



# Immobility Syndrome Decubitus

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# Respective nursing problem

## • Affects the whole system

- Heart- and circulatory system
- Respiratory system
- Supportive-and kinetic system
- Digestive tract, metabolic disorders
- Urinary tracts
- Nervous system
- Integument
- Psychological and social disorders



# Heart- and circulatory system

- venal reflux decreases
- capacity of the heart increases
- heart frequency increases
- charging ability decreases
- frequent orthostatic hypotony



# Heart- and circulatory system

- Measuring the pulse (frequency, judgement pulse qualities)
- Measuring blood pressure (sitting and standing)
- Gradual mobilization
- Appearance of oedemas - treatment
- Measuring the temperature of limbs
- Observing the time of capillary refillment



# Heart- and circulatory system

## Thrombosis profilaxis:

### Virchow-trias:

- Local vein injury
- Higher grade of blood clotting (increased blood viscosity)
- Venal stasis

Arterial or venal  
thrombosis?

### General methods:

- Decreasing risk factor
- Early post-surgery mobilization
- Taking in physiotherapist
- Avoiding dehydration
- Loss of weight
- Fat free diet
- Preferring regional, epidural anaesthesia

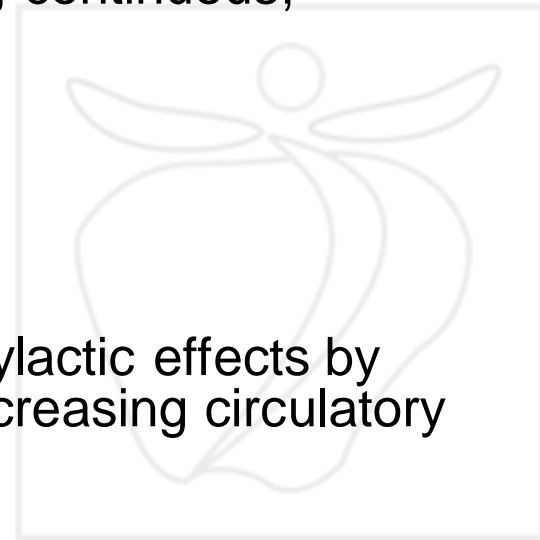
# Heart and circulatory system

## Prophylaxis

### Mechanic procedures

- Intermittent pneumatic compression
- Early mobilization
- Laying in Trendelenburg position
- Positioning the limb
- Massage
- Compressional treatments (flexible, inflexible, continuous, intermittent)
- Passive moving
- Active exercises
- Hydrotherapy

The mechanical procedures achieve their prophylactic effects by eliminating stasis, or decrementing it or by increasing circulatory speed in the veins.



# Heart and circulatory system

## Prophylaxis

Drug therapy (will not be discussed in this presentation):

- UFH (non fractionated heparin)
- LMWH
- Oral anticoagulants
- Trombin inhibitors



# Respiratory system

- the respiration rate and the chest's deflection decrease
- rate of charging decreases
- the lung's capacity and oxygenation decrease
- the defecation of the excretion festered in the respiratory tracts and alveolus decreases, stasis can develop
- the static and dynamic parameters of the lung also decrease



# Respiratory system

- Examination of respiration
- Observing the number of breath
- Coughing?
- Expectoration?
- Respiratory sounds



# Respiratory system

## Methods supporting the mobility of excretion

- Aerosol therapy
- Vibration therapy
- Flutter (KS-pipe that supports coughing)
- Postural drainage
- Autogen drainage

## Methods supporting the removal of excretion

- Controlled coughing
- Forced Expiration Technique (FET)
- Huffing
- Expectoration technique
- Chest physiotherapy

# Respiratory system

## ***Chest mobilization, training the respiratory muscles***

- Respiratory exercises
- Manual mobilization of the chest
- Expiration with labial frenum
- Expiration with chuff
- Flexible resistance
- Blowing in a tube or in a mouthpiece
- Peakflowmeter
- Sipping inspiration technique
- Electrotherapy



# Supportive-and kinetic system

- atrophy of muscles
- myotonia decreases
- contracture of joints - ankylosis
- bones' calcium content decreases



# Supportive-and kinetic system

- Anthropometric measurements
- Measuring muscle strength
- Movement range of joints

Contracture prophylaxis



# Digestive tract and metabolic disorders

- the operation of gastrointestinal system decelerate
- appetite lessens
- changed protein metabolism
- reduced bowel peristaltic



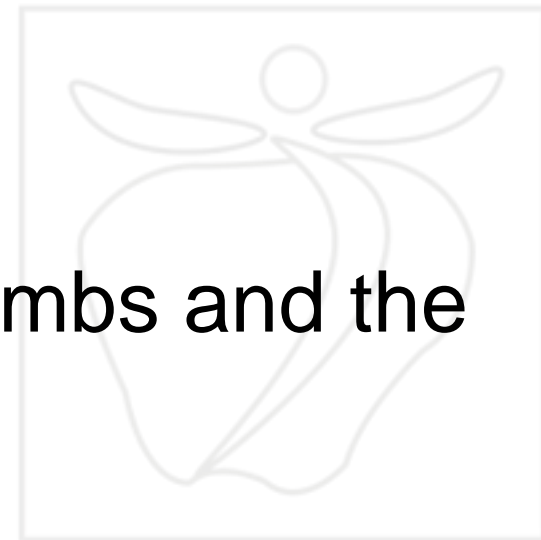
# Digestive tract and metabolic disorders

- Height, weight
- Judging nutritional status
- Fluid and nutrition ingestion
- Defecation habits

diaphragmatic aspiration

active exercises of the lower limbs and the trunk

classic Swedish massage



# Urinary tracts

- the kidney's blood-circulation improves
- part of the calcium from the bones get into the filtrate
- urinal stasis and retention

## Nursing duties:

- Fluid ingestion
- Fluid balance
- Patient's hydrate status
- Ways of emptying, deflections





# Nervous system

- peripheral nerves are continuously affected by negative stimuli
- Patients may feel pain because of laying in the bed in the beginning, but in parallel with nerve damage it stops.
- movement- and balance disorders

