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RESEARCH ARTICLE

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Occupational Therapy Assessment and Intervention of a 22 Month Old Girl with Feeding Refusal

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ABSTRACT

Feeding difficulties, resulting from refusal to eat certain foods, are a frequent complaint in pediatric clinical practice. In many instances the initial situation is not necessarily serious but ongoing issues around feeding may lead to the adoption of inappropriate feeding practices that can have long lasting consequences. An extremely selective food choice, or picky eating, has been linked to sensory reactivity difficulties. In the general population it is estimated that between 5-10% of children experience sensory reactivity issues. Understanding how this can affect participation in feeding and mealtime is critical. This article presents a case report of a 22-month year old girl with selective food choices and feeding refusal. Occupational Therapy intervention based on Ayres Sensory Integration®, in the context of collaboration with the child's pediatrician, was used to address the sensory issues underlying this child's feeding and mealtime participation difficulties. From the results of the assessment, the following hypothesis were made; a) over-reactivity to oral and tactile sensory input was affecting acceptance of new foods and textures, b) vestibular processing difficulties and tactile over-reactivity were impacting this child´s ability to regulate level of alertness and the ability to stay sitting at the table during appropriate periods of time. Following the Occupational Therapy intervention this child showed improved feeding and mealtime participation and was also able to adequately sit at the table for the duration of the meal.

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Introduction

Feeding difficulties, resulting from refusal to eat certain foods, are a frequent complaint in pediatric clinical practice [1]. In many instances the initial situation is not necessarily serious but ongoing issues around feeding due to lack of comprehension of typical development or anxiety on the part of the caregivers may lead to the adoption of inappropriate feeding practices that can have long lasting consequences [2]. In more severe cases, nutritional status and development may become a concern if food refusal persists. An extremely selective food choice, or picky eating, has been linked to sensory reactivity difficulties [3-5]. In the general population it is estimated that between 5-10% of children experience sensory reactivity issues [6]. Understanding how this can affect participation in feeding and mealtime is critical in order to meet the needs of these children and their families.

Methodology

Using retrospective chart review, this article describes occupational therapy (OT) assessment and intervention of a 22-month-old girl with extremely selective food choices and feeding refusal. She was referred to OT by her pediatrician who suspected possible issues in sensory reactivity. Direct treatment, based on Ayres´ sensory integration approach (ASI®) [7], was carried out for 3 months with an average of 2 weekly sessions of 45 minutes, and a follow-up period of 1 month. Recommendations and strategies for the home environment were also part of the OT intervention.

Evaluation of progress was done through daily logs, which included a list of all new foods tried and introduced in the child´s diet as well as a qualitative description of the child´s attitude to each new food added to the diet. Logs were kept for both the therapeutic meals taken in the clinic and those taken in the home environment.

Patient

The referred child was a twenty-two-month-old girl with age-appropriate weight and height and no other developmental concerns besides feeding. She had been extremely selective in her food choices from the moment solid foods were introduced into her diet. Her mother reported inappropriate behavior during food intake and mealtimes starting at approximately 6 months. She reported adequate breast feeding until 9 months of age and uneventful introduction of complementary bottle

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feeding and pureed vegetables at 5 and 6 months, respectively. Starting at this age it became more and more difficult to introduce new foods to this child´s diet. For example, pureed fruits and soft chewable foods were systematically refused. At the time of the initial evaluation the child no longer accepted pureed vegetables and her meals were extremely limited as she refused all changes. Breakfast consisted of a bottle of milk with baby cereal; lunch and dinner were limited to 3 or 4 small bites of soup, chicken breast, egg or fish followed by yogurt; an afternoon snack consisted of cured meat or pureed fruit. There was a limited intake of vegetables, fruits and carbohydrates. The presence of solid food in the mouth often caused a gagging response.

Assessment in Occupational Therapy

Interview and Observation

After an initial interview with the caregivers, the occupational therapist observed the child having a snack and confirmed the parents' description of feeding difficulties. Smooth foods like plain yogurt were well tolerated but just about all other foods were problematic. The occupational therapist also observed and interacted with the child in an unstructured and playful context. This part of the assessment took place in an OT treatment room equipped with mats, ball pit, climbing equipment and a variety of toys. The child seemed to be in a high level of alertness; she was very restless, constantly moving, changing activity and unable or unwilling to participate in age-appropriate games and activities for even short periods of time. Linear movement activities with therapy balls and swings were the only play interactions that the child was able to participate in for a few a minutes at a time.

Objective assessment

The child's mother was asked to respond to the Sensory Profile [8], a standardized caregiver questionnaire designed to measure children's responses to sensory events in daily life. The data provided by this questionnaire allows therapists to analyze how certain patterns of sensory reactivity may be related to performance and participation difficulties in daily occupations. The information provided by this child´s caregivers revealed atypical sensory responses in relation to tactile, oral, and vestibular stimuli; the child had exaggerated responses to touch and oral sensations and seemed to crave vestibular sensations.

