

# Functions and Interventions for Gastrostomy Tubes and Jejunostomy Tubes

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# Forward



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The following training was produced in part by Georgetown University's Center for Child & Human Development as part of the the DDA Health Initiative project. This project supports the mission of the District of Columbia's Developmental Disabilities Administration, and focuses on improving the physical, behavioral and mental health supports that affect the quality of living for people with intellectual and other disabilities.

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# OBJECTIVES

Nurses will be able to:

- Compare and contrast a rationale for choosing between a g-tube placement versus a j-tube placement.
- Explain at least two nursing interventions related to g-tubes and j-tubes.
- Explain at least two potential complications related to g-tubes and j-tubes.
- Explain the difference in administration of feedings with a g-tube compared with a j-tube.





# Enteral vs. Parenteral Feeding

## Enteral

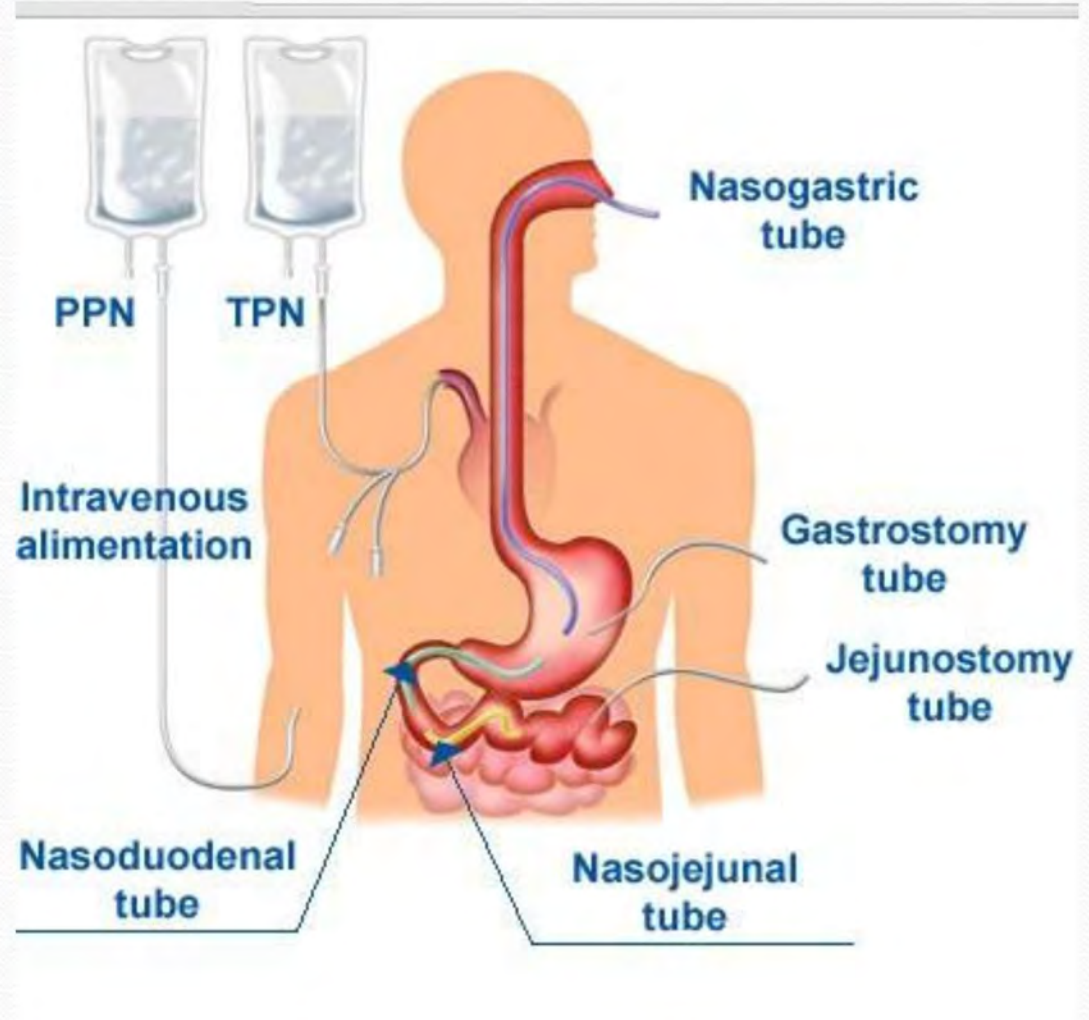
- Preferred method if person has a functional GI system
- Decreased risk of bacterial translocation and bacteremia
- PEG is currently the method of choice for medium- and long-term enteral feeding

## Parenteral

- Risks using IV route
  - Infection
- More expensive
- Potential compromise of the gut defense barrier



