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Exploring the Neuro-Occupational Relationship between Routine Family Mealtimes and  
Children with Autism Spectrum Disorder (ASD)

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There is a widely held opinion that eating is one of the most significant, emotional, and enjoyable daily occupations. Mealtimes provide a sense of familiarity, comfort, and structure to our days, while the preparation of meals often provides opportunities for us to socialize, acquire new skills, and develop meaningful roles (Hasselkus, 2002). The sharing of routine family meals is associated with numerous neurological, psychosocial, developmental, and educational benefits, including increased family communication and cohesiveness, and opportunities for parents to model healthy eating patterns and behaviors (Absolom & Roberts, 2011). However, prevalence rates indicate that mealtime difficulties are very common in childhood, occurring in 20 to 50 percent of typically-developing children and in up to 85 percent of children with developmental disabilities or chronic disease (Stapleton, Griffiths, & Sherriff, 2013). Furthermore, many of the characteristic behaviors seen in children with autism interfere with functional daily routines, such as mealtime, and require increased caregiver support to manage and facilitate optimal performance.

The purpose of this piece of scholarly work is to present the findings from evidence-based literature and scientific research regarding the importance of mealtime as a routine family occupation and reasons why young children with Autism Spectrum Disorder (ASD or autism) may have difficulty participating in such a meaningful routine. Through this review process, we will build connections between the autistic brain, behaviors of children with autism, and neuro-occupations. Finally, suggestions will be made for occupational therapy practitioners who are involved in family-centered intervention and are trying to facilitate more successful mealtimes in the homes of children with autism.

### **Routines, Rituals, & Family Occupations**

*Routines* have been defined as observable patterned behaviors that occur on a regular basis and assist in organizing time as a means of providing structure to daily occupations. *Rituals* are the daily routines to which we attach meaning and provide us with a sense of comfort, tradition, and personal value within basic functional tasks (AOTA, 2008; Schuck & Bucy, 1997). Routines and rituals provide a context for children to practice emerging skills, to achieve functional goals, and to obtain a sense of accomplishment upon completion. Furthermore, young children are often eager to play a role in the patterns of their family's daily life (Spagnola & Fiese, 2014).

Every family needs routines to organize life and keep it from becoming too chaotic. Children do best when routines are regular, predictable, and consistent. One of a family's greatest challenges is to establish comfortable, effective routines that achieve balance between the disorder and confusion that can occur without them and the rigidity and boredom that can come with too much structure and regimentation, where children are given no choice and little flexibility. Studies have shown that *family routines* strengthen family bonds, promote control and order, and provide centeredness in daily life (Segal, 2004; Hasselkus, 2002). Additionally, family routines have a "pragmatic, protective function, the maintenance of which contributes to the physical, social, and mental development of younger family members" (Koone, Hocking, & Sutton, 2012, p. 313). Finally, Boyd, McCarty, & Sethi (2014) assert that "by engaging in family routines, families enact cultural values and ideals, meet instrumental and symbolic goals, structure their daily lives, and share time and occupation together" (p. 4).

In comparison to family routines, Segal (2004) suggests that *family rituals* are a form of symbolic and meaningful communication that convey family identity, gives members of the

family a sense of belonging, and allows for continuity of meaning across generations. *Family identity* is thus created through family participation in performance of rituals, by the inclusion or exclusion of family members in these rituals, and by the socialization of children. Finally, Segal (1999) defined *family occupations* as “culturally meaningful chunks of activities...that occur when the whole family is engaged in occupation together” (p. 1). Shared family mealtime is an encompassing example of a meaningful routine, ritual, and occupation that supports individual family members in their unique rhythm of daily occupations (Koome, Hocking, & Sutton, 2012).

### **Family Mealtime**

Mealtimes often produce comforting smells, sounds, and visuals that, over time, we associate with familiar environments or places, such as our childhood homes. In addition, many of us prefer or are only able to enjoy mealtime as a shared occupation. The experience of eating a meal with others “fosters a sense of social interaction and accomplishment” and enhances the quality of our mealtime experiences through a sense of presence with doing (Sakuae & Reid, 2012, p. 284; Reid, 2009). Sharing a family meal is beneficial to our spirits, brains, and overall health of family members. Studies have correlated regular family dinners to lower rates of substance abuse, teen pregnancy, obesity, eating disorders, and depression, as well as higher grade-point averages and self-esteem (Fishel, 2014). Research also indicates that dinner conversation is more important for vocabulary development than reading. Discussions at the dinner table are often rich with language, which exposes children to a wide range of narratives, explanations, clarifications, and cultural roles about speech (Spagnola & Fiese, 2007). Furthermore, mealtime conversation allows children to practice turn-taking, reading social cues, conflict resolution, and various language-based skills (Ely, Gleason, MacGibbon, & Zaretsky, 2001). From a psychosocial standpoint, mealtime provides opportunities for family members to

