Amylin

Effects on gastric emptying

- What is gastric emptying?
- How is it important for glucose homeostasis?
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- How does amylin affect gastric emptying?

Date of preparation: October 2025

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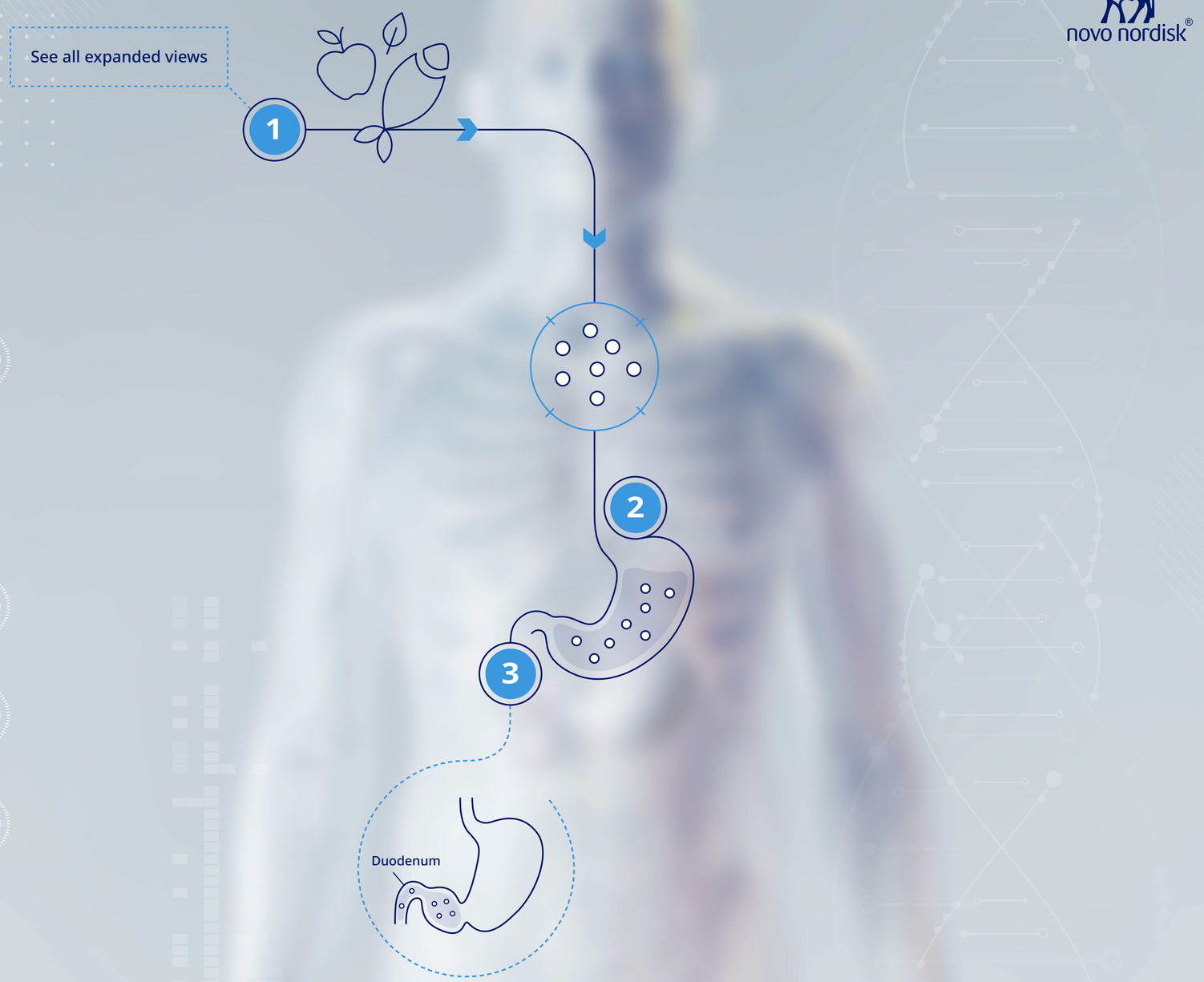

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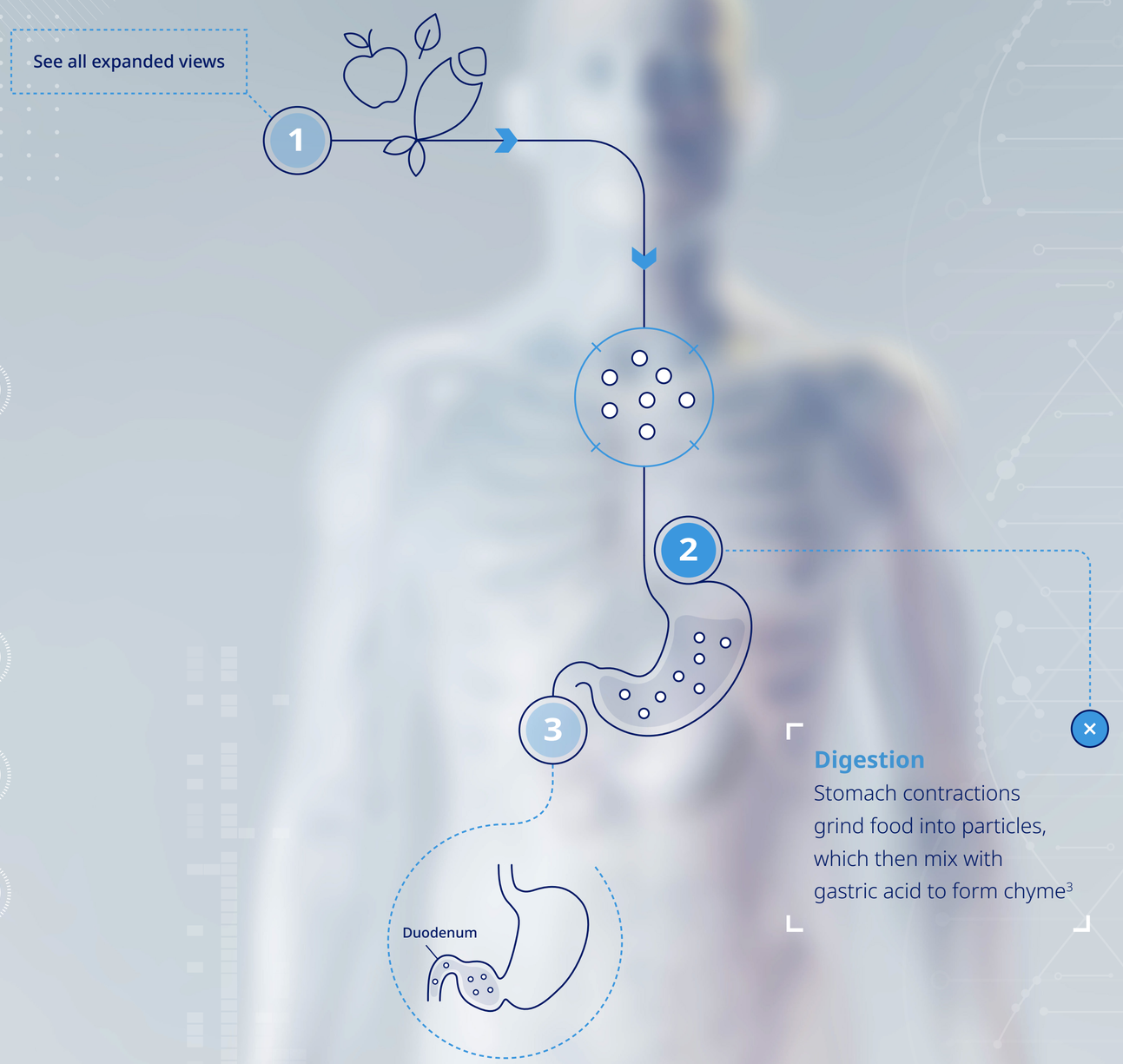

