ECHO IDAHO

Diabetes and Metabolic Conditions

A Team Based Approach Utilizing Lifestyle Modification and Pharmacotherapy to Address Youth Obesity

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Madison Gorton, RDN, CSP, LDN

Registered Dietitian – Certified Specialist in Pediatrics

St. Luke's Health System

University of Idaho
School of Health and Medical Professions

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Learning Objectives

- Current State of Pediatric/Youth Obesity
- Risk Factors and Comorbidities
- Treatment Guidelines
- A Team Based Approach for Lifestyle and Behavior Change
- 95210 Focused Intervention
- Pharmacotherapy for Youth Obesity
- Outcomes

Current State of Pediatric/Youth Obesity

Prevalence of pediatric obesity from August 2021-August 2023 NHANES data in the United States:

- **1 in 5 (21.1%1)** of children ages 2-19 years have obesity (>95th%ile BMI/age)[1]
- **1 in 14 (7.0%)** of children ages 2-19 years have severe obesity (>120% of the 95th%ile BMI/age)[1]
- An additional **15.1%** of children ages 2-19 years are overweight (>85th-<95th%ile BMI/age)[1]

This is up from 19.7% of children with obesity from 2017 to March 2020.[2]

Another review from JAMA 2025 using these same data found that the severity of pediatric obesity is continuing to worsen with the highest prevalence increases in the most severe obesity categories.[3]

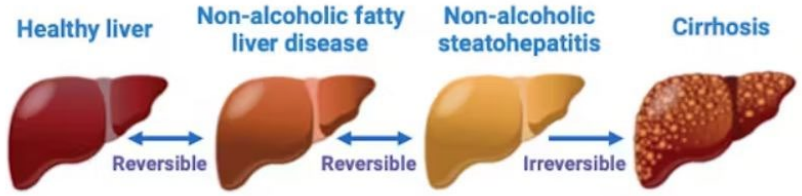
Risk Factors[4]

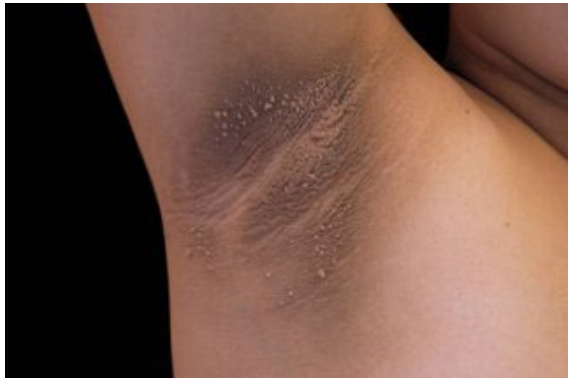
Genetic/ Metabolic	• Currently 345 loci of significance correlated with higher likelihood of obesity- Prader-Willi, Bardet-Biedl, leptin deficiency, etc.[5] • Continue to find more- Rare Obesity Screening Prevention Genetics • Endocrine disorders (hypothyroid, pituitary, hypothalamic obesity) • Racial factors- the way different races carry adiposity is important to health • Epigenetics
Prenatal/ Infancy	• Maternal obesity 2x risk of adulthood obesity; both parents are risk factors • Maternal diet • Gestational hypertriglyceridemia • Gestational Diabetes &/or insulin resistance • LGA >4000g • Preterm birth and low birth weight <2500 g • Tobacco exposure • Sometimes early breastfeeding cessation/formula feeding • Early introduction of complementary foods <4 months old
Environ-mental	• Access to fresh food- food insecurity, food deserts • Access to health care • Ultra-processed foods and fast foods access • Marketing of ultra palatable foods • Lack of access to safe recreational activity/play • Obesigens- chemical disruptors[6] • Microbiome differences[7]
Social	• Adverse Childhood Experiences (ACEs)-physical, emotional, or sexual abuse, exposure to domestic violence, parental divorce, substance abuse, economic insecurity, mental illness, loss of parent d/t death or incarceration, etc. • Weight stigma
Behavioral	• Parent feeding styles (authoritative- responds to child hunger/fullness cues and is protective against excessive wt gain; authoritarian, permissive/indulgent, negligent styles not as helpful) • Organized home life is protective against obesity (disorganization a risk factor) • Drinking sugar sweetened beverages (SSBs) • Ultra-processed snack food choices • Frequent intake of food away from home (fast food, restaurants, delivery, etc) • >2 hours screen time per day • Sedentary behavior • <10 hours of sleep per night in kids <13 years old • “Appetitive Traits” e.g. eating quickly, poor satiety, eating in absence of hunger, excessive enjoyment of foods/obsession with food, poor self-regulation
Developmental	• ADHD- low impulse control • ASD- limited food acceptance, macro/micronutrient deficiency • Trisomy 21- lower energy needs
Medications	• Table 3 in 2023 AAP Clinical Practice Guidelines for the Treatment of Children and Adolescents with Obesity • Mostly chronic antihistamine use, corticosteroids, antipsychotics, antidepressants, antiepileptics, migraine medications

Not just Energy In > Energy Out!!!