To gather objective information about observable feeding behaviours, the mother was also asked to respond to the Pedi-EAT questionnaire [9,10]. The Pedi-EAT provides the therapist with an inventory of observable symptoms of problematic feeding with reference values for children between the ages of 6 months and 7 years old who are offered solid foods. The questions are divided into 4 sections: physiological symptoms, problematic mealtime behaviours, selective/restrictive eating, and oral processing. The results from this questionnaire revealed high concern in the areas of problematic mealtime behaviours and selective/restrictive eating. The areas of physiological symptoms and oral processing were well within normal limits.

Direct assessment was done using the Test of Sensory Integration for Infants (TSFI) [11] and the Post-rotary Nystagmus test (PRN) [12,13]. The TSFI is a 24-item test designed to measure sensory processing and reactivity in infants. The performance of developmentally delayed and difficult temperament infants has been shown to be significantly different from typically developing infants. Tactile defensiveness, poor ocular-motor control, and vestibular dysfunction occur in a substantial proportion of the developmentally delayed and difficult temperament infants [12]. The PRN test evaluates the integrity of the vestibular ocular reflex after rotation of the head in space and can be used to screen for vestibular processing deficits in children [12,13]. Shortened duration of PRN, in comparison with normative data, is associated with developmental concerns [12]. Vestibular processing problems and gross motor delays reflecting vestibular issues are commonly reported in children with a variety of developmental conditions including autism, suggesting that healthy vestibular function is important for various aspects of childhood occupations [13,15].

The results on the TSFI revealed exaggerated responses to tactile input on the body and around the mouth. She showed no fear response to movement and seemed to enjoy the items designed to assess response to vestibular input which include lifting and spinning the child. Her final scores were within the normal range except for the tactile reactivity items. The reflex response to rotation, post-rotary nystagmus, was slightly below average; once again she appeared to enjoy the movement.

Hypothesis and Goals

From the results of the assessment, the following hypothesis were made: a) over-reactivity to oral and tactile sensory input was affecting acceptance of new foods and textures, b) vestibular processing difficulties and tactile over-reactivity were impacting this child´s ability to regulate level of alertness and the ability to stay sitting at the table during appropriate periods of time.

The goals of the intervention were developed in collaboration with the child´s caregivers: a) demonstrate improved tolerance to participating in activities that involve a variety of oral and tactile input as a basis for accepting a wider variety of foods, b) demonstrate improved tolerance to participating in sedentary activities as a basis for increasing tolerance to sitting at the table during mealtimes, c) eat the food presented to her 75 % of the time (3 out 4 meals per day).

Intervention

The OT intervention focused on the child´s vestibular processing and tactile reactivity issues and included direct treatment with the child, family counseling and sensory strategies for the home.

- **Reframing of behavior:** The child´s sensory problems were explained to the parents. Indications were given concerning the importance of a) adjusting the textures of foods to improve tolerance and willingness to try new foods, b) avoiding gagging during meals, and c) creating positive experiences with food.
- **Direct OT treatment based on ASI®:** Treatment included individually tailored sensorimotor activities designed to promote more typical sensory responses and improve occupational performance during feeding. The therapy

rooms at the clinic where the treatment took place are equipped with therapeutic equipment such as swings, therapeutic balls, trampolines and a variety of materials that provide tactile input. Oral sensorimotor activities included games with blowing toys, vibrating oral toys and different textured chewing toys. Linear vestibular, proprioceptive and deep touch inputs were provided in order to optimize level of alertness and promote a more proactive attitude towards the acceptance of new foods and textures in preparation for the therapeutic meal at the end of occupational therapy session.

- **Therapeutic meals:** The occupational therapist and the family established which foods to bring to therapy based on nutritional needs (pediatrician recommendations) and food properties (texture, flavor, etc.). New foods were added according to the child´s preferences and sensorimotor abilities. Forced feeding was never used. Therapy was scheduled within a suitable time for a snack.

The family was actively involved throughout the occupational therapy session in order to learn activities and strategies designed to improve sensory reactivity, regulate level of alertness and increase food acceptance.

Results

Evaluation of progress was done through daily mealtime logs kept both by the occupational therapist during therapeutic meals and the caregivers in the home. Logs included a list of all new foods included during meals as well as a qualitative description of the child´s attitude to each new food added to the diet. Over a period of three months, logs showed a progressive increase in the variety of accepted foods and the amount accepted. In an interview with the family, one month after terminating direct treatment, the caregivers reported that the child was eating all foods presented to her. They also reported that mealtimes were no longer a problem for the family. The child was also able to adequately participate in meals outside of the home such as during family gatherings and birthday parties.

Discussion and Conclusion

This article presents a case report of a 22-month year old girl with selective food choices and feeding refusal. OT intervention based on ASI®, in the context of collaboration with the child's pediatrician, was used to address the sensory issues underlying this child's mealtime participation difficulties. Following the OT intervention this child also showed improved participation in other activities involving oral stimuli such as tooth-brushing and was also able to participate adequately in sedentary activities such as sitting at the table during the meal.

This case and other similar cases [16,17] provide information that can be useful for healthcare providers working with children with food selectivity and feeding refusal and contribute to the evidence that OT treatment based on ASI® may be useful to address sensory based feeding problems. Focusing on the underlying sensory issues that may impact feeding can help us better understand the feeding behaviour of young children who refuse to eat or who are excessively selective in their food choices.

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