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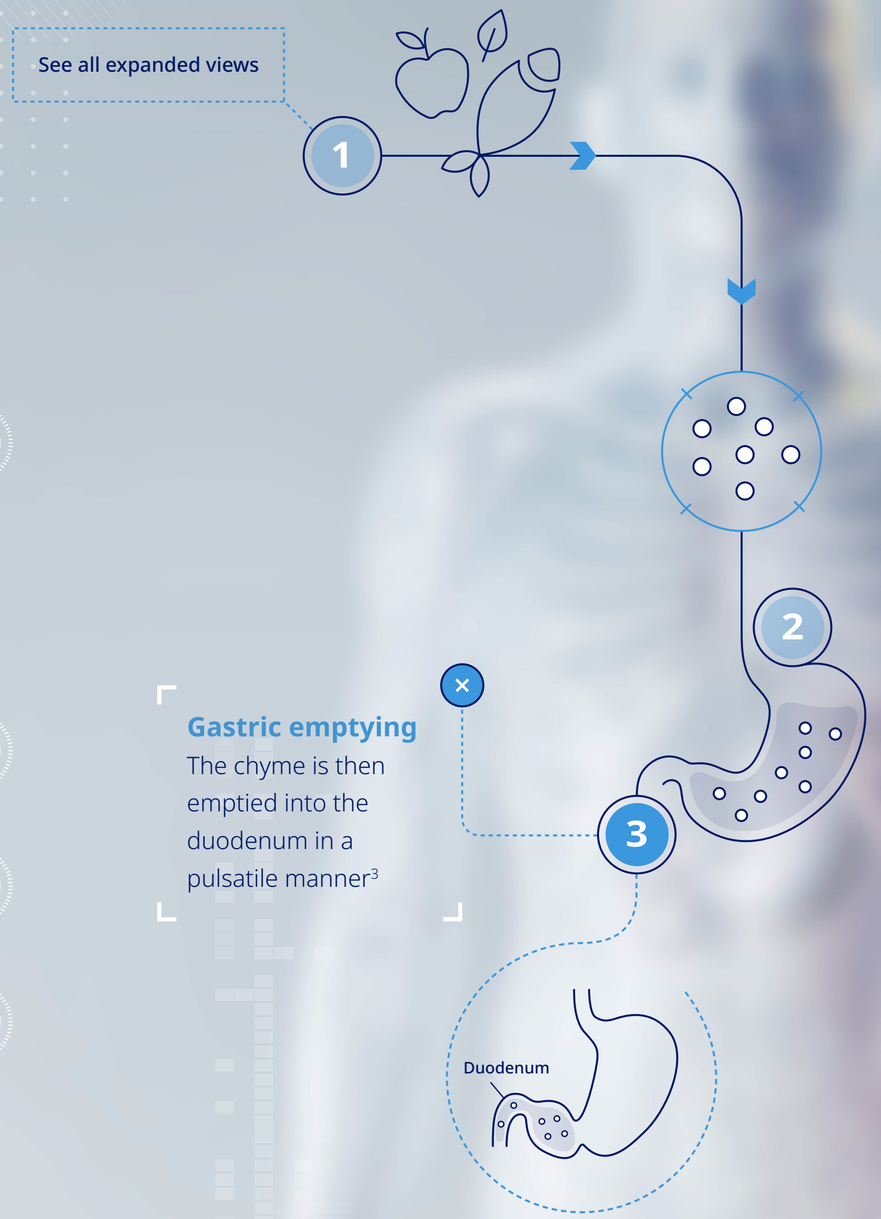

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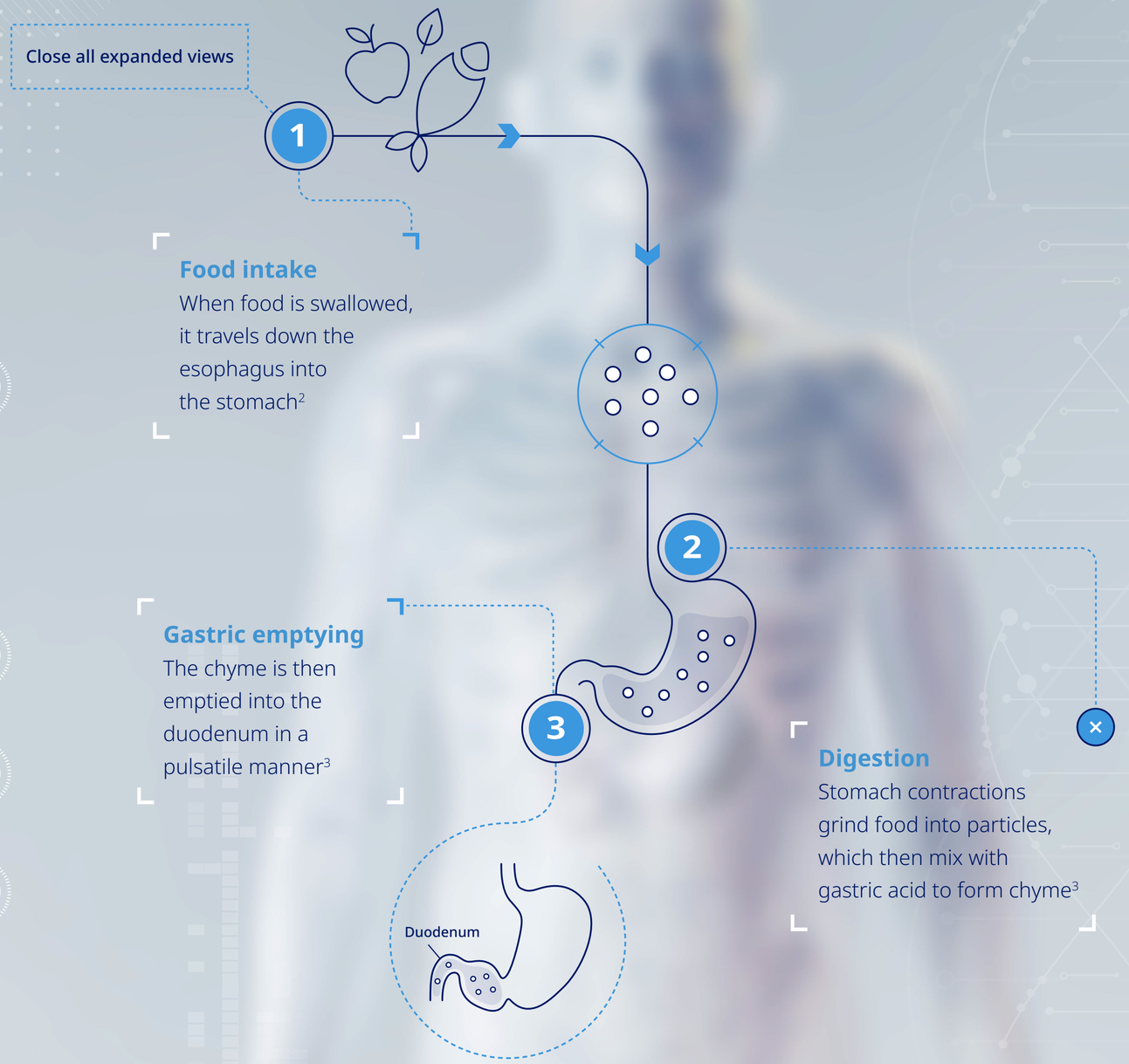

