

NUTRITIONAL ASSESSMENT AND ANTICIPATORY GUIDANCE

RATIONALE

Proper nutrition during infancy, childhood, and adolescence is essential for normal growth and development and for the long-term health of children and teens.¹ Many adult chronic diseases are associated with nutrient deficiencies and excesses during childhood. Inadequate or imbalanced intake of nutrients in childhood is reflected in abnormal growth rates, obesity, diabetes, fatty liver disease, inadequate mineralization of bones, and deficiencies in micronutrients, which are associated with depressed cognitive functioning and school performance. Most nutrition concerns identified by providers in the United States tend to be associated with overweight, but in the pediatric population, the inadequate intake of specific nutrients is still a significant problem. Additionally, cultural eating practices and/or family eating styles can significantly impact a child's nutritional status.

Many nutrition and eating behavior problems can be prevented or corrected with early identification and timely discussion, education, and intervention given by the health care provider at the time of the health assessment. Parents benefit when providers offer developmental strategies for improving children's diets and structuring healthy behaviors, such as promoting and supporting breastfeeding, regular mealtimes, and involvement in daily physical activity. As with other types of lifestyle counseling, simple focused interventions can be beneficial in facilitating lifestyle changes. Families are more likely to follow clinical recommendations regarding lifestyle changes when providers refer to community resources, such as schools, parks and recreation programs, Women, Infants and Children (WIC) and other public health programs.

California Department of Public Health conducts three statewide surveys of diet and physical activity practices among adults, teens, and children:

1. [California Dietary Practices Survey \(CDPS\)](#)
2. [California Teen Eating, Exercise and Nutrition Survey \(CaITEENS\)](#)
3. [California Children's Healthy Eating and Exercise Practices Survey \(CaCHEEPS\)](#)

An additional data source from the Lucile Packard Foundation, [KidsData](#), identifies lifestyle practices such as frequency of fast food consumption, physical activity levels, and fruit and vegetable consumption.

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SCREENING REQUIREMENTS

Nutritional status should be evaluated at each pediatric health assessment visit, following the guidelines of Bright Futures/American Academy of Pediatrics (AAP) [Recommendations for Preventive Pediatric Health Care](#). Nutritional assessment includes, but is not limited to, the following components:

1. A nutritional history and assessment of food intake and behavior, including adequacy of nutrients at risk for inadequate intake, calorie intake, use of vitamin/mineral supplements and herbal remedies and eating practices.
2. A physical examination, which includes viewing the mouth for evidence of early childhood caries, dental discoloration, signs of bulimia, or other abnormalities.
3. Measurements and assessment of growth and physical development of length/height, weight, BMI-for-age (2-20 years), and when appropriate, head circumference. Guidance for measurements and assessment can be found at [Anthropometric Measurements](#).
4. Laboratory tests to screen for iron deficiency anemia, type 2 diabetes and cardiovascular disease. Refer to Bright Futures/AAP [Recommendations for Preventive Pediatric Health Care](#).
5. Provide nutrition related anticipatory guidance. See Table 1 Anticipatory Guidance for Nutrition.

Bright Futures*

The 2014 Bright Futures/AAP [Recommendations for Preventive Pediatric Health Care](#) recommends the following anthropometric measurements, screening, and assessments be obtained at every preventive health care visit to assist with assessing growth and health:

- Infants and toddlers <24 months of age: weight, length, head circumference, and weight/length plotted.
- Children \geq 24 months of age and adolescents: weight, length and BMI-for-age percentile.

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- Hemoglobin or hematocrit screening at 12 months. Please note that the WIC program requires an annual hemoglobin or hematocrit screening until age 5.²
- Lead screening at 12 months and 24 months.

For more information, see the following:

- [Bright Futures: Nutrition and Pocket Guide](#) (3rd edition)
- [Bright Futures: Performing Preventative Services](#)

CONSIDERATIONS FOR REFERRAL, TREATMENT, AND/OR FOLLOW-UP

With chronic nutrition problems, additional testing, referral, treatment and follow-up are needed in order to better define the condition and provide effective family-based intervention.

- Arrange for further physical examinations and laboratory tests if information from the nutritional assessment suggests an eating disorder, chronic dietary inadequacy, possible metabolic complications, or suspected comorbidities associated with overweight and obesity
- Make appropriate referrals to:
 - Medical nutrition therapy, treatment and prevention of disease provided by a registered dietitian nutritionist (RDN), and/or in-depth nutritional assessment by a RDN when the initial nutritional assessment indicates the need for more assessment and intervention.
 - Supplemental Nutrition Program for Women, Infants and Children (WIC) for children up to the age of five for basic nutrition education and supplemental nutritious foods. For more information on the WIC program go to the web site: www.cdph.ca.gov/programs/wicworks/Pages/default.aspx.
 - Supplemental Nutrition Assistance Program (SNAP) and/or other food resources.
 - Lactation expert/consultant when breastfeeding. Most WIC programs offer lactation support; WIC is available in all CA counties.

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- Local CHDP program - request a resource list of community programs related to nutrition and physical activity.

