

A photograph of a baby with light hair and blue eyes, wearing a light blue striped shirt, sitting on the floor and playing with a blue and yellow ball. The image is slightly faded and serves as a background for the text. There are thick black L-shaped brackets in the corners of the slide.

HEALTHY EATING IN INFANTS AND TODDLERS

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Overview

- Nutrients and the influence on the body
- Picky Eating
- Mealtime Opportunities
- Complementary Foods
- Nutrition Guidelines

Macronutrients (Black & Hurley, 2014)

- Required in large quantities
- Carbohydrates, proteins and fats

proteins

Micronutrients (Black & Hurley, 2014)

- Nutrients required in small quantities
- Essential vitamins and minerals not produced by the body
- Iodine, iron and zinc
 - *linked to growth, cognition and social development*



Vitamin Deficiencies (Black & Hurley, 2014)

- Vitamin A – vision problems
- Vitamin B6 – temperamental difficulties
- Vitamin B9 (folic acid) - neural tube formation
- Vitamin B12 – neurological symptoms

Gastrointestinal Health

- *Babies put everything in their mouths*
 - *Introduces bacteria and viruses*
 - *Promotes healthy gastrointestinal and immune system development*
- Over-clean environments reduce exposure and introduce chemicals
- (Jane, 2009)

Rapid Growth

- Brain doubles in first year, Triples by end of third year
- Major developmental milestones
 - *Fine and Gross motor skills*
 - *Coordination*
 - *Cognition*
 - *Feeding behaviors*
 - *Establishment of food preferences and dietary patterns*

- (Achterberg, 2017)

Developmental-Ecological Theory (DET) (Black & Hurley, 2014)

- Study of early growth, feeding behavior and development
- Interactive process, infants and caregivers influence one another
 - *Influenced by physical, social and cultural factors*
- Consists of direct and indirect models

Developmental Progression of Eating Skills (Black & Hurley, 2014)

- Challenging task
 - *Requires multiple systems and all senses*
- Progress from supine to seated
 - *Fed by others to self feeding*

Activity

- Write down every food item you don't like

A photograph of a baby with light hair and blue eyes, wearing a grey and white striped long-sleeved shirt. The baby has a distressed or unhappy expression, with furrowed brows and a slightly downturned mouth. A hand from the left is holding a spoon with a yellow substance, offering it to the baby. The background is a plain, light color. The text "PICKY EATING" is overlaid in the center in a bold, black, sans-serif font. There are thick black L-shaped brackets in the corners of the image, framing the central scene.

PICKY EATING

Picky Eating

A young child with dark hair is shown from the chest up, wearing a light-colored shirt. The child has their hands pressed against their temples, looking slightly to the side with a neutral or perhaps slightly distressed expression. In the foreground, there is a white bowl filled with fresh strawberries. The background is a plain, light color.

- The reluctance to eat familiar food
- Prevalence (Cano, Tiemeieer, Hoeken ... et al., 2014)
 - *26.5% at 1.5 years*
 - *27.6% at 3 years*



PICKY EATING: A DISCUSSION

How do you get a picky eater to eat healthy foods?

Picky Eating

Potential Causes

- Interference with appetite
- Food refusal may be attention-seeking
- Inappropriate feeding techniques
- Older siblings or peers

Feeding Styles and Parenting Styles

(Black & Hurley, 2014)

- Feeding styles are directly influenced by parenting style
 - *Authoritative*
 - *Authoritarian*
 - *Indulgent*
 - *Uninvolved*



Authoritative (Black & Hurley, 2014)

