Food, Feeding and Eating: How to Optimize Positive Habits in Children of Every Size

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Disclosures

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“I want to help my child, but I don’t want to hurt them.”

65% of parents who identify their child as being larger, avoid talking about size for fear of causing harm to their self-esteem.

Puhl et al. Ped Obes, 2022.

The Building Blocks of Health

Physical Health

Expected growth over time, measured by growth and BMI charts

Across gender and age, 40-50% likelihood to inherit the genetic trait for body fat and size.

- Identical twins raised apart – 70% heritability for size, regardless of environment.

Kid Fashion Baby by Olcay Ertem, 2021, Pixabay

Bouchard et al. Obesity, 2021; Stunkard et al. NEJM, 1990

The Building Blocks of Health

Psychological Health

Cognitive development – predictable stages, from concrete to abstract thinking

- Executive functioning skills develop across childhood

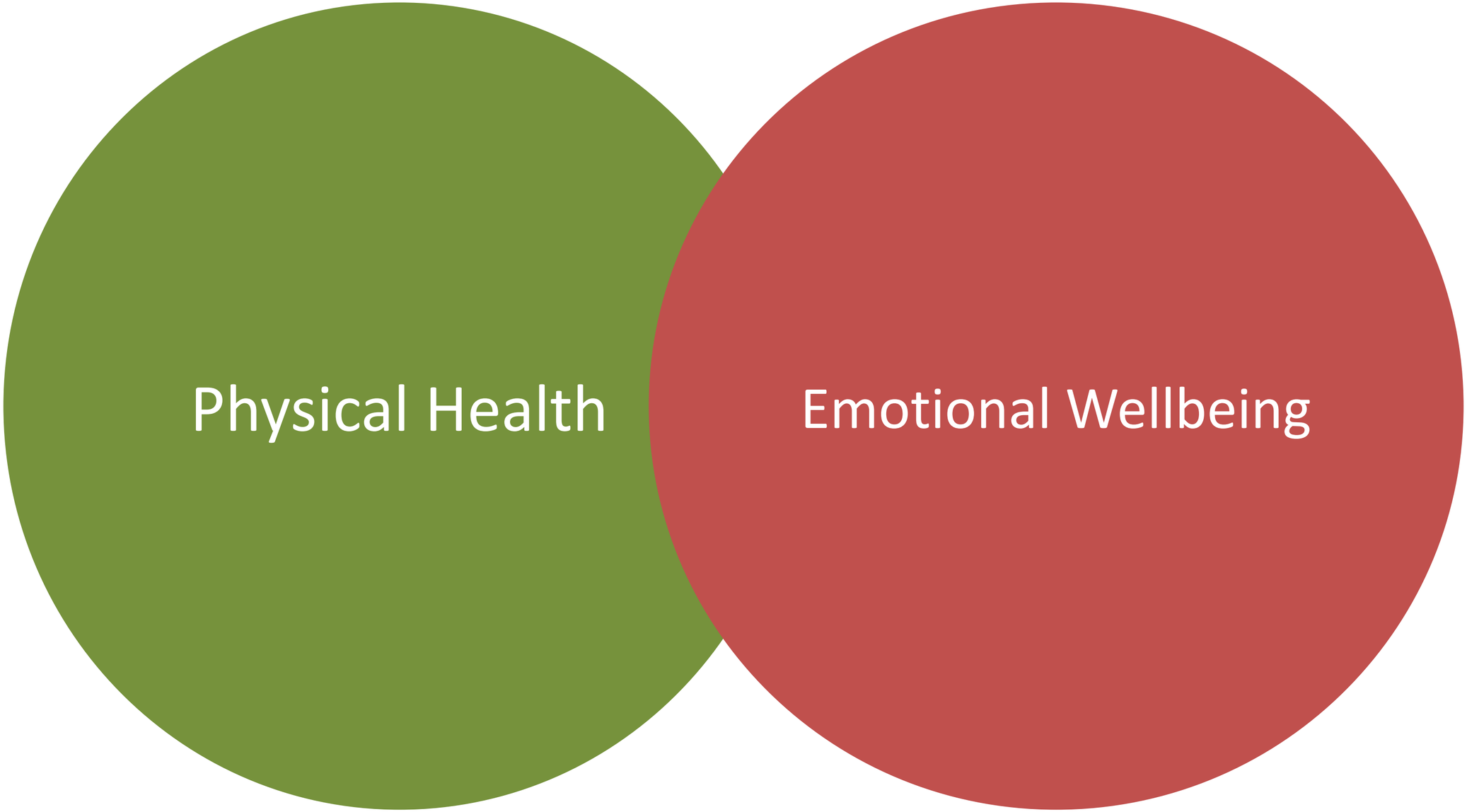
Social-emotional development – predictable, emotional understanding and interactions

- Progression to the next stage relies on successful completion of the prior stage

