FRESENIUS KABI
caring for life

Freka® Trelumina

triple lumen transnasal gastric/intestinal tube

Product Code: 7981834

...more than just a feeding tube since 1996

Product features and insertion techniques for healthcare professionals

Conventional endoscopically controlled transnasal insertion.

Insertion via endoscope using Seldinger technique.

Product features

Design and suitability

Originally launched in 1996, the Freka Trelumina is exemplary,* and more than just an enteral feeding tube. It is a triple lumen, ENFit, transnasal polyurethane tube suitable for intestinal feeding, gastric decompression and drainage for ICU or other suitable patients.

*Trelumina is the only triple lumen enteral tube registered for use in Australia and New Zealand as per tga.govt.au and medsafe.govt.nz, accessed on 8 February 2024.

One tube. Three uses. Maximum patient comfort.

Feeding lumen

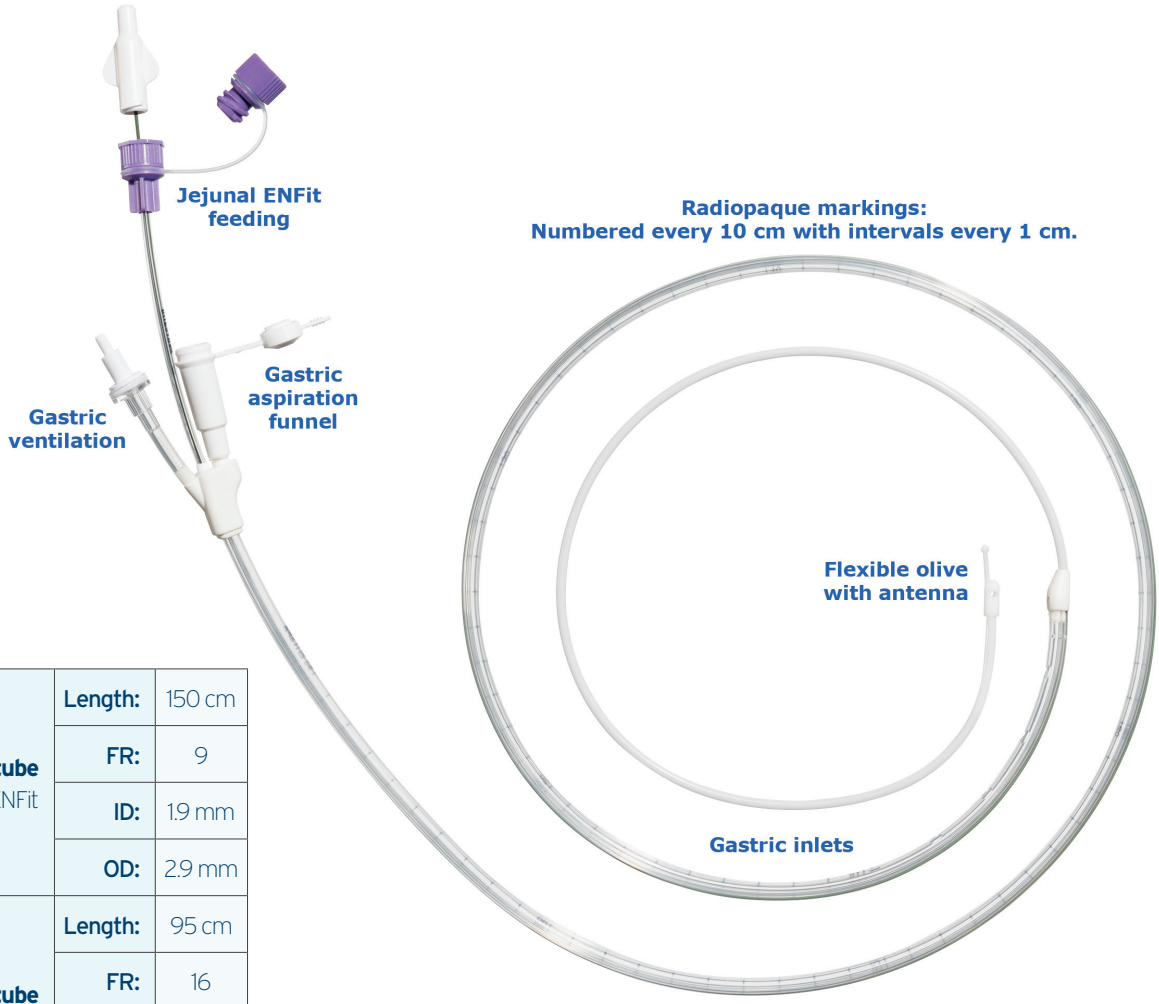
1.9 mm, 9 FR, 150 cm lumen with ENFit connector. Two lateral openings and one terminal opening.

Gastric aspiration lumen

4.1 mm, 16 FR, 95 cm lumen with funnel connector, for aspiration of gastric fluid. Five lateral inlets.

Gastric decompression ventilation valve

1.2 mm lumen provides automatic pressure regulation. Not compatible with IV or ENFit syringes.



Feeding tube ENFit	**Length:**	150 cm
	FR:	9
	ID:	1.9 mm
	OD:	2.9 mm
Gastric tube Funnel	**Length:**	95 cm
	FR:	16
	ID:	4.1 mm
	OD:	5.3 mm

Latex **free**	Luer **free**	PVC **free***	DEHP **free****

** Please note that whilst our Freka Trelumina is DEHP/PVC free, it contains a re-routing catheter/tube which is disposed of upon tube placement. This re-routing tube is made from PVC containing trace amounts of DEHP but is NOT left in situ within the patient.

Clinical excellence

Speed of insertion: no assembly required

In a study[1] comparing the suitability of the Freka Trelumina triple lumen tube against the Dobbhoff tube, where the primary end point was the time required for tube placement where n=60:

- the **average placement time** for the **Freka Trelumina** tube was **5.5 minutes** while the average placement time for the Dobbhoff tube was 11.5 minutes (95% CI for median [11.5, 20.0] minutes vs. [5.5, 7.5] minutes; $p < 0.001$).

Results for secondary end points of successful placement and problems encountered during clinical use where n=60 were:

- the **Freka Trelumina tube stayed in place significantly longer** than the Dobbhoff tube at **37 days** vs. 21 days ($p = 0.034$)
- the **nursing staff experienced significantly fewer problems with the Freka Trelumina tube** experiencing only 1 problem, vs. 11 problems with the Dobbhoff tube ($p < 0.001$).

In another recent study[2] using a modified endoscopic Freka Trelumina placement technique, for which 72 patients were enrolled, the average catheterisation time was:

- **4.9 minutes** (±1.7) in patients with **normal upper digestive tract anatomy**
- **6.6 minutes** (±1.6) in patients with **gastric cancer and pyloric obstruction**
- **11.3 minutes** (±-2.5) in patients with **anastomotic block after gastroenterostomy.**

Freka Trelumina can be placed quickly saving valuable time in the ICU[1, 2]

In another study[3] investigating ultrasound vs endoscopy guided placement of the Freka Trelumina triple lumen enteral feeding tube in the treatment of acute pancreatitis:

- the average **ultrasound guided tube placement** for 49 patients was **18.4 minutes** (± 12.8)
- the average **endoscopy guided tube placement** time for 62 patients was **16.5 minutes** (± 5.7).

Freka Trelumina provides operator flexibility and can be placed effectively using ultrasound or endoscopic guidance[3].

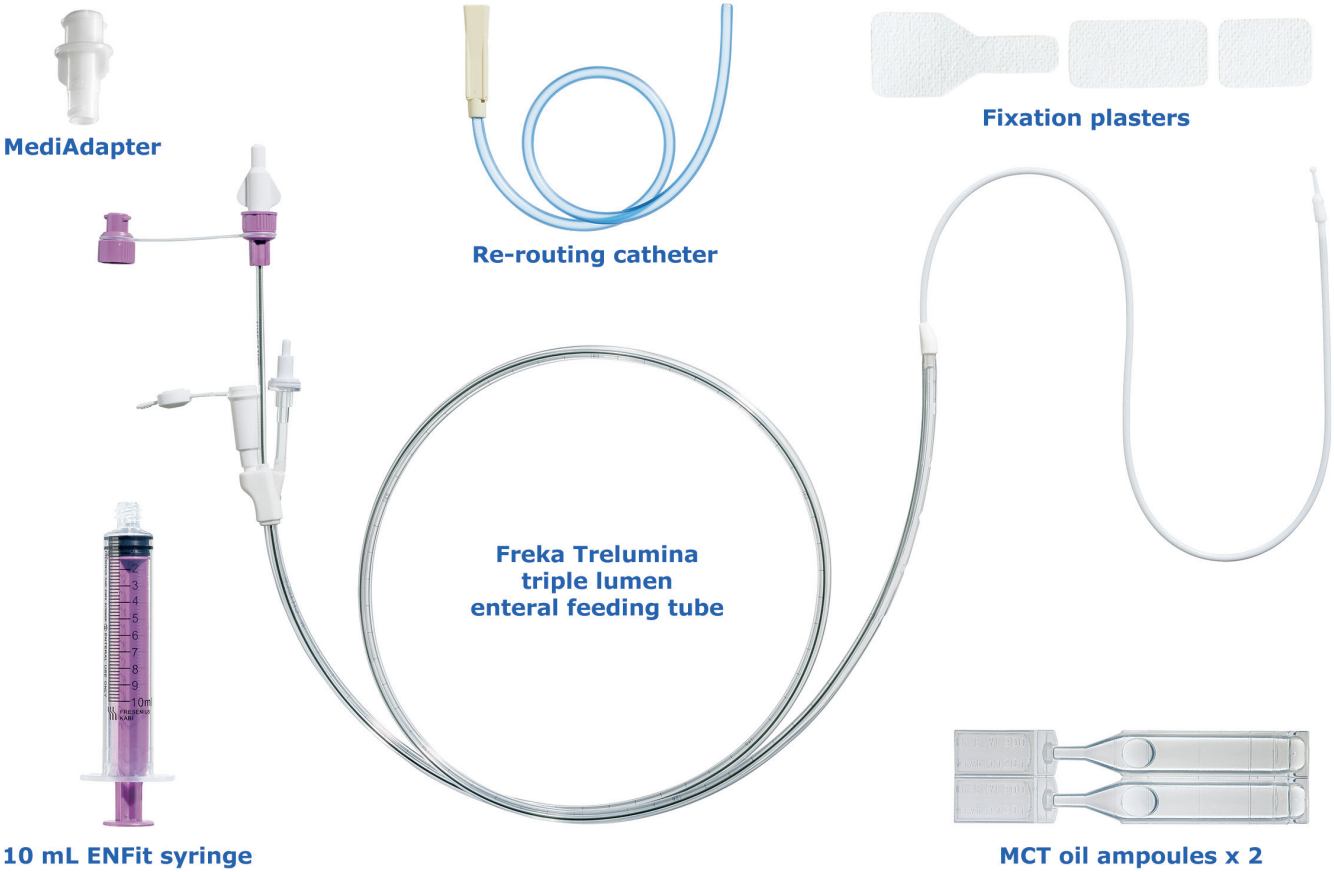
In summary, the **Freka Trelumina** triple lumen enteral feeding tube can be **placed quickly, saving valuable time in the ICU** and allows **operator flexibilty** to achieve the goal of early enteral nutrition and gastrointestinal decompression.

1. Dieter Schwab, MD, Steffen Mühldorfer, MD, Gerhard Nusko, MD, Martin Radespiel-Tröger, MD, Eckhart G. Hahn, MD, FACP, Richard Strauss, MD. Endoscopic placement os nasojejunal tubes: a randomized, controlled, prospective trial comparing suitability and technical success for two different tubes. Gastrointestinal endoscopy, (2002) volume 56, No. 6.

2. Feng Yankang, Cui Ming, He Yun, Zhao Xilong. Establishment and clinical application of modified endoscopic Freka Trelumina placement. Chinese Journal of Gastrointestinal Surgery, January 2019, Vol.22, No.1.

3. Zhijun Liu, Jintao Guo, Weidong Ren, Shaoshan Tang, Ying Huang, Liping Huang, Siyu Sun and Lianjie Lin. Evaluation of ultrasound-guided Freka Trelumina enteral nutrition tube placement in the treatment of acute pancreatitis. BMC Gastroenterology, (2020) 20:21.

Included in the kit



Freka Trelumina 16/9 FR triple lumen transnasal enteral feeding tube

150 cm, combined 9 FR gastric and 16 FR intestinal tube.

MCT oil

Two ampoules of MCT oil for lubrication of the tube and guidewire.

Plaster set

For nasal fixation of the Freka Trelumina enteral feeding tube.

MediAdapter

Used to administer the MCT oil into the Freka Trelumina enteral feeding tube.