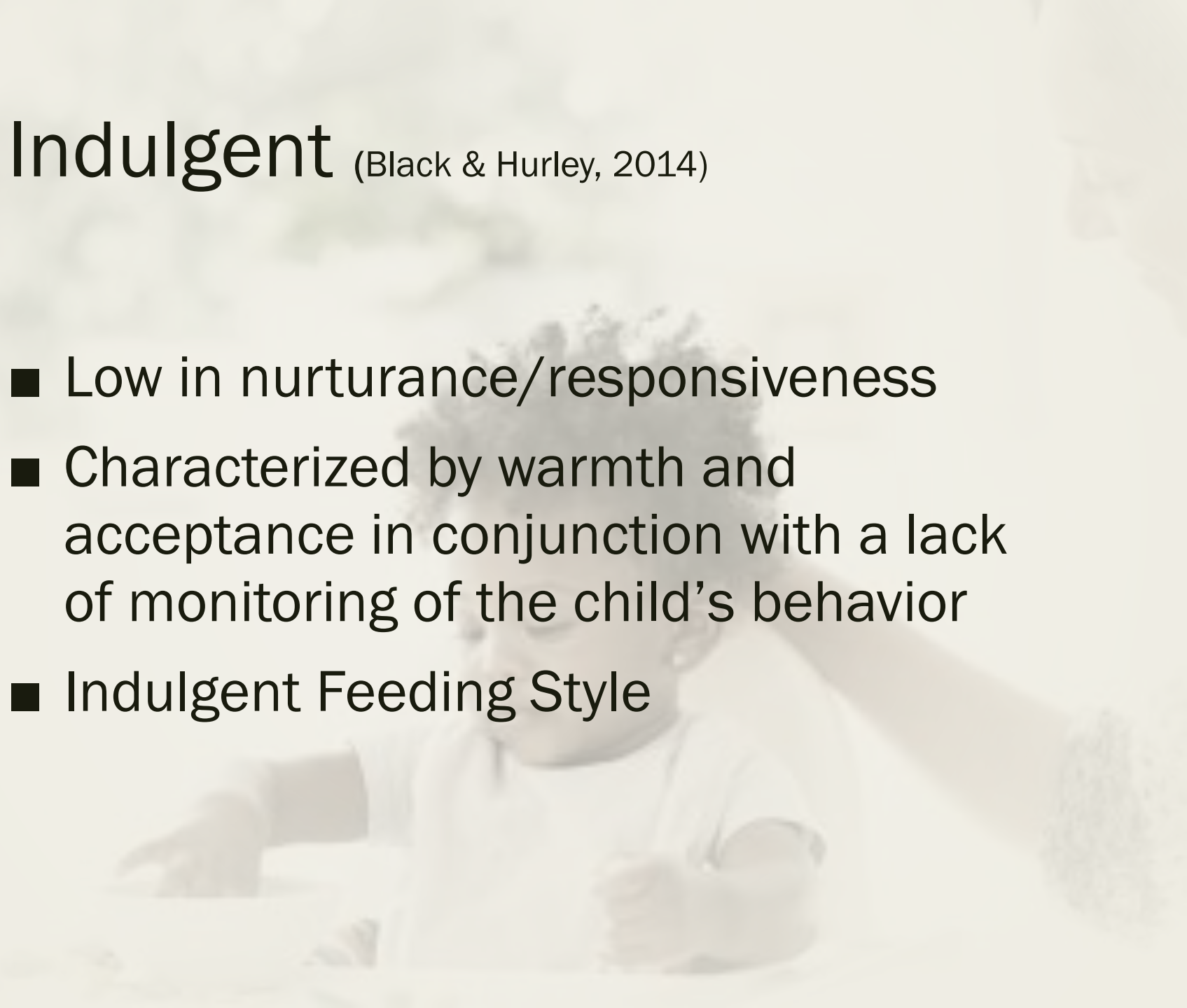
- High in demanding/responsiveness
- Parental involvement, nurturance, reasoning and structure
- Consists of a sensitive/responsive feeding style

Authoritarian (Black & Hurley, 2014)

- High in demandingness/low responsiveness
- Characterized by restrictive, punitive and controlling behaviors
- Controlling feeding style

