

Optimal Nutrition At First Bite: Identifying First Foods For Healthier Lifespans

Julia Nordgren, MD, Chef



Julia Nordgren, MD, Chef

Palo Alto Medical Foundation

- Pediatric Lipid Specialist
- Pediatric Weight Management Specialist
- Pre-diabetes Program
- Culinary Medicine Program

Culinary Institute of America

DrJuliacooks.com



Speaker Disclosure

- Honorarium provided by the Hass Avocado Board





First Foods Matter!



Session Objectives

- **Amplify science findings** to help improve knowledge among health professionals and colleagues on best practices to follow when feeding infants and toddlers.
- Counsel clients and the public on **specific food combinations** to ensure toddlers and infants are exposed to **appropriate textures and flavors**, and are meeting nutrient needs.
- **Create tools and tips** to help caregivers choose optimal foods for their infants and/or toddlers to ensure they are building lifelong healthy eating habits.

Outline

- Why first foods matter
- Goal for caregivers: Best Practices for Infant Feeding
- Challenges of feeding infants healthfully
- Strategies for optimizing for infant feeding

First Foods Matter

It is no longer arguable that the foods that are introduced to a developing fetus and baby have long-term effects.

- Physical development
- Neurologic development
- Feeding patterns and flavor preferences

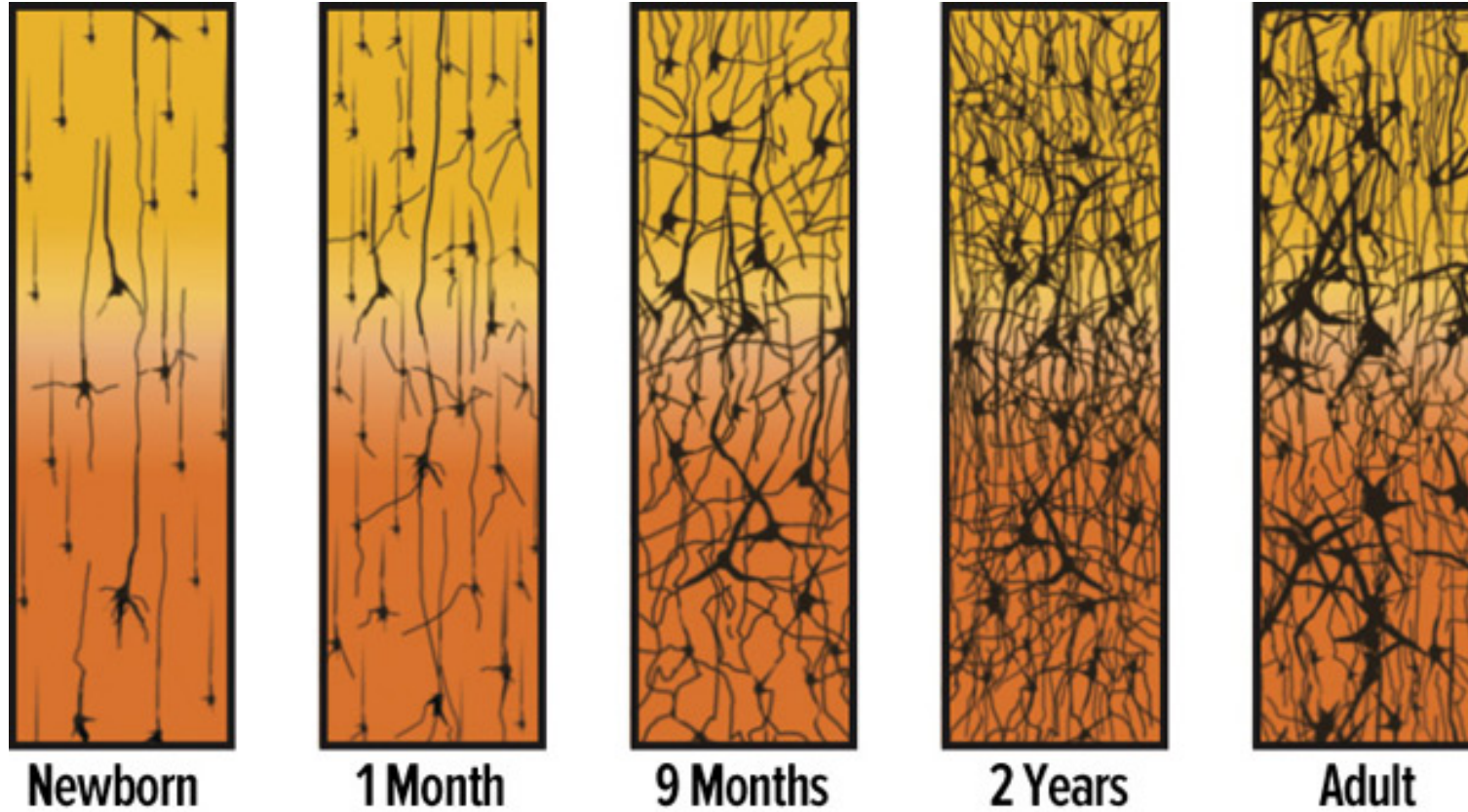
Physical Development

- Infancy is a rapid stage of growth. Body weight is tripled in the first year. Babies who don't get adequate calories and nutrition suffer from stunting and developmental delays.
- High nutrient requirements for all body functions. Developing iron stores, immunity, gastrointestinal function.

