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Impact of Cooking Groups on Children and Adolescents with Intellectual and Developmental Disabilities

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Abstract

Engagement in play and leisure activities is an important component of daily life for individuals of all ages. However, there is still a lack of leisure and recreation availability and knowledge regarding children with intellectual and developmental disabilities and their participation in daily activities specifically related to play, recreation, and socialization. With healthcare advocacy efforts on the rise, the implementation of a meaningful leisure occupation, such as cooking, through group classes is evident in order to improve one’s overall quality of life. The aim of this 14-week education and program development based capstone project is to improve inclusivity and increase leisure opportunities for kids with intellectual and developmental disabilities at a pediatric cooking school through in-person and virtual cooking class contexts. This study was developed through extensive staff training and caregiver coaching within an occupation-based lens. Patterns between increased understanding of sensory-based techniques and enhanced staff confidence emerged. Additionally, a positive link between participant engagement in group classes and improved mood and sense of belonging were significant, however, long term physical impacts and accessibility proposes the need for more research directly related to group engagement and leisure activities for children and adolescents with intellectual and developmental disabilities.

Introduction

Active involvement in play and leisure activities is an important component of daily life for individuals across the lifespan. In fact, “participation in enjoyable and meaningful activities is essential for the health and development” of individuals as young as preschool age (Huang & Kang, 2021). However, considering individuals with
“developmental disabilities are at a high risk for limited participation in leisure activities” (Badia et al., 2012) and recent estimates in the United States report that 1 in 6 children aged 3-17 have one or more developmental disability (Zablotsky et al., 2019) there is a need to get this population engaged in meaningful leisure activities. The American Occupational Therapy Association (AOTA) defines leisure as a “nonobligatory activity that is intrinsically motivated and engaged in during discretionary time, that is, time not committed to obligatory occupations such as work, self-care, or sleep” (AOTA, 2008).

Occupational therapists play a unique role in addressing leisure participation and exploration, however, few do so for children and adolescents in a group setting while incorporating basic life skills that are involved in cooking. With the incidence of kids with IDD increasing, it was imperative to develop an inclusive group cooking course at an establishment like The Kids’ Table.

The Kids’ Table is a community-based cooking school in Chicago, Illinois with a mission to teach kids and families how to cook by increasing autonomy through practical life skills and making health and nutrition fun. While an abundance of The Kids’ Table courses occurred in person, over the course of the 14-week capstone experience, the brick-and-mortar location closed and cooking class offerings transitioned into primarily virtual courses. This allowed for kids to cook virtually all over the country and beyond!

With no occupational therapist employed at this site, and because The Kids’ Table staff had limited knowledge on what occupational therapy was and its role in inclusivity and autonomy within activities of daily living, the primary focus area of this project was program development and education. The purpose of this project was to
expand the site’s services and develop the role of occupational therapy in conjunction with The Kids’ Table founder, owner, and capstone site mentor, Elena Marre. The goal over the 14-week capstone project was to integrate inclusive, sensory-based techniques in order to increase leisure opportunities and access for children with intellectual and developmental disabilities within a group setting.

**Literature Review**

The purpose of this literature review is to first explore the benefits of group therapy and participation in leisure activities for individuals with intellectual and developmental disabilities and then to address occupational therapy’s role in improving access to group therapy for children and adolescents through an inclusive cooking class while noting the benefits associated with this type of leisure activity.

