

Play as Occupation: The State of Our Science and a Research Agenda for the Profession

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Occupational therapists view play through a unique lens. Considering play as a human occupation, and one to which all people have a right, places occupational therapists among a special group of professionals championing play. This State of the Science article seeks to increase awareness regarding the occupational therapy profession's contributions and to situate those contributions within the larger body of literature on play while also promoting further study of play as an occupation.

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Results of studies from around the globe confirm two important and conflicting things about children's play. First, play positively influences health and well-being, and, second, most children in the modern era do not get enough play to reap the rewards it could offer (Brussoni et al., 2012; Genius of Play, 2017; Gleave & Cole-Hamilton, 2012; Koepp et al., 2022; Lee et al., 2021; Mader, 2021, 2022; Sando et al., 2021; Singer et al., 2009; Storli & Sandseter, 2019; Yogman et al., 2018). This situation has led national and global public health organizations to call for an increased emphasis on the provision of time, space, and toys for play (Alliance for Childhood, 2010; Canadian Public Health Association, 2019; Tremblay et al., 2015; World Health Organization, 2019).

Play Influences Mental Health and Well-Being

A growing body of science documents the importance of play, including its

influence on mental and physical health, motor development, and brain development (Ginsburg, 2007; Yogman et al., 2018). The mental health and behavioral impacts of play are numerous. Play at recess has been found to positively influence emotions (Clark & Rhea, 2017), self-control, and resilience (Massey et al., 2021). Through play, children self-regulate, solve problems, and experience joy (Gray, 2011; Sunderland, 2016). Childhood play also positively influences adaptability and coping when children grow to adulthood (Brown, 2009). Furthermore, Storli and Sandseter (2019) documented the benefits of indoor and outdoor play on well-being. In Northern Ireland, a survey of 427 parents and caregivers of 5- to 11-yr-old children revealed that children who spent more time playing adventurously had fewer emotional and peer relationship problems (Dodd et al., 2023). Both group play at school (Kennedy-Behr et al., 2015) and risky play (Sando et al., 2021) are associated with childhood well-being. Even the

perception that an activity is play can positively influence well-being (Howard & McInnes, 2013).

Play Influences Physical Health and Development

Play has also been found to improve physical health and development in a variety of ways. For example, active play and outdoor nature play encourage physical activity and motor skills (Dankiw et al., 2020; Moghaddaszadeh & Belcastro, 2021; Sutapa et al., 2021), and active play promotes health behaviors that can reduce childhood obesity (González-González et al., 2021). Play outside in nature also influences cognitive skill development (Dankiw et al., 2020), and outdoor play before learning may improve on-task behavior in the classroom (Lundy & Trawick-Smith, 2021).

Both human and animal studies support the importance of play for brain development (Brown, 2009; Hol et al., 1999; Liu et al., 2017; Panksepp & Biven, 2012; Panksepp et al., 2003;

Whitehead et al., 2009). Although science is just beginning to directly explore the impact of play on the brain through imaging studies with human children (Hashmi et al., 2020), studies with animals, primarily rats, have documented the importance of key brain circuitry related to play (Neale et al., 2018; Vanderschuren & Trezza, 2014). Varied areas of the brain appear to be involved with play, including areas of the neocortex (prefrontal, anterior cingulate, prefrontal, and insular) and portions of the limbic system. Neale et al. (2018) documented three key brain circuits related to play: a cortical executive circuit (i.e., prefrontal and orbitofrontal cortex) related to social play, a subcortical limbic circuit (i.e., amygdala, hypothalamus, and striatum) related to play motivation, and affective response and somatosensory circuits (i.e., somatosensory cortex, thalamus, and cerebellum) related to motor patterns and performance. Studies conducted with rats have emphasized the importance of play to brain development as well as to the development of specific social behaviors (Pellis et al., 2010, 2014, 2023). It appears that, at least for rats, play supports the development of brain circuits that allow for nuanced responses to novelty, as well as the ability to exhibit flexible and adaptive behaviors. The data are strong enough that some scientists have supported the notion that play could be an important intervention for human children (e.g., Gray, 2011; Panksepp, 2007, 2008; Whitebread, 2017).

