

Kharkiv National Medical University

# GENERAL INSPECTION OF THE PATIENT

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## Inspection of the patient:

Is simple method, 80% of information comes through your eyes;

Allows to evaluate objectively the state of the patient  
*(status present objectivus)*;

Helps to organize the algorithm of patient's examination;  
Sometimes its possible to diagnose at a moment *(diagnosis ad oculos)* (acromegaly, hyperthyreoidosis);

To evaluate the data of subjective examination;

Important part of the physician-patient relationship development;



# Rules of inspection

- The patient is fully or partially exposed;
- Positioned at a distance of 2-3 steps from the doctor
- Gradually turning the patient's doctor examines him in direct and lateral illumination;
- Inspection of thorax is best done in a vertical position and the abdomen in the vertical and horizontal

# Rules of inspection

Use daylight;  
Use direct and lateral illumination;

In artificial light there are possible problems in the evaluation of color skin and mucus, skin elements;

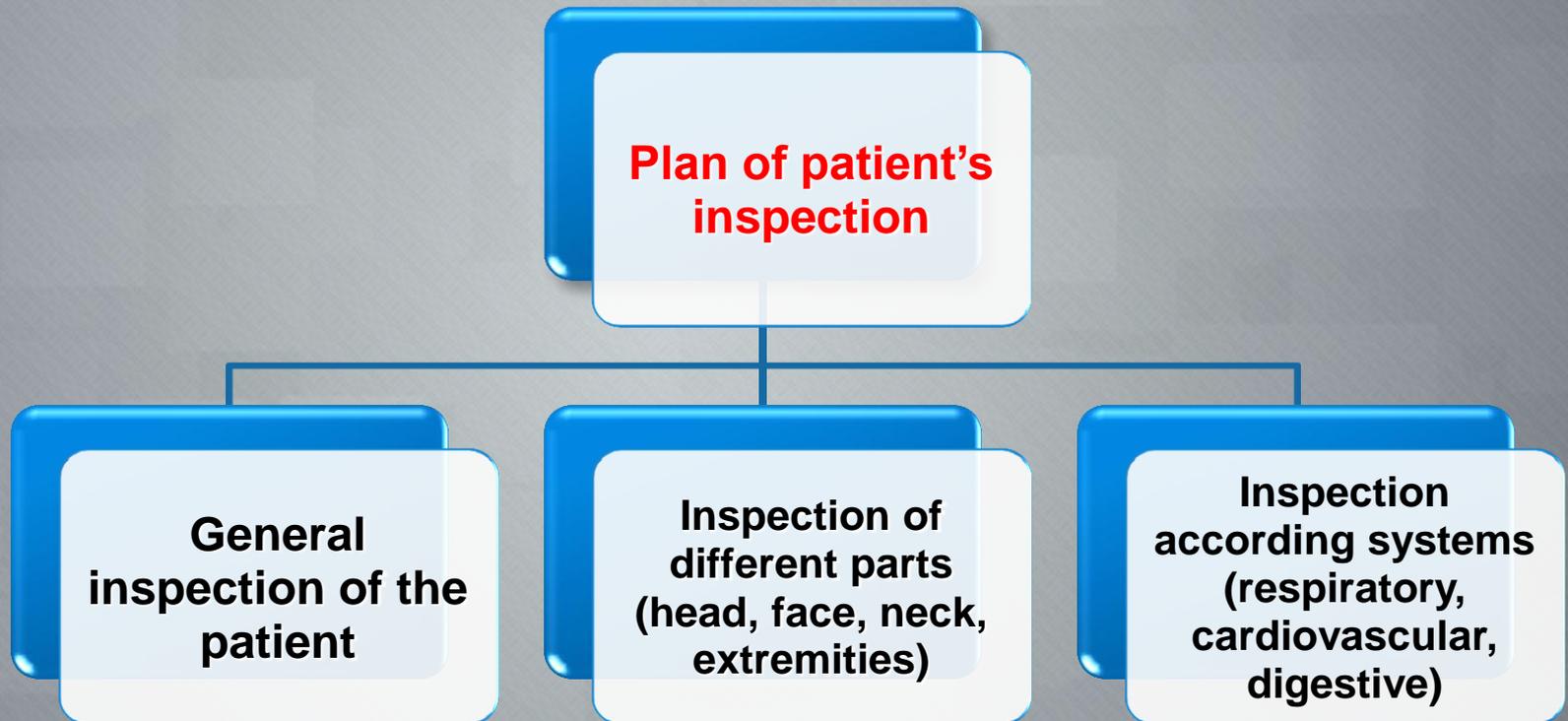
Direct light



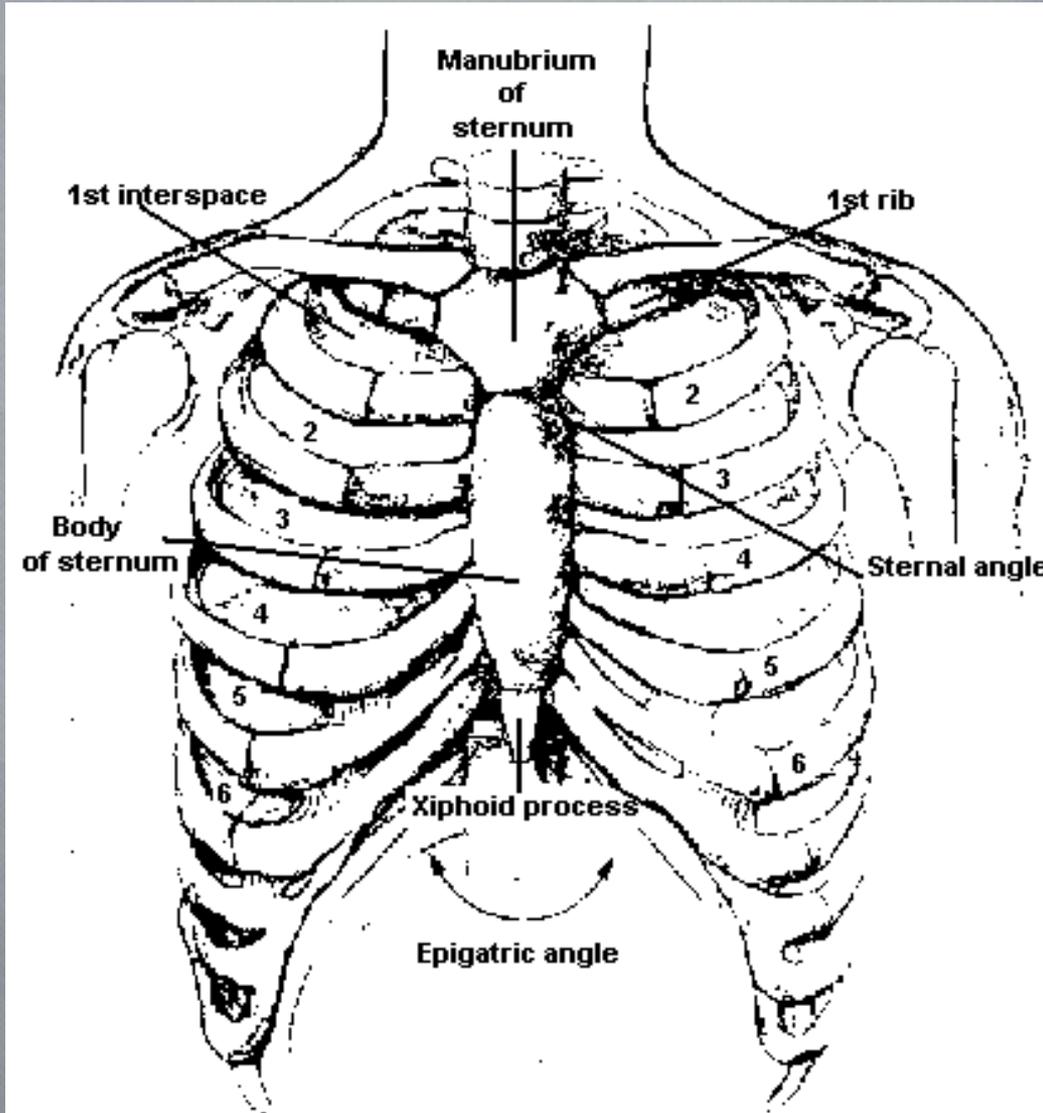
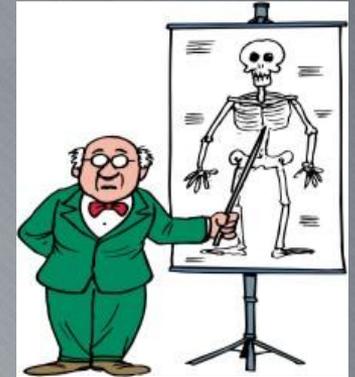
Lateral illumination



