

Nutrition Learning Module

Resident: _____

Date: _____

1. Which of the following is true regarding the benefits of breastfeeding?
 - a. promotes bonding between mother and infant
 - b. more economical than formula feeding
 - c. decreases mother's risk of premenopausal breast cancer
 - d. protects against allergies in infancy
 - e. all of the above

2. Which of the following is not a true contraindication to breastfeeding?
 - a. maternal HIV infection (in industrialized nations)
 - b. untreated maternal miliary tuberculosis
 - c. maternal Hepatitis B infection
 - d. infant with galactosemia
 - e. maternal ingestion of drugs of abuse

3. Which of the following indicates adequate intake in a breastfeeding infant?
 - a. weight gain of 10 grams daily after the first few weeks of life
 - b. weight gain of 30 grams daily after the first few weeks of life
 - c. regaining the birth weight by 4 weeks of life
 - d. urine output of 2 daily voids after the first week of life

4. Exclusively breastfed infants should be supplemented with Vitamin D. What is the daily recommended dose?
 - a. 50 IU
 - b. 100 IU
 - c. 200 IU
 - d. 500 IU

5. Which of the following is not a component of human milk protein?
 - a. casein
 - b. whey
 - c. secretory IgA
 - d. all the above are components of human milk protein

6. Arachidonic (ARA) and docosahexaenoic (DHA) acids have been found to improve neurodevelopmental and visual outcomes in premature infants.
 - a. true
 - b. false

7. Which of the following statements about Good Start formulas are true?
 - a. Good Start Essentials is made of lactose and has a 40/60% casein/whey protein ratio.
 - b. Good Start Essentials is made of lactose and 100% partially hydrolyzed whey protein
 - c. Good Start Supreme is made of lactose and has a 40/60% casein/whey protein ratio.
 - d. Good Start Supreme is made of lactose and 100% partially hydrolyzed casein protein

8. Which of the following statements are true about extensively hydrolyzed casein formulas?
- Nutramigen, Pregestimil, and Alimentum have been shown to prevent asthma if started during the first year of life in a high-risk infant
 - Nutramigen, Pregestimil, and Alimentum all have MCT (medium chain triglycerides) as their fat source
 - Nutramigen, Pregestimil, and Alimentum are all made of casein hydrolysate protein and amino acids
 - Nutramigen may be used in infants with milk/soy allergy, lactose intolerance, and galactosemia
 - Good Start Supreme is considered to be as hypoallergenic as Nutramigen, Pregestimil, and Alimentum
9. Which of the following statements are true about elemental formulas?
- Neocate is made of L-amino acids and corn syrup, and can be used in infants who have a severe milk protein allergy
 - Neocate 1+ is made of L-amino acids and corn syrup, and can be used in children above 12 months of age who continue to have a severe milk protein allergy
 - EleCare is made of L-amino acids and corn syrup, and can be used in infants and children with severe milk protein allergy
 - Neocate 1+ and EleCare both give one calorie/cc in nutritional caloric intake when properly prepared for age
 - All of the above
10. Which of the following statements is true with regard to Similac PM 60/40?
- Because of its lower mineral content, Similac PM 60/40 may be the proper formula to use in infants with renal disease or hypoparathyroidism
 - It has a lower amount of calcium per cc than standard Similac formula
 - It has less phosphorus per cc than standard Similac formula
 - Its calcium/phosphorus ratio is more appropriate for infants with renal disease (i.e., it is higher than standard formulas)
 - All of the above
11. Which of the following statements about each specific formula is incorrect?
- Since Isomil contains sucrose, it should not be used in infants with hereditary fructose intolerance
 - Since Good Start Supreme formula is made of partially hydrolyzed whey, it may not be appropriate to use in infants with severe milk protein allergy
 - Since it is organically grown/prepared, Horizon Organic formula can be used in infants with mild to severe milk protein allergy
 - Nutramigen may be appropriate to use in infants with milk or soy protein allergy, lactose intolerance, or galactosemia