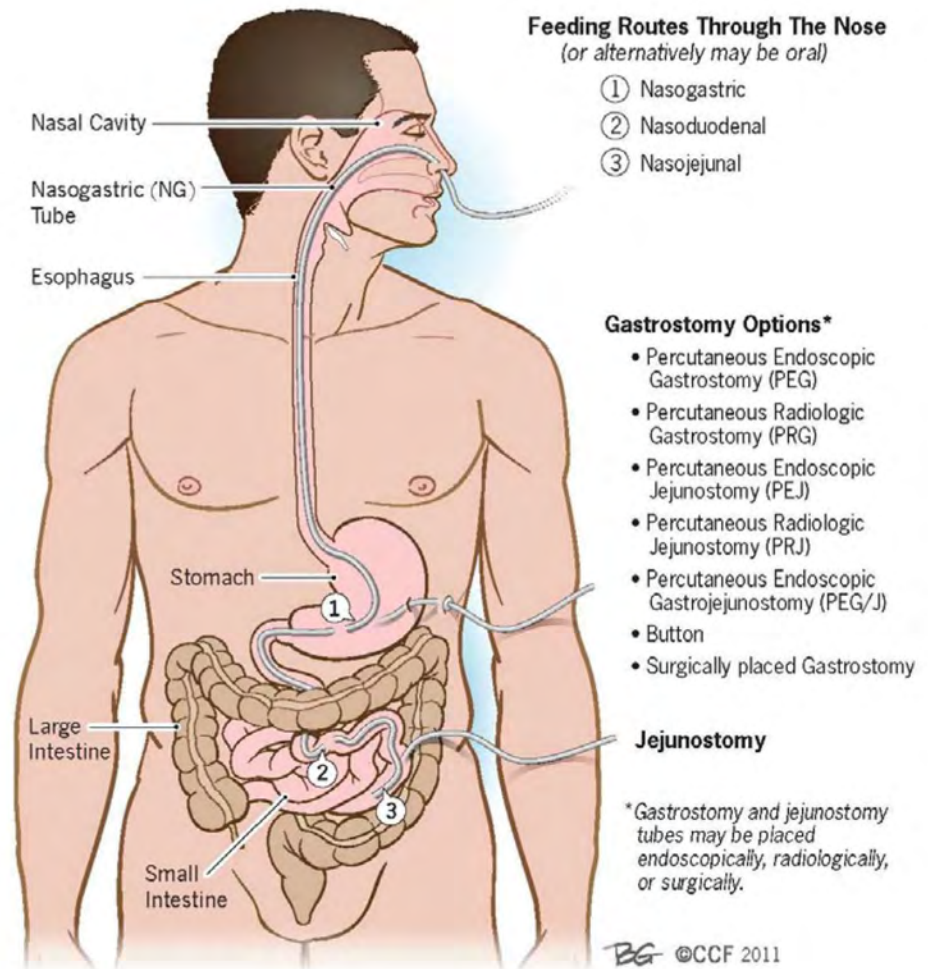
# Overview of Enteral and Parenteral Feedings



