

Nutrition, The Need for Nutrition

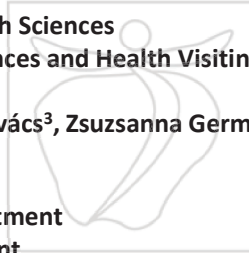
University of Pécs Faculty of Health Sciences
Institute of Nursing Sciences, Basic Health Sciences and Health Visiting

Dr. András Oláh¹, Noémi Fullér², Gyula Szebeni-Kovács³, Zsuzsanna Germán³,
Szilvia Szunomár³

¹ associate professor, vice dean, head of the department

² assistant professor, deputy head of the department

³ subject teacher



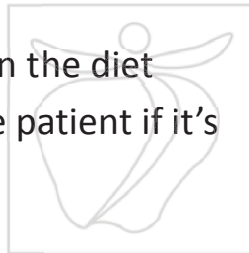
Not within this lecture

- Dietary Fundamentals
- Features of healthy nutrition
- Nutrient requirements in different ages
- Diagnostic diets
- Factors affecting nutrition
- Gastric lavage
- Malnutrition and undernourishment



Meals, catering

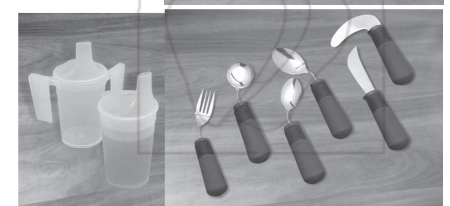
- Provision of premises, civilized catering,
- Not in the room
- Individual, central distribution of meals
- Hygienic distribution of meals
- Trays are labelled
- Frequency of meals depends on the diet
- Self-care in nutrition – help the patient if it's necessary



Meals, catering

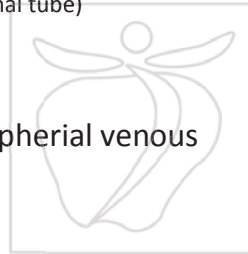
Oral feeding patient who need help

- Assessment
- Preparation of tools
- Protection of the (bed)clothes
- Air the room
- Make the bed
- positioning – sitting position



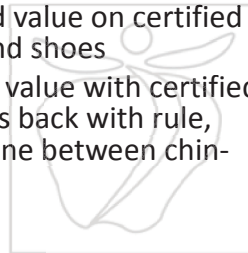
Nutrition

- When???? – indications of the artificial nutrition
- Enteral
 - Normal nutrition is completed by enteral feeding (i.e. supplementary drinks)
 - enteral nutrition via tube
 - nasogastric/orogastric
 - Post-pyloric tubes (nasoduodenal or jejunal tube)
 - entero-stoma
 - PEG, PEJ, Button, Gastrotube
- Parenteral nutrition – central or peripheral venous catheter
 - Total parenteral nutrition (TPN)
 - Partial parenteral nutrition



Definition of the nutritional status

- taking the case history
- screening nutritional status
- Body Mass Index
 - **Weight measurements:** measured value on certified medical scales without clothing and shoes
 - **Height measurements:** measured value with certified tool. The person to be measured is back with rule, with closed heels, the imaginary line between chin-jaw is perpendicular to the spine
- Physical examination - examination of the needs



Malnutritio Universal Screening Tool (MUST)

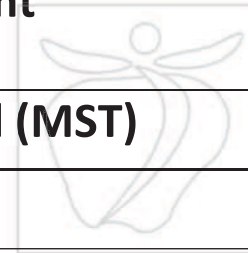
Nutritional Risk Screening (NRS 2002)

Mini Nutritional Assessment (MNA)

Short Nutritional Assessment Questionnaire (SNAQ)

Malnutrition Screening Tool (MST)

