Educational & Developmental Intervention Services (EDIS) Personnel Development

KIT

Keeping In Touch

MAY 2016

Inside this edition
"Supporting Families of Young Children with Feeding Challenges."

Resource Article

Breastfeeding is known to have advantages over formula feeding. Many of the advantages include releasing of hormones, which promote attachment between mother and infant, boosting baby's immune system, decreasing risks of breast cancer in the mother and savings in buying formula. Breastfeeding has also been touted as a significant benefit for the baby's neurodevelopment. But does this advantage really exist? And if so, what might be the mechanisms at play and to what degree are these advantages? Petryk, Harris, and Jongbloed researched and addressed these questions their article, *Breastfeeding and Neurodevelopment.*

In 2005 the American Academy of Pediatrics (AAP) recommended that infants be exclusively breastfed for 4 to 8 months with solids introduced soon after. No comment was provided on the age at which children should be weaned or how long is too long to breast feed. While many professionals agree on the multiple advantages of breastfeeding, some critics question the methodology of historical studies that purport neurodevelopmental benefits of breastfeeding.

Back in 1929, Hoefer and Hardy studied the mental and physical outcomes of children between the ages of 7 and 13 years who were breastfed for at least 4 to 9 months. They found that that breastfed children outperformed alternatively fed peers on a number of outcomes: educational achievement, motor, and language development. This study was likely the empirical beginning of breastfeeding. Some studies have attempted to relate breastfeeding with neurodevelopmental behaviors such as early achievement of motor milestones. Yet, these studies often did not take into consideration influencing factors such as maternal mental ability, education, and socioeconomic status. However, one study of low risk neurological children who were exclusively breastfed for 7 weeks or more were found to have better quality and fluency of movement at 42 months when compared to formula fed children (Lanting, et al., 1998).

When considering visual development, the benefits of breastfeeding are more apparent. Visual-Evoked potentials (VEP) are the measures of the functional integrity of the visual pathways from retina via the optic nerves to the visual cortex of the brain, (Creel, 2015). Because infants show preferential fixation of a patterned stimulus in comparison to a homogeneous field, forced-choice preferential looking (FPL) visual acuity can be measured by observing an infant's eye movement responses to black and white gratings paired with a gray stimulus matched to the space-averaged luminance of the gratings

Resource Article (continued)

(National Research Council (US) Committee on Disability Determination for Individuals with Visual Impairments, 2002). Stereo-vision is the ability to combine two separate images from two eyes into one image in the brain; thus combining a two dimensional image into a three dimensional one (http://www.children-special-needs.org/questions.html). All three visual dimensions (VEP, FPL, and stereo-vision) were significantly higher at 4 months and also at 3 years for those breastfed children as compared to children fed a corn-oil based formula.

Educationally, breastfed children fared better in a number of respects. Academic performance was significantly higher at both middle and high schools for children breastfed for longer durations (duration of breast feeding was not specified). Those children breastfed for at least 8 months, were found to be one-third less likely to leave high school than their non-breastfed peers.

There seems to be less research in the area of breastfeeding and psychosocial adaptation of children. Given the resulting attachment and bonding benefits from breastfeeding, this is somewhat puzzling. One study showed that conduct disorder in 8 year olds was less prevalent in breastfed children than those bottle fed (Fergusson, Horwood, & Shannon, 1987). In this particular study, maternal reports of conduct disorder were lower than those reported by teachers. This might suggest the perception of the mothers who breastfed their children was biased toward the positive. When a multiple regression was applied to this particular study, the difference in conduct disorder between breastfed and bottle fed children disappeared. Another study reported that longer periods of breastfeeding were not associated with fewer juvenile legal offenses, less substance abuse, or fewer psychiatric disorders. However, a different study found that children who were breastfed longer (duration not specified), were more likely to perceive their mothers as "more nurturing, and caring" (p. 123).

In terms of cognitive development, some studies suggest breastfeeding for as little as 2 weeks may yield a higher score on the Mental Developmental Index (MDI) of the Bayley Sales of Infant Development for 18 month old children. Some studies found that the longer one is breastfed, the better the child does on cognitive tasks later on (up to 4.5 years). Other studies found no relationship when additional factors such as socioeconomic class, maternal education, etc. were taken into account.