BREASTFEEDING & INFANT FEEDING

The AAP recommends exclusive breastfeeding for about the first six months of life and continued breastfeeding with complementary foods until at least one year of age or beyond. When the mother of an infant chooses not to breastfeed or breastfeeding is contraindicated, iron fortified formula should be used for healthy, term infants. When medically indicated, specialty infant formulas may be available through WIC or Medi-Cal provided the infant's family qualifies for these programs. For infants with special health care needs, who are enrolled in the California Children Services (CCS) Program, specialty infant formulas may be available through the CCS Program. Providers are encouraged to work with the CCS Program in their county and/or the Special Care Center for children enrolled in the CCS program when a specialty infant formula is medically necessary. Regular infant formulas, including soy-based formulas, are not a benefit of the Medi-Cal Program or CCS Program but may be obtained through WIC for those enrolled in the WIC program.

Providers can play a key role in the early prevention of pediatric overweight and obesity by letting parents and caregivers know that infants should be fed based on feeding cues. Feeding should be initiated when infants show signs of hunger and feeding should cease when infants show signs of satiety. Studies have shown that many new parents and caregivers interpret crying as a sign to feed infants. In one study, 72% of mothers believed that infant crying must indicate hunger.³ It is important to reassure parents that babies cry for many reasons, including the need to be touched and be close to them. Crying is a late sign of hunger and crying babies, especially those who are breastfed, may be difficult to feed. DaMota, et al. (2012) reported that mothers perceived formula as a solution to crying when they had difficulty latching a crying baby.⁴ Therefore, it is important for parents to recognize early feeding cues that include sucking, bringing hands to mouth, puckering lips, rooting, and increased activity to prevent early cessation of breastfeeding.

Just as hunger cues are important for parents to recognize, so are fullness/satiety cues. Forced feedings, having an infant finish a bottle when no longer hungry, have been associated with preventing infants from learning satiety cues, increased risk of spitting-up, and may lead to excessive weight gain. Evidence shows that there is a need for health care providers to inform parents and caregivers about satiety cues as a recent study demonstrated that 53% of mothers in the study believe their babies should finish

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the bottle at each feeding.³ Fullness or satiety cues that parents/caregivers should be aware of include the slowing of sucking, letting go or pushing the nipple out of the mouth, turning head away from the bottle or breast, relaxing their limbs, and falling asleep. While there are general guidelines for the amount of formula to feed a child, it is important for parents to be aware that infants do not always drink the same amount of formula at each feeding and they should cease feeding based on satiety cues.

Breastfeeding Guidelines

There is overwhelming scientific evidence that breast milk is the ideal food for most infants and promotes optimal growth and development and provides life-long health benefits. Numerous professional and public health organizations have policies that promote breastfeeding including the AAP and The World Health Organization (WHO).

AAP states that, “Breastfeeding and human milk are the normative standards for infant feeding and nutrition. Given the documented short- and long-term medical and neurodevelopmental advantages of breastfeeding, infant nutrition should be considered a public health issue and not only a lifestyle choice.” AAP recommends, “Exclusive breastfeeding for about six months followed by continued breastfeeding as complementary foods are introduced, with continued breastfeeding for 1 year or longer as mutually desired by mother and infant.”⁵ WHO recommends infants breastfeed exclusively to 6 months of age, with continued breastfeeding along with appropriate complementary foods up to two years of age or beyond.

Not only are very few women in California continuing to breastfeed their infants to one year or beyond as recommended, data shows that California is far from meeting the Healthy People 2020 goals for breastfeeding in the first few months of infancy. The Healthy People 2020 goal for exclusive breastfeeding at 3 months of age is 46.2 percent. Data from the 2012 California Department of Public Health Maternal and Infant Health Assessment Survey (MIHA) shows that only 26.5% of all infants in California are exclusively breastfed at 3 months of age. For Black and Latina infants this rate is even lower, 16% and 21%, respectively.

The Centers for Medicare and Medicaid Services recognize that there are many opportunities for a variety of health care providers to promote and support breastfeeding during and after pregnancy. “The U. S. Preventive Services task force (USPSTF) specifically recommends coordinated interventions to increase breastfeeding initiation, duration, and exclusivity. Recommended interventions include formal breastfeeding education for mothers and families, direct support of mothers during breastfeeding

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observations, and the training of health professional staff about breastfeeding and techniques for breastfeeding support.”⁶ Providers advocacy and support of breastfeeding is essential for the breastfed infant to attain optimal growth and development.

Contraindications to Breastfeeding

There are rare exceptions when human milk is not recommended for infants. The physician will need to make a case-by-case assessment to determine whether a woman’s environmental exposure or medical condition calls for interruption of or stopping of breastfeeding.

Almost all women are able to breastfeed their infants and most infants have the ability to breastfeed. According to the CDC and AAP, contraindications to breastfeeding are the following:

- An infant diagnosed with galactosemia
- The infant whose mother:
 - Has been infected with the human immunodeficiency virus (HIV)
 - Is taking antiretroviral medications
 - Has untreated, active tuberculosis; expressed breastmilk can be used
 - Has active herpes-simplex lesion on breast; expressed breastmilk can be used
 - Is infected with human T-cell lymphotropic virus type I or type II
 - Is using or is dependent upon an illicit drug
 - Is taking prescribed cancer chemotherapy agents, such as antimetabolites that interfere with DNA replication and cell division

Outside of the above contraindications, women should be encouraged to breastfeed. While numerous inborn errors of metabolism such as phenylketonuria (PKU) or maple syrup urine disease (MSUD) preclude exclusive breastfeeding, providers can encourage

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the mother to work with her child's metabolic team so that the infant and mother achieve the health and psychological benefits related to breastfeeding.