Food intake
When food is swallowed, it travels down the esophagus into the stomach[2]

Gastric emptying
The chyme is then emptied into the duodenum in a pulsatile manner[3]

Digestion
Stomach contractions grind food into particles, which then mix with gastric acid to form chyme[3]

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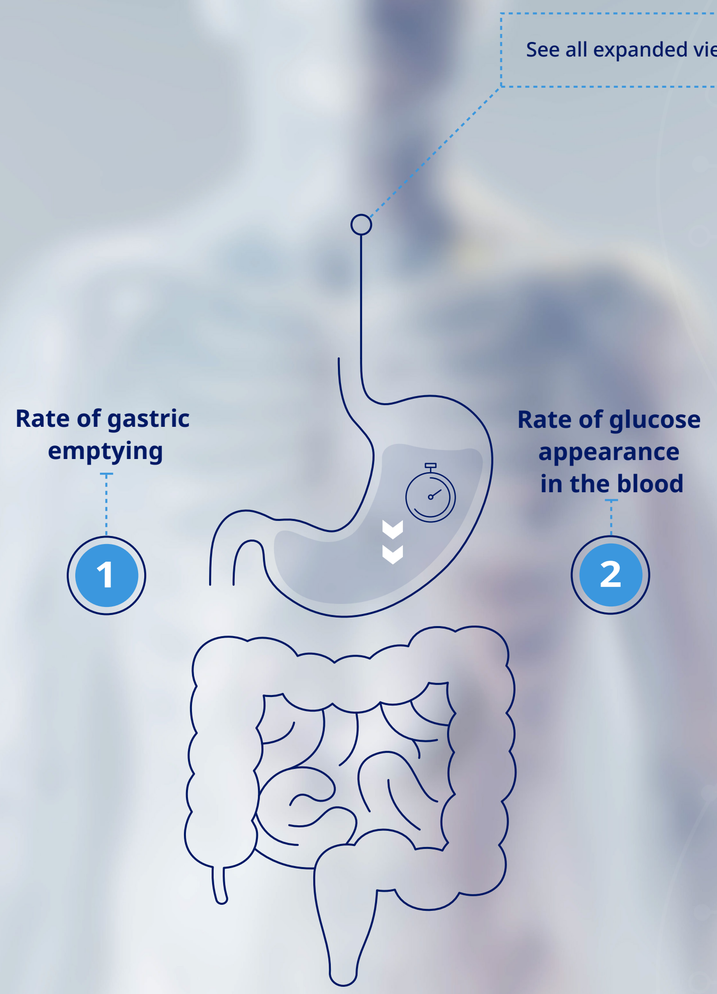

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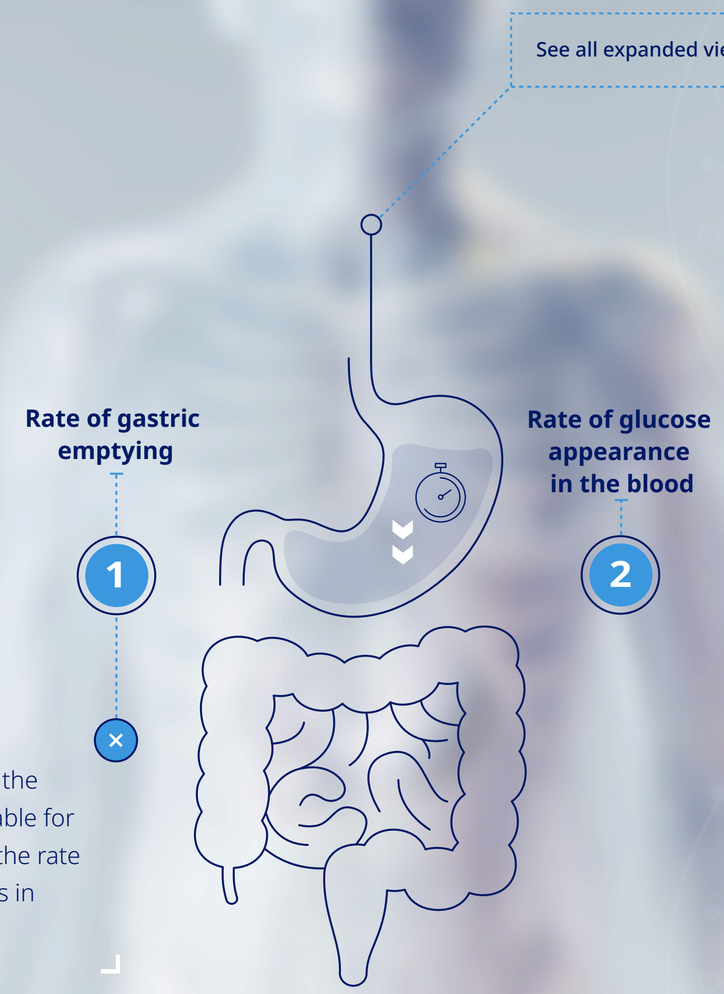

