children often play with peers with collections of items and trading games. Large amounts of negotiation can occur in the attempt for children to grow their collections. These games with rules can require elaborate planning and preparation as the children establish what the rules are. Competition and collaboration can become more emphasized in both genders as children engage in more team competitive sports (Johnson, 2006; Piaget, 1962).

Aggressive-themed play and true aggression in play also can emerge during this time period (Blurton Jones, 1978). Wrestling, soldiers, space warriors, pirates, and super heroes are common themes where a form of aggression arises. This form of play appears to be universal

Sports and other games with rules predominate during the elementary years.

but is influenced by cultural norms. In cultures where aggression is less tolerated, the play fighting includes more chase and flee games and less aggressive rough and tumble play (Fry, 2005). These culturally defined judgments about whether aggressive play is acceptable are not yet supported by research to determine the benefits or detriments of such play. Power (2000) suggested that rough and tumble play may have positive functions for children in general but may be detrimental for overly aggressive or rejected children. Play fighting is only correlated with real aggression for children who are rejected by their peers but not for children in general (Pellegrini, 1988, 1994). Various adaptive functions have been proposed for this form of play, such as the development of aggression prevention and control, social relationships, and flexibility in handling social problems (Blurton Jones, 1978; Glassner, 1976; Goldstein, 1995; Pellegrini, 1995; Power, 2000). Play fighting may provide an acceptable excuse for physical contact and opportunities to care for each other (e.g., helping someone get up and checking if that person is okay, etc. (Reed, 2005). It may also provide a sense of excitement as long as there is confidence that the players are in a safe environment (Apter, 1991). Play fighting may be beneficial at younger ages but may morph into something dangerous if it continues into adolescent bullying. Some teens do use rough and tumble play as a way to exert their dominance (Pellegrini, 2006).

In adolescence, play changes in other ways as well, and teens tend to spend much of their time socializing with peers (Cummings & Vandewater, 2007; Gordon & Caltabiano, 1996; Pawelko & Magafas, 1997; Zill, Winquist Nord, & Loomis, 1995). Common teen forms of play or leisure include formal and informal sports, video game play, watching movies with friends, and talking on the telephone or texting. However, often the leisure time of teens is spent in risky, unproductive, or sedentary behaviors. Given the potential link between adolescent leisure patterns and the leisure patterns of adults and the possible impact of playful adult leisure and psychological health, the importance of a well-balanced and active play leisure profile in adolescence seems clear (Hektner & Csikszentmihalyi, 1996; Scott & Willits, 1998; Staempfli, 2007).

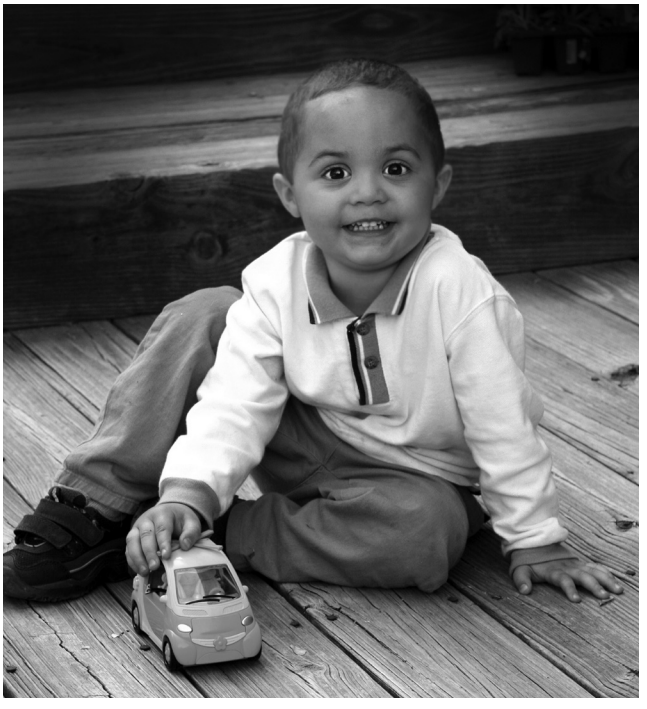
The changes in play seen with children's cognitive, social-emotional, and physical development are clear. Does play drive development or merely reflect it? We believe that development and play together grow in a spiraling process whereby play both reflects *and* contributes to the development of the child in all areas. **Table 1-1** summarizes the development of play. However, additional factors influence the expression of play across all ages. One of the most important of these is gender.

Gender Differences

Differences in gendered play have been noted in modern times as well as in children of early societies (Barnes, 2006). Male children in Greek society learned physical prowess and athletics through play. Early males played marbles and played with models of war ships and other toys meant to instill ability with hunting and fighting. Girls in early societies played with miniature pots and pans, similar to the later tea parties and toys meant for playing house. Similar gender differences in play preferences have been repeatedly studied and consistently found in a variety of more modern settings using multiple methods (Benenson, 1993; Benjamin, 1932; Caldera, Huston, & O'Brien, 1989; Connor & Serbin, 1977; Fein, 1981; Honig, 2006; Meyer-Bahlburg, Sandberg, Dolezal, & Yager, 1994; O'Brien & Huston, 1985; Pelligrini, 1992; Saracho, 1990; Servin, Bohlin, & Berlin, 1999; Wall, Pickert, & Gibson, 1989). Researchers have found that generally girls prefer toys such as dolls and house toys (like a tea set), whereas boys prefer transportation and construction toys such as blocks (Benjamin, 1932; Fein, 1981; Servin et al., 1999).