Temperament – inherited, approach and interaction with the world

McLeod, Saul. Simply Psychology, 2024; Malik et al. StatPearls, 2023

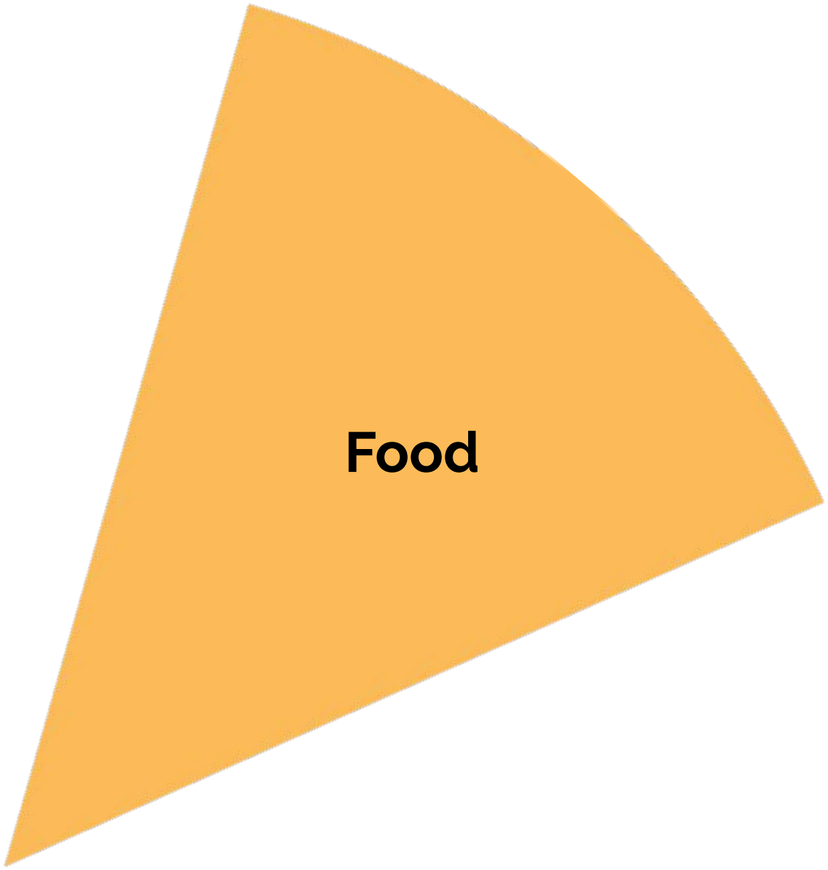
Children need an approach that optimizes their health *and* wellbeing, while minimizing physical and emotional harm.


Physical Health
Emotional Wellbeing

The Whole Child

- Equal emphasis on building physical health and emotional wellbeing.
- Promote optimal health and wellbeing through positive lifestyle behaviors.
- Enjoyment of key health behaviors is key to motivation and ongoing participation.
- Consideration of cognitive, social and emotional development, which predictably change and evolve over time.
- Attention to child-specific characteristics (temperament, appetite traits, genetics of size, health).
- Parents are primary influencers.
- Children are respected, engaged, and protected on all levels

The 8 Pillars of Wellness



The 8 Pillars of Wellness

Image by Gerd Altmann, 2018, Pixabay

Image by Mabel Amber, 2016, Pixabay

Ultra-Processed Food

- Consumer attitudes:
  - Causes childhood obesity, cancer; full of “junk” our kids don’t need
  - Consumer attitudes ignore SDOH, food insecurity, cultural practices

- Studies suggest 67% of calories consumed by children are from UPF
  - 11% calories from ready-to-heat and –eat dishes
  - More energy from added sugar and carbs; fewer protein, fiber, and most vitamins

Wang et al. JAMA, 2021

Nova Classification System

A classification system identifying level of processing

- **Group 1 Unprocessed/Minimally Processed**: No added salt, sugar or oils (EX: Potato)
- **Group 2 Processed Culinary Ingredients**: Grp 1 foods undergoing pressing, refining, grinding, milling (Butter)
- **Group 3 Processed Foods**: Added sugar, oil, and/or salt to Grp 1 foods to increase shelf-life or flavor (Frozen potatoes)
- **Group 4 Ultra-Processed Foods**: Industrially created food w/ addition of multiple ingredients, including Grp 2 and other additives (Instant mashed potato)

- Using Nova, researchers planned a 7-day, 2,000 calorie daily diet based on DGA guidelines using more than 80% of foods from Nova's Group 4 foods. Outcome: HEI = 86.
- Challenge: Many research studies fail to distinguish processing from nutrient density

Monteiro et al. Cad Saude Publica, 2010; Hess et al. JNutr. 2023

Sugar

Consumers:

- Sugar is bad and causes poor health, including weight gain, cavities, and hyperactivity
- Sugar is “evil,” “poison,” “addicting”

Sugar is the #1 fear of parents today.