**Intellectual and Developmental Disabilities**

Intellectual and developmental disabilities (IDD) uniquely affect the trajectory of an individual’s physical, intellectual and/or emotional development (U.S. Department of Health and Human Services, 2021). Most IDD are present at or before birth, but some can occur postnatal due to injury, infection or other factors. Some types of IDD include but are not limited to Attention-Deficit/Hyperactivity Disorder (ADHD), Autism Spectrum Disorder (ASD), Cerebral Palsy (CP), Down Syndrome, intellectual disabilities, and fetal alcohol syndrome. The Diagnostic and Statistical Manual of Mental Disorders characterizes IDD by intellectual difficulties in the areas of reasoning, problem solving, planning, abstract thinking, judgment, academic learning, and learning from experience, along with difficulties in conceptual, social and practical areas of living (Boat & Wu, 2015). With inclusion of individuals with IDD more prominent in the media and recent
literature, it is evident that there is a shift from a deficit model, viewing neurodivergent individuals as ill and requiring “fixing”, to focusing on an individuals’ cognitive strengths, their diverse way of thinking, and their talents through a neurodivergent perspective (Robertson, 2009). Despite the advocacy efforts, however, there is still a lack of leisure and recreation availability and knowledge “regarding young children [with IDD] and their participation in daily activities specifically related to play, recreation, and socialization” (Huang & Kang, 2021). With advocacy on the rise, the implementation of a meaningful leisure occupation, such as cooking, through group classes is evident (Schreuer, 2013).

**Group Work**

Difficulties with social functioning and participation are commonly experienced by children and adolescents with a range of IDD (Gilmore et al., 2020). With lower participation levels within this population, there is an “increasing disparity… for children and youth as [individuals with IDD] age, eventually leading to limited participation in adult activities” (Ratcliff et al., 2018). In order to decrease disparity potential, it is important to foster social experiences early on in life in structured and unstructured environments. While there are few studies that look at the effectiveness of group occupational therapy for children and adolescents there is mounting evidence and benefits attributed to group therapy for adults with IDD, especially individuals with multiple diagnoses. Tomasulo (2014) found that a strength-based approach to group therapy practices led to more productive and meaningful lives with improved relationships for participants. One of occupational therapy’s central philosophies is that individuals define their lives, values, and work through meaningful activities across multiple contexts. The goal of cooking groups through the lens of occupational therapy
is to work on socialization, not only amongst peers, but also between therapists and instructors. This therapeutic approach is more likely to result in occupational engagement by focusing on building rapport and enabling co-occupation between participants and those that support them (Bullock, 2011). Cooking groups foster growth and learning opportunities for participants while enhancing a feeling of belonging with peers which can ultimately promote about a wide range of benefits both physically and emotionally.

**Occupational Therapy and Cooking**

In order to support the shift toward the neurodivergent perspective, it is crucial that program benefits are laid out and appropriate education is provided to foster an inclusive and productive environment for all individuals involved.

**Psychosocial Benefits**

While occupational therapy practice is commonly associated with physical rehabilitation, AOTA has recently identified mental health as a high-need, priority research area (AOTA, 2014). This shift has created an opportunity for occupational therapy to have more of a significant role in psychosocial rehabilitation. “Psychosocial factors are characteristics or facets that influence an individual psychologically and/or socially. Such factors can describe individuals in relation to their environment and how these affect physical and mental health” (Thomas et. al., 2020). Research indicates that the benefits of cooking “exceed beyond nutrition and involve positive influences on socialization, self-esteem, quality of life and affect” (Farmer et al., 2018). While these findings are preliminary and limited, it indicates a positive correlation between cooking interventions and desired psychosocial outcomes in a range of populations. Cooking
interventions in a group setting also have the potential to foster socialization and improve social isolation (Farmer et al., 2018) which is beneficial in building relationships and resilience at a young age for an otherwise at-risk population. A study from Hersch and colleagues (2014) also indicated that exposure to healthy eating and food preparation positively influences children’s food-related preferences, attitudes, and behaviors. The skills acquired from cooking can often get generalized to other settings and tasks including safety awareness, following directions, problem-solving, sequencing and planning (Cook, 2008).