While smoking and the occasional use of alcohol during breastfeeding should be discouraged, they are not contraindications to breastfeeding. AAP states, "Ingestion of alcoholic beverages should be minimized and limited to an occasional intake but no more than 0.5 g alcohol per kg body weight, which for a 60 kg (133 lb.) woman is approximately 2 oz. of liquor, 8 oz. of wine, or 2 beers. Nursing should take place 2 hours or longer after alcohol intake to minimize its concentration in milk". Smoking should be discouraged as it is associated with an increased incidence in infant respiratory problems, SIDs, and is a risk factor for low milk supply and poor weight gain. The infant should not be near individuals who are smoking to reduce the negative effects of secondhand smoke. Most maternal medications (prescribed or over-the-counter) are not contraindicated during lactation. However, a few radiation therapies, such as nuclear medicine therapies, require a temporary interruption in breastfeeding. AAP recommends providers access [LactMed](#) to determine if a drug is safe to prescribe during lactation.

Conditions That May Lead To Low Milk Supply or Inadequate Transfer of Milk

While only a few conditions preclude breastfeeding, numerous maternal and infant conditions can interfere or delay the establishment of a copious milk supply or lead to the early cessation of breastfeeding. Maternal factors that can lead to delayed milk supply and/or early cessation of breastfeeding include:

- Infrequent feedings
- C-section
- Diabetes
- Thyroid disease
- Excessive blood loss
- Excessive iv fluids
- Engorgement: academy of breastfeeding medicine (abm): ([abm clinical protocol #20: engorgement](#))

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- Previous breast surgery including augmentation or reduction
- Hypertension
- Obesity (bmi > 30)
- Lack of breast enlargement and/or breast changes during pregnancy
- Variation in breast appearance (asymmetry, hypoplastic, tubular)
- Extremely sore nipples
- Flat or inverted nipples
- Mastitis ([abm clinical protocol #4 – mastitis](#))
- Candidiasis

Infant factors that can lead to delayed milk production, inadequate weight gain and early cessation of breastfeeding include:

- Infant born preterm or near-term ([ABM Clinical Protocol #10: Breastfeeding the Late Preterm Infant](#))*
- Small for gestational age (SGA) or large for gestational age (LGA)
- Hyperbilirubinemia ([ABM Clinical Protocol #22: Guidelines for Management of Jaundice in the Breastfeeding Infant Equal to or Greater than 35 Weeks' Gestation](#))*
- Ineffective or unsustained suck
- Cleft palate or other oral anomaly ([ABM Clinical Protocol #17: Guidelines for Breastfeeding Infants with Cleft Lip, Cleft Palate, or Cleft Lip and Palate](#))*
- Ankyloglossia ([ABM Protocol #11 - Guidelines for the evaluation and management of neonatal ankyloglossia and its complications in the breastfeeding dyad](#))*

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- Micrognathia
- Macroglossia
- Hypotonia ([ABM Clinical Protocol #16 - Breastfeeding the Hypotonic Infant](#))*
- Torticollis
- Multiples
- Respiratory distress
- Cardiac syndromes
- Genetic syndromes

*For detailed information regarding the ABM protocols, click on the ABM Protocol link next to the listed condition. The ABM states, “These protocols serve only as guidelines for the care of breastfeeding mothers and infants and do not delineate an exclusive course of treatment or serve as standards of medical care.”⁶

Supplementation

When infants are unable to initially breastfeed, there is a delay in maternal milk supply, or in the rare instance when the mother is not able to produce adequate quantities of milk, supplementation may be necessary. Since supplementation frequently leads to the cessation of breastfeeding, it is important to introduce supplementation as a temporary feeding method used to preserve breastfeeding not to replace breastfeeding. When breastfeeding infants require supplementation, health care providers should consider referring the mother to WIC or a lactation consultant for additional assistance. Common reasons for supplementation include:

- Hypoglycemia - ABM Hypoglycemia Protocol for more details
- Significant dehydration – 10% weight loss, elevated sodium, poor feeding
- Weight loss of 8–10% accompanied by delayed lactogenesis II (day 5 or later)

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- Delayed bowel movements or continued meconium stools
- Insufficient intake despite an adequate milk supply (poor milk transfer)
- Hyperbilirubinemia
- “Neonatal” jaundice associated with starvation where breastmilk intake is poor despite appropriate intervention (please see ABM Jaundice in the Breastfed Infant Protocol)
- Breastmilk jaundice when levels reach 20–25 mg/dL (mol/L) in an otherwise thriving infant and where a diagnostic and/or therapeutic interruption of breastfeeding may be helpful.
- Retained placenta (lactogenesis probably will occur after placental fragments are removed)
- Sheehan’s syndrome (postpartum hemorrhage followed by absence of lactogenesis)
- Primary glandular insufficiency, occurs in less than 5% of women (primary lactation failure), as evidenced by poor breast growth during pregnancy and minimal indications of lactogenesis

Deciding to supplement a neonate with formula should only be done when medically necessary as research has shown that even partial formula feeding has been shown to lead to early cessation of breastfeeding and negatively alter the gut microbiome by increasing proinflammatory bacteria and increasing gut permeability. Also, exposure to proinflammatory bacteria and antigens during the neonatal period may profoundly influence oral tolerance and have long-term consequences on immune health.⁵ When deciding to supplement an infant; the ABM recommends the following order with newborn infants: mother’s own expressed breastmilk, pasteurized donor milk, and lastly protein hydrolysate formulas.