Children Do Not Play Enough

As important as play is, many children are at risk of play deprivation (Dodd et al., 2021, 2023; Genius of Play, 2019). According to the U.S. Bureau of Labor Statistics (2023), parents report playing with their children less than 1 hr per day. Moreover, parents report that their children spend less time playing independently than they did as children (Nopembri et al., 2023;

Save the Children, 2022). Specifically, many children lack time playing outdoors with other children and without adult supervision (Loebach et al., 2021). Barriers to outdoor unsupervised play include parental risk aversion and community dangers (e.g., traffic, fears of child abduction, avoiding disturbing neighbors because of noise; Brussoni et al., 2012; Sandseter et al., 2020; Save the Children, 2022).

Play in Occupational Therapy

Because occupational therapy practitioners believe in play as an occupation, they could be key professionals in championing free play for children. Occupational therapy has a long, albeit somewhat spotty, history of studying and promoting play. Although play was considered important by some of the founders of occupational therapy, it did not hold a place of prominence in the occupational therapy literature until well into the 20th century (Kuhaneck, 2023).

Pivotal Moments in Occupational Therapy's History Related to the Study of Play

The impetus behind the initial scientific study of play in the profession lies with Mary Reilly and many of her graduate students (Florey, 1971; Knox, 1974; Reilly, 1974, Robinson, 1977; Takata, 1974, 1980). Their contributions to the profession's understanding of play were pivotal and continue to influence the profession. In her seminal book, *Play as Exploratory Learning*, Reilly (1974) proposed that play provided children with opportunities for learning and mastery; she also developed a model of hierarchical stages of play development. As a group, Reilly and her students promoted the study of play, identified it as important to the profession, and initiated the specific assessment of play, creating the first tools to do so (e.g., Knox Preschool Play Scale, Takata's Play History). However,

after this flurry of research related to play, a shift in professional beliefs occurred, leading the profession toward the medical model and away from play. By 1993, Bundy noted the dearth of new research on play, stating,

It is telling that we who claim that play and leisure are a primary life-long human occupation and who make it our business to assess occupation, have contributed so little to the existing theoretical and practical knowledge base of play. (p. 219)

The growth of occupational science reinvigorated the idea of play as a crucial occupation (Parham, 1996). Occupational science scholars described play as an integral part of human experience, important for enhancing health and supporting quality of life. The renewed interest in play resulted in the first occupational therapy books on play since Reilly's work (Chandler, 1997; Parham & Fazio, 1997). The next decade or so included another burst of occupational therapy research on play, as well as the development of new tests and measures (e.g., Skard & Bundy's [2008] Test of Playfulness and Test of Environmental Supportiveness, the Child-Initiated Pretend Play Assessment [Stagnitti & Unsworth, 2004]) and revisions of others (e.g., Revised Knox Preschool Play Scale; Knox, 2008).

These assessments provide multiple lenses for examining play that suit occupational therapists' focus on the person, the task, the play environment, and the needs of a particular child. One result of the development of these new tools was the ability of occupational therapists to complete a play assessment as well as a play-based assessment (Ray-Kaesler et al., 2018). The purpose of play assessment is to identify a client's types or forms of preferred play; the play activities available to them; how playful they are; and when, where, and with whom they play. In contrast, a play-based assessment uses play to measure other skills and abilities. Although play-based

assessment yields information similar to what may be obtained with other developmental measures, it may be advantageous when a therapist is concerned that a client will not demonstrate capabilities via more traditional assessment. Occupational therapists concerned with play as an occupation should be completing play assessments whenever play is of concern for a client (Bundy, 1993; Lynch & Moore, 2016).

Global Paradigm Shifts

Around the same time that the profession of occupational therapy was seeing a resurgence in interest in play, two important paradigm shifts began around the world and beyond occupational therapy. Growing concerns over children's physical and mental health coinciding with a notable decline in play led to changes in thinking that culminated in the declaration that children's play was a right. A second paradigm shift brought about by advocates for those with autism spectrum disorder, commonly called the *neurodiversity movement*, resulted in a broader conceptualization of play (Leadbitter et al., 2021).

