Not All Hunger is the Same

Identifying the type of hunger your patient has can help:

- lead to optimal management of their specific disease
- raise suspicion for a possible MC4R pathway disease
- reduce the progression of obesity and its cumulative impact on overall health and quality of life, especially if diagnosed early

Episodic/Periodic

Occasional overeating

Eating beyond satiety at a special occasion or celebratory meal (eg, Thanksgiving)[1]

Hedonic overeating

Eating beyond satiety and metabolic needs, influenced by appetite and cravings[2,3]

Cause:

- The pleasure centers in the brain, often driven by emotion or environmental circumstances[2,3]

Binge eating

Episodic consumption of large amounts of food beyond hunger and/or satiety within a short period with a loss of control. If recurring, defined as Binge Eating Disorder (BED).[1,2]

Behaviors may include:

- Rapid eating[5]
- Eating in isolation[5]
- Distress due to eating behavior[1]

Cause:

- Psychological factors, family history, dieting, gender[2,4,5]

Persistent

Hyperphagia caused by MC4R pathway impairment

Pathological, insatiable hunger and impaired satiety differentiated from other types of overeating by its severity and persistence.

Hyperphagia is also marked by:

- Persistent preoccupation with food[4]
- Prolonged time to satiation and shortened duration of satiety[4]
- Prolonged feeling of hunger[4]
- Specific abnormal behaviors

Behaviors may include:

- Distress if food is unavailable
  - Children: may exhibit as tantrums or persistent negotiation/ demand for food[7,8]
  - Adults: may manifest in emotional effects including sadness, frustration, irritability, anxiety and/or guilt[9]
- Abnormal food-seeking behaviors such as night eating or hiding food (children may also steal/sneak food)[10]
- Eating excessively – not to be confused with binge eating[7]

Symptoms and behaviors may range in severity[1]

Cause:

- Rare genetic variants in the MC4R pathway, a signaling pathway in the hypothalamus[6]

According to 2023 AAP and OMA guidelines, managing hyperphagia can be challenging and may require the use of pharmacotherapy[4,11]

If you have patients with hyperphagia and early-onset obesity, it may be time to take a closer look as these are among the common features in people with MC4R pathway driven obesity

AAP=American Academy of Pediatrics.

Are You Differentiating Hyperphagia Amongst Your Patients?

Differentiating and diagnosing hyperphagia can be challenging

- The behaviors associated with hyperphagia, and their severity, can vary among patients
- Adult patients may have adapted their eating behaviors over time or feel shame in discussing their behaviors

Knowing the right questions to ask, and framing them as part of a medical diagnosis may help

To diagnose hyperphagia

Ask if your patient* experiences most of these on a consistent basis, and for how long:

- **Patient:** Feels hungry after having just eaten
  Caregiver: Asks for more food after they have just eaten
- **Patient:** Feels stressed due to hunger and/or often worries about food
  Caregiver: Displays distress due to hunger and/or often worries about food
- **Patient/Caregiver:** Wakes up asking for or seeking food in the middle of the night
- **Patient/Caregiver:** Eats extremely quickly
- **Patient:** Hides what they are eating, or how much they are eating from others
  Caregiver: Sneaks, steals or hides food
- **Patient/Caregiver:** Eats food that has been discarded or dropped by someone else
- **Caregiver:** Tries to negotiate or argue for more food than provided

* When possible ask the patient directly. For young children and/or patients who are unable to self-report, it may be necessary to ask their caregiver

To assess the impact of hyperphagia

Ask if your patient's* overeating behaviors consistently have a negative impact on the following:

Sleep	Does hunger impact sleep?
Mood or emotions	Does hunger impact mood? Does hunger or access to food cause distress?
School or work	Does hunger impact ability to concentrate at work/ school or to get things done?
Leisure/recreational activities	Does hunger impact participation in social/ recreational activities?
Relationships	Does hunger impact relationships with family or friends? Are there strained or uncomfortable interactions with others around food?

References: 1. Haqq AM et al. *Child Obes.* 2021;17(4):229-240. **2.** Espel-Huynh HM et al. *Obes Sci Pract.* 2018;4(3):238-249. doi:10.1002/osp4.161. **3.** Tanajewski 2023- *Food Quality and Preference* 109 (2023) 104889 **4.** Hampl SE et al. *Pediatrics*. 2023;151(2):e202206064. doi:10.1542/peds.2022-060640. **5.** NIH_Symptoms and Causes of Binge Eating Disorder–NIDDKhttps://www.niddk.nih.gov/health-information/weight-management/binge-eating-disorder/symptoms-causes. **6.** Eneli I et al. *Appl Clin Genet.* 2019;12:87-93. **7.** Heymsfield SB et al. *Obesity* (Silver Spring). 2014;22(suppl 1):S1-S17. doi:10.1002/oby.20646. **8.** Forsythe E et al. *Orphanet J Rare Dis.* 2023 Jan 16;18(1):12. **9.** Ervin C et al. *Adv Ther.* 2023;40(5):2394-2411. doi:10.1007/s12325-023-02443-y. **10.** Sherafat-Kazemzadeh R et al. *Pediatr Obes.* 2013;8(5):e64-e67. doi:10.1111/j.2047-6310.2013.00182.x. **11.** Tondt J et al. *Obesity Algorithm®* 2023. Obesity Medicine Association; 2023. Accessed June 13, 2023. https://obesitymedicine.org/obesity-algorithm.

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