

# Enteral nutrition in oncological diseases of the GIT

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Routinely used are two ways, which can be used to deliver nutrients to the gastrointestinal tract: sipping, or tubes, inserted via nasal cavity- nasogastric, nasojejunal; occasionally it is done through endoscopic-percutaneous route: to the stomach (percutaneous endoscopic gastrostomy-PEG) or jejunum (percutaneous endoscopic jejunostomy-PEJ), or surgically (surgical gastrostomy or jejunostomy)

## Indications for enteral nutrition

Reasons for starting enteral nutrition in a patient with GIT cancer are similar to those of other diseases, which lead to loss of body's energy balance and subsequent catabolic processes.

*Prior to the initiation of enteral nutrition it is necessary to establish nutrition status of the patient. It is done by the following methods:*

- **Patient history:** patient's age, eating habits, appetite, tendencies for unwanted weight loss (recent surgeries, dysphagia, nausea, vomiting, chewing difficulties).
- **Physical exam:** loss of skin turgor, subcutaneous fat and muscles, state of dentition, oral cavity or tongue mucositis, ascites, forearm and ankle edema, height, weight, BMI, TST (*Triceps Skinfold Thickness*).

Normal and pathological TST values
Normal values: 12,5 mm in males - 16,5 mm in females
Pathological values: pod 3,5 mm in males - pod 7 mm in females
Shoulder circumference
Normal values: 25,3 cm in males - 23,2 cm in females
Pathological values: pod 19,5 cm in males - pod 15,5 cm in females

Enteral nutrition should be started in cases, where reduced energy intake (less than 60% of normal daily intake) and increased energy expenditure are expected for more than 10 days. *Patients who meet the following criteria are at particular risk of malnutrition:*

- Loss of 10-15% of weight in the past 6 months
- BMI lower than 18
- Albumin level lower than 30 g/l (without signs of hepatic or renal disease)

## Monitored laboratory parameters

Parameter	Value lower than
serum albumin	30,0 g/l
cholesterol	4,0 mmol/l
prealbumin	0,1 g/l
transferin	1,5 g/l
lymphocytes	0,9 x 10 na 9 l

## Etiology

Causes which lead to the need for enteral nutrition in a patient with GIT cancer can be divided to primary (directly related to the disease): gastrointestinal stenosis, metastases to other organs of the gastrointestinal tract) or secondary: metastases to the lungs, bones, CNS.

Prerequisite for administration of enteral nutrition is proper function of the small intestine. It is proven that early and correctly indicated enteral nutrition has a stimulating effect on maintenance of proper bowel function, improves blood flow and oxygen supply in the splachnic area, minimizes damage to other organs (liver, kidneys, is a prevention of catabolism and suppresses body's inflammatory response.

## Contraindication

In patients with oncological disease of GIT ileus, gastrointestinal bleeding, enteral fistula, splachnic ischemia are commonly seen. All these conditions are considered to be a contraindication to the enteral nutrition.

## Enteral nutrition options

### Sipping

*See the Sipping page for more information .*

We choose this type of enteral nutrition in patients who are able to receive nutrition by mouth, ie they are fully conscious, the swallowing reflex is preserved, there is no dysphagia or esophageal stenosis.

The basic principle of therapeutic enteral nutrition is either the supplementation of the daily need for nutrients (minerals, vitamins, trace elements) or the complete replacement of all components of nutrition.

## Nasogastric and nazojejunal probe

Care must be taken to insert the probe correctly (be careful to insert it into the lungs!). Obstruction in the nose, esophagus, stomach or jejunum is a contraindication for this type of probe.

## Percutaneous endoscopic gastrostomy and percutaneous endoscopic jejunostomy

The principle of these methods is to introduce gastrostomy or jejunostomy using an endoscope. The indication for oncological patients is mainly swallowing disorders and esophageal tumors, which, however, must be freely passable for the gastroscope. If the tumor significantly stenoses the esophagus, stenosis must be relieved prior to the introduction of PEG (PEJ). PEG (PEJ) is used in patients in whom we anticipate nutrition in this way for more than 30 days and if there are no contraindications for this method (impossibility of diaphanoscopy, terminal condition, ascites, hepatomegaly).

## Surgical gastrostomy and jejunostomy

*See the Stoma page for more information .*

It is a matter of creating these stoma surgically.

Calculation of BEE (basal energy expenditure) - Harris-Benedikt formula
Males: $664,7 + (13,75 \times \text{weight in kg}) + (5 \times \text{height in cm}) - (6,67 \times \text{age in years})$ .
Females: $655,10 + (9,56 \times \text{weight in kg}) + (1,85 \times \text{height in cm}) - (4,68 \times \text{age in years})$ .

## Enteral Nutrition Complications

They occur in about 20% of patients with tube enteral nutrition. It is necessary to distinguish the symptoms from the complications associated with chemotherapy, because an unindicated interruption of nutrition can cause more harm than good in this case. The most common complications include: *nausea, vomiting, constipation or diarrhea, malnutrition due to incorrect application of nutrients or their incorrect composition, aspiration of stomach contents, incorrect position of the probe or its blockage.*

## Links

### Source

- KLUCHO, Jozef. Enterálna výživa pri onkologických ochoreniach tráviaceho traktu. *Edukafarm*. 2010, vol. 5, p. 86-90, ISSN 1336-3239.

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