

Optimal Nutrition for Gastrointestinal Dysmotility



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Disclosure:
ThriveRx Home Infusion
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Objectives

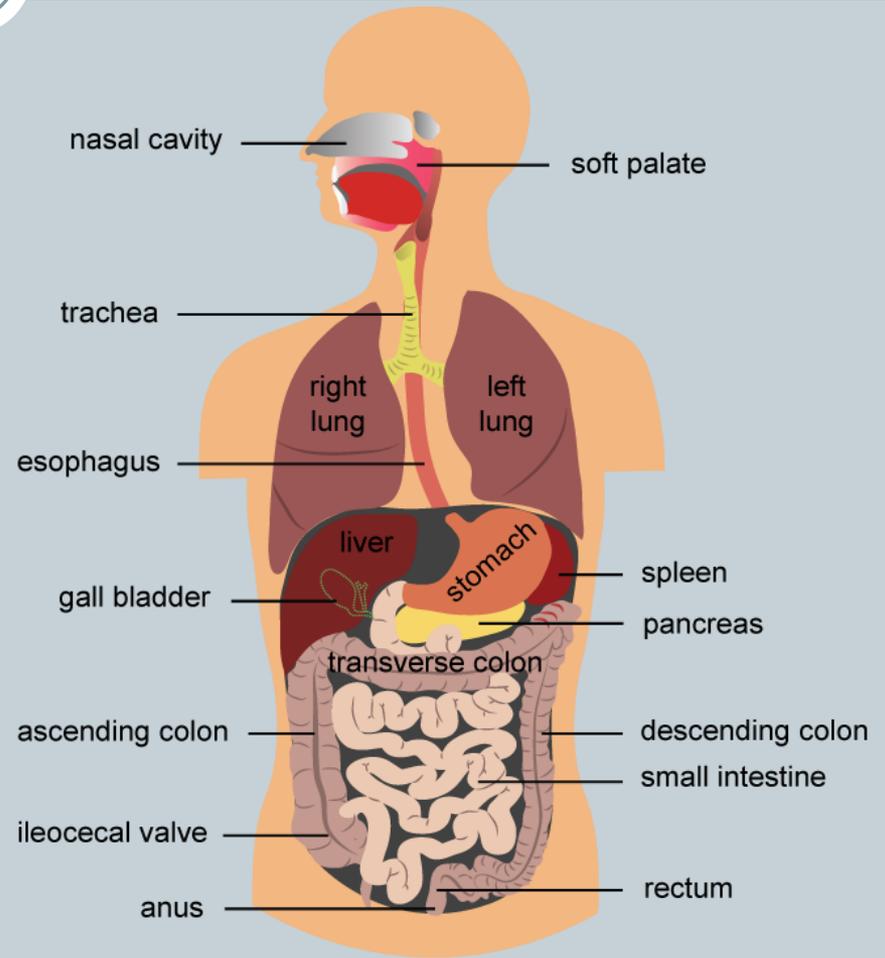


- Define gastrointestinal-(GI) dysmotility and its clinical presentation
- Name two treatment options for GI dysmotility
- Name the three essential macronutrients needed for proper growth and promotion of energy
- Name three signs of dehydration.