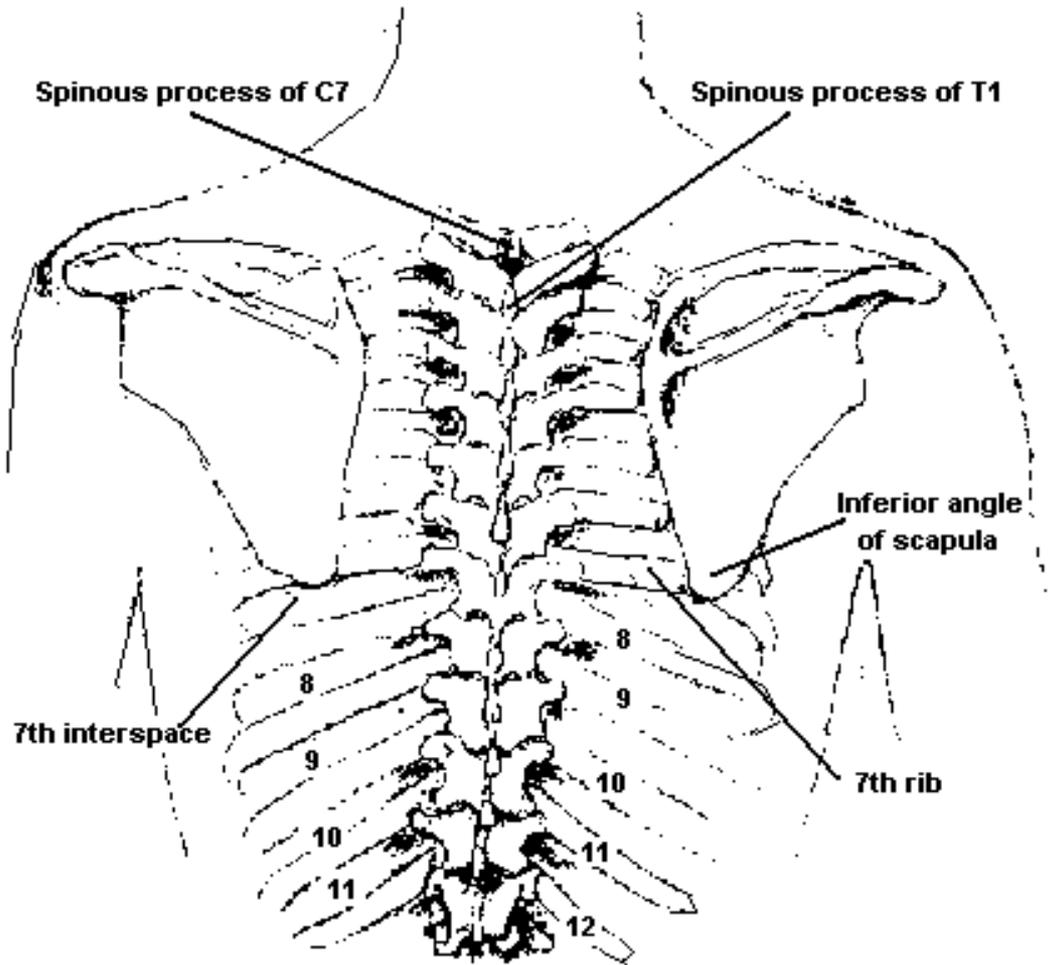
# Rules of patient's inspection



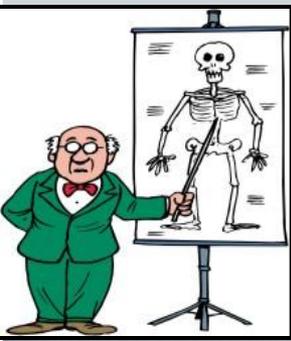
# Topographic regions and lines of the chest



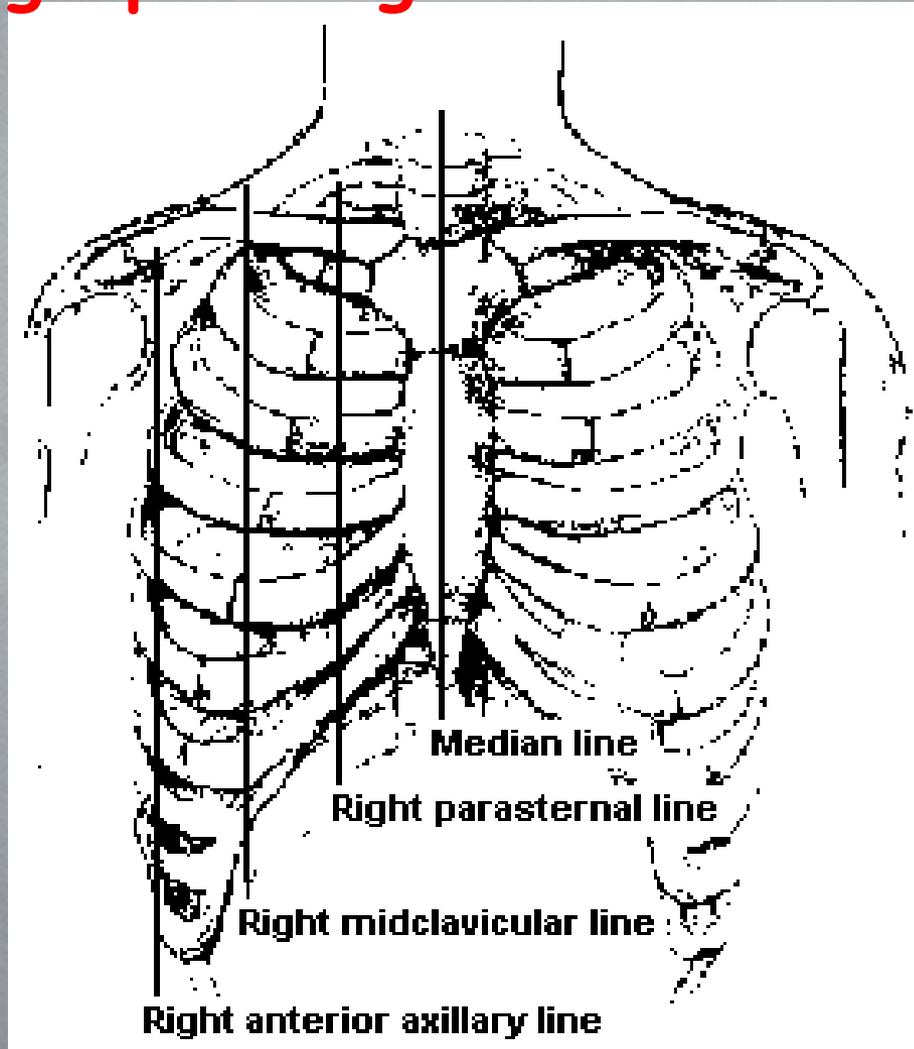
# Topographic regions and lines of the chest

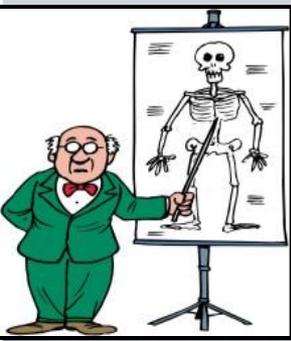


- *Supraclavicular region* — above clavicles;
- *Infraclavicular region* — below clavicle;
- *Suprascapular region* — above scapulae;
- *Interscapular region* — between the scapulae;
- *Infrascapular region* — below scapular;