Play as a Right

The United Nations Convention on the Rights of the Child (UNCRC; 1989) for the first time embedded play in an international human rights instrument. Article 31 (the right to play, rest, leisure, and to have access to creative arts) positioned play as a right rather than a privilege (Davey & Lundy, 2011). The UNCRC, one of the most ratified conventions globally, made it the duty of nations across the world to ensure the right to play. Unfortunately, the United States remains the only U.N. member not to have ratified the UNCRC. Nonetheless, and despite the UNCRC's ratification by most countries, many governments still do not value and promote play; this has led to play being called the forgotten right (Colliver & Doel-Mackaway, 2021; Hughes, 1990; Voce, 2015). In response to this

failure, the international community drafted General Comment No. 17 to remind nations to meet their responsibilities (McKendrick et al., 2018).¹ Together, these documents can be used to bolster play provision and research and also to promote play as a means of achieving other rights (e.g., health development, learning; Davey & Lundy, 2011).

Neurodiverse Perspectives

In recent years, the call for inclusivity has influenced occupational therapy research on play (Dallman et al., 2022; Patten, 2022; Sterman et al., 2023; Taylor, 2023). In advocating for increasing acceptance of neurodiverse perspectives (Goldberg, 2023), the international autistic community has suggested the consideration of differences rather than deficits and understanding occupations from diverse perspectives instead of only through a "normative" lens. Such support is outside traditional direct intervention roles. Some occupational therapy researchers have examined play through a neurodiverse lens, describing play as differently social (Blake et al., 2018; Fahy et al., 2021). A fundamental characteristic of play is that it is self-chosen; if a child chooses to participate as an onlooker, then that play must be honored. Accepting playing alongside, not with, others as bona fide play does not minimize the importance of supporting children to develop and expand play skills and interests through evidence-based interventions—when done judiciously (e.g., Gibson et al., 2021; Kuhaneck et al., 2020). Rather, it means that choice and autonomy are valuable aspects of play.

A View of Play Informed by Occupational Therapy Theory

The Person–Environment–Occupation (PEO) model (Law et al., 1996) has influenced occupational

¹General comments are documents that are developed by experts in the field and who are designated by the United Nations to produce evidence-informed advice and guidance on implementing the rights of the child.

therapy since the mid-1990s. The PEO model emphasizes factors outside, as well as within, the person that support or hinder occupational engagement and performance. For play, this means spaces (e.g., playgrounds), tools and toys, and the influence of others (e.g., caregivers, playmates). There has been minimal study of the effects of specific types of toys on play behaviors (Rubin & Howe, 1985; Trawick-Smith et al., 2011, 2015; Vlietstra, 1980); occupational therapy's contributions in this area include some of the first research investigating the influence of the number of toys on play behaviors (Dauch et al., 2018; Metz et al., 2017) as well as research focusing on aspects of play spaces and the environment (Coughlan & Lynch, 2011; Morgenthaler et al., 2023; Pierce, 2000).

Ayres's sensory integration theory made important contributions to occupational therapy practitioners' understanding of play. Child-directed play is a key aspect of intervention using the principles of sensory integration theory (Parham et al., 2011). The influence of sensory integration theory is evident in research focusing, for example, on autistic children's play, the relationship between play and praxis, and the influence of sensory processing deficits (Bodison, 2015; Bundy et al., 2007; Fahy et al., 2021; Kars & Aki, 2023; Kuhaneck & Britner, 2013; Kuhaneck et al., 2020, 2023; Matthews et al., 2021; Roberts et al., 2018; Waldman-Levi & Kuhaneck, 2023; Watts et al., 2014; Yela-González et al., 2021). Play has also been studied for its positive impact on sensory processing. Roberts et al. (2018) found that play that involves creating play scenes and moving play materials was positively associated with body awareness.