Table 1-1 Summary of the Development of Play

Age	Object Play	Motor Play	Pretend Play	Social Play
Infancy	Mostly single-object use, although combining of objects begins to emerge by the end of the first year. Uses objects in sensorimotor ways.	Reflexive or random actions become more likely to be repeated as the infant gets older and has more motor control. Early motor play includes manipulating, banging, and throwing.	Begins to emerge about age 1 year.	Visual attention and focus develops, leading to joint attention; social referencing emerges. Infant is initially more interested in objects than peers, but interest in peers increases by the end of the first year.
Toddlerhood	Increasingly combines objects and uses objects appropriately. Trial and error and invention occurs.	Exploration of greater distances and learning to walk, run, climb, and jump.	Beginning simple pretense (wave bye-bye, talk into pretend phone); most pretense is about self, and often pretense is imitative.	Social referencing increases. Increased interest in peers occurs. Toddlers do have friends and friendship is generated by imitation. Onlooker play at age 1 becomes parallel and then associative by age 3.
Preschool Years	Uses a variety of objects and enjoys combining objects. Constructive play is quite common.	Exercise play or practice play occurs. Intense gross motor activities and physical challenges often sought after.	Early preschoolers combine scenes into simple narratives. Pretend play extends to objects and others; pretense becomes more inventive, creative, and increasingly supported by language. By age 5 child can create complex scenes and direct characters and others; characters seem to act on their own. They also begin to use language to inform others of the play: "Pretend that…".	Has definite friends and enjoys play with others. Begins associative play and moves into cooperative play before kindergarten.
Elementary/ Middle Childhood	Constructs elaborate creations with a variety of materials. Leisure crafts may begin.	Engages in rough and tumble play and games with rules.	Simple pretend play declines. Engages in complex fantasy games and may begin to play specific games with pretend elements such as Dungeons and Dragons.	Seeks companions for play and processes more complex play activities with others.
Adolescence	May continue with leisure crafts/hobbies.	Greater participation in recreation and sports.	Engagement in theater, fantasy games, and video games with entire worlds online.	Teamwork and cooperation develop; begins to "hang out" with friends.



Boys often prefer transportation and construction toys.

Girls often prefer doll play and dress up.

Children often request toys that are labeled for their gender (Bradbard & Parkman, 1983; O'Brien & Huston, 1985; Martin, Eisenbud, & Rose, 1995; Servin et al., 1999). Additionally, the gender labels given to toys may affect a child's desire for that plaything (Martin et al., 1995). Amazingly, children appear to require only a rudimentary understanding of gender to learn gender stereotypes and exhibit these gender-based toy preferences (Martin & Little, 1990).

Gendered preferences can be seen at various ages. As early as 1 year of age, children make different toy choices based on gender (Servin et al., 1999). At 18 months, boys choose play with trucks, trailers, men, and logs, whereas girls choose doll-related activities (Lyytinen, Laakso, Poikkeus, & Rita, 1999). Boys are more likely to choose physical and block play over dramatic and manipulative play (Saracho, 1990). Connor and Serbin (1977) observed preschool-age children's play choices and found boys preferred blocks, balls, transportation toys, construction toys, and gross motor play. Girls in the study preferred crayons, dolls and dollhouses, musical instruments and painting, reading, sewing cards, and the play telephone.

Boys and girls not only choose different toys but also choose different playmates and ways of playing (Benenson, 1993; Hartup, 1983). At a very young age, both genders prefer same-sex groupings, and this preference continues until adolescence. Girls prefer to interact in dyads or smaller groups, with greater cooperation, whereas boys prefer larger groups and more competition. Girls are generally rated as more playful than boys and engage in more verbal pretending (Saunders, Sayer, & Goodale, 1999; Von Klitzing, Kelsay, Emde, Robinson, & Schmitz, 2000; Wall et al., 1989).

Boys are more likely to enjoy vigorous or active play, rough and tumble play, and outdoor play (Eaton & Enns, 1986; Humphreys, & Smith, 1987; Pellegrini, 1988, 1992, 1995). Boys' physical play often has a fantasy theme, such as playing super heroes (Pellegrini & Bjorklund, 2004), and boys display aggressive play more than girls (Goldstein, 1995; Power, 2000). Some believe that boys are biologically prone to a greater activity level and a preference for more active play. However, some research has suggested that both boys and girls have a similar activity level and that both exhibit a greater activity level with toys and activities stereotyped as masculine (O'Brien & Huston, 1985).

Toys that are gender stereotyped may actually alter the nature of parent–child interaction during play, regardless of the gender of the parent being observed or the gender of the child (Caldera et al., 1989). For example, in play with toys labeled as masculine (such as trucks), researchers found interaction styles that demonstrated lower levels of questioning, less teaching, and less proximity between parents and children. However, these types of toys elicited more parental sounds and more verbal corrections of behavior. Feminine toys generated interaction styles with close physical proximity and greater verbal interaction. Neutral toys, such as puzzles, generated greater positive and informative verbalizations from parents (Caldera et al., 1989).

Are these gender differences still found today? Are they real? Since the mid-1900s, gender roles have changed, and the family form has changed as well (DaVanzo & Rahman, 1993; Schor, 2003). There has also been a push toward more gender-neutral play (Barnes, 2006). One might believe that the cultural revolution, greater awareness, and the huge changes in men's and women's roles in this country could affect gendered play choices. However, gender differences continue to be found in more recent research with video games. Boys play video games more frequently and for longer periods (Kafai, 1998) and tend to play more competitive and risky games. Girls prefer games with social interactions and greater character development (Salonius-Pasternak & Gelfond, 2005). Girls appear to enjoy participating in a story more than participating in a competitive game. The body of literature on humans, along with the large research base on gender differences in animal behavior, suggests that continuing, real gender-based differences in play may be biological. These differences may be encouraged or hindered depending on cultural or contextual factors in the home and the community.

Contextual Features That Impact What Children Play or Like to Play

A variety of environmental factors could influence a child's preferences for play. Children must play with what and whom they have available to them. Therefore, affluence or poverty, and community wellness or social strife can impact development, play choices, and children's overall participation in daily occupations (De Barros, Fragosos, de Oliveira, Filho, & de Castro, 2003; Engel-Yeger, Jarus, & Law, 2007; Ginsburg, American Academy of Pediatrics Committee on Communications, & American Academy of Pediatrics Committee on Psychosocial Aspects of Child and Family Health, 2007).