# Psychological and social deflections resulting from inactivity

- Cooperation decreases
- Motivation decreases
- Hospitalisation
- Isolation
- Decadence of family and social relations
- Role disorders



# Integument

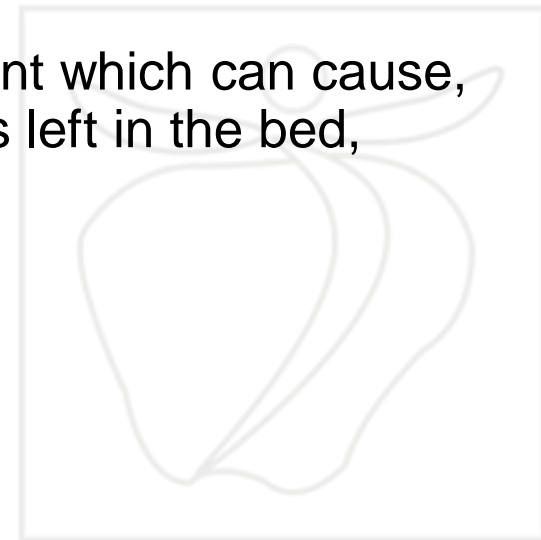
Due to immobilization the tissues' local hypoxia - decubitation - develops, more acute above boned basis

## •determinative factors:

- the patient's weight
- nutritional state (right protein consumption)
- hydratedness
- Is incontinence or any other factors present which can cause, support the flaw of skin integrity? (devices left in the bed, crumpled bed-cloth)

## •elements of prevention

- regular mobilization
- devices which relief pressure and load



# Decubitus therapy

- means bed-sore, comes from the Latin verb "decumbere" "lay down"
- not just laying, but e.g. sitting for a long term can cause it.
- the common feature is long term pressure, so it is better to use the expression pressure-ulcers

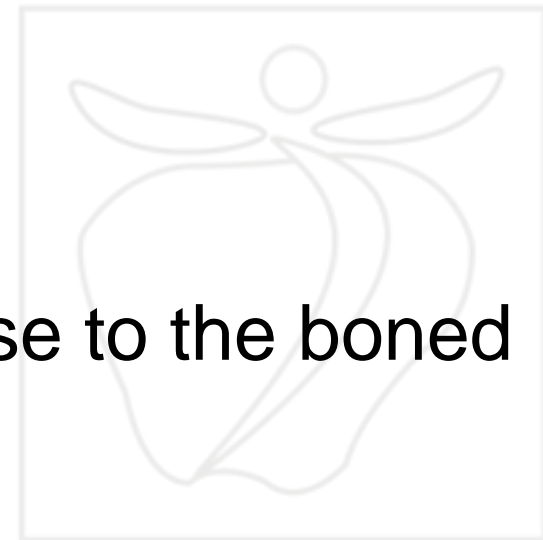
*Decubitus is the flaw of skin or sub-skin tissue - integration mainly caused by pressure, shear force, friction or the combination of the three.*

# Decubitus therapy

Long term pressure prevents tissues in taking up oxygen and nutrition, also prevents the efflux of pathological metabolites causing tissue ischaemia. The measure of the damage depends on the strength and duration of pressure and on the tolerance of the tissues

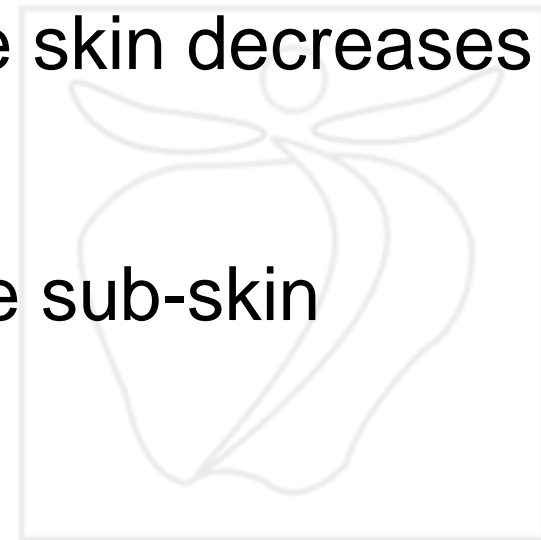
necrosis may develop

the pressure-ulcers, where it is close to the boned basis.



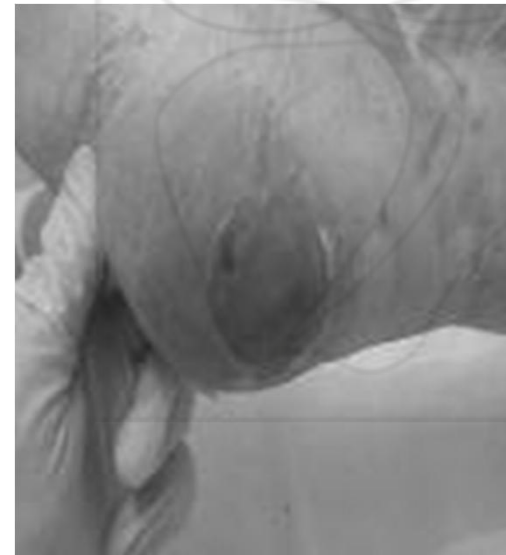
# Decubitus therapy

- Shear force: a certain kind of pressure emerging from the moving of the patient by pulling.
- Rubbing-up: a certain injury, that emerges from the friction of two surfaces.
- Dampness: the resistance of the skin decreases against pressure.
- Malnutrition: muscle atrophy, the sub-skin connective tissue grows thinner