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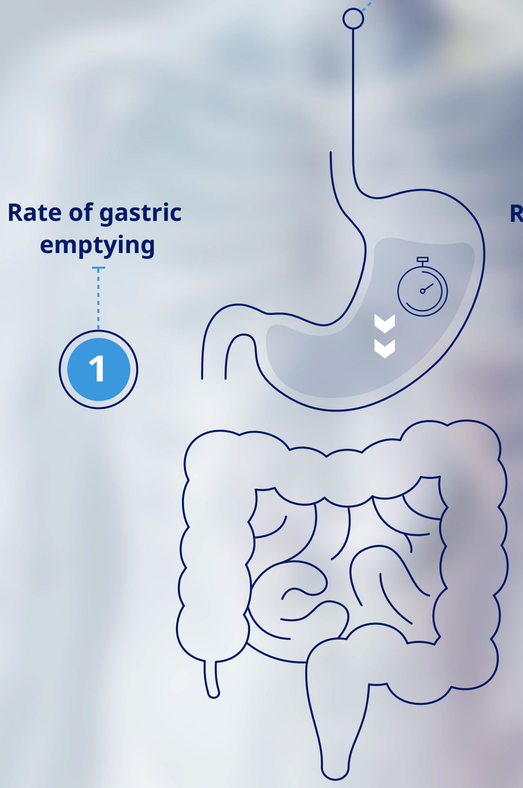

There is a bidirectional relationship between gastric emptying and glycemia: gastric emptying is slowed by hyperglycemia and accelerated by hypoglycemia[4,6]

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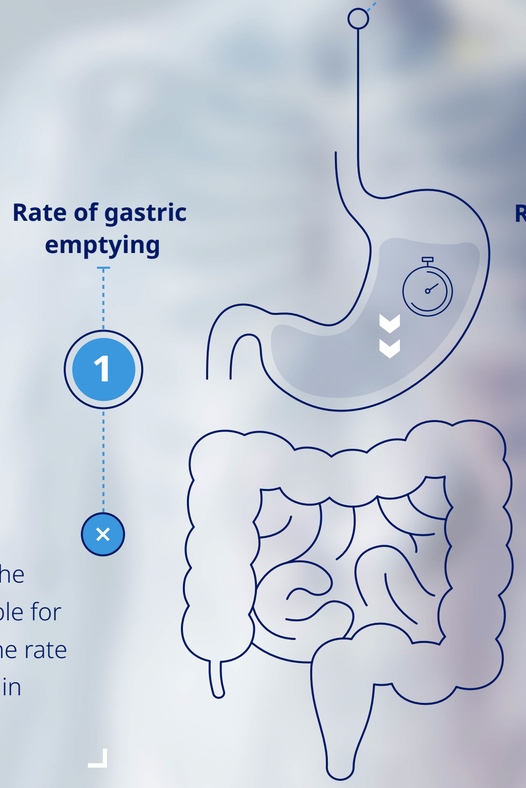

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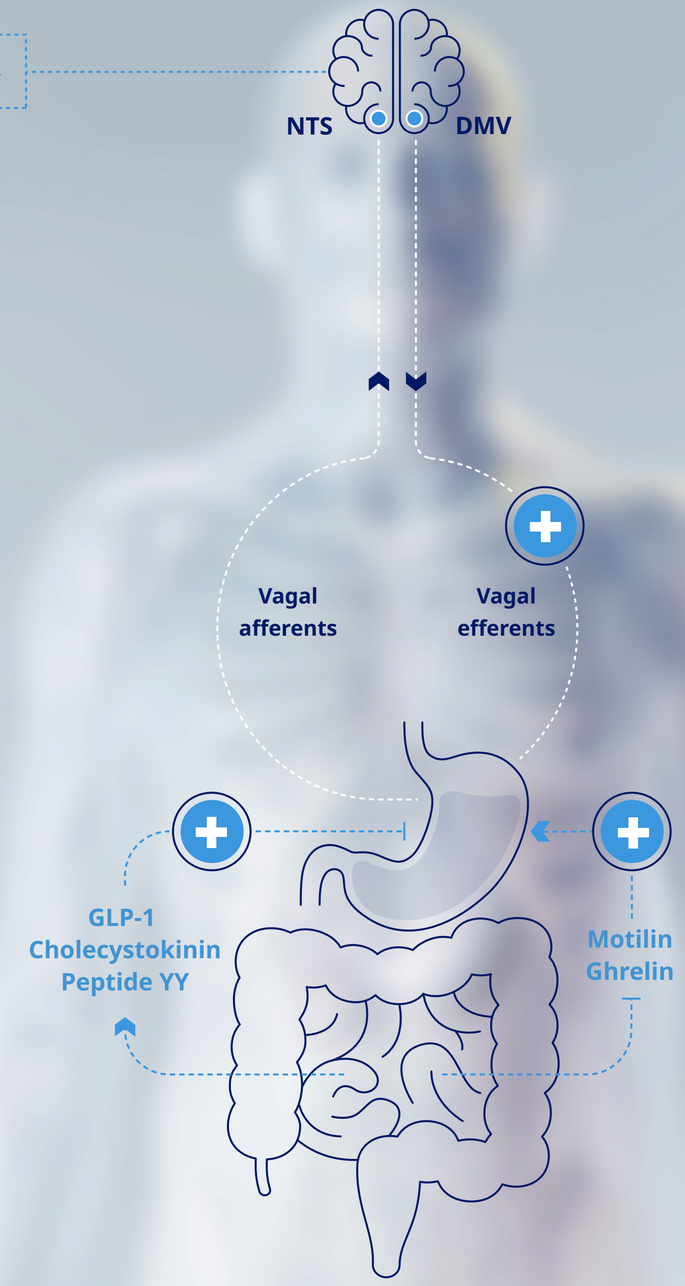

DMV, dorsal motor nucleus of the vagus; GLP-1, glucagon-like peptide-1; NTS, nucleus of the solitary tract.