Health Care Provider’s Role

The United States’ “Surgeon General’s Call to Action to Support Breastfeeding” recognizes the lack of evidence-based instruction and information from health care professionals as a leading obstacle that prevents mothers from successfully meeting national performance measures regarding breastfeeding. By addressing the woman’s

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concerns, providing adequate support, and referring the woman to a lactation consultant or to WIC in a timely manner, the health care provider can help the woman overcome many of the obstacles associated with early cessation of breastfeeding thereby leading to a lifetime of healthier outcomes for her child and herself. At a minimum, every breastfeeding mother should be provided with the names and phone numbers of individuals and medical services that can provide advice, counseling, and health assessments related to breastfeeding, ideally on a 24-hour-a-day basis. For providers interested in providing a breastfeeding friendly office for their patients, providers can access [ABM Clinical Protocol # 14: Breastfeeding-Friendly Physician Office: Optimizing Care for Infants and Children](#).

Bottle Feeding Guidelines

A wide selection of infant formulas are available for infants who are not breastfed or not exclusively breastfed. These include cow's milk or soy-based iron-fortified infant formulas, hypoallergenic infant formulas, pre-term formulas, and other infant formulas designed to meet the specialized nutritional needs of infants with specific health care needs such as PKU, chylothorax, or enterocolitis. Most healthy, term infants who are not breastfed will be prescribed an iron-fortified, cow's milk based formula. For infants with special health care needs, when warranted the provider should work with the CCS Program to determine the most appropriate formula for the infant.

In some cultures, the use of teas, herbal drinks, gruels and various types of milk either pasteurized or unpasteurized from cow's, goat's or sheep's milk may be given to infants as prelacteal feeds or before the infant turns 1 year old. Unpasteurized milk can expose the infant to pathogens such as *Salmonella*, *E. coli*, and *Listeria*. These bacteria can be harmful to anyone, but individuals with weakened immune systems, pregnant women, infants, and children are at greatest risk for adverse consequences. The health care provider may need to discuss the risks of prelacteal feeds with the infant's caregivers.

Bottle Feeding Techniques

In order for bottle-fed infants to have a positive feeding experience, USDA recommends healthcare professionals encourage caregivers to:

- Find a comfortable place in the home for feeding.
- Interact with the infant in a calm and relaxed manner in preparation for and during feeding.

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- Show the infant lots of love, attention, and cuddling in addition to feeding – reassure the caregiver that doing so will decrease fussiness and will not “spoil” the infant.

In addition, to make bottle-feeding safe for infants, USDA encourages caregivers to do the following:

- Wash their hands with soap and water before feeding.
- Hold the infant in their arms or lap during the feeding (with the infant in a semi-upright position with the head tilted slightly forward, slightly higher than the rest of the body, and supported by the person feeding the infant). If an infant’s head is tilted back or lying flat, the liquid could enter the infant’s windpipe and cause choking.
- Hold the bottle still and at an angle so that the end of the bottle near the nipple is filled with infant formula and not air.
- Stroke the infant’s cheek gently with the nipple to stimulate the “rooting” reflex. This will cause the infant to open his or her mouth to initiate feeding.
- Never force an infant to finish a bottle. This prevents the infant from learning satiety cues, increases spit-up, and may lead to excessive weight gain.
- Recognize fullness cues – infant stops sucking, turns head away from the bottle, pushes nipple out of mouth, or falls asleep.
- After feeding, burp an infant for the first few months.

USDA/FDA recommended guidelines for formula preparation and storage include the following:

- Always follow the manufacturer’s instructions for preparation. Although infant formula cans include written instructions for preparation, caregivers may not be able to read or understand those instructions. If they are unable to read English but can read another language, printed instructions should be provided in their own language. Infant formula preparation instructions designed in picture format can be used.