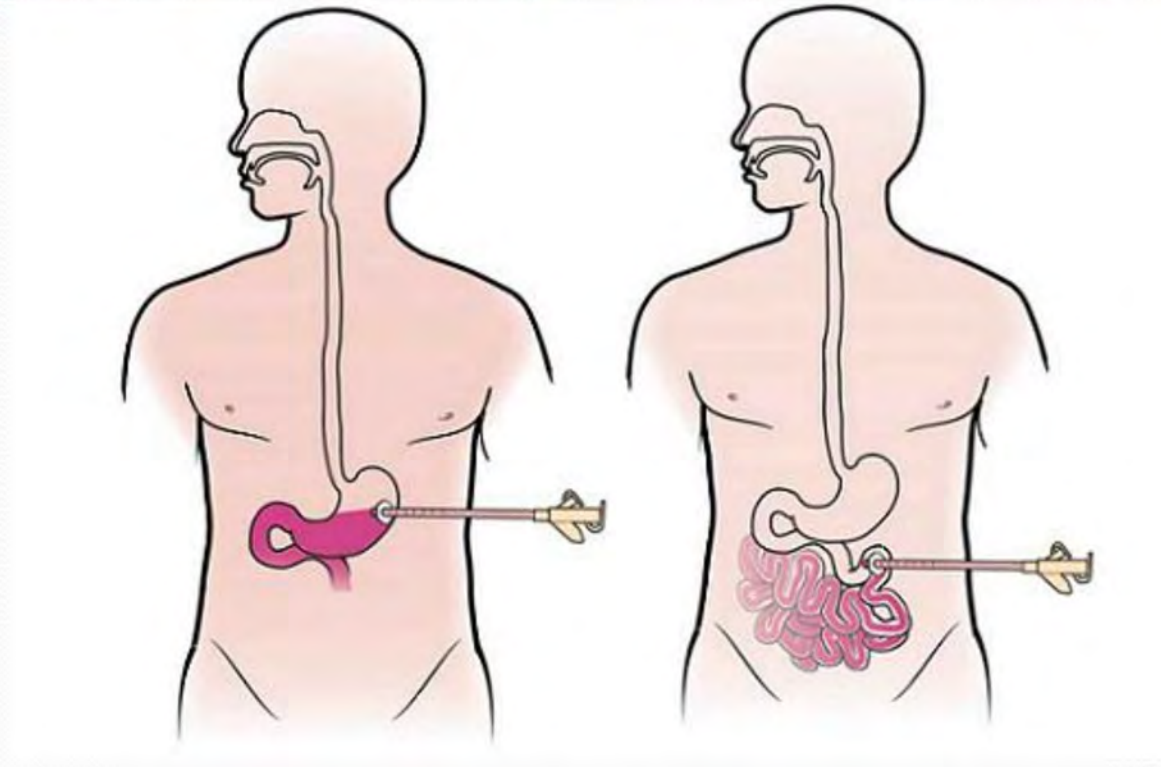


# Overview of Enteral Access

## Examples of Enteral Access

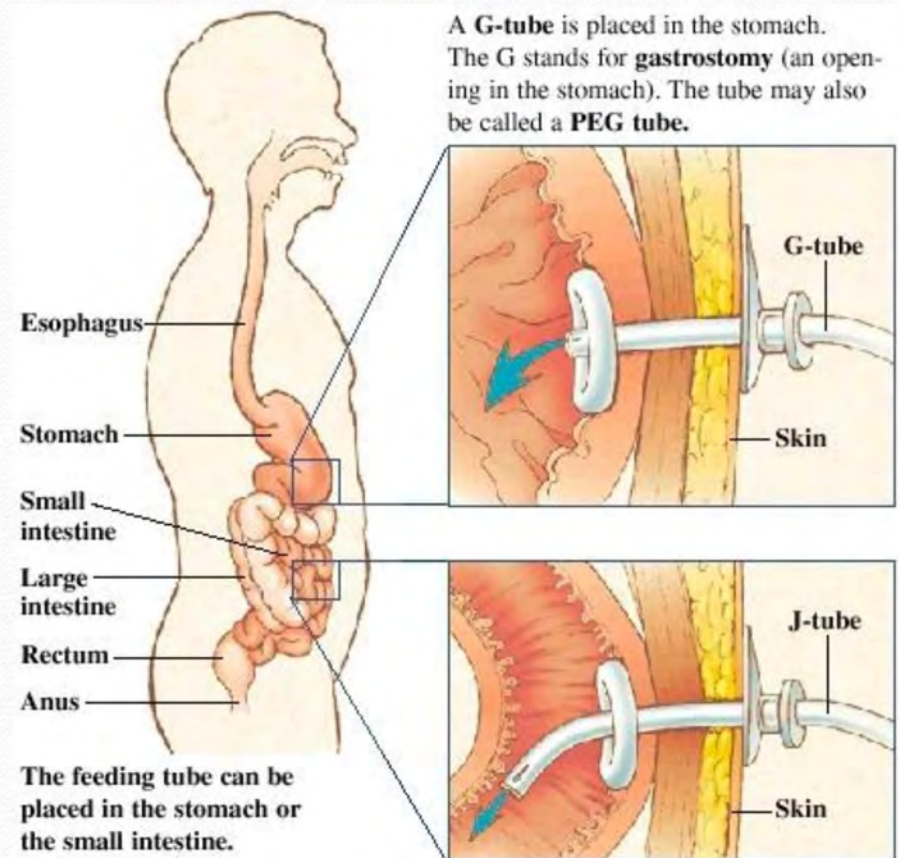


# Image Comparing Gastrostomy tube (G-tube) and Jejunostomy tube (J-tube)





# Profile View of G-tube and J-tube



A **J-tube** is placed in the small intestine. The J stands for **jejunum** (a section of the small intestine). The tube may also be called a **PEJ tube**.

In certain situations, the tube may be placed in the stomach and passed through to the jejunum.

# Timeline Determining Which Tube to Use

- Person with adequate baseline nutritional status
  - 10 days of partial fasting (with maintenance fluids via intravenous access)
- Nasoenteric tubes
  - Nasogastric, nasoduodenal, nasojejunal
  - For nutritional supports less than 30 days (for people with “intact protective airway reflexes”)
  - More complications compared to PEG tubes
    - Irritation
    - Ulceration
    - Bleeding
    - Esophageal reflux
    - Aspiration pneumonia
  - Lower subjective comfort
  - Lower feeding efficacy

(Rahnemai-Azar, A., Rahnemaiazar, A., et al., 2014)





# Indications for a G-tube

- Nutritional supports to meet metabolic requirements
  - For the purpose of removal of gastric contents
- Gastrointestinal dysmotility or gastric emptying
  - Related to inadequate oral intake as a result of the inability to swallow
- Assist with medication administration
  - Due to inability to receive medications orally
- Considered if person is at risk for moderate to severe malnourishment within 2-3 weeks of nasoenteric tube feeding
- Unclear benefits in certain populations
  - Diabetes
  - Advanced dementia
  - Elderly people over 80 years old

(Rahnemai-Azar, A., Rahnemaiaazar, A., et al., 2014)



# Study - Indications for a G-tube

- 4-year prospective study of 210 patients
  - 11.35 (+/-1.5) kg mean weight loss in three-month period before PEG tube nutrition
  - 3.5 (+/- 1.7) kg mean weight gain following 12 months feeding via PEG tube
  - Initiation of PEG tube nutrition as soon as medication necessary can prevent further weight loss
- Then another study showed close monitoring of nutrition and metabolism for people with a PEG tube did not always result in decreased weight loss

(Rahnemai-Azar, A., Rahnemaiazar, A., et al., 2014)





# Potential Indications for a G-tube

- Cancer
  - Head and neck cancer
  - Esophageal cancer
  - Burns
  - Congenital anomaly (trachea esophageal fistula)
  - Fistulae
  - Cystic fibrosis
  - Short bowel syndromes (Crohn's Disease)
  - Facial surgery
  - Poly-trauma
  - Chronic renal failure
  - HIV/AIDS
  - Gastric decompression
  - Abdominal malignancy
  - Neurological diseases
  - Psychomotor developmental delays
  - Cerebrovascular disease
  - Motor neuron disease (ALS)
  - Multiple sclerosis
  - Parkinson's Disease
  - Cerebral palsy
  - Dementia
  - Cerebral tumor
  - Reduced level of consciousness
  - Head injury
  - Intensive care patients
  - Prolonged coma
- (Rahnemai-Azar, A., Rahnemaiazar, A., et al., 2014)



