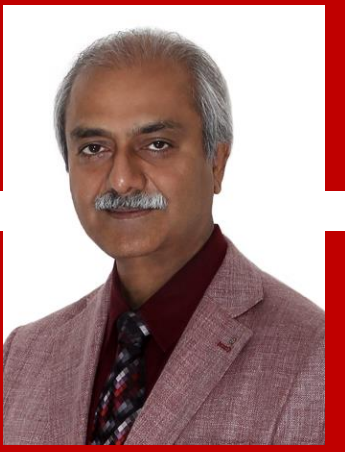
DELAYED GASTRIC EMPTYING
Anaesthetic risks



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Disclosure

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[X] -- We have no conflicts of interest to report

OMM/AOM: THE BIGGEST SURPRISE AND NIGHTMARE FOR THE SURGEON NOWADAYS

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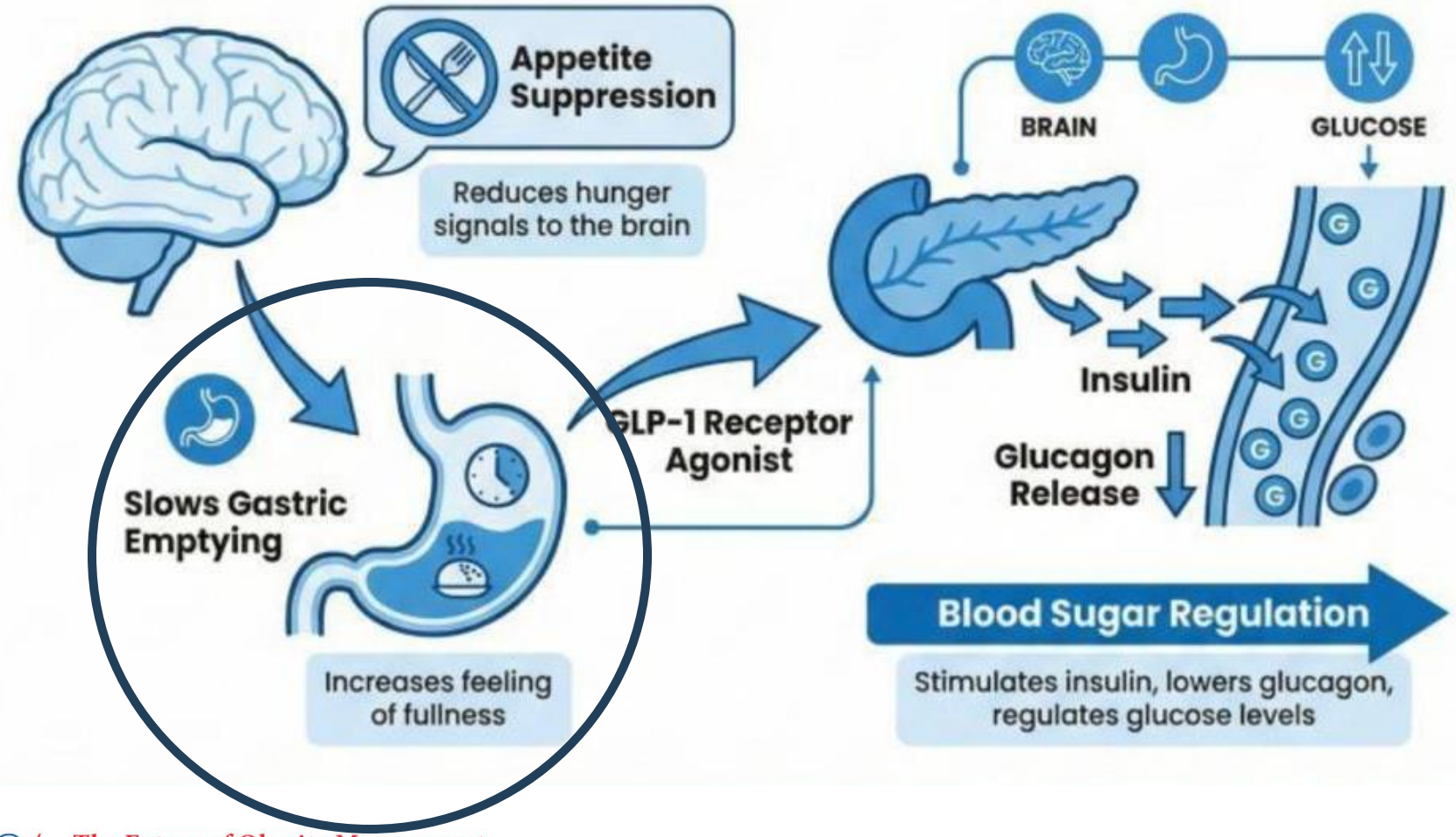
- Current combined-therapy patients may have obesity, diabetes, altered foregut anatomy and a GLP-1/GIP drug.