Nottingham Risk Score



MUST

1. **BMI** Malnutrition Universal Screening Tool

- > 20 0 point
- 18,5 - 20 1 point
- < 18,5 2 point

2. **undesired BM reduction within the past 3-6 months**

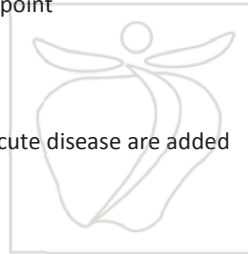
- BM loss below 5% 0 point
- Weight loss between 5-10% 1 point
- Weight loss above 10% 2 point

3. **It assesses acute disease affecting nutrition**

4. **The risk of undernutrition is being defined:**

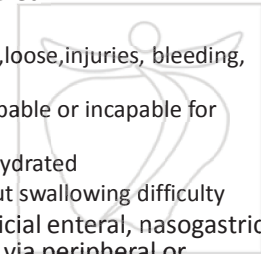
- the points of BMI, BM loss, and the effect of acute disease are added
- Overall rating

5. **Definition of the treatment guidelines**



Assessment of the physical status

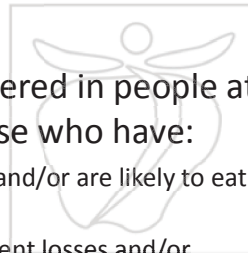
- physical appearance: thin, fat
- general status, behaviour: alert, quiet, indifferent, unconscious
- physical activity: normal, reduced, minimal, without activity
- surface tissue:
 - skin: healthy, reduced turgor, edema, injuries, skin deformity
 - hair: healthy, fragmented, dull
 - nails: healthy, cracked nails
- muscles: well developed, strong, flabby, withered
- oral cavity:
 - mucus of the mouth, gums: healthy, swollen, loose, injuries, bleeding, withered
 - teeth: with or without dental prostheses, capable or incapable for chewing, without teeth
 - tongue: healthy, swollen, cracked, coated, dehydrated
 - swallowing capability: with, partial or without swallowing difficulty
- nutrition: natural-oral, natural+enteral, artificial enteral, nasogastric tube, nasojejunal tube, PEG, PEJ, parenteral, via peripheral or central veins



Artificial Nutrition – Indication

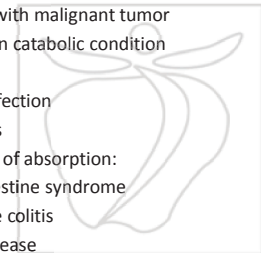
regarding NCC-AC (National Collaborating Centre for Acute Care) és a NICE (National Institute for Health and Care Excellence)

- Nutrition support should be considered in people who are malnourished, as defined by any of the following:
 - a body mass index (BMI) of less than 18.5 kg/m²
 - unintentional weight loss greater than 10% within the last 3–6 months
 - a BMI of less than 20 kg/m² and unintentional weight loss greater than 5% within the last 3–6 months.
- Nutrition support should be considered in people at risk of malnutrition, defined as those who have:
 - eaten little or nothing for more than 5 days and/or are likely to eat little or nothing for 5 days or longer
 - a poor absorptive capacity and/or high nutrient losses and/or increased nutritional needs from causes such as catabolism.

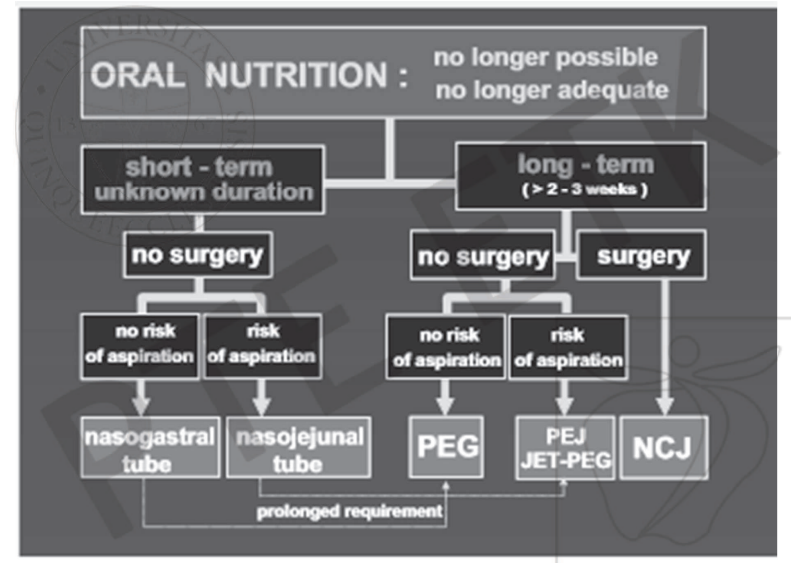


Presumable causes of the artificial nutrition

- eating and drinking inability caused by chewing and swallowing difficulty
- radiotherapy of the head, neck, pharynx
- stenosis of the oesophagus, tumor
- in case of oral, pharyngeal, neck injury, severe trauma
- who refuse to eat, drink
- anorexia,
- depression
- old age
- who do not want to eat
- disturbance of consciousness, coma
- paralysed patients
- in case of patients ventilated artificially
- people suffered serious accidents
- following severe surgery
- who are not allowed to eat
- oesophageal fistula
- enterocutan fistulas
- operations on the mouth, oesophagus, stomach, pharynx
- pancreatitis
- people with lack of appetite
- burnt, poisoned patients
- patients treated by chemotherapy
- patients with malignant tumor
- patients in catabolic condition
- sepsis
- severe infection
- decubitus
- disorders of absorption:
 - short intestine syndrome
 - ulcerative colitis
 - Crohn disease

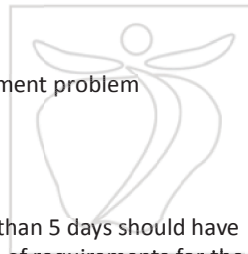


| | Advantages | Disadvantages |
|---------------------------------------------------------|----------------------------------------------------|-----------------------------------------------------------|
| Normal nutrition is completed by enteral feeding | - Maintenance of the function stomach and GI tract | - diarrhoea |
| | - normal nutrition can be maintained | - formula disgust |
| | - Needed diet can be supplemented | - bloating |
| | - can be added according to needs | |
| | - low costs | |
| Enteral feeding (via tube, stoma) | - Regulated absorption and utilization | - Diarrhoea |
| | - protection of the integrity of villi | - aspiration |
| | - lower costs than parenteral feeding | |
| Parenteral feeding | - Independent of GI tract and per os food intake | - Intake speed and amount independent of the body's needs |
| | - More precise energy and food intake | - risk of contamination |
| | | - complications of vein maintenance |
| | | - expensive |



Refeeding syndrome

- after starvation (minimal eating at least for 5 days) we start aggressive feeding
- unlikely in case of oral feeding
- tube feeding or parenteral feeding
- The syndrome is in presence as defined by any of the following:
 - apathia, desorientation
 - nystagmus, ophthalmoplegia or any eye movement problem
 - ataxia
 - memory problems with confabulation



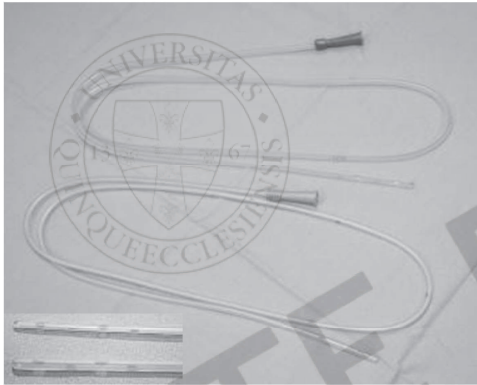
People who have eaten little or nothing for more than 5 days should have nutrition support introduced at no more than 50% of requirements for the first 2 days, before increasing feed rates to meet full needs

Nasogastric tube

For feeding or
Discharge of the stomach

- Intestinal bleeding
- Tumor of the stomach
- Contracted stomach
- Surgery of the stomach
- Ileus in the small intestine





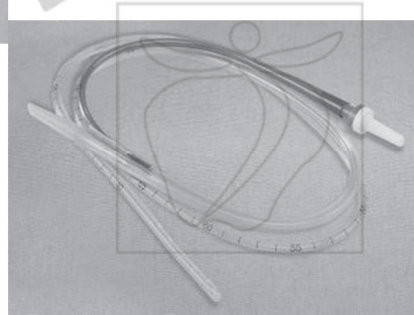
Levin tube

For feeding (5-8 Fr)

clean technic (not sterile)

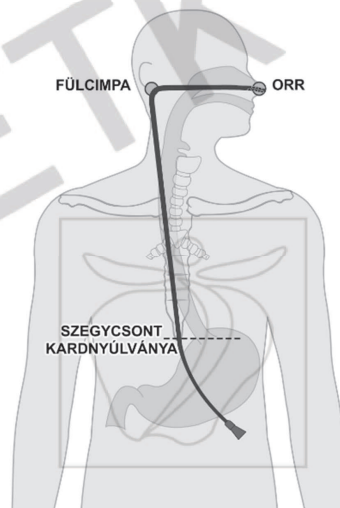
Salem-Sump tube

continous suction



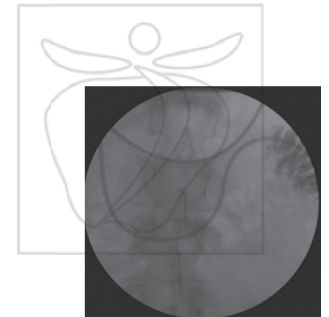
Nasogastric tube

- How to measure the appropriate depth of the tube? (nose-ear-xiphoid process)
- Sitting position (alert patient)
- Head position – first recline, *after propel*
- insertion – glass of water for the patient
- Check the position of the tube - retract
- Fixing the tube
- Rinse the tube before and after use with clean water



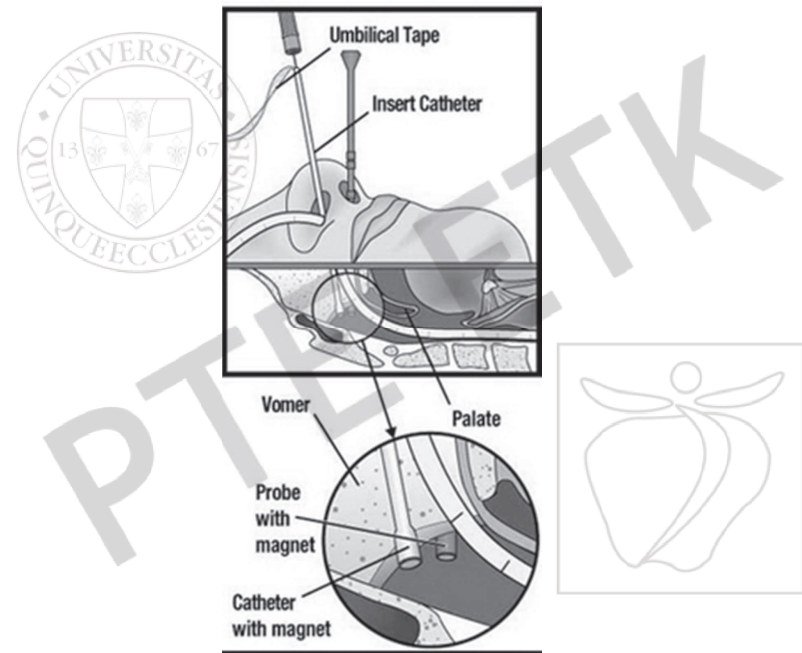
Checking the placement of the NG tube

- it is prohibited to put the NG tube's distal end under water
- 10 ml or more air injected into the stomach – auscultation (not reliable)
- check the ph of the gastric aspiration (< 5,5, 7-8 post-pyloric)
- X-ray



Fixing the tube

- hypoallergenic patch
- gauze strip
- Special patch (e.g.: Naso-Fix) – change 3 days
- AMT-Bridal system – for unlimited time



Flushing the tube

- against obstruction (trigger factors):
 - slow feeding rate
 - fibre rich formulas
 - small diameter tubes
 - silicon tubes
 - nasogastric tubes
- sterile water (for medicaments, immunosuppressed patients, jejunal tube)
- desztilled water
- tapwater
- juices and fizzy drinks – NOT

- before and after every use
- 30 ml
- even in case of countinuous feeding in every 4 hours



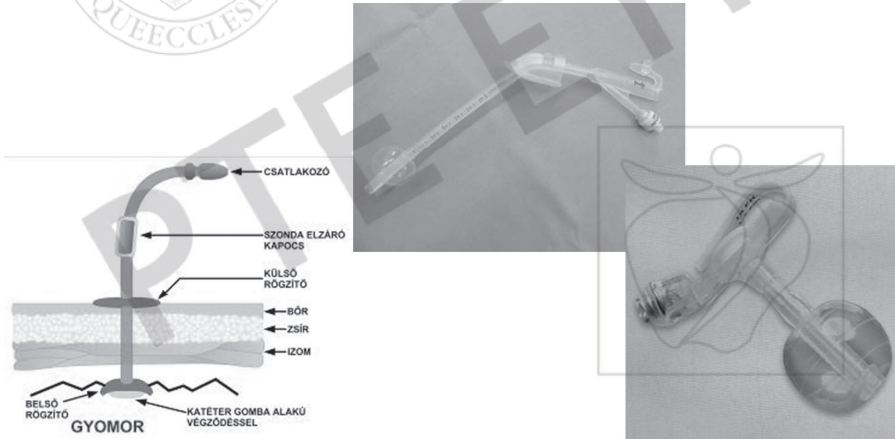
Care of tubes

- to prevent aspiration
 - min. 30-45°elevated bed (head) – after feeding for 30 minutes
 - Feeding during the night is not recommended
 - reverse-Trendelenburg
- care of the oral cavity teeth
- tubes' changing time
 - PVC tubes: 10-12 days
 - poliurethan and silicon tubes: 6 weeks
- it is not recommended to dilute formulas
- home mixed/made formulas are not recommended



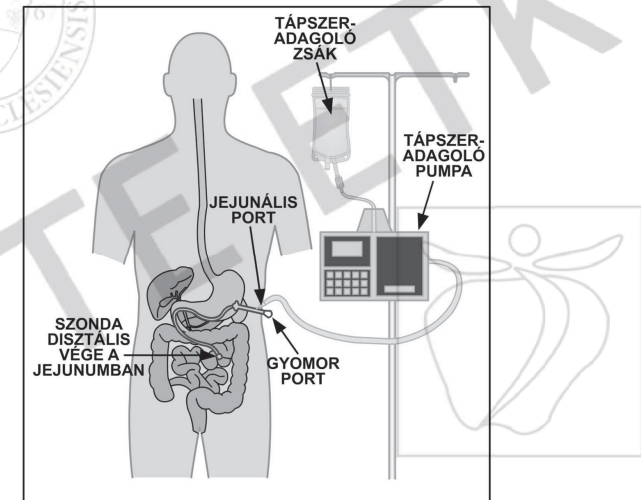
Entero-stoma (tubes)

- If feeding time exceeds 4 weeks
- PEG (Perkutaneus Endoscopic Gastrostomy)
- Gastrotube, Button tube (at least for 3 months)



Entero-stoma (tubes)

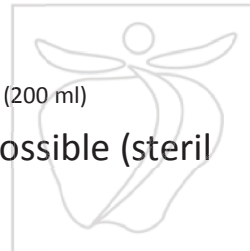
- PEJ (Perkutaneus Endoscopic Jejunostomy)



FEEDING

| | | | |
|---------------------------|-------------------------------|-----------------------------------------|--------------------|
| ↓ | ↓ | ↓ | ↓ |
| Intermittant | bolus | cyclic | countinuous |
| 200-500 ml in 15-60 mins. | every 3-6 hours 200-500 ml | countinuous during 8-12 hours | during 16-24 hours |

- importance of feeding breaks
- check residuum in every 4 hours (200 ml)
- giving medicaments via tube is possible (steril water is recommended)



closed systems
opened systems

- feeding bag
 - use within 8 hours
 - daily change
- feeding pump



Classification of enteral formulas

- complete/polymer large molecule formulas
- semi-elementary, pre-digested, chemically determined, formulas with components separated
- elementary formulas
- nutrient modules
- disease specific, supplemented with special nutrients and proportionally changed product:
 - can be applied in respiratory-circulatory failures
 - in liver failures
 - in renal failures
 - formulas supplemented with special nutrients



Storage rules for enteral formulas

- keep away from sunlight
- once opened use within 24 hours
- should be kept in fridge
- warm up – on room temperature



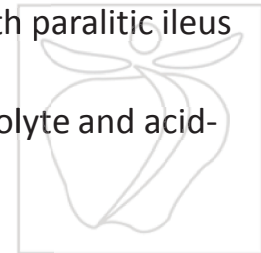
Checking the enteral nutrition

- fluid-electrolyte balance
- recognition of complications:
 - diarrhoea,
 - constipation,
 - nausea,
 - reflux,
 - vomiting, aspiration, bloating,
 - feeling of fullness,
 - acute abdomen
- complications with feeding probe
- complications with PEG, PEJ



Contraindications of probe feeding

- uncontrollable vomiting/ or diarrhoea
- uncontrollable bleeding from the GI tract
- uncontrollable paralytic ileus
- ileus
- diffuse peritonitis associated with paralytic ileus
- circulatory failure, shock
- severe disorders of water-electrolyte and acid-base balance
- severe respiratory failure



Relative contraindications of probe feeding

- gastro-intestinal ischemia
- severe pancreatitis
- „high” intestinal fistulas
- caustic poisoning



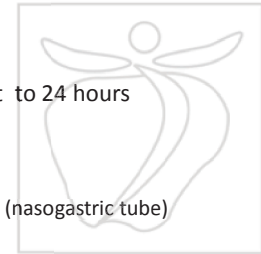
Parenteral nutrition

continuous

intermittant
12 hours breaks

on specified
days

- CVC is necessary because of the solutions
- invasiv – risk of nosocomial infectious
- indications
- importance of villi nutrition to prevent damage
- real TPN with infusion pump – share the amount to 24 hours
- TPN
 - mainly for a short time
 - later it is completed with artificial enteral feeding (nasogastric tube)
- PPN – Partial Parenteral Nutrition



Parenteral nutrition

- cannulas and infusion pumps for using parenteral nutrition

formulas:

- carbohydrate products
 - Ridex 5-10%, Sterofundin G és B, Fructosole 5-10%, Isodex, Glucose 5-10-20-40-50%, Balansol S5
- amino acid products
 - InfusaminS5-X5 és 10%, Aminoven 5-10- 15%, Aminoplasmal 5-10-15%, Aminosteril 10%
- fatty products
 - Intralipid 10-20-30%, Lipofundin 10-20%, Lipofundin MCT
- mixture solutions
 - Aminomix 1 Novum, Aminomix 2 Novum, Nutriflex Peri-Basal-Plus
- mineral substances
 - elektrolit oldatok
- vitamins
 - Soluvit N, Vitalipid N adult, Cernevit