- Guidelines: 10% of daily calories from added sugar (USDA)
  - none for children under age 2

- Studies: Calories consumed by children from added sugar are significant
  - 84% of children under age 2 consume added sugars on a given day (toddlers > infants)
  - Toddlers ~ 12 tsp per day
  - School age children and teens consumer ~ 18 tsp per day

Eck et al. Nutrients, 2018; Braesco et al. Euro J Clin Nutr, 2022; WHO Sugar Recommendations, 2023; 2020 Dietary Guidelines, USDA; CDC, 2021; Herrick et al. J Acad Nutr Diet, 2019

Nutrients of Concern in Children

<u>Calcium</u>

Trend: From 2009-2018, 2–18-year-olds have consistently decreased their total calcium intake (from diet and dietary supplements); and consume less than their EAR

<u>Vitamin D</u>

50% of 1 to 5-year-olds, and 70% of 6 to 11-year-olds; 42% of teens have a deficiency

*High weight children at higher risk; need 2x RDA

<u>Omega-3 FA</u>

>95% of children have low O-3 blood concentrations

*EPA + DHA intake: 23 mg/1000 kcal (1-5 years); 26 mg/1000 kcal (6-11 years); 30 mg/1000kcal (12-19 years)

<u>Iron Deficiency Anemia</u>

5% of children (2 -11 years) are deficient; 17% teen girls

Yu et al. Nutrients, 2024; Chauhan et al. In: StatPearls, 2025; Zakharova et al. Front Endocrinol, 2019; Thompson et al. Nutrients, 2019; Weyand et al. JAMA, 2023; Williams et al. NCHS Data Brief 519, 2024; Gordon et al. Arch Pediatr Adolesc Med, 2004.

Rethinking Food Using a Nutrient Lens

Highly Nutritious Foods: Foods with high nutrient density per calorie; may be processed or ultra-processed

EX: Food groups (Dairy, Fruit, Vegetables, Whole Grains, Protein)

Decently Nutritious Foods: Foods with added sugar, fat AND nutrients; may be processed or ultra-processed

EX: ready-to-eat cereal; chicken nuggets

Minimally Nutritious Foods: Highly palatable foods containing added sugar and fat and minimal to no nutrients

EX: candy, chips, cookies, soda

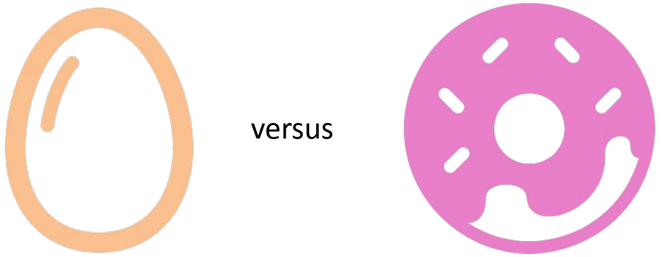
An Eye on Satisfaction

Protein

- Increased thermogenesis –body temperature increase is interpreted as fullness; animal-based foods
- Protein-rich foods increase the release of leptin in the gut, signaling fullness

Fiber

- Bulk, thickens, gels in stomach fullness
- Distension, slower digestion, encourages leptin release



Protein + Fiber + Fat

- Improves satiety awareness
- Fat alone does not trigger fullness or increase appetite awareness

Chambers et al. Trends Food Sci Tech, 2015; Westerterp et al. Nutr & Metab, 2004; Arguin et al. Brit J Nutr, 2017

Common Challenges with Food

Food Balance

Lack of Fruits and Vegetables
- 2-3 servings per day

Refined Grains > Whole Grains
- ~15% of whole grains consumption

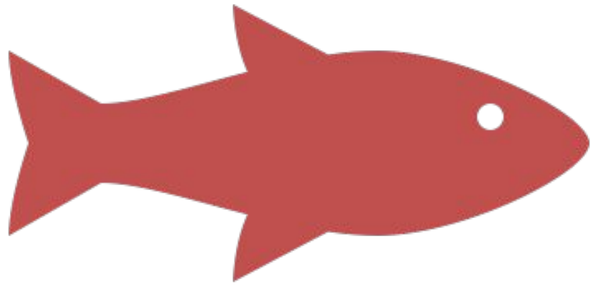
Protein sources:
- Dairy intake steadily declines after age 2 through adolescence
- Fish intake low in all age groups

Hamner et al. MMWR Weekly, 2023; Dunford et al. J Nutr. 2021; USDA DGA 2020

Optimizing Food and Nutrition

Target Nutrients of Concern with Food First

Calcium: Milk and dairy foods; fortified milk alternatives; dark leafy greens, fortified foods (bread)
Vitamin D: fatty fish, milk, dairy foods, fortified foods (cereal, e.g.)
Omega – 3 Fats: fish, walnuts, flax seeds
Iron: meat, eggs, spinach



Supplementation:

Vitamin D: 600 IU 1000 – 1500/2000 IU per day

Omega-3 FA: 500 mg 1500 – 3000 mg per day

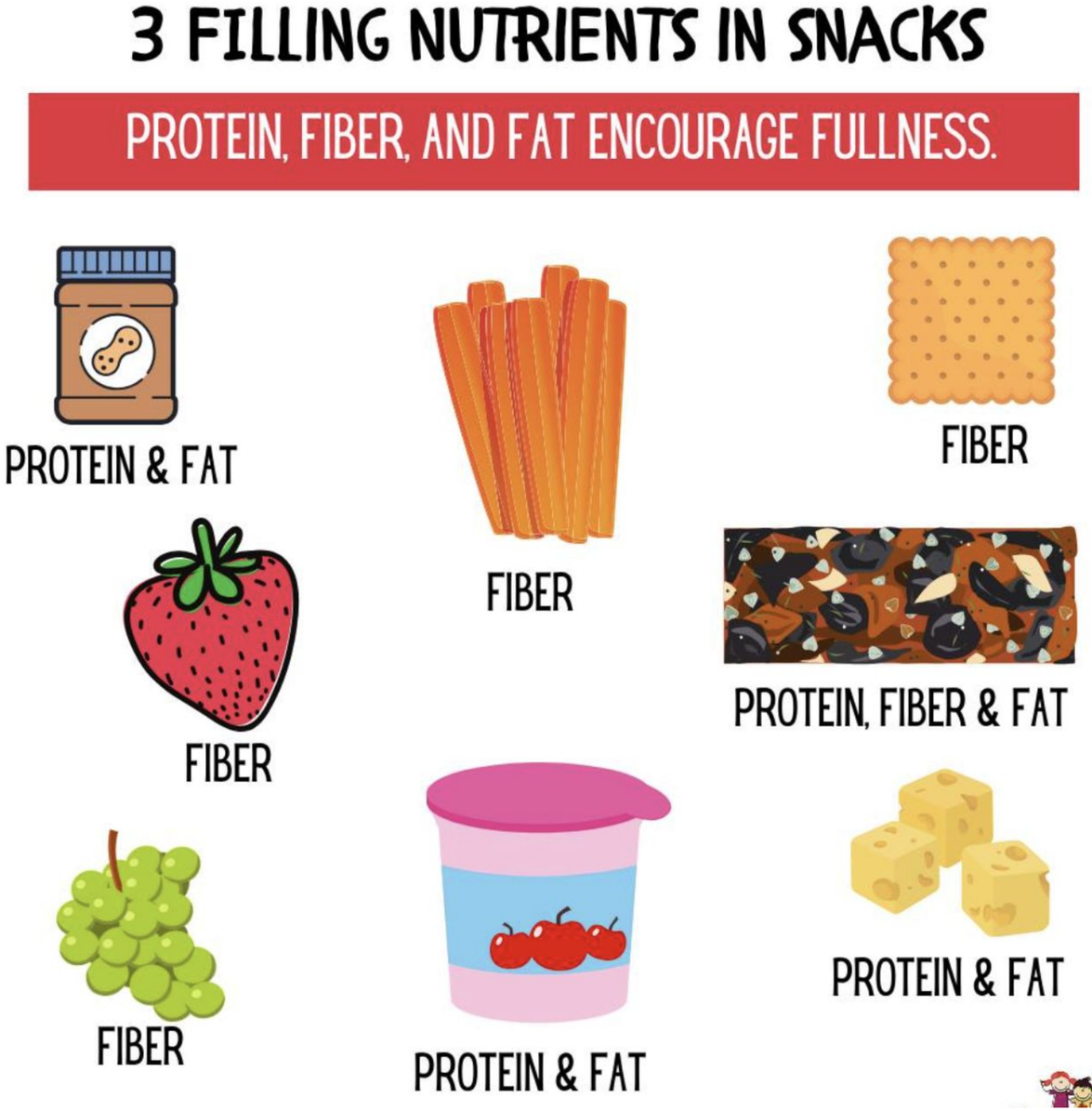
Iron: Consult with pediatrician (generally, 3 mg/kg/d for infants/toddlers; 325 mg (65 mg elemental iron) once daily

Wu et al. Front Pediatr, 2021; Zakharova et al. Front Endocrinol, 2019

Optimizing Food and Nutrition

Meal and Snack Planning

1. Start with a protein-containing food
2. Add fruit and veggies
3. Whole grains
4. Consider fat



Build a Food Neutral Home

22% of children and teens worldwide show signs of disordered eating.

Become a Spectrum Thinker

- Thinking of all the possibilities (open-minded, inclusive)
  - Binary: “Junk food” versus “Healthy food”
  - Spectrum: “All foods fit.”

Nix Food Shaming

- Judgmental comments or unwarranted criticisms about what a person is eating or how much they’re eating
- Rooted in diet culture
- Children are more vulnerable to internalized shame
  - *Honey, that ice cream is so processed!* (I like ice cream…I must be bad.)
  - *Haven’t you had enough?!* (I eat too much. There’s something wrong with me.)

Build a Food Neutral Home

Build Food Education in Neutral Ways: Let Child Development Lead

- **Toddlers**: Build language: Describe color, shape and texture; use proper names; describe flavor and taste

- **Preschoolers**: Build engagement, familiarity: explore food; engage with simple skills; play games and read; cook together, shop, taste test