We've been discussing breastfeeding versus the bottle use until now, but there is also the consideration of breast milk, pasteurized breast milk, and fortified formulas for those babies with difficult breast feeding. Clearly babies at neurological risk and born prematurely have fared better with breast milk as compared to formula. Even babies receiving human milk via tube scored better on the MDI. At risk babies given human milk scored an average 8.3 points higher on the Wechsler Intelligence Scale for Children-Revised at the ages of 7.5 to 8 years. The method of providing the breast milk (via breast, tube, bottle), yielded similar results. This calls into question whether it is more about the nutritional make-up of the breast milk itself rather than the mode of nutrition that may yield these higher cognitive results. "Human breast milk, even the pasteurized and apparently inferior in nutritional content to artificial formulas, may convey substantial benefits to the developing nervous system of preterm infants (p. 125).

There is certainly a lot of information about breastfeeding (Breast is Best), marketing companies enthusiastically pushing their products (formulas), and groups supporting breast feeding mothers (La Leche League), but the choice to breastfeed or not is a personal one. And whatever the family may decide, we as early interventionists should support and provide them with information and encouragement as they provide for their babies in a nurturing matter.

Petryk, A., Harris, S. & Jongbloed, L. (2007). Breastfeeding and Neurodevelopment: A literature review. *Infants and Young Children, 20* (2), 120-134.

What do the data say?

What is the nutritional value of fast foods?

To shed light on this question we explore the website www.Fastfoodmarketing.org and look to a Fast Food F.A.C.T.S. report published by Yale Rudd Center for Food Policy and Obesity (Harris, et al., 2013). Researchers examined menu options and nutritional value of foods from several top fast food restaurants. Calorie and sodium level benchmark were established by the Institute of Medicine (IOM) for the National School Lunch Program and include a maximum caloric intake per meal at 410 for preschoolers and 650 for elementary school children. Maximum sodium levels per meal are 544 and 636 mg. for preschoolers and elementary school children respectively.

Following are some interesting and astonishing facts included in the 2013 Fast Food F.A.C.T.S. publication.

- Every day 33% of children consume fast food.
- Children consume 126 additional calories plus increased intake of sugar, saturated fat, and sodium on the days they eat fast food.
- Only 3% of kids' meal combinations met the food industry's own nutritional standards.

Kids' meals typically include a main dish, side dish, and beverage. Some also include an enticing prize. Interestingly, researchers found the main dishes to be the least nutritious part of most kids' meals. This was because of the high levels of sodium and saturated fat and lack of whole grains and vegetables. The 2013 Fast Food F.A.C.T.S. report stated that nearly 60% of main dish items contained at least 640 milligrams of sodium, which exceeds IOM recommendations.

On the up side, researchers found that fast food restaurants are offering healthier choices in terms of side dishes options. In fact, it was noted the McDonalds includes half-portions of french fries as well as apple wedges as side dish options. Adding non-fried sides has helped, but French fries remains the most common side option in fast food restaurant kids' meals. Further exploration of kids' meal revealed that the sides are often the most nutritious part of these meal combinations. The availability of healthy beverage options, such as milk and 100% juice, has increased since 2010, but they continue to compete with sugary fountain sodas. Reinforcing this point, in 2013, 45% of drinks ordered with McDonald's kids' meals were soda. Juice, flavored lowfat milk, and plain lowfat milk trailed at 24%, 19% and 11% respectively (Harris, et.al, 2013).

The number of kids' meal food choices has increased over the years. Yet, the food choices often include excessive calories, fats, sodium, and sugar, as well as super-sized drinks with upwards of 850 calories. In spite of the added healthier choice options, the majority (97%) of kids' meal combos do not meet quality nutritional standards including the fast food Children's Food and Beverage Advertising Initiative's (CFBAI) standards for advertising on child-directed media and the National Restaurant Association's Kids LiveWell nutrition healthy meal standards (Harris, et al., 2013, p. v., & 28.). Comparing 2010 and 2013 data, researchers found that "the proportion of kids' meal combinations that met all nutrition criteria for elementary school-age children declined from 05% in 2010 to .4% in 2013" (Harris, et al., 2013, p. 28). Kid meal combinations that met preschool-age nutrition criteria decreased from .4% in 2010 to .2% in 2013 (Schwartz, 2013).