Even with limited means, children find things to play with. If children are able to safely access natural landscapes, they will find much to play with. Although they have few toys, children living in hunter-gatherer societies use materials available to them to create a variety of

outdoor games and playful activities (Gosso et al., 2005). There are games of balance, games in the trees, water play, spinning games using fruits, games using slingshots and bows and arrows, games building with sand and mud, and social games similar to hide and seek. These forms of play are often very enjoyable, and even children with access to commercial toys often prefer play *in* nature and *with* nature.

Children without commercial toys can also create toys from whatever materials are available (Edwards, 2005). Adult "trash" often can be used to fashion toys, and very elaborate and imaginative games can be made from buttons, bottle caps, paper, scraps of cloth, cans, and so on (Edwards, 2005). Therefore, play is often more complex when children reside in an area where there are plentiful trash materials. Many children grow up in areas and neighborhoods where what they play is hindered by the context in which they find themselves. Certain neighborhoods or areas that are unsafe, whether due to crime or to war, may reduce the amount of outdoor physical play that occurs and may also reduce access to the natural materials and trash materials with which to fashion toys (Edwards, 2005).

In stark contrast, not all children grow up with limited means, and affluence can also impact play preferences. Today some authors are concerned with the commercialization of toys for affluent children (Scarlett et al., 2005). Children from affluent homes in the United States, for example, have excessive numbers of toys available to them of multiple different types. However, the purchasing of large quantities of toys, in some cases, may be an effort to get children to "go play" alone rather than with parents or other adults (Scarlett et al., 2005). Affluent children also may be "overscheduled" with daily structured activities and may not be allowed to choose freely how to spend their play time with peers (American Occupational Therapy Association, 2008; Elkind, 2001; Ginsburg et al., 2007; Rigby & Rodger, 2006). It is not yet clear what the impact of these changes in play will be for today's children.

Another important contextual feature in the development of play preferences is one's peers. Peer cultures develop through play via shared meanings regarding the use of objects and spaces and shared themes of play (Elgas, Klein, Kantor, & Fernie, 1988; Kantor, Elgas, & Fernie, 1993). Certain objects can be used by young children in specific ways to gain access to peer group membership. These peer-specific forms of play can be quite pervasive within one peer group but nonexistent in other peer groups. Although peer cultures can be quite individual from place to place, the increasing usage of media (television, movies, and video games) by young children has increased the possibility of shared play themes among peers at varying locations across communities—even across the entire United States. A child who has seen the movie *Cars* in New York can pretend play the movie theme with cousins in Nebraska.

Therefore, media could be considered an additional contextual feature that may influence play preferences. Not only does media influence peer cultures in children, but some believe the explosion of media in the last century may have actually altered the way in which children play (Singer & Singer, 2005). As noted previously, children spend more time in sedentary play (Clements, 2004; Singer & Singer, 2001) often in front of video games,

Nature provides many opportunities for play without the need for commerical toys.

Children will play with whatever they have available, even building toys from adult "trash."

television, movies, or computer games. Outdoor play has also diminished dramatically (Rivkin, 2006). Overall, the impact of media on children may be difficult to quantify, but it has not gone unnoticed by marketing companies.

In this country at least, a large part of advertising is targeted at children specifically to influence their play choices. According to the National Institute on Media and the Family[5] (Strasburger, 2001), a typical child in America may see as many as 40,00 television ads per year. For all forms of media, advertisers may spend almost $12 billion a year targeting children. Studies of the effects of advertising on children suggest that ads do influence the choices and preferences of children in terms of toys and other goods (Gunter & Furnham, 1998). The extent of media influences on children's play preferences is unclear as of yet.

What Do Children with Disabilities Play?

As occupational therapists, we must be informed not only about the play of typically developing children but also about the play of children with disabilities. There is little literature on the play of children with disabilities compared with the enormous body of work on typical play development. However, we know that although children with disabilities do play and appear to have similar playful attitudes to non-disabled peers, they play differently from children without disabilities (Ferland, 2005).

Children with disabilities often progress through similar stages of play development as children without disabilities but at delayed ages and reduced rates (Gowen et al., 1992). Children with physical limitations deal with barriers to accessing free play and limited free choice of activities (Missiuna & Pollack, 1991; Pollack et al., 1997). They need greater assistance to play from adults in their environment (Skar, 2002). Research has shown that children with physical disabilities spend more time in passive activities (Brown & Gordon, 1987), demonstrate less active involvement with objects (Gowen et al., 1992), and spend more time with adults rather than peers, participating in activities such as television watching rather than active and varied play experiences (Howard, 1996).

Children with mild motor impairments may still have poor play skills (Bundy, 1989; Clifford & Bundy, 1989). Children with learning disabilities but minimal physical limitations play alone more often than their peers without learning disabilities (Gottlieb, Gottlieb, Berkell, & Levy, 1986). Children with visual impairments spend less time in play with peers, spend more time with adults, and often engage in perseverative or stereotypical play (Skellenger, Rosenblum, & Jager, 1997). The difficulties in the play of children with autism are well documented (Rogers, Cook, & Meryl, 2005) and include lack of symbolic play, less motivation to play, limited imitation of others in play, and repetitive play with objects.

Play choices may be more related to developmental age than chronological age. Because the development of play behaviors is closely tied to cognitive and motor development, the development of play in children with disabilities, therefore may be less affected by changes in chronological age. Often, for children with severe disabilities, skills improve slowly. When play was observed over a 3-year period in a sample of children with disabilities, little change was found in play behaviors (Sigafoos, Roberts-Pennell, & Graves, 1999). Interestingly, when studying the play behavior of children with intellectual disability, Messier, Ferland, and Majnemer (2008) found no relationship between IQ level and individual dimensions of the play assessment, the Assessment of Ludic Behavior. These authors did find that motor play was a strength for this population. Additionally, these children were curious, took initiative in play, demonstrated enjoyment, and sought out sensory-based play. These children were less likely to demonstrate high scores on sense of humor and enjoyment of challenge.