**Physical Benefits**

Children with IDD are a high risk group for the development of obesity, “accounting for 5-6% of all obese children” (Emerson et al., 2016). Since childhood obesity can have a “detrimental impact on a child’s physical and mental wellbeing” (Dean et al., 2021) and ultimately compromise a child’s quality of life, it is important to implement food inclusive programming at a young age. Reducing the prevalence and inequities for this population begins with education on healthy eating for parents and children (Cunningham- Sabo & Lohse, 2013). Once a baseline understanding of healthy cooking is established, the physical properties associated with cooking offer several benefits, as well. Fine motor skills are the use of small muscles involved in muscles that require the functioning of the extremities to manipulate objects and kitchen tools. Fine motor skills are a prominent feature of everyday life and during cooking occupations as they are “involved in many [tasks] such as using cutlery for eating and using knives in food preparation… Some cooking skills also require gross motor skills such as arm movement in stirring” (Dean et al., 2021). Food education in conjunction with health
food class offerings can help foster increased gross and fine motor coordination and movement for children and adolescents with IDD and ultimately decrease the potential for childhood obesity and other healthy disparities.

**Staff Training**

Pediatric culinary programming has notoriously utilized a “kitchen sink” approach when creating course structure. This approach is designed to target broader food skills with little “indication as to why and how the content and specific cooking tasks are chosen” (Wolfson et al., 2017). For example, is chopping or cutting chosen because it has been linked to improve diet quality or is there a rationale behind the choice of fine motor skills? While some of these issues are being addressed through the development of models to help guide the planning and expansion of cooking programs, “there remains a lack of guidance or rationale for specific skills and/ or recipe selection in [pediatric] programming” (Dean et al., 2021). It has been previously argued that while there has been an over focus on manual skills in cooking programs and those required for meal preparation in social-cultural and physical food environments, “cognitive, sensorial, and organizational skills have been ignored” (Dean et al., 2021). However, due to differences individuals with IDD have with intellectual functioning, the ability to learn, reason, and problem solve may look different from person to person (U.S. Department of Health and Human Services, n.d.). This emphasizes the need for pediatric culinary instructor understanding of participant cognitive and manual skill sets prior to implementing programming. Some children may not have the cognitive capacities to “understand complex skills such as food resource management… thus beginning with manual skills will help to develop an initial interest that will enable an
opportunity for learning more complex skills at a later stage” (Dean et al., 2021). This programming setup is beneficial for individuals with IDD and follows an Experimental Learning Theory where learning is seen as an adaptive process involving the development of skills, knowledge, and adaptations which enables lifelong learning (Dean et al., 2021). Through careful planning and coaching, a hands-on approach paired with utilization of the Experimental Learning Theory will focus on fun and engagement through meaningful tasks while simultaneously developing a skill set that can translate to other areas of occupation which will ultimately benefit participants in years to come.

**Summary**

The literature suggests that multiple benefits are associated with leisure activities, such as cooking groups, for individuals with intellectual and developmental disabilities. However, there is a cavernous gap between the availability and accessibility of group cooking classes for children and adolescents with intellectual and developmental disabilities. The scant amount of evidence may be due to group programming being targeted toward older populations and different diagnoses which can make it difficult to generalize methods and results. Individuals with IDD face lifelong challenges associated with their diagnosis and the literature suggests that beginning interventions that target multiple deficit areas early on in life can lead to the best outcomes. Occupational therapy cooking groups may help individuals with IDD manage, and potentially overcome, challenges associated with their diagnosis and improve their overall quality of life.
**Needs Assessment**

To determine the needs of The Kids’ Table, two needs assessment interviews were completed with the founder and owner, the culinary manager, and several class instructors. The purpose of the interviews were to determine the current gaps of practice at the site and obtain information for tailoring the project.

An initial interview occurred prior to the start of the project to develop a deeper understanding of the site, the population served, and gain an understanding of the sites’ baseline knowledge on inclusion, sensory processing, and sensory integration techniques. In addition to questions that came up organically during the conversation, primary questions were developed to guide each interview (Appendix A). This interview identified the need for an educational project including training and handouts on sensory topics, as there was limited knowledge and understanding on sensory processing and sensory integration.

The second interview occurred during the fourth week of the project to with predetermined questions (Appendix B) to establish the best approach for coaching caregivers and staff in virtual and in-person cooking class contexts. A common theme from this interview was to incorporate sensory based approaches that are closely aligned with how classes currently ran rather than implement new classes solely focusing on sensory integration. Additionally, there was a need to incorporate caregiver coaching strategies within virtual offerings and provide educational materials for ease and accessibility in the future.