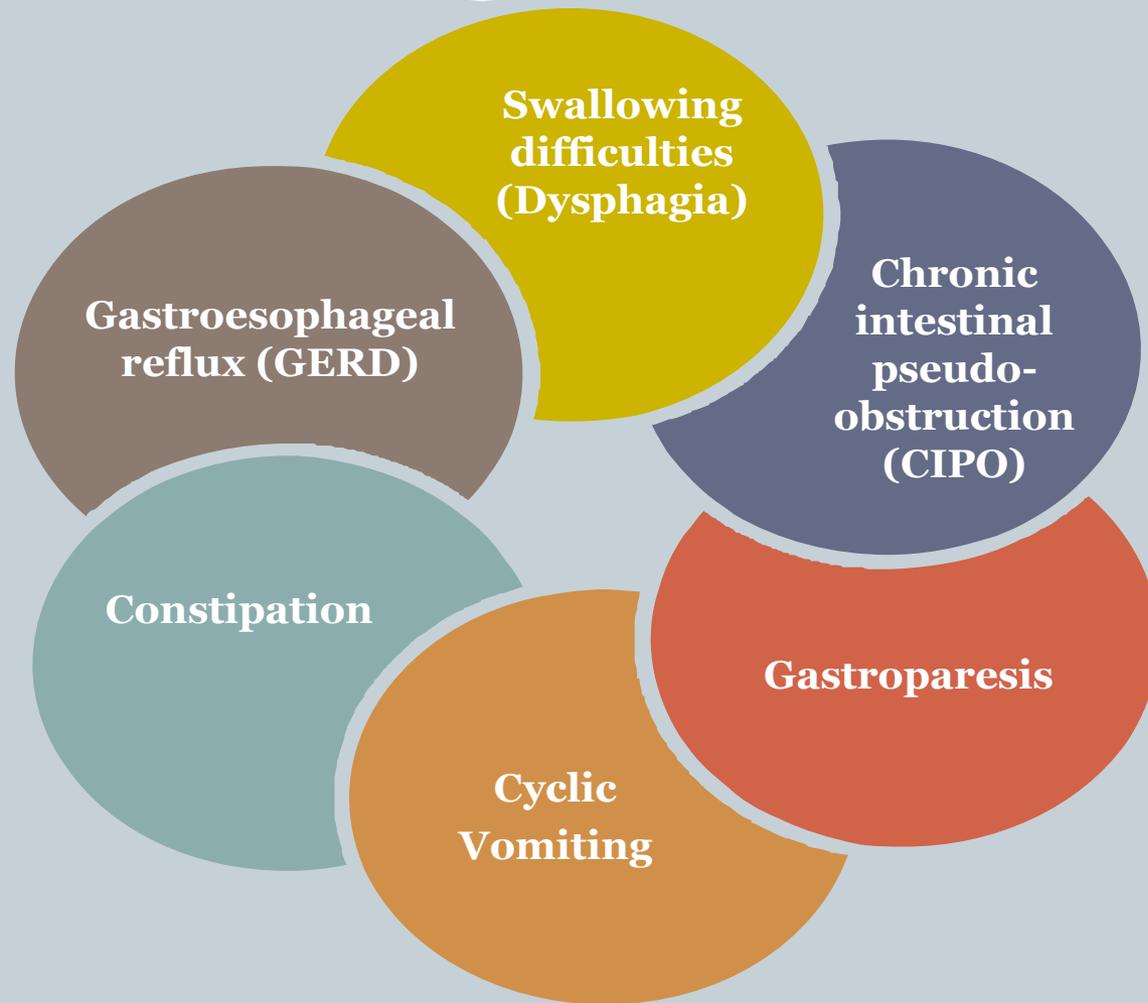
What is GI Dysmotility?

Gastrointestinal Dysmotility

Any abnormality within the GI tract that prevents food/nourishment in a solid or liquid form from moving in a downward fashion-(antegrade) to and through the intestines where absorption occurs.



Presentation of GI Dysmotility



Treatment Options for GI Dysmotility



****Treatment for dysmotility is often symptomatic****

Treatment options include:



Motility drugs

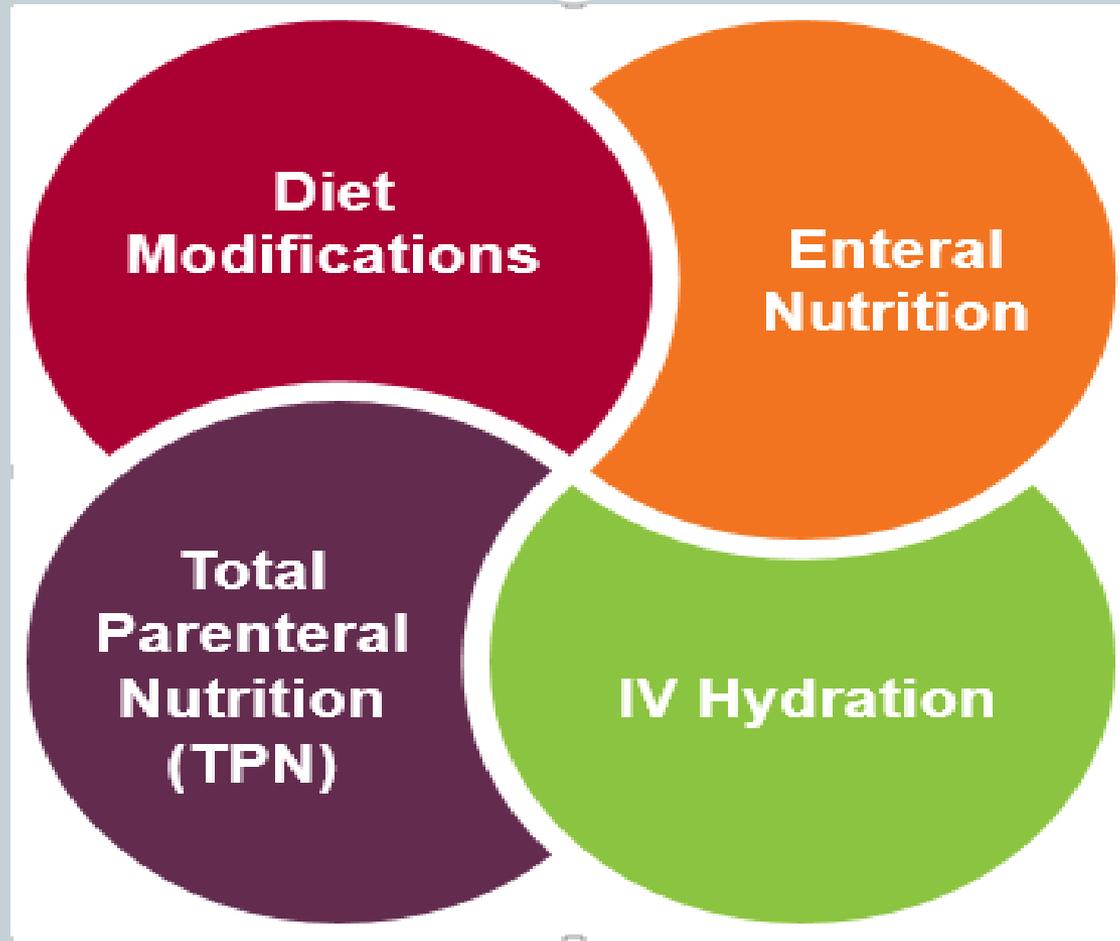


Surgical options



**Diet modification
(i.e.. Dysmotility
Diet)**

A Spectrum of Support



Why is Nutrition so Important?

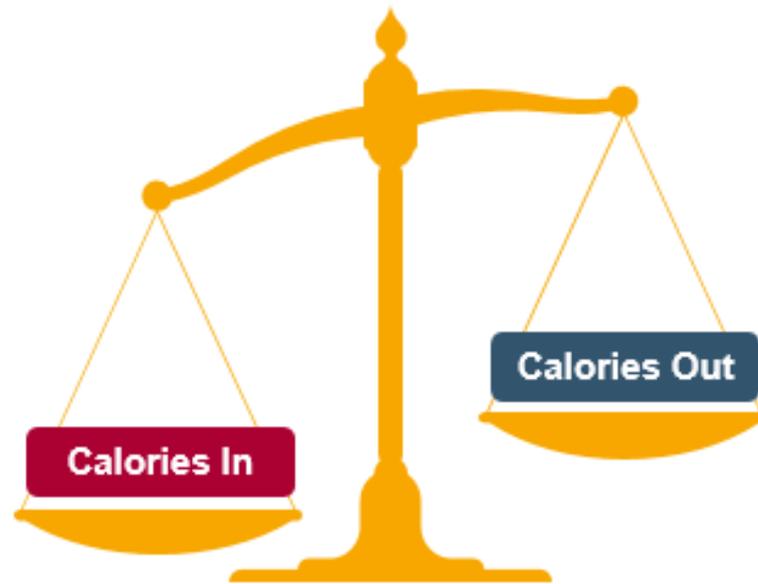
- Helps to **promote normal growth and development** by providing adequate macronutrients (carbs, protein, & fat). These macronutrients are required to meet a person's energy needs.
- Helps to **increase immune system functioning** which is important to minimize infection risk.
- To **prevent obesity and malnutrition** which can promote progression of disease.



Energy Production via Nutrition



Calories come from carbohydrates, proteins, and fats. They are essential to meet daily energy needs. Calories in must equal or exceed calories used to provide energy and prevent weight loss.



Positive Energy Balance

Carbohydrates can be Good!

Dietary carbohydrates are the body's main source of energy or fuel and therefore should comprise 40-60% of total calorie requirements each day.

Two major types of carbohydrates:
Complex Carbohydrates & Simple Carbohydrates

Nutrition Facts

Serving Size 3 oz. (85g)

Amount Per Serving As Served

Calories 38 Calories from Fat 0

% Daily Value

Total Fat 0g 0%

Saturated Fat 0g 0%

Cholesterol 0g 0%

Sodium 0g 2%

Total Carbohydrate 0g 3%

Sugars 0g

Sorbitol Mannitol, Xylitol 1g

Protein 3g

Vitamin A 270% \neq Vitamin C 10%

Calcium 2% \neq Iron 0%

Percent Daily Values are based on a 2,000 calorie diet. Your daily values may be higher or lower depending on your calorie needs:

	Calories	2,000	2,500
Total Fat	Less than	65g	80g
Sat Fat	Less than	20g	30g
Cholesterol	Less than	300mg	300mg
Sodium	Less than	2,400mg	2,400mg
Total Carbohydrate		300g	375g
Dietary Fiber		25g	30g

Carbohydrates: Complex and Simple



- Complex Carbohydrates are also known as starches and fibers.
- Complex carbohydrates in the form of **starches** should be **included** in the diet and should make up the bulk of your daily calories.
- Complex carbohydrates in the form of fiber should be avoided.
- Simple carbohydrates are also known as sugars.
- Simple carbohydrates (sugars) should be minimized.



Starches To Choose



Nutrient/Importance	Examples	Comments
<p>Carbohydrate Body's main source of energy or fuel. Starches should make up the bulk of daily calories.</p>	<p>Focus on: pasta, white rice, potatoes (without skins), bread, rolls, bagels, crackers, and pretzels.</p> <p>Avoid dietary fiber: whole wheat pasta, skin on potatoes, brown rice, whole wheat bread, whole wheat rolls, whole wheat bagels, raw fruits and vegetables with skins and/or seeds.</p> <p>Minimize simple sugars: table sugar, jelly, jam, honey, regular syrup, candy, cake, cookies, ice cream, sherbet, smoothies and soda.</p>	<p>The amount of simple sugars you can consume is based on individual tolerance to dietary sources.</p>

Dietary Fiber Modifications



- Fiber is a complex carbohydrate with many functions including controlling the movement of food through the GI tract.
- Choose foods that contain less than 1 gram of dietary fiber per serving.
 - Avoid high fiber foods: whole grain cereals, fruits, vegetables, nuts, seeds
 - Choose low fiber foods: dairy products, meats, refined grains, skinless fruits, well-cooked vegetables

Avoiding Dietary Fiber



How does fiber slow the movement of food through the GI tract?

- Fiber attracts water and forms a gel within the stomach and intestines which slows the movement of food throughout the GI tract.
- Extensive research has demonstrated that patients on a high fiber diet experience more abdominal pain, discomfort, nausea and vomiting.

FOOD GROUPS	FOOD TO AVOID	FOODS TO CHOOSE
Grains, cereal, pasta	Whole grains, brown rice, popcorn, potatoes with the skin, high fiber cereals, rye bread, whole wheat breads, corn bread.	White bread, white rice, crackers, refined grains, pretzels, refined cereals.
Fruits, vegetables and legumes	Skins, nuts and seeds of the plant. Avoid uncooked fruits or vegetables. Avoid corn, onion, lentils, peas, and beans.	Cooked or canned fruits and vegetables with the skin removed. Casseroles. Sweet or white potatoes without the skin.
Milk and dairy products	Dairy products that are fortified with fiber.	Dairy should be consumed as tolerated as this is a naturally fiber free food.
Meats, fish, eggs and poultry	Tough cuts of meat, processed meats (hot dogs, sausage, cold-cuts)	Baked, broiled, tender meats/fish/poultry, tofu, ground meats, smooth peanut butter and any style eggs.

Other culprits..,



Limiting fermentable foods, simple sugars, raw foods, fructose, yeast, and soy..,

- The low FODMAPS Diet:
(Fermentable Oligo-Di-Monosaccharides and Polyols)

The FODMAPs in the diet are:

- Fructose (fruits, honey, high fructose corn syrup (HFCS), etc.)
- Lactose (dairy)
- Fructans (wheat, garlic, onion, inulin etc.)
- Galactans (legumes such as beans, lentils, soybeans, etc.)
- Polyols (sweeteners containing isomalt, mannitol, sorbitol, xylitol, stone fruits such as avocado, apricots, cherries, nectarines, peaches, plums, etc.)

Dietary Protein

Nutrition Facts			
Serving Size 3 oz. (85g)			
Amount Per Serving	As Served		
Calories 38	Calories from Fat 0		
% Daily Value			
Total Fat 0g	0%		
Saturated Fat 0g	0%		
Cholesterol 0g	0%		
Sodium 0g	2%		
Total Carbohydrate 0g	3%		
Sugars 0g			
Sorbitol Mannitol, Xylitol 1g			
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Protein has several essential functions:

- Energy production
- Growth and maintenance of tissue
- Formation of essential hormones like insulin, estrogen, growth hormones
- Development of enzymes such as lactase, lipase, sucrase
- Antibody production
- Regulation of body water and transport of nutrients

High Quality Protein



High quality protein should comprise 20-30% of total calories each day.



Dietary Fat

- Fat is a very important part of the diet but not all fats are alike.
- Foods high in animal fat and saturated fat should be limited.

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Dietary Fat



- Essential fats or essential fatty acids (EFA's) cannot be made by the body. EFA's are found in polyunsaturated fats.
- Fat can be difficult to tolerate as it tends to move the slowest throughout the gastrointestinal tract.
- A low-fat diet is recommended in some cases of extreme gastroparesis and intestinal dysmotility.
- The recommended intake for those able to tolerate fat is about 30% of total calories.

Essential vs. Non-Essential Fats



Essential Fat	Non-Essential Fat
Safflower oil	Butter
Sunflower Oil	Cocoa Butter
Soybean Oil	Whole milk & cheeses
Flaxseed Oil	Red Meat
Fish Oil	Palm Oil
Cold Water Fish (Salmon, Trout, Mackerel, Sardines)	Coconut Oil
Margarine	Olive Oil
Mayonnaise	Canola Oil
Oil-Based Dressings & Marinades	Peanut Oil

Diet Tips to Remember



Small, frequent meals are the easiest to tolerate. Try $\frac{1}{4}$ to $\frac{1}{2}$ c of a given food at a time and monitor your response.

Continue to add new foods to your diet. It is okay to re-try food that you were unable to tolerate previously. Sometimes trying a smaller amount at a later time will allow you to increase the variety of foods in your diet.

Chew your food well. This is the first step in digestion and can make a huge difference in GI tolerance.

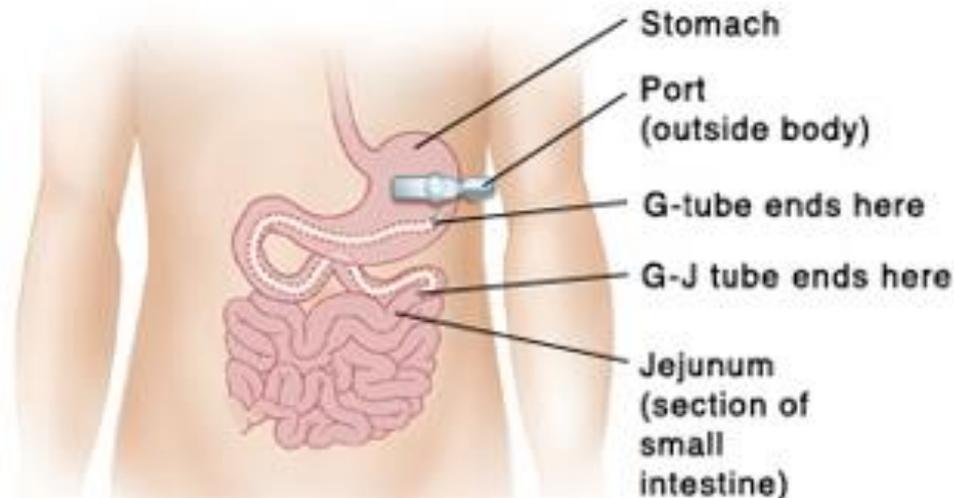
Liquids tend to be easier to tolerate and can improve total caloric intake. If your fullness increases as the day progresses, try switching over to liquid beverages that contain calories (shakes, juice, milk, etc.)

Don't lie down after a meal. Try to sit up or walk around to help the food move throughout your GI tract.

Tube Feeds



- When a person's caloric needs cannot be met orally, often the patient will receive their nutrition directly into their stomach or small intestine via a feeding tube-(enterally).
- The type of feeding tube required is determined by the estimated duration of therapy-(short vs. long term), the affected organ-(stomach vs. small intestine), and by a patient's aspiration risk.



Formulas for Dysmotility

- The best choice in formula for someone with dysmotility is one without fiber.
- A patient's underlying diagnosis may also dictate formula selection as certain metabolic conditions and/or disease related complications may require more or less of specific nutrients.
- Formulas are also selected based on nutritional content specific to patient needs.



Fluid Intake



Appropriate oral fluids are important to prevent dehydration and maintain a positive fluid status. Oral electrolyte solutions are often used in patients with limited fluid intake. The type and quantity of oral fluid that is needed is determined by your clinical team and dependent upon daily fluid intake and severity of symptoms. Fluids can be taken in by mouth or enterally through a feeding tube.

Assessing Baseline Fluid Needs



- Adults =
25-35ml per kg (of actual or adjusted body wt)

- Pediatrics (*)=
1-10kg = 100ml/kg
11-20kg = 1000mls + 50 mls /kg for each kg > 10 kg
>20kg = 1500mls + 20 mls /kg for each kg > 20 kg

Other considerations; excess fluid losses, malabsorption, heat exposure, or changes in body temperature

Signs of Dehydration



- ✓ Increased thirst
- ✓ Dry mouth
- ✓ Sudden weight loss >2 lbs in less than 24 hrs
(Note: 1 L of water weighs 2.2 lbs)
- ✓ Urine output less than minimal requirement according to body size
- ✓ Dark, concentrated urine with a strong odor
- ✓ Weakness, chronic fatigue, low endurance
- ✓ Muscle cramps
- ✓ Cracked lips
- ✓ Postural dizziness
- ✓ Low blood pressure

IV Hydration



- When oral and enteral fluid intake alone fails to meet fluid requirements, intravenous-(IV) hydration may be necessary.
- Hydration can be given as needed (PRN) or daily. The amount of hydration needed is determined by your clinical team.



Short Term Access: Peripheral IV's

- IV fluids for hydration may be given via a peripheral IV if the therapy course is intermittent and/or short-term.
- When HYD therapy is needed on a regular basis a more permanent line should be considered.



TPN



- Total Parenteral Nutrition (TPN) becomes necessary when a person cannot meet their nutritional needs orally or enterally.
- The solution contains carbohydrates (in the form of glucose), protein, fat, vitamins, and minerals.

TPN

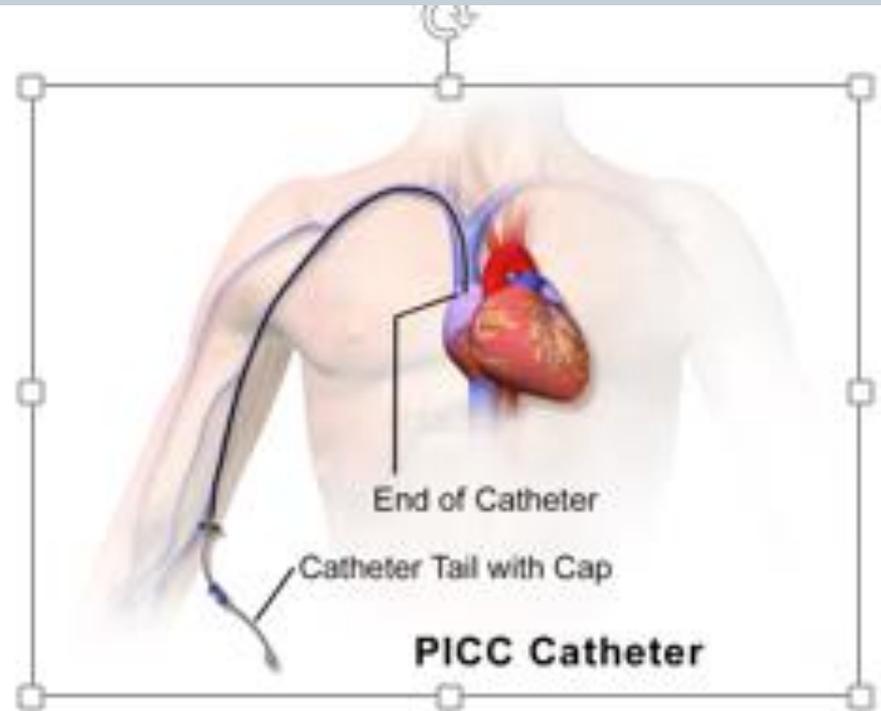


- Also known as: intravenous nutrition, hyperal or HPN (Home Parenteral Nutrition)
- This may be the first choice of therapy in consumers with some types of GI obstruction or severe malabsorption.
- TPN is a viable option when adequate nutrition can not be tolerated by the bowel or when access for enteral tube placement is limited.
- Consumers often use a combination of TPN, enteral or hydration.

Long Term Access: Central Catheters



**Non-Surgical:
PICC-Peripherally
Inserted Central
Catheter**

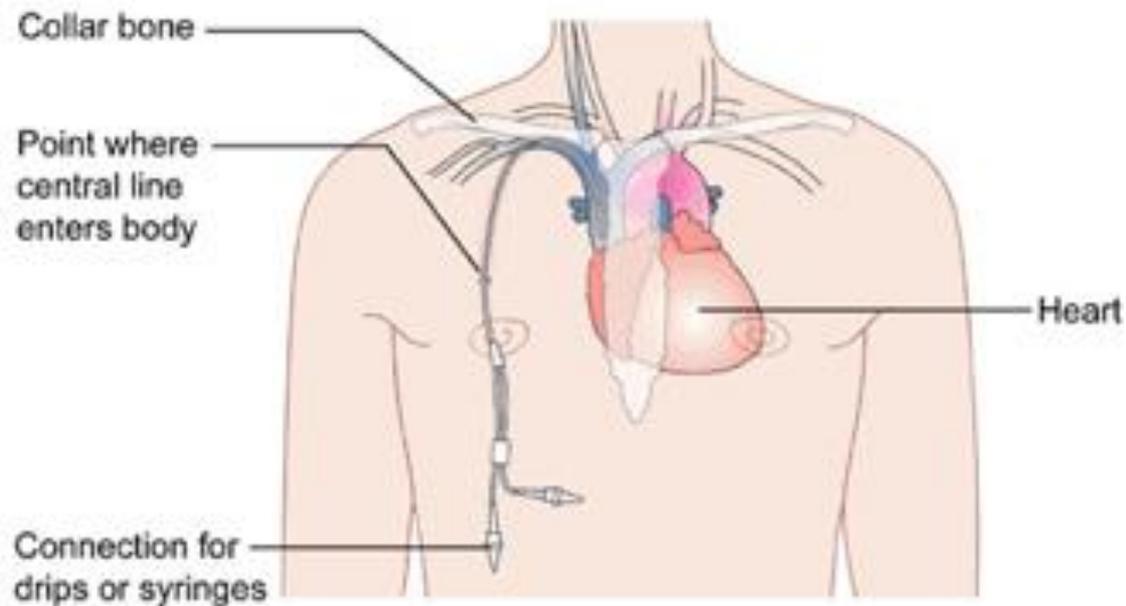


Long Term Access: Central Catheters



Surgical: Tunneled Catheters

- Hickman™ (BARD)
- Brovaic™ (BARD)
- Groshong™ (BARD)



Home Nutrition Support Statistics

(from the Oley Foundation, 1992)



- **40,000 people receive TPN their homes in the U.S.**

- **152,000 people receive enteral nutrition in their homes in the U.S.**

On Top of the World

Rick Davis: Me "taking a drink" in the Grand Canyon through my MIC-KEY and extension tube with a 2 oz syringe. (From www.oley.org)



In Summary...,



- Optimal nutrition is vital because it promotes growth and development, increases immune system functioning, and helps to prevent obesity and malnutrition which can promote progression of disease.
- How nutrition is delivered varies depending on a patient's ability to eat and consume enough calories by mouth, tolerance to oral or enteral feeds, his/her fluid requirement needs, and associated complications from parenteral nutrition therapy.



Thank you for your time

Questions ???

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