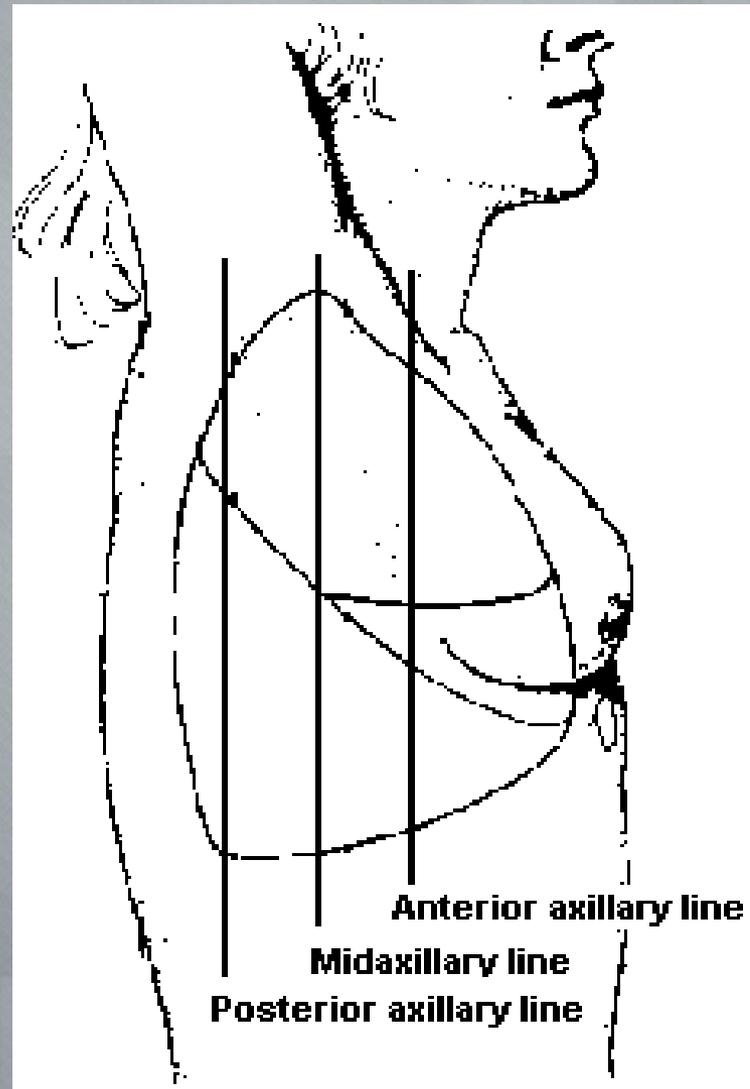


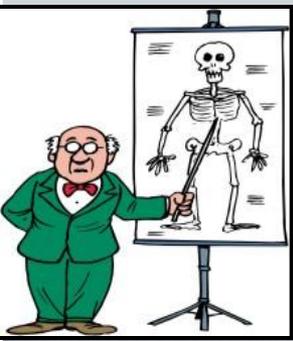
# Topographic regions and lines of the chest