ENFit syringe

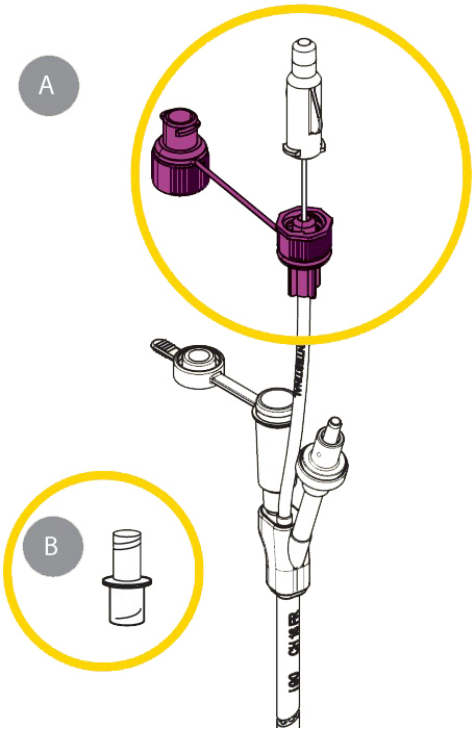
10 mL Freka Connect syringe.

Re-routing catheter

35 cm, 15 FR catheter used for re-routing during insertion from oral to nasal.

Optional for use when using a Seldinger placement technique. An additional Seldinger wire is required to perform the Seldinger technique (not included). Requires a 350 cm or longer wire.

Application of MCT oil for lubrication

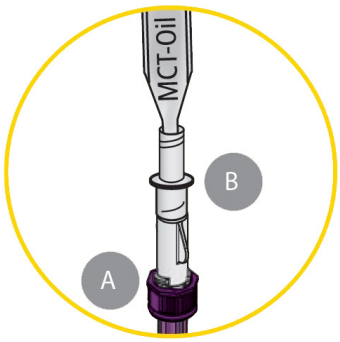


Conventional endoscopically controlled transnasal insertion.

For smooth removal of the guide wire after placement of the feeding tube, water or MCT oil can be used.

MCT oil application

Place the Freka MediAdapter (B) on the tip of the guide wire (A). Place the MCT oil ampoule into the MediAdapter and do not apply downward force. Gently squeeze the ampoule to release the oil.



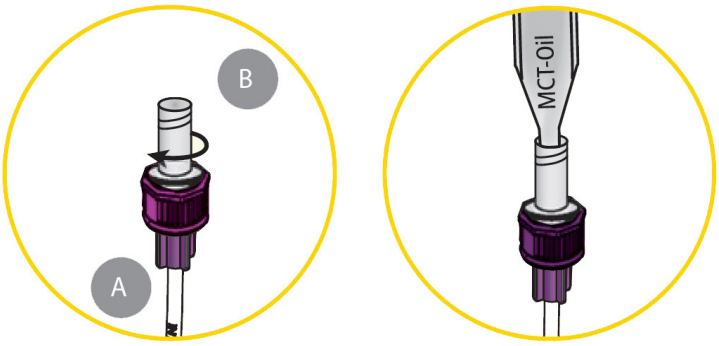
Hold the squeezed ampoule and remove it from the MediAdapter, so that air can enter the adapter, otherwise MCT oil will be re-drawn into the ampoule. If necessary repeat application with the second ampoule.

Application via endoscope using Seldinger technique

Apply water or MCT oil into the feeding lumen for easier mounting of the Seldinger wire.

MCT oil application

After removing the guide wire, screw the Freka MediAdapter (B) on into the ENFit connection of the feeding lumen (A). Place the MCT oil ampoule into the MediAdapter and do not apply downward force. Gently squeeze the ampoule to release the oil.

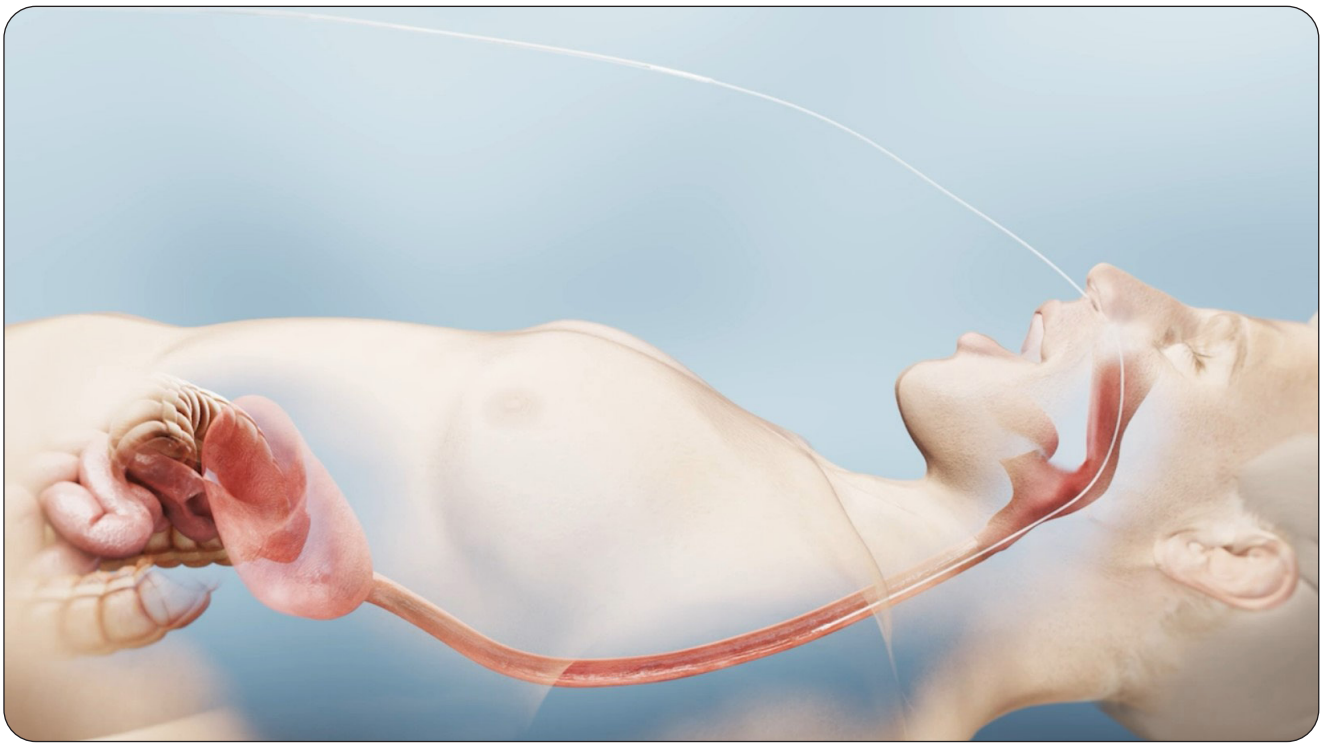


Hold the squeezed ampoule and remove it from the MediAdapter, so that air can enter the adapter, otherwise MCT oil will be re-drawn into the ampoule. If necessary repeat application with the second ampoule.

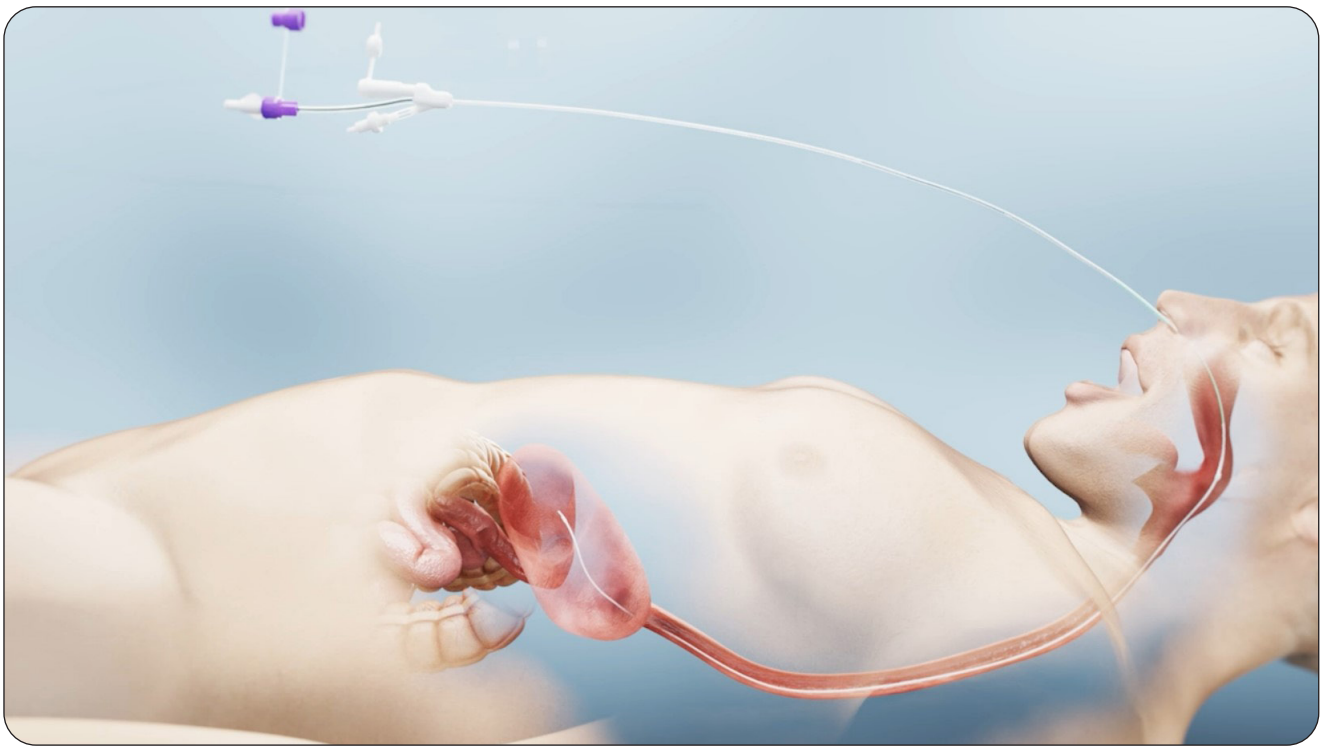
Insertion technique

N.B. The following images may not reflect recommended patient positioning. Please defer to operator instructions.

Conventional endoscopically controlled transnasal insertion

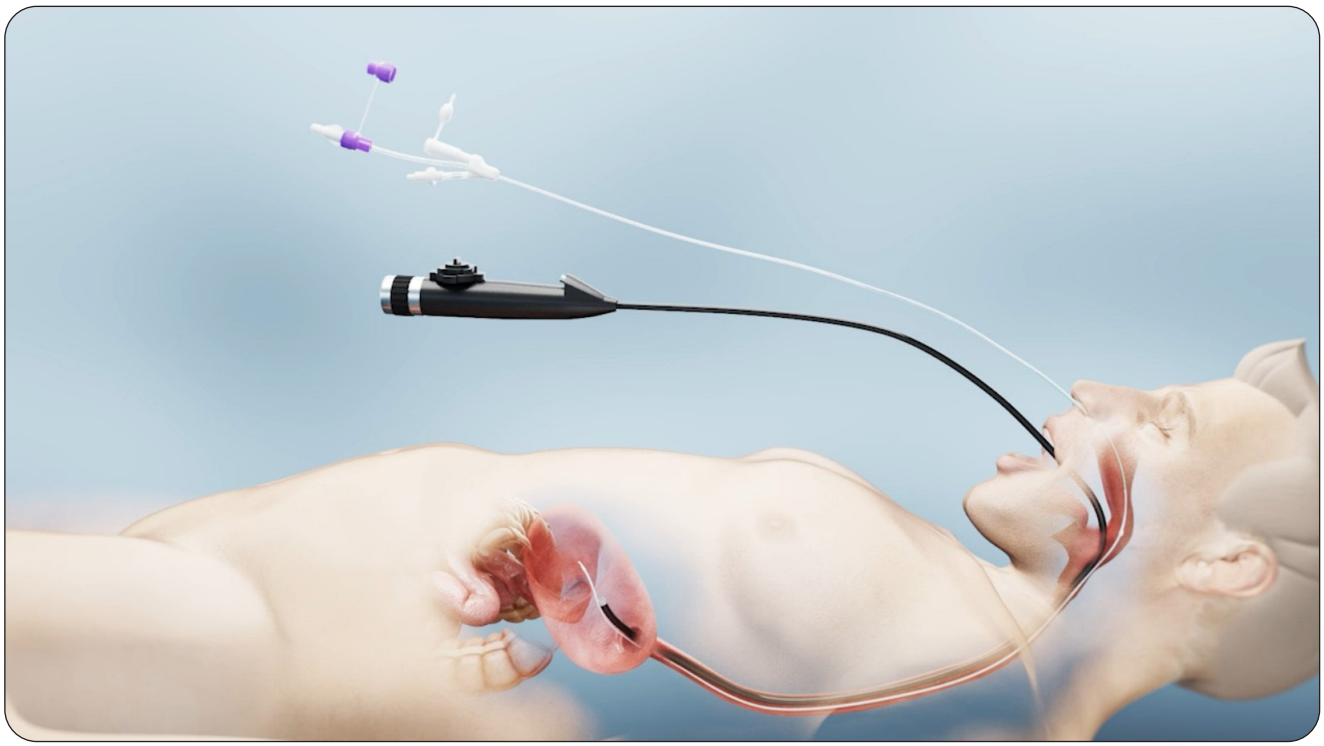


After lubrication of the Freka Trelumina enteral feeding tube with gel or MCT oil, insert through the nose twisting it slightly towards the back of the throat.