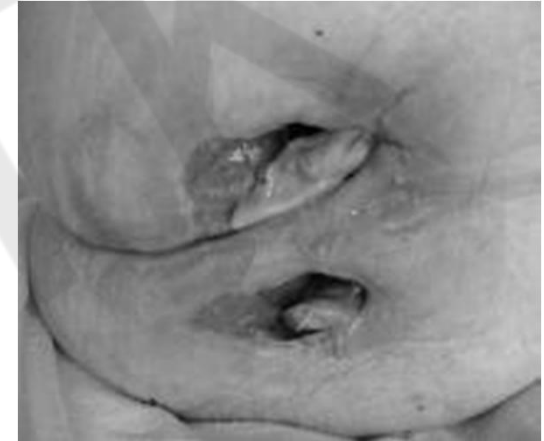
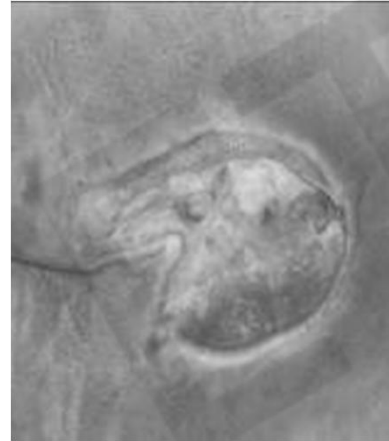
# Judging decubitus stadium

- 1. stadium: non whitening erythema on untouched skin surface** The discolouration, warming, oedema and sclerosis of the skin can be considered as signals especially in the case of people with darker skin.
- 2. stadium: partial erosion of the skin's surface or under the skin or both.** The ulcers can be considered as excoriation or blister from the superficial and clinical point of view.

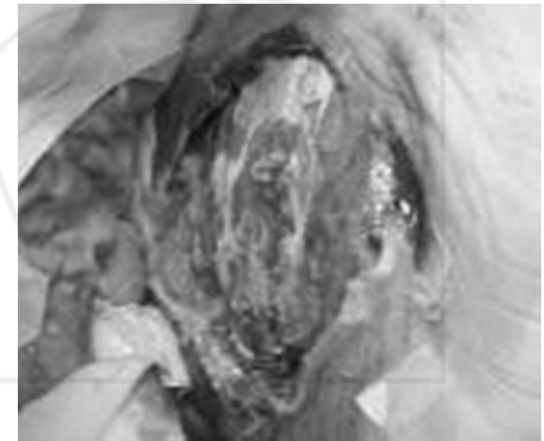


# Judging decubitus stadium

**3. stadium: complete erosion with the injury or dying of subcutaneous tissues, that can last until the fascia, but won't spread over to it.**



**4. stadium: wide range damage, dead tissues or muscle-, bone-, skeleton damage with complete or partial erosion.**





# Decubitus prevention survey

Nursing anamnesis

Risk assessment in 6-24 hours after patient  
receiving

- Pain
- effluvium
- Psychological features
- Isolation



# Decubitus prevention survey

Risk scales: (lower score = higher risk)

- Norton scale (general condition, consciousness, activeness, mobility, incontinence)
- Suspended Norton scale: (the previous ones + age, condition of the skin, additional illnesses, cooperation)
- Gosnell scale
- Braden scale (activity, mobility, nutrition, pain, friction-strain, humidity)
- Andersen scale
- Waterlow scale

Sérülésének körülményei:

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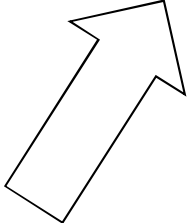
**Bővített Norton skála:**

Dátum	Kooperáció, motiváció	Életkor	Bőr állapota	Kísérő betegségek	Általános állapot	Mentális status	Aktivitás	Mobilitás	Inkontinencia	Összes pontszám	Alíírás
	4: jó 3: kissé csökk. 2: részleges 1: nincs	4: <10 év 3: 10-30 év 2: 30-60 év 1: >60 év	4: ép 3: száraz, hámló 2: nedves, nyirkos 1: sérült	4: nincs 3: könnyebb 2: közepesúlyos 1: súlyos	4: jó 3: kielégítő 2: rossz 1: nagyon rossz	4: éber 3: fásult 2: zavart 1: öntudatlan	4: járóképes 3: segítséggel 2: tolokocsi 1: fekvő	4: teljes 3: kissé akadály. 2: nagyon akadályozott 1: immobilis	4: nincs 3: alkalmoszerű 2: gyakran 1: teljes		

passage rendezés	mobilitáció gyógytornász bevonásával
szövetkárosodás megelőzése	segédkezés aszeptikus kötözéseknél
egyéb:	

**Bővített Norton skála:**

Dátum	Kooperáció, motiváció	Életkor	Bőr állapota	Kísérő betegségek	Általános állapot	Mentális status	Aktivitás	Mobilitás	Inkontinencia	Összes pontszám	Alíírás
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*A veszélyeztetettség megállapítása:*

NORTON SKÁLA

ÁLTALÁNOS ÁLLAPOT	MENTÁLIS STATUS	AKTIVITÁS	MOBILITÁS	INKONTINENCIA
jó (4)	éber (4)	járóképes (4)	teljes (4)	nincs (4)
kielégítő (3)	fásult (3)	járás segítéséggel (3)	kissé akadályozott (3)	alkalomszerű (3)
rossz (2)	zavart (2)	tolókocsi szükséges (2)	nagy mértékben akadályozott (2)	gyakran van vizelet (2)
nagyon rossz (1)	kábult, öntudatlan (1)	ágyban fekvő (1)	immobil (1)	teljes vizelet és széklet (1)

Besorolás:

- nem veszélyeztetett csoport
- közepes rizikójú csoport
- magas rizikójú csoport

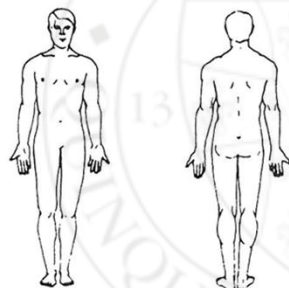
- (15 vagy a fölötti pontszám)
- (14 vagy kevesebb pontszám)
- (12 vagy kevesebb pontszám)

V.