When examining the overall themes that emerged from the interviews and meetings, The Kids’ Table recognized the role of occupational therapy in addressing
sensory needs. By incorporating staff and caregiver training, and implementing educational tools, The Kids’ Table could increase inclusivity for kids with IDD within their current class offerings.

**Objectives Achieved During Capstone**

This capstone project was an ongoing process that spanned 14 weeks. Broadly, the student spend these 14 weeks acclimating to the site, understanding the staff and site’s needs, preparing project materials, completing necessary coursework, implementing project materials, and assessing the effectiveness of the project.

The following objectives and supplementary learning activities were developed to achieve the aforementioned project.

**Objective 1**: Student will market new inclusive course offerings in local businesses and clinics by the end of week 2.

*Learning activities*: Prior to beginning the 14-week capstone experience, extensive research was conducted regarding the population that was currently being served at The Kids’ Table and how to best market the new inclusive course offerings. An activity pamphlet was developed, Resource Guide for Kids with Intellectual & Developmental Disabilities (& Their Families) Around the Chicagoland Area (Appendix C) to outline events and classes, including courses offered at The Kids’ Table, that offer sensory-friendly experiences for kids with IDD ages 2+. This was provided to the site and available for individuals to download on Therapy Materials Vault by week 1 of the capstone project.

**Objective 2**: Student will administer pre-training measure(s) to site staff to track baseline sensory integration understanding.
**Learning activities:** In order to track staff understanding of sensory integration concepts and techniques, weeks 2-7 were spent creating a pre-training assessment for The Kids’ Table owner, culinary managers, and instructors. Extensive research from OTD didactic coursework, specifically Qualitative Reasoning, and information gathered from sensory integration-focused assessments (Camarata et al., 2020), helped inform the five-question pre-training assessment (Appendix D). The five questions included both subjective and objective questions and encouraged site participants to answer honestly and anonymously to gather baseline knowledge on inclusion and sensory integration before training and education were provided.

**Objective 3:** Student will create and implement sensory integration staff training to facilitate inclusive class continuation.

**Learning activities:** Due to the limited baseline knowledge the staff at The Kids’ Table had on sensory processing and sensory integration, weeks 2-9 were spent researching and creating a sensory based curriculum and training including sensory integration concepts and techniques (Miller et al., 2014). Training was administered in week 9 and included a visual presentation (Appendix E) and supplementary handouts (Appendix F). Training was focused on educating staff on the sensory systems and what happens when sensory processing isn’t working as expected. Understanding of these concepts aid in supporting children with sensory processing difficulties during in-person and virtual cooking classes with the goal of feeling comfortable and confident administering inclusive classes.

**Objective 4:** Student will administer post-training measure(s) to site staff to track progress of sensory integration understanding.
**Learning activities:** After sensory integration training and supplemental handouts were provided to The Kids’ Table staff, a five question post-training assessment (Appendix G) was provided during week 12. Data gathered from this assessment was compiled and compared to pre-training data to determine quantitative changes and qualitative themes. Information derived from objective 4 identifies project effectiveness and implications for future research.

**Implications of Capstone**

The phenomenon of leisure participation linked to improved quality of life has been well documented in the literature, however, less has been explored about group programming and the long-term benefits this type of leisure engagement has on children and adolescents with IDD. This study highlights an opportunity for occupational therapists to contribute to this gap both in research and as a practice area. In addition to addressing instrumental activities of daily living (IADLs) skills that are beneficial for increased autonomy within a variety of occupations, occupational therapists can facilitate inclusion to help individuals with IDD mentally, emotionally, and socially. This study is significant to occupational therapy practice in that it demonstrates the substantial impact inclusive cooking groups can have on individuals with IDD, who are otherwise potentially at risk for social isolation and compromised physical and mental health.