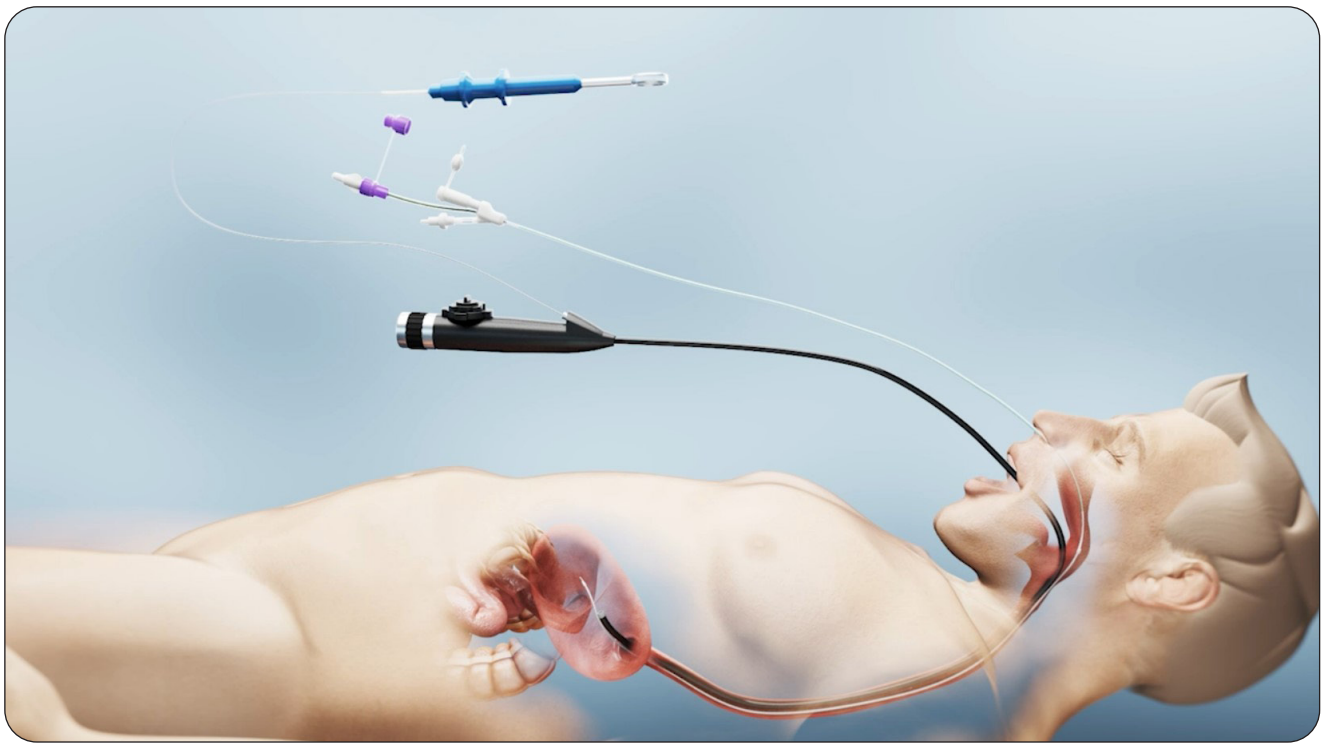


Bend the patients head forward and insert the tube slowly into the stomach.

Conventional endoscopically controlled transnasal insertion

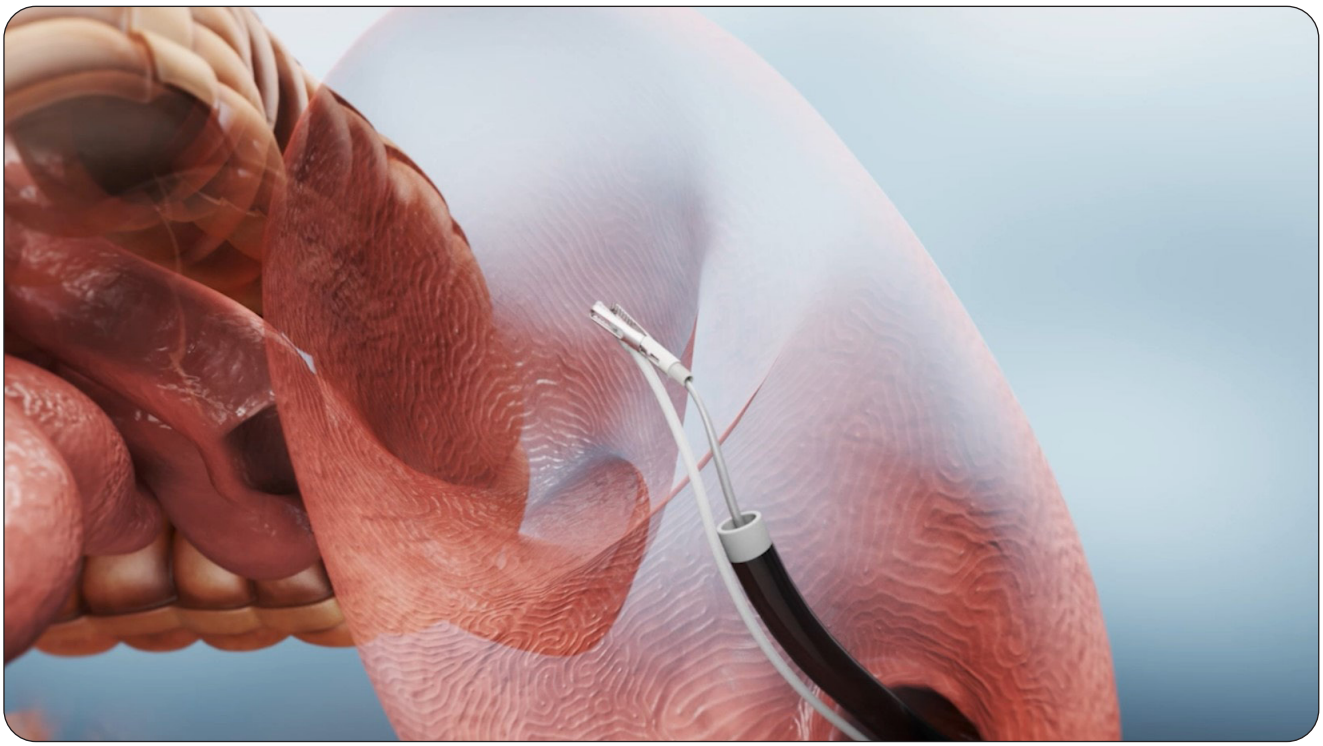


Insert the endoscope through the mouth into the stomach. Using the 10mL Freka ENFit syringe insufflate air into the Freka Trelumina enteral feeding tube.



Insert endoscopic forceps into the working channel of the endoscope,

Conventional endoscopically controlled transnasal insertion

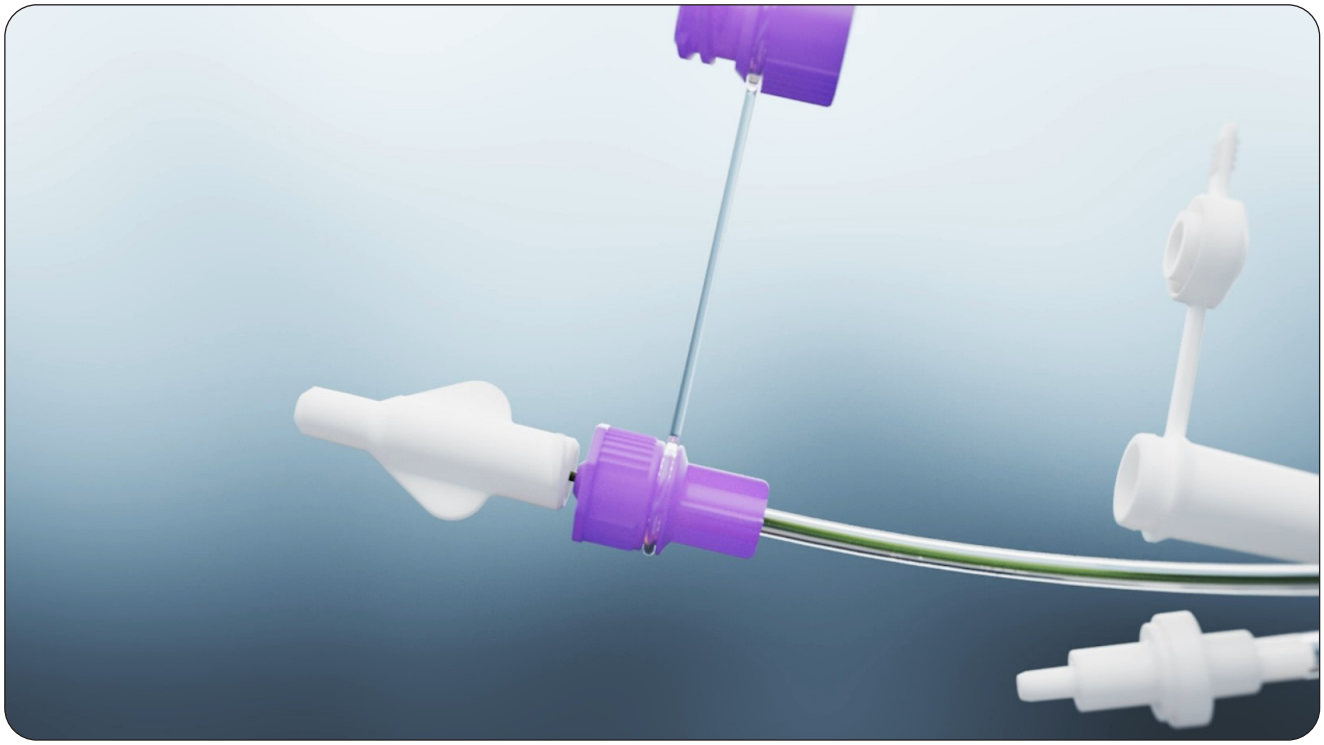


Using the endoscopic forceps grasp the tip of the tube.

Advance the endoscope with the tube through the pylorus and into the jejunum.

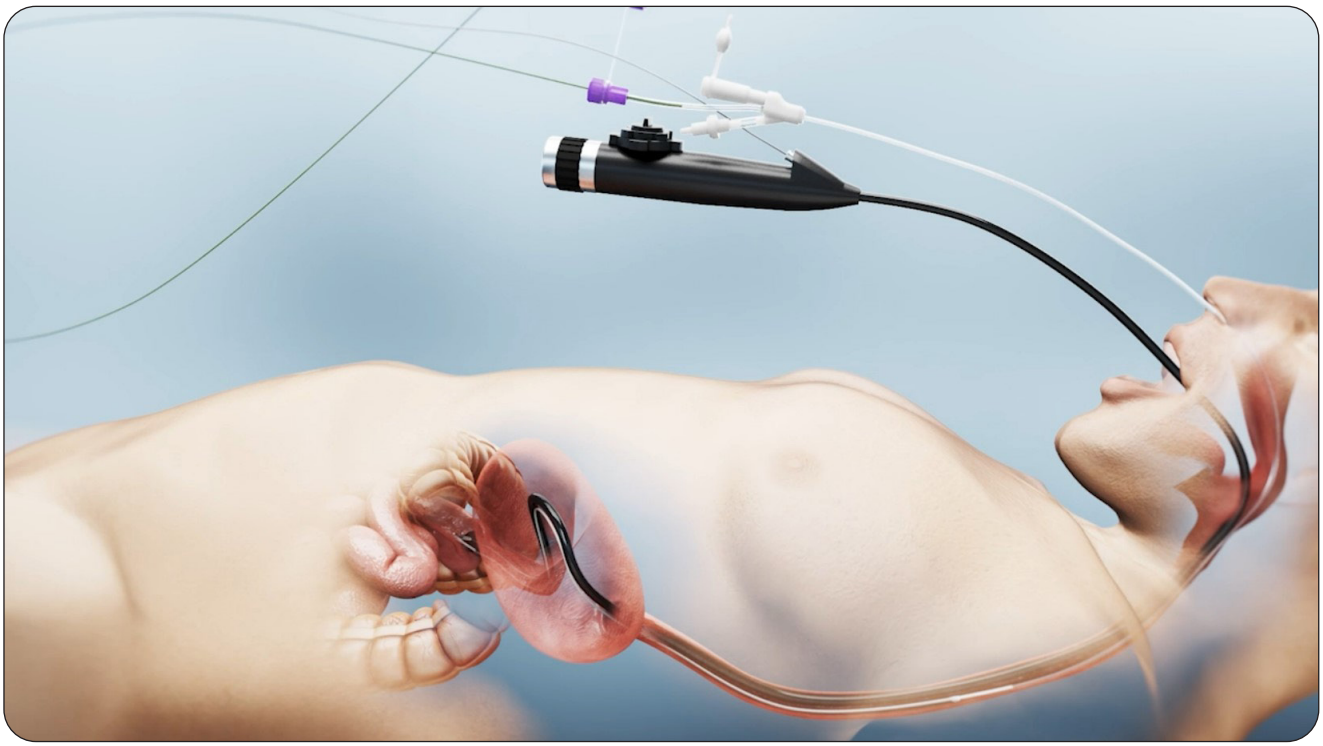
Conventional endoscopically controlled transnasal insertion

Push the tube to the ligament of Treitz, which indicates the transition of the duodenum to the jejunum, using the forceps.