12. Which of the following statements is not true about infant formulas?
- Enfamil Lipil and Similac Advance both contain the extra long-chain polyunsaturated fatty acids ARA and DHA
 - Formulas with medium chain triglycerides are particularly useful in infants with a variety of pancreatic, hepatic, biliary, and/or intestinal disorders since they can be absorbed into enteric cells without having to be hydrolyzed
 - Fatty acids with double bonds in the $\omega 6$ and $\omega 3$ positions cannot be synthesized endogenously by the human species and thus they or their precursors must be provided in the diet.
 - Maternal diet has a marked impact on the concentration of fatty acids in human milk, especially DHA
 - Studies have shown that infants fed DHA and ARA fortified formula have better visual or cognitive development than breastfed infants
13. Which of the following statements is incorrect?
- Allergies to formulas can be manifested with gastrointestinal symptoms such as vomiting, diarrhea, and bloody stools; atopic dermatitis and respiratory symptoms can also occur.
 - Food allergies which are associated with food-specific IgE antibodies can present with acute reactions such as urticaria, edema, asthma, gastrointestinal responses and atopic dermatitis
 - Food allergies which are associated with delayed reactions that are T-cell mediated (and often not associated with specific IgE antibodies), can present with enterocolitis syndrome, enteropathy, and a subset of allergic eosinophilic esophagitis/enteropathy
 - IgE mediated allergy is documented by blood tests, including total serum IgE and specific IgE antibodies (RAST testing)
 - Infants with mild to moderate milk protein allergy should only be fed Neocate or Elecare formulas until they outgrow their allergy
14. A mother comes in with her 6-month-old baby who she has been exclusively formula feeding. On further questioning she reports that she has not started other foods and the child typically takes in 17 oz of formula in a 24 hour period. The exam is significant for a baby that is below the 5th percentile (6 kg) for Weight but at the 10th percentile for Height and Head Circumference. In working up this child you decide to consider how many calories he is getting. What is this child's current calorie intake per kg?
- 50 kcal/kg
 - 85 kcal/kg
 - 57 kcal/kg
 - 43 kcal/kg
15. A 16 y/o boy comes in to your office for a sports physical. He reads all the labels on his food and is very conscious of how much protein he is consuming. He asks you how much protein he should take in his diet. If he weighs 55kg how much protein should he take in a day?
- about 50 grams
 - about 45 grams
 - about 55 grams
 - about 60 grams

16. You are caring for a 10-year-old boy (REE 40 kcal/kg/day) who has sustained multiple injuries from a motor vehicle accident. The attending supervising the child's care decides that you need to figure out what his energy requirements are with the injuries. Using the resting energy expenditure method, what is the total daily energy needs? For the calculation please use maintenance factor of 0.2, activity of 0.1, growth of 0.5 and multiple injuries of 0.4.
- 70 kcal/kg
 - 88 kcal/kg
 - 97 kcal/kg
 - 105 kcal/kg
17. Which of the following statements most closely describes the changes in total body water content?
- Infants are born with a lower total body water content than they have as older children.
 - Female adolescents develop higher total body water contents than male adolescents.
 - If a term female infant has a birthweight of 4kg, the total body water content is approximately 3 liters.
 - Muscle has a lower water content than adipose tissue.
 - None of the above
18. By the end of the first year of life, what percentage of an infant's total body water content is intracellular?
- 10 % of body weight
 - 20% of body weight
 - 30% of body weight
 - 50% of body weight
 - 75% of body weight
19. You are taking care of a 37 kg male with pancreatitis. Your management includes morphine, remaining NPO, and placing the patient on maintenance IV fluids. According to the Holliday-Segar caloric expenditure method, the amount of maintenance IV fluids required for this patient is
- 77 cc/hr
 - 85 cc/hr
 - 60 cc/hr
 - 55 cc/hr
 - 93 cc/hr
20. While on your NICU rotation, you admit a patient born at 28 weeks gestation with a birthweight of 1350 gms. You place the child on IV fluids at maintenance. The volume of fluid required for this baby on her 5th day of life is closest to
- 80 cc/kg/dy
 - 90 cc/kg/dy
 - 110cc/kg/dy
 - 120cc/kg/dy
 - 140 cc/kg/dy

21. A 9 year-old male presents with diarrhea for the past 2-3 months. His physical exam is significant for a red rash over the sun-exposed areas. He is living in an isolated area in rural Iowa where his primary sustenance is corn. Which vitamin is he most likely to be deficient in?
- Thiamin (B1)
 - Riboflavin (B2)
 - Niacin (B3)
 - Folate
 - Vitamin C
22. A 4 year-old is brought in to the ED by police after his school teacher noticed he was covered in bruises, bleeding from the gums and very irritable. He is a very picky eater who hates virtually all fruits and vegetables. His skeletal survey and head CT are negative. His ophthalmologic exam is negative for subretinal hemorrhages but is significant for conjunctivitis. What vitamin/mineral deficiency could be causing this clinical picture?
- Pyridoxine (B6)
 - Vitamin C
 - Vitamin A
 - Vitamin K
 - Selenium
23. A 4 year-old male with cystic fibrosis presents with significant knock knees (intermalleolar distance ~14cm). Which vitamin/mineral is most likely to be deficient?
- Cobalamin (B12)
 - Folate
 - Vitamin A
 - Vitamin D
 - Copper
24. An 8 month-old full-term infant comes in for a well child check. On history, you learn he is exclusively breast-fed and his mother adheres to a strict vegan diet. On CBC, he has a macrocytic anemia with hypersegmented neutrophils. What is the BEST vitamin supplement to recommend for this patient?
- Vitamin C
 - Vitamin E
 - Tri-Vit (Tri-Vi-Sol)
 - Poly-Vi-Sol
 - Iron
25. A one week-old full-term female infant develops melena and bleeding from her umbilical stump. His mother is healthy and had no complications during the pregnancy. Delivery occurred at home and was uncomplicated. The infant has been taking exclusively breast milk with no problems. CBC shows a normal white cell count, hemoglobin 7 and platelets of 600,000. Which one of the following is not a risk factor for this patient's condition?:
- Maternal vegan diet
 - Home birth
 - Delayed feeding
 - Breast feeding
 - Maternal antibiotics