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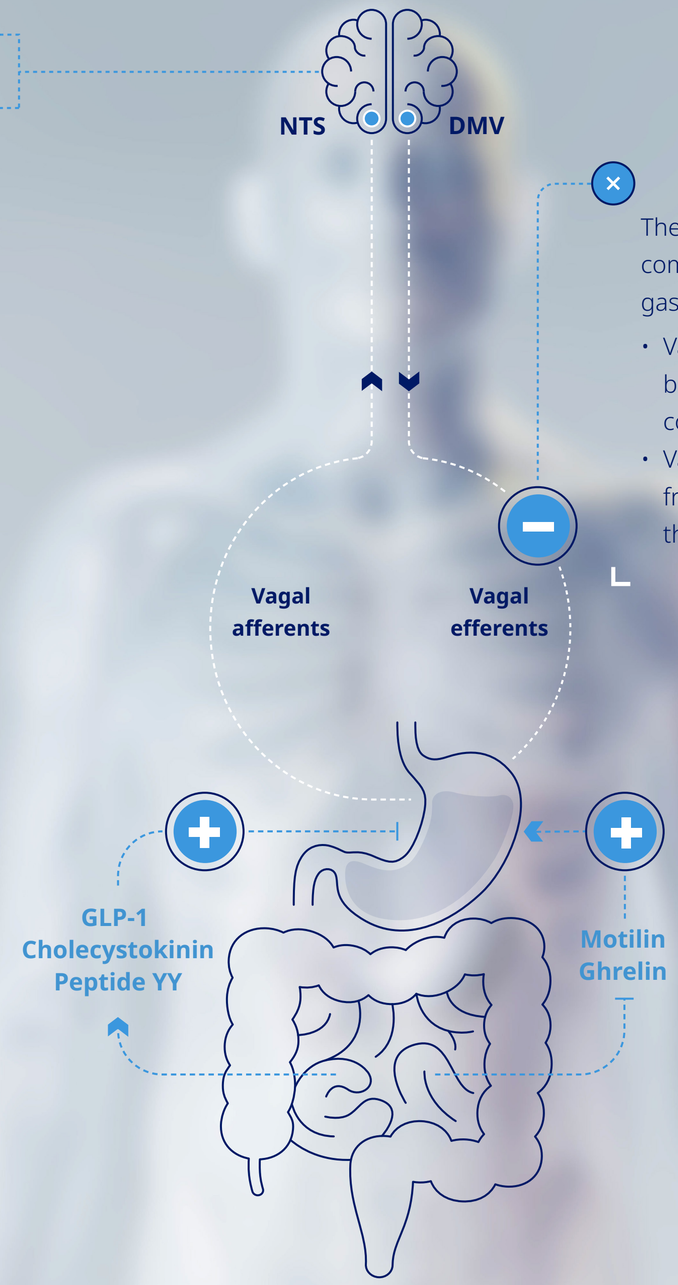

The vagus nerve provides bidirectional communication between the gastrointestinal tract and the brain:[8]

- Vagal efferents relay signals from the brain to the gastrointestinal tract, coordinating motor responses
- Vagal afferents convey sensory signals from the gastrointestinal tract to the brain

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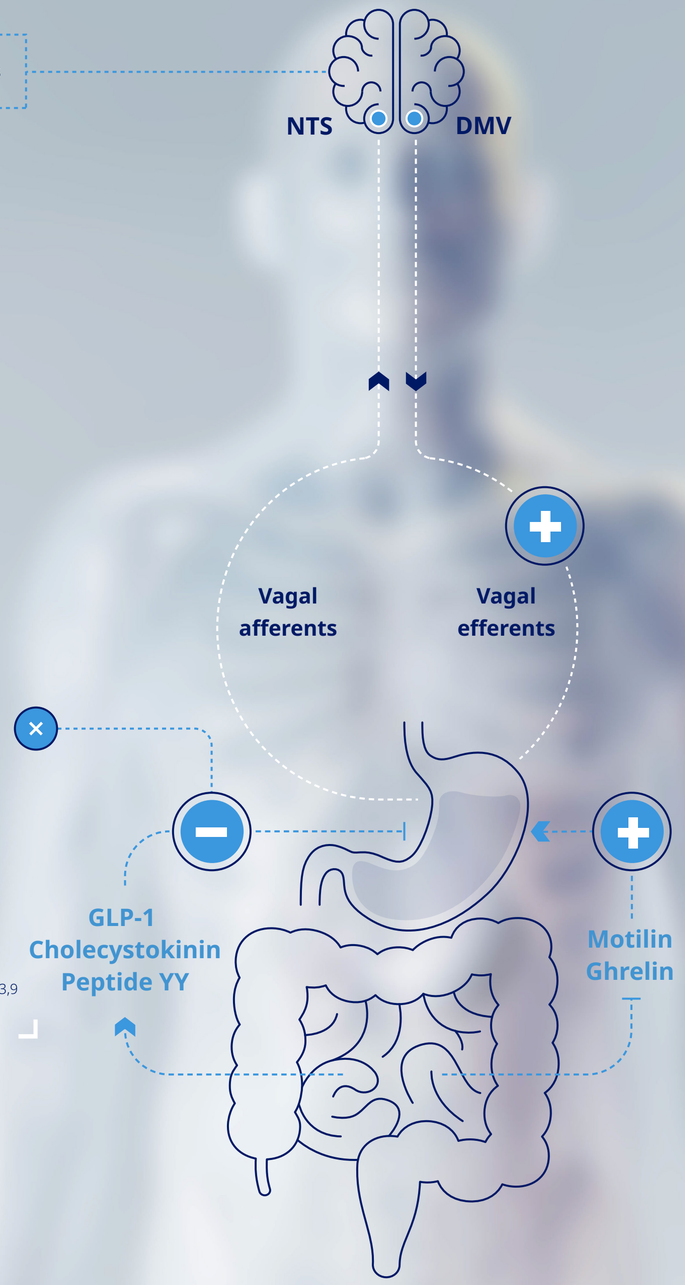
In the small intestine, nutrients stimulate the mucosa to release hormones, including GLP-1, cholecystokinin and peptide YY, which inhibit gastric emptying[3,9]



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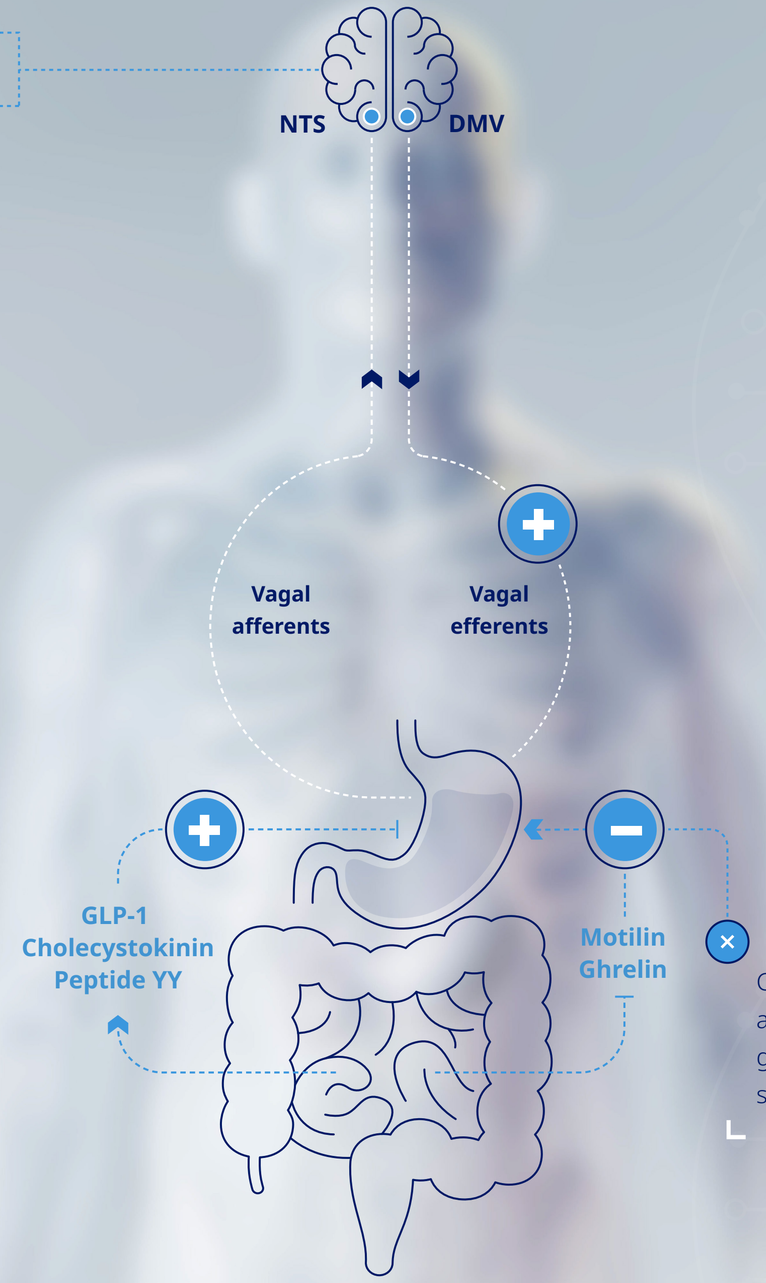