Playfulness has been studied in children with various disabilities with varying results. Children with sensory integrative dysfunction exhibited less playful play than typically developing peers (Bundy, 1989). A case study of a child with sensory processing issues demonstrated that this child had very cautious and repetitive play with limited familiar choices (Benson, Nicka, & Stern, 2006). Another study of children with developmental disabilities also found differences in playfulness between these children and control children who were typically developing (Hamm, 2006). In a variety of studies, Bundy and colleagues demonstrated limited playfulness in children with autism (Muys, Rodger, & Bundy, 2006; Reed, Dunbar, & Bundy, 2000; Skaines, Rodger, & Bundy, 2006) and other disabilities (Leipold & Bundy, 2000). Similarly, children with cerebral palsy demonstrated less playful play than their typically developing peers (Okimoto, Bundy, & Hanzlik, 2000). However, one study (Harkness & Bundy, 2001) found no differences between those with and without physical disabilities in terms of playfulness. The authors thought perhaps this was due to high scores of exuberance in the children with physical disabilities or due to measurement in familiar environments.

[5] see *http://www.mediafamily.org/index.shtml*;

Differences in play skills or the ability to access play do not necessarily equate to differences in play preferences. Although one can readily observe actual play *behaviors*, examining the play *preferences* of children with disabilities is more difficult because physical limitations may hinder access to preferred activities, and limited communication may hinder discussion. It can be difficult, therefore, to determine the true preferences of some children with disabilities, and this may be the reason we currently know so little about the preferences of children with both physical and cognitive impairments.

Research is just beginning to examine the play preferences of children with disabilities. Thus far, the studies have demonstrated, not surprisingly, that children with disabilities can and do indicate specific play preferences. For example, children with an autism spectrum disorder have been found to demonstrate clear preferences for play activities and objects with sensorimotor properties, favored characters, and predictable situations (Desha, Ziviani, & Roger, 2003; Ferrara & Hill, 1980). Children with developmental delays are reported by their parents to exhibit a preference for rough and tumble play and gross motor play above more sedentary play such as watching television, drawing, or coloring (Case-Smith & Miller Kuhaneck, 2008). Children with physical disabilities who were asked about their play choices and the technical aids they needed for play indicated they enjoyed play and thought play was fun, and many played typical games for their age and gender. However, many reported barriers to outdoor play because of poor physical access to play environments (Skar, 2002). Therefore, many of these children reported they preferred indoor play and passive activities, which is different from preferred activities reported by typically developing children.

So do children with disabilities have different preferences from typically developing children? One study found that children with mild motor disabilities hold preferences similar to children without disabilities (Clifford & Bundy, 1989), whereas another study (Case-Smith & Miller Kuhaneck, 2008) found differences in preferences. In a recent survey of parents of children with and without disabilities, the play preferences of children aged 3 to 7 were examined and compared (Case-Smith & Miller Kuhaneck, 2008). From a sample of 83 children with developmental delay and a total sample of 166 children, the authors found no gender differences in play preferences within this age group but did find expected age-related changes. In addition, the preferences of the typical and developmentally delayed children were somewhat different. Children with developmental delays preferred rough and tumble play more than typically developing children, and typically developing children preferred quiet table-top activities more than the children with developmental delays. Additionally, typically developing children reportedly preferred play with peers more than children with developmental delays (Case-Smith & Miller Kuhaneck, 2008).

Although we do not know for sure, and the research is limited to date, it is likely that children with disabilities at similar developmental levels as their non-disabled peers hold play preferences similar to their peers. Their preferences may be shaped by physical or cognitive limitations that restrict their access to certain play opportunities, however. A more thorough examination of the impact of cognitive and physical disabilities on play preferences is warranted because it has practical implications for activity choices in therapeutic interventions.

Question: What do children like to play?

Answer: Children create individual play preferences. Different children like to play different things and these choices are based on a variety of factors both within and outside of the child. The factors that impact choices include gender, age and the related cognitive and motor skill development that comes with age, and cultural and contextual features of the child's environment and surroundings. At different points in a child's life, different factors may become more prominent or recede in importance, but in the end, every individual grows up with a combination of childhood play experiences and preferences that is unique to that individual.

Where Does Play Occur?

Play happens all over the world and has been observed in many cultures and within many forms of societal structure (Edwards, 2005; Gosso et al., 2005; Lancy, 1996; Nwokah & Ikekeonwu, 1998). Western industrialized cultures have increasingly afforded more importance to play. Children in these cultures are therefore often provided with specific places for play such as playgrounds, playrooms, and commercial play areas. Some of these can be quite elaborate.

There is significant variation across the globe, however, in the places where play occurs. Elaborate playgrounds, woods with trees to climb, or streams and rivers to swim in are not evenly distributed. In very rural locations across the globe, play, by necessity, occurs in fields,

In some cultures, children are provided elaborate places to play.

Play will happen in the spaces that are available.

in the dirt or grassy spaces between homes, in the local woods, or in the home (Lancy, 1996; Nwokah & Ikekeonwu, 1998).

Features of environments, the "where" of play, likely impact play behaviors. One study comparing the games of Nigerian children and American children found that the overall participation in categories of play was similar between the cultures. However, the terrain where the children's games were played was different, thus somewhat altering the specific games available to the children (Nwokah & Ikekeonwu, 1998).

Another issue to consider in terms of where play occurs is whether it happens near adults or away from adults. In certain cultures, play is more likely to occur with or without adults nearby (Edwards, 2005; Lancy, 1996; Nwokah & Ikekeonwu, 1998). For example, in many hunter-gatherer societies, children under age 7 are encouraged to play together, away from adults, to allow adults to work (Gosso et al., 2005). In many farming and industrial societies, boys in middle childhood in particular roam away from home in gender-segregated groups to play (Edwards, 2005). In other cultures, children are encouraged to stay near adults, observe adults, and participate in the "work" of the community. As a result, play happens near the adults during or in between work chores (Bazyk, Stalnaker, Llerena, Ekelman, & Bazyk, 2003; Lancy, 1996).

Question: Where does play occur?

Answer: Anywhere it can. Children will play anywhere they are able, but the structure and content of their play may differ based on the play spaces they have available to them.

When Does Play Occur?