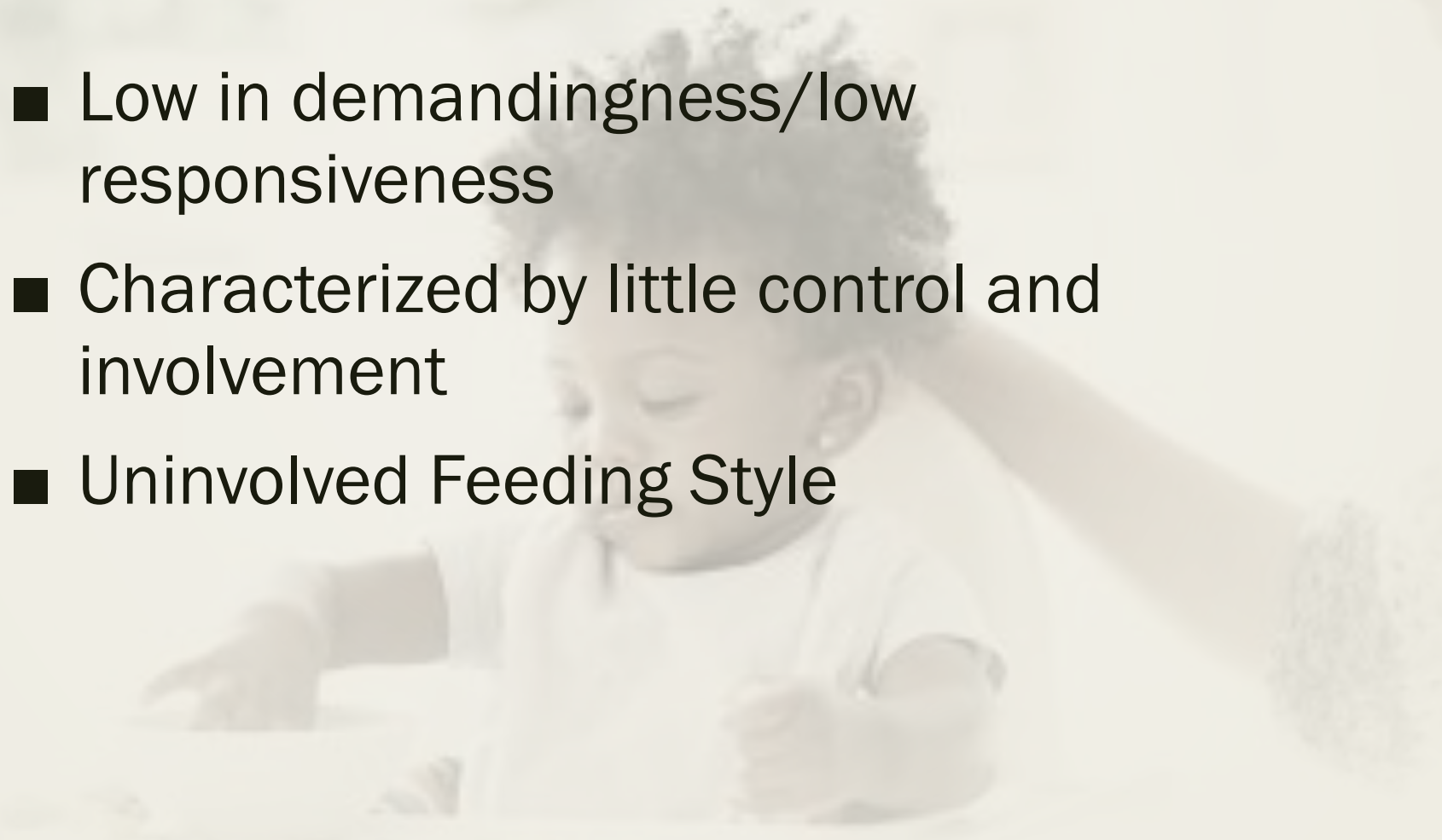
Indulgent (Black & Hurley, 2014)

- Low in nurturance/responsiveness
- Characterized by warmth and acceptance in conjunction with a lack of monitoring of the child's behavior
- Indulgent Feeding Style