# Contraindications for a G-tube

- Serious coagulation disorders
- Hemodynamic instability
- Sepsis
- Severe ascites
- Peritonitis
- Abdominal wall infection at the selected site of placement
- Marked peritoneal carcinomatosis
- Interposed organs (liver, colon)
- History of total gastrectomy
- Gastric outlet obstruction (if the PEG is being used for feeding)
- Lack of informed consent for the procedure

(Rahnemai-Azar, A., Rahnemaiaazar, A., et al., 2014)





# Special Considerations for a G-tube

- Prior abdominal surgery
  - Post confirmation of a “safe tract” with no interposed bowel
- Obesity
  - Minor modifications
- Pregnancy
  - Complicated with potential risks of uterine and fetal injury
  - With special precautions, successful procedure with no major complications at 29-weeks gestation
- Ascites
  - Concerns of ascetic fluid leakage
  - Successful insertion after paracentesis or modifying placement technique
  - Cirrhosis and ascites had a higher mortality rate
    - Risks of PEG placement for people w cirrhosis and ascites outweigh the overall benefits

(Rahnemai-Azar, A., Rahnemaiaazar, A., et al., 2014)



# Pre-Op Preparations for G-tube Placement

- Informed consent
  - Several studies found that information was inadequate (lacking complete information on benefits and risks of procedure and tube feeding)
- Fast overnight (at least 8 hours)
- Prophylactic antibiotics one hour before tube placement
  - Ideal “gold standard” is 1-2 grams cephazolin one hour before tube insertion





# Insertion Techniques for PEG tube

- 3 most commonly used techniques in clinical practice
  - “pull” technique
  - “push” (guide wire) technique
  - introducer (Russell) method

# Insertion Techniques for PEG tube

- 1<sup>st</sup> critical step for all three
  - Locating the tube insertion site using endoscopic trans-illumination and one to one indentation



# Insertion Techniques for PEG tube

- “Pull” technique
  - Most common technique
  - String inserted through a needle in the abdominal wall and into the stomach
  - Grasped with endoscopic biopsy forceps
  - Taken up the esophagus and out through the mouth
  - String is attached to the external end of the feeding tube
  - Tube is pulled into the mouth, down the esophagus, into the stomach, then out through the abdominal wall