Comorbidities[4,8]

Cardiovascular	Dyslipidemia, hypertension
Endocrine	Insulin resistance, prediabetes, T2DM, early onset/precocious puberty, PCOS, hypothyroidism
Gastrointestinal	Gastroesophageal reflux, constipation
Liver	Non-alcoholic fatty liver disease (now called metabolic dysfunction-associated fatty liver disease; MASLD)[9,] gallstones
Neurological	Poor balance, pseudotumor cerebri
Pulmonary	Obstructive sleep apnea, asthma
Psychological	Depression, anxiety, ADHD, ASD
Skeletal	Slipped Capital Femoral Epiphysis, Blount's disease, Dental Caries
Skin	Acanthosis nigricans, cellulitis





Treatment Guidelines[4]

AAP 2023 Clinical Practice Guidelines (main source for presentation)

- Treat obesity as a chronic disease
- Intensive Health Behavior and Lifestyle Treatment (IHBLT) ≥26 contact hours over 3–12 months
- 5-2-1-0 approach

Stages of Intervention

STAGE 1: "Prevention Plus"; PCP provides 5210 and initial intervention

STAGE 2: PCP + RDN

STAGE 3: Multidisciplinary team OR separately followed by PCP, RD, counselor, and structured activity program

STAGE 4: Multidisciplinary team + obesity medicine physician to aggressively manage comorbidities, often with pharmacotherapy or surgery

- Pharmacotherapy: Consider age ≥12 years (younger in select cases)
- Metabolic/Bariatric surgery: Consider for severe obesity

A Team Based Approach

Core Team

- Primary Care Provider/Pediatrician
- Registered Dietitian
- Behavioral Health Provider
- Nurse Health Coach
- Nurse

Extended Team

- Endocrinology
- Gastroenterology
- Sleep Medicine
- Physical Therapist
- Social Work
- Care Coordination
- Language Interpretation
- Pharmacy

Techniques

- Motivational Interviewing[10]
- SMART Goals
- Multidisciplinary Visits vs Single Visits

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Lifestyle and Behavior Change Targets

9 HOURS OF SLEEP

5 SERVINGS OF PRODUCE

<2 HOURS OF SCREENS

>1 HOUR OF ACTIVITY

0 SUGARY BEVERAGES

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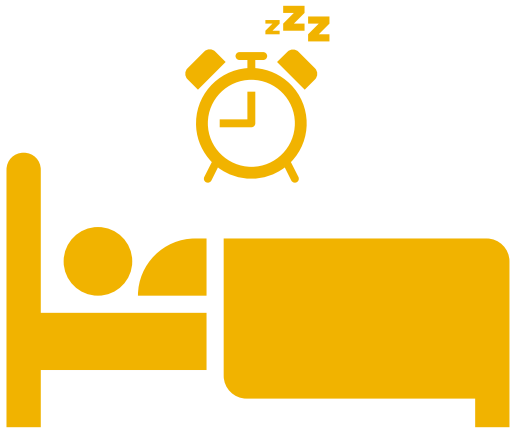
Sleep[4]



Amount

- Needs vary from child to child[11]
- Want them well-rested
- Want good quality sleep
- Consideration for OSA with or without CPAP use or history of tonsils/adenoids removal
- Too little sleep can result in undesirable sequelae ~injury, hypertension, obesity, diabetes, depression, attention and behavior problems[11]