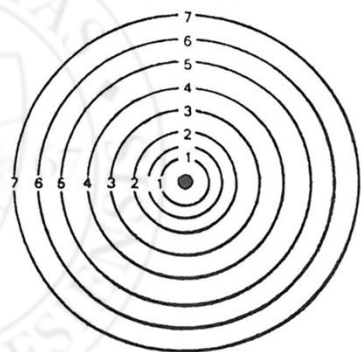
A beteg neve: .....

## DECUBITUS ÁPOLÁSI LAP

Jelölje meg a figurán a decubitus helyét.



Mérési útmutató



## Decubitus

Dátum	Nagysága cm	Mélysége cm	X Látható jelek	XX Váladék típusa	XXX Váladék mennyisége	Stádium	Nóvát állítása

Jelmagyarázat:

X Látható jelek	XX Váladék típusa	XXX Váladék mennyisége
P = piros	O = nincs	O = nincs
H = hámiány	S = savós	K = kevés
N = necrosis	G = gennyes	Kp = közepes
		B = bő

Stádium	Jellemzői	Kezelési útmutató
I.	Bőrpír, égő fájdalom. A bőr meleg tapintatú.	Helyzetváltoztatás szükség szerint, de min. 2 óránként. Bő folyadék bevitel, fehérje és vitamindús táplálkozás. Keringést javító masszírozás, kényelmi, ill. megelőző eszközök alkalmazása. Gondos bőrápolás. Ráncmentes ágazás.
II.	Hámiány és erős fájdalom	Sarok és könyökvédő ülőpárna (GYOPÁR), beteg forgatása, végtagok helyzet változtatása. Seb dezinficiensek naponta 2-3 alkalommal, Oxycort spray alkalmazása. ALUTEX felhelyezése. 1 max. 2 naponta szakorvosi konsillum.
III.	Szövetelhalás (necrosis) száraz úszkösödés / nedves úszkösödés	<b>Száraz úszkösödés:</b> Szakorvosi consillum. <b>Necrectomia, tenyésztés,</b> céltzott antibioticumos terapia. Localisan naponta 2-3 alkalommal kötést váltás. ALUTEX, ALMULIN. Seb hámosítása, Fibrolan, ha nincs Crupodex, vagy Deprisan. <b>Nedves úszkösödés:</b> necrectomia, Filmulin kötszer, Fibrolan, naponta 2-3 alkalommal kötést váltás, seb tisztulása után lebery elforgatásos műtéti technika

DECUBITUS ÁPOLÁSI LAP  
(Felmérés)A beteg neve:  
Érkezés dátuma:

Törzsszáma:

Kórterem/ágy:

Honnan érkezett? Otthonról  Szoc. otthonból  Más intézményből:Áthelyező osztály: Belgy.  Sebészet  Egyéb:  
Orvosi diagnózisok:Állapotfelmérés rögzítése:  
Életkor:Mentális status: éber  fásult  zavart  öntudatlan Mobilitás járóképes  járás segítségével  járás segédeszközzel   
tolókocsi  ágyban fekvő, de fordulni és ülni tud   
mozgásképtelen Bőr állapota: ép, sértetlen  száraz, hámló  nedves, nyirkos allergiás jelenségek  sérült, repedezett bőrpír  helye(i):hámiány  helye(i):szövetelhalás  száraz úszkösödés  nedves úszkösödés   
helye(i):Általános állapot: jó  kielégítő  rossz  nagyon rossz 

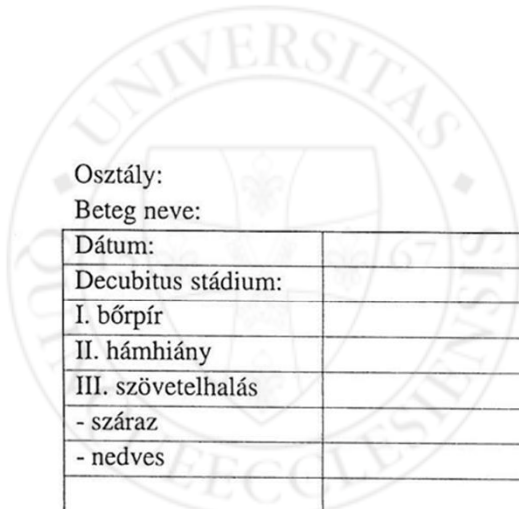
Állapotfelmérés értékelése:

A beteg decubitus kialakulása szempontjából nem veszélyeztetett A beteg decubitus kialakulása szempontjából enyhén veszélyeztetett A beteg decubitus kialakulása szempontjából súlyosan veszélyeztetett A betegnek I.  II.  III.  stádiumban lévő decubitusa van.

A beteg távozásának időpontja: Hova távozik:

Összehasonlító értékelés:

Mentális status: éber  fásult  zavart  öntudatlan Mobilitás: járóképes  járás segítségével  járás segédeszközzel tolókocsi  ágyban fekvő, de fordulni és ülni tud mozgásképtelen Bőr állapota: ép, sértetlen  száraz, hámló  nedves, nyirkos allergiás jelenségek  sérült, repedezett bőrpír  helye(i):hámiány  helye(i):szövetelhalás  száraz úszkösödés  nedves úszkösödés   
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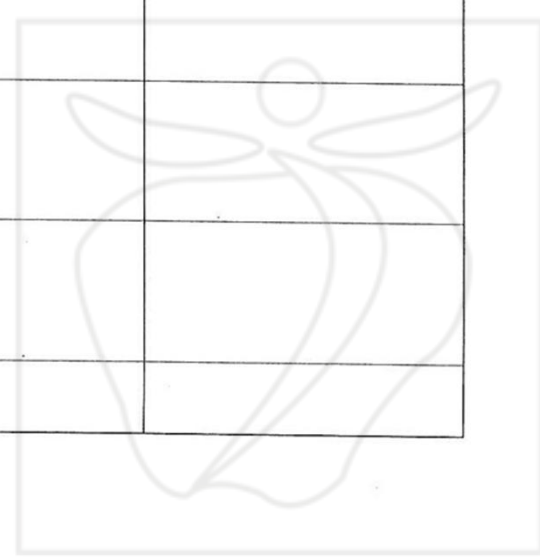
## Decubitus kezelési lap