Circulating levels of motilin and ghrelin, which stimulate gastric emptying, are suppressed postprandially[3,9]

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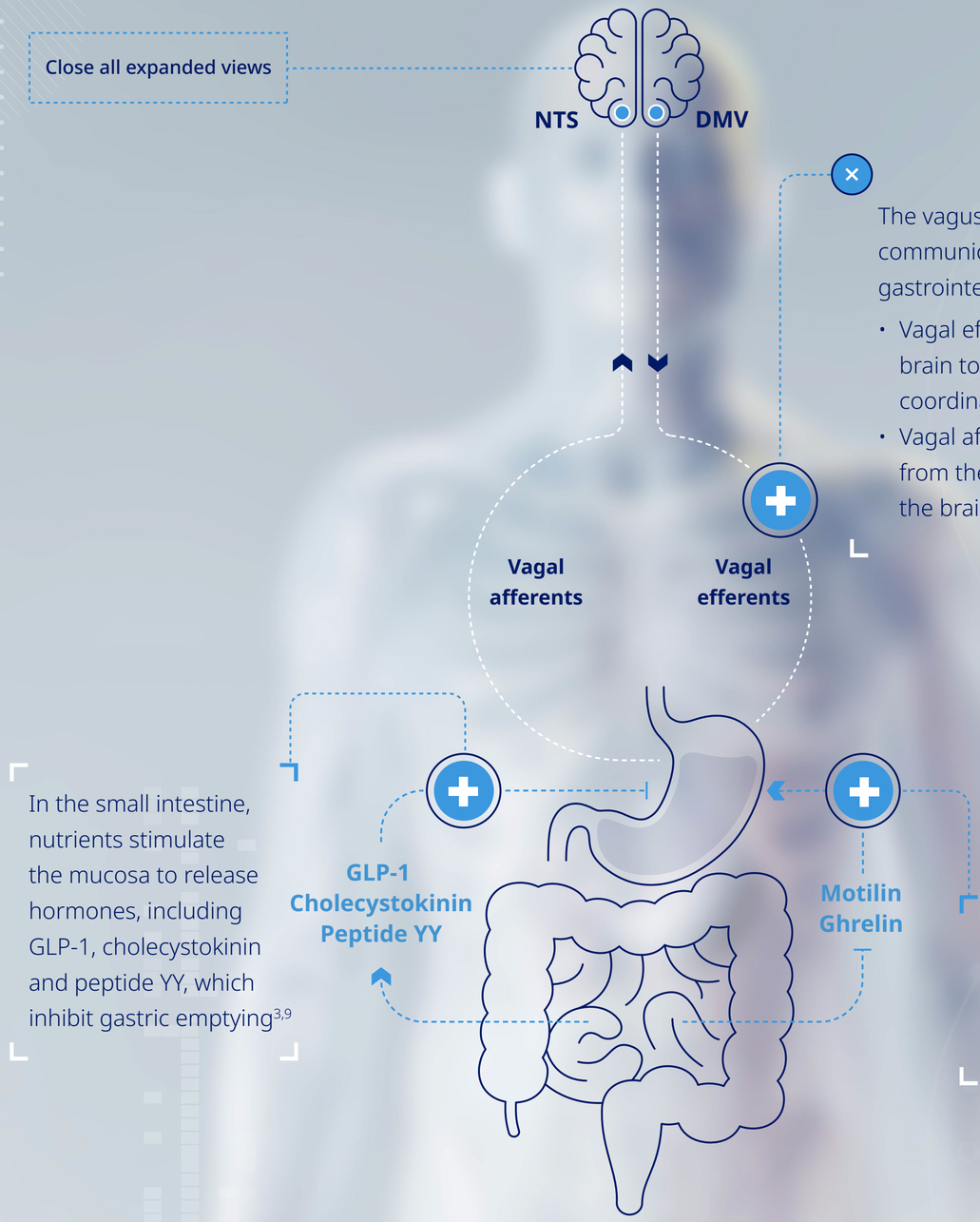