Occupational therapists have a unique role in mental and physical health and wellness across the lifespan through promoting well-being and participation in meaningful roles and occupations (Crist, 2007). The knowledge gained in this study can be used to inform individual treatment plans as well as aid in the development of group
programming in a culinary-focused practice area where occupational therapy isn’t commonly practiced but can be well utilized.

This study reinforces occupation-centered, inclusive treatment as an important dimension of the therapeutic process early on in life by demonstrating how engagement in meaningful occupations in a group format appeared to be interrelated with improved mood and increased sense of belonging for participants. This study challenges occupational therapists to never underestimate the power of engagement in meaningful, shared occupations as a healing tool to promote improved quality of life for children and adolescents with IDD.

To promote sustainability and carryover of this project, the student provided the site with digital copies of all project materials including educational resources and training documents. All materials were handed off to the site mentor, who plans to continue advocating for increased inclusion and use of sensory integration techniques in future virtual course offerings. Having the materials available digitally ensures ease and accessibility while the site continues to evolve within a virtual context. Further, instructors are able to quickly and easily refer to the resources provided for activities and strategies that will support them in helping children experiencing sensory differences.

**Conclusion**

This capstone project aimed to educate staff on inclusive techniques to incorporate into their current class offerings while also implementing sensory-based programming. Prior to this project, The Kids’ Table staff and instructors were lacking sensory processing specific training and resources that would help increase inclusivity
and support children with IDD’s sensory needs. Using pre and post-training assessments in conjunction with informal qualitative responses, the outcome of this project demonstrated increased staff understanding of sensory processing by 25%. Subsequently, staff confidence while implementing sensory integration techniques and concepts also increased by 25%. As a result, instructors have provided in-person and virtual class participants with access to sensory-rich activities and have increased the probability of implementing sensory specific strategies in the future.

Through informal interviews with participant caregivers, a positive link between participant engagement in inclusive group classes and improved mood and sense of belonging were also significant. Instructors have a better understanding of children with IDD and what their sensory processing needs may be, which will ultimately help children learn, feel more included, and achieve their fullest potential within a gratifying leisure activity in a group environment.

While the results of this study align with the current research surrounding the importance of participation in leisure activities for individuals across the life span and improved quality of life, more studies need to be completed to determine long-term effects and to promote validity of the research findings.
References


Appendix A

Questions asked during initial interview with the site owner, culinary manager, and instructors.

- Describe your current level of knowledge on sensory processing within cooking and leisure activities.
- Describe your current level of knowledge on sensory inclusive environments within The Kids’ Table.
- Describe your current level of knowledge on individuals with intellectual and developmental disabilities.
- Describe sensory strategies that are currently in place in The Kids’ Table class offerings.
- What does a typical day look like for the staff at The Kids’ Table?
- What does a typical class look like for a participant at The Kids’ Table?
- How do you currently market your class offerings at The Kids’ Table?
- Would it be beneficial to create educational materials regarding sensory processing and sensory inclusive environments that are tailored for the caregivers of children who attend The Kids’ Table?
- Would it be beneficial to train staff and create educational materials regarding sensory processing and sensory inclusive environments that are tailored for the staff at The Kids’ Table?
- Do my proposed educational materials seem like a good fit for The Kids’ Table? Would they add value to your services?
• Are there any other unmet needs within the Kids’ Table that you would find beneficial to your current services?

• Is there a particular segment of students currently in need of occupational services that could be addressed through such a capstone project?
Appendix B

Questions asked during the second interview with the site owner, culinary manager, and instructors.

- What educational materials would be most beneficial for staff at The Kids’ Table?
- What is the best way to present and distribute the educational materials to the staff and caregivers at The Kids’ Table?
- What is the best way to assess the staffs’ learning of the educational materials and training provided?
- What is the best way to track the caregiver and students’ attitudes toward the sensory integration and inclusivity techniques that are going to be implemented?
Appendix C

Resource guide provided to The Kids’ Table and available to download on Therapy Materials Vault to promote new inclusive course offerings. Pages 2-3 and 5-6 of Resource Guide were removed due to irrelevancy to project paper.
Appendix D

Questions asked on the anonymous pre-training assessment administered to The Kids’ Table owner, culinary manager, and instructors.