Osztály:

Beteg neve:

Kórterem:

Dátum:				
Decubitus stádium:				
I. bőrpír				
II. hámszárazság				
III. szövetelhalás				
- száraz				
- nedves				
Orvosi utasítás				
Milyen kötözési módot alkalmazott?				
A beteg állapotának változása				
Észrevétel a sebgyógyulásával kapcsolatban				
Aláírás				



# Decubitus prevention survey

scale	points	moderate risk	high risk
Norton	5-20	13-14	5-12
B.Norton	9-36	21-25	9-20
Braden	6-23	10-16	6-9

# Decubitus prevention survey

Low risk	Moderate risk	High risk
Prevention is not necessary	Reassessment every 4. day + prevention	Assessment every day + prevention

**The prevention is an independent nursing task!!!**



# Decubitus prevention - survey

## **Internal features:**

- decreased mobility
- sensational disorder
- neurological clinical aspects resulting from paralysis
- confusion, unconsciousness
- age
- angiopathy
- malnutrition, dehydration
- Shock
- Bad oxygenation of cells (anaemia, peripheral circular malfunction)

## **external features:**

- pressure
- shear force
- rubbing
- humidity

## **Other features:**

- drugs (anaesthetics, sleeping pills, tranquilizers)
- damage of the skin, decreasing of resistive ability
- long term operations in anaesthesia



# Decubitus prevention

1. Skin care
2. Reducing friction and shear forces
3. Minimizing pressure
4. Treating humidity
5. Feeding



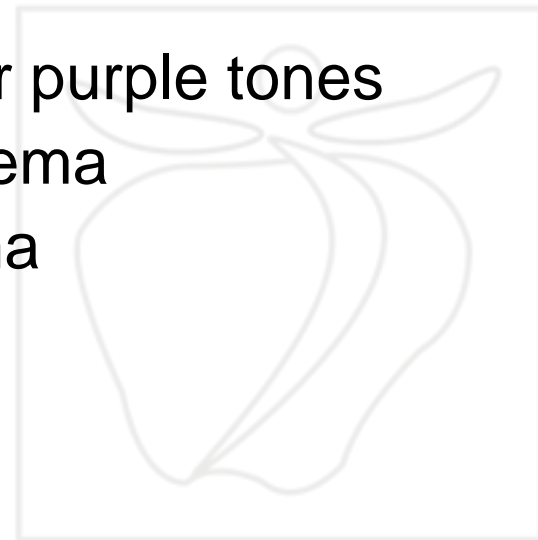
# Decubitus prevention

## 1. Skin care:

The skin's condition shall be assessed daily

Features of continuous control:

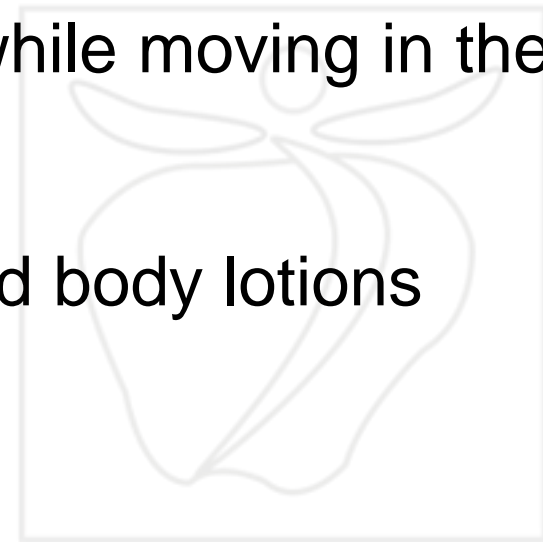
- Humidity content of the skin
- Temperature of the skin
- discolouring, such as pale, red or purple tones
- presence of non-whitening erythema
- Oedema, wounds, blister, eczema



# Decubitus prevention

## **2. Reducing friction and shear forces:**

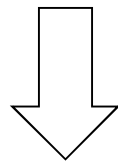
- applying professionally eligible lifting, turning and transporting techniques
- keep the headpiece of the bed in a height of 30 degrees depending on the patient's condition
- avoid sliding/pulling the patient while moving in the bed, use aiding tools
- using hypo-allergenic creams and body lotions
- using film-bandages



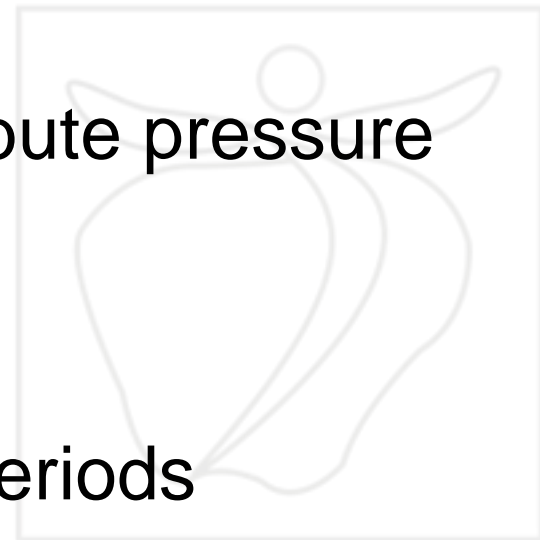
# Decubitus prevention

## **3. Minimizing pressure**

- help immobile patients in at least every second hour, and non-walking patients in each and every hour changing their position!
- re-positioning in every 2 hours is more common
- applying surfaces which redistribute pressure and turning periods together



