EARLY LIFE NUTRITION AND BRAIN HEALTH

Corinne Cannavale, B.S.
Nutrition, Wellness, and the Brain
Week 2
STUDYING PRENATAL AND INFANT BRAIN DEVELOPMENT

Carnegie Stages - Species Comparison

NUTRITION AND PRENATAL BRAIN DEVELOPMENT

**Protein**
- Proper neuron & cell growth

**Copper**
- Building neurotransmitters

**Iron**
- Helps create insulation for neurons

**Choline**
- Building neurotransmitters
- Helps with DNA synthesis
- Helps create insulation for neurons

**Zinc**
- Helps with DNA synthesis
- Building neurotransmitters

**Poly-unsaturated Fatty Acids**
- Supports neuron development
- Helps insulate neurons

DHA
• Neuron Insulation
• Neuron Development

Folic Acid
• Neuron development

Diet alone may not adequately cover all nutrients needed during pregnancy! A prenatal supplement containing folic acid and DHA is recommended to support brain development.
We are still learning!

• When it comes to optimal brain health, there are no outlined nutritional recommendations

• A good rule of thumb

  *Heart Health = Brain Health*

• Outlined nutritional recommendations will suggest healthy diet patterns which can promote healthy heart and metabolic health

https://www.choosemyplate.gov/resources/MyPlatePlan
BREAST MILK

• Human breast milk contains a variety of nutrients which are important for development

• While we are still learning about nutrition and brain development, we can learn a lot from studying breast milk to create good substitutes with formula

Carotenoids, nutrients that give pigment to plants, are found in breast milk at high levels in days following birth, but at lower levels later on. We can visually see this in the color of colostrum at 3, 5, 6, and 25 days after birth.
**BREASTMILK & INFANT FORMULA**

- Infant formulas differ in the nutrient composition

**Formula 1**

<table>
<thead>
<tr>
<th>Nutrients (Normal Calorie) per 100 Calories (6.5 fl oz)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Protein</strong></td>
</tr>
<tr>
<td><strong>Fat</strong></td>
</tr>
<tr>
<td><strong>Carbohydrate</strong></td>
</tr>
<tr>
<td><strong>Water</strong></td>
</tr>
<tr>
<td><strong>Linoleic Acid</strong></td>
</tr>
</tbody>
</table>

**Vitamins**

- Vitamin A: 1100 IU
- Vitamin D: 400 IU
- Vitamin E: 15 mg
- Vitamin K: 26 mcg
- Vitamin C: 30 mg
- Folic Acid: 80 mcg
- Biotin: 15 mcg
- Choline: 180 mg

**Minerals**

- Sodium: 30 mg
- Potassium: 130 mg
- Calcium: 120 mg
- Phosphorus: 80 mg
- Iron: 1.6 mg
- Zinc: 1 mg
- Copper: 0.5 mg
- Manganese: 0.3 mg

**Formula 2**

<table>
<thead>
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**INGREDIENTS:**

- Milk, Lactose, Whey Protein Concentrate, Hydrolyzed Pea Protein, Soy Oil, Sugar, Calcium Carbonate, Ascorbic Acid, Corn Syrup, Sodium Chloride, Tricalcium Phosphate, and other ingredients.

**NOT FOR INFANTS OR CHILDREN WITH GALACTOSEMIA**

**NOTES:**

- For 5 days, 6 days, 25 days.
WHAT TO LOOK FOR IN INFANT FORMULA

• Read the label – make sure that the formula you choose has the nutrients important for your baby’s development
  • The American Academy of Pediatrics recommends iron fortified formulas
• Pay attention to allergens
  • Cow’s milk formula = Lactose, dairy/milk allergies
  • Soy formulations
• Do some research and talk to your healthcare provider on what nutrients they feel are important to include
  • For example, carotenoids are not present in all infant formulas, but the data suggests that carotenoids are important for infant brain
KEY TAKEAWAYS

1. Keep a balanced diet during pregnancy to provide balanced nutrients for yourself and baby, while supplementing for DHA, Folic Acid, and other important nutrients that your diet may lack.

2. The brain develops even after birth, so adequate nutrition via breast milk or formula is important for your baby’s health.

3. Evaluate the formulas you are thinking of purchasing. Take advantage of what science has learned from breast milk composition when choosing a formula.
QUESTIONS?
INTERESTED IN LEARNING MORE?

Complete this feedback survey and let us know what you want to learn in future sessions and additional webinars!

https://illinoisaces.co1.qualtrics.com/jfe/form/SV_6tZFZWZv3E0dZFH
Group Activity – Diet Evaluation
Read through the two diets and think about what each person may be lacking in their diet.

Person #1

**Breakfast:**
2 slices whole-grain toast
1 tbsp plant-based butter
2 hard-boiled eggs

**Lunch:**
3oz chicken breast
½ cup brown rice
½ cup black beans
1 tbsp tomato salsa
1 tbsp shredded cheese

**Snack:**
Handful almonds
1 container yogurt

Person #2

**Breakfast:**
1 container yogurt
1 small apple
2 tbsp peanut butter

**Lunch:**
2 cups mixed greens
1 tbsp Italian dressing
1 cucumber
1 medium tomato
Prenatal Vitamin

**Snack:**
½ avocado
1 slice whole-grain toast
1 tbsp dressing