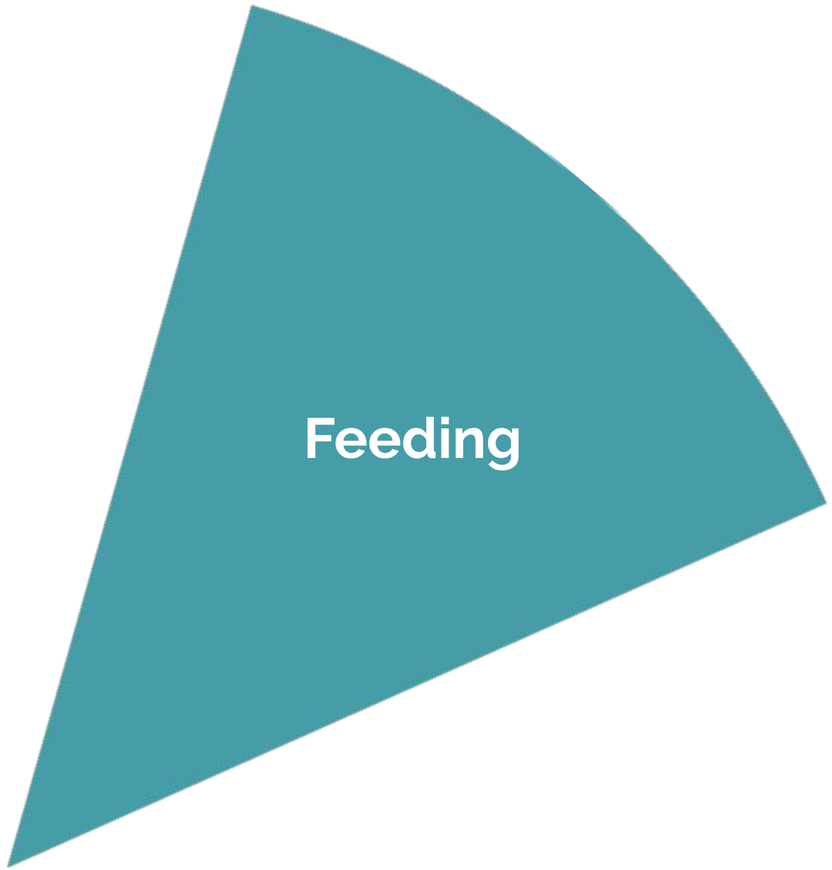
- **Children**: Build skills and independence: Baking and cooking, meal planning, independent snack prep

- **Teens**: Embrace creativity and independence: Cook for the family, try different cuisines

Lopez et al. *JAMA Pediatrics* 2023; Piaget, J. (1971). The theory of stages in cognitive development. In D. R. Green, M. P. Ford, & G. B. Flamer, *Measurement and Piaget.* McGraw-Hill.
Erikson, E. H. (1994). *Identity and the life cycle*. WW Norton.

What You Can Do

- Optimize key nutrients to promote satisfaction after meals and snacks
- Identify and address potential nutrient gaps for the larger-bodied child
- Modify eating patterns for better balance
- Help families build a food neutral home



The 8 Pillars of Wellness

Everybody wants one, but few know how to get it.

A Healthy Relationship with Food

Image by Raju Reddy, 2023 on Pixabay

The Pursuit of a Healthy Relationship with Food

Intuitive eating

- Misinterpreted by consumers and influencers to mean unlimited access to food
- Challenge: Caretakers may not be intuitive with eating themselves

Anti-diet approach

- Caretaker may fear saying no, setting limits, and food restriction
- Challenge: overfeeding, child in control

Fear-mongering and pressure from social media

- May change how parents interact with kids around food
- Impact on food selection

A healthy relationship with food begins with feeding.

Feeding Styles

Parental attitudes and beliefs about feeding; from childhood experiences; trans-generational.

FEEDING STYLE	CHARACTERISTICS	POTENTIAL OUTCOMES for CHILD
Controlling	Low sensitivity to a child's appetite, food preferences Demanding, rule-based, parent-centered	Poor appetite awareness Poor self-regulation Less fruit/vegetable consumption
Indulgent	High sensitivity to child's appetite, food requests and preferences Low structure, low monitoring Child-centered	Increased intake of energy-dense foods and sweets
Diplomatic	High sensitivity to appetite and food preferences Responsive to child Expectations	More fruit/vegetable/dairy consumption More physically active Protective against emotional eating Promotes self-regulation

Lev-Ari et al. Int J Environ Res Publ Health, 2021; Lopez et al. Appetite, 2018

Feeding Practices

COUNTERPRODUCTIVE PRACTICES	CHARACTERISTICS	POTENTIAL OUTCOMES for CHILD
Restriction	Limiting access to certain foods, portions	Overly focused on restricted food, overeats when food available
Pressure to Eat	Nagging to eat more; pressure to try or take bites; reminding child to eat	Disinterest in food; early satiety; poor weight gain; worsens picky eating; OR weight gain; overeating; ignoring fullness
Food Rewards	Use of sweets/desserts to get child to eat; manipulating with rewards to improve eating	Values reward food over healthy food; eats to please; poor self-regulation; relies on external indicators
Catering	Child makes most food choices; parent often makes a rescue meal or snack	Limited diet; nutrient inadequacies; less likely to try new foods
Constant Feeding	Grazing; always hungry; lack of structure	Constant eating; overeating; unable to identify true hunger

Power et al. Child Obes 2021; Russell et al. Appetite, 2018; Vaughn et al. Nutr Rev, 2016.

Vulnerabilities to Counterproductive Feeding

Negative Childhood History with Feeding

Feeding Practices: The Clean Plate Club; food restriction; pressure to eats
Meal Environment: too much food talk; negative vibe/associations

Worries about bodies, health, eating can change feeding interactions.

Caretaker Body Struggles

Fear of passing on body struggles may alter feeding: disengagement; too controlling/restrictive; indulgent
History of an eating disorder may have increased difficulty with feeding child

- Slower feeding, Smaller portions, Lack of routine with meals/snacks
- Choose “healthy” foods; vegetarian patterns; limit sweets; restrict portions; intrusive feeding (helicoptering); higher concerns about body size and growth

Martini et al. Arch Women Ment Health, 2020; Haycraft, Emma. Appetite, 2020.