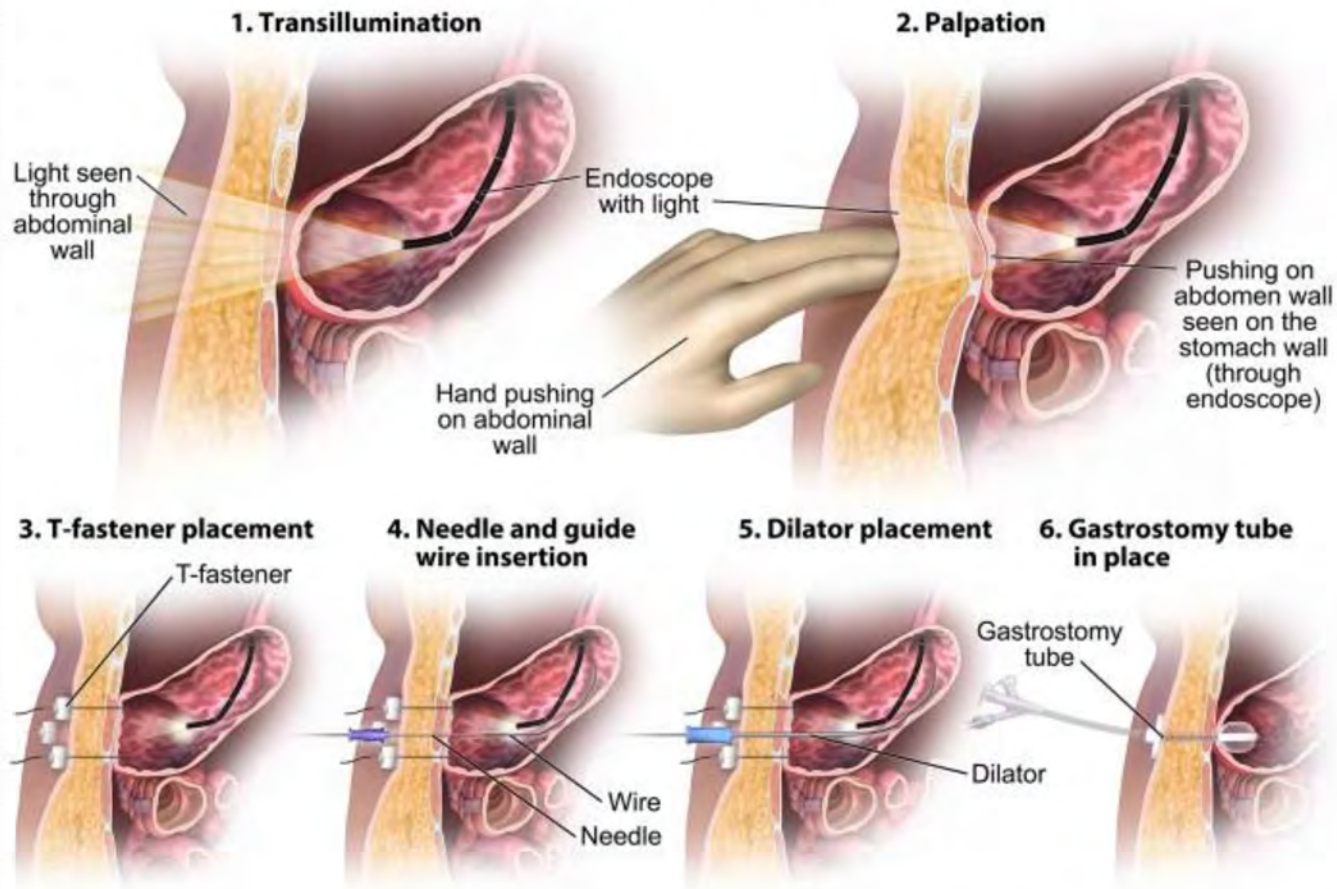
# Insertion Techniques for PEG tube

- “Push” technique
  - Guide wire is inserted into the stomach
  - Pulled up the esophagus and out through the mouth with the endoscope
  - Feeding tube is attached to the guide wire and pulled back into the mouth, down the esophagus, into the stomach, and through the puncture site (abdominal wall)



# Correct Placement Using the Push Technique

## Correct PEG Tube Placement Using the Push Technique



# Insertion Techniques for PEG tube

- Introducer (Russell) technique
  - Guide wire is inserted into the stomach using the Seldinger method
  - Pulled up the esophagus and out through the mouth with the endoscope
  - Dilating catheter and sheath are passed over the guide wire and the feeding tube is advanced through a peel-away sheath



# Types of G-tubes

- Long-term protruding tube
- Skin level low profile g-tube

# Protruding tube versus Profile Button

- Long-term protruding g-tube
  - Risk of peristomal leakage
  - Risk of inadvertent catheter dislodgement
  - Cosmetic concerns
  - Can be replaced once stoma canal has matured
- Skin level low profile button g-tube
  - Higher cost
  - More frequent replacement (every 6 months)\*\*\*\*\*
  - Often reserved for adolescent patients (cosmetic)
  - Can be placed once stoma has matured



# Nursing Interventions for a G-tube

- Frequent observations immediately after placement
  - Every 15 minutes for the first 3 hours
  - If stable, every 30 minutes for further 3 hours.
  - If stable, every 6 hours for the next 12 hours
  - If stable, continue for 72 hours, and then as ordered/needed.

(Haywood, S., 2012)



# Nursing Interventions for a G-tube

- Assess
  - Temperature
  - Blood pressure
  - Respiratory rate
  - Oxygen saturation
  - Pain score
  - Monitoring for nausea
  - Sedation score

Haywood, S. (2012). "PEG feeding tube placement and aftercare." *Nursing Times*; 108: 42, 20-22.





# Nursing Interventions for a G-tube

- Assess
  - Skin around insertion site
  - Fixation plate for 1 cm distance from skin
  - Patency
    - NPO and nothing per PEG for four hours
    - After four hours, flush with 50 ml sterile water.

(Haywood, S., 2012)

(Rahnemai-Azar, A., Rahnemaiazar, A., et al., 2014)



# Nursing Interventions for a G-tube

- Daily skin care
  - Prevent infection
  - Assessment (skin integrity, leakage, tube integrity, tube patency)
- Medication administration and feedings, as ordered
  - Follow the doctor's orders for medication administration and flushes
- Flushes, as ordered
  - Patency

(Haywood, S., 2012)

(Rahnemai-Azar, A., Rahnemaiazar, A., et al., 2014)





# Nursing Interventions for a G-tube

- Red Flag Alerts
  - Severe pain
    - Not relieved by analgesia
    - Made worse when using the tube
  - Leakage of fresh bleeding or gastric fluid
  - Sudden change in observations
  - Change in level of consciousness or behavior

(Haywood, S., 2012)



# Complications of G-tube Placement

- Minor

- Wound infection
- Tube leakage to abdominal cavity (peritonitis)
- Stoma leakage
- Inadvertent PEG removal
- Tube blockage
- Pneumoperitoneum
- Gastric outlet obstruction
- Peritonitis

- Major

- Aspiration pneumonia
- Hemorrhage
- Buried bumper syndrome
- Perforation of bowel
- Necrotizing fasciitis
- Metastatic seeding
- Liver injury

(Rahnemai-Azar, A., Rahnemaiazar, A., et al., 2014)





# Pulmonary Complications Associated with G-tube Placement

- Pulmonary aspiration
  - Oral secretions
  - Gastric and small bowel contents

# Metabolic Complications Associated with G-tube Placement

- Refeeding Syndrome
  - Electrolyte depletion
  - Fluid shifts
  - Glucose derangements
    - Occurs when nutrition and fluids are reinstituted



# Gastrointestinal Complications Associated with G-tube Placement

- Diarrhea
- Constipation

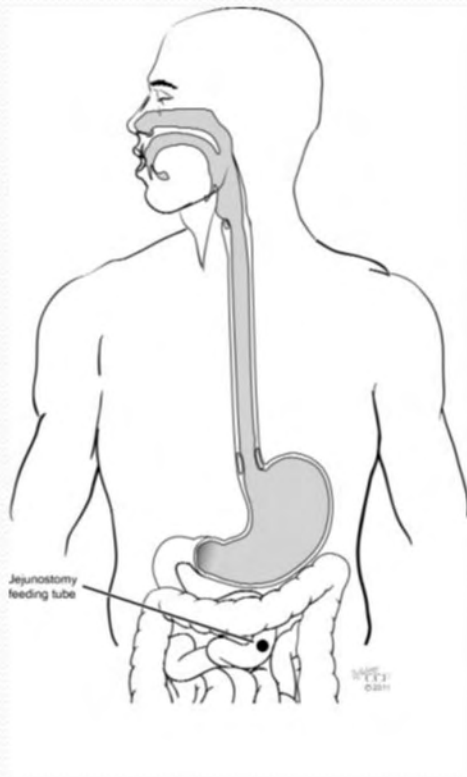
# What is a Jejunostomy Tube?