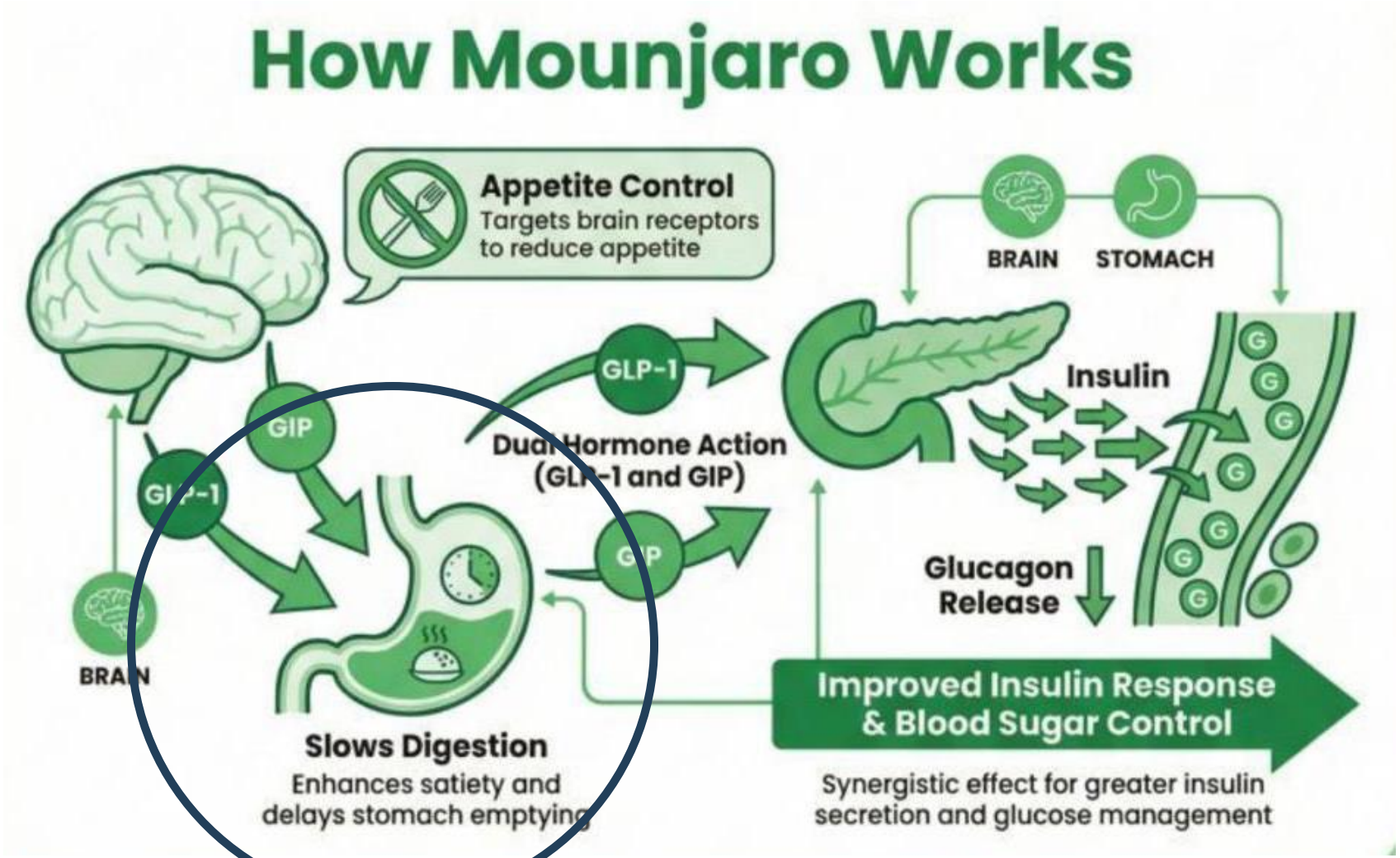
- Standard fasting history → Unreliable

Kindel TL et al. Multi-society GLP-1 perioperative guidance. Surg Obes Relat Dis. 2024;20:1183–1191.

A fasted patient may still have a full stomach

How Ozempic Works




How Mounjaro Works
Appetite Control
Targets brain receptors to reduce appetite
BRAIN
STOMACH
GLP-1
GIP
Dual Hormone Action
(GLP-1 and GIP)
Insulin
Glucagon Release
BRAIN
Slows Digestion
Enhances satiety and delays stomach emptying
Improved Insulin Response & Blood Sugar Control
Synergistic effect for greater insulin secretion and glucose management

AOM / OMM ➔ Increased Residual Gastric Contents {RGC} ➔ Reduces airway protection

1. Before / After Metabolic Surgery / Any Surgery
2. Endoscopy procedures
3. Revision Surgery

- MHRA. GLP-1/GIP agonists: pulmonary aspiration warning. Drug Safety Update. 28 Jan 2025.
- Kindel TL et al. Multi-society GLP-1 perioperative guidance. Surg Obes Relat Dis. 2024;20:1183–1191.

Combining AOM / OMM ➔ a new “full stomach”

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PATIENT	MEDICINE	ANATOMY	PROCEDURE
Obesity Diabetes OSA GERD	Semaglutide Tirzepatide Opioids	Sleeve / bypass Stricture Hiatal hernia	GA or deep Sedation Pneumoperitoneum Airway loss

*Multiplication of Risk : drug effect + disease + anatomy + anaesthetic technique.

- MHRA Drug Safety Update. 28 Jan 2025