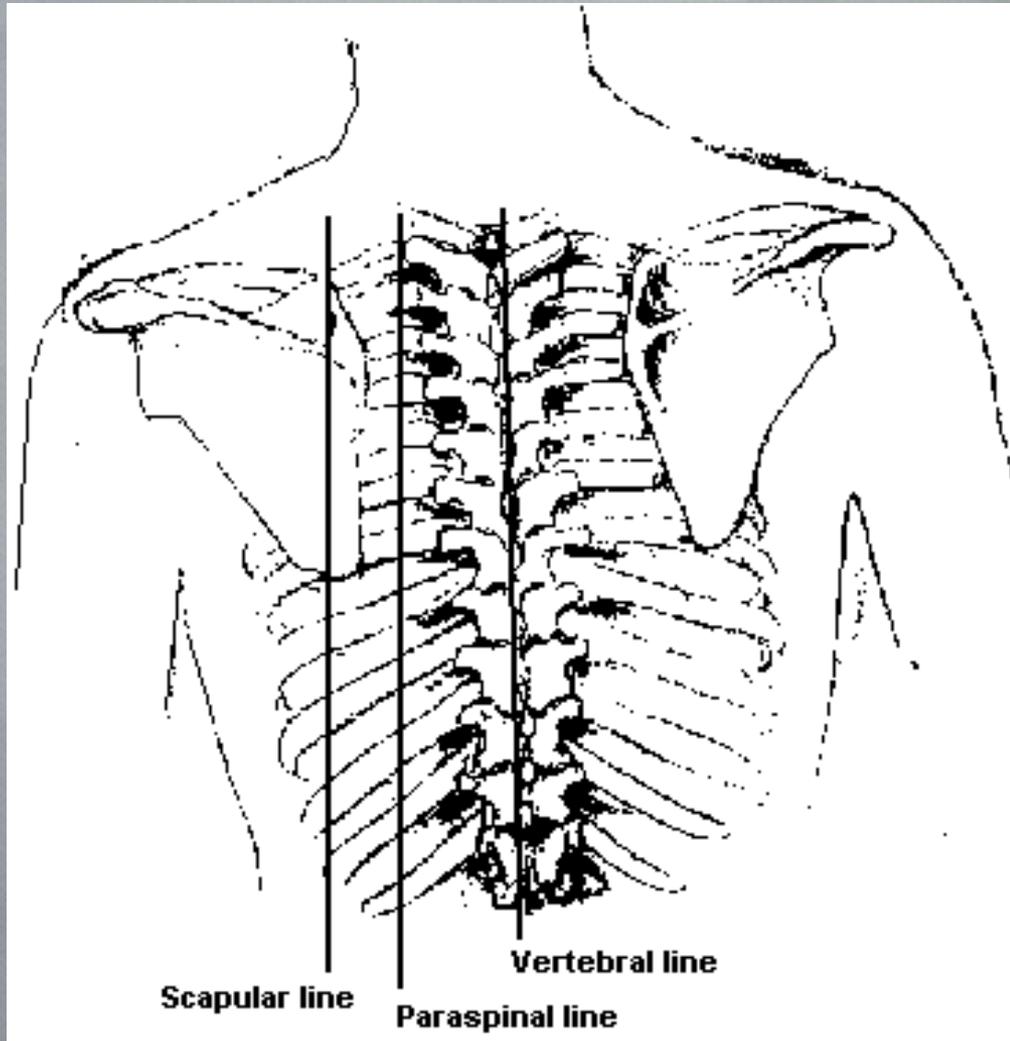


## Topographic regions and lines of the chest

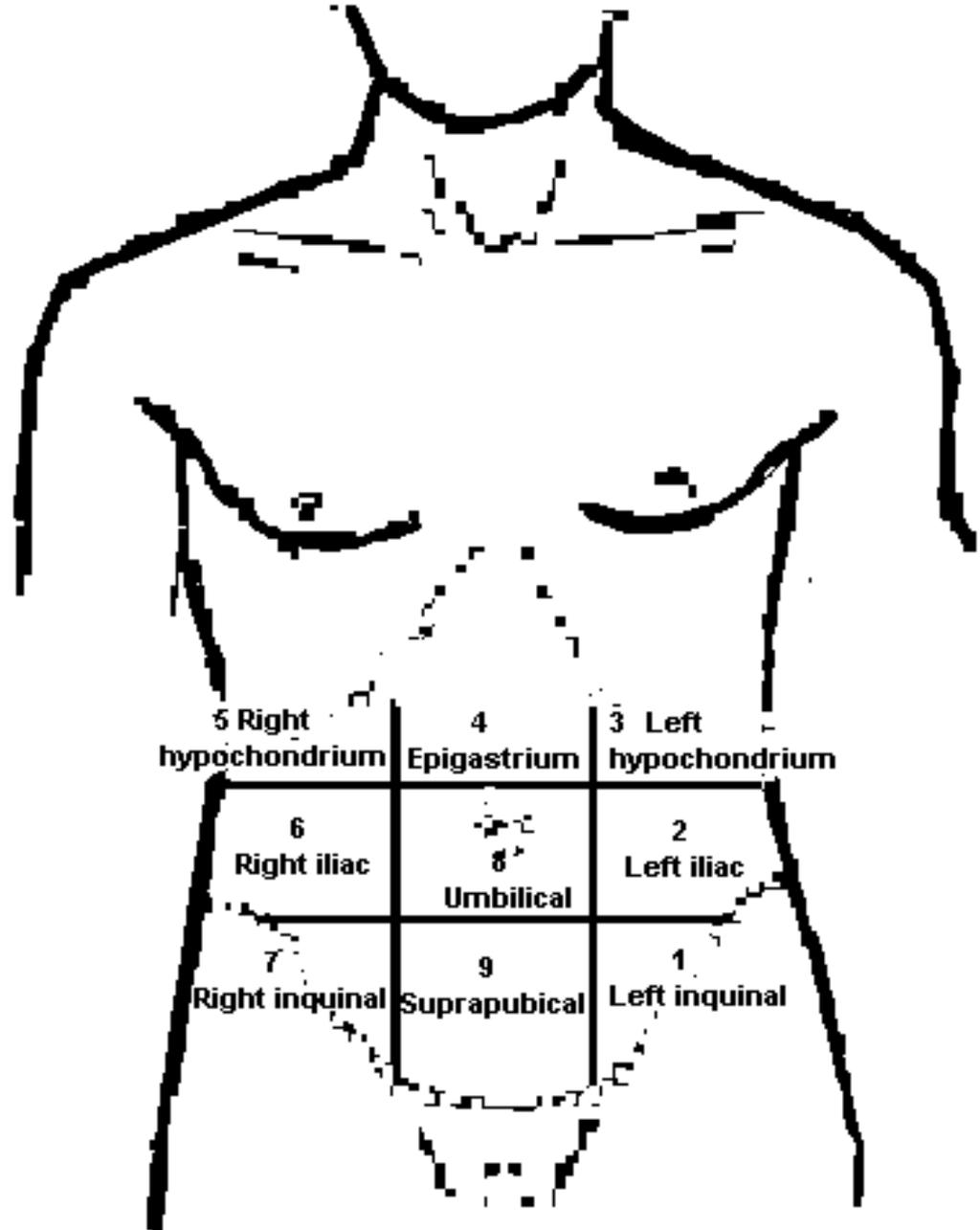




## Topographic regions and lines of the chest



# Topographic regions of the abdomen





# Rules of patient's inspection

1. Estimation of general condition

2. Position of the patient

3. Gait

4. Consciousness

5. Facial expression

6. Age

7. Habitus, height, weight

9. Skin, mucus

10. Hair, nails

11. Subcutaneous fat

12. Edema

13. Lymph nodes

14. Muscular system

15. Bones and joints

16. Inspection of the neck

17. Investigation of thyroid gland

18. Inspection of the body parts: head, extremities, chest, abdomen



# General condition of the patient

The criteria's of patient's condition are the next clinical features:

- consciousness;
- posture;
- gait;
- the facial expression;
- weight;
- mood (mental condition);



# General condition of the patient

- good;
- satisfactory;
- moderate severe;
- severe;
- extremely severe;



## *Good patient's condition:*

- clear consciousness
- active posture
- free gait
- sensible facial expression
- sufficient weight and good mood

(patients with remission of chronic disease favorable course of a disease, or during recovery).

*Satisfactory patients condition*  
(*status morboacili*):



- clear consciousness;
- active or active with restriction posture;
- free or partial deranged (specific) gait;
- sensible facial expression;
- adequate mental reaction;

(patients with remission of prolong chronic disease, or during recovery from acute disease).



***Moderate severe condition***

***(status ingravescens):***

- deranged consciousness;
- alteration of facial expression;
- Posture forced;
- uncertain gait;
- partial deranged mental state;

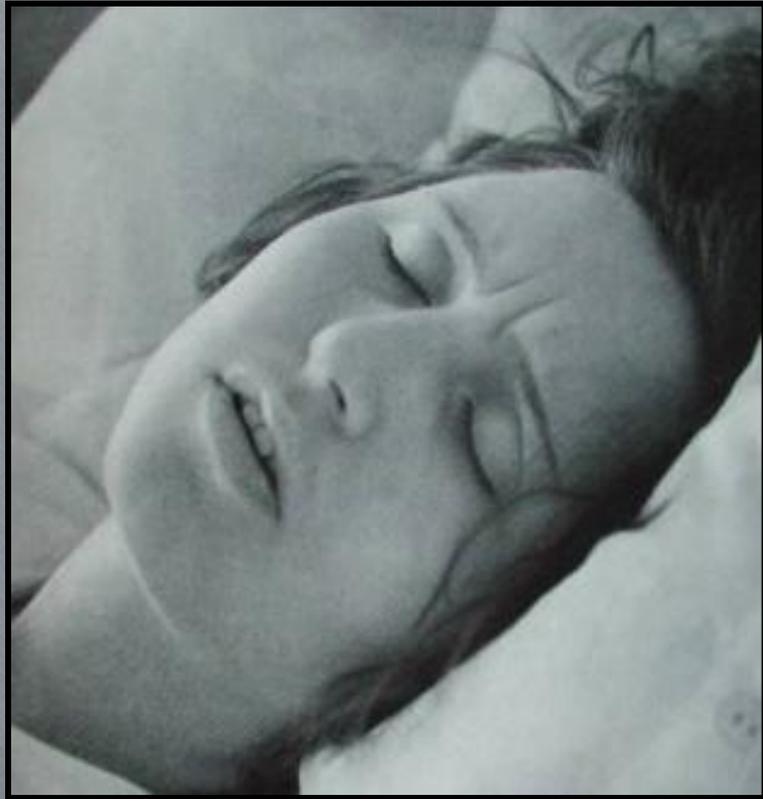
(in patients with recurrence of chronic disease, acute diseases, or due to the traumas and poisoning).

*Severe condition (status morbo-gravi):*

- deranged consciousness;
- changed facial expression (fear, suffer, hopelessness, indifference);
- forced posture;
- loss of weight;
- edema;
- inadequate mental state;



(in patients with infections and oncological diseases, heart failure, disorders of renal, liver functions, abnormalities of nervous and endocrine systems, after operations, traumas)



***Extremely severe condition  
(status gravissimus):***

- unconsciousness;
- passive posture;
- indifferent facial expression;

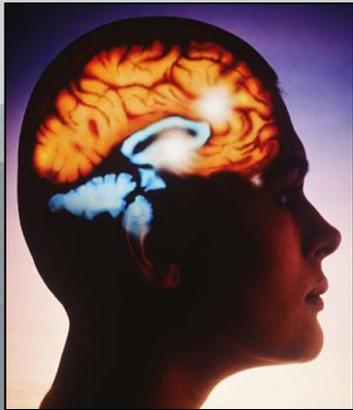
observed in patient with coma,  
shock, and agony.



Consciousness (*sensorium*) may be **clear** or **deranged**.

The criteria's of consciousness condition are the following features:

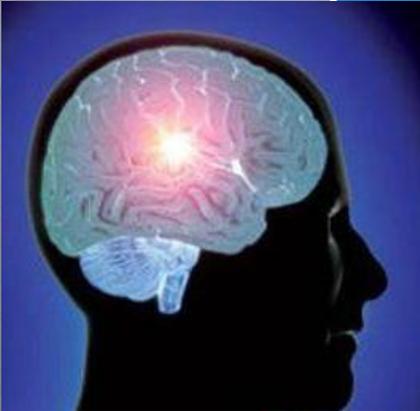
- orientation to the surroundings,
- adequate answers,
- concentrated attention,
- reflex,
- pupil reaction on light.



**CONSCIOUSNESS**

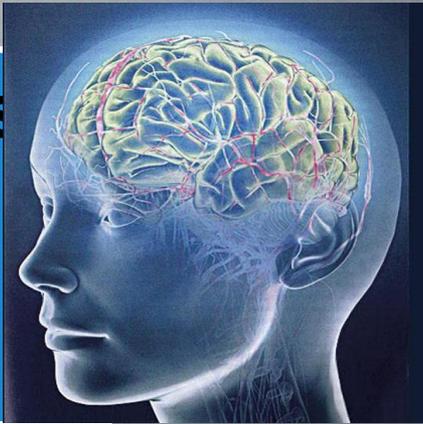
**EXCITED**

**DEPRESSED**



**Irritative  
disorder  
Delirium**

**Cloudiness  
Stupor  
Sopor  
Coma**



## *Clear consciousness*

*(sensorium lucidum):*

adequate behavior,

- correct orientation to the surroundings,
- timely answer to the question,
- preservation of all reflexes.





The *deranged consciousness* develop due to the different causes:

- - disorders of cerebral or cardiac circulation;
- - endogenic and exogenic intoxication;
- - infectious affections;
- - hormonal, mineral, metabolic abnormalities;
- - traumas of the brain.