Neurologic Development

- Brain growth: The brain doubles in size the first year, and by age three has 80 percent of its adult volume
- Rapid time of brain development; more synapses created in first two years than any other time in life
- Critical connections are made: hunger, satiety, comfort, habits
- These connections can influence quality of foods and impact

Synapse Development



Corel, JL. The postnatal development of the human cerebral cortex. Cambridge, MA. Harvard University Press; 1975.
Also see: <http://www.urbanchildinstitute.org/why-0-3/baby-and-brain>



No Food in Mommy's Car!



Infant Feeding: Neurologic Connections



Neurologic Connections: Hunger and Satiety

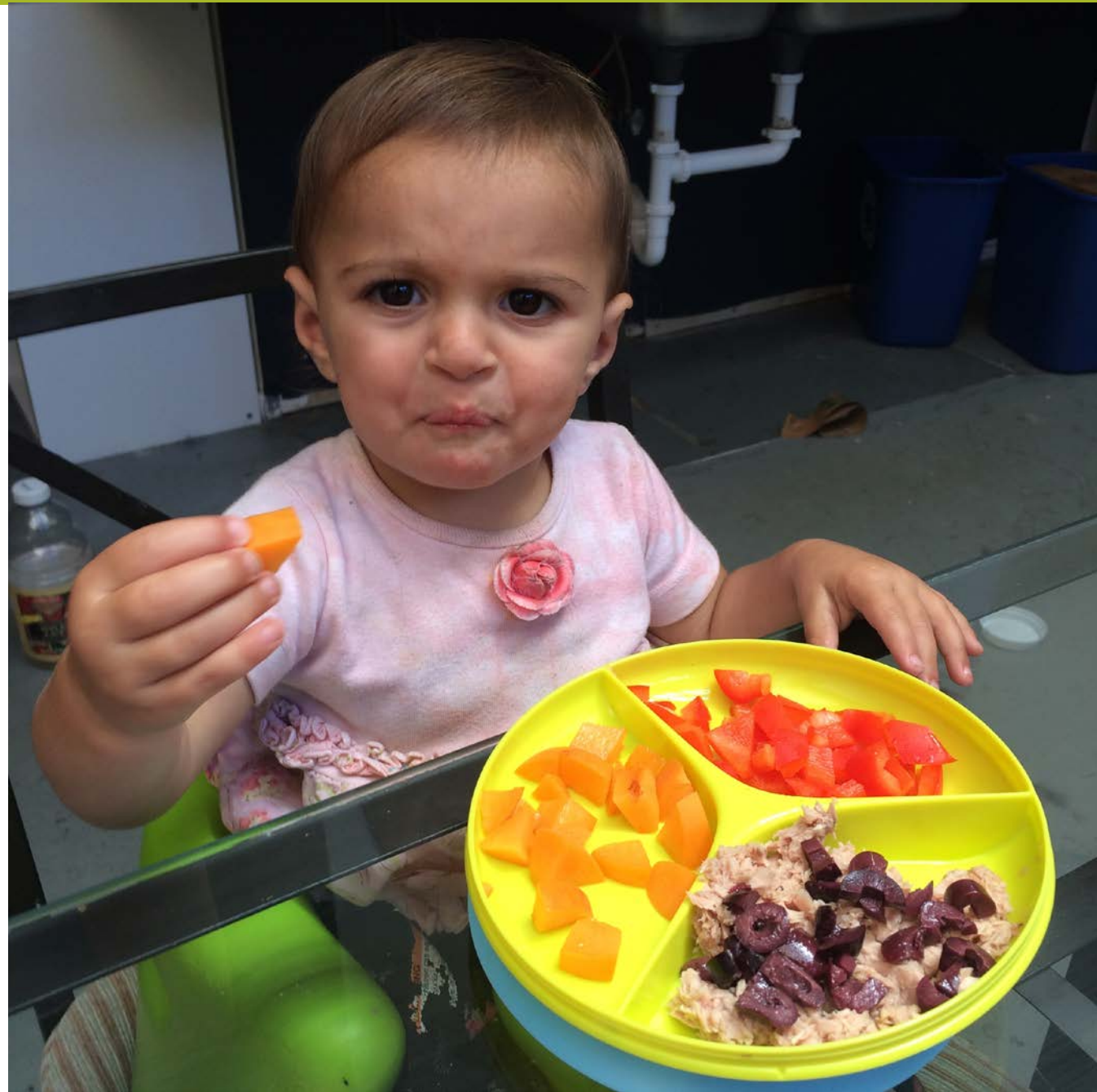


Neurologic Preferences

- Flavor Development. Offering very sweet or salty foods will teach infants a preference for these foods.
- Taste preferences: importance of repeated offering of foods