Vulnerabilities to Counterproductive Feeding

Parent Emotional Health

Parents with anxiety, depression, or other mental health symptoms may feed in non-responsive ways

The Child

Larger or Smaller in Size controlling or permissive, or both

Eating Behaviors controlling (undereating or overeating)

Image by AbsolutVision, 2017, Pixabay

Martini et al. Arch Women Ment Health, 2020; Haycraft, Emma. Appetite, 2020.

Productive Feeding

DIPLOMATIC FEEDING IS THE GOAL (& THE GOLD STANDARD)

Structure

Meals and snacks at regular times
In a regular place
Parents determines food offerings

Boundaries

Limits around when, what, and where eating happens

Guided Choices

2 options, parent-determined (3 for older child)

3 A's
Autonomy,
Agency,
Advocacy

Vaughn et al. Nutr Rev, 2016; Shloim et al. Front Psych, 2015.

“Next-Level” Productive Feeding

SELF-SERVICE MEALS

- Correct the scarcity vibe with abundance
- Engage child autonomy
- Heal counterproductive feeding experiences of the past

Family Style Meals
Buffet-style/Smorgasbord
DIY/Deconstructed Meals

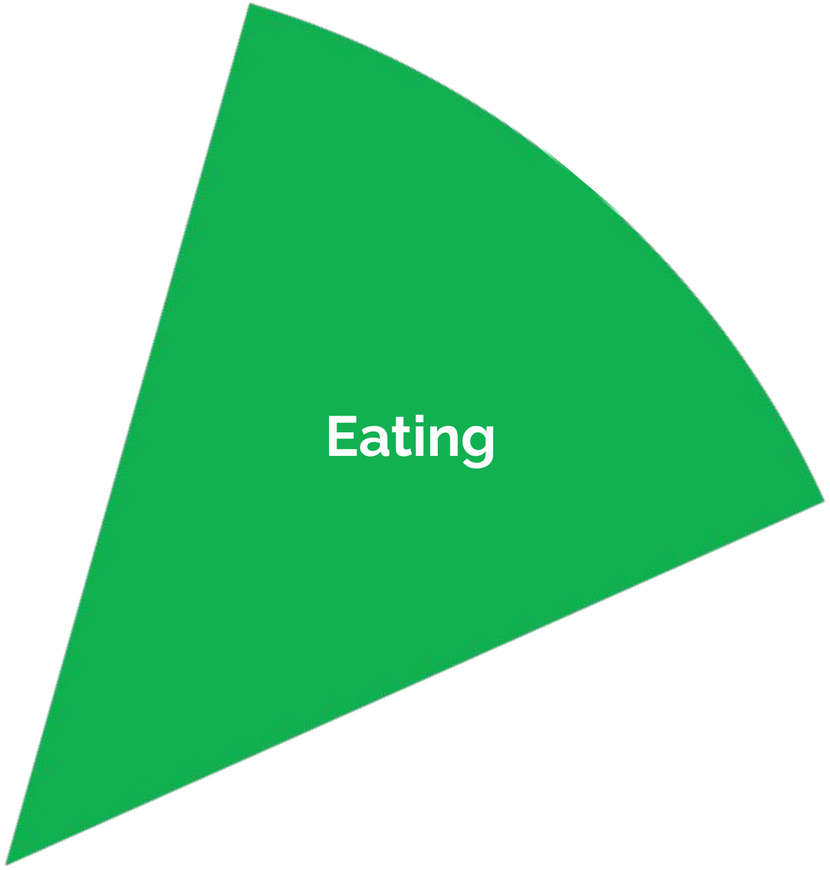
Parent decides what

Child decides whether and how much

Satter EM. https://www.ellynsatterinstitute.org/how-to-feed/the-division-of-responsibility-in-feeding/