• By selecting YES, you are consenting to participate in this research survey. The data collected from your participation in this survey will be kept anonymous and used for a OT doctoral capstone. Do you consent?
  o Yes I consent
  o No I do not consent

• In your own words, what makes establishments “inclusive” to the general population?

• What does The Kids’ Table do to incorporate inclusion within the current class offerings?

• On a scale of 1-3 how confident are you in your understanding of sensory integration, where 1= not confident at all and 3= very confident?
  o 1: not confident at all
  o 2: somewhat confident
  o 3: very confident

• On a scale of 1-3 how confident are you in administering sensory integration techniques, where 1= not confident at all and 3= very confident?
  o 1: not confident at all
  o 2: somewhat confident
  o 3: very confident
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Appendix E

Objectives:

- To understand the sensory systems, where they are located and what they do.
- To understand what sensory integration is and what happens when sensory processing isn’t working as it should.
- To understand what we can do to support children with sensory processing difficulties during in-person and virtual cooking classes.

1. Vision

Provides us with information about light, shape, sound, movement, touch, temperature and contrast.

2. Hearing or Auditory

The organs that we hear through are located in the inner ear. Sound waves travel through the ear canal and go into the ear drum. The eardrum then vibrates and sends waves through the three bones of the middle ear. This process is known as ossicular conduction. The vibrations of the stapes from the middle ear are transmitted to the inner ear through the cochlea. This is the part of the inner ear that contains the hair cells. These hair cells in the cochlea are stimulated by the sound vibrations which causes them to send information about the sound waves to the brain.

3. Touch or Tactile

Our sense of touch allows us to feel the world around us. Our brain is able to interpret sensations and associate them with our other senses to develop our self-awareness. Our sense of touch also allows us to interact with objects in the world. For example, a child may touch a family member or light a candle using a match.

4. & 5. Taste and Smell

- Our sense of taste is the ability to perceive flavors. The taste buds line the back of the tongue, which are responsible for taste perception. The gustatory cells in the taste buds provide information about different tastes.
- Our sense of smell is the ability to detect odors. The olfactory receptors in the nasal cavity are responsible for smell perception. The olfactory cells provide information about different scents.

- Our sense of smell involves reception of chemical receptors (olfactory) that interpret which scents are present. The olfactory receptors are located in the frontal lobe of the brain, which is responsible for the interpretation of smells. The olfactory cells provide information about different scents.
- Our sense of taste involves the detection of chemicals (taste) in the mouth. The taste buds are located on the tongue, which interpret the chemicals and send information to the brain. The gustatory cells provide information about different tastes.
6. Proprioception

This is our sense of body awareness and position. Our proprioceptive system involves our body parts in positions and movements. The ability of our body to move smoothly and precisely requires the appropriate input from our proprioceptive system.

8. Interoception

This is how we interpret signals from our internal organs. For example, hunger, thirst, and the need to go to the bathroom.

7. Vestibular

This is the sense of balance and spatial orientation. It helps us maintain balance and equilibrium.

**What you might see:**

- **Touch**
  - Light pressure and touch can be experienced as pleasant or unpleasant.
  - Sensory responses can be observed in the form of muscle tension or reflexes.

- **Smell**
  - Aroma or scent can be sensed, influencing mood and behavior.
  - Recognizable odors can evoke memories or associations.

