Hunger, digestion, and feeling full

What makes us feel hungry, why do our mouths water at the smell of food, and what makes us feel sleepy after eating a lot? Here we look at what happens in the body before, during, and after a big meal.

Hunger and salivation

The hormone ghrelin, released mainly by the stomach, causes feelings of hunger.

- Empty stomach
  - Releases ghrelin

Ghrelin receptors in hypothalamus

Activate appetite-increasing neurons

Stomach rumbling is caused by the migrating motor complex (MMC). The MMC is a pattern of electrical activity triggered by the hormone motilin, and it causes contractions that sweep indigestible substances from the stomach and through the small intestine.

Eating and digestion

Mechanical and chemical digestion break down the food we eat. Enzymes are produced in several locations in the digestive system and break up different biological molecules.

- Salivary glands
  - Amylase (a carbohydrase)

- Stomach
  - Proteases

- Pancreas
  - Amylase, proteases, and lipases

Feeling full

Eating causes fat cells to release the hormone leptin, making us feel full.

- Adipose (fat) cells
  - Release leptin

Leptin receptors in hypothalamus

Inhibit appetite-increasing neurons

Eating big meals can make us feel tired. This is due to the effect of carbohydrates on blood sugar levels. Consuming carbs raises blood sugar, which the body regulates by releasing insulin. Insulin causes blood sugar levels to drop, causing feelings of tiredness.

- Blood sugar
  - Pancreas releases insulin.

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