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- Use glass or flexible, milky-colored plastic (polyethylene or polypropylene) bottles. Avoid clear, hard plastic bottles marked with a 7 or “PC” (polycarbonate) on the bottom.
- Use refrigerated bottles of concentrated or ready-to-feed infant formula within 48 hours of preparation.
- Use refrigerated bottles of powdered infant formula within 24 hours of preparation.
- Opened cans of concentrated or ready-to-feed infant formula should be covered, refrigerated, and used within 48 hours. Freezing infant formula is not recommended.
- Powdered infant formula should be tightly covered and stored in a cool, dry place and used within one month after opening.
- Discard any infant formula remaining after a feeding. The mixture of infant formula with saliva provides an ideal breeding ground for disease-causing microorganisms.
- Infant formula that is removed from refrigeration should be used within 1 hour or discarded.
- Never use a microwave oven to warm infant formula because this practice is dangerous.
- When mixing formula use cold tap water or bottled water as hot tap water may increase exposure to lead.
- Formula preparation – “In most cases, it’s safe to mix formula using ordinary cold tap water that’s boiled for one minute and cooled. Remember that formula made with hot water needs to be cooled quickly to body temperature—about 98 degrees Fahrenheit—if it is to be fed to the baby immediately. If the formula is not being fed immediately, refrigerate it right away and keep refrigerated until feeding.”
- Bottles and nipples preparation – “The Mayo Clinic says you may want to consider sterilizing bottles and nipples before first use. After that, you can clean them in the dishwasher or wash them by hand with soapy water.”

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- For children with immune disorders, use of powdered or concentrated formulas may be contraindicated.

Additional information regarding bottle-feeding can be accessed from the USDA website at the following link: [USDA WIC Bottle Feeding Guidelines](#). Also, WIC provides numerous educational materials to families regarding infant feeding.

Introduction of Complementary Foods

AAP recommends starting solids around six months of age. However, an infant's chronological age does not always coincide with readiness for solids. Premature infants may not be ready for solids until they reach a corrected age of about six months or later and some infants with delayed development may not be ready to begin solids until well beyond six months of age. Therefore, before introducing solid foods, the infant should be developmentally and physically ready. The infant is usually capable of eating solids once the following developmental milestones are present:

- sits with support
- maintains neck and head control when seated in a high chair
- put fingers or toys in mouth
- shows an interest in food by opening mouth
- closes lips over spoon
- shows satiety cues
- keeps food in mouth, moves food to back of mouth, and swallows

In addition to developmental readiness, coexisting medical conditions, cultural preferences, religious food rituals, preferences of the family; and financial status will enter into to the caretaker's decisions regarding the timing and food offerings.

Guidelines for the introduction of complementary (semi-solid and solid) foods have dramatically changed over the last few years in the United States. While the infant needs to be developmentally ready to begin solid foods, the progression of foods

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introduced has changed as well as the recommendation to delay the introduction of solids until about six months of age.

AAP now recommends the following guidelines for the introduction of complementary foods:

- Choose foods that provide key nutrients and help meet energy needs. Iron and zinc fortified cereals and meats are excellent first foods.
- Introduce one “single-ingredient” new food at a time and observe for possible allergic reactions for 3-5 days.
- Introduce a variety of foods. By 7 to 8 months of age, infants should be eating foods from all food groups. Parents should be encouraged to offer foods multiple times (\geq 10 times) for infants and toddlers to become accepting.
- Withhold cow’s milk during the first year of life.
- During the second year of life, low-fat milk may be considered if growth and weight gain are appropriate or if weight gain is excessive or there is a family history of obesity, dyslipidemia, or cardiovascular disease.
- 100% juice consumption should be limited to 4 to 6 ounces a day for children younger than 6 years of age.
- Ensure that homemade complementary foods are prepared in a safe manner.
- Encourage infant’s involvement in the feeding process.
- Encourage “responsive feeding”, watch for and respond to infant’s hunger and satiety cues.
 - Avoid intrusive behaviors such as force feeding;
 - Establish routines for meals and snacks, allowing 2 to 3 hours between eating resulting in eating 3 meals and 2 to 3 snacks per day;
 - Avoid grazing behaviors;

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- Limit meals to 15 to 20 minutes, as appropriate for infant's and toddler's attention span;
- Praise eating but resist attention of not eating; withholding or rewarding with food is not appropriate;
- Minimize distractions during meal times (TVs, videos, pets, etc.)
- Monitor appropriateness of growth as a guide to adequacy of complementary foods.

Activity Guidelines for Infants:

While no major government agency in the United States has set activity guidelines for infants, AAP recommends infants be given “Tummy Time” (placed on their stomach) to develop fine and gross motor control and prevent [positional plagiocephaly and flat heads](#). Inform parents that tummy time is always to occur when the infant is awake, being supervised, and should begin in the first weeks following birth. Encourage caretakers to play and interact with the infant while the infant lays on his or her stomach 2 to 3 times a day for 3-5 minutes, increasing the amount of time as the infant becomes stronger and coordination increases. A good time for tummy time is after a diaper change or when the infant wakes from a nap.⁹

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Table 1 ANTICIPATORY GUIDANCE FOR NUTRITION⁸