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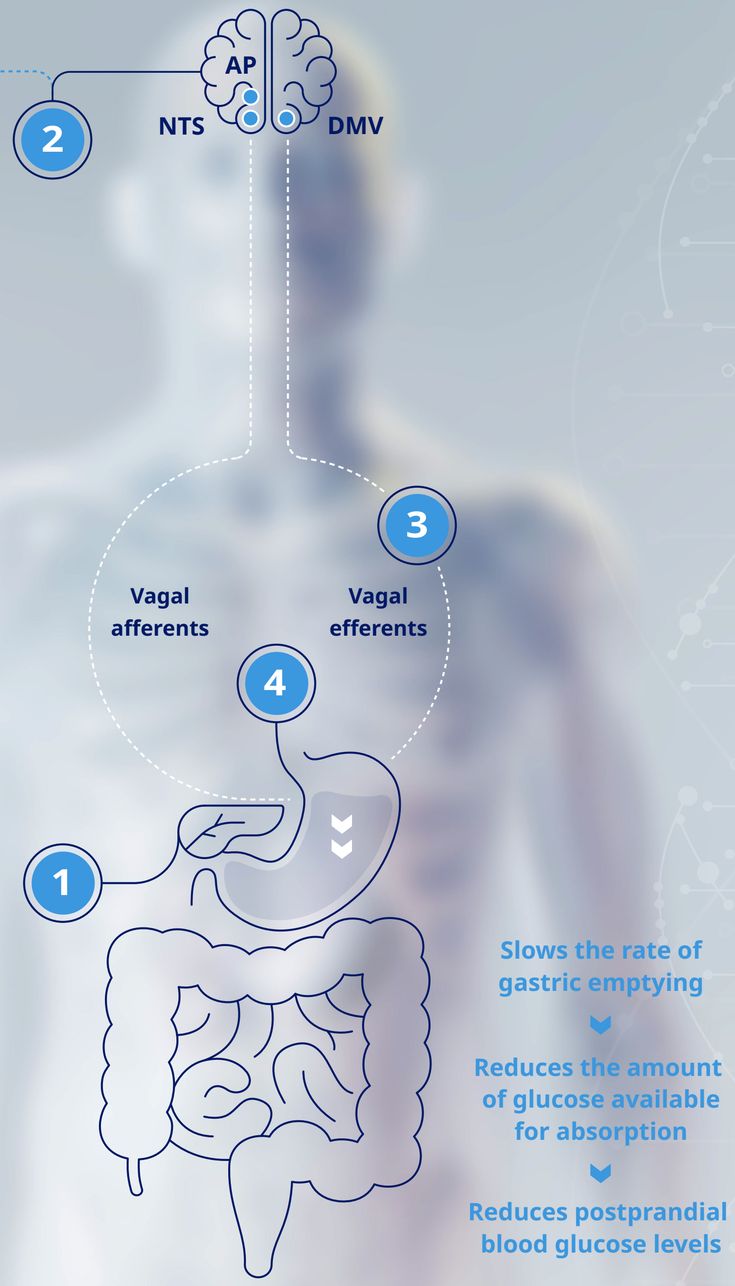

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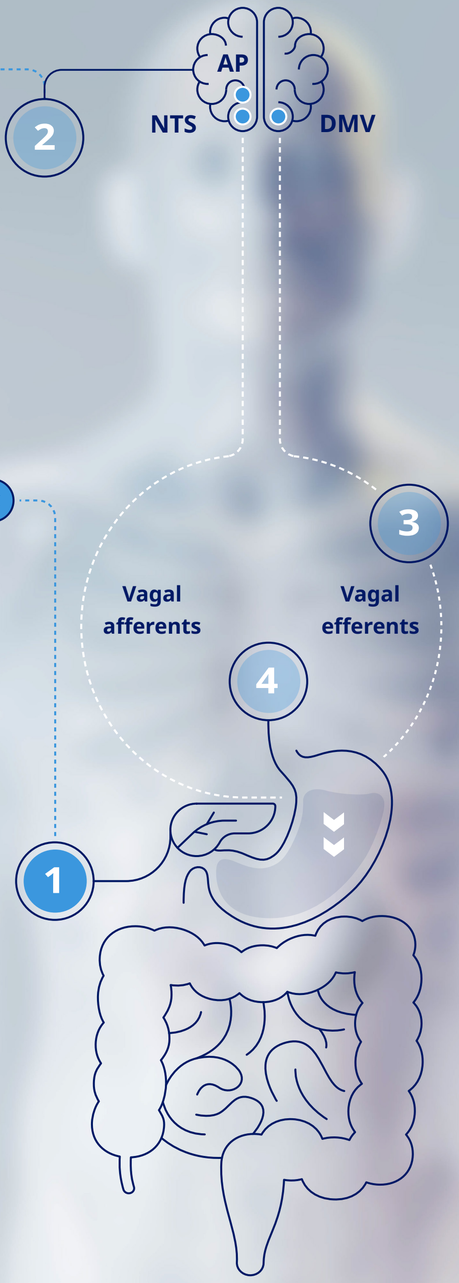
Amylin is a nutrient-stimulated hormone that is co-secreted with insulin from pancreatic β cells in response to food intake[4]

Pancreatic islet



Slows the rate of gastric emptying

Reduces the amount of glucose available for absorption

Reduces postprandial blood glucose levels

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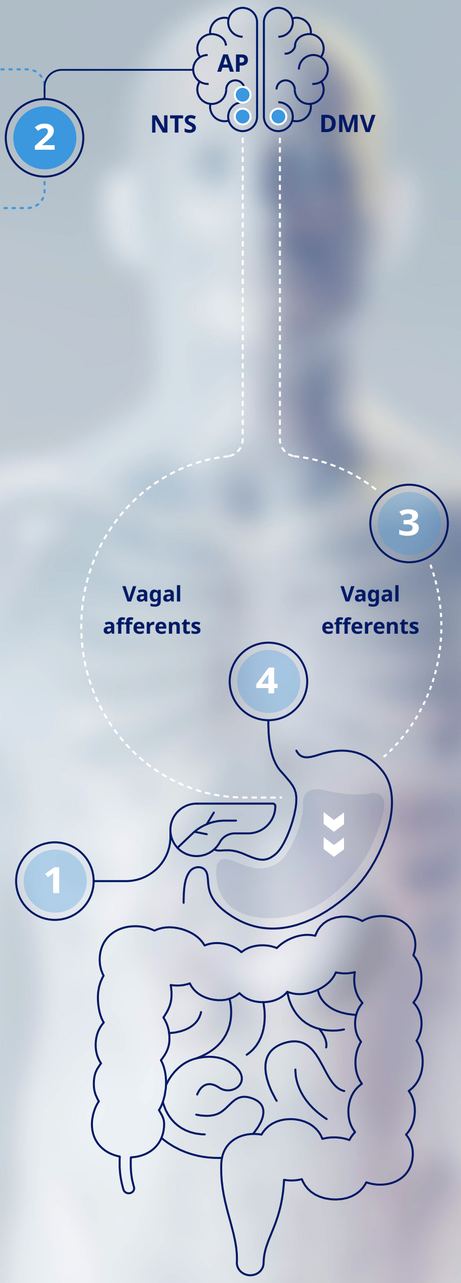

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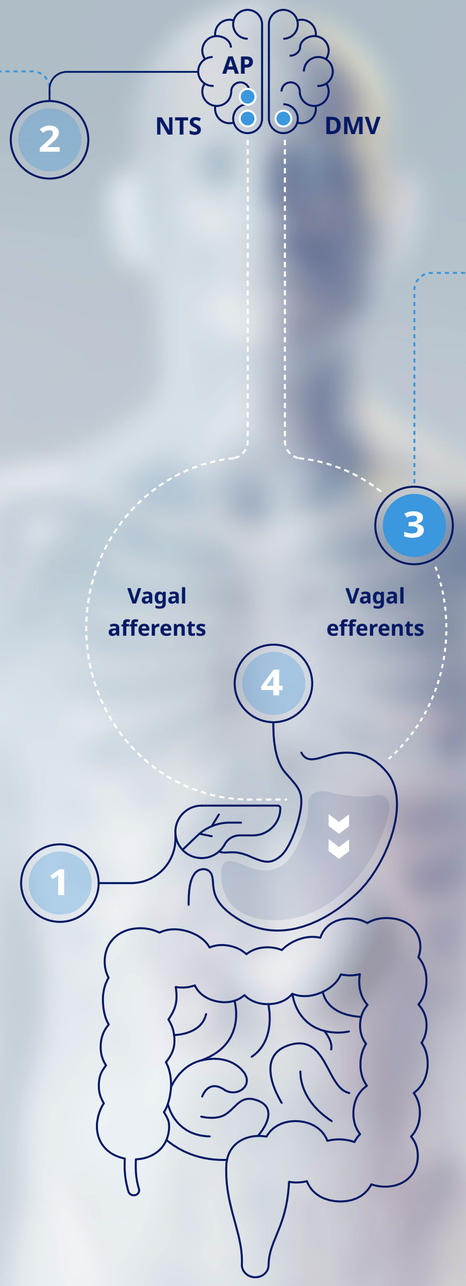