Importance of Setting Early Habits

- Intake of fruits and vegetables at 1 year was strongly associated with intake of fruits and vegetables at 6 years
- Intake strongly influenced by repeated offering, parental modeling, and parental response



Variety Matters

- The variety of foods introduced by age 6 months is predictive of the variety of foods eaten at age 6 years

Drinks Matter: Sugar Sweetened Beverages

- Intake of sugar sweetened beverages at 1 year was strongly associated with intake of SSB at 6 years
- Sugar sweetened beverages are not nutritive, not essential and contribute to overweight / obesity

Implications of Habit Setting

- Most common foods offered outside of mealtime for infants are cereals, crackers, cookies, and French fries
- Vegetable and fruit intake drops off at 9 months
- By one year of age, the most commonly consumed vegetable is French fries

Food consumption patterns of infants and toddlers: where are we now? Siega-Riz AM, Deming DM, Reidey KC, Fox MK. J Am Diet Assoc. 2010 Dec;110(12 Suppl):S38-51.

Opportunity for Improvement

- Children over 2 consume nearly 40% of their calories from refined grains, sugar-sweetened beverages, and fruit juice
- Infants and toddlers were much more likely to consume sweets (cookies/ candies) than vegetables and fruits on any given day

Lessons from the feeding infants and toddlers study in North America: what children eat, and implications for obesity prevention. Saavedra JM et al. *Ann Nutr Metab.* 2013;62 Suppl 3:27-36.

Comerford KB, Ayoob KT, Murray RD, Atkinson SA. The Role of Avocados in Complementary and Transitional Feeding. *Nutrients*, 2016, 8, 316.