- Kindel TL et al. 2024 multi-society guidance

GLP-1/GIP signalling slows the stomach—especially early phase

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FUNDUS

Reduced accommodation may promote fullness

ANTRUM

Lower propulsive motility

PYLORUS

Higher resistance / altered coordination

BRAIN–VAGUS

Satiety, nausea and autonomic modulation

Greatest concern: dose escalation, higher dose, weekly agents and active GI symptoms.

- Kindel TL et al. Surg Obes Relat Dis. 2024
- Nauck MA et al. Diabetes Obes Metab. 2011;13 Suppl 1:5–13

Standard fasting does not prevent residual Gastric contents

56%

GLP-1 users

19%

matched non-users

124 fasted elective patients

Increased residual gastric content on pre-procedure ultrasound

Fasting history is necessary— BUT – No Guarantee !!!

- Sen S et al. GLP-1 use and residual gastric content before anaesthesia. JAMA Surg. 2024;159:660–667.

Symptoms / Look-out Signs

1. Nausea, vomiting, bloating or early satiety
2. Abdominal pain or constipation
3. Delayed emptying is strongest effect with first few doses
4. With Increase of dose:

    Reflux, regurgitation or nocturnal cough

- **MHRA. GLP-1/GIP agonists: pulmonary aspiration warning. Drug Safety Update. 28 Jan 2025.**
- **Kindel TL et al. Multi-society GLP-1 perioperative guidance. Surg Obes Relat Dis. 2024;20:1183–1191.**