- It is a surgical procedure where the tube is implanted through your skin into the small bowel (Jejunum)
- Stomach is entirely bypassed
- It permits feeding to be moved to the small intestine mainly to give nutrients
- Placed by surgeons or interventional radiologists under fluoroscopy
- Verify initially via fluoroscopy or X-Ray
- The choice of the tube depends on the individual's condition and the physician's preference based on the person's medical condition

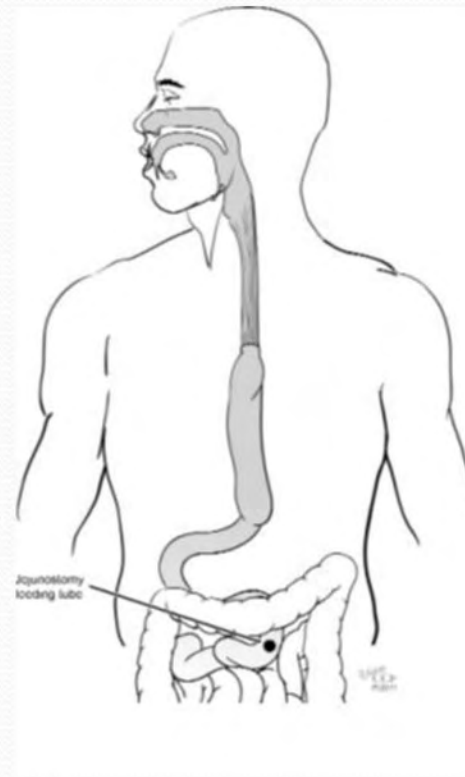


# Images

Jejunostomy  
Feeding Tube



Surgically-placed  
Jejunostomy tube



# Indications for J-tube Placement

- Dysphagia or when major surgery is done in the upper portion of the G.I tract
- High risk for aspiration – away from the lung
- Pathology – for example: gastroparesis – delayed emptying/stopped movement of the stomach and/or excessive vomiting
- Surgical procedures of the esophagus or other organs in the stomach area
- Extensive abdominal post op recovery patients with estimated longer period of recovery
- Prolong fasting period to rest the stomach due to illness such as excessive production of toxic enzymes in the stomach, e.g. liver (metastatic)
- Recommended for the elderly undergoing chemo and radiation patients





# Contraindications for J-tube Placement

- Bleeding
- Unable to safely access route
  - Stomach cancer
  - Very large ascites



# Nursing Interventions for a J-tube

- Involve in discharge planning
- Training all personnel working directly with the person prior to discharge
- Report any concerns or issues to the doctor
- Involve family if possible
- Secure all appropriate equipment
- Implement j-tube feeding policy and procedures as per state's guidelines and nursing scope of practice
- Need to schedule a routine replacement and/or appointment, per surgeon recommendations





# Complications – When to Call the Physician

- Tube migration/Dislocation – moving from its original area to another area; do not rotate tube
- Fistula – skin or abdominal abscess
- Pneumatosis – air or gas forming under the skin pocket
- Occlusion/Obstruction – clogging or kinking tubes
- Intestinal ischemia – scarred tissues from the insertion site build up and become non-functional
- Infections – from improper feeding techniques – redness, swelling, warmth, or fever of 99 degrees F – 100 degrees F or as ordered by the PCP
- Stomach pain and getting worst
- Nausea/vomiting, chills, diarrhea, weight loss, decrease urination
- Drainage or bleeding from the tube site



# Care of the Tube

- Wash hands with soap and water.
- Clean around the tube site with soap or warm water, or as ordered.
- Pat the skin dry.
- (Use provider's protocol and as ordered by the PCP).





# Administering J-tube Feeding

- Do not check for placement and change all medications to liquids, if possible, due to frequent clogging of tube (tube is very small and thin).
- Administer feedings, as ordered.
- Follow provider's protocol and state guidelines.
- Frequent mouth care and elevate head of bed.



# Rationales for Choosing Between a G-tube versus a J- tube

## G-TUBE VERSUS J-TUBE

Medical device, inserted in the stomach via a small abdominal incision.

Used to provide the necessary medications and nutrition, to release stomach gases, and for gastric drainage.

Can be placed endoscopically and surgically. The surgical placement can be through a small incision with the help of a laparoscope, or through a larger incision.

Most of the G-tubes can be changed at home.

Appropriate for patients with swallowing difficulties, due to esophageal atresia, stroke, tracheoesophageal fistula, etc.

Feeding through G-tube is faster than with J-tube because the stomach has expandable area and fundus.

Possible issues with irritation and granulation tissue.

Medical device, inserted into the middle part of the small intestine (the jejunum).

Used to provide the necessary medications and nutrition.

Can be placed endoscopically, laparoscopically, via gastric bypass procedure or Roux-en-Y.

Most of the J-tubes cannot be changed at home.

Appropriate for patients with chronic vomiting, low gastric motility, or at high risk for aspiration.  
Placed to individuals to whom G-tubes are not recommendable.

Slow continuous feeding with a pump.

16-20 hours per day, for some patients - 24 hour feeding.