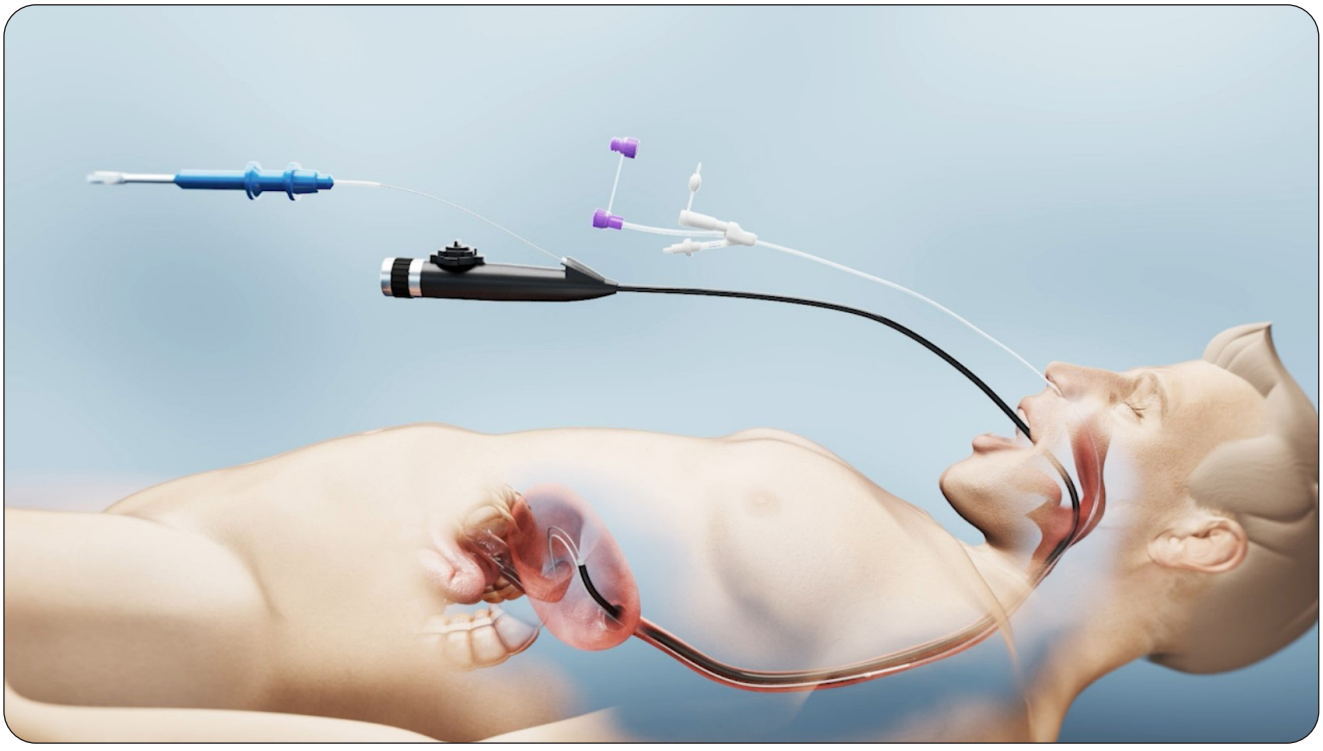


Once the final position is reached unscrew the top of the mandrin from the tube.

Conventional endoscopically controlled transnasal insertion

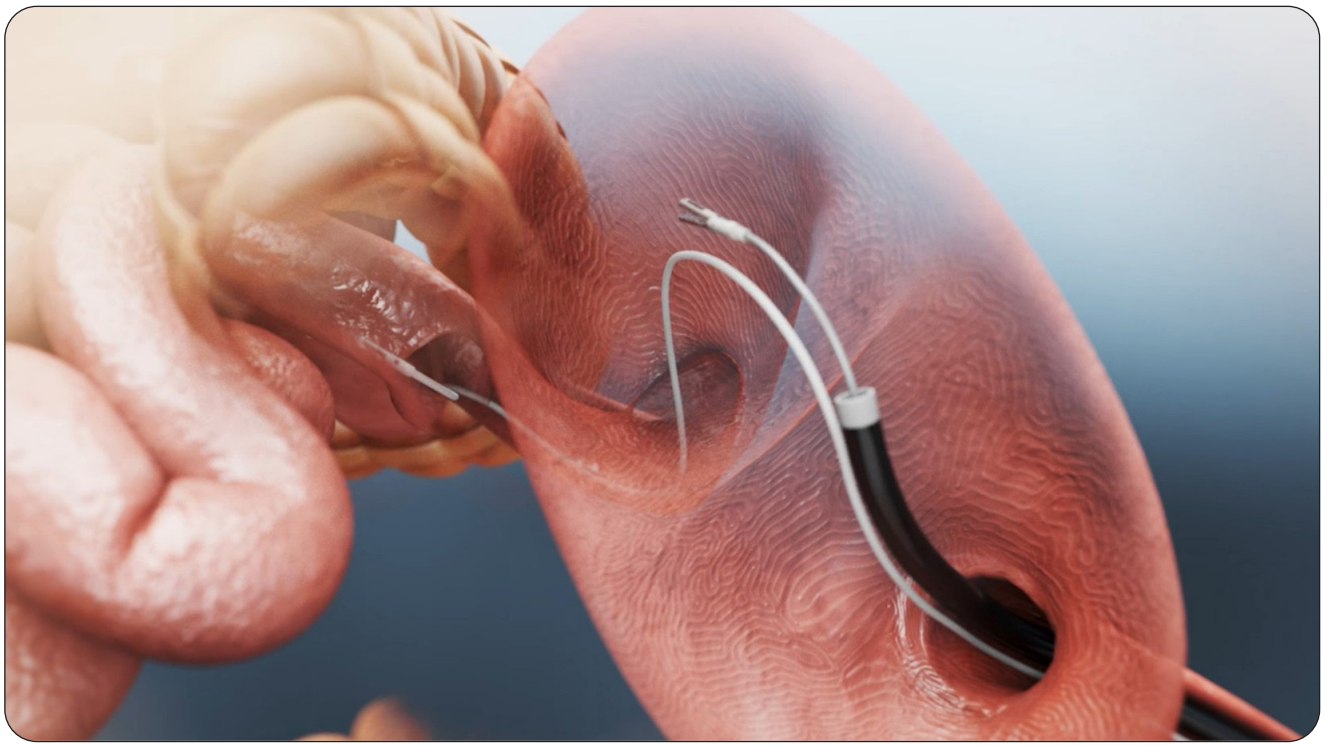


Remove the mandarin and guidewire from the Freka Trelumina enteral feeding tube.

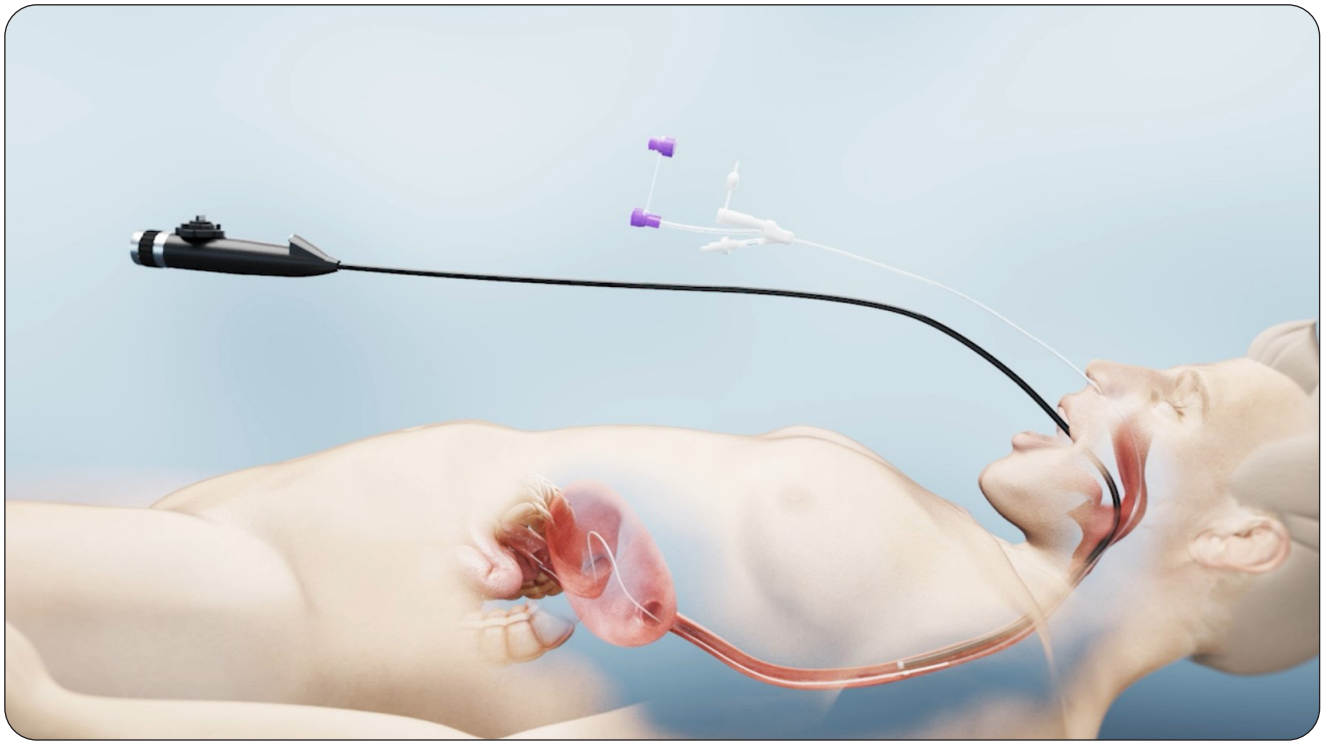


Pull the endoscope back to the stomach keeping the tip of the tube fixed by the forceps.

Conventional endoscopically controlled transnasal insertion

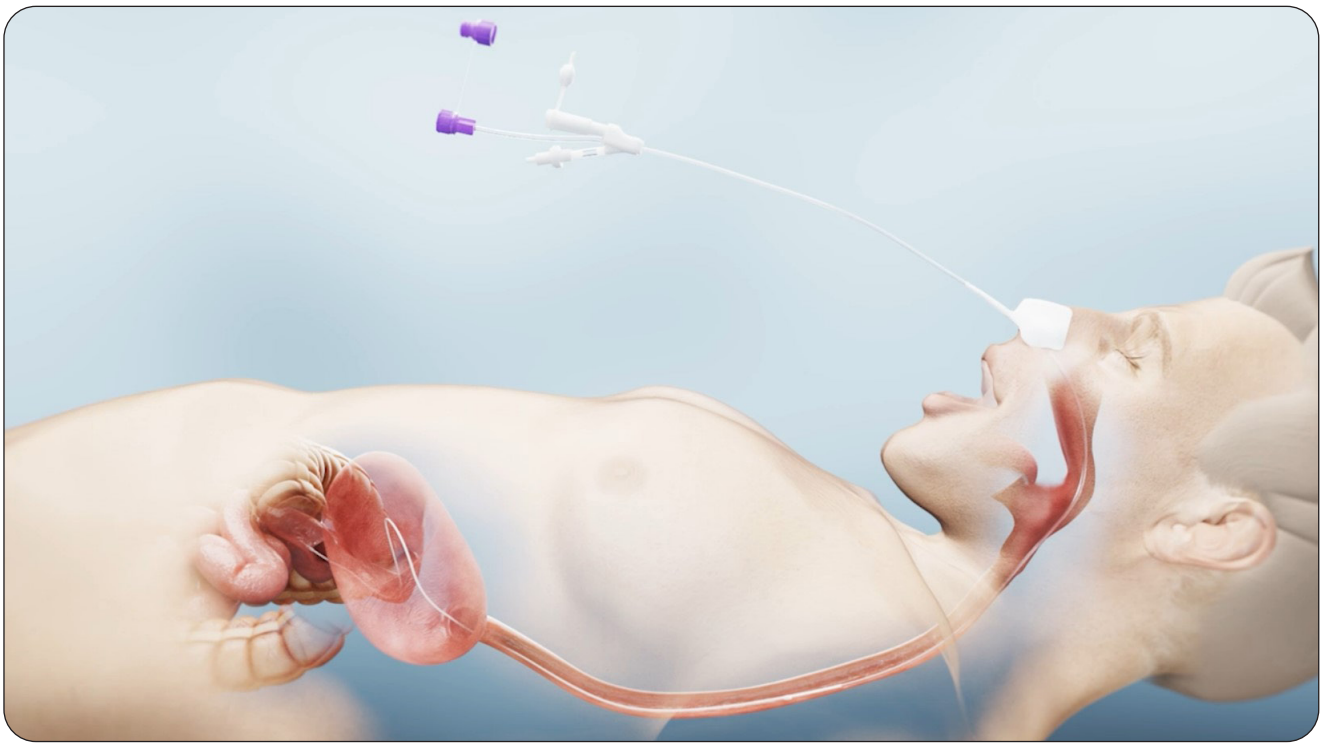


Release the forceps from the tip of the Freka Trelumina enteral feeding tube then retract the forceps to the endoscope which is now within the stomach..



Remove both the forceps and endoscope from the patient leaving the Freka Trelumina enteral feeding tube in situ.

Conventional endoscopically controlled transnasal insertion



Finally, fix the Freka Trelumina tube in place with the plaster.