Adapted from Bright Futures: Nutrition, 3rd Edition

Age	Discuss	Main Message
Infancy: Birth to 12 months	Growth & Development	<ul style="list-style-type: none"> • Explain to parents that infants need fat for growth and energy, infant's fat intake should not be restricted during first year of life. Body fat typically increases twice as much as muscle between ages 2-6 months. • Infants develop feeding skills at their own rates, the infant must be ready before introducing new foods and textures, usually around ages 6 months.
	Feeding Practices – all infants	<ul style="list-style-type: none"> • Breast milk is the ideal food for infants. Exclusive breastfeeding is recommended for up to 6 months and can continue for 12 months or as long as mother and child wish to continue. WHO recommends up to age 2 years. • Breast milk or iron-fortified infant formula is recommended for infants until age 12 months. Low-iron milk (i.e. cow's, goat's, soy) should not be used until after 12 months. • It is important to hold the infant close when feeding, in a semi-upright position, so that parents can assess the infant's cues. • Feed infant only when he is hungry. Younger infants (through age 3 months) show signs of hunger by putting his hands to mouth, sucking, rooting, pre-cry facial grimaces, and fussing. Older infants (ages 4-6 months) show signs of hunger by moving head forward to reach spoon and swiping the food toward his mouth. • Feed infant until he is full. Younger infants will show signs of fullness by turning his head away from the nipple, showing interest in things other

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Age	Discuss	Main Message
		<p>than eating, closing his mouth, or falling asleep. Older infants will show signs of fullness by leaning back and turning away from the food.</p> <ul style="list-style-type: none"> • Infants may spit up a little breast milk or formula at each feeding. Burping the infant several times during natural breaks during a feeding and avoiding excessive movement soon after a feeding may help. • Constipated babies may not be getting enough breast milk or infant formula, formula may be mixed incorrectly, or infant may be eating other foods too soon. • Nothing other than breast milk or formula should be put in the bottle. • Cup for drinking should be introduced at age 6 months and bottle weaning by age 12-14 months. • Juice should not be given to infants younger than 6 months. After 6 months, provide 100% fruit juice in a cup and limit it to 4-6 oz. per day.
	Feeding Practices: Breastfed Infants	<ul style="list-style-type: none"> • Breastfeed infant when he is hungry, typically 10-12 times per day during the first couple weeks after birth, 8-12 times per day for the next several months, and 6-12 times per day for older infants. • Feeding on demand is the best way to stimulate lactation. • Infant should be allowed to finish feeding at one breast before the other breast is offered. Length of feeding should not be restricted. • Infants have period when they grow very fast, during these times, it may be necessary to feed the infant more often. • At around 6 months, introduce pureed meats that are rich in iron. • Infants weaned from breast milk before 12 months needs iron-fortified formula.

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Age	Discuss	Main Message
	Feeding Practices: Formula-fed Infants	<ul style="list-style-type: none"> • Iron-fortified infant formula is the recommended substitute for breast milk. • Infants do not usually need water, but water can be offered between feedings when the air temperature is high. • Soy-based formula may be used for infant on a vegetarian diet or an infant with documented lactose intolerance. • More infant formula will need to be prepared and offered as the infant's appetite increases. • The hole in the bottle nipple should not be enlarged to make expressed breast milk or infant formula come out faster. • Other foods should not be added to formula.
	Food Safety	<ul style="list-style-type: none"> • Expressed breast milk can be stored in an insulated cooler bag for 24 hours, in the refrigerator for 5 days, in the freezer compartment of a refrigerator for 2 weeks, in a freezer compartment of the refrigerator with separate doors for 3-6 months, and in a chest or upright deep freezer for 6-12 months. • Open container of ready-to-feed or concentrated infant formula can be kept up to 48 hours, stored tightly covered and in a refrigerator. Prepared powdered formula should be refrigerated and used within 24 hours. Any formula left in a bottle after feeding should be discarded. • When preparing formula, parents should: wash hands before preparing formula, clean the area where formula is prepared with a nontoxic biodegradable cleaner, clean and disinfect reusable bottles, caps, and nipples before every use, wash and dry the top of the formula container before opening.

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		<ul style="list-style-type: none"> Expressed breast milk, infant formula, or food in containers or jars should not be warmed in the microwave. Bottles can be warmed by holding them under hot running water or placing in a bowl of hot water. Frozen breast milk should be thawed slowly at room temperature, in the refrigerator, or in a warm-water bath. Choking can be problem for infants because they may not have enough muscle control to chew and swallow foods properly. Infants can choke on foods that are small and slippery, dry and difficult to chew, stick or tough to break apart.
	Supplements	<ul style="list-style-type: none"> Breastfed and partially breastfed infants should receive a vitamin D supplement of 400 IU/day beginning in the first few days of life. Supplementation should stop when infant is weaned and is consuming at least 1 L/day or 1 qt/day of vitamin D-fortified formula or whole milk. Some breastfed infants may need vitamin B12 supplements before age 6 months if the mother is vitamin B12 deficient.
	Physical Activity	<ul style="list-style-type: none"> Discourage screen time for children younger than 18 months. Encourage more interactive activities that promote proper brain development, such as talking and playing together.
Early Childhood: 1 - 5 year	Parent-Child Feeding Relationship	<ul style="list-style-type: none"> Parents are responsible for what, when, and where their child eats. Children are responsible for deciding whether and how much to eat. See the Satter Feeding Dynamics Model for more information.
	Eating Behaviors	<ul style="list-style-type: none"> Children need healthy meals and snacks at scheduled times (every 2-3 hours) throughout the day to help them achieve nutritional balance.