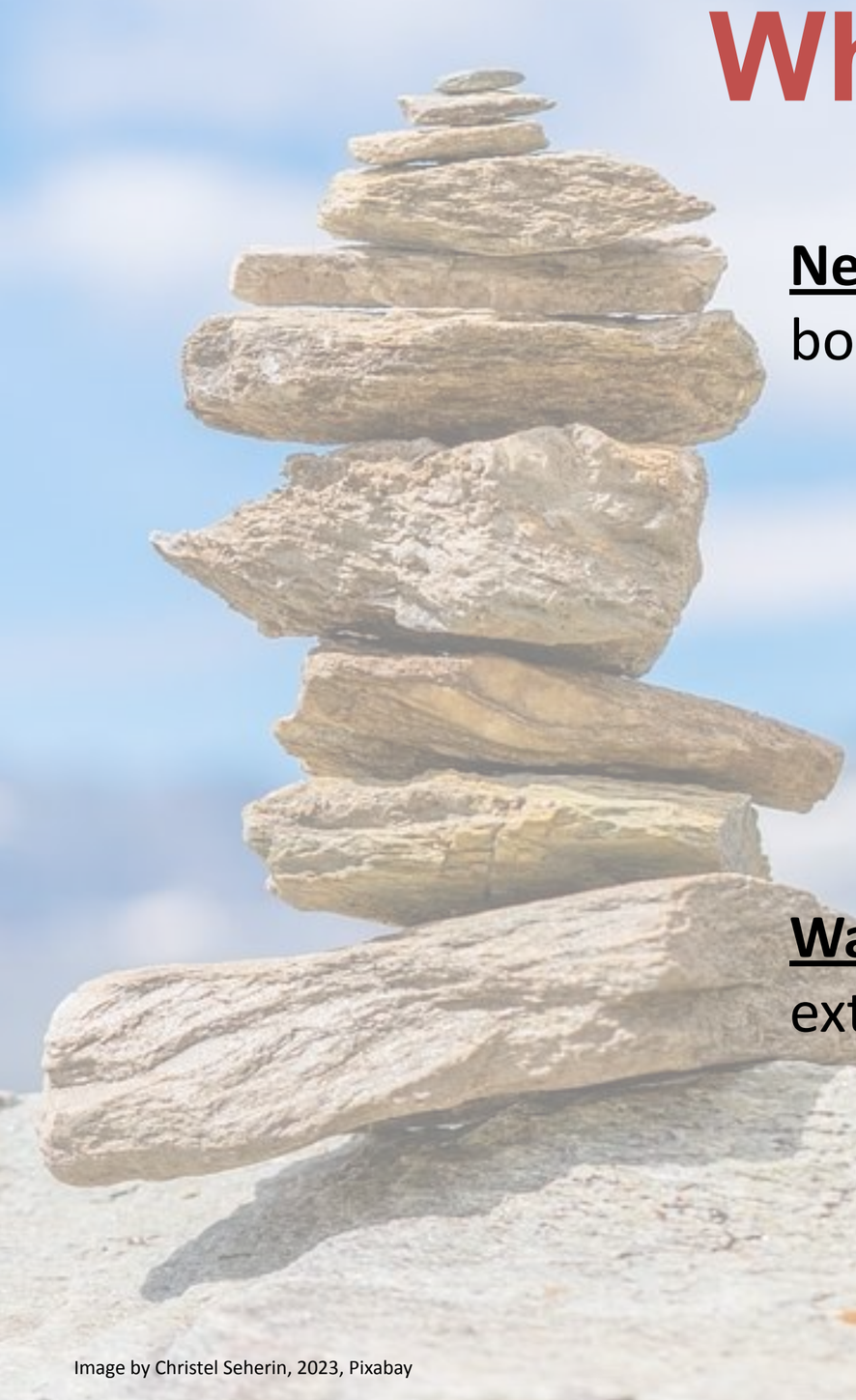
What You Can Do

- Be curious about a parent's feeding style and childhood history with feeding
- Assess for counter-productive feeding practices and help families understand the impact
- Help families set a schedule for meals and snacks (structure) and routines with location
- Empower parents to choose nutritious meals and snacks while collaborating with the child and enhancing their autonomy
- Explore self-service meal ideas as a technique to increase autonomy, agency, and a way to heal broken trust with feeding
- Support struggling caretakers with appropriate referrals



The 8 Pillars of Wellness

Why Do Kids Eat?



<u>Need to Eat (Homeostasis):</u> Consume enough energy to match body functioning; managed primarily by appetite hormones

- Larger bodies and “constant hunger:” Leptin resistance muffles the sense of fullness; causes appetite stimulation/starvation response
- High body fat in the belly area may be a sign of leptin resistance

<u>Want to Eat (Hedonism)</u> : Pursue the pleasure of eating; external cue-based (sight, smell of food); memories of pleasure

- Dopamine: pleasurable eating increases dopamine, proportional to the amount of pleasure experienced

Image by Christel Seherin, 2023, Pixabay

Lutter et al. J Nutr, 2009; Chao et al. Obesity, 2017; Freitas et al. Ann Nutr Metab, 2018

Why Do Kids Eat?

<u>Decide to Eat (Executive Functioning):</u> Decision-making, delayed gratification, inhibition, disinhibition, cognitive flexibility, and working memory; begins developing ~6 years and completes at ~ 25 years

- Children who are good at self-regulation have skills in inhibition, working memory and cognitive flexibility

<u>Food Approach (Natural Tendency)</u>: Genetic – appetitive traits

- **Food avoidance:** higher sensitivity to fullness after eating
- **Food responsiveness:** higher sensitivity to food cues; higher enjoyment of food)

Image by Gerd Altmann, 2017, Pixabay

Hayes et al. Appetite, 2018; Gowey et al. J Ped Psych, 2018; Llewellyn et al. Am J Clin Nutr, 2010.

Common Challenges with Eating

Eating When Not Hungry (Eating in the Absence of Hunger)

A learned behavior. Lower ability to self-regulate energy intake and higher vulnerability to eating sweets, even after a satisfying meal

- In 1999, EAH was reported to occur between ages 5-9 years (a learned behavior).
- Now, children **as young as 18 months** are vulnerable, especially when there is an opportunity to eat.