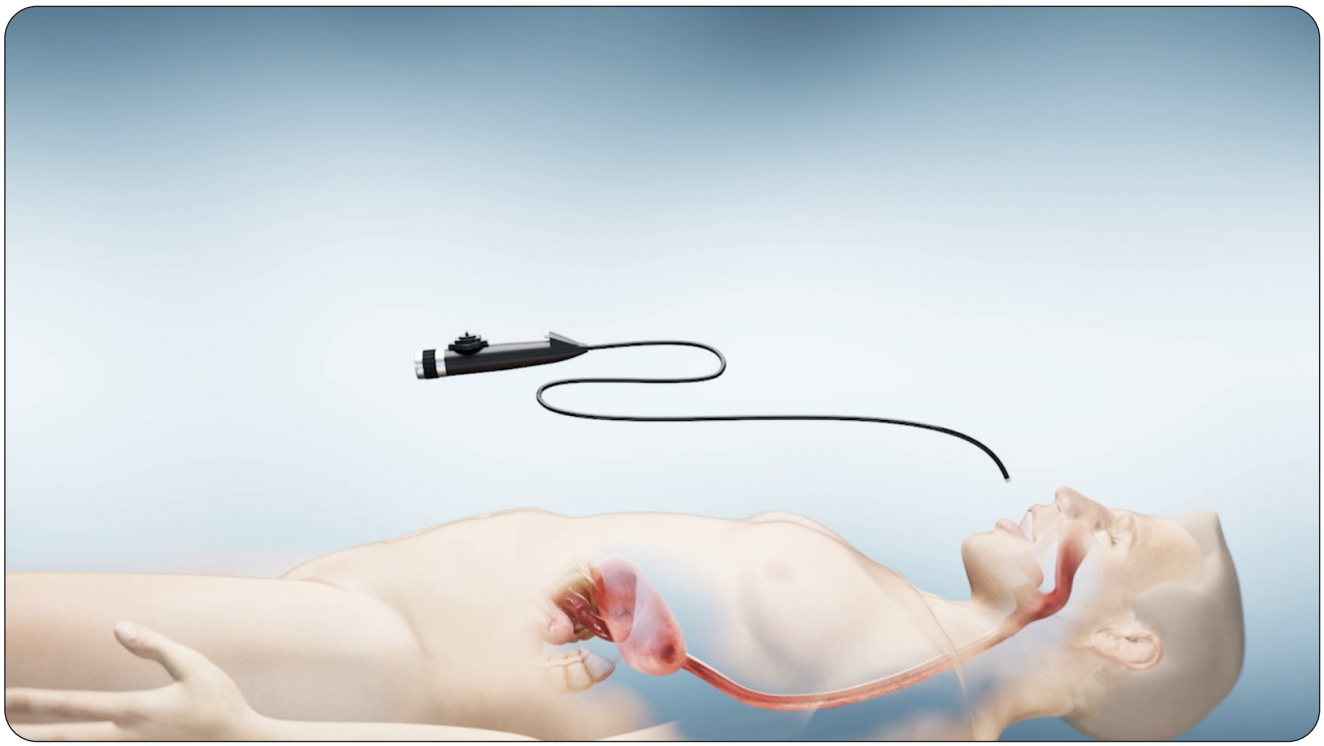
The position of the tube should be verified radiologically.

While it has been the objective of Fresenius Kabi to develop accurate, easy-to-follow insertion suggestions, each healthcare professional inserting this enteral product must evaluate the appropriateness of the following technique based on his or her medical training, experience and patient evaluation.

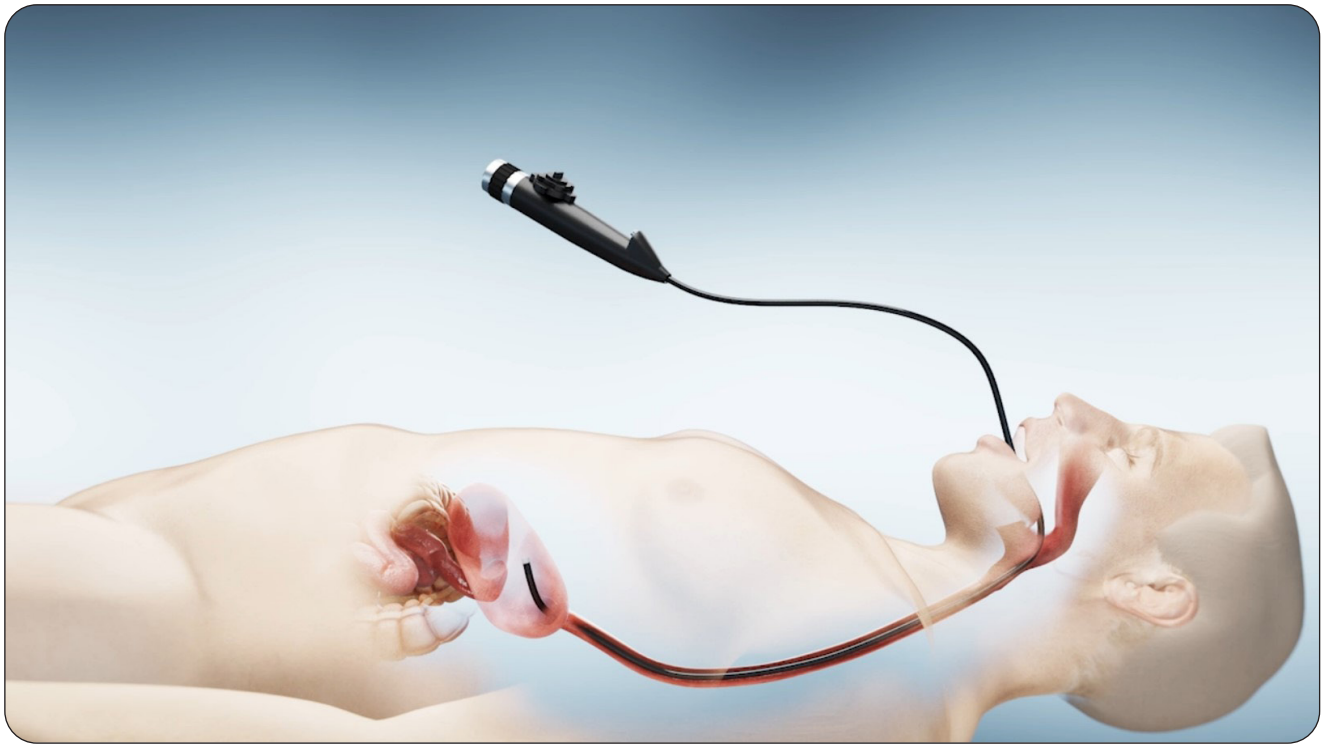
Insertion technique

N.B. The following images may not reflect recommended patient positioning. Please defer to operator instructions.

Application via endoscope using Seldinger technique

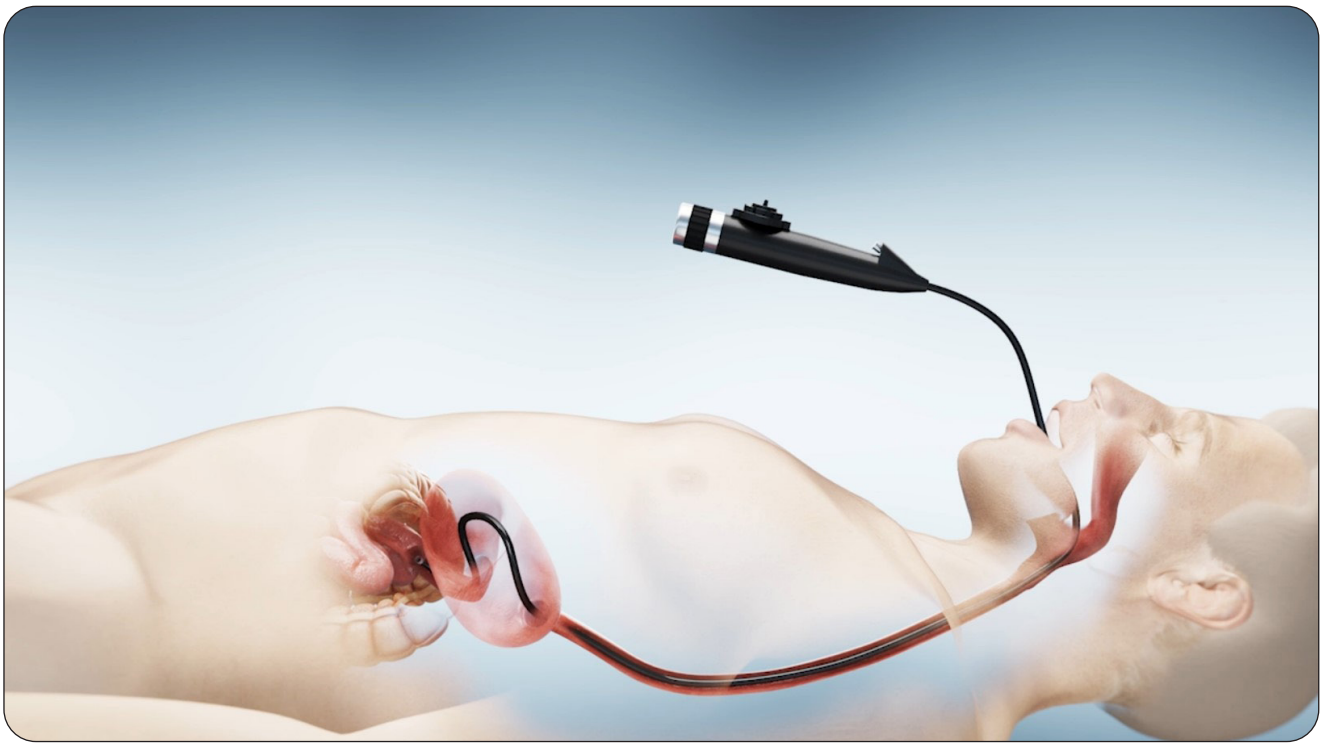


For placement of the Freka Trelumina using the Seldinger technique, a 300cm or longer Seldinger wire is required (Not part of kit. 7980321 300cm Endomandrin).



Insert the endoscope through the mouth and advance it to the stomach.

Application via endoscope using Seldinger technique

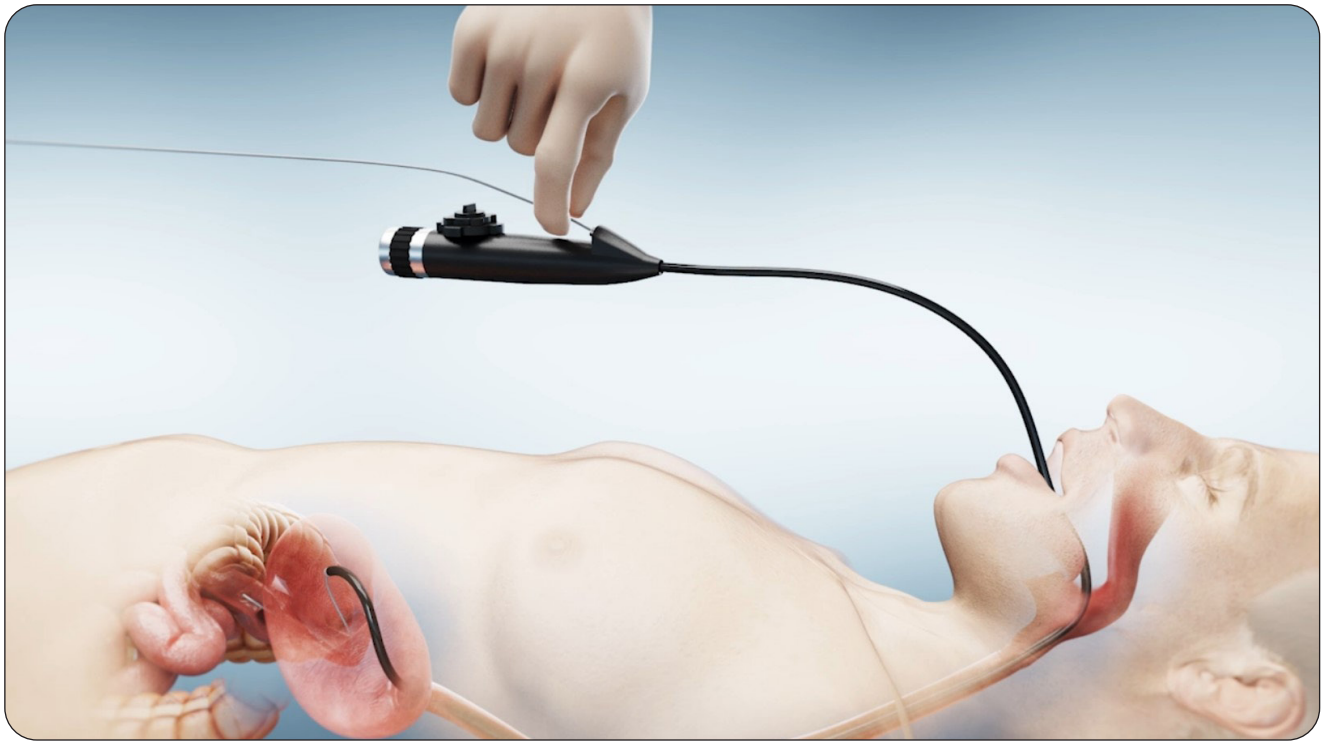


Locate the pylorus and advance the endoscope as far as possible.