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Age	Discuss	Main Message
		<ul style="list-style-type: none"> • The amounts and types of foods that children eat, from meal to meal and from day to day may vary. Children will usually eat enough food to meet their nutritional needs. • Food textures may need to be modified to make it easier for the child to eat. • From ages 2-5, children do not need as much fat intake as infants and fat intake should gradually be reduced to no more than 25%-35% of daily calories. • Children ages 1-2 should be served whole milk. After age 2, low-fat (1%) or fat-free (skim) milk is recommended. Reduced-fat (2%) milk is recommended for children ages 1-2 with concern of obesity. • Milk should be limited to no more than 16 oz. per day, excessive milk intake can reduce the child's appetite for other foods and may cause anemia. • Children who do not obtain 400 IU/day of vitamin D through vitamin D-fortified milk (100 IU per 8 oz. serving) and vitamin D fortified foods should receive a vitamin D supplement of 400 IU/day. • Encourage parents to wean child from bottle by age 12-14 months. • Encourage plenty of water throughout the day. • Children who consume unlimited amounts of foods and beverages high in sugar are likely to fill up on these foods rather than eat healthy foods. Sweetened beverages increase risk for dental caries, minor infections, and loose stools and diarrhea.

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Age	Discuss	Main Message
	Mealtimes	<ul style="list-style-type: none"> • Offer children healthy food choices at meals served at approximately the same time each day. • Meals and snacks are important social times for children. Screens should be turned off and mealtimes and snacks times should be made pleasant. • Children eat better when an adult is nearby, especially when the adult shares the meal or snack with them. • Once a child can shovel sand or pour water from a pail, parents can teach the child to serve herself at the table. • New foods can be encouraged by offering small portions (1-2 tablespoons) and allowing the child to serve herself. • Parents play a positive role model when they offer new foods and eat the foods themselves. • Allow the child to choose which healthy foods to eat. • Parents should not pressure the child to eat certain foods or to eat more than what she wants. • Foods shouldn't be used as a reward, bribe, punishment to the child or to calm, comfort, or entertain her. • Children benefit when parents praise them for their accomplishments and are patient and understanding. • Dessert should be offered as part of the meal, as a healthy contribution to the meal.
	Food Safety	<ul style="list-style-type: none"> • Children are at high risk for many foodborne illnesses because their immune system and gastrointestinal system are not fully developed. • A high chair or booster seat should be used when feeding the child.

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Age	Discuss	Main Message
		<ul style="list-style-type: none"> • Provide instructions, as needed, about special techniques for positioning, special equipment, or modified utensils for feeding the child with special health care needs. • Parent should follow precautions to prevent the child from choking, including avoiding choking hazard foods and not allowing children to eat in the car or while walking or running.
	Teaching Children About Food	<ul style="list-style-type: none"> • Offer the child a variety of healthy foods. • Help the child learn about foods from other cultures by offering foods from other cultures. • Teach how foods are grown and where foods come from. • Read books about foods. • Involve child in food shopping and preparation.
	Physical Activity	<ul style="list-style-type: none"> • Children’s bodies need bursts of activity followed by short period of rest. • Children need to engage in both structured and free play for developmental of large motor skills and spatial awareness. • Parents can be good role models by playing with their children and being physically active themselves. • Suggest community projects and opportunities for the entire family to be physically active together. • Screen time for children 18 months through 5 years should be limited to 1 hour of quality programming a day.
Middle Childhood:	Growth and Physical Development	<ul style="list-style-type: none"> • Discuss physical development with child and parents, including expected accelerated growth (girls at age 9-11, boys at age 10-12). Explain the

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Age	Discuss	Main Message
Ages 5-10		<p>standard growth chart (BMI percentile) to the child and parents, discuss how the child compares to others at same age.</p> <ul style="list-style-type: none"> • Discuss what a healthy weight is, help the child understand that people come in unique sizes and shapes with a range of healthy body weights. • Explain to children that other children their age may start puberty earlier or later than they do and that this is normal. • Discuss with the child and parents about anticipated physical changes that the child can expect to experience in the near future, as well as specific concerns. • Emphasize to the child and parents the importance of eating healthy foods and being physically active to achieve or maintain a healthy weight. • Explain that weight loss should not occur in children with a BMI below the 95th percentile, but a gradual weight loss of no more than 1 lb. a month may be appropriate for children with a BMI between 95-99th percentile.
	Eating Behaviors and Foods Choices	<ul style="list-style-type: none"> • Discuss importance of healthy eating. Encourage child to make healthy food choices based on <i>Dietary Guidelines for Americans</i> and on MyPlate. • Encourage milk consumption to meet calcium needs: Children ages 2-8 should consume about 2 cups of low-fat or fat-free milk. Children ages 9 and older should consume about 3 cups of low-fat or fat-free milk. • Encourage sufficient vitamin D (400 IU/day) through vitamin D-fortified milk and vitamin D-fortified foods. • Tell parents that children at this age cannot consume large amounts of food at one time and need 1-2 snacks daily to ensure they are eating a healthy diet.