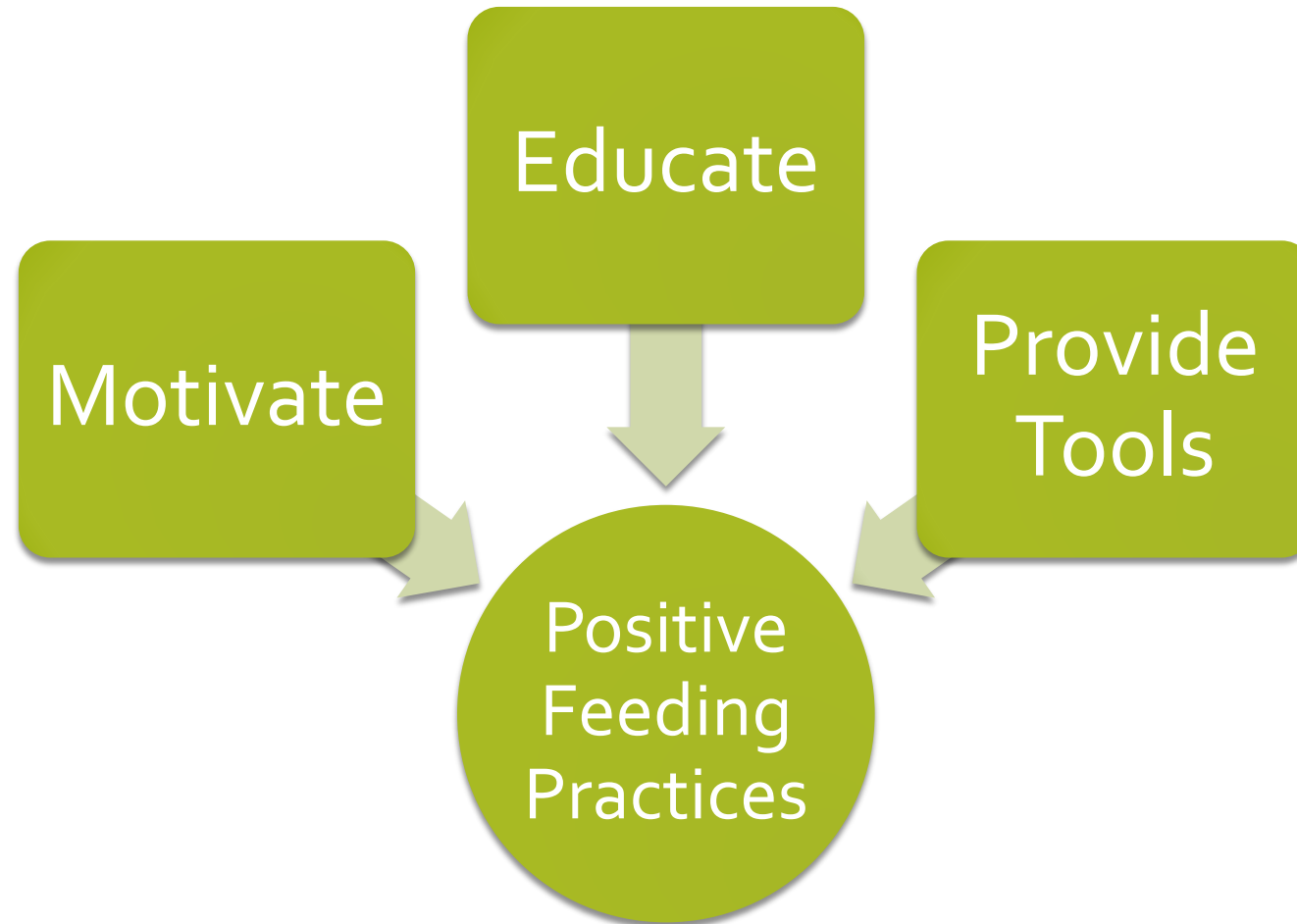
Time of Opportunity - Parents

- This is an amazing window of opportunity to develop and shape these important connections
- Parents have more control and influence over their child's eating from birth to 24 months than at any other time in their child's life

Time of Opportunity: Doctors, Nurses, Nutritionists

- We are a trusted source of information on how to best feed infants
- Parents are motivated and receptive to advice when they feel encouraged and empowered

What Clinicians Can Do



Best Practices: Complementary and Transitional Feeding





BABY

ESSENTIALS



On the Border

baked whole grain corn snack

**Mild
Cheddar**



Best Practices: Selecting First Foods

- Texture: soft foods that are easily chewed and swallowed
- Rich in nutrients, antioxidants
- Mild flavor for initial foods
- Low in sugar and added salt
- Whole, fresh good

































COST

Safeway or Sprouts – personal experience

Whole foods

- Sweet potatoes: 8 servings, \$1.28
- Carrots: 20 cents per serving
- Green beans: 30 cents per serving
- Mango: 50 cents per serving
- Avocado: 30-60 cents per serving
- Black beans: 5 – 10 cents per serving

Low nutrient or convenience food

- Baby cheese puffs \$3.49
- Pureed Pouches: \$1.49 per serving
- Jarred foods: \$1.25 each
- Baby yogurt bites: 4.49 for 4 servings (at whole foods)
- Baby mango puffs \$3.99 at whole foods









Specific Food Combinations

- Fat-Soluble Vitamins and unsaturated fat sources
Vitamins A, D, E, K need fats for proper absorption
Babies and toddlers should not follow a low-fat diet
Avocado and pepper, carrot, tomato
- Iron sources and Vitamin C
- *Meat (ground beef or chicken) and tomato, strawberries, etc*
- Iron absorption is aided by ingesting source of vitamin C at the same meal













Pitfalls of Complementary and Transitional Feeding

- Introducing solids too early: obesity link (6 months is recommended)
- Feeding for comfort instead of hunger (crying, fussing, squawking does not always mean hunger!)
- Offering empty calories (processed food, prepackaged food, baby junk food)

Constant Feeding

- Constant feeding interferes with hunger / satiety development, interferes with proper tooth development, and sets the stage for adipose tissue development

(e.g. feeding in car, stroller, in waiting room, exam room, car ride home)







BABY

ESSENTIALS

♡ Food is Love ♡

THANK YOU

To all of the wonderful mothers and friends
who offered these images of their children

And to Comadre for the Creative Direction on the
Easel Project

References

- Comerford KB, Ayoob KT, Murray RD, Atkinson SA. The Role of Avocados in Complementary and Transitional Feeding. *Nutrients*, 2016, 8, 316.
- Pediatric Nutrition Handbook, 6th edition, RE Kleinman, ed. American Academy of Pediatrics, Elk Grove Village IL, 2009
- Fruit and Vegetable Intake During Infancy and Early Childhood. Grimm et al, *Pediatrics* 2014;134, S63
- The Association of Sugar-Sweetened Beverage Intake During Infancy With Sugar-Sweetened Beverage Intake at 6 Years of Age. Park, S et al, *Pediatrics* 2014;134;S56
Li Z, Sheng M. Some assembly required: the development of neuronal synapses. *Nature Reviews*. 2003;4:833-841
- uptodate.com/contents/dietary-recommendations-for-toddlers,preschool accessed 7/14/16