After lubricating, insert the Seldinger wire through the working channel of the endoscope.

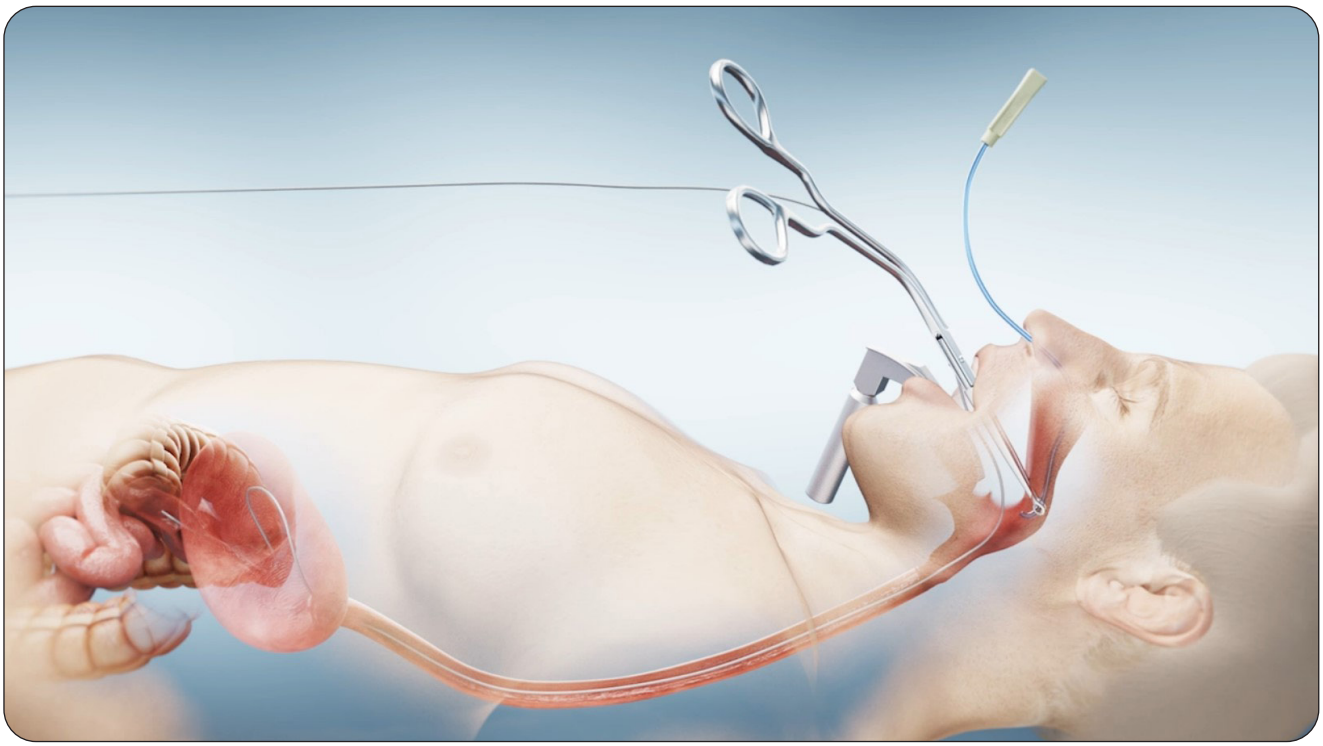
Application via endoscope using Seldinger technique

The wire should be advanced as far as possible under visual control to the ligament of Treitz which indicates the transition of the duodenum to the jejunum.

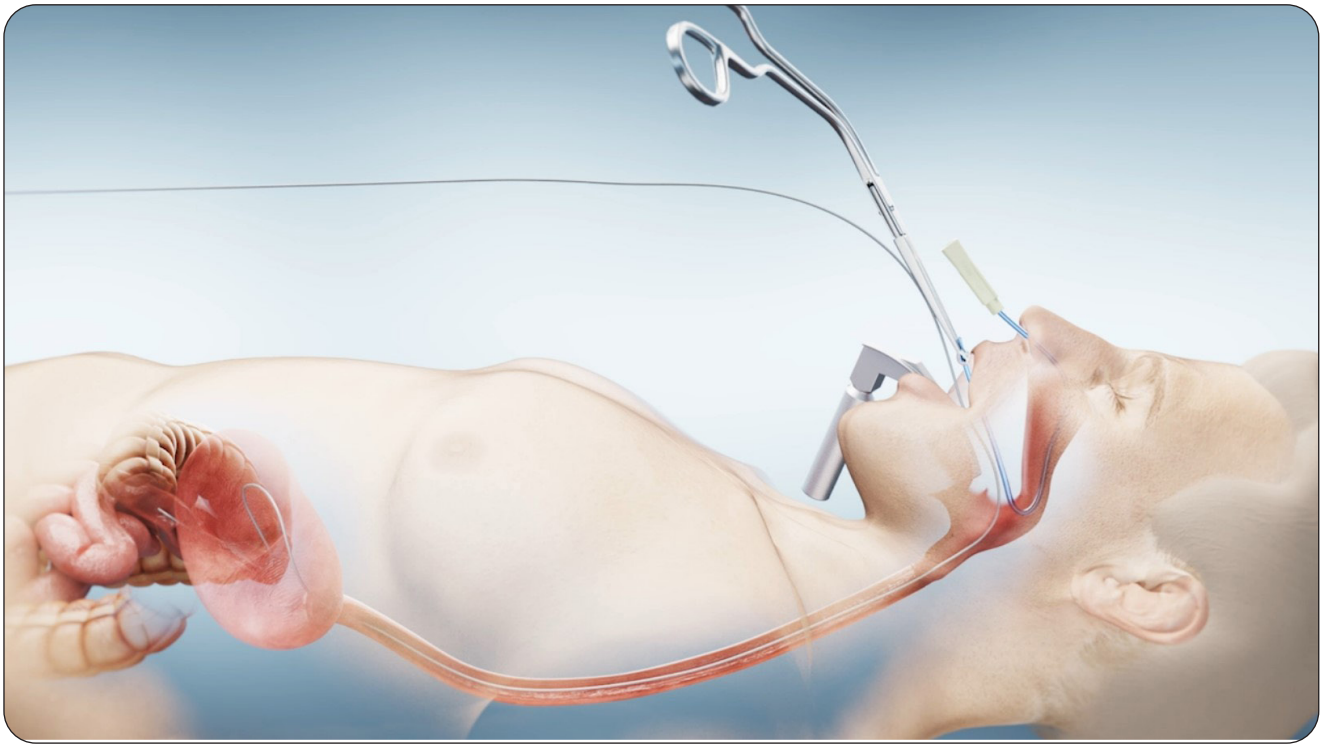


Withdraw the endoscope while pushing the Seldinger wire gently in the opposite direction. The wire should be fixed manually as soon as the endoscope emerges.

Application via endoscope using Seldinger technique

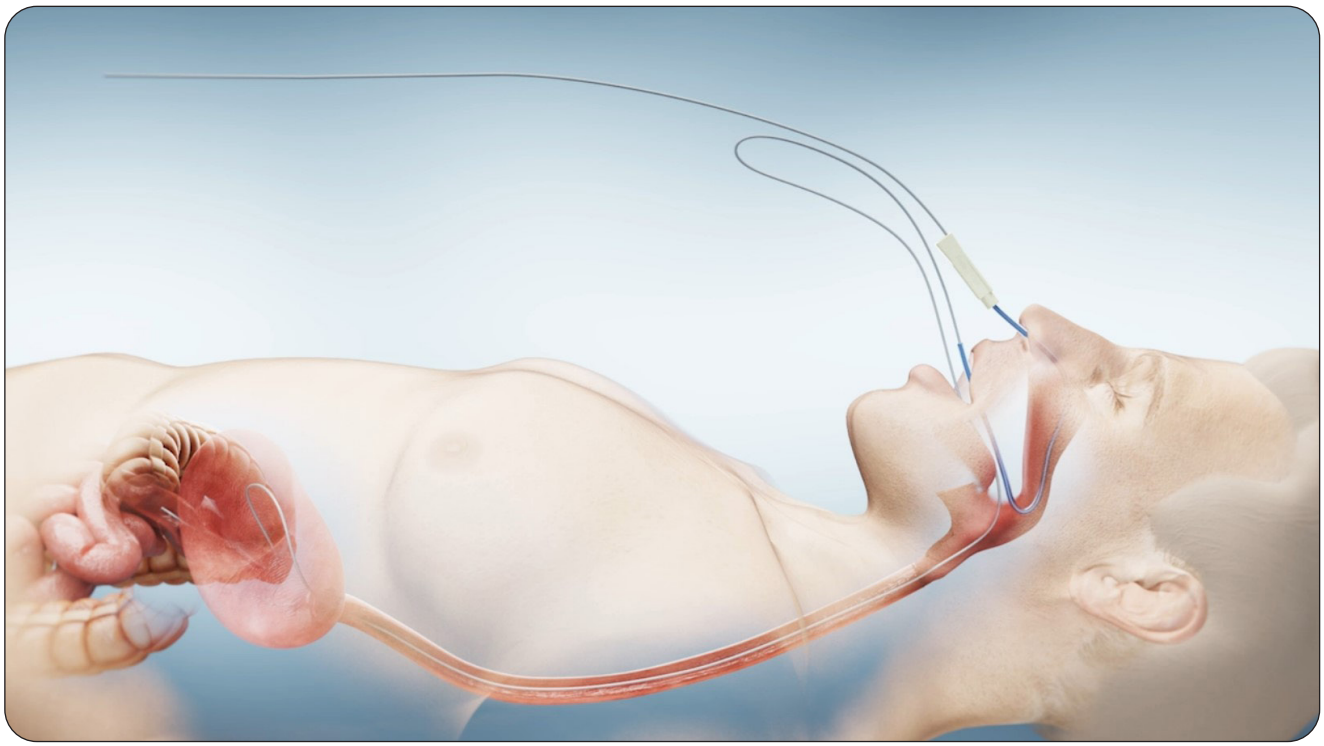


Re-route the Seldinger wire from oral to nasal. Insert the blue re-routing catheter into the nose.

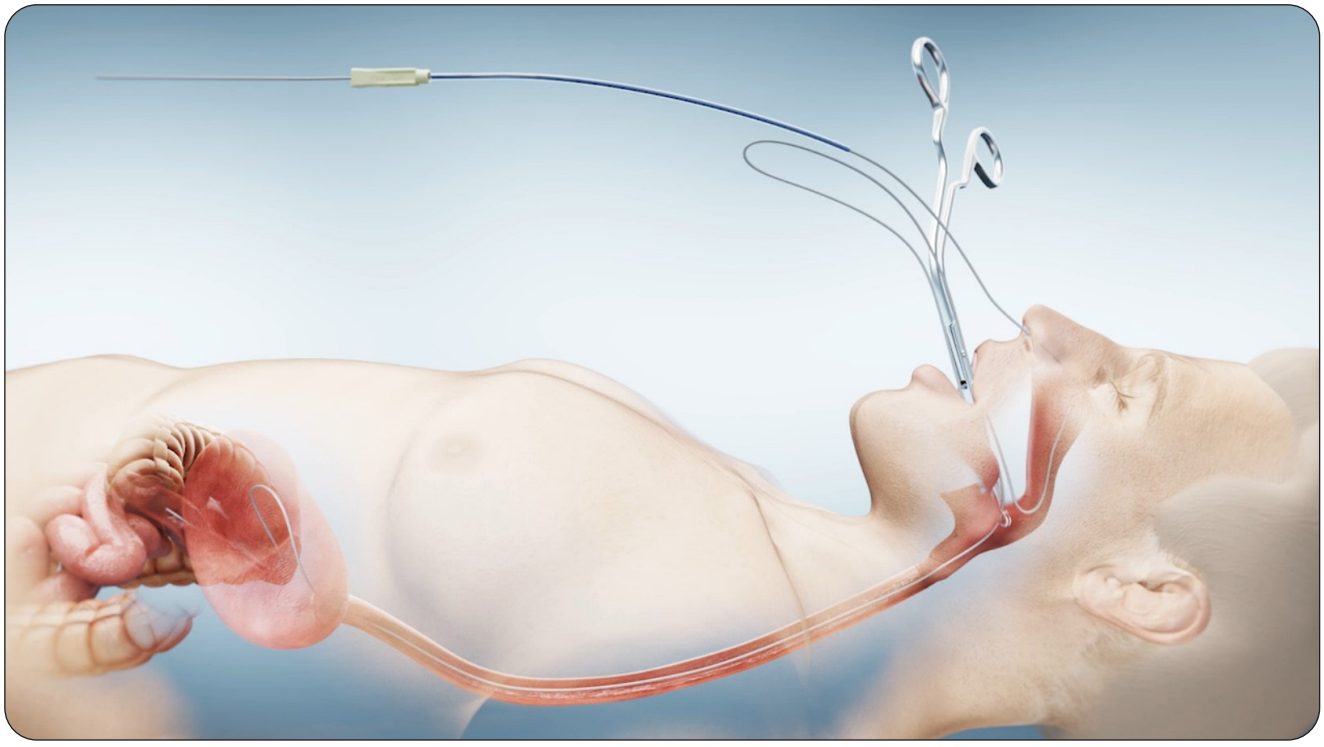


Pull the blue re-routing catheter out of the mouth using a laryngoscope and Magill forceps.