**Proprioceptive:**
- Spatial awareness and body position
- Sensory feedback from muscles and tendons
- Ability to adjust movements in space

**Interoception:**
- Sensory feedback from internal organs
- Awareness of hunger, thirst, and other bodily needs

**Vestibular:**
- Sensory feedback from the inner ear
- Balance and spatial orientation
- Ability to maintain equilibrium
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### PROPRIOCEPTION

**What you might see:**
- Sitting in a chair
- Standing upright
- Posture that appears to be stiff
- Difficulty with balance
- Difficulty with motor control
- Difficulty with coordination
- Difficulty with fine motor skills

**Strategies:**
- Regular breaks
- Provide visual and tactile cues
- Use visual aids
- Use auditory cues
- Use haptic feedback
- Use rhythmic patterns
- Use proprioceptive feedback
- Use visual feedback

### INTEROCESSION

**Child with interoceptive difficulties might display the following:**
- Difficulty with muscle tension
- Difficulty with facial expression
- Difficulty with emotional expression
- Difficulty with communication
- Difficulty with social interaction

**Strategies:**
- Use visual aids
- Use auditory cues
- Use haptic feedback
- Use rhythmic patterns
- Use proprioceptive feedback
- Use visual feedback

### SENSORY CIRCUITS

**Sensory circuits** are an essential part of sensory integration intervention. They can be used to help children develop their sensory processing skills and improve their ability to engage in meaningful activities. Some common strategies include:
- **Visual:** Use visual aids and pictures to support learning.
- **Auditory:** Use auditory cues and music to support learning.
- **Tactile:** Use haptic feedback and tactile materials to support learning.
- **Proprioceptive:** Use proprioceptive feedback and movement to support learning.
- **Interoceptive:** Use interoceptive feedback and emotional regulation to support learning.

**Examples of activities to enhance sensory processing include:**
- **Visual:** Reading books, using visual support materials, and visual aids.
- **Auditory:** Listening to music, using auditory support materials, and verbal feedback.
- **Tactile:** Touching objects, using tactile support materials, and haptic feedback.
- **Proprioceptive:** Engaging in movement, using proprioceptive support materials, and movement activities.
- **Interoceptive:** Engaging in emotional regulation, using interoceptive support materials, and emotional regulation activities.
Appendix F

**THE Sensory Systems**

**AUDITORY:** The sense of hearing provides the child with the ability to receive sounds. A child with intact hearing can identify the quality and direction from which the sound is coming. The auditory sense tells us to turn our heads and look. It is also very important for development of understanding speech and language.

**VISION:** The sense of seeing provides the child with the ability to identify and understand what the eye sees. It is critical for learning about shapes, colors, numbers, letters, and words. Vision offers very important feedback to help a child move safely and effectively.

**GUSTATORY:** The sense of taste allows an individual to enjoy food and causes one to react negatively to noxious tastes as a form of protection.

**VESTIBULAR:** This sensory system responds to changes in head position and to body movement through space. This sense coordinates movements of the eyes, head, and body to help a child with balance. This sense allows a child to hike along a bumpy trail and kick a soccer ball without falling. It is also important for maintaining tone (or appropriate stiffness) in the muscles and coordinating the two sides of the body together. The vestibular sensory receptors are located in the inner ear and are stimulated by movement and gravity, letting the body know in which direction and how fast it is moving.

**olfactory:** The sense of smell allows an individual to perceive odor and react negatively to noxious smells as a form of protection. This sense allows a child to smell and enjoy food.

**TACTILE:** This sensory system receives sensations of pressure, vibration, movement, temperature, and pain through the skin. It is broken into two parts, the protective and discriminative. The protective component provides a signal of harmful touch stimuli. The discriminative component provides information about where the body was touched, how light or firm the touch was, and the perception of the shape, size and texture of the object. For example, this sense allows a child to find a coin within their pocket by touch only. The sense of touch provides the body with important feedback for precise, skilled movement and contributes to a child's body scheme. It is known that tactile input early in life has a long term impact on a child’s behavior and interpersonal development. The tactile sensory receptors are located throughout the skin.

**proprIOCEPTION:** The sense of proprioception enables an unconscious awareness of body position. It allows the brain to know where each body part is and how it is moving. This sense allows a child to regulate what direction and how much force to use when moving to successfully grade movement to accomplish functional tasks. This sense allows a child to walk up and down stairs without looking at their legs or feet. This sense is believed to help a child regulate their emotional and behavioral responses. The proprioceptive sensory receptors are located in the muscles, joints, and skin and are stimulated by active movement of the muscles and joints.
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**GUSTATORY**

THE GUSTATORY SENSE HELPS A CHILD DETECT AND PERCEIVE TASTE.