Including Children's Perspectives

If one wants to learn about the meaningful experience of play, one must include players' perspectives. Unsurprisingly, children's views of play often differ from those of

adults (Loudoun et al., 2023; Moore & Lynch, 2018b; Wenger et al., 2023). Although it is relatively easy to obtain information from adults, it can be more challenging to gain children's perspectives. Data collection methods, such as interviews (Graham et al., 2019; Miller & Kuhaneck, 2008; Pollock et al., 1997); careful observation of children as they play (Spitzer, 2003); and photography, videography, drawing, and mapping (Haq et al., 2023; Lynch & Stanley, 2018; Moore & Lynch, 2018b) are powerful means used by occupational therapists to learn about motivations for play. This body of work has identified the importance of fun in a child's conceptualization of play, as well as the influence of a variety of factors in relation to what makes something fun. These factors include the presence of peers, level of activity, and location. Children also identify that the right level of challenge and amount of risk are important considerations in their perceptions of fun in play (Hinchion et al., 2021; Miller & Kuhaneck, 2008).

Risk Reframing

Occupational therapists are well versed in the concepts of the just-right challenge and understand that risk is part of the perception of fun in play for their clients. Understanding the importance of risk in play, occupational therapists, in collaboration with other professionals, have promoted playground play experiences that allow clients to test their limits, experience failure, and gain mastery (Bundy et al., 2009, 2015; Grady-Dominguez et al., 2020, 2021; Niehues et al., 2013). By removing or reducing attitudinal barriers, interventions that assist parents and teachers to reframe their assessment of risk, along with the provision of loose parts to use in play on the playground, have supported children in playing more actively and in taking more risks during their play (Bundy et al., 2009, 2015, 2017; Brussoni et al., 2021; Grady-Dominguez et al., 2020; 2021). In her 2024 Eleanor Clark

Slagle lecture, Bundy (in press) drew from the work of Ball and Ball-King (2011) and Haidt (2024), challenging occupational therapists to consider the benefits of risk taking and recognize that banning risky play and mitigating all conflict because people assume children are socially and physically incompetent may well result in their becoming socially and physically incompetent.

Importance of Play for Adults

Occupational therapy research on adults' play and playfulness is scarce compared with research on children's (Althoff et al., 2019; Farley et al., 2021; Guitard et al., 2005; Parker et al., 2023; Waldman-Levi & Weintraub, 2015). This is likely due to several factors: a dearth of assessments of adult play as occupation; the self-consciousness that occurs when adults are observed playing (Meakins et al., 2005); and the oft-held, but untrue, idea that play is a childhood occupation (Gilfoyle et al., 1990). However, two assessments created by occupational therapists for use with adults as they play with children (Román-Oyola et al., 2024; Waldman-Levi & Bundy, 2023) align well with elements of play such as intrinsic motivation, internal control, suspension of reality, and framing (American Occupational Therapy Association, 2020). These recent additions to the occupational therapy toolbox may generate more research on adults in the future.

A Shift in Thinking Regarding Play in Occupational Therapy

Although scholars have promoted play as an occupation, occupational therapy practice is more consistently oriented to play as a means to an end (Couch et al., 1998; Lynch et al., 2018; Miller Kuhaneck et al., 2013; Moore & Lynch, 2018a). Surveys of occupational therapists from Sweden, Ireland, Switzerland, Canada, the United States, and Australia have found a mismatch between occupational therapists valuing play as an occupation and using play as a medium, with the

majority of therapists reporting using play as a means to another end and few assessing play directly or creating goals to promote it (Brown et al., 2005; Lynch & Moore, 2016; Miller Kuhaneck et al., 2013; Moore & Lynch, 2018a). To capture the full range of play, Ray-Kaeser and Lynch (2017) proposed a continuum of play in practice. Informed by the core characteristics of play and playfulness, the continuum considers transactions as moving from a teaching approach to directed play, to guided play, and then to play as occupation.

Measuring Play and Playfulness as an Outcome

With the professional focus on play as an occupation, researchers have begun to examine play as the outcome of intervention, rather than only as the intervention. Occupational therapists have investigated a variety of interventions for their impact on play outcomes, including robots (Rios-Rincón et al., 2016), Floortime (Dionne & Martini, 2011), community and aquatic playgroups (Fabrizi, 2015, 2021; Fabrizi & Hubbell, 2017; Fabrizi et al., 2016, 2023), child-led play-based programming (Davidson & Stagnitti, 2021; O'Connor & Stagnitti, 2011; Stagnitti et al., 2012), Ayres Sensory Integration[®] (Kuhaneck et al., 2023; Waldman-Levi & Kuhaneck, 2023), video modeling, peer-mediated intervention, parent-delivered intervention (Cantrill et al., 2015; Cordier et al., 2009; Henning et al., 2016; Kent et al., 2018, 2020, 2021; Wilkes et al., 2011; Wilkes-Gillan et al., 2014, 2015, 2016), and occupational therapy broadly (O'Brien et al., 2000). As a whole, this research has documented that occupational therapy intervention can improve play and playfulness.