Residual Gastric content Increases…….
BUT aspiration is Uncommon

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56% vs 19%

Increased Gastric Content

RR 1.00

Elective Surgery Aspiration

95% CI 0.76–1.30

Large Cohort → 366,476

No increased postoperative aspiration pneumonia

Conclusion : Identify the occasional high-risk individual for greater Precautions

- Sen S et al. GLP-1 use and residual gastric content before anaesthesia. JAMA Surg. 2024;159:660–667.
- Ho CN et al. Aspiration and pulmonary complications: systematic review/meta-analysis. J Endocr Soc. 2025;9:bvaf088.
- Chen YH et al. Postoperative aspiration pneumonia in 366,476 adults. JAMA Netw Open. 2025;8:e250081.

Stopping the drug → does not ensure gastric-emptying

Daily / weekly

Half-life varies widely

One missed dose

May not reverse physiology

*2023 ASA advice recommended holding daily drugs for 1 day and weekly drugs for seven days.
*2024 multi-society guidance shifted to individualized risk assessment
* 2026 prospective study found increased RGC in 42% even after weekly GLP-1 stoppage ≥7 days vs 24% controls, statistically insignificant

7-day interruption

Residual content can persist

Long interruption

Hyperglycaemia, hunger, weight rebound

- ASA consensus guidance. 2023
- Kindel TL et al. 2024
- Boudreau C et al. BMC Anesthesiol. 2026; doi:10.1186/s12871-026-03999-2

Current guidance: continue most patients—Isolate the high-risk ones

LOW RISK	HIGHER RISK	UNACCEPTABLE / UNCERTAIN
Stable maintenance dose No GI symptoms No added gastroparesis risks	Escalation or high dose Symptoms Diabetes/autonomic disease	Solid contents Severe symptoms No safe airway plan
Continue therapy Standard fasting	24-h liquid-only diet	Postpone elective case or treat as full stomach

*2024 ASA-led multi-society (Incl ASMBS} guidance→ Continue GLP-1 agents in patients without elevated risk.
For higher risk, use a liquid-only diet for 24-48 hours, check with gastric ultrasound.

- Kindel TL et al. Surg Obes Relat Dis. 2024;20:1183–1191
- ASA News Release. 29 Oct 2024

Precautions to reduce aspiration risk – Individualised Technique

BEFORE	INDUCTION	AIRWAY	EXTUBATION
Antacids Suction ready Skilled assistance	Head-up position Preoxygenate Rapid-sequence induction with tracheal intubation	Cuffed tracheal tube Avoid deep sedation without rescue capacity	Fully awake Protective reflexes restored Plan postop monitoring

Gastric ultrasound can be useful

Kindel TL et al. Multi-society GLP-1 perioperative guidance. Surg Obes Relat Dis. 2024;20:1183–1191.
ASA Practice Guidelines for Preoperative Fasting. Anesthesiology. 2023
Perlas A et al. Validation of gastric sonography assessment. Anesth Analg. 2013;116:357–363.

Considerations in Endoscopy and emergency surgery

UPPER GI ENDOSCOPY

Retained food impairs visibility
Deep sedation may leave airway unprotected

EMERGENCY SURGERY

Do not delay necessary surgery
Assume full stomach
Use protected airway strategy

BARIATRIC REVISION

Obstruction or stenosis make Decompression difficult
Surgeon–anaesthetist plan before induction

Kindel TL et al. Multi-society GLP-1 perioperative guidance. Surg Obes Relat Dis. 2024;20:1183–1191.
MHRA. GLP-1/GIP agonists: pulmonary aspiration warning. Drug Safety Update. 28 Jan 2025.

Conclusion & Take Home Messages

1. Specific medical history → GLP-1/GIP and other motility-slowing drugs.
2. Screen for diabetes gastroparesis, reflux, opioids and obstructive symptoms
   Fasting -- cannot ensure an empty stomach.
3. Residual gastric content is increased; aspiration risk is not.
4. When uncertain : USG, protect the airway, and continue…….or else postpone
5. Decision is not “stop or continue”—it is “how do we make this patient safe?”

THANK YOU

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