Considering the frequency of fast food restaurant eating, Dr. Schwartz (2013) found that nearly 90% of parents reported taking their child to a fast food restaurant at least once in the past week. This implies that fast food dining may be a more regular meal choice versus a "special treat." Understanding nutritional facts is an important step to healthy eating. The Fast Food F.A.C.T.S. organization provides a variety of nutritional tools to help parents and other interested consumers understand the nutritional value of fast food dining options. Not only is this information important for children it's important for adults too. After all parents eating choices are highly influential in the development of their child's eating habits (Cathey & Gaylord, 2004).

Cathey, M., & Gaylord, N. (2004). Picky eating: A toddler's approach to mealtime. *Pediatric Nursing,30*(2), 101-109.

Harris, J. L., et al. (2013). Fast Food F.A.C.T.S.: Measuring progress in nutrition and marketing to children and teens. Yale Rudd Center for Food Policy & Obesity.

Schwartz, M. B. (2013). Have kids meals become healthier? Presentation at the American Public Health Association Annual Meeting, Boston, MA. Accessed from: http://www.fastfoodmarketing.org/media/FastFoodFACTS_APHAPresentation.pdf

Consultation Corner

From March - August 2016 we are excited to have **Dr. Kay Toomey** as our Consultation Corner expert.

This month Dr. Toomey helps us answer two questions:

1. **When does picky eating start and how can we help parents ward it off?**
2. **Why is it that some children seem to want to eat carbs only? What can we do to help families?**

In our clinical practice, we talk about children who are normally eating, children who are "picky eaters", and those who are "problem feeders". The specific differences between Picky Eaters and Problem Feeders as seen in our clinical work and supported by research are outlined in the handout on page 9 (Carruth et.al, 1998, 2000, 2002, 2004; Galloway et.al., 2005). In general however, the difference between these types of children is one of severity and when the problems are noticed. Picky eaters often grow adequately, although it takes a great deal of effort on the family's part to make sure that their child is eating regularly. Problem feeders often do not grow very well despite everyone's best efforts, and their nutrition is frequently compromised even if they are growing sufficiently. Picky eating typically is noticed by parents around the age of 2 years (18 months to 2.5 years), whereas problem feeders often struggle with eating from time of the introduction of baby foods, finger foods or table foods (6-11 months of age).

There are 2 major reasons we seen children fall into picky eating; 1). There are natural developmental processes around the age of 2 years that makes eating challenging for many children; and 2). Children who are mildly developmentally behind in their feeding skill are being asked to eat more and more challenging foods the older they get. Let's look at the latter reason first.

2). <u>The child with mild oral-motor delays:</u>
In the March and April newsletters, we reviewed the many skills children need to develop over the first 2-3 years of their lives in order to be able to eat a typical table food diet. Many children who have poor oral motor skills are able to "cover up" that they may be struggling with chewing until around 18 months of age. This is because most parents will continue to offer a combination of baby food types of purees and very small pieces of soft table foods until between 18 and 24 months. Around when their child turns 18 months, most parents will begin to offer their children bigger and bigger pieces of harder-to-chew table foods. As the foods presented by their parents become more difficult to manage for the child with oral-motor difficulties, they will become selective in what they are willing to eat. They may refuse meats that are not cooked super soft or that the parents have not cut into small enough pieces. They will often reject any fruit if it does not have the peel removed, and they typically do not transition onto raw vegetables very well either. Meat (other than pre-chewed meats like chicken nuggets, fish sticks, bologna, hot dogs), hard raw fruits with peels and hard raw vegetables are the most difficult foods to chew. Therefore, children with oral-motor issues will often refuse these foods when offered if the parent has not cut the foods into very small pieces. These children gravitate towards primarily wanting to eat carbohydrates that are soft (e.g. pancakes) or that melt in their mouths (e.g. Pringles). If you review the skills laid out in the March and April 2016 KIT newsletters, you will see that many carbohydrates require the oral-motor skills of an approximately 9-12 month old infant to eat them.

Consultation Corner (continued)

1). The normal developmental transitions between 2 and 3 years of age:
In the March KIT newsletter, we discussed that children between 2 and 3 years of age are going through a major shift in their cognitive functioning; from Sensori-motor thinkers to Pre-logical Thinkers. When children make a major developmental shift forward in one area, there is often another area of development that regresses (Brazelton, 2003). Clinically, we find that the area of development that regresses with the large cognitive shift between 2-3 years of age is their sensory functioning. In the April KIT newsletter, we discussed that these children are also going through the final stages of separation and individuation, and they are asserting their own ideas and independence. I call being 2 years old, the "perfect storm". These children are becoming more and more self aware of what does and does not work for their bodies or what does and doesn't feel good in the world, and then their sensory functioning regresses just when their cognitive awareness increases. Because they have figured out they can say "no", "mine", "me do", we now have a child who is going to actively assert themselves when presented with a food they cannot manage well either from an oral or sensory standpoint. We believe this is why the research shows about 50% of 2-3 year olds being reported as being "picky" eaters by their parents (Carruth et.al., 2004).

