THE PICKY EATER: WEIGHING IN ON THE IMPLICATIONS

Goldie Markowitz, MSN,CNRP
Nurse Practitioner
Healthy Weight Program

Texas Children’s Hospital, 6th Annual Advanced Practice Provider Conference
THANKS TO TEXAS CHILDREN'S HOSPITAL
DISCLOSURES

• I do not have any financial interests or conflicts to report
OBJECTIVES

• Recognize when a child is more than “a picky eater“
• Describe the risk factors for developing disordered eating
• Compare and contract treatment strategies for the child with feeding/eating issue and abnormal weight: underweight or overweight
• Identify long term consequences
THE FACES OF WEIGHT ISSUES
FEEDING/EATING ISSUE

- Malnutrition
- Feeding Disorder
- Obesity
- Picky Eater
PREVALENCE OF PICKY EATING

• Parents report picky eating: 8% to 50%
  • 19% at 4 months
  • 50% at 24 months
• No universal definition of a picky eater
• Picky eating is described:
  • Limited variety independent of nutritional status
  • Refusal to eat a nutritionally adequate diet
  • Total refusal of certain foods or food groups
  • Failure to meet parents expectations for variety

DEVELOPMENT OF PICKY EATING

Antecedent-Behavior-Consequence (ABC)
Antecedent: demand to eat

Behavior: child refuses, cries, screams, hits, gets out of chair

Consequence: child gets out of eating the food
CONSEQUENCE: FAMILY

• Frustration and resentfulness toward child
• Sibling relationship disruption
• Role modeling negative behaviors to other siblings
• Impaired family social interactions
• Dining out, other social opportunities hindered
GENERAL STRATEGIES: DO

- Establish consistent mealtime routine
- Limit meals to 30 minutes
- Offer new food 8 -10 times
- Positive role modeling
- Encourage independent feeding
- Serve age-appropriate food
- Child-appropriate equipment
GENERAL STRATEGIES: DO NOT

• Short order cook
• Allow grazing
• Empty calories between meals
• Give attention to negative behaviors
• Allow access distractions during meals
RISK FACTORS: CHILD

• Nutrition
  • Failure to thrive, underweight, overweight
  • Failure to ingest age appropriate calories or nutrients
  • Drop or increase in 2 percentiles
  • Plateau on growth curve

• Delayed progression of oral feeding skills (textures, variety, liquids)

• Poor/variable appetite; early satiety

• Sensory food aversion (ASD)
RISK FACTORS: FAMILY

• Limited food availability
• Limited parental problem-solving skills
• Mental health problems
• Feeding style & child temperament
• Knowledge (high chair, food, skill level, portion)
• Role modeling
• Cultural influence
Avoidant/Restrictive Food Intake Disorder (ARFID)

Persistent disturbance in eating that leads to:
• Weight loss or inadequate growth
• Significant nutritional deficiency
• Dependence on enteral or oral nutritional supplements
• Impaired psychosocial functioning

http://www.dsm5.org
PREVALENCE OF FEEDING DISORDER

25-35 % in typically developing children
40-80 % in developmental disabilities

Ramasamy, M, Perman, J., 2000
PREVALENCE OF OBESITY

• Rates of obesity in 6-11 year old TRIPLED over past 30 years (6% → 20%)
• Prevalence of obesity in 2011-2014 was 17.0%
• Extreme obesity was 5.8%
• 30% of children with Autism are Obese

Ogden, JAMA, 2016
Baio, MMWR, 2018
Philips, Maternal and Child Health, 2014
Zablotsky, CDC 2015
AUTISM

• Need for sameness, routine makes transition to feeding more difficult
• Impairment in learning consequences of behavior or appetite changes
• Reduced responsiveness to social approval
• Intensity of refusal behaviors (rage)
• Occurs with first concerns about child
ASSESSMENT
FAMILY HISTORY

- Eating Disorder
- Obesity
- Cardiovascular Disease
- High Blood Pressure
- Stroke
- High Cholesterol
- High Triglycerides
- Type 1 or 2 Diabetes
- Liver Disease
- Bariatric Surgery
- Polycystic ovarian syndrome
PHYSICAL EXAM