Play can occur almost anytime. One prerequisite for play to occur, however, is a feeling of safety and security. In both humans and nonhuman species, play occurs when basic survival needs are met and there is at least a minimum level of safety. Play is often the first activity to be lost, however, when things are not going well for an animal (Bateson, 2005).

Whenever a child is not otherwise occupied, for example, with school or chores, the child can play. In addition, children can approach those work tasks with a playful attitude (Glynn, 1994) and play while they are working (Bazyk et al., 2003; Lancy, 1996; Nwokah & Ikekeonwu, 1998).

There has tended to be an artificially created division by many play researchers that identified two different constructs: work and play. These two terms were often considered to be mutually exclusive, ignoring the idea that one could play while working or that one could take one's play very seriously and approach it almost like work (Holmes, 1999). There is likely a continuum between work and play rather than separate categories. Children asked to classify activities as either work or play label some things as "in between" (Wing, 1995), and this idea of a continuum has been noted in other similar studies (Holmes, 1999).

However, 5-year-olds consider the terms mutually exclusive, whereas college students do not, suggesting that an understanding of the continuum may require a certain cognitive level or level of experience (Holmes, 1999).

One other distinction needs to be made in terms of the "when" of play. As stated earlier in the chapter, some researchers divide play into two types: exploration and true play. These authors suggest that for play to occur, the play object must be fully explored. The child must know the characteristics of the object to know what the object can do (Hutt, 1966). We disagree with this. For our purposes, exploration is often an aspect of play, and we believe an appropriate level of novelty and exploration is necessary for play to continue. Simple objects can become rapidly boring if they are unable to be used in multiple ways. Children stop playing, as do some animals, when the play object lacks novelty. In a study of cats, habituation to a cat toy led to the stoppage of play, whereas reintroduction of novelty led to the return of play (Hall, 1998). Novelty was important to the maintenance of play behavior over time. As therapists, we have all seen the child who becomes bored with a game or object without any flexibility. Therefore, exploration is not a prerequisite for when play occurs, but rather exploration can also occur during play.

Question: When do children play?

Answer: They play whenever they can. They will play when they feel safe and when they are not required to do something else (and even sometimes when they are required to do something else). They will play when they are alone or with others. They will play at any point of the day and will even sometimes play long past the need for sleep. The "when" of play is almost anytime as long as children are safe and their survival needs are met.

Why Do Children Play?

There are many possible functions of play. Play may allow children to work out psychological issues and difficulties they are dealing with in the present. Play may help children prepare for adult roles and responsibilities. Play may help youngsters develop motor skills and promote cognitive and social development (Ginsburg et al., 2007). In this way, play can be considered as "developmental scaffolding" (Bateson, 2005, p. 16). These different statements regarding the functions of play indicate broad traditions of theories regarding the purpose of play.

Early Theories of the Function of Play

In this section, early theories of the function of play are highlighted briefly. Much of this work has been explored extensively elsewhere, and because these theories are not the focus of this text, interested readers are encouraged to seek out the original authors as cited or other summaries of their work for more in-depth consideration.

Play to Burn Off or to Restore Energy

One of the earliest theories of play, the surplus energy theory, is associated with the works of a German poet named Schiller (1875) and of Herbert Spencer (1873). They contended that play emerged in individuals and animals that had more energy than they needed for basic survival and therefore, played to "blow off steam." Although there may be some apparent logic in this, because often children seem to need to run and play when they have been sitting in school, for example, and animals do seem to have a need to romp and frolic after being confined, there are many critics of this theory, and over time it has been seen to be too limited in scope. Children do play when they are at the brink of exhaustion, and some play actually seems to refresh or rejuvenate the individual. Others believed that play served a restorative function; individuals played to refresh themselves, and, particularly with sedentary city life, people needed to use their muscles and engage in activities in more natural outdoor environments. These theories, however, cannot explain play that is more cognitive in nature, such as puzzle play. Additionally, they cannot account for play that is scary, stressful, or highly competitive and not at all relaxing (Saracho & Spodek, 1998).

Play as Preparation Versus Play as Legacy from the Past

Two other early theories proposed conflicting temporal conceptualizations of play (Burghardt, 1998): first, play was considered to be preparation for the future, and second, play was a legacy from the past. A Swiss scientist named Karl Groos (1901) proposed play as an instinct or programmed response and suggested that play was important to prepare animals and children for the skills and abilities they would need in adult life. Aspects of this theory have been carried forward into more modern theories of play, but as Groos proposed it, the theory is too limited to explain all aspects of play. However, it is true that animals with more complex adult lives tend to have longer periods of childhood and more complex ways of playing.

G. Stanley Hall's recapitulation theory, based on the ideas of Darwin, suggested that the play of each generation instinctively repeated the work of prior generations

in a developmental sequence (Pellegrini & Smith, 2005; Saracho & Spodek, 1998). Children's play repeats the history of *Homo sapiens:* first come the survival pursuits of the animal, then the experiences of the early human nomadic peoples, and then agricultural and tribal stages. The young boy climbing a tree is expressing his primate past, whereas the older child play fighting is expressing his or her hunter-gatherer past. This theory has been discounted for multiple reasons, and there are many forms of play that hold little relationship to any past human history (e.g., hang gliding or video games). However, Hall's work did stimulate later study of the developmental stages of play, and for that, it is important. In addition, Hall promoted the importance of play in childhood and believed that play and exploration should be allowed and supported.

Play to Develop Cognition

The cognitive developmental tradition of child development suggests that play allows children to develop and integrate new skills and abilities into their repertoire. Cognitive theorists in this tradition include Piaget (1952/1975), Vygotsky (1976), and Bruner (1982). Piaget provided detailed descriptions of cognitive development noted through his children's play. Vygotsky, initially working on language and child development, introduced the notion of a "zone of proximal development." This zone is the area where a child is stretched to a slightly higher level of functioning but one that is not outside the realm of his or her capabilities. This stretching occurs with the help of another individual of higher skill. Bruner's major contribution is in the idea of scaffolding, which is the support of another person. Each of these cognitive theories has been used to explain play.