Application via endoscope using Seldinger technique

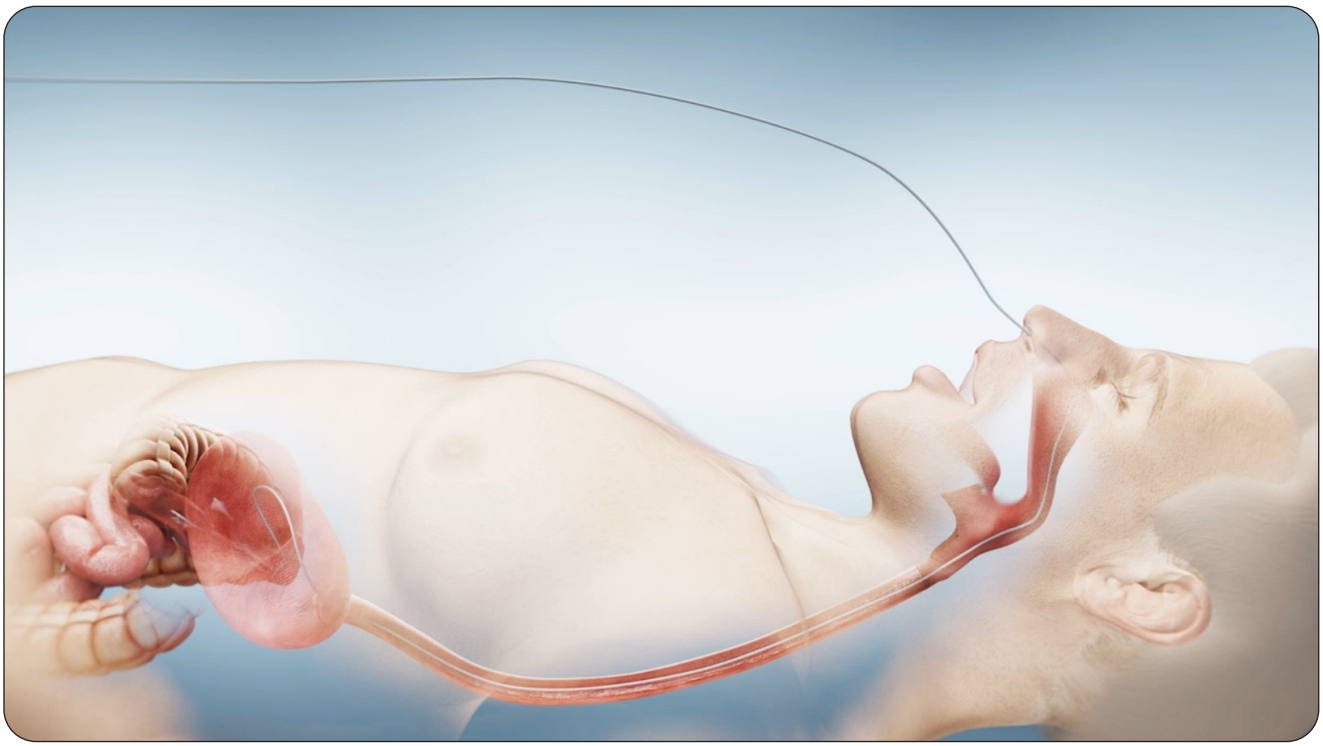


Now, re-route the Seldinger wire from oral to nasal by advancing the wire through the oral end of the re-routing catheter until it emerges from the nasal end.

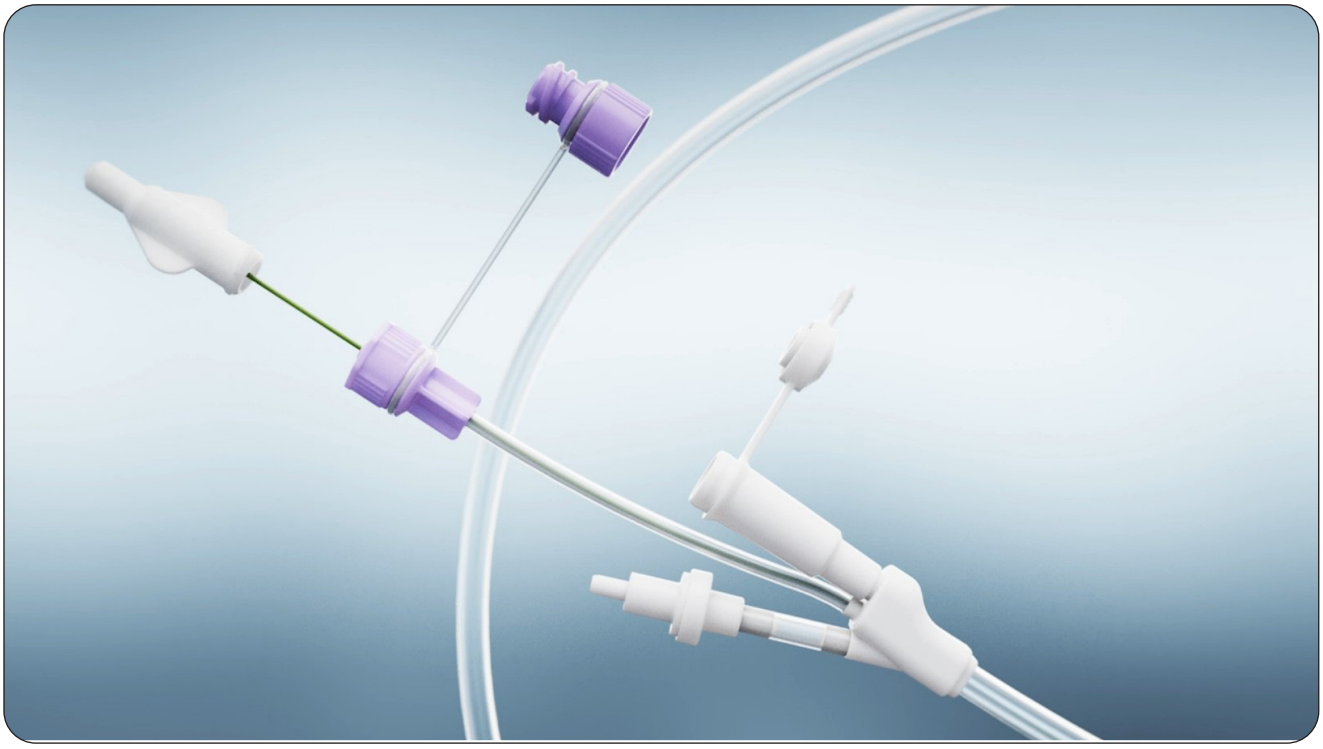


Remove the re-routing catheter. To avoid dislocation during this procedure, the Seldinger wire should be fixed in the throat with the Magill forceps.

Application via endoscope using Seldinger technique

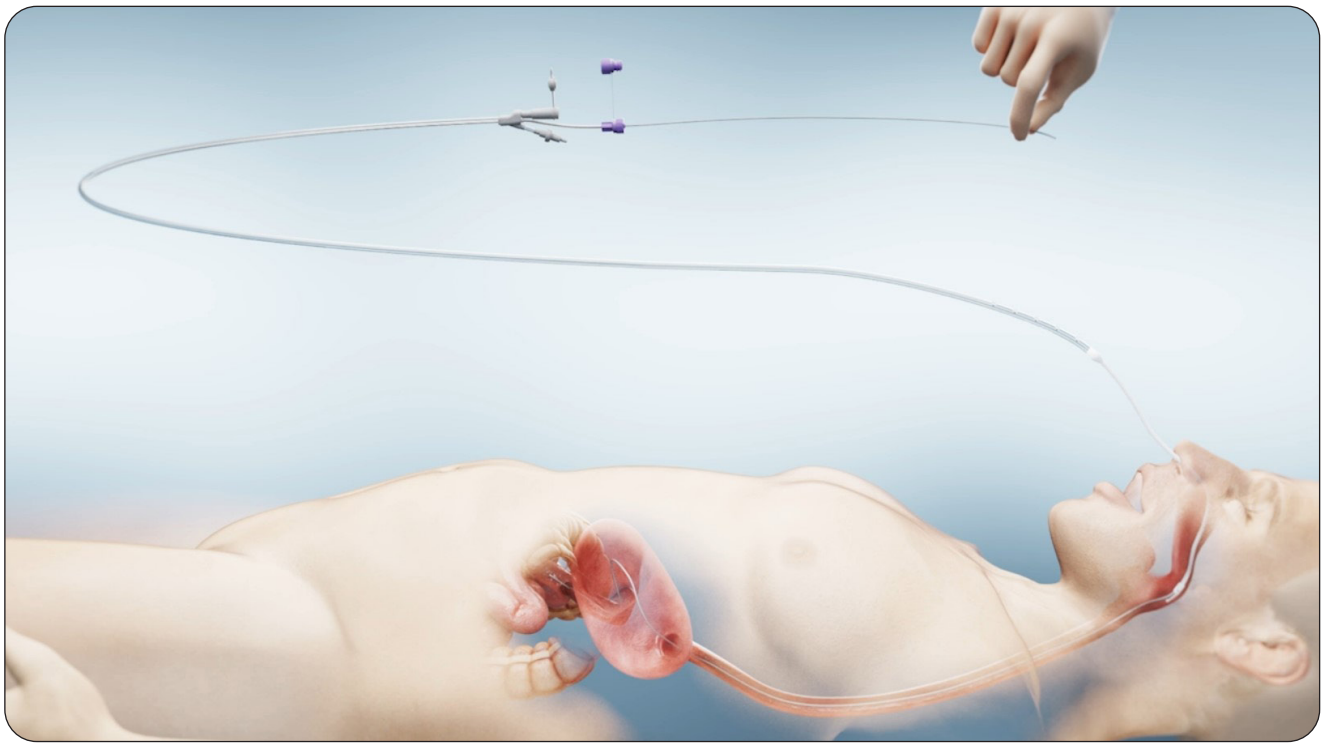


Now, you have a fully inserted Seldinger wire inserted through the nasal cavity and ending at the ligament of Treitz.

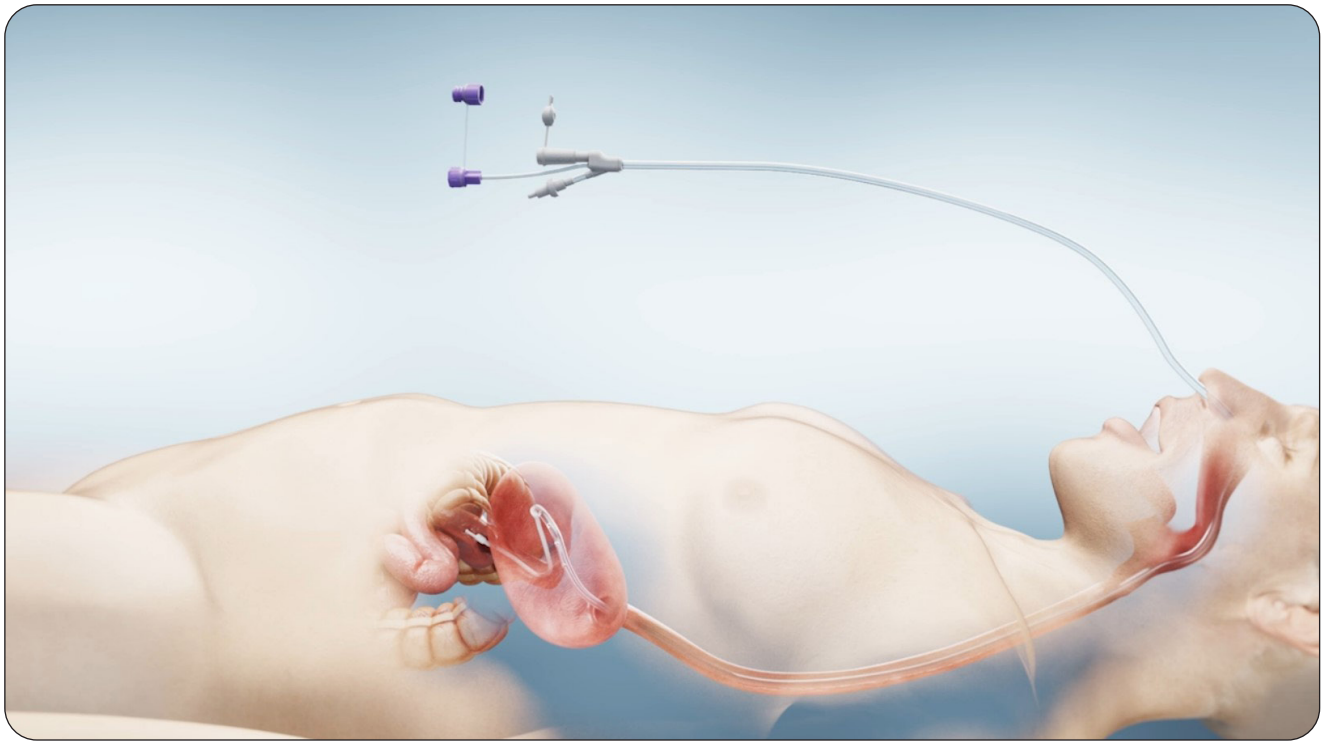


Before inserting the Freka Trelumina enteral feeding tube the mandrin must first be removed.