Current State of the Art and Science

Occupational therapy literature on play may be considered to be "under construction." Although the field has made great strides, and

play is now a more common focus in research and practice, multiple barriers remain to the ability to fully embrace play as an occupation. However, occupational therapists' fundamental beliefs about play may be the greatest barrier. Although practitioners often acknowledge play as an important lifelong occupation, they continue to be bound by cultural beliefs that play should be done only when all the important work is done. Thus, therapeutic play is more often a medium or a tool than an occupation. To move forward, therapists need to overcome those misguided beliefs.

Research Agenda

We believe several important factors could help move occupational therapy play research forward. Some examples follow.

Collaboration

As an occupation, play is highly complex. Studying complex concepts with rigor requires large samples and multiple approaches and measures. Without collaboration, the growth and development of this work will remain limited. Collaborations can occur across professions, universities, countries, or organizations. Occupational therapy practitioners can be integral to this work by partnering with researchers in important ways, such as study design, recruitment, and data collection.

Topics

As a profession and beyond, occupational therapy has many areas for discovery. Areas of need provide just an example of the play research that could be undertaken:

- Attain clarity on definitions of play and its various elements.
- Develop additional valid and reliable measures of play.
- Contribute to the examination of play from a capabilities- or strengths-based approach.
- Examine ways in which childhood play contributes to physical and mental

health, well-being, and quality of life from a longitudinal perspective.

- Further elucidate the influences of contextual variables on play, considering both the physical and the social play environments.
- Identify ways in which play experiences during childhood are consistent across the lifespan and influence adult occupations (e.g., work choices, leisure preferences).
- Establish the long-term importance of risky play related to developing self-esteem, mastery, and well-being, particularly for individuals with disability.
- Understand the influence of children's perceptions of play on the play experience.
- Examine the best ways to teach occupational therapy students about play assessment and intervention.
- Examine play that is often considered socially unacceptable or unilluminated (e.g., pretend play with scary themes, such as 911, or involving guns or death; see, e.g., Galman, 2017, 2021; Mawson, 2008; Rosen, 2015) and adult reactions to this form of play.
- Develop greater understanding of the extent to which researchers implementing play-based interventions with children consider outcomes for the adults.
- Further explore the ways in which play and playfulness between adults or between adults and children benefit those involved.
- Examine the ways in which culture affects the experience of play and the engagement in varied play forms.

Funding

Funding for the study of play and play research can be difficult to attain, especially in the United States. However, several occupational therapy researchers in Europe and

Australia have successfully acquired funding as principal researchers or as members of research teams. The Australian government funded the Sydney Playground Project for nearly a decade. In Europe, the LUDI collaborative (2014–2018) brought together interdisciplinary researchers from several countries. This led to the subsequent funded research program in occupational therapy (P4Play, 2019–2024) to explore the rights of the child to play that concerned people, place, policy, and practice. The Norwegian Research Council is currently funding a study of the relationship between children's engagement in risky play and their ability to manage risk in real life as measured through virtual tasks; that study, led by an early childhood educator, has an occupational therapist on the multidisciplinary team. Occupational therapy researchers must continue to apply for and obtain funding to support this important work.

Conclusion

A growing body of research reported in this article demonstrates occupational therapists' contributions to the study of play as an occupation. The unique occupational therapy lens and occupational therapy theory have prompted research on aspects of play not commonly addressed in other fields. However, the complexity of play, and the importance of better understanding play as an occupation, suggest the need for complex research designs that consider the interactions among person, environment, and play variables. This work will require significant collaboration, as well as dedicated resources. To see this become reality, every occupational therapy practitioner must become a champion of play as a critical occupation for children and adults. 🏆

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