Play can develop and expand because adults and more skilled peers help children to participate in higher levels of play than children would participate in alone. As a group, these cognitive theorists believed that play expressed or reflected children's learning and that children learned through play. Although play indicates cognitive and motor development and may assist development, it may not be absolutely necessary for development. For example, children from non-Western cultures where play is not encouraged or promoted still develop and learn (Bazyk et al., 2003; Gosso et al., 2005).

Play to Develop Emotional Well-Being

Another view of play is promoted by psychoanalysts such as Freud and Erickson (1950). In the views of this tradition, the function of play is to allow children to make sense of their feelings. Play allows children to reduce their feelings of helplessness. Play allows children to gain a sense of control over situations, to work through loss or grief, and to deal with anger in an acceptable fashion. There are many critics of these theories[6] because they do ignore the many other types of play in much younger children and in animals that lack the wide range of emotions experienced by humans. This theory also cannot explain a wide variety of recreational activities such as collecting and hiking.

Play to Be Engaged

Other researchers, including Berlyne (1960), described play as an intrinsically motivated activity that arises because of the need to seek arousal when one is not adequately stimulated by the environment. The focus of these theories is on the innate curiosity for exploration that is often seen in play and the "fun" of assimilating novel information. Some focus on play as an escape from boredom. Others focus on the sensory aspects of activities, believing that individuals choose activities based on the sensory experiences they provide and that those choices reflect an individual's need for sensation (Zuckerman, 1971). White (1959) proposed a theory of motivation that explains play as a persistent urge to interact effectively with the environment. Children gain competence through play and thus adapt and grow into functional adults. Satisfaction is gained through competent interactions with the environment, and children gain pleasure from the ability to do something. Although the theory states that play allows competence to build in children who play, the goal of the children who are playing is not to build competence—it is to have fun. As a whole, the theories in this group appear logical but cannot account for the entire range of motivation to play, nor for the continuum of playful work and "workful" play.

Current Biological Theories

Many of the newer theories of play have emerged from the study of the play of animals within the field of evolutionary biology. It is important to consider why other species play because there is likely to be an advantage to this behavior for it to continue. One must also consider that in many species, play is quite costly (Bateson, 2005; Bekoff & Byers, 1998). There is an expenditure of energy and the potential of being viewed and attacked by predators,

[6] see *http://www.psychotherapy.ro/resources/uncategorized/psychoanalysis-criticisms/*

and play in some species can be dangerous, such as when seal pups are killed by sea lions while they play. Play also seems to disappear when animals are under stress, suggesting that it is in fact costly to the animal to engage in it (Burghardt, 1984). So, what advantage could play provide for a species? Why does it continue throughout long periods of human and animal evolution?

Play to Prepare for Adulthood

One popular theory is that play in juvenile animals prepares the animal for adulthood (Bateson, 2005; Bekoff, 2002; Fry, 2005; Thompson, 1998). Support of this theory is that play behaviors in animals are often noted to be facsimiles of risky adult behaviors such as catching prey, avoiding predation, fighting, and mating. Generally, play forms do not exist for nonrisky behaviors, such as grooming or urinating. So perhaps play evolved because it enabled practice of potentially dangerous adult behaviors during childhood. Although this "preparation for adulthood" theory seems logical, evidence often contradicts it. The movements used in animal play in childhood are often different from those used in adulthood. And during play fighting, as opposed to real fighting, when things get too rough, one animal will back down or ease off to allow play to continue (Bekoff, 2002; Fry, 2005; Thompson, 1998). This does not occur in real violent contests. Some aspects of play fighting are actually counterproductive to learning real fighting (Biben, 1998). For example, in squirrel monkeys, mismatched play partners go out of their way to make partners feel safe. They play fair or they do not play. There is also little evidence that animals that do play at something in their youth are better at it in adulthood (Caro, 1994).

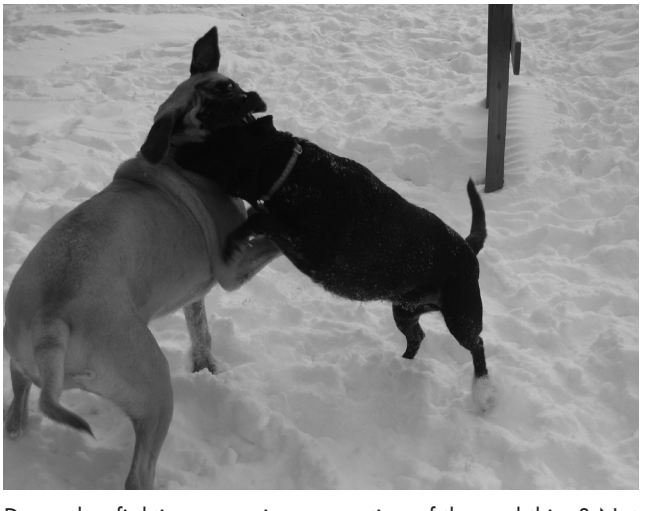
Another theory of play in animals suggests that play provides exercise to the motor skills that are necessary in adulthood. However, there is much evidence to contradict this theory (Byers, 1998; Thompson, 1998). For example, during play, the motions used are often too short in duration to provide any real muscular benefit. If play is for exercise, why are some play bouts in animals so brief? Generally, play bouts are not enough for exercise in terms of muscular changes. Also, if play is for muscular exercise, why does it not begin right at birth and continue throughout life? Instead, play peaks in the juvenile period, but muscular development declines rapidly if exercise is not continued. If play is for the muscular development of children, there should be evidence that play increases the survival of children; however, there is no evidence of this. The evidence contradicting the idea that the purpose of play is preparation for adult activities has led animal researchers to propose other rationales (Byers, 1998; Thompson, 1998).