Facilitators

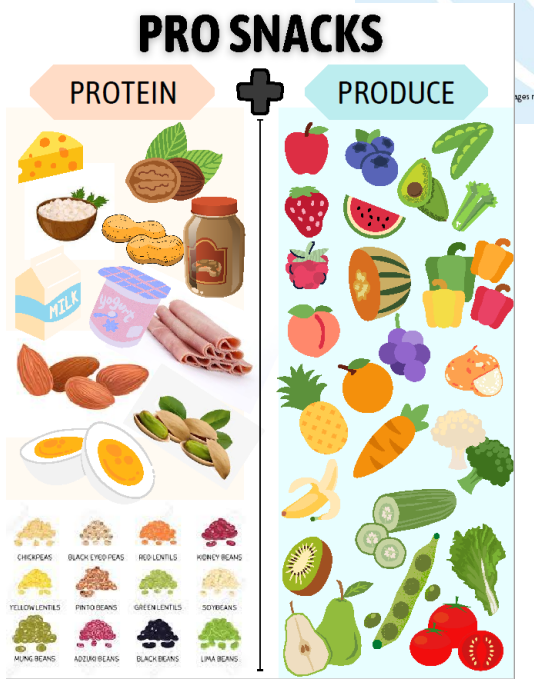
- Increase physical activity during the day
- Sunlight exposure during day
- Protein + fiber snack in evening if needed
- >1-3 hours between last meal and sleep to allow for digestion
- Screens off at least 1 hour before bed
- Blackout curtains
- Limited evidence for magnesium for sleep[12]
- Melatonin 0.5-5 mg ~30-60 minutes before bed[13]
- Comfortably cool temperatures[14]

Disruptors

- Caffeine intake
- On screens in bed/right before bed
- Lights on in room or TV going
- High amount of sugar intake
- Excessive appetite/hunger
- Eating too close to bedtime
- Anxiety/racing thoughts
- Too warm temperature[14]

Diet and Nutrition[4]

- Family-based approach
- Avoid overly restrictive diets (+ vs -)
- Focus on balanced dietary pattern:
  - Fruits, vegetables, whole grains, lean protein, low fat dairy, water[15, 16]
- Limit:
  - Added sugars[17]
  - Saturated fats[18]
  - Highly and ultra-processed foods[19]
- Encourage:
  - Regular meals and snacks
  - Portion awareness
  - Listen to hunger/fullness cues
  - Cooking at home
  - Gradual exposure to new foods[20]



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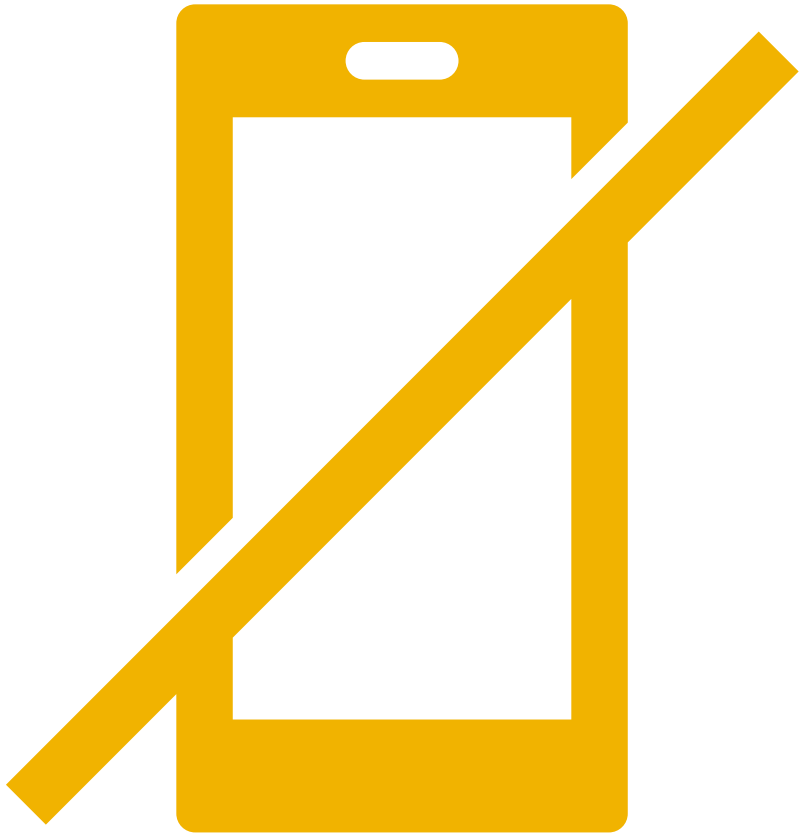
Reducing Screen Time Use [4]