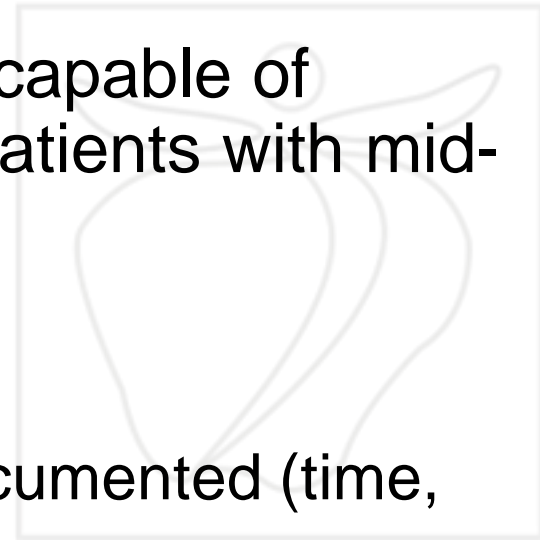
mobilization at longer periods



# Decubitus prevention

## 3. Minimizing pressure

- lots of small alteration of position must be done
- use pillows or wedges
- use mattress / surfaces which are capable of redistributing pressure in case of patients with mid-risk factors
- moving / position altering must be documented (time, direction, who did it)



# Decubitus prevention

## 4. Treating humidity

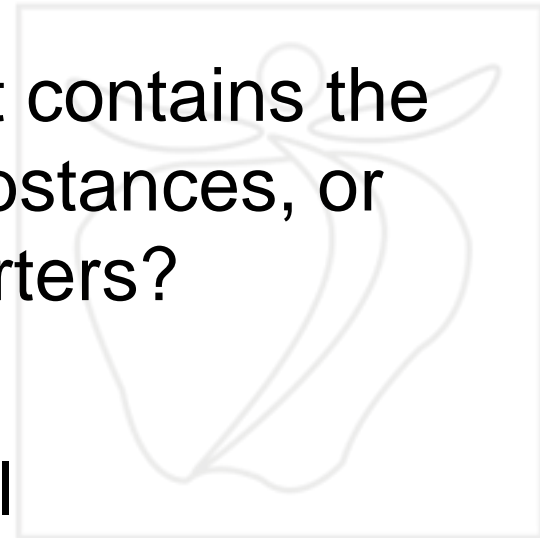
- incontinence always must be indicated in the documentation
- observe its nature
- changing of skin ph-rate
- urine incontinence
- defecation-incontinence is a higher risk factor



# Decubitus prevention

## 5. Feeding

- malnutrition
- observing nutrition status
- can the patient eat the meal that contains the above mentioned alimentary substances, or does s/he need feeding with starters?
- changing of serum-albumin level





# Decubitus prevention

## We can distinguish two main forms of specific decubitus preventing devices:

- Static devices: which provide constant rate of pressure (mattresses made of highly specific foam, gel-filled mattresses, fibre-filled mattresses, air-filled mattresses, liquid-filled mattresses)
- Dynamic devices: which provide changing pressure (devices providing altering pressure with pressure sensors installed, air-compressed devices with pulsatory changing pressure, low air-losing devices, kinetic objects)

# Decubitus prevention

## Devices reordering pressure:

- redistributing pressure
- reducing shear forces
- avoiding crumpling

## Devices redistributing pressure:

- good effects on tissue deformation
- reduces shear forces, and crumpling

## Non-antidecubitor devices:

- water-filled pillows
- air-filled pillows lacking specific design
- one-piece mattress or pillow made of polyurethane foam
- doughnut shaped polyurethane sitting pillows, rings (heel, elbow)
- sheepskin or plastic copies



# Decubitus prevention

## Modern therapeutic devices - mattresses, pillows

- **Engined antidecubitor mattress:**  
Special device providing varying pressure with automata control, based on the principle of air-streaming. The sensors set the optimal pressure characteristics according to the patient's weight. Reduces local pressure on the patient with 18 Hgmm.
- **Devices that can lift the patient,** primarily for changing position, and secondarily for easing bathing, showering and toilette usage



# Decubitus prevention

## Modern therapeutic devices - mattresses, pillows

- **Ripple (wave)-mattress:**

It is made up of adjacent cylindrical cells, heaving and going flat alternately. The surface makes a waving move, this way the impactive time of pressure is limited to the seat points.

- **"Air Wave" Pegasus-system:**

It is made up of double-layered cylindrical cells (20 cm wide), seat pressure is reduced periodically to 0 Hgmm, because every third cell goes flat in every 7,5 minutes for 2 minutes. The continuous flowing of air is provided by countless pores, that keeps the patient's skin dry.



## Decubitus prevention

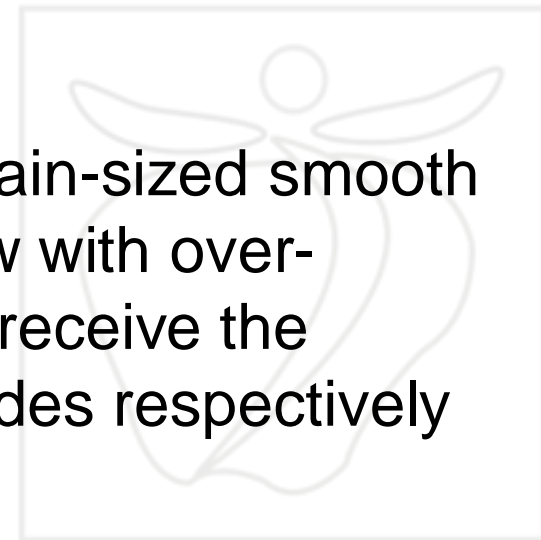
Modern therapeutic devices - special objects.

- L.A.L. (low air loss)

The segments are kept puffed up by tempered flow of air, and the segments also loose air through the pores of the textile. Provides respectively low pressure.

- "Dry flotation"

It is made up of a "tank" filled with grain-sized smooth marbles. When blowing from below with over-pressured air these grain marbles receive the properties of liquid medium. Provides respectively low pressure.