Play to Build Social Competence

One alternative rationale for play in animals may be greater learning of the local environment, the members of the social group, and the local culture. Bekoff (2002) suggested that perhaps play allows animals to learn fairness and social morality. So, perhaps social play therefore serves the function of acquisition of social competence. Researchers studying the effects of play deprivation in rats found that lack of play during specific periods can influence later social behavior (Hol, Van den Berg, Van Ree, & Spruijt, 1999; Van den Berg et al., 1999). Isolated animals fail to learn playfulness and social play and often react to other animals with aggressive or fearful behaviors (Lewis, 2005). So, perhaps play promotes socialization. Similarly, Panksepp and colleagues (Panksepp & Burgdorf, 2003; Panksepp, Burgdorf, Turner, & Gordon, 2003) studied the social emotional implications of play including a behavior in rats that they consider laughter. Their research suggests that play serves important social functions in rat development.

Play as a Test of Competence

Thompson (1998) suggested that perhaps play is a mechanism of managing development so as to provide feedback on one's abilities in relation to others, in an effort to regulate future activities. Play choices allow one to examine one's own competence level. An observation supporting this theory is that the outcome of play is often success or failure, winning or losing. Juveniles do choose activities that are at the right level of challenge, not too easy or too



Does play fighting occur in preparation of the real thing? Not according to some research.

hard. They will "change the test" if it is too easy and will continue until they fail the test. They also need novelty and greater challenge in their play, creating new tests as their abilities improve. Thompson (1998) suggested that these play tests and the search for novelty was favored by evolution, because those who were most able to assess their competence in a full range of activities before needing the skills for survival were more likely to survive.

Play to Promote Creativity and Flexibility

Play's greatest benefit may be the ability of an individual to modify behavior creatively and flexibly in the face of changes in conditions. Play may enhance creativity and the facilitation of innovation and problem solving (Bateson, 2005). There would be an evolutionary advantage for those creatures that played and that were able to respond more adaptively to novel situations. This may not have been the original purpose of the development of play on the planet but a fortunate by-product (Bateson, 2005). Many theorists have begun to consider the idea that a strong benefit of play that may have led to continued evolution is that play creates more flexible brains that are able to respond creatively to novel problems.

Play to Create Neurological Flexibility

A currently popular theory suggests that the one feature common to all forms of play in all species is that play promotes flexible brains (Sutton-Smith, 1997). Play leads to a broader mental repertoire that helps an animal be successful in adult life, whether in the areas of social interactions, obtaining food, or avoiding predation. During play, random actions are common. Play creates the unexpected and allows animals to learn to deal with novelty (Spinka, Newberry, & Bekoff, 2001).

Sutton-Smith (1997) discussed that the most common concept among all various writings on play is variability, and perhaps variability is what play is all about. He suggested that play assists in the actualization of brain potential, in saving of more brain variability, and perhaps in creating novel brain connections to enhance the child's potential variability. Play helps us face our fears and see possibilities, and helps us be optimistic and creative (Sutton-Smith, 1997). In terms of evolution, the function of play is to enhance survival by allowing for more flexible and variable solutions to the typical problems of everyday existence. He therefore defined play as "a facsimilization of the struggle for survival as this is broadly rendered by Darwin" (Sutton-Smith, 1997, p. 231). If the purpose of play is to promote brain growth, development, and flexibility, then there should be indications of this in brain research. New methods of investigating the brain's structures and functions support these new theories.

Studies of the play behaviors of rats and the brain mechanisms for play have supported the new theories on the role of play in flexibility and brain development. Scientists are beginning to examine the specific functions of brain structures and regions in play. Play has been specifically linked to the development of the cerebellum (Byers, 1998). In both rats and cats, the growth curves of the cerebellum match the growth and decline of play rates in these species. Play occurs and peaks at ages when it is possible for motor activity to alter the formation of synapses in the brain areas responsible for motor control. Cerebellar synapse formation can be influenced by the environment; experience mediates which synapses are retained and the number of synapses per cell. These effects appear to be permanent, so that when the development of the cerebellum is completed, play stops (or slows).

Other brain areas are involved as well. Rough and tumble play in particular activates many areas of the brain, and the pinning behaviors of rats appears to be related to the parafascicular region of the thalamus, an area that may be responsible for integration of somatosensory information during play (Siviy, 1998). The amygdala and the dorsolateral frontal cortex have been shown to be related to play as well. In rats who were allowed to play for 30 minutes, these areas had significantly elevated brain-derived neurotrophic factor mRNA expression (Gordon, Burke, Akil, Watson, & Panksepp, 2003). The motor cortex may be required to allow for the alteration of play patterns to environmental contexts (Kamitakahara, Monfils, Forgie, Kolb, & Pellis, 2007). Specifically, damage to the orbitofrontal cortex in early life may alter the ability to modify patterns of response in play fighting with different patterns (Pellis et al., 2006). With the widespread neurological impact of play, play could facilitate a brain with a greater number of response options and could facilitate coping, creativity, and learning, thereby supporting the previously mentioned theories of "play as flexibility."

The neurotransmitters of dopamine, norepinephrine, and serotonin have all been found to play a role in play behaviors (Siviy, 1998). Dopamine is important for the increased arousal needed before a play bout and the anticipatory behaviors before play, whereas norepinephrine and serotonin modulate capacity for play once the animal is playing. Animals with low norepinephrine play less, whereas those with low serotonin play more. Low serotonin may increase play by altering the animal's

responsiveness to playful overtures of others. These neurotransmitters also have widespread impact throughout the brain.

Perhaps play *is* a mechanism of promoting brain development. Would this mean that animals that play more would have larger brains? In primates, social play is correlated with brain size. Larger social groups create a greater cognitive load, and therefore, greater brain size may have evolved in species living in larger social groupings. However, research evidence does not completely support this assumption (Iwaniuk, Nelson, & Pellis, 2001). More likely is that play is related to size of specific brain areas or structures that are highly related to play (Pellis & Iwaniuk, 2002).

If play is for promoting brain development, the absence of play should be visible in the brain as well. There is now some emerging evidence in rats of neurological effects of play deprivation (Henig, 2008). Pellis and colleagues are also currently studying the neurological impact of play deprivation[7] for current research projects. In these studies of play-deprived rats, there is an immature pattern of neural connections, where appropriate neural pruning seems to have been missed or skipped. However, this is an area of study in its infancy.