• Anthropometric: Height, Weight, z-scores, BMI %iles, BP
• General: dysmorphism, developmental delay, linear growth
• Skin: hydration, acanthosis, striae, cervical fat pad
• HEENT: tonsillar hypertrophy
• CR: murmur, wheeze
• Abdominal: Hepatomegaly
• MSK: Range of motion, genu varum, limp, pain, weakness
• GU: Tanner Stage
• Swallowing (for young children)
TREATMENT STRATEGIES

1. Identify a weight concern
2. Prioritize medical and nutritional needs as relates to hunger
3. Recognize a feeding/eating issue
4. Understand family’s willingness to change behavior
5. Develop a shared-decision management plan
IDENTIFY A WEIGHT CONCERN

Body Mass Index Percentile Ages 2 to 20 Years

Underweight < 5th percentile
Healthy Weight 5-84th percentile
Overweight 85-94th percentile
Obesity 95-99th percentile or BMI > 30
Severe Obesity BMI ≥ 120% of the 95th percentile or BMI ≥ 35 kg/m²

Note: Not all patients with BMI 85% or above have excess adiposity, and many children and adolescents with BMI < 5% are healthy and do not need treatment.

The CDC recommends using the WHO growth charts to monitor growth for infants and children ages 0 to 2 years of age in the U.S. and using the CDC growth charts for children age 2 years and older.
**UNDERWEIGHT**

<table>
<thead>
<tr>
<th>Degree of Malnutrition</th>
<th>Z-score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mild</td>
<td>-1.0 to -1.99</td>
</tr>
<tr>
<td>Moderate</td>
<td>-2.0 to -2.99</td>
</tr>
<tr>
<td>Severe</td>
<td>&gt; -3</td>
</tr>
</tbody>
</table>
Use percent of the 95th percentile to better describe weight

Class I obesity (≥95th percentile to <120% of the 95th percentile)

Class II obesity (≥120% to <140% of the 95th percentile) or a BMI ≥ 35 to ≤ 39, whichever lower

Class III obesity (≥140% of the 95th percentile) or BMI ≥ 40, whichever lower.
MEDICAL NEEDS

Primary Care

Specialty Medical Clinics

Weight Management

Gastroenterology

Sleep Center

Developmental Pediatrics

Feeding Team

RD Social Worker School

Behavioral ABA

Outpatient Therapies

OT/ST/PT
LACK OF HUNGER: CYPROHEPTADINE

• First generation H₁- antihistamine
• Side effects: **increased appetite**, sedation, irritability, abd. pain
• Works by improving with gastric accommodation
• Dosing: 0.25 mg/kg/day divided BID or TID
• Recommend cycling

Questions:
• When is best time to initiate treatment
• Duration of therapy
**APPETITE STIMULANTS: STRONG EVIDENCE**

Underweight, consider med with behavioral approach
Cyproheptadine 0.25 mg/kg/day divided BID or TID
Recommend cycling

<table>
<thead>
<tr>
<th>Citation</th>
<th>Study Population</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Homnick, D. 2015</td>
<td>Cystic Fibrosis</td>
<td>Appetite stimulant</td>
</tr>
<tr>
<td>Sant’Anna, A. 2014</td>
<td>Feeding problem</td>
<td>Appetite Stimulant</td>
</tr>
<tr>
<td>Cuvelier, G., 2014</td>
<td>Cancer</td>
<td>Appetite stimulant</td>
</tr>
<tr>
<td>Najib, J., 2014</td>
<td>Undernourished children</td>
<td>Appetite stimulant</td>
</tr>
</tbody>
</table>
CONSTANT HUNGER

• Assessment
  • Frequency of asking for food
  • Grazing vs. scheduled meals or snacks
  • Desperate desire for food
  • Preoccupation with food
  • Eating when upset or bored

• Intervention
  • Visual schedule for eating
  • Structured eating times
  • Distraction – “what to do instead of snack”
  • Building in breaks before getting snacks/seconds
  • Hunger scale
UNDERSTAND WILLINGNESS FOR CHANGE
SHARED DECISION MAKING MODEL