"BLAHS:" Boredom, Loneliness, Avoidance, Habit, Situation

- Boredom is a predictor of emotional eating

Image by StockSnap, 2017, Pixabay

Ahlich et al. Appetite, 2022; Fisher et al. AJCN, 1999; Schultink et al. Ped Obes, 2021

Common Challenges with Eating

Food Environment

Abundance without boundaries does not work for all children

- Food responsiveness: Abundant food environments and sweet/savory foods may be hard to self-regulate (plate of cookies on the counter)
- Executive Functioning Skills: impulsiveness

Kids who are food responsive and kids with impulsivity may be more challenged in food abundant environments.

Nuance: Some kids need **more structure and less temptation**; others need **more flexibility and food availability**. Embrace this nuance and **tailor the food environment** to the child.

Building Mindfulness

Mindful Eating

Noticing the process of, and the sensations felt, during eating.

- Improves appetite awareness and regulation
- Lowers stress
- Counteracts unhelpful eating habits
- Encourages appreciation of food

- Enjoyment of food encourages satisfaction and better food choices

As kids grow older, they become less attuned to their appetite.

Keck-Kester et al. Diabetes, Metabolic Syndrome and Obesity, 2021; Bedard et al. PLOS ONE, 2020

Building Appetite Awareness

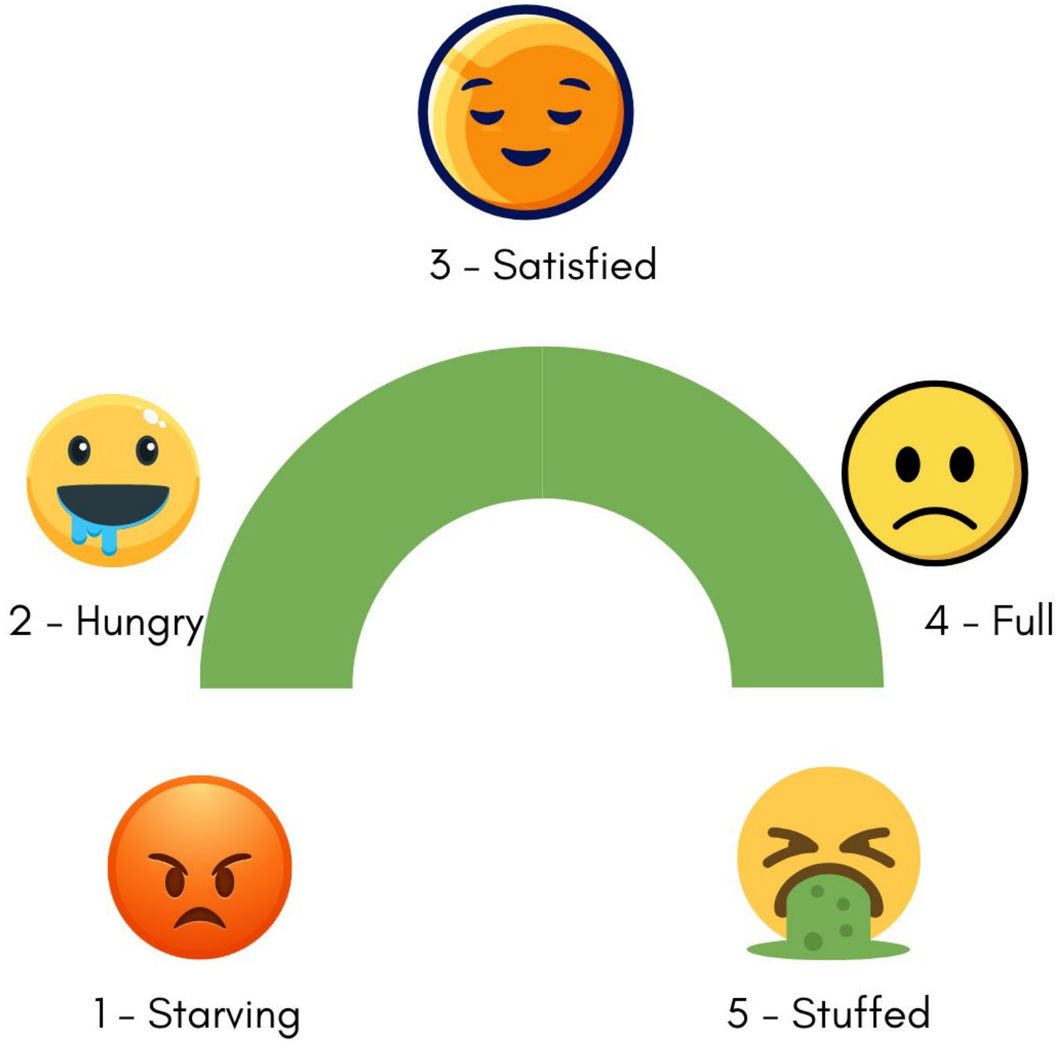
External factors vs internal cues

Early education about appetite

- *Hungry belly vs happy belly*
- *What does your tummy say?*
- *How does your body tell you it's hungry? Satisfied?*

A child's emotional state may influence their eating

- Emotion coaching



What You Can Do

- Acknowledge and screen for the biological, psychological, and genetic factors behind the drive to eat in children
- Optimize the home environment for the individual child
- Identify modifiable drivers of eating: Boredom, emotional dysregulation, learned habits, food environment
- Help families build better appetite awareness and mindfulness with eating
- Connect with allied professional services when needed

Questions?

Let’s Stay in Touch!

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