engage, reconnect, organize, and structure meaningful dialogue. If a child is unable or has difficulty participating in family mealtime, as often the case for children with autism, they may feel frustrated by or disconnected from their family's routine.

### **Autism Spectrum Disorder**

Today it is estimated that about 1 in every 68 children is diagnosed with ASD (CDC, 2014). Although a consensus has not been reached regarding autism's etiology, scientists believe that irregularities in the brain structures of children with autism are present, most notably in the corpus callosum, amygdala, and cerebellum. These regions are responsible for emotion and social behavior, as well as motor activity, balance and coordination. In addition, scientists have discovered defective communication processes between brain cells, an abundance of nerve fibers, and imbalances in neurotransmitters (UC San Diego Autism Center of Excellence, 2014). Finally, it was found that brain volumes appear to be normal at birth in children later diagnosed with autism, but by two to four years of age, 90 percent of children with autism had brain volumes larger than the normal size. This rapid enlargement of cerebral volume was particularly seen in children's frontal lobes (UC San Diego Autism Center of Excellence, 2014). Overall, it can be hypothesized that these structural and neural abnormalities affect the brain's circuitry system and may lead to defects in brain development as a child with autism grows.

ASD is characterized by impairments in three primary domains of functioning: social behavior, communication abilities, and restricted, repetitive or stereotyped patterns of behavior (Cermak, Curtin, & Bandini, 2009). Specific disturbances in social interaction often seen in children with autism include poor or deviant eye contact, lack of inflection and emotion during conversation, failure to develop peer relationships, delays or inappropriate facial expression, apparent aversion to physical contact, lack of social reciprocity, and apparent preference for

being alone (Rogers, 2010). Disturbances regarding behavior involve the intolerance of deviation from routine, strong attachments to unusual objects, resistance to any type of change, patterns of behaviors that are stereotypical, perseverative, and lacking in representational or pretend play. Finally, children with autism often experience deficits in sensory and perceptual processing, which may include abnormal responses to visual, vestibular, tactile, and auditory stimuli (Rogers, 2010).

Children with autism frequently present with gastrointestinal difficulties such as constipation, vomiting, and food allergies, which often leads to feeding problems (Lukens & Linscheid, 2008). Food selectivity, or a limited repertoire of accepted foods in a child's regular diet, is estimated to be present in up to 80 percent of children with autism (Cermak, Curtin, & Bandini, 2010). It has been suggested that the combination of specific sensory preferences and weak motor control causes children to restrict their intake of food to preferred, tolerable, and manageable textures (Lukens & Linscheid, 2008). Therefore, children with autism are often labeled as "picky eaters". It is important to note that picky eating is not associated with lack of appetite, rather it is due to sensory aversion to a particular food's texture, appearance, taste, smell, and/or temperature. These aversions then lead to frequent eating and oral behavior problems, such as reluctance to taste or touch new foods, mouthing objects, and simply not eating enough (Cermak, Curtin, & Bandini, 2010).

As one could imagine, these core features of autism including deficits in communication and social interaction, and restrictive and repetitive behaviors can make family mealtime a daily struggle (American Psychiatric Association, 2000).

### **Autism and Family Mealtime**

Due to deficits in social participation and communication, children with autism often lack the ability to understand the meaning and importance of family mealtime. The subsequent lack of age-appropriate social exchanges and opportunities to model appropriate mealtime behavior makes it difficult for them to learn expected behaviors such as proper use of utensils and self-feeding skills (Lukens & Linscheid, 2008). Furthermore, children with autism may be unable to adequately communicate their nutritional wants and needs, such as hunger, fullness, food preferences and dislikes, or discomfort around eating, or they may not be influenced by their caregivers' attitudes toward healthy eating in the same way as typically developing children (Lukens & Linscheid, 2008). Finally, bothersome or overwhelming sensory experiences may negatively impact a child's feelings about food or mealtime, which may consequently affect their mealtime interactions (Stapleton, Griffiths, & Sherriff, 2013). Particular sensory inputs can also cause behavior problems in individuals with autism who are unable to describe their distress. As an overall result of these mealtime limitations, a child with autism is often unable to maintain a nutritionally adequate diet.