• Recognize family motivation for change
• Identify top behaviors to change
• Uses Motivational Interviewing for creating shared plan
  OARS
  • Open ended questions
  • Affirmations
  • Reflections
  • Summaries
• Reach out to local partners
BEHAVIORALLY-BASED STRATEGY FOR FEEDING PROBLEMS

**Antecedent**
- Discomfort
- Limited appetite
- Developmental disorder/delay
- Dysregulation
- Inconsistent mealtime routine
- Inappropriate food presentation

**Behavior**
- Eating
- Swallowing
- Remaining seated
- Feeding self

**Consequence**
- Positive reinforcement
- Redirection
- Social Modeling
- Escape prevention

**BIO**
- Discomfort
- Limited appetite

**PSYCHO**
- Developmental disorder/delay
- Dysregulation

**SOCIAL**
- Inconsistent mealtime routine
- Inappropriate food presentation
## Behavioral Intervention: Evidence #6

<table>
<thead>
<tr>
<th>Author</th>
<th>Country</th>
<th>Sample size</th>
<th>Methodology</th>
<th>Length</th>
<th>Outcome</th>
</tr>
</thead>
<tbody>
<tr>
<td>Shalem, T., et al. 2016</td>
<td>Israel</td>
<td>N=34 ; 28 GT depend.</td>
<td>Retrospective Chart Review</td>
<td>Inpatient Average 3 weeks</td>
<td>85% achieved target goal</td>
</tr>
<tr>
<td>Hartdoff, C., et al 2015</td>
<td>Netherlands</td>
<td>N=22 Ages 9 – 24 mos.</td>
<td>Prospective, cross-over design 2-week inpatient (study) 4-week outpatient</td>
<td>Both Average 4 weeks</td>
<td>9 out of 11 weaned in the study group</td>
</tr>
<tr>
<td>Brown, J., et al 2014</td>
<td>USA</td>
<td>N=30 Mean 3.9 yr</td>
<td>Retrospective Chart Review</td>
<td>Inpatient Average 3 weeks</td>
<td>Before: 69% calories from GT After: 90% d/c GT</td>
</tr>
<tr>
<td>Rudolph, L., et al. 2013</td>
<td>USA</td>
<td>N=77 Age 2 – 6 yr</td>
<td>Retrospective Chart Review</td>
<td>Inpatient Average 2 weeks</td>
<td>51% completed weaned by 2 weeks and additional 11% within 1 year</td>
</tr>
<tr>
<td>Wiltken, M., et al. 2013</td>
<td>Germany</td>
<td>N=39 Mean 16 mos</td>
<td>Prospective</td>
<td>Home-based Average 4 to 10 days</td>
<td>Weaned 89.7% FU questionnaires for 2 years</td>
</tr>
<tr>
<td>Silverman, A., et al. 2013</td>
<td>USA: Wisconsin</td>
<td>N=77 Mean age 4.5 years</td>
<td>Retrospective Chart Review +prospective</td>
<td>Inpatient Average 2 weeks</td>
<td>51% fully weaned after 2 wks Remainder weaned by 1 yr Nutrition maintained 1 yr</td>
</tr>
<tr>
<td>Wright, C., et al. 2011</td>
<td>England</td>
<td>N=41</td>
<td>Retrospective Chart Review</td>
<td>Outpatient Mean 1.7 years</td>
<td>78% achieved normal diet 17% remained EN 2% reliant oral supplement</td>
</tr>
</tbody>
</table>
LOCAL PARTNERSHIPS: COOKING CLASS
LOCAL PARTNERSHIPS : GYM

• Promote activity
  • Inclusive gym class at school
  • Inclusive afterschool sports
  • Running series (local)
  • Swimming (adaptive class)
LOCAL PARTNERSHIP: FOOD ACCESS

https://hungerandhealth.feedingamerica.org/

WHEN TO REFER TO SPECIALTY CLINICS

• **Feeding Team**, no formal guidelines
  - Losing weight despite interventions
  - Tube-feeding weaning
  - Strategies no longer working/behaviors worsening
  - Parent request