# Cloudiness

Disorientation in space,  
indifference,  
the answers adequate, but  
delayed,  
reflexes are present

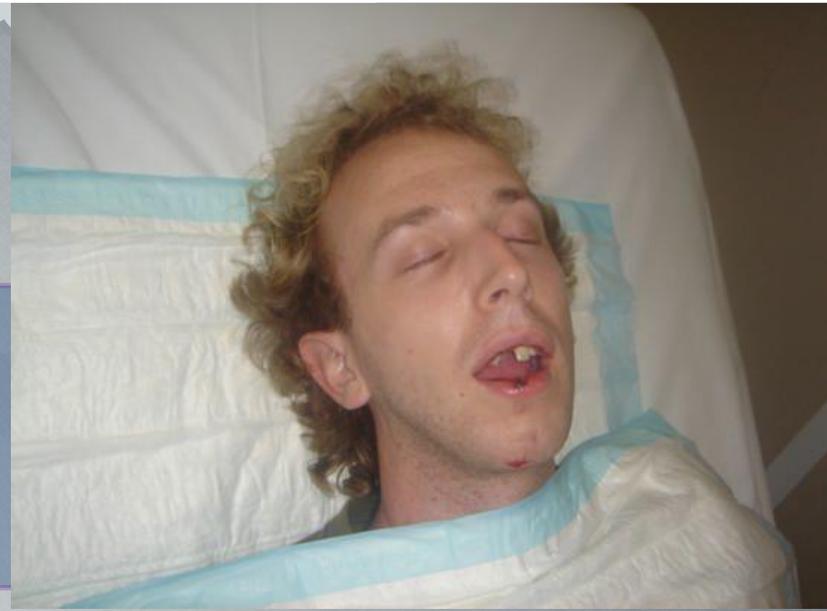


# Stupor

- Disorientation in space, surroundings,
- the answers inadequate and delayed,
- reflexes are present



# Sopor



- Disorientation in time, space, surroundings, own personality.
- Pathological deep sleep from which patient wake up only for short periods of time when called loudly or roused by an external stimulus,
- reflexes are present, but delayed

# Coma

- Unconsciousness with absence of response to external stimuli,
- absence of reflexes,
- deranged vital function



*The following forms of coma are most common.*

Coma due to the disorders of cerebral or cardiac circulation:

- apoplexy coma resulted from stroke, thromboemboly of cerebral vessels

asymmetric face,  
noisy, deep breathing,  
narrowed pupil.

Duration from several hours to several days;



# Endotoxic coma:



- *diabetic coma* occurs in patients with diabetes mellitus due to metabolic carbohydrate and lipid disorders.
- The causes of coma with ketoacidosis: too little or no insulin; an infection; digestive disturbance.

# Endotoxic coma:



- Hypoglycemic coma occurs in patients with
- diabetes mellitus commonly treated with insulin due to sudden decreasing a blood glucose concentration of less than 2,5 mmol/l.



# Endotoxic coma:

- *Hepatic coma* develops in patients with acute and subacute dystrophy and necrosis of the liver parenchyma (acute viral hepatitis, acute drug-induced liver disease); in patient patients with final stage of liver cirrhosis related to disorders of bilirubin, protein, and carbohydrate metabolism.

# Endotoxic coma:



- *Uraemic coma* develops slowly in patients with congenital and inherited renal diseases, glomerular and interstitial diseases, obstructive uropathy, as complication of vascular systemic diseases, in condition which destroyed the normal structure and function of the kidney, acute and chronic renal failure develops.



# Exotoxic

- Exotoxical coma is relevant to acute poisoning.
- Poisoning substances may give rise to primary toxic effects, which may result in organ damage of a nonspecific type.
- The organ damage may then lead to respiratory or metabolic disturbance or a combination of these, hence to a variety of clinical features.



## The forms of **exited consciousness**

**Twilight state** is characterized by disorientation in surroundings, loss of memory (amnesia), patient is excited, has pathologically high spirits, is anxious, sometimes even aggressive. This state may observe in patients with epilepsy.

## The forms of **exited consciousness**

**Delirium** is characterized with visual and acoustic hallucinations, inadequacy of emotions, anxiety, intermittent thinking. There are some kinds of delirium: alcoholic (delirium tremens), infection senile, traumatic, pharmacogenic, epileptic.



# Posture of the patients

Forms	Definition	Pathological state
<b>Active</b>	Patient has ability to walk, stand, to change his posture	Mild disease Onset of a severe disease
<b>Passive</b>	Patient is motionless, he lies, his head and the limbs hand down	Unconscious state
<b>Forced</b>	Forced posture assumed by the patient to relieve or remove pain, cough, dyspnoea, or other signs of disease	Severe disease

**Forced posture**  
differs relevant to the process which cause specific patients position.

**Standing upright position**

is observed in patient with attacks of angina pectoris and atheromatous peripheral vascular disease.



# Forced posture

*Sitting position - orthopnoea* (gr. orthos - straight, pne - breath) - the severe stage of short of breath.



Sitting position fixing the shoulder girdle is characteristic of bronchial asthma attack.

This position assists the accessory muscles and diaphragm to take part in respiration, thus promotes chest widening during inspiration and improves patient's state.



bronchial asthma attack  
(upper)

Anasarca (lower)

# Forced posture

Sitting position due to the acute left ventricular heart failure cardiac asthma is characterized a forced position sitting with legs hanging down from the bed.



# Forced posture

Sitting position and inclines forward

may observe in patient with pericarditis, which produce a pericardiac effusion resulted restriction a diastolic heart function.



# Forced posture

The supine posture is characteristic of strong pain in the abdomen

- acute appendicitis
- acute cholecystitis
- perforated ulcer of stomach or duodenum.

Sometimes patient bends the leg in knee joint for decreasing marked strain of muscle of the abdominal wall. The supine posture with complete immobility is observed in patients with acute rheumatic polyarthritis due to the severe pain; patients with sclerodermia and patients with severe fatigue.

# Forced posture

## The forced posture on the side:

- on the affected side lie the patients with the lung, pleura diseases.

The patients with dry pleurisy prefer to lie on the affected side because the limitation of the pleural layers movement relieves the pain.

The patients with pneumonia, massive lung tumor, effusive pleurisy prefer to lie on the affected side for decreasing dyspnoea resulted decline pressure and hyperventilation of healthy lung;



# Forced posture

The forced posture on the side:

- on the healthy side often lie the patients with fractured ribs, intercostal neuralgia, herpes zoster, because pain intensifies if the affected side is pressed against bed.



# Forced posture

*The position lying on the side with head thrown back and the thighs and legs flexed on the abdomen*

is characteristic of cerebrospinal meningitis due to the rigidity and contraction of the muscles at the neck and trunk of varying degree.



# Forced posture



*Opisthotonus* is characteristic of paralytic rabies.

This position may observe in meningitis, epilepsy, some poisoning.



# Forced posture

*The prone position* (lying with face down) :

- tumor of pancreas;
- gastric ulcer (in the posterior wall of the stomach is affected);
- acute thrombosis of lien vein;
- trauma and tuberculosis of spine;
- trophic ulcer, placed on the skin of back and buttocks.



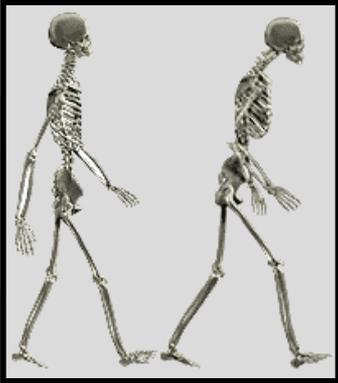
# Forced posture

The forced “knee-elbow position” with bend trunk forward may observe in patients with effusive pericarditis.



The state of restless, anxiety, occur in patient due to the urinary tract calculi and nephrocalcinosis.

