

# The hunger game: Understanding hunger and fullness

By Linia Patel

## "Eat when you're hungry, stop when you're full."

It sounds so simple, yet countless people struggle with putting this principle into practice. Why is over-eating such a battle? One of the main reasons is because we are no longer in tune with our bodies. We've lost sensitivity to true physical hunger; we get it confused with a multitude of other needs and, when we do eat, we struggle to know when it's time to stop.

### What is hunger?

Hunger is one of your body's strongest stimuli – it is the body's motivation to get the nutrient it needs<sup>1</sup>. How do you really know that you are hungry? This seems like a silly question at first glance. But the truth of the matter is that so many people have been so disconnected from their hunger for so long that this becomes a very important question.

### Biological hunger

Biological or physical hunger involves a complex interaction between the digestive system, endocrine system and the brain. In 1912, a study done by Cannan and Washburn came up with the

stomach contraction theory which states that we know we are physically hungry when our stomach contracts ('hunger pangs'). In the notorious balloon study, Washburn trained himself to swallow a balloon which was attached to a tube. The balloon was then inflated inside his stomach. When the balloon was inflated, he did not feel hungry. Later, this theory was opposed by the fact that people whose stomach was removed (e.g., due to stomach ulcers or cancer) still felt hungry. In the 1940s, it was then proposed that depletion of the body's store of nutrients is a more likely cause of hunger. The glucose theory states that we feel hungry when our blood glucose level is low. There are many more theories however; the general consensus is that the following are signs of physical hunger<sup>1,2</sup>:

- Empty stomach
- Stomach growling\*
- Headache
- Light-headed feeling
- Lack of energy
- Shakiness/weakness

\*The stomach makes grumbling, gurgling and growling noises when it's hungry and when it's digesting food. To digest food it releases digestive fluids and your stomach muscles contract, which also makes the same grumbling and growling sounds. Try not to depend only on the noises your stomach always makes.

If everyone ate only when they were physically hungry, this would be a pretty easy topic to master. However, there are other reasons we eat.

### Non-hungry eating

Sometimes, we mistake other signals in our bodies for physical hunger. They are legitimate sensations but not true physical hunger.

### Mind hunger

Mind hunger is triggered by learned behaviour. Unlike any other beings, we humans use an external clock in our daily routine. This external time triggers our hunger. For instance, when the clock says 1pm, lunch time, we think we have to eat a certain amount of food because 'it's time', even if we don't feel like eating<sup>3</sup>.

### Emotional hunger

When we're anxious, angry, fatigued, overwhelmed, under stress or even happy, a seemingly hard-wired desire to over-eat can take over. Problems like eating disorders and obesity could occur because we mistakenly keep trying to satiate our psychological hunger by eating food<sup>3,4</sup>.

### Thirst

Dehydration is quantified as a 1% or greater loss of bodyweight as a result of fluid loss. By the time you are thirsty, research shows you are 1-2% dehydrated (mild dehydration). Thirst is one symptom of mild dehydration; other symptoms include dizziness or light-headedness and lethargy.

These symptoms can sometimes be mistaken for hunger. The hypothalamus controls both hunger and thirst, so it sends the same signal when you are hungry or thirsty. To understand which signal your brain is sending, you must learn to understand your body better (as opposed to only depending on the noises your stomach makes). Pay close attention to the last time you had a meal compared with the last time you had something to drink. Although the transit time of food from the stomach is variable if you have eaten a meal in the last two hours, it is unlikely that you will experience physical hunger<sup>5</sup>.

It's clear to see that the simple design of physical hunger is often overshadowed by other body signals, habits, needs and emotions. Identifying and dealing with them appropriately is a huge step to becoming in tune with your body.

### When I eat, how do I know when to stop?

Fullness is also called satiety. When you eat, nerves in your stomach send signals to the brain that the stomach is filled. Release of a hormone called cholecystokinin, increased blood sugar, the activity of the hypothalamus, and the presence of food in the intestines all lead to the sensation of fullness. When we are in tune with our bodies, we recognise when it's time to stop eating. The stomach feels satisfied – not stuffed. Granted, finding your 'just right' range is hard to do. There are no extremely obvious cues as there are for the other two extremes, starving and stuffed. You simply have to train your body to tell you

when you are satisfied. Speed is one of the factors that contribute to mindless over-eating. It takes approximately 20 minutes for fullness signals to transmit from the stomach back to the brain. So, if you eat too fast, it's easy to override fullness signals and eat more than what the body is calling for.<sup>1,6</sup>

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For years researchers have studied satiety; while many things are known to influence satiety, the biggest factor is the type of food that you eat. Research shows that protein seems to stave off hunger for longer than carbohydrate; fat exerts the weakest effects on satiety<sup>7</sup>. The effect of carbohydrates on satiety may vary. Whole grains provide greater eating satisfaction than refined grains for example.<sup>8</sup> However, the most satiating factor in food may be water, as foods with a high water content and low energy density have been shown to boost satiety<sup>7,9</sup>.

### The Hunger and Fullness Scale

Mindful Eating is a concept that is becoming increasingly popular in the nutrition world. Mindful eating is intuitive eating. It is a non-diet approach that enables the body to become more

attuned to physical hunger signals and fullness cues<sup>6</sup>. Learning to get back in touch with your body's signals can be one of your best tools for getting to a healthy weight and staying there. The Hunger and Fullness Scale is one of the Mindful Eating tools<sup>10</sup>.

Hunger and fullness can be felt on a scale of 1 to 10, 1 being the most extreme hunger (on a day to day basis vs prolonged starvation that leads to malnutrition) and 10 being the most extreme fullness. Using the scale, it is recommended that you eat when your hunger is at 3 or 4 and stop eating at about 6 or 7. The hunger scale works like a pendulum. If you swing too low on the scale (i.e., 1), you will eat until you are on the opposite side of the scale (i.e., 9). If you become ravenous (1 or 2), it is biologically nearly impossible to 'control' your eating and stop at a comfortable level.

- 1 Extremely hungry, weak, dizzy
- 2 Very hungry, irritable, low energy, more stomach growling
- 3 Pretty hungry, stomach is growling a little
- 4 Starting to feel a little hungry
- 5 Satisfied, neither hungry nor full
- 6 A little full, pleasantly full
- 7 A little uncomfortable
- 8 Feeling stuffed
- 9 Very uncomfortable, stomach hurts
- 10 So full you feel sick. **fp**