So what can parents and professionals do to help children avoid "picky eating"?

#1 – Encourage parents to decrease the oral-motor challenge of the foods being rejected.
For example, if their child is rejecting chicken breast (versus chicken nuggets), have the parents make sure the chicken breast is very soft and cut into tiny pieces (and add a tiny bit of salt). If their child is rejecting raw carrots, try offering very soft, cooked carrot sticks that have cinnamon on them. If they are rejecting apple wedges, try very thin apple slices without the peel soaked in a little 7-up to soften it up but keep it from turning brown. If they are struggling with eating broccoli, turn it into a soup. Make kale chips versus kale leaves, or cauliflower mashed "potatoes" versus raw cauliflower florets. Cook pepperoni in the microwave for 30 seconds to turn it into a pepperoni "chip". Use the Calbee Snap Pea Crisps or the Trader Joe's Lentil Crisps versus cooked peas or lentils.

#2 – Encourage parents to decrease and/or change the sensory challenge of the foods being rejected.
Offer a freeze dried, dried or dehydrated version of fruits and vegetables that are being rejected. Children often do better in this age range with foods that are dry versus foods that are wet and squishy.

Offer foods that are mixed textures in their separate textures first, OR cut all the textures into the same size pieces. For example, serve plain noodles with a small bowl of spaghetti sauce on the side for the child to dip into. Or, just lightly coat the noodles in the sauce versus having them swimming in the sauce (it's why so many of them like macaroni and cheese instead). In a fried rice dish, make sure the egg and veggie pieces are all thoroughly cooked and cut into the same size pieces (and all lightly coated in the same flavoring).

Consultation Corner (continued)

Make sandwiches with meat and crackers before bread and meats (and cheese and mayo and mustard). Again, simplify the food by not adding to many textures together. Also, a dry and crunchy food (e.g. cracker) helps hide the wet and chewier food better than another chewy food (e.g. bread).
Make difficult sensory foods (e.g. cottage cheese and eggs) into a single textured food (e.g a pancake) versus trying to offer them in their original form, typically a mixed texture. When offering eggs, try giving just the white part of a boiled egg first or making a scrambled egg with milk so it has a uniform fluffy texture.

Find foods that work like a meltable, crunchy or soft carbohydrate in the mouth but that have a higher nutritional value. For example, use foods made out of chickpea flour such as Boondi, Sev, Papadi or Gaathyia (all crunchy foods that then melt in the mouth). Try edamame pasta, fruit breads or the cakey-type protein bars.

#3 – Educate parents about needing to offer their children foods over and over, even if they reject them at first. Leann Birch is a researcher who has shown it takes children an average of 10 times of trying a new food before they will eat it consistently.

#4 – Encourage parents to continue to offer their children a wide variety of foods and to NOT let their children Food Jag. A Food Jag is when the child wants to eat the same food prepared the same way over and over again. While many parents are told by professionals to let their child eat the same food over and over to avoid the power struggle, it is not helpful. Allowing a child to become very restricted in their food range between 2-3 years of age is how many picky eaters become problem feeders. Set up the rule: if your child eats their perfect food today, they can't have it that way again until the day after tomorrow. The goal is that the parents would offer their child a different protein, starch, fruit and vegetable across every meal and snack, across 2 full days. Parents need to offer a variety of foods to their children from the very beginning of starting to feed them baby foods or table foods.

#5 – Encourage parents to allow their child to play in their food.
Remember, a parent's job is to teach their child how to eat a wide range of nutritious foods. That means that a parent needs to not get into a rut of serving their child the same foods over and over because their child is more likely to eat certain foods without a fuss or without more effort on the parent's part. The parents need to find ways to make meals more fun and enjoyable and interesting to their child. The best way do make meals more appealing is by allowing their child to play and explore their foods, especially new foods. It is "play with a purpose" though. The purpose is for the child to explore the food and to learn about how it moves out on the table so they will know how the food will move when it gets into their mouth. The parents can help structure the play by role modeling what they want their child to do. For example, building a tower then poking off the top "brick" with a toothpick or cocktail fork and popping it in one's mouth to eat. Allowing their child to use a kitchen utensil like a chopper to break apart the foods into smaller more manageable pieces (plus it's just fun).