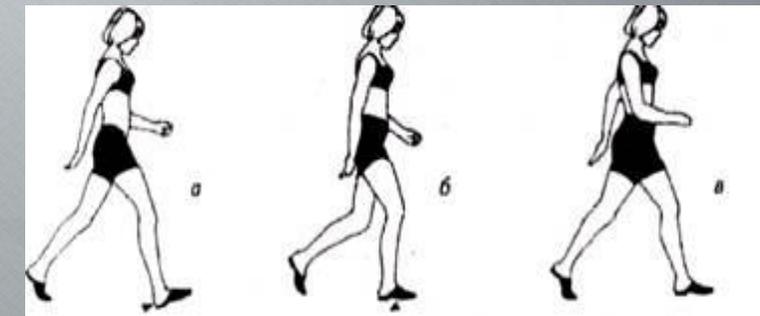
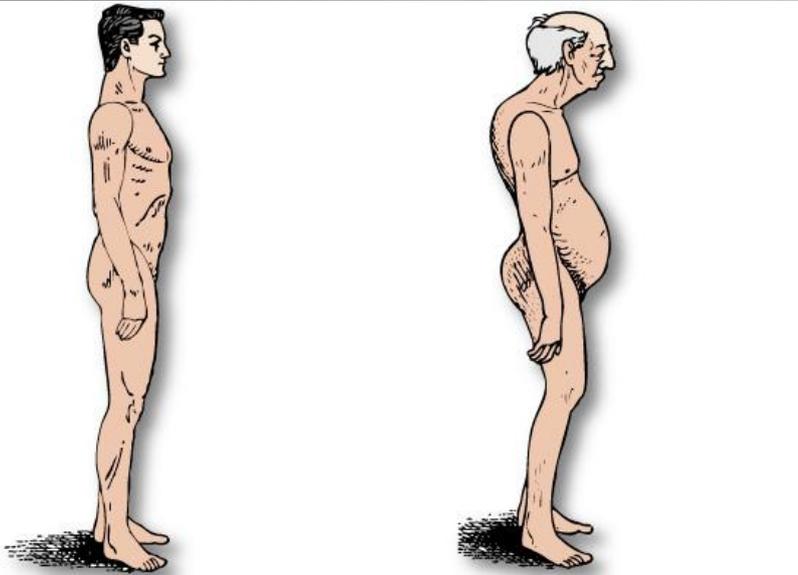
# GAIT

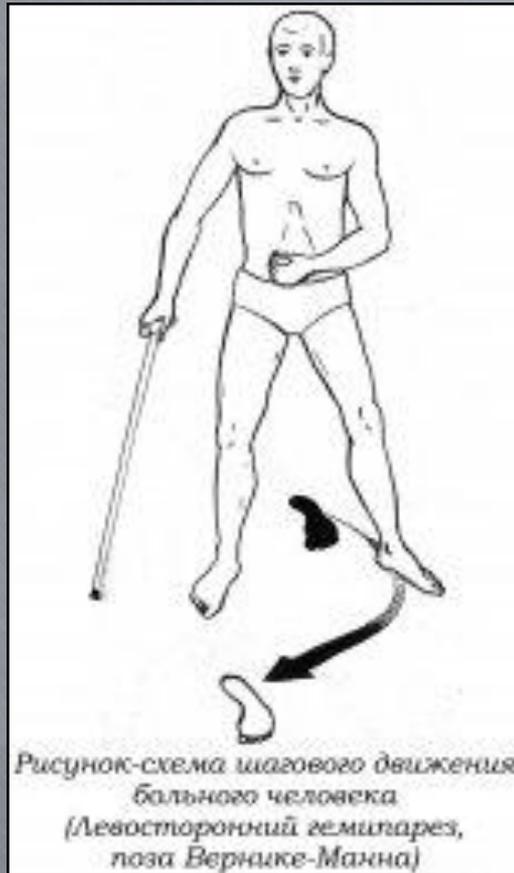


Gait - combination of the pose and movement during walking.

Gait depends from the state of nervous system connective tissue, muscles, joint and bones.

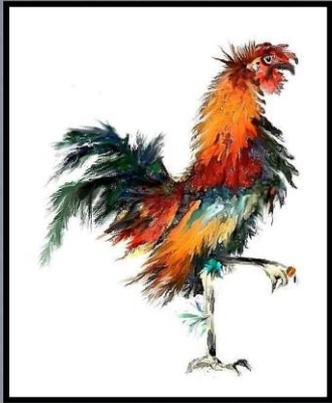
Gait of the healthy person is firm, free, and straight.





There are some specific gaits according to the pathological processes:

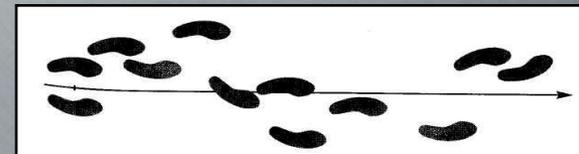
• hemiglegic/circumductive gait is characterized by abundance (superfluous) leg draw aside and the arm from the same side bond to the trunk;



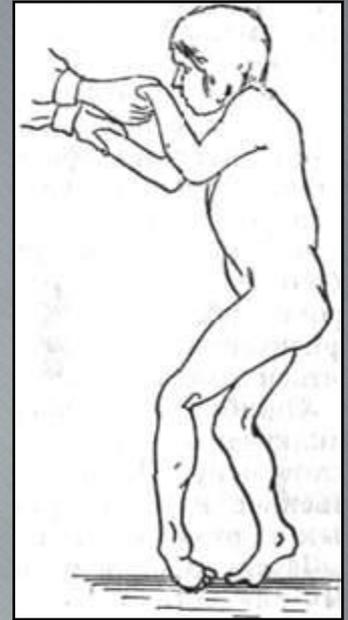
• paretic gait is characterized by slow movement with difficulties walking due to the development of flexor spasm and contractures in the limbs;

• peroneal gait, stoppage is characterized by high climb of leg, sharp drawing;

• ataxic gait - (origin from Greek ataktos - confused) is characterized by high rising of limb, reach the floor, limb continue to search fulcrum.;



*spastic gait* is characterized by small step with difficulties during bend of limb in knee and heel clinging due to the a pyramidal tract lesion;



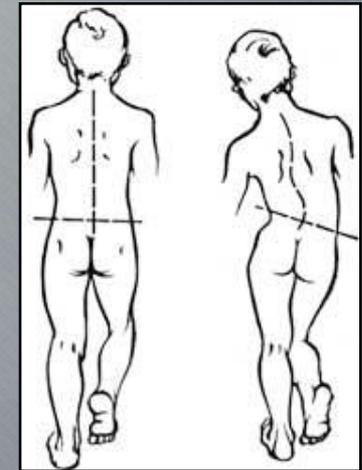
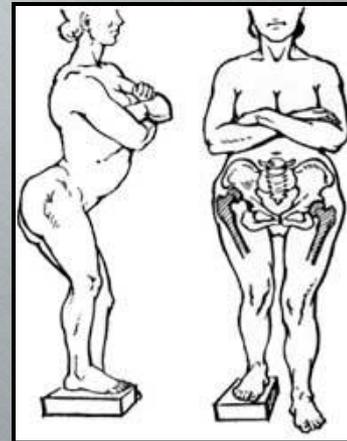
• *doll ' s/puppet gait* is observed in patients is with Parkinsonism, which includes three main components: tremor, muscular rigidity and hypokinesia;



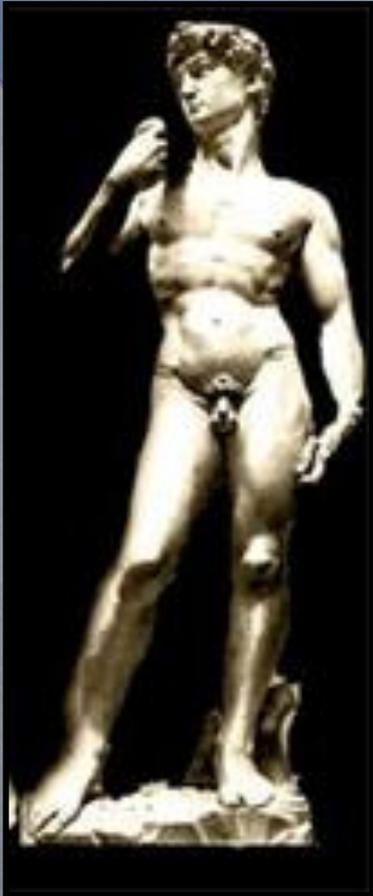
# GAIT

- *cerebellar gait*, wobbly/tottering/reeling gait is characterized by incoordination of ipsilateral limbs: decomposition of movements, impaired alternating movements; loss of balance: broad based gait, leaning towards of lesion; hypotonia of limbs; head tremor;
- *gait with forced movements* femur nerve fibula neuritis is observed in patients with child central paralysis;
- *retarded gait* is characterized by small snuffle step with uncertain and uncoordinative movement of arms;
- *“proud” gait* is characterized by putting trunk backward for support balance relevant to pregnancy, ascitis, or great tumor of abdominal cavity

▪ *gait as “a duck”* - is characterized by small, slow step with compensatory inclination trunk to the opposite side due to the hypotonia of pelvis muscle;