More problems with irritation and granulation tissue can be expected.





# Types of feedings

- Bolus feeding
- Continuous feeding



# Image – Introducer, Tubing, Clamp, Access Port

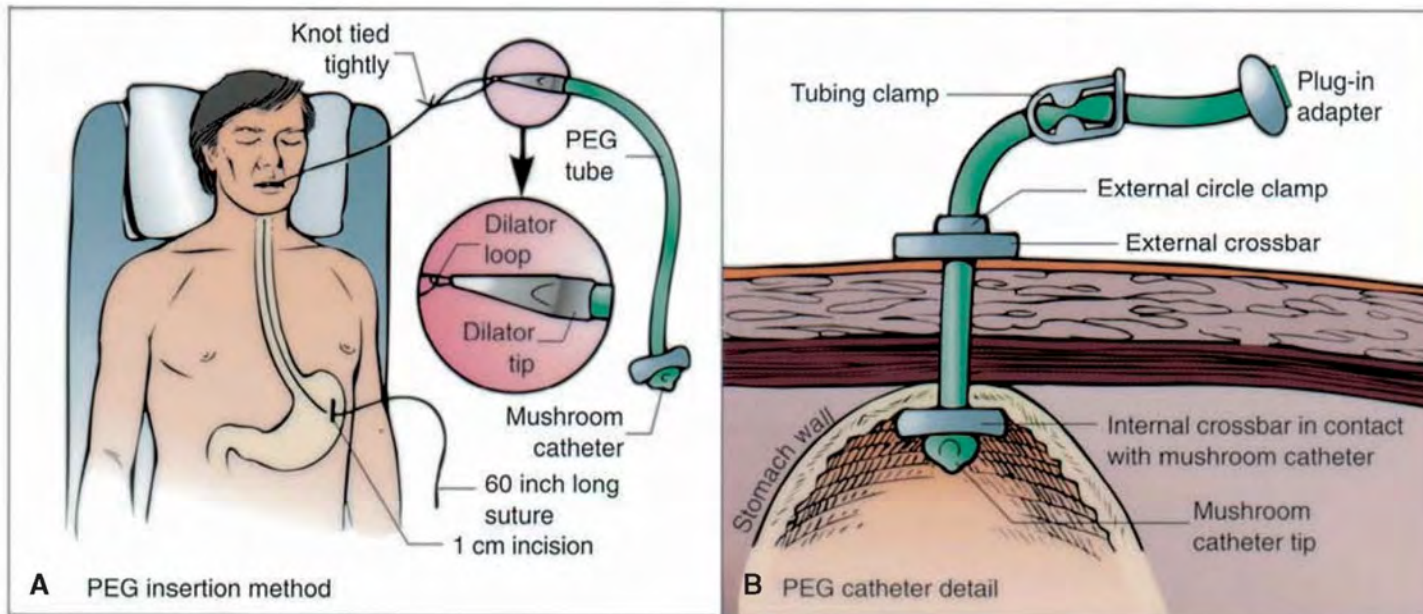




# Image – Balloon, Tubing, Access ports

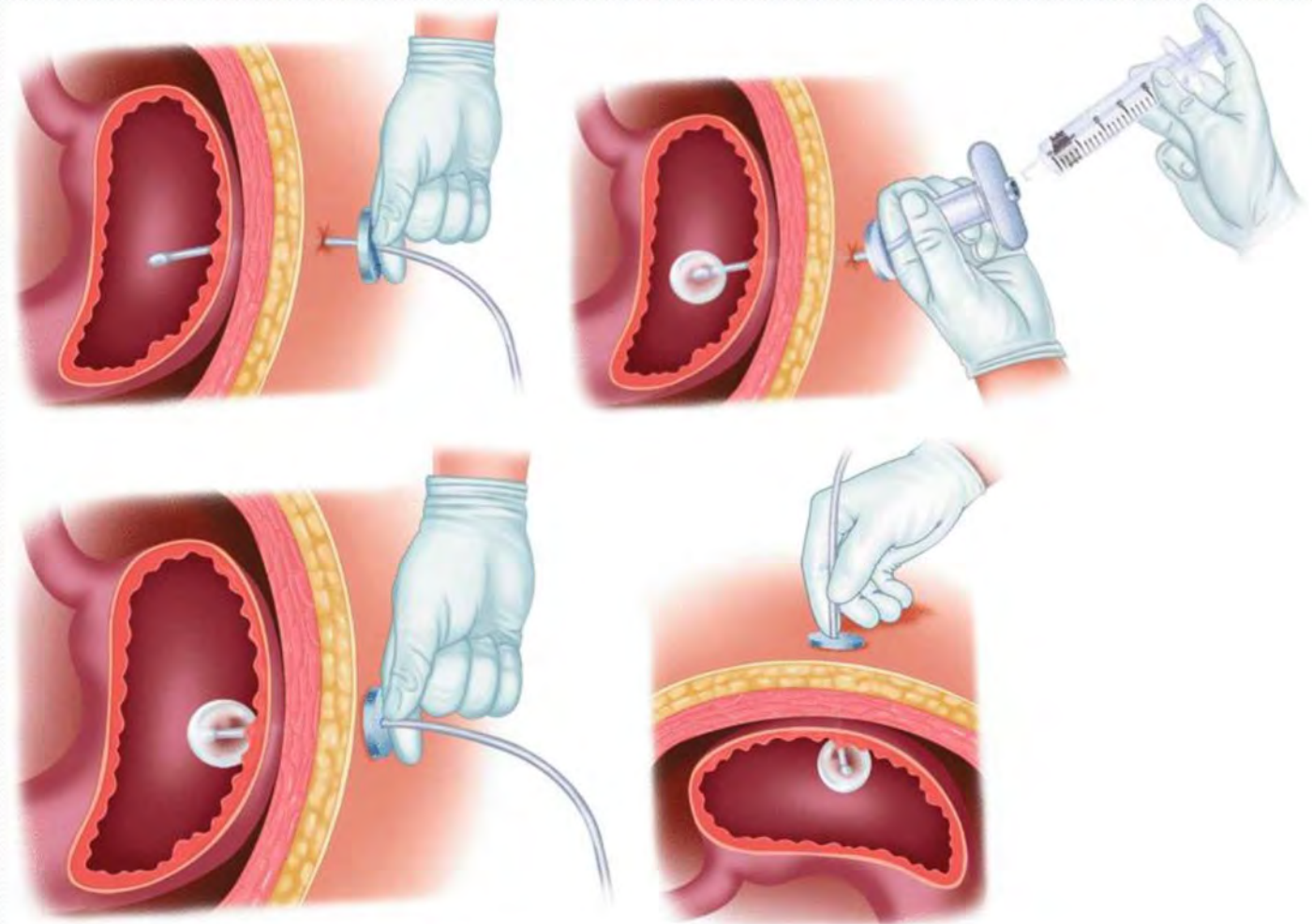


# Image – Insertion





# Image – Tube Placement with Balloon



# Image – Profile Button





# Video – Inserting a PEG Tube

- <https://www.youtube.com/watch?v=fS1ao7pHNmM>



# Video – Inserting a PEG Tube

- <https://www.youtube.com/watch?v=5Hz-3rj5GoY>





# Video – Changing the Feeding Tube Button

- <https://www.youtube.com/watch?v=6dxBQP34-7E>



# Video – J-tube Placement

- <https://www.youtube.com/watch?v=XWoHVSDuyh4> (no audio)
- <https://www.youtube.com/watch?v=zStlCAW4Bj4> (with audio)
- <https://www.youtube.com/watch?v=f6kBOoVVKoU> (interview re formulas)



# Case studies

- are included to encourage RNs and LPNs to critically think in various situations.



# Case study # 1

- Ms. RT has a PEG tube for 3 and half years. Recently, she has been having behaviors recently of pulling out her tube. She has pulled out her tube 3 times.
- What will you do?





# Case study # 1

- Things to consider...Person-Centered Thinking approach!!
  - What is causing this sudden behavior?
    - Itchy skin
    - Irritation around g-tube site
    - Pain
    - Gas
    - Clothes worn
  - Any triggers?
    - Excited
    - Bored
    - Anger
    - Frustrated
    - Attention seeking
    - Particular staff

# Case study # 1

- Have you tried this?
  - Skin assessment... Change skin moisturizer to something more suitable for dry skin.
  - Is an allergic reaction causing the itching?
  - Ensure that the surrounding area of the g-tube insertion site is not red and is free of irritation. If not, get it treated right away.
  - Assess and treat for pain and gas, as needed
  - Make sure clothes aren't too tight, or pinching/poking the skin.
  - Maybe he/she doesn't want to feel the tube against the skin? Look for ways to prevent that.
- Behaviors must be assessed and addressed accordingly. Safety First!
  - Know your person...what makes them happy, what do they enjoy?