Application via endoscope using Seldinger technique

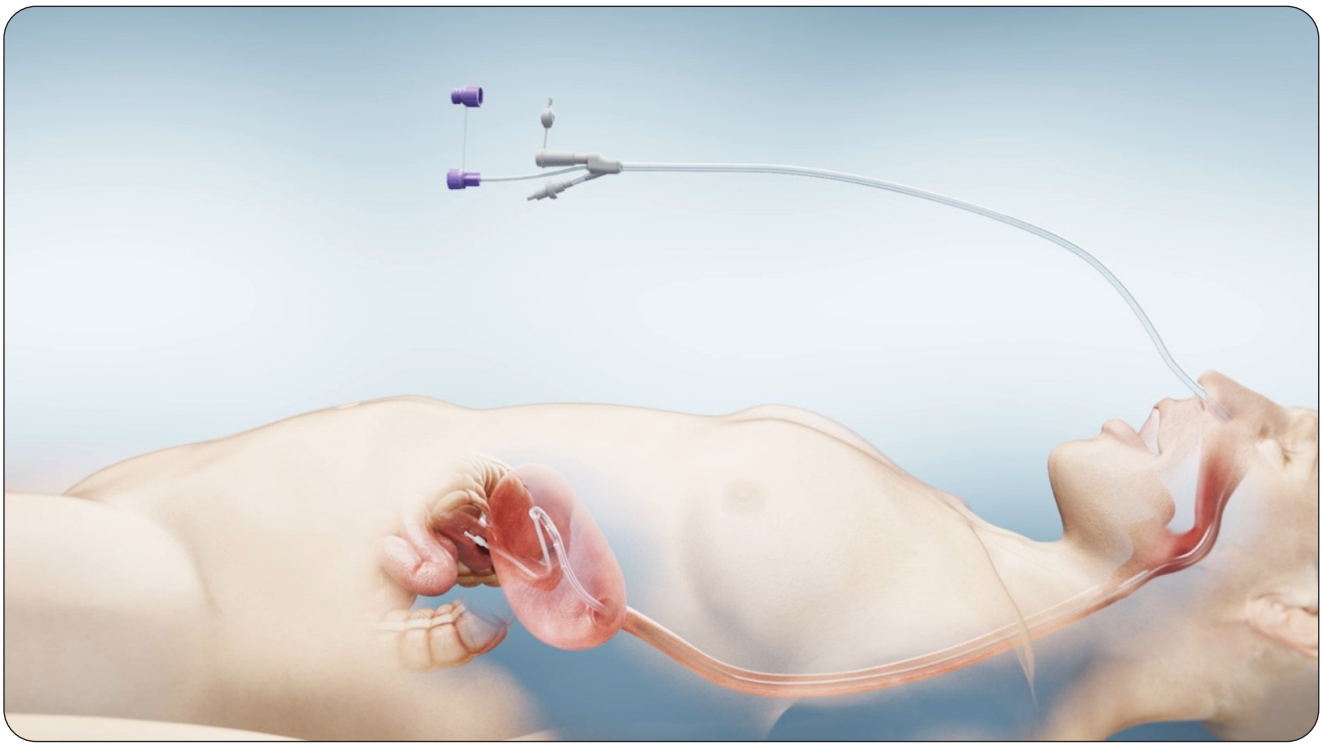


Insert the Freka Trelumina enteral feeding tube carefully via the Seldinger wire and advance it to the desired position.



During this procedure the Seldinger wire should be fixed manually at the nostril while the Freka Trelumina enteral feeding tube is advanced into final position.

Application via endoscope using Seldinger technique



After Freka Trelumina enteral feeding tube insertion the Seldinger wire can be gently removed.

Fix the Freka Trelumina enteral feeding tube in position with the plaster and confirm its position radiologically.

While it has been the objective of Fresenius Kabi to develop accurate, easy-to-follow insertion suggestions, each healthcare professional inserting this enteral product must evaluate the appropriateness of the following technique based on his or her medical training, experience and patient evaluation.

Instructions for use

Important information

Irritations of the mucous membranes can occur during or after implantation of the Freka Trelumina - as is the case for all other feeding tubes. In individual cases, gastrointestinal bleeding can also occur, especially in patients with serious coagulation disorders or microcirculation disorders of the mucous membranes e.g. due to high-dose administration of catecholamines. In this case, use of the Freka Trelumina is subject to a risk assessment by the treating physician.

Placement of feeding tube

Three different options exist for feeding tube placement: of which two have been detailed previously in this document.

Conventional transnasal placement method (using radiological confirmation)

1. Select nasal opening and clean nasal passages.
2. Anaesthetise nasal passage (local anaesthetic gel or spray).
3. Bring the patient's upper body into an upright or semi-upright position of approximately 45°.
4. Moisten feeding tube tip with gel (or water or MCT oil), dependent on placement moisten the entire feeding tube in sections.
5. Insert tip of feeding tube and cautiously push into the back wall of the pharynx using small rotating movements.
6. In unconscious patients, bend the head significantly forwards and slowly push the probe into the oesophagus. If the first marking (after approx. 50 cm) has reached the entrance to the nose, the feeding tube is generally at the gastroesophageal junction.
7. Push the feeding tube further forwards through the stomach and the duodenum into the jejunum.
8. Slowly remove the mandrin.
9. Fix feeding tube in place with adhesive tape.
10. Confirm correct position of feeding tube radiologically. The feeding tube marking at the nostril must be documented.

Important information

Do not forcibly remove the mandrin as this may alter the position of the feeding tube and damage it. To facilitate the removal of the mandrin apply water using the provided ENFit syringe or MCT oil using the Freka MediAdapter.

Conventional endoscopically controlled transnasal insertion

1. Push feeding tube into the stomach transnasally as per "Conventional transnasal placement (using radiological confirmation)".
2. Insert endoscope into the stomach via the mouth and insufflate with air.
3. Grasp the flexible feeding tube tip in the stomach with the endoscope grasping forceps.
4. Place the feeding tube through the pylorus to behind the duodenal suspensory ligament (ligament of Treitz).

Instructions for use

5. Carefully remove the mandrin.
6. When withdrawing the endoscope keep the feeding tube in position until the endoscope is situated in the stomach or oesophagus.
7. Fix feeding tube in place with adhesive tape.
8. Confirm correct position of feeding tube radiologically.
9. The feeding tube marking at the nostril must be documented.

Important information

Do not forcibly remove the mandrin as this may alter the position of the feeding tube and damage it. To facilitate the removal of the mandrin apply water using the provided ENFit syringe or MCT oil using the Freka MediAdapter.

Insertion via endoscope (Seldinger technique)

1. The patient undergoes endoscopy in a lateral or supine position. Push the endoscope forward as far as possible through the pylorus into the jejunum.
2. A Seldinger wire should initially be wetted with water. This improves sliding ability.
3. The wire is then placed in the jejunum through the working channel of the endoscope under visual observation.
4. The endoscope is removed via the wire. The wire is kept in position during counter movements.
5. The wire is now diverted from the mouth to the nose as follows:

- Wet the blue re-routing catheter with a local anaesthetic gel and carefully insert it transnasally.
- Extract the re-routing catheter through the mouth whilst viewing through a laryngoscope. Keep the pharyngeal area clear by constant suction of the secretions.
- Place the outer end of the wire positioned with the aid of an endoscope through the distal opening of the re-routing catheter and withdraw transnasally.
- Using a laryngoscope, ensure the guiding wire is stretched out on the back wall of the pharynx without looping.
- The wire is located nasojejunally after removal of the re-routing catheter.

6. The spiral mandrin situated in the jejunal feeding lumen of the feeding tube must be removed.
7. To facilitate the removal of the mandrin apply water using the provided EN Fit syringe or MCT oil using the Freka MediAdapter into the feeding tube.
8. The feeding tube is (starting from the distal open end of the feeding tube) pushed over the Seldinger wire until the desired position is attained.

Important information

To facilitate the threading of the feeding tube onto the Seldinger wire apply water into the feeding tube using the provided ENFit syringe. Keep the Seldinger wire tense when pushing the feeding tube forward to prevent dislocation.

9. Remove the wire in a slow and controlled manner.

Instructions for use

Important information
Do not forcibly remove the Seldinger wire as this may alter the position of the feeding tube and damage it.

10. Confirm correct position of feeding tube radiologically.
11. The feeding tube marking at the nostril must be documented. Fix tube with adhesive tape.

Decompression

Decompression via the gastric lumen can be performed using:
- gravity (e.g. drainage bags)
- catheter tip syringe or
- suction pump.

The vacuum arising due to the active suction process is automatically regulated due to the air supply via the ventilation lumen. During pauses and in the case of discharge using gravity, the ventilation valve shuts automatically. Consequently, no gastric secretions can enter the ventilation lumen.

Duration of use

The Freka Trelumina can remain in place for up to four weeks with careful feeding tube and nasal care. If enteral feeding continues to be necessary, the implantation of a percutaneous endoscopically controlled gastrostomy (PEG) is recommended.

Aftercare of the feeding tube

The jejunal lumen of the feeding tube must be flushed before and after every application of nutrition - at least 1 x daily with 20 mL lukewarm water, preferably with a 10-60 mL Freka Connect ENFit (enteral syringe).

The gastric decompression lumen must be flushed with water at least once daily.

Important information
No acidic fluids, especially fruit teas or fruit juices, must be used as they can cause coagulation of nutrition constituents. The feeding tube must be replaced if blocked. The feeding tube lumen must not under any circumstances be forcibly unblocked under high pressure (i.e. using a small volume syringe) or by using a mandrin. Otherwise, there is the risk of perforation of the feeding tube and injury to the patient.

Instructions for use

Application of medication

Medicinal products should preferably be administered through the feeding tube in a dissolved form. Medicinal products in liquid form are preferable.

Important Information

The feeding tube must be carefully flushed before and after every administration of medicinal product. Under no circumstances must medicinal products be administered with nutrition. The pharmacist should be consulted if in doubt.

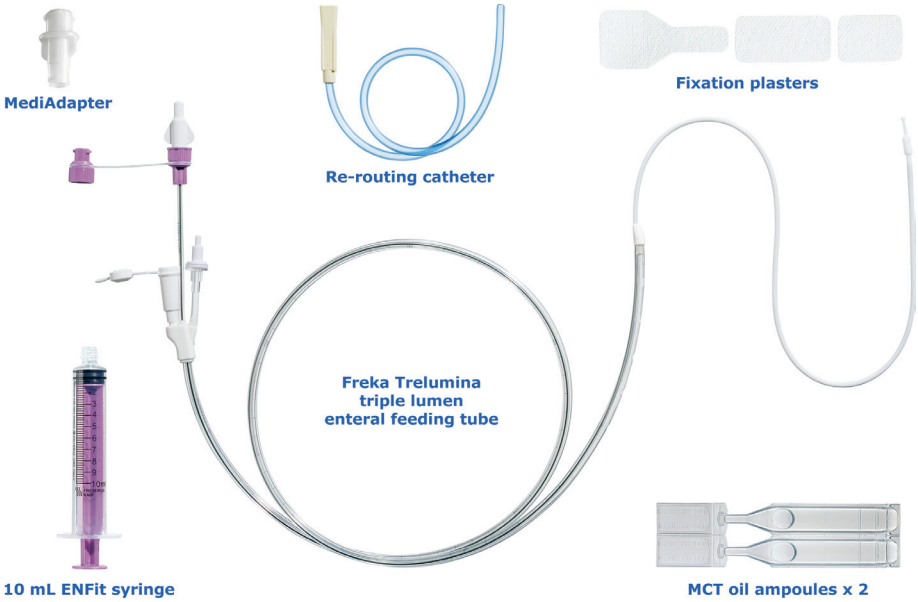
Application of nutrition

Feeding into the small intestine can commence immediately after implantation of the feeding tube. High-molecule nutrition or low-molecule oligopeptide diets can be used for jejunal tube feeding dependent on digestion and resorption performance. In any case, nutrition intake must be increased gradually. The nutrition supply must be continually pump-controlled.

Important information

Do not use an infusion pump designed for parenteral application under any circumstances (risk of route confusion).

Ordering information



Freka Trelumina with Insertion Kit

Triple lumen transnasal tube

Article code: 7981834
Sales Unit: 5 x 1

Freka Cone Adapter, ENFit

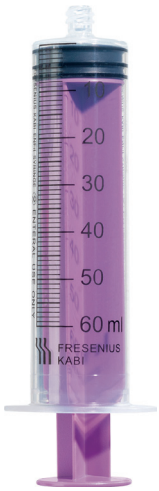
Adaptor for connection of a female ENFit connector with a funnel feeding tube or connection of an ENFit syringe for aspiration of the gastric lumen on the Freka Trelumina.

Article code: 7751562
Sales Unit: 15 x 1

Freka Universal Funnel Adapter, ENFit

For compatibility of:
- ENLock sets to ENFit feeding tubes
- ENLock syringes to ENFit feeding tubes
- For decompression with drainage bags

Article Code: 7755695
Sales Unit: 1 x 15



Freka Connect ENFit 60mL Syringe

Administration of nutrition and liquids. Compatible to male ENFit connectors. Sterile, single packed.

Article code: 9000786
Sales Unit: 50 x 1

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