A New Way to Consider Why Children Play

Much confusion exists in the research and writing about why children play. Some researchers have therefore begun to consider that perhaps while searching for the purpose of play, they have been studying aspects of play that are not play's primary evolutionary purpose but instead just beneficial consequences. One author argued that scientists must separate the *cause* of play from the *function* of play (Burghardt, 1984, 2005). Examining the function of play may not lead any closer to the evolutionary *cause* of play. One needs to consider the primary processes that led to play evolving in ancient animals separately from the secondary processes, which have evolved over time as play conferred additional evolutionary benefits on animals that engaged in it.

Perhaps certain situations had to occur before play could evolve (Burghardt, 1984, 2005). Certain species may have been physiologically more or less adapted to originate play. For example, reptiles have curiosity, arousal, learning mechanisms, and exploration, but they do not demonstrate play as people usually think of it. Reptiles rely on external heat; they have anaerobic metabolism and little parental care. These conditions make play an inappropriate strategy for reptiles. Perhaps early species to originate play were more efficient in their use of their metabolic energy. Perhaps play initially evolved in those species with a set growth rate and excess energy. Play appears to occur in species with protected childhoods and parental care, the capacity for rapid learning, and the need for quick movements and flexibility. Burghardt (1984) suggested that play emerged initially out of exploration to escape boredom in animals where food was plentiful, where predators perhaps were limited, and where parental care provided for most needs. After a period of evolution where length of parental care increased, play evolved to facilitate rapid behavioral and mental development through natural selection. Through mechanisms of evolution, play continued because of a host of secondary and tertiary benefits (**Figure 1-4**) (Burghardt, 1984, 2005).

Figure 1-4 Process of Play

Primary Processes

- Sufficient metabolic energy
- Animals buffered from severe stress and food shortages
- High activity levels or the need for stimulation to elicit typical behavior systems and optimal arousal
- Complex behaviors in varying conditions

Secondary Processes

- Neurological benefits
- Behavioral flexibility
- Improved perceptual motor coordination
- Physical fitness

Tertiary Processes

- Improved social status and reproductive success
- Resources for novel behavior and creativity
- Ability for mental play
- Neurobehavioral development
- Reorganized and more complex behavioral systems

Adapted from Burghardt (1984, 2005)

[7] see *http://ccbn.uleth.ca/people/primary/pellis.php* and *http://www.excellence-earlychildhood.ca/repimpCopernic.asp?lang=EN&pos=348*

In considering play in this way, the multitude of apparent functions of play can be collapsed. Many of the prior theories discussed can be placed within this framework. The early theories of Groos (1901) and Spencer (1873) presented earlier in this chapter can be reconsidered in light of this model, as can the newer theories of brain flexibility, self-assessment, and social engagement. Play arose from instinctual behaviors and neural organization that provided pleasure from these motor behaviors. Play was initially rewarding and was incorporated into many behavioral systems over time. Play became adaptive in different ways in different species. Species with needs to navigate in complex environments or escape from predators have highly evolved locomotor play forms. Species that are carnivores, omnivores, and scavengers often exhibit object play. Social play is common in species that are social animals. Most likely, children play now for many reasons, not one.

Summary of Why Children Play

Although these theories too may eventually be replaced, the newer theories proposed by animal scientists that consider the influences of biology and neurology seem to come closest to explaining why children play. Children play because at some point in early history, certain necessary conditions were met. Then, a variety of beneficial consequences evolved through play that promoted survival and further evolution. Throughout time, play has served as a function to allow species that live in complex environments to thrive. Play encourages flexible thinking, creativity, and problem solving. The social aspects of play promote social-emotional bonds between individuals, and the pleasurable aspect of play promotes quality of life and mental well-being.

Conclusion

Although play seems a relatively simple phenomenon when observed, play is an incredibly complex topic to study, define, and describe. In this chapter, we provided an overview of what we believe are the important concepts relevant to play that readers need to know before continuing to the following chapters on application to intervention. General knowledge about play provides a foundation for assessing and incorporating play in occupational therapy. Interested readers are highly encouraged to seek out and read the original works cited in this chapter. The readings on the evolution of play in animals are particularly fascinating and enlightening. The study of play has finally come into its own, and the multitude of animal and cross-cultural studies being published suggest that there will be interesting new information to incorporate into theoretical frameworks in the years to come. With this introduction to the many facets of play examined by researchers in animal biology, evolutionary science, education, psychology, and child development, we next turn to the way play is viewed and used in occupational therapy.

Appendix 1-1

Web Resources on Play

Play

http://nifplay.org/
http://www.ipausa.org/
http://www.strongmuseum.org/
http://www.strongmuseum.org/about_play/play_journal.html
http://www.strongmuseum.org/about_play/recess_play.html
http://www.aap.org/pressroom/playFINAL.pdf
http://www.npr.org/templates/story/story.php?storyId=19212514
http://naecs.crc.uiuc.edu/position/recessplay.html

Rights of Children to Play

http://www.righttoplay.com/site/PageServer?pagename=aboutRTP
http://www.playireland.ie/
http://www.ipacanada.org/home_childs.htm
http://www.unicef.org.au/SchoolRoom-Subs.asp?SchoolRoomID=1

Play in Refugee Camps

http://www.tornfromhome.com/
http://www.savethechildren.org/publications/technical-resources/emergencies-protection/psychsocwellbeing2.pdf
http://www.refugeesinternational.org/who-we-are/our-issues

Play Research in Animals

http://query.nytimes.com/gst/fullpage.html?res=9404E7DA1339F934A25751C0A96E9C8B63&sec=&spon=&partner=permalink&exprod=permalink&pagewanted=5
http://ccbn.uleth.ca/people/primary/pellis.php
http://www-personal.umich.edu/~bclee/laughpapers.txt
http://www.youtube.com/watch?v=j-admRGFVNM
http://www.psych.umn.edu/courses/fall06/macdonalda/psy4960/Readings/PankseppRatLaugh_P&B03.pdf