Consultation Corner (continued)

#6 – Make sure the child is posturally stable at all meals and snacks.
Between 14 and 16 months of age, the child should be sitting up at the family table with the rest of the family (i.e. not in a high chair). They would ideally be in an adjustable wooden chair (e.g. Height Right/Keekaroo chair; Tripp Trapp/Stokke chair) with their hips, knees and ankles all at 90 degree angles. In addition, the chair needs to be adjusted so the table surface hits between the belly button and the breast nipples. If they are in a booster seat, this seat has to be brought to the front of the adult chair so the child's knees hang over the edge at a 90 degree angle. In addition, the family will need to use a step stool as a foot rest so the ankles are at 90 degrees also.

#7 - Make sure the family has a clear mealtime structure that is taught to the child beginning by 18 months of age (with the appropriate level of adult help).

Five Step Sample Meal Structure	
Step 1	5 minute warning
Step 2	Say – "it's time to wash hands" and bring to the sink to wash hands (transition activity)
Step 3	sit in the chair, and then pass out foods "Family Style" with the parent's help
Step 4	work on eating and drinking for at least 15 minutes
Step 5	have the child Clean Up from the meal by placing at least one piece of every food served at the meal (whether they ate any of that food or not) into the trash or scraps bowl and then take their plate to the sink (or hand their plate to their parent)

Hope these ideas will help you with the families you work with!

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Galloway, A. T., Fiorito, L., Lee, Y., & Birch, L. L. (2005). Parental pressure, dietary patterns, and weight status among girls who are "picky eaters". *Journal of the American Dietetic Association, 105*(4), 541-548.

On the WWW

Zero To Three provides many useful handouts and this month we highlight their handout "Here's to Healthy Eating: Habits to Start and Habits to Avoid."

Included among the habits to start are:

- offer choices and healthy snacks
- use a dip
- have fun and be silly
- try licking as a step toward taking a bite.

Some habits to avoid include:

- forcing children to eat,
- wagering deals with children to eat
- eating with the TV on

Read more about these habits and download the resource at: https://www.zerotothree.org/resources/155-here-s-to-healthy-eating-habits-to-start-and-habits-to-avoid#downloads

Continuing Education for KIT Readers

The Comprehensive System of Personnel Development (CSPD) is offering a continuing education opportunity for KIT readers.

In line with the focus on *Supporting Families of Young Children with Feeding Challenges,* readers are invited to receive continuing education contact hours for reading the monthly KIT publications (March through July 2016) and completing a multiple-choice exam about the content covered in these KITs.

KIT readers will receive the exam in August 2016. There is no need to register for the CEUs. Rather, if you are interested complete the exam online at www.edis.army.mil

Upon successful completion of the exam, you will receive a certificate of non-discipline specific continuing education contact hours.

KIT Newsletters are available online at **www.edis.army.mil**

Thank you for your continued interest in the KIT.

Consultation Corner Handouts

PICKY EATERS VERSUS PROBLEM FEEDERS

PICKY EATERS

- decreased range or variety of foods;will eat at least 30 different foods

- foods lost due to "burn out" because of a food jag are usually re-gained after a 2 week break

- able to tolerate new foods on plate; usually can touch or taste a new food (even if reluctantly)

- eats at least one food from most food texture or nutrition groups (e.g. purees, meltables, proteins, fruits)

- frequently eats a different set of foods at a meal than the rest of the family (typically eats with the family)

- will add new foods to repertoire in 20-25 steps on Steps to Eating Hierarchy

- sometimes reported by parent as a "picky eater" at well-child check-ups

PROBLEM FEEDERS

- restricted range or variety of foods, usually less than 20 different foods

- foods lost due to food jags are NOT re-acquired after taking a break, often resulting in a decreasing number of foods in a child's repertoire

- cries and "falls apart" when presented with new foods; complete refusal

- refuses entire categories of food texture or nutrition groups (e.g. hard mechanical, meats, vegetables, soft cubes)

- almost always eats different foods at a meal than the rest of the family (often doesn't eat with the family)

- adds new foods in more than 25 steps on the Steps to Eating Hierarchy

- persistently reported by parent as a "picky eater" across multiple well-child check-ups

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