  - Keep your person occupied with activities that interest her.
  - Does this behavioral concern happen with a particular staff?
  - Does she need to be seen by her psychiatrist or psychologist?





# Case study # 2

- Mr. CD's PEG tube site is leaking fluid from the site.
- What would you do?



# Case study # 2

- Do not keep the person at home.
- Take him/her to the ER. Call the PCP.\*\*\*\*\*





# Case study # 3

- On Sunday evening, while trying to feed Ms. JW via her PEG tube, you noticed resistance from the tube.
- What do you do?



# Case studies

- Try these simple steps to unclog a g-tube
  - 1. Attach a 60mL syringe to the feeding tube and pull back on the plunger to remove as much fluid as possible.
  - 2. Administer 10mL of warm water. Gently move the plunger back and forth to help loosen the blockage.
  - 3. If the blockage does not clear, clamp the tube for at least 5-15 minutes, allowing the warm water to soften the clog. If you can see the clog, massage that portion of the tube gently with your fingers.
  - 4. Unclamp the tube and repeat steps 2 and 3.
- Prevent clogs by flushing the tube with water before and after each use, administering medications separately from one another and using diluted liquid forms of medications when possible.



# Documentation for a G-tube and J-tube

- How and what do you document?
  - Important information to include in your documentation.
    - Date/Time
    - Type of feeding
    - Duration and rate
    - Calorie intake
    - Total ml of feed
    - Total ml of water flushes
    - Frequency and number of flushes
    - Dressing change, if done
    - How did the stoma site of the g-tube appear (redness, discharge, skin breakdown)?
    - How did the person tolerate the feeding?



# QUESTIONS ???





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# Check It Out!

- <https://oley.org/page/ChoosingTheRightTube?>
- <http://www.mitoaction.org/blog/june-mito-meeting-ins-and-outs-alternative-nutrition>
- [https://www.the-](https://www.the-hospitalist.org/hospitalist/article/123197/tube-or-not-tube)
- <hospitalist.org/hospitalist/article/123197/tube-or-not-tube>