Uninvolved (Black & Hurley, 2014)

- Low in demandingness/low responsiveness
- Characterized by little control and involvement
- Uninvolved Feeding Style



MEALTIME OPPORTUNITIES FOR YOUNG CHILDREN AND PARENTS

(BLACK & HURLEY, 2014)



ZERO TO SIX
MONTHS

Breastfeeding

- Associated with positive infant and maternal outcomes
- Protective effect against over-weight and obesity (Black & Hurley, 2014)
- Immune factors in first and second year
- Protect against infectious illness (i.e. gastrointestinal and respiratory infections) (Black & Hurley, 2014)
- Decreased risk of breast cancer (Black & Hurley, 2014)



THE FOOD, TASTE SMELL STUDY
REBECCA WOODS,
ELIZABETH HILLARD,
SAVANNA JELLISON

Zero to Six Months

- Child can signal hunger and satiety
- Parent can respond by feeding, calming or holding child
- Teaching child to trust, communicate, that parents listen, predictable feeding schedule

Self-Weaning

- No longer interested in nursing
- Stops on own
- Occurs when getting a variety of solid



SIX TO TWELVE MONTHS

Infant Nutrition – Solid Foods

- Introduce solid foods at 6 months
- Allergy Risk
- Nutrient-dense meals
 - *No Processed Sugar*



Additional Extension Resources

- Introducing [Solid](#) Foods
- Introducing [Table](#) Foods
- Homemade [Baby](#) Food

Six to Twelve Months



- Child can sit up and self-feed
- Parents can ensure safety, offer finger foods, turn off TV
- Child is learning to self-feed, amount to eat, experience variety of foods, mealtime is fun

Baby Led Weaning (Cichero, 2016)

- Popularized in UK
- Helps motor development
 - *Eye-hand Coordination*
 - *Chewing skills*
 - *Dexterity*
 - *Healthy Eating Habits*
- Convenience of one meal

Baby Led Weaning

Tips for Success

- Wait until baby is ready
- Continue Breastfeeding and formula
- Pull up a chair
- Start with soft first foods
- Prep foods for easy grasping
- Nutrient Intake
- Its Messy
- Eat together

A photograph of three young children standing in a row, smiling. The child on the left is wearing a white long-sleeved shirt and blue jeans. The child in the middle is wearing a yellow long-sleeved shirt and blue jeans. The child on the right is wearing a white collared shirt under blue denim overalls. The background is a plain, light-colored wall. The text "TWELVE TO TWENTY-FOUR" is overlaid in the center in a bold, black, sans-serif font. A large black L-shaped graphic element is positioned on the left side, and another similar L-shaped graphic is on the right side, both pointing towards the center text.

**TWELVE TO
TWENTY-FOUR**

Twelve to Twenty-four months

A background image showing three young children walking and smiling. The child on the left is wearing a white shirt and dark pants. The child in the middle is wearing a yellow shirt and blue jeans. The child on the right is wearing a white shirt and blue overalls. The image is faded and serves as a background for the text.

- Child can self-feed and begin to use baby-safe utensils
- Parents can offer a variety of food
- Child is learning independence, food preferences and trust

A faded background image of two young children sitting on a light-colored floor. On the left, a young girl with dark skin and braided hair is wearing a striped shirt and holding a book. On the right, a young girl with light skin and blonde hair is wearing a white shirt and holding a banana. The text 'TWENTY-FOUR TO THIRTY-SIX' is overlaid in the center in a bold, black, sans-serif font. The text is framed by a thick black L-shaped border on the left and bottom sides.

**TWENTY-FOUR TO
THIRTY-SIX**

Twenty-four to Thirty-six

- Child can use words to communicate and help
- Parent can communicate and encourage behaviors
- Child is learning words, feelings, and to listen to cues

Activity



Commercial Complementary Food

- These include:
 - *Infant cereals*
 - *Fruit & vegetable purees*
 - *Infant cookies*
- 70% high in sugar, sodium or fat (Koo, Chang & Chen, 2017)



Table 1. Content coding of packaging information.