# Decubitus prevention

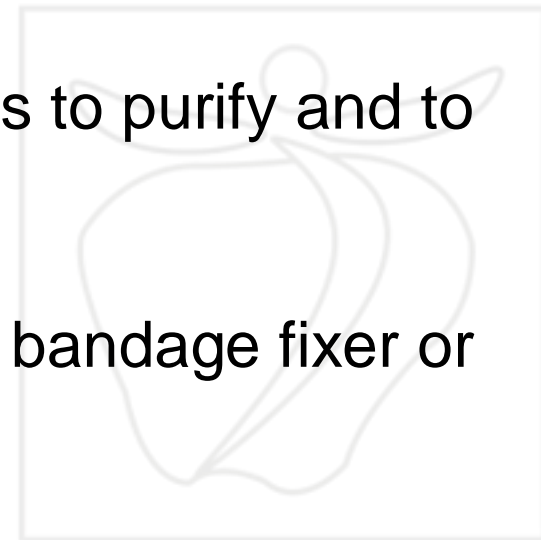
## Modern therapeutic devices - special objects.

- **Guttman-bed:**  
Moves the patient from prone position into supine position and from one side position into the other. The kinetic therapy moves the patient into different positions in every three minutes.
- "Air fluidized" (bed that acquires the properties of fluids by streaming air):  
Warmed compressed air streamed through ceramic pearls that lifts the bedsheet acquiring the characteristics of "fluid medium". The capillary provides pressure below closing pressure.



# Decubitus - Treatment

1. cleaning the wound and its periphery
2. constantly injecting sterile rinsing fluid into the wound cavity.
3. soak up wound cavity with sterile lint
4. applying special bandage, that helps to purify and to regenerate the cavity
5. fixing cover bandage with adhesive bandage fixer or hypo-allergenic glue



# Decubitus

## Treatment - modern bandages

- **Foam bandage:**
  - External wound protection:
  - Internal bound protection
  - Protection of skin surrounding the wound
  - The weight pressing the bandage dissolves into all directions, the gel "pads" and protects the wound





# Decubitus

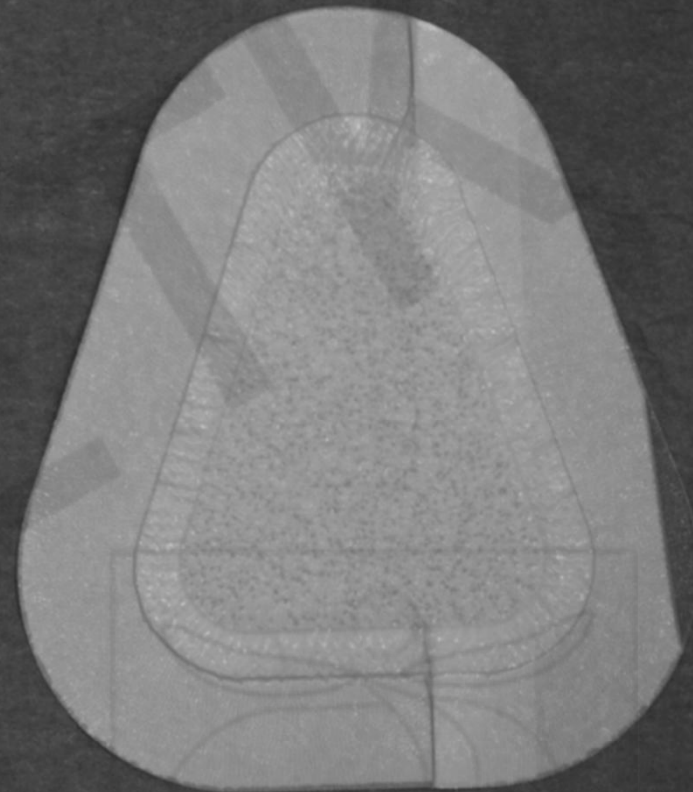
## Treatment - modern bandages

- **Absorbent hydrokollid dressing:**

- For the treatment of moderately or heavily draining wounds
- Helps to establish a wet wound condition.
- The watertight and bacterium barrier
- Thin, flexible and can well fit to wounds of all kinds of location.

- **Hydrokolloid:**

- For the treatment of mildly or moderately draining wounds
- Establishes occlusive, wet condition
- supporting autolytic debridation