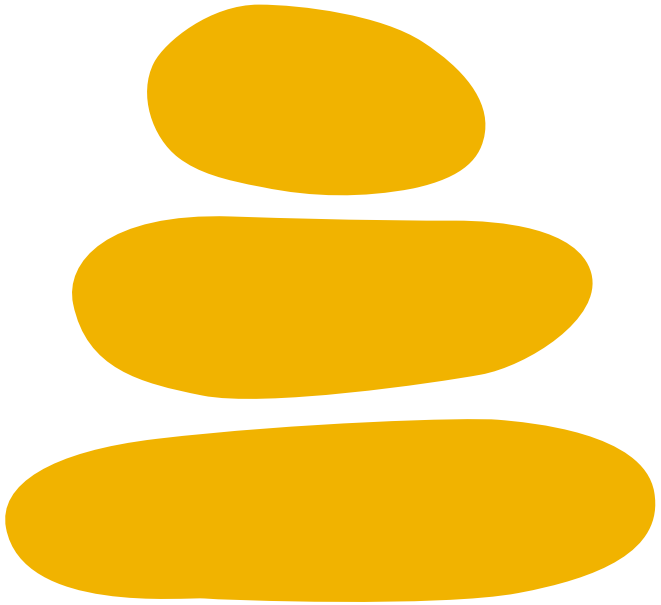


- High screen time use can have negative effects on sleep and activity
- Screen time “budget” under 2 hours per day
- Breaks every 30 minutes
- Active games like VR headset movement games
- Screen time limits on device
- Placed in different room at night
- Reading or listening to calm music before bed instead of screens
- Alternative activities, hobbies, crafts, etc.

Activity [4, 21]

- Encourage activity that pt is interested in! Walking, biking, swimming, scootering, sports, etc.
- If 60 minutes per day is too much, start with 10 min, increase as able.
- Encourage indoor activity during the winter if weather or daylight is a barrier.
- Encourage earlier activity during cooler part of day during the summer.
- Put on music and dance in room!
- Utilize yoga/activity instructors on YouTube.
- May need a PT referral to help with safe activity.
- Preventive Health Assistance (PHA) vouchers can be given to pediatric patients with obesity using Medicaid.

Emotional and Social Health[4, 22]



- Depression/anxiety, life stressors can be a huge burden on pt and family
- Pt's often experience bullying in school, discrimination in society
- Screening for suicidality, taking appropriate actions
- Including behavioral counselor/psychologist in care for patient
- Medications (caution with type used)
- Healthy coping strategies to replace food/screens/self harm
- Increasing social interaction with peers (especially if participating in home-school/online school)
- Being mindful of traumas that pt has experienced
- Maintaining awareness of how any of these things might be affecting their willingness/motivation to participate in behavior change

Pharmacotherapy

Pharmacotherapy should be used with lifestyle treatment (IHBLT), not alone. Consider for patients with BMI ≥95th percentile with comorbidities, severe obesity or inadequate response to lifestyle therapy. Medication selection depends on comorbidities (T2DM, PCOS, NAFLD, etc.), side effect profile, and insurance/access.

✅ FDA-Approved for Pediatric Obesity (≥12 years): [4]

- Liraglutide (GLP-1)
- Semaglutide (GLP-1)

⚠️ Off-Label / Adjunctive Use:

- Metformin
  - FDA-approved for T2DM (≥10 years)
  - Used for prediabetes, insulin resistance, PCOS
  - Modest effect on weight
- Topiramate
  - May reduce appetite
- Medications for other comorbid conditions may also influence appetite

Outcomes

- Alignment with 9-5-2-1-0 habits
- Laboratory biomarkers improve to normal range:
  - Lipids
  - HgbA1c
  - Fasting insulin
  - Liver enzymes
  - Etc.
- More energy, less joint pain, improved mental clarity, etc.
- BMI/age gradual reduction either through weight maintenance or gradual weight loss (appropriate amounts vary based on age and severity of pediatric obesity)

Key Points

- Pediatric/Youth obesity is common, now affecting 1:5 children ages 2-19 years old in the United States
- The risk factors for pediatric obesity are more nuanced than an energy intake imbalance.
- Pediatric obesity affects multiple systems and has negative effects on numerous areas of health
- Treatment guidelines start with the PCP and can include addition of experts in nutrition, physical therapy, mental health and more.
- Intensive lifestyle behavioral health treatment is an interdisciplinary approach.
- 9-5-2-1-0 framework focuses on lifestyle habits to improve pediatric obesity.
- Pharmacotherapy is a useful tool that can and should be utilized in appropriate situations.
- Outcomes are not just weight focused but instead are holistic and include progress in lifestyle habits, laboratory markers and subjective improvements.

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