This sense allows a child to discriminate between food flavors and textures, such as sweet, sour, salty, bitter, and bland. Taste is received through taste buds and receptor cells on the tongue.

Difficulty in gustatory processing might cause your child to be very picky eater or have food aversions. Therefore, demonstrating gustatory activities and input helps children to acquire eating and drinking habits as well as further develop or identify foods based on their respective taste, temperature, and sense of smell.

Gustatory activities include identifying eating and drinking habits by selecting appropriate or familiar foods based on their taste, texture, temperature, and sense of smell. These activities may help calm a given child or may alert or energize a child. Each child is unique.

Gently encourage your child to participate; never force or coerce him/her.

Consult with your child's therapist for specific recommendations regarding which activities are suitable for his/her age and individual needs.

**GUSTATORY SENSORY DIET ACTIVITIES:**

- Explore textures: smooth, lumpy, crunchy, chewy
- Explore tastes: sweet, sour, salty, spicy, bitter
- Explore temperature: warm, cool, cold
- Chew Gum
- Suck on an orange
- Lick or suck on a lemon
- Lick a lollipop
- Crunch on a cold pickle
- Crunch on a pretzel
- Suck apple sauce through a straw
- Suck a milkshake through a narrow straw
- Use cookie cutters to make cheese slice creations and eat
- Make funny shaped sandwiches and eat
- Use flavored lip balms
- Scratch and Sniff stickers

**OLFACTORIAL**

THIS SENSE HELPS US TO DIFFERENTIATE BETWEEN THOUSANDS OF DIFFERENT ODORS AND DETERMINE IF THEY ARE DANGEROUS, FOUL, PLEASURABLE, STRONG, OR FAINT.

Sensory receptors in our noses pick up information about the odors around us and send the information to our brain. This system also helps us create the flavors we taste in food. Our sense of smell is linked to our memories and can affect our mood. This sense is also protective against taxes and other odor emitting substances.

Difficulty in processing olfactory information can result in children who can smell things and may not understand safe versus dangerous smells.

Other children may pick up smells that most people don't notice or consider unpleasant. Children with an aversion to smells may have trouble at meal times. These activities may help calm a given child, or may alert or energize a child. Each child is unique.

Gently encourage your child to participate; never force or coerce him/her.

Consult with your child's therapist for specific recommendations regarding which activities are suitable for his/her age and individual needs.

**OLFACTORIAL SENSORY DIET ACTIVITIES:**

- Use scented markers and crayons
- Use herbs and spices in craft projects
- Smell essential oils:
  - Calming: Vanilla and Lavender may be calming
  - Alerging: Peppermint and Citrus may be alergering
- Diffuser Oils Bracelet or Necklace
- Smell flowers
- Blindfold smelling game
- Use flavored lip balms
- Scratch and Sniff stickers
- Scented Bubbles
- Scented dough
- Scented lotions
Appendix G

Questions asked on the anonymous post-training assessment administered to The Kids’ Table owner, culinary manager, and instructors.

- By selecting YES, you are consenting to participate in this research survey. The data collected from your participation in this survey will be kept anonymous and used for a OT doctoral capstone. Do you consent?
  - Yes I consent
  - No I do not consent

- In your own words, what makes establishments “inclusive” to the general population?

- What can The Kids’ Table do to incorporate inclusion within the current and future virtual class offerings?

- On a scale of 1-3 how confident are you in your understanding of sensory integration, where 1= not confident at all and 3= very confident?
  - 1: not confident at all
  - 2: somewhat confident
  - 3: very confident

- On a scale of 1-3 how confident are you in administering sensory integration techniques, where 1= not confident at all and 3= very confident?
  - 1: not confident at all
  - 2: somewhat confident
  - 3: very confident