# Decubitus

## Treatment - modern bandages

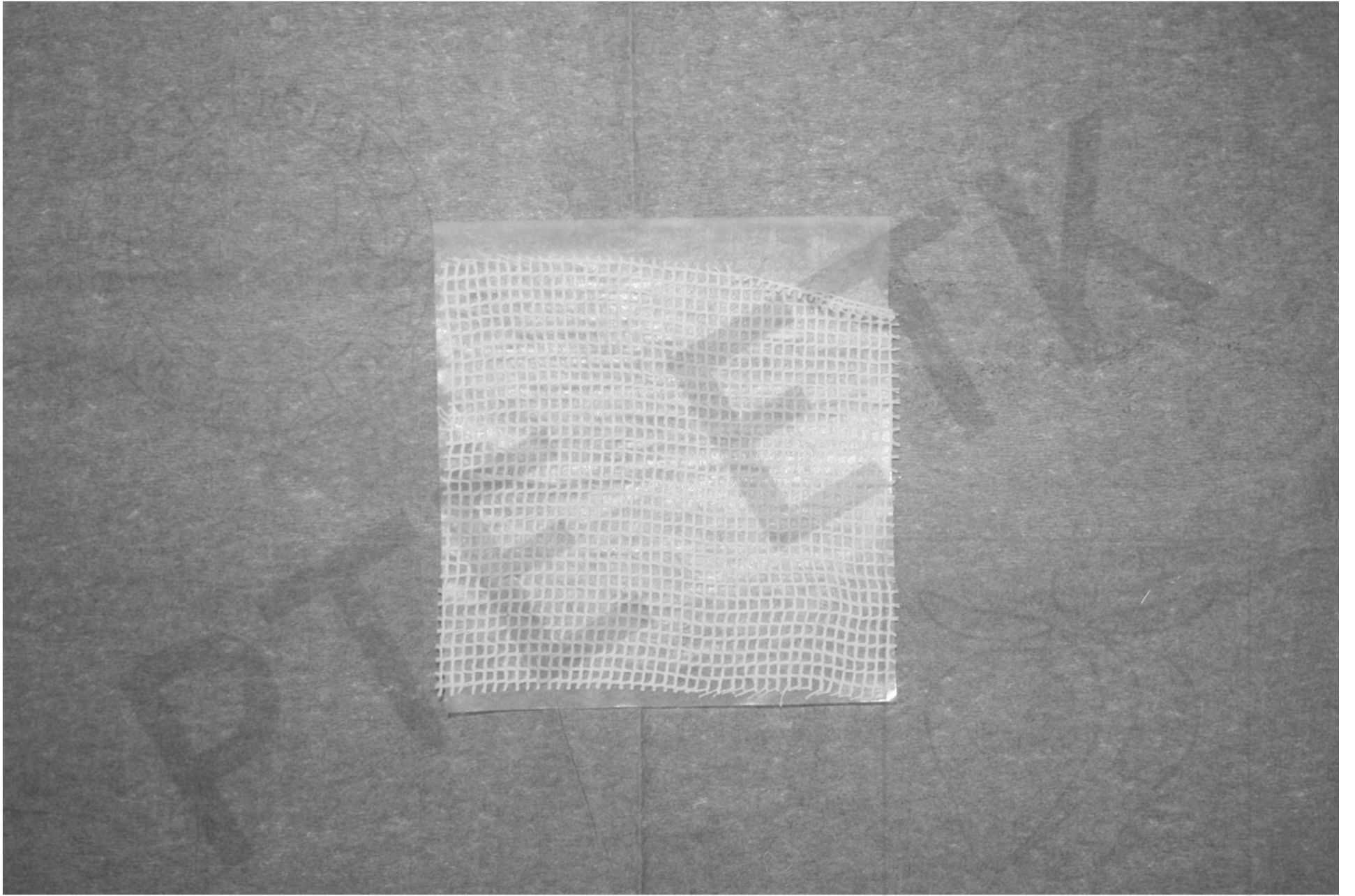
- **Alignates:**

- Can be primarily used as bandage for moderately-heavily draining wounds and for mildly bleeding wounds
- the bandage turns from dry linen into wet gel consistence
- Helps blood clotting

- **Active coal:**

- For the treatment of feculent, draining wounds





# Decubitus

## Treatment - modern bandages

### Hydrofiber bandage:

- Primary bonding for wounds from moderate to heavy draining.
- it has a greater absorbent and fluid containing ability, meanwhile it turns into a gel-like sheet.

### GranuGel:

- For the treatment of dry, necrotic and saburral wounds
- Maintains optimal wet wound condition, supports autolysis

### Wound purifier fluid:

- Used for purifying and washing wounds
- Isotonic tincture, doesn't hurt the cells of the tissue

# Features of wound exudate

bacterial superinfection increases defluxion

leukocytes join the wound exudate

observing wound exudate is an important nursing duty in the treatment of chronic patients

<b>Colour</b>	<p>The normal wound exudate is clear, yellowish.</p> <p>If it is contaminated by bacteria its viscosity disappears, it becomes muddy dark yellow and green.</p> <p>It turns red according to the change of the amount of erythrocytes .</p>
<b>Consistence</b>	<p>The consistence of the wound exudate depends on its protein content. Becomes stiffer when inflammation develops in the wound</p>
<b>Odour</b>	<p>In case of superinfection its odour can be very bad</p>
<b>Quantity</b>	<p>Inflammation increases secretion, dehydration, low fluid ingestion reduces it.</p>

# Features of wound exudate

## Colour and consistence of wound exudate according to wound infection:

- **Pyogen** (purulent)

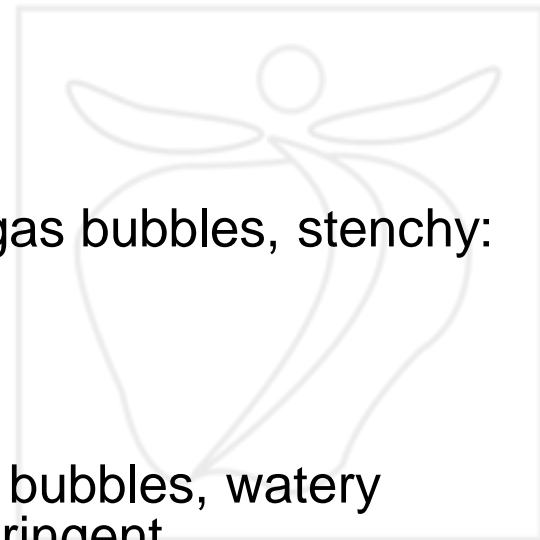
- The stiffness, colour and odour of purulence is somewhat characteristic to infectious agent
- Stiff, yellow: Staphylococcus
- watery yellowish green: Streptococcus, Pneumococcus
- Greenish yellow with redolent odour: Pseudomonas
- Brownish colour, faeces reek E. coli

- **Putrid** (phagedaenic)

- The purulence contains tissue parts and gas bubbles, stenchy: Proteus, Streptococcus faecalis, E. coli

- **Anaerob**

- Wound exudate contains tissue parts gas bubbles, watery exudate, redolent odour: Clostridium perfringent



# Wound exudate - sampling

- Each exudate shall be treated as infective material
- The sample shall be taken with sterile devices
- Do not use dry tampon when taking wound exudate sample from the surface of a dry wound! Sterile physiological saline solution can be used for wetting
- Take samples from more locations in cases of bigger wounds, from the peripheral part of ulcers.



# Wound exudate - wound treatment

- making of aseptic surface
- for disinfection
  - povidon iodine (Betadine)
  - bandages containing silver
  - alginate bandages
  - bandages containing coal
- *Using Mercurochrome tincture is not recommended because of toxic effects affecting the tissues and of low efficient antimicrobial effect!*
- According to researches hydrogen-peroxide does not influence wound recovery negatively, but it is inefficient in reducing the number of bacteria.

# Wound exudate - wound treatment

- when treating wounds dry bandages were used for a long time
- today maintaining wet wound condition is of primary importance
- during wet wound treatment the bandage will not let the wound dry out, therefore supports angiogenesis and fibroblast operation
- being closed it also protects against superinfection