Troublesome behaviors along with sensory-based feeding issues of children with autism at mealtime have been linked to high levels of parental and sibling stress at family mealtime (Rao & Beidel, 2009). Bagby, Dickie, & Baranek (2012) suggest that children's sensory experiences affect family occupations by determining what a family chooses to do or not to do, how the family prepares for the occupation, and the extent to which experiences, meaning, and feelings are shared. To support this notion, a recent study revealed that mothers of children with autism experienced stress during mealtime because of their child's self-restricted diet and difficulty sitting at the table (Suarez, Atchison, & Lagerwey, 2014).

### **Tying it all Together**

Routines and rituals, while most often performed on a regular basis, can be unpredictable in nature, particularly in the homes of young children. When a child with autism's routine is perturbed, he or she may feel a loss of control and have difficulty overcoming the disruption. Research suggests that the routines and rituals of families with children with autism focus on 'doing' or 'using' routines to achieve the demands of daily life, while families of typically developing children focus more on 'being' and 'becoming' (Larson, 2006; DeGrace, 2004). In addition, studies have reported that families of children with autism had decreased engagement in meaningful family social activities resulting in a reduced satisfaction and family identity (Evans & Rodger, 2008).

For families of children with autism, routines can occasionally help to provide predictability, which often allows the children to participate in family occupations. Therefore, the maintenance of structured family meals can be a helpful way to support the needs of a child with ASD. However, the child's strict adherence to patterns of behavior does not always allow for daily flexibility and can cause families to feel stuck in their routines (Larson 2006; Boyd, McCarty, & Sethi, 2014). In 2004, DeGrace conducted a qualitative research study using semi-structured interviews, which revealed that families with children with autism often have difficulty engaging in daily activities and that family life frequently revolves around the circumstances related to the child with autism. Therefore, the incorporation of schedules, timers, and/or social stories are simple yet effective ways to allow a child with autism to participate in family routines and occupations while still feeling in control of their environment.

As a final aside, it is important to mention that within occupational science there is a need to move beyond studying barriers and difficulties with participation in family routines, and

towards understanding how families successfully navigate life's challenges to co-construct daily routines and occupations (Larson, 2006).

### **Implications for Occupational Therapy Practice**

Occupational therapists use meaningful intervention strategies to enable clients to engage in occupations and participate in daily life. OT practitioners also have a clinical and theoretical knowledge base that includes understanding of core prerequisites necessary for mealtime participation, particularly motor, sensory processing, social, and behavioral skills (AOTA, 2008).

Current research suggests the need for comprehensive family interventions and supports for families who have children with autism that emphasize supporting the meaningful, shared occupations of the family (DeGrace, 2004). More specifically, occupational therapists can help parents to understand that their child's seemingly uncooperative behavior and limited food repertoire may actually be the result of sensory sensitivities causing stress and discomfort, and that the child's food refusals may reflect attempts to cope or compensate for this discomfort (Cermak, Curtin, & Bandini, 2010).

OT intervention focused on a child's feeding and eating difficulties due to sensory sensitivities should aim to enhance caregivers' understanding of their child's preferences during mealtime, which will help parents to make meaning of their child's feelings and internal experiences (Stapleton, Griffiths, & Sherriff, 2013). Occupational therapists should also encourage parents and siblings of the child to model behaviors that demonstrate trying new foods and making eating/mealtime a positive, fun, and interactive experience. "Through mirror neurons in the brain, it is possible for children to experience the positive feelings generated by their reflective caregiver, such that they feel safe and able to enjoy exploring 'just right' differences in the sensory properties of their mealtimes (Stapleton, Griffiths, & Sherriff, 2013, p. 332)".

In conclusion, occupational therapists should assess both positive and negative aspects of child's mealtime routine, identify meaningful food/eating experiences to the child, establish routines that possess positive sensory experiences, and promote strategies to manage the situation in context rather than attempting to solely change specific features of the child (Bagby, Dickie, & Baranek, 2012). Home-based intervention strategies may include, but are not limited to, behavior training, parent education, and establishment of mealtime routines. By working collaboratively with families, occupational therapists can assist children with autism in meeting their present needs and planning for their futures.

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