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Age	Discuss	Main Message
		<ul style="list-style-type: none"> • Encourage parents to limit foods high in fat and foods and beverages high in sugar. • Encourage parents to enroll their child in school breakfast and lunch programs if needed.
	Physical Activity	<ul style="list-style-type: none"> • Encourage children to engage in 60 or more minutes of daily physical activity. Explain guidelines for: <ul style="list-style-type: none"> ○ Aerobic: Most of the 60 or more minutes a day should be either moderate intensity (e.g. hiking, skateboarding) or vigorous intensity (e.g., running, bicycling) aerobic physical activity. Recommend incorporating vigorous intensity physical activity at least 3 days a week. ○ Muscle-strengthening: Incorporate muscle-strengthening physical activity (e.g., climbing trees, sit-ups) at least 3 days a week. ○ Bone-strengthening (weight-bearing): Incorporate bone-strengthening physical activity (e.g., running, jumping, playing basketball) at least 3 days a week. • Encourage parents of children with special health care needs to allow engagement in regular physical activity for cardiovascular fitness within the limits of the child’s medical or physical conditions. • Encourage older child to stay active during adolescence, when physical activity tends to decline. • Emphasize the importance of wearing safety equipment when participating in physical activity. • Encourage child to find physical activities that they enjoy and can be incorporated into daily life.

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		<ul style="list-style-type: none"> • Help find other settings for physical activity if safety of the environment is a concern. • Explain that most elementary schools include school physical education and middle schools include a physical fitness test.
	Substance Use	<ul style="list-style-type: none"> • Warn parents and children about dangers of alcohol, tobacco, other drugs, and performance-enhancing products.
Adolescents: Ages 11-21	Nutrient Intake	<ul style="list-style-type: none"> • Milk and milk products: Discuss importance of calcium and Vitamin D for optimal peak bone mass development. Screen for milk allergy or lactose intolerance. Encourage 3 cups of low-fat or fat-free milk per day or equivalent. If recommended daily calcium (1300 mg) or Vitamin D (400 IU) intake cannot be met by diet, consider supplementation. • Discuss importance of protein/iron rich foods to minimize risk of IDA. Encourage 2-3 servings (5-6 oz.) of lean meats and meat alternatives (beans, nuts, eggs, tofu). Discourage high fat, high sodium meats (bacon, sausage, fried meats). • Discuss importance of fruits and vegetables to decrease risk of cancers, obesity, and cardiovascular disease. Encourage filling half the meal plate with fruits and vegetables in a variety of colors. • Increased consumption of beverages high in sugar (soda, sports drinks, and energy drinks) contributes to overweight and obesity and displaces nutrients needed for optimal growth. Encourage water instead of sugar sweetened beverages.

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Age	Discuss	Main Message
	Eating Behaviors	<ul style="list-style-type: none"> • Skipping breakfast is associated with increased BMI, lower grades in school, and lack of energy and concentration. Encourage ‘grab and go’ foods (yogurt, fresh or dried fruit, hardboiled eggs). • Inadequate food resources or unhealthy weight loss practices can cause adolescents to skip meals compromising growth. Screen and refer appropriately. Encourage 3 meals and 2 snacks a day. • Eating meals together is associated with better academic performance, higher self-esteem, lower risk of substance abuse and depression, and lower rates of obesity. Encourage family meals at least 3-4 times per week. • Adolescents eat more meals and snacks away from home, often fast foods high in fat, cholesterol, and sodium which contribute to risk of cardiovascular disease and obesity. Encourage eating fast-foods less than 3 times per week. Review healthy fast-food options. • Vegetarian diets may result in B₁₂, zinc, and/or iron deficiencies. Encourage eating eggs, milk, and dairy for B₁₂, and beans, nuts, and leafy greens for zinc and iron. • Poor appetite may indicate depression, emotional stress, or chronic disease. Assess if weight loss has occurred and assess for organic and psychiatric disease.
	Weight and Body Image	<ul style="list-style-type: none"> • Emphasize body weight is based on a genetically determined size and shape. Help build a positive body image by explaining that people come in unique sizes and shapes, within a range of healthy body weights. Adolescents need to know they are loved and accepted as they.

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		<ul style="list-style-type: none"> • Healthy body weight can be achieved by practicing healthy eating behaviors, limiting sweetened beverages, and being physically active. Discuss healthy weight and safe ways for adolescents to achieve and maintain a healthy weight. Discourage dieting, instead emphasize a healthy lifestyle.
	Physical Activity	<ul style="list-style-type: none"> • Encourage the adolescent to engage in 60 or more minutes of daily physical activity. • Encourage a combination of at least 3 days/week for each of the following activities: aerobic (swimming, dancing), muscle strengthening (free weights, push-ups), and bone strengthening (jumping, basketball). • Encourage adolescent to engage in a variety of fun physical activities with family and friends. • Encourage limiting total entertainment screen time to no more than 2 hours per day. Encourage parents to: turn off TV and phones during family meals; co-view and discuss content with adolescents; avoid exposing adolescents to PG-13 and R-rated movies; create an 'electronic media-free' environment for studying; remove TV from bedroom
	Substance Use	<ul style="list-style-type: none"> • Discourage adolescents from consuming excessive quantities of caffeinated beverages. • Warn adolescents about the dangers of using alcohol, tobacco, other drugs, and performance-enhancing products.

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9. “Back to sleep, tummy to play.” *Healthychildren.org*.
www.healthychildren.org/English/ages-stages/baby/sleep/Pages/Back-to-Sleep-Tummy-to-Play.aspx