• **Weight Management Team**, AAP Guidelines
  - Meal replacement
  - Medication
  - Bariatric Surgery
  - Parent request
CASE STUDY
CASE PRESENTATION #1

Matthew is a 9 year old male with history of Autism and ADHD. He is a highly selective eater and eats 6 foods. He refuses to drink milk or any supplement, but will drink apple juice and Capri Sun. He eats 4 bites before saying he is full. He will refuse food and leave the table and cannot sit still. He is on Ritalin. Weight 3%, BMI 1%. Parents are willing to change (motivation 9/10)
YOUR ASSESSMENT

1. Weight concern?
2. Is there a medical issue? Is there a nutritional need (hunger)?
3. Is there a feeding/eating issue?
4. Is the family willingness to change?
5. What would be in shared-decision management plan?
CASE PRESENTATION #2

Miguel is a 9 year old male with history of Autism. He is a highly selective eater and eats 4 foods. He drinks chocolate milk, Pediasure, and soda. He is aggressive and will hit others when told “no.” He often raids the refrigerator when everyone is sleeping. He can eat a whole loaf of bread at one sitting and eats in 5 minutes. He is on Abilify. Weight 99%, BMI >99%. Parents do not report willingness to change (motivation 3/10)
YOUR ASSESSMENT

1. Weight concern?
2. Is there a medical issue? Is there a nutritional need (hunger)?
3. Is there a feeding/eating issue?
4. Is the family willingness to change?
5. What would be in shared-decision management plan?
WHY FOCUS ON DRUG-INDUCED WEIGHT GAIN?

- Identify drugs that cause weight gain
- Replace with drugs that promote weight neutrality/loss
CONSEQUENCE FOR DISORDERED EATING

• Poor/excessive weight gain or growth
• Delay in development
• Delay in progression of eating
• Increase in negative feeding behaviors
• Poor family relationship
• Negative experiences around food
AUTISM SPECTRUM DISORDERS AND METABOLIC COMPLICATIONS OF OBESITY

Retrospective case-control study
Military Health Base
N=48,000 Mean age: 8.8 years
Children with ASD were 8.2% more Likely to have Obesity, compared with 4.2% ASD>obesity-related issues
More likely to be prescribed medications


Prevalence of obesity and metabolic disorders among children with ASD & controls
THANK YOU
HELPFUL RESOURCES FOR FAMILIES

• My Plate www.choosemyplate.gov
• Academy of Nutrition and Dietetics www.eatright.org/kids
• ChopChop magazine www.chopchopmag.org
• https://www.feedingmatters.org/
• Ellyn Satter, MS, RD, LCSW, BCD Your Child’s Weight: Helping Without Harming
• Jill Castle, MS, RD, CDN FEARLESS FEEDING: How to Raise Healthy Eaters from High Chair to High School.
PSYCHOLOGY RESOURCES FOR FAMILIES

• General Behavior Management
  • Your Defiant Child, Second Edition: eight steps to better behavior by Russell Barkley and Christine Benton
  • The Everyday Parenting Toolkit by Alan Kazdin
  • 1-2-3 Magic: 3-step discipline for calm, effective, and happy parenting by Thomas Phelan

• Selective Eating
  • Broccoli Boot Camp by Keith Williams and Laura Seiverling

• Overeating/Mindful Eating
  • Getting Over Overeating for Teens by Andrea Wachter
  • Free Your Child from Overeating: A handbook for helping kids and teens by Michelle Maidenberg
PHYSICAL ACTIVITY RESOURCES

• Exercise apps
  • NFL Play60
  • NikeTrainingClub
  • Sworkit

• Computer resources
  • Gonoodle.com – interactive games
  • Darebee.com – workout sheets with pictures
  • Fitnessblender.com – workout videos

• Community information
  • Most gym facilities do not accommodate children, youth training programs are common but at a high cost
  • YMCAs allow children aged 10+ on fitness floor; offer other youth programs and have a free membership for 7th graders