Coding Variables	Coding Options
Basic information	Brand name
	Product name
	Number of product
Product category	Infant cereals, simple pureed foods, mixed foods, infant cookies
Recommended age	Stage 1, Stage 2, Stage 3
Nutrition facts	Calories, protein, total fat, saturated fat, carbohydrate, sugar, and sodium content. We also recorded calcium and iron content if displayed on the packaging.
High sodium content	Yes/no, according to nutrition facts
High sugar content	Yes/no, according to nutrition facts
Composition claims	No added preservatives, no added coloring agents, no added seasoning, organic food, dairy-free, no added condiments, natural, fresh, gluten-free, contains vegetables, no allergens, no food additives, non-GMO food, no maltodextrin or modified starch, whole grain, no added artificial flavor, contains meat
Nutrition claims	Contains calcium, contains iron, contains vitamin C, contains a host of nutrients, contains dietary fiber, contains multiple vitamins, no added sugar, no added salt, contains vitamin E, contains multiple minerals, contains vitamin A/ β -carotene, contains vitamin B ₁ , contains ω -3, low sodium, contains zinc, contains probiotics or prebiotics, contains protein or amino acids, contains vitamin B ₂ , contains phospholipid, contains iodine, contains phosphorus, contains vitamin D, contains DHA, contains lactose, contains carbohydrate, contains magnesium, contains selenium, contains arachidonic acid
Health claims	Nutritionally balanced, provides good nutrition to children, improves appetite, suitable for picky eaters, supports healthy growth, improves growth, good for digestion and absorption, supports learning to chew, supports learning to hold, combats constipation, good for bones and teeth, good for enteric flora, good for the brain, good for the eyes, supports vision and skin health, good for defecation, good for thyroxine synthesis, good for red blood cell synthesis and preventing iron-deficiency anemia, good for metabolism, good for collagen synthesis

Advice for dealing with toddlers who refuse to eat

(Leung, Marchand, and Suave, 2012)

- Decrease in appetite is normal from 2 to 5
- Parent is responsible for offering food, not regulating amount eaten
- Rule of thumb for portions: one tablespoon per year of child's age
- Snacks are fine if they do not interfere with child's appetite for next meal; No juice or grazing
- Eating should be enjoyable

Advice for dealing with toddlers who refuse to eat

- Toddler time at table should be about 20 minutes, remove all food and offer again at next meal or snack
- Children need to exercise and play to stimulate appetite
- No distractions during mealtime
- Insist on table manners appropriate to child age and stage of development
- Meal time is social and pleasurable



DISCUSSION

What are the current dietary guidelines
for 0-24 months?

Dietary Guidelines



- As of 2017, Infant feeding guidelines do not exist in the United States
- Birth to 24 Months and Pregnancy Project
- 2020 Dietary Guidelines for Americans (DGA)
- (Achterberg, 2017)

Dietary Guidelines – Added Sugar Consumption

- 2 years and older recommendations:
 - *World Health Organization (WHO)*
 - Limit to less than **5%** of total energy intake
 - *DGA 2015-2020*
 - Limit to less than **10%** of total energy intake
- Actual:
 - *8% to 10% of total energy*
- (Achterberg, 2017)



THE FORUM ON INFANT AND TODDLER NUTRITION

WHO Recommendations

- 0-6 months – Exclusively Breastfed (substitute iron-fortified formula if necessary)
- 6-8 months – Solid Foods (iron-rich complementary foods)
- 8 months – 1 year – Table Foods
- 1 year – whole milk
- 2 years – reduced fat milk

Nutrition for Healthy Term Infants: Recommendations from 6 to 24 Months

- Breastfeed for two years or beyond
- Supplemental vitamin D
- Complimentary Feeding
- Responsive Feeding
- Iron-rich complementary foods
- Prepare, serve and store food safely
- Regular schedule of meals and snacks

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