# HABITUS



The concept of habitus includes:

- bodybuild;
- height;
- body weight;

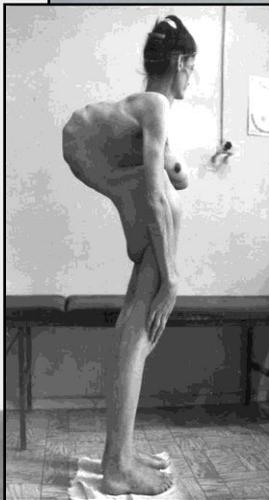
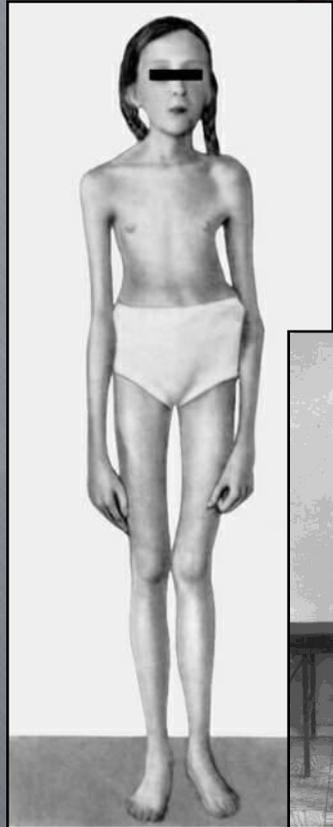
In addition to general inspection it is necessary, to perform some anthropometry measurement.



*Body-build* is determined by morphological bodily features and divided into two groups:

•a) *correct habitus* with a well proportioned parts of the body: trunk, head, limbs without deformity;

•b) *incorrect habitus* with different deformity and disproportion of the trunk, limbs, chest, abdomen;



# HEIGHT

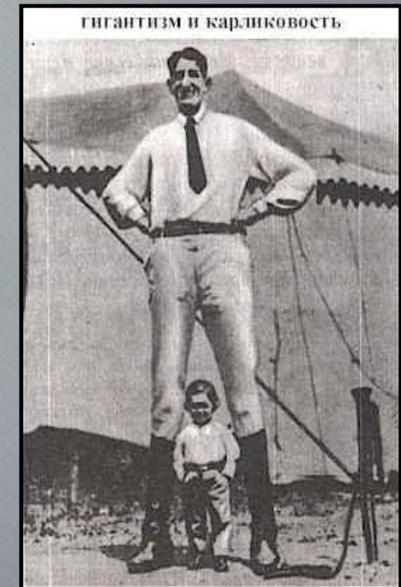
The normal height of  
**males** varies from 165 to 180 cm  
**females** 155-170 cm.



**Dwarfism** may be due to hypofunction of the anterior lobe of the pituitary (nanism) or of the thyroid gland (cretinism).

**Gigantism** can be due to dysfunction and of the anterior lobe of the pituitary or hypofunction of the sex gland.

Patients height and the length of his trunk are important for the assessment of both his physical grow and proportions of his separate parts, which can be upset in some congenital diseases and disease acquired in childhood.



# WEIGHT

Body Mass Index (BMI) was proposed in order to assess the weight in adults.

BMI may calculate using formula:

$$\text{BMI} = \frac{\text{weight (kg)}}{\text{height}^2 (\text{m}^2)}$$

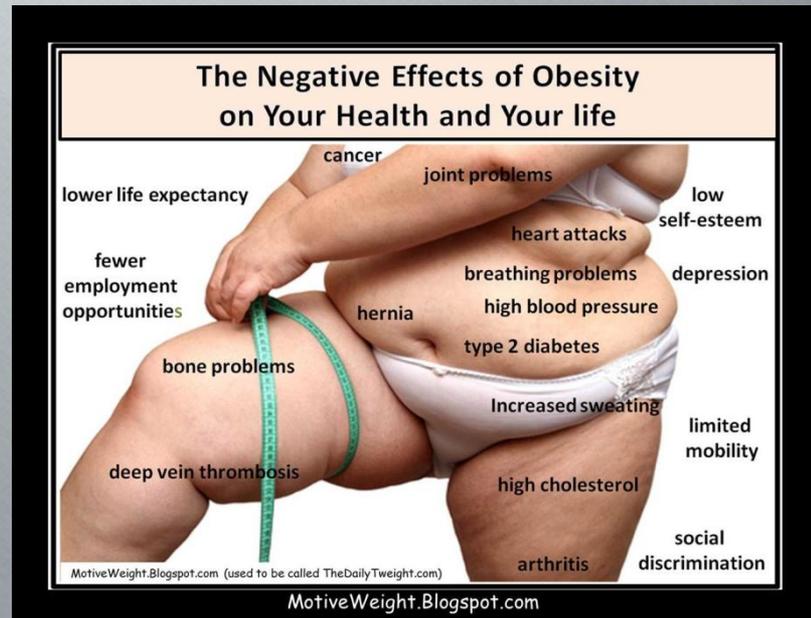
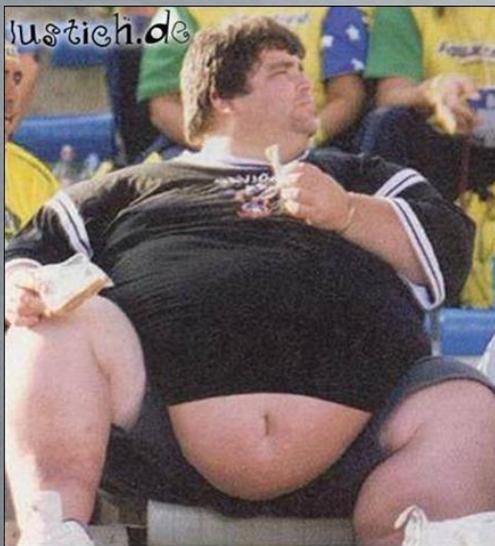




According to the BMI it is possible to reveal the overweight and obesity.  
(WHO classification of overweight and obesity in adults)

<b>Category</b> <b>kg/m</b>	<b>Body Mass Index (BMI),</b>
Underweight	< 18.5
Normal weight	18.5-24.9
Overweight	≥25.0
Pre-obesity	25.0-29.9
Obesity I degree	30.0-34.9
Obesity II degree	35.0-39
Obesity III degree	≥40.0

**Gain of weight** may be in persons without weight control, having eating habits with increased intake of carbohydrates, saturated fat and alcohol. Endocrine disorders are potential contributors to obesity (Gushing's syndrome, hypofunction of thyroid gland, diabetes mellitus 2 type).



*Loss of weight* is observed in persons during starvation, in patients with severe diseases, oncology pathology, endocrine dysfunction - hyperfunction of thyroid gland



# FACE OF THE PATIENT

## Face in patients with diseases of respiratory system:

- facies pneumonica - one-sided blush on the same cheek as affected lung, cyanosis, often herpes on the lips and nose;
- facies asthmatica - pale, cyanotic face, sweating, cool extremities an unproductive cough, accelerated breathing rate;



# FACE OF THE PATIENT

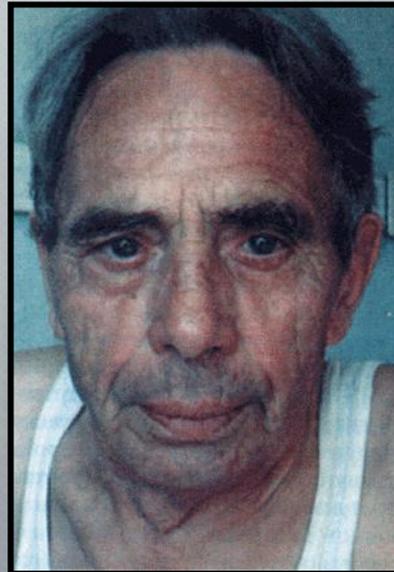
- facies tuberculosa - exhausted, pale face with blush localized on the cheeks "burning eyes", dry lips, excited countenance, half open mouth



# FACE OF THE PATIENT

## Face in patients with diseases of respiratory system:

•-- facies adenoidea - half open or full open mouth, loose-hanging lower lip, noisy breathing.