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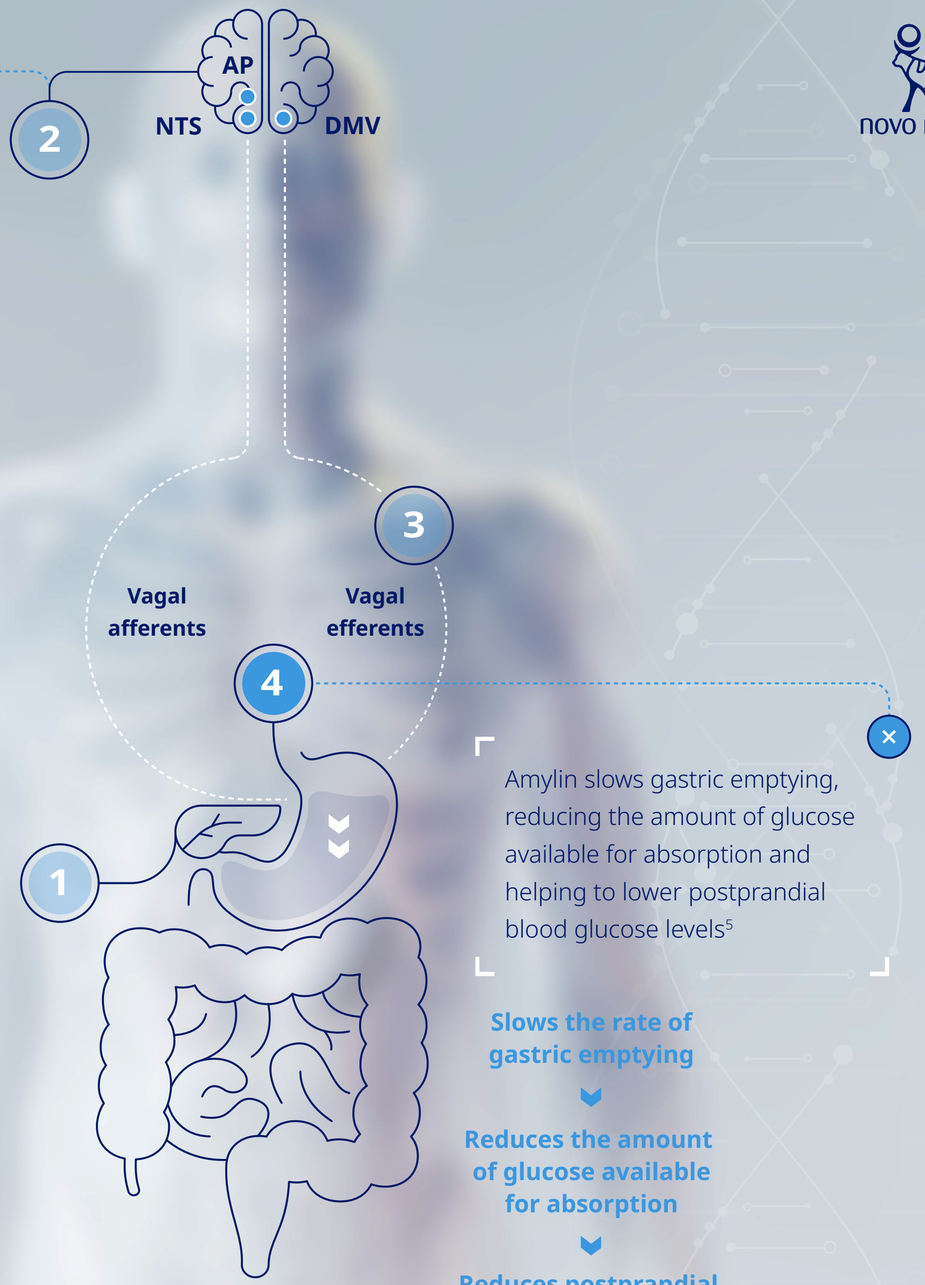

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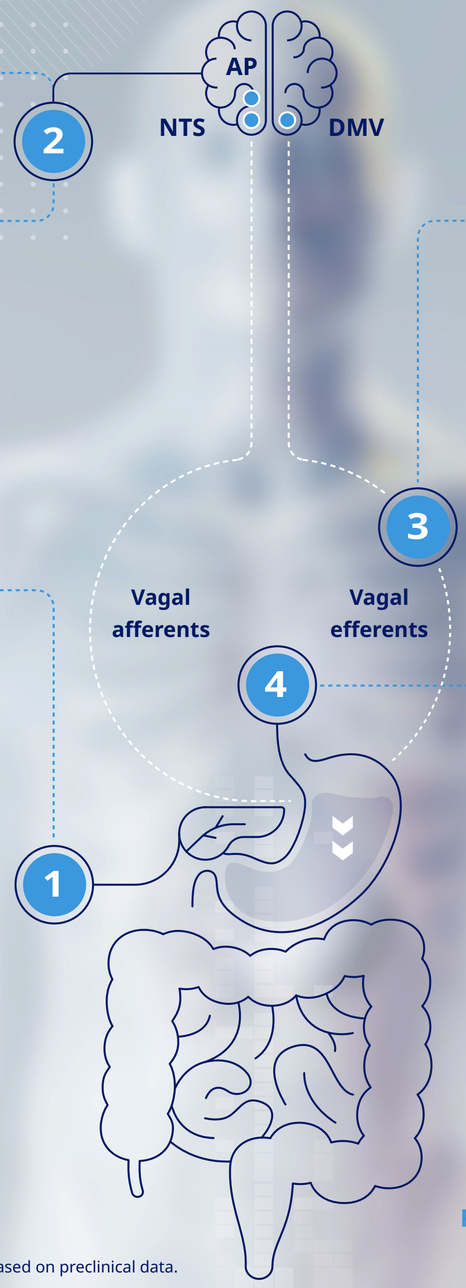

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