

Defaecation

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Defaecation

Not within this lecture

- Anatomical and physiological basics of the digestion
- Metabolism process
- Examinations in case of intestinal disorders

The observation of faeces

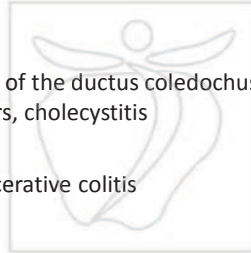
- number and amount of defaecation
- the colour of faeces
- stool odour
- the consistency of faeces
- the pathological components of faeces

The number and amount of defaecation

- the normal defaecation habits may vary for different individuals
- faeces are excreted once or twice daily/or 3 or 4 times a week
- its normality is determined by the emptying frequency
- the amount of soft stool is 150-200g

The colour of the faeces I.

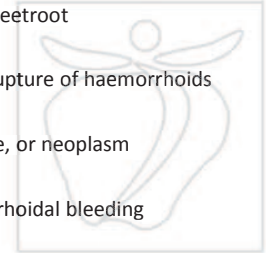
- physiologically the colour of the stool is **brownish**
- **Yellow** - in infants (breast milk)
- **Light-coloured, oily faeces** - fat digestion problems
- **Dark green/and or yellow** - excessive amount of bile excretion, constipation, consumption of vegetables rich in chlorophyll
- **Light-coloured, white, clay-coloured** - obstruction of the ductus coledochus, obstructive ileum, gall bladder mobility disorders, cholecystitis
- **Slimy, transparent faeces** - spasmic diarrhoea, ulcerative colitis



The colour of the faeces II.

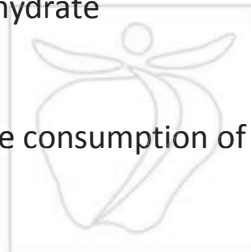
Types of bloody faeces

- **Black, tar-like stool** is caused by bleeding coming from the middle section of the GI tract or by consumption of black pudding, offals, red wine, blackcurrant, or some medicaments (iron, carbon tablets)
- **Melaena is pitch-black, loose gelatinous stool** caused by GI bleeding from the stomach or upper regions or as a complication of renal deficiency (on the hospital chart „M” is written)
- **Reddish colour stool** - GI bleeding or consumption of beetroot
- **Stool with blood stripes** - forced defaecation, or the rupture of haemorrhoids
- **Bloody, mucous stool** - inflammatory intestinal disease, or neoplasm
- **Stool coated with fresh, red blood** - tumor or haemorrhoidal bleeding



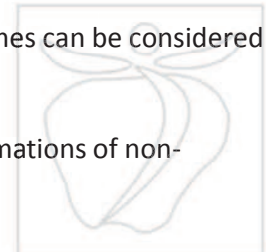
Stool odour

- Physiologically - characteristically unpleasant odour
- **rotten like, very foul smell** - protein digestive dysfunction
- **sour smell of fermentation** - carbohydrate indigestion
- **stronger fermented smell** - after the consumption of hard liquor, brandy
- **sweetish, extremely foul smell** - emptying melaena










The consistency of faeces

- **formed stool** - normal
- **hard, berry** - like stool - constipation, little fluid consumption
- **regular, pasty stool** - malabsorption, excessive food intake, fruit with mild laxative effect (apricot, plum)
- **loose stool** - emptied once or several times can be considered diarrhoea
- **bloody, mucoid stool** - intestinal inflammations of non-infectious origin
- **Bloody-watery diarrhoea** - dysentery



THE BRISTOL STOOL FORM SCALE

Type 1		Separate hard lumps, like nuts (hard to pass)
Type 2		Sausage-shaped but lumpy
Type 3		Like a sausage but with cracks on its surface
Type 4		Like a sausage or snake, smooth and soft
Type 5		Soft blobs with clear-cut edges (passed easily)
Type 6		Fluffy pieces with ragged edges, a mushy stool
Type 7		Watery, no solid pieces ENTIRELY LIQUID

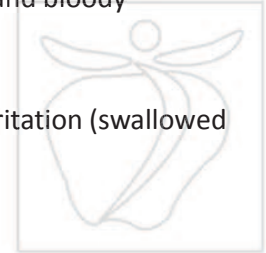


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The pathological components in faeces

- too much water-diarrhoea
- a large amount of fat-caused by pancreatitis, malabsorption syndrome, enteritis, a condition after an enteroclectomy surgery
- digested or fresh blood
- foreign body that can cause suppurative and bloody pathological change
- pus-enteritis
- mucin-in case of inflammation (colitis), irritation (swallowed objects), stress
- some bacteria-pathogens
- undigested food-shell of legumes, corn
- intestinal worms

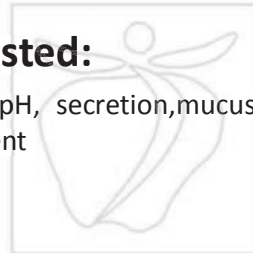


Examination of faeces, aim and method for sampling

- lab series of test:
 - chemical and microbiological tests
 - microscopic examination

the following features are tested:

colour, odour, form, density, composition, pH, secretion, mucus, blood, fat, meat fibre, WBC, bile, sugar content



Stool sampling

sampling means:

- stool container (20cm³ content), two capsules for bacteria cultures, detecting toxin, parasite, virus antigen
- Ty-container - for collecting blood and faeces samples of typhoid patients
- Sampling from perianal area with tape and cellophane capped wand for detecting ova



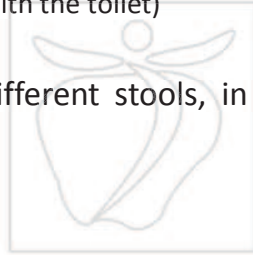
Stool sampling

For microbiological examination:

Patient can perform the sampling

- faeces should be stooled in the bed pan, not in the toilet, because of the bacteria in it
- in case of home sampling stool should be taken from the uncontaminated parts (not contact with the toilet)

sampling should be made from 3 different stools, in 3 following days



Stool sampling

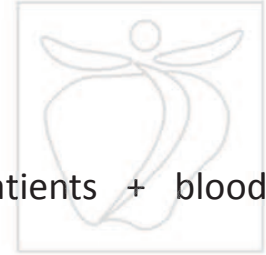
„F” container (in Hungary)

bacterias, toxin, parasite, virus antigen

There is a samplin spoone – two-thirds fill the container

Send it within 4 hours to the lab
storage in fridge

„TY” container – typhoid patients + blood sample



Detection of faecal occult blood

Detection of human blood:

- guaiac trial: based on pseudoperoxydase reaction (gFOBT)
- immunochemical methods using antihuman IG (iFOBT, FIT)
- methods for detecting hematoporphyrin
- faecal DNA test

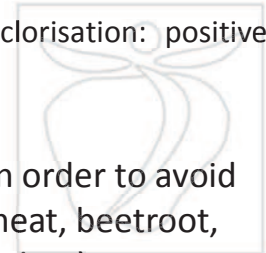


Detection of faecal occult blood

guaiac test is filtered on paper, can be mailed, used frequently

1. sample is put on a test paper saturated with reagent,
2. drop hydrogen peroxyde on it, and
3. read result in 1-2 min. (blue disclorisation: positive result)

special diet should be followed in order to avoid pseudopositive results (red meat, beetroot, mushroom for a few days)



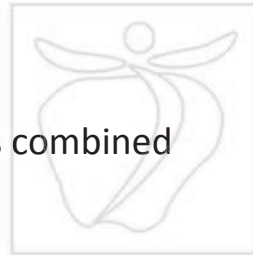
Detection of faecal occult blood

immunochemical test:

- for detecting human globine,
- no need for diet,
- simpler than guaiac method

two-phase procedure

- guaiac- and immunochemical is combined
- specific to human globine,
- more sensitive to the former



Detection of faecal occult blood

The procedure for detecting the porphyrine amount in faeces

- can show the haemoglobine amount

Faecal DNA test

- there are no positive clinical results



Indication of faeces

- vertical line - formed faeces
- slanted line - diarrhoea
- red line or letter „M” – melaena or faecal occult blood
- zero or crossed zero - omission of faeces
- letter „E” - enema



Név: _____ Kor: _____ Foglalkozás: _____

Vizelet: 20. év hó és nap

fs: _____
vh: _____
a: _____
p: _____
s: _____
ubg: _____
bil: _____
aceton: _____
ül: _____

Wa. r. _____
r: _____
r: _____

Vérsejt-számok

Tó.....mm³ _____
Zö.....mm³ _____

Vvs: _____
Hb: _____
Fvs: _____

Kvalitatív vérkép: _____

Testúly _____
Széklet _____
Képet _____
Hányás _____
Folyadék _____
Magasság _____
Vizet ml N _____
E _____

NORMÁL SZÉKLET

Név: _____ Kor: _____ Foglalkozás: _____

Vizelet: 20. év hó és nap

fs: _____
vh: _____
a: _____
p: _____
s: _____
ubg: _____
bil: _____
aceton: _____
ül: _____

Wa. r. _____
r: _____
r: _____

Vérsejt-számok

Tó.....mm³ _____
Zö.....mm³ _____

Vvs: _____
Hb: _____
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Kvalitatív vérkép: _____

Testúly _____
Széklet _____
Képet _____
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Folyadék _____
Magasság _____
Vizet ml N _____
E _____

SZÉKLETHIÁNY

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Means to collect faeces

- **Anal plug:**
 - Similar to suppositories
 - Made from some foam-like material
 - They can be placed on the rectum
 - prevent the leaking in case of chronic diarrhoea



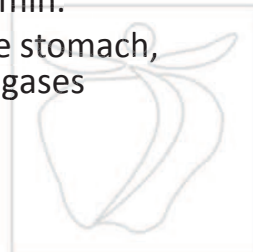
Means to collect faeces

- **Faecal system:**
 - In case of immobility and faecal incontinence
 - Even for rinse
 - The continuation of the balloon is a silicone catheter



Constipation

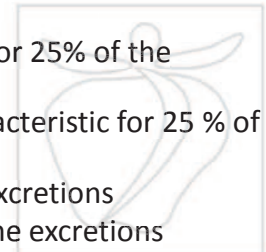
- dry, hard consistency, lumpy faeces
- difficult to excrete
- excessive straining, pain, discomfort
- person does not feel that his gut is empty
- excretion takes place less frequently than 3 days
- excretion lasts for more than 10 min.
- associated symptoms: pain in the stomach, cramps, loss of appetite, reduced gases
- may lead to hemorrhage
- rarely life-threatening
- may cause anxiety
- may reduce life quality



Constipation Rome II-criteria

The patient suffers from constipation if the following symptoms have lasted for 12 days in the past 12 months (Drossman aet al)

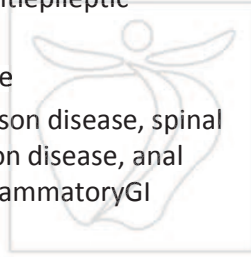
1. Straining is characteristic for 25 % of the faecal excretions
2. Hard, lumpy faeces is characteristic for 25% of the excretions
3. Feeling inadequate clearance is characteristic for 25 % of the excretions
4. Jam is characteristic for 25% of the excretions
5. Manual aid is necessary for 25% of the excretions
6. The number of excretions is fewer than three



Constipation

Triggering factors for developing constipation

- **lifestyle factors:** inadequate eating habits, low dietary fibre intake, less wholemeal bread products, inadequate fluid intake, lack of exercise, enemas
- **psychic factors:** anxiety, depression, repression of defecation
- **side-effects of drugs:** antidepressants, antiepileptic drugs, antipsychotic drugs
- **physiological changes:** pregnancy, old age
- **diseases:** neurological conditions (Parkinson disease, spinal cord injury, SM, muscle dystrophy), Addison disease, anal ruptures, haemorrhages, colon tumor, inflammatory GI diseases)
- **changes in environment:** holiday, travelling, hospitalisation



Care of the constipation

with medicaments
• laxatives
(not within this lecture)

conservative care,
lifestyle advices,
enema,
removal of skyballum



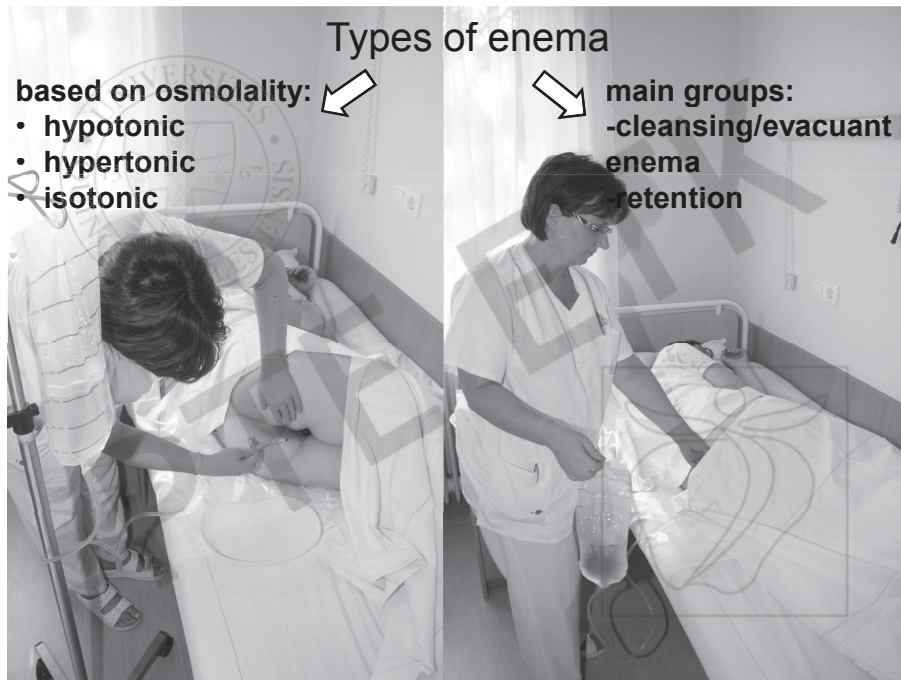
Lifestyle advice

- consumption of high fibre content foods
- drinking 1.5-2ls of water
- physical activity
- writing a bowel diary
- defecation posture
- strengthening the pelvic muscles
- biofeedback treatment
- do not suppress the urge



Constipation – proper position





Enema

Evacuant enema
Indications: constipation, postoperative cleaning of the lower part of the rectum and sigmoid intestine, before delivery

Classification:

- **Based on the amount**
 - large volume enema(500-1000ml),
 - Small volume enema (50-200ml)
- **Based on osmolality:** hypotonic, isotonic, hypertonic
- **Based on the affected intestine:**
 - high enema
 - low enema

Enema

Soapsuds enema, SSPA

- Soapy water can be applied,
- its use is rare due to the irritating effect in the intestine
- Castile soap can be used, phytogetic based, less irritating

Purgative enema

- Hypertonic solution: glycerol enema, mixture of glycerol and water (1:2), and glycerol and castor oil (1:1)

Enema

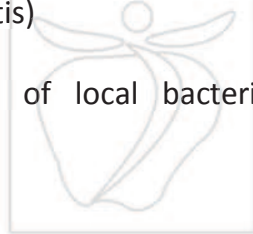
Cold enema

Indications:

- Antipyretic treatment (fever, heat stroke)
- Antiinflammatory treatment — (dysentery, diarrhoea, haemorrhages, ulcerative colitis)
- 10-20 C degree (27-32C) water

Enema (medicated enema)

- Retention enema
- the product should be held in the anus (30-60 min) in accordance with the regulations
- Mostly steroid-solution enema (for reducing intestinal inflammation in case of ulcerative colitis)
- antibiotic solution enema (in case of local bacterial infection)
- hypertonic solution can be applied



Enema

Sedative enema

- not anymore
- Promoting sleep

Anesthetic enema

- not anymore
- too much complication (death)



Enema

Antihelmintic enema:

- Goal: to eliminate and destroy worms
- First, evacuant enema is given
- Special, anthelmintic drug solution (250ml)

astrigent enema:

- Indication: ulcerative colitis and dysentery
- Agent of enema liquid: tannin, alum



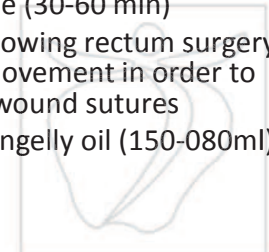
Enema

Barium enema

- Before the contrast X-ray examination
- Borium-sulphate is the only borium compound that is not toxic

Oil enema

- Small amonut of solution is given
- should be held in the anus for longer time (30-60 min)
- Indication: treatment of conspitation following rectum surgery (haemorrhages) before the first bowel movement in order to prevent surgical wounds and tension of wound sutures
- Olive oli (180 ml) castor oil (60-120ml) gingelly oil (150-080ml) mixture of olive and castor oil (1:2)
- followed by large evacuant enema



Enema

Emollient / starch enema

- Indication: soothing mucus irritation due to diarrhoea
- Enema liquid: starch, opium and starch mucoid water. Temperature: 37.8-40.5C

Stimulating enema

- Indication: for treating fatigue, loss of fluid or collapse, opium poisoning
- Enema liquid: black coffee solution (1 tablespoon of ground black coffee, 300ml water, a pinch of salt, temperature: 42-43C)
- Special coffee enema is used for treating cancer due to its detoxification effect

Carminativ enema

- Small-scale enema is given with hypertonic solution (MGV solution: 30ml magnesium, 60ml glycerol, 90 ml water)

Enema

Nourishing enema

- Indication: in case of atrophy, unconsciousness, nutrients are administered through the anus
- Dosage: 180-270ml in 4 hours, 1100-1700 ml in 24 hours, temperature: 38C

Return-flow enema (Harris flush)

- Indication: removal of flatus (gas) and increasing peristalsis. It can be used after abdominal surgery for reducing intestinal distension and starting bowel movement
- Enema liquid: 200ml solution. Temperature: 40.5-43C (adults) 38C (children)
- Procedure: liquid should be ingested the rectum from a container lifted above the height of rectum by 30-40cms (children:7.5cms) and the tube should be turned off. Then the container should be let below the level of the patient's rectum by 30.5-45.5cms and open the tube. After excretion, the tube should be turned off and the container should be lifted above the level of the rectum by 30.5-45.5cms, open the tube and let 200ml fluid flow in the rectum.
- This procedure should be repeated 3 times

Contraindications of enema

- enema should not be applied as a primary treatment of constipation
- diarrhoea
- arrhythmia, heart attack
- in case of non-diagnosed abdominal pain (may cause perforation)
- anus, intestine, prostate surgery
- bleeding or prolapse of the rectum (styptic enema can be indicated)
- hazardous: abdominal hernia, in 12 weeks after abdominal surgery, severe anaemia, acute liver failure, aneurism, cancer of the colon, Crohn syndrome, (exception: steroid, styptic enema) ulcerative colitis, untreated HBP, congestive heart failure,
- fluid intake restriction with dialysed patients should be considered

Risks of enema

- addiction, fluid overload, intestinal irritation, reduction in muscle tone of anus sphincter (frequent enema)
- stimulating the vagus nerves causing arrhythmia (bradycardia)
- injury
- allergic reaction (due to latex tube)
- perforation
- pain, spasm, colon irritation
- upset electrolyte balance (phosphate enema)
- damage to colon (tapwater, chlorine, bacteria)
- repel intestinal flora (soapsud enema-antibacterial agents)
- liver damage (oil enema, vaseline, petroleum derivatives)
- addiction
- haemolysis, renal failure, rectum ulcer (glycerol enema)
- hyponatraemia (more than 1 enema a day under 10 years of age)
- anaemia (long term application of coffee and glycerol enema: 4-6 weeks)

Therapy of faeces impaction

- impacted faeces can be removed by enema, but generally the digital removal of faeces is the effective therapy
- the patient is in a Sims-position
- skyballum should be touched in a concentric way
- then carefully disconnect it from the intestinal wall, twist the finger into the faeces piece

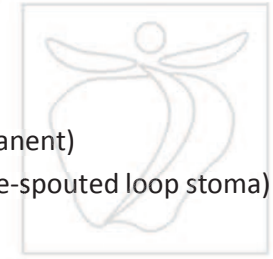


Stoma care

- The most common diseases (cancer, trauma, inflammation, diverticulitis, perforation, congenital disorders) of the lower tract of the GI system may necessitate a temporary or permanent change in the physiological route of the stool or the formation of an enterostoma

Classification of enterostomas :

- According to sites
 - colostoma
 - coecostoma
 - transversostoma
 - sigmoideostoma
 - ileostoma and continent ileostoma
- According to duration (temporary, permanent)
- According to forms (one-opening, double-spouted loop stoma)
- According to purpose:
 - input
 - output



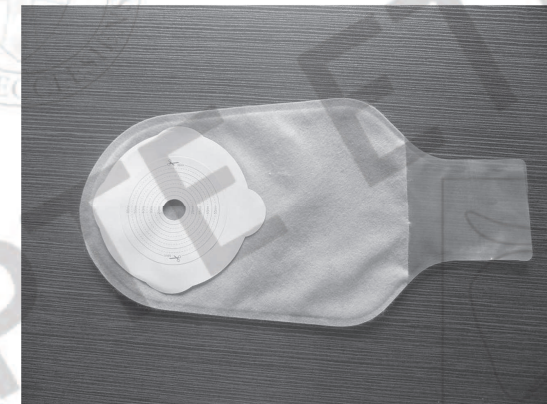
Stoma care appliances

one-piece closed appliances



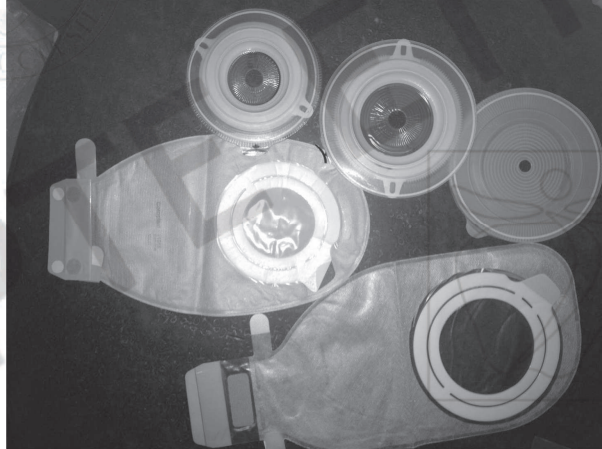
Stoma care appliances

one-piece open appliances



Stoma care appliances

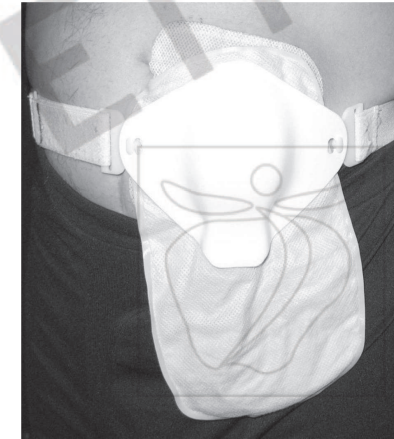
two-piece appliance



Stoma care appliances

Accessoires which enhance the application time of the appliances:

- Belts
- Paste, adhesive tapes, rings
- Powders



Ostomy care and management guideline (2009. Toronto)

- Overall assessment of the patient including physical, psychological, spiritual, cultural and religious norms.
- Maintenance of interdisciplinary cooperation related to assessment.
- Application of individual care plan.
- Development of therapeutic relationship with patient.
- Preoperative treatment involves the physical and psychological preparation of the patient (identification of the stoma site)
- Postoperative treatment: preventing complications, their care, regulation of defecation
- Patient and relative education for care stoma
- Ongoing consultation with stomatherapist
- Promoting behaviour change to environment, life style

Care of the patient with stoma

Preoperative assessment:

- identification of the stoma site is an important task done by the stomatherapist

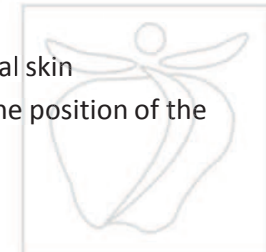
Postoperative assessment

Observation:

- Stoma (colour, opening, size, plethora)
- Fixing suture
- Following the condition of the peristomal skin
- In case of double-spouted loop stoma the position of the bridge
- Checking defecation and its character

Necrosis: if it is black and cold

Blood circulation failure: stoma becomes purple or dark red



The exchange of the stoma pouch