Diffuse cyanosis in patient with lung-heart failure

# FACE OF THE PATIENT

## Face in patients with disease of cardiovascular system:

- facies aortale - pale skin, rhythmical movements of the head, simultaneously with aortic regurgitation;
- facies mitrale - the patient looks younger his age, face with blush, localized on the cheeks, cyanotic color of the tip nose, ears, dyspnoea. The face is observed in patients with mitral stenosis ;



# FACE OF THE PATIENT

Face in patients with disease of cardiovascular system:



•– facies Corvisara, facies cardiaca -

is characteristic of heart failure.

The face is edematous, pale, and yellowish with a cyanotic hue. The mouth is always half open, the lips are cyanotic, the eyes are dull;

# FACE OF THE PATIENT



*facies plethorica* - hyperemic and cyanotic skin, puffy face due to the excessive circulated blood in patients, plethora with hypertensive crises.

# FACE OF THE PATIENT



## Face in patients with endocrine disorders:

- facies acromegalica - due to the hyperproduction of growth hormone by anterior lobe of hypophysis. There are enlarged superciliary arches zygomatic bones, ears, auricles nose, lips, tongue, growth and putting forward of low jaw (prognathism) ;



# FACE OF THE PATIENT

## Face in patients with endocrine disorders:

•- facies in patients with Cushing's syndrome due to the increased excessive cortisone production in patients with adrenal tumor or prolonged glucocorticoid administration is characterized by round or "moon-like" face, plethora, red cheeks, excessive hair growth (hirsutism in women);



Figure 02-14 Cushing's syndrome. A woman who suffered from a pituitary adenoma that produced ACTH exhibits a moon face, buffalo hump, increased facial hair, and thinning of the scalp hair. (Rubin L, Farber JL, [1999]. Pathology [3rd ed., p. 1150]. Philadelphia: Lippincott-Karen)

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# FACE OF THE PATIENT

## Face in patients with endocrine disorders:

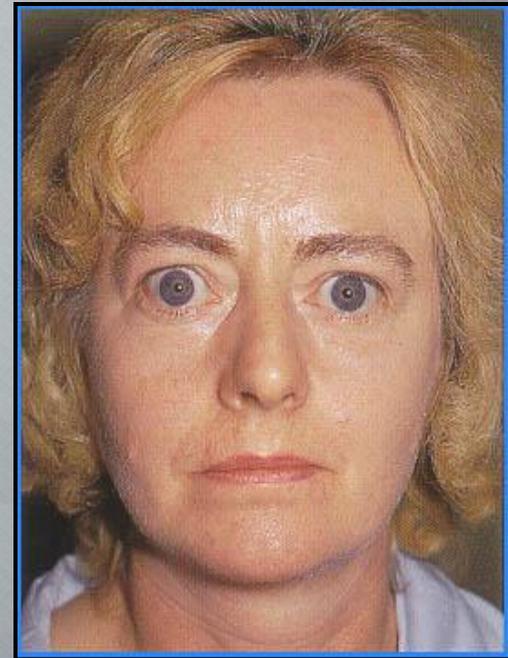
- facies myxoedemica in patient with severe hypothyroidism (myxedema) due to the thyroid hypofunction has a dull, puffy face, with purplish lips and malar flush;



# FACE OF THE PATIENT

## Face in patients with endocrine disorders:

facies basedovica are observed in patients with hyperthyroidism which results from exposure of the body tissues to excess circulating levels of free thyroid hormones. The face is lively with widened eye slits and abnormally sparkling eyes (exophthalmus);

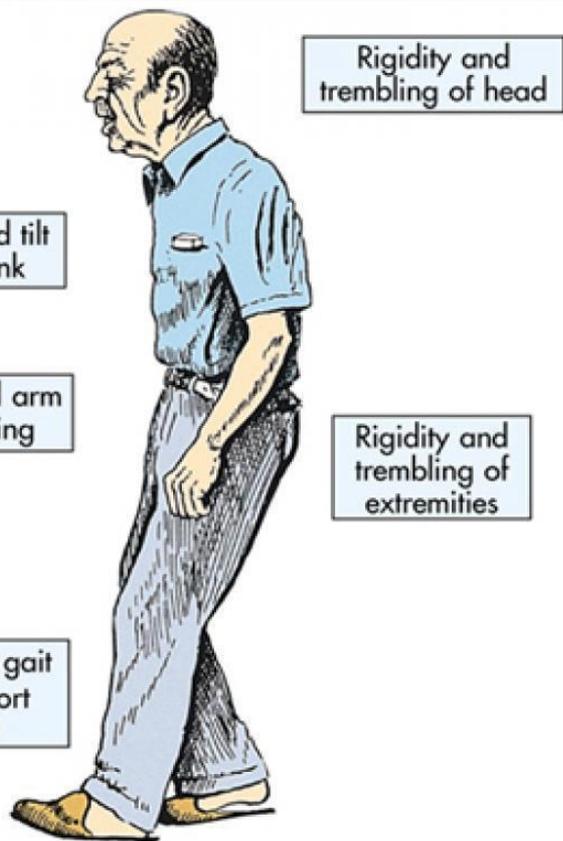


•- facies in patients with hypogonadism is characterized by dry skin, wrinkled, absence of hair in men, thin eyebrows, looks as “baked apple”.

# FACE OF THE PATIENT

## Face in patients with diseases of nervous system:

- *facies amimica*, Parkinson's mask in patients with blunts expression. A mask like, amimic face may result, with decreased blanking and a characteristic stare. Since the neck and upper trunk tend to flex forward, the patient seems to peer upward toward the observer. Facial skin becomes oily and drooling may occur.

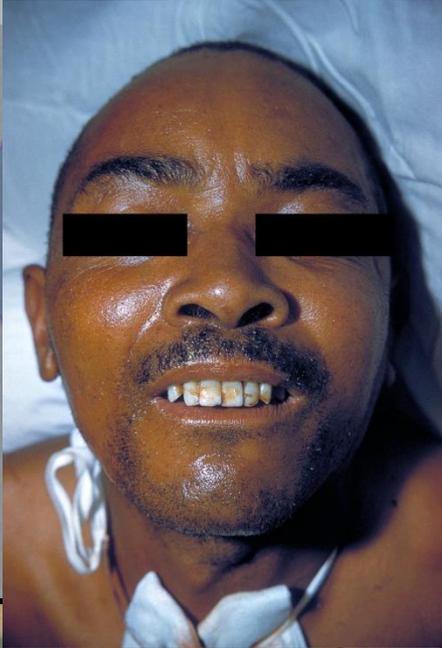


# FACE OF THE PATIENT



Face in patients with diseases of nervous system:

- *facies myophthica* - with half-open mouth, without wrangle on the forehead, amimic, half open eyes is characteristic of progressive myophathy;



# FACE OF THE PATIENT

**Face in patients with diseases of nervous system:**

- *risus sardonicus* with a resemblance of a grieve occurs in tetanus patients: the mouth widens as in laughter, while the skin folds on the forehead express grief;



# FACE OF THE PATIENT

Face in patients with diseases of nervous system:

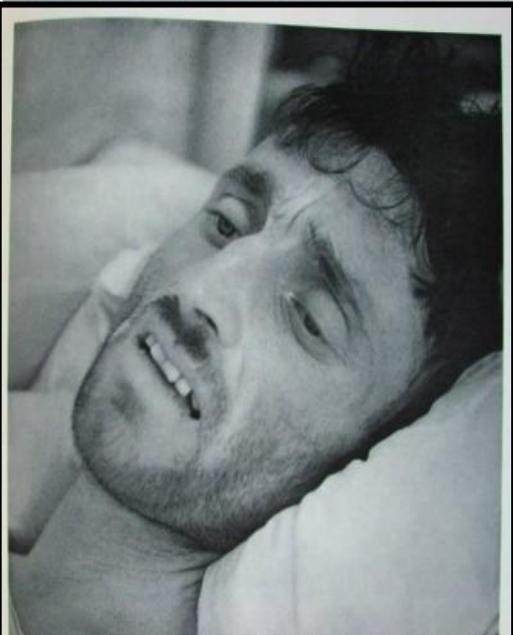
- *facies asymmetrica* - asymmetries movements of facial muscles of central or peripheral facial neuritis;



# FACE OF THE PATIENT

Faces in patients with diseases of digestive system:

- *facies Hyppocratica*: sunken eyes, pinched nose, deadly livid and cyanotic skin, which is sometimes covered with large drops of cold sweat. This face is specific for the collapse due to the grave disease of abdominal organs, accompanied by peritonitis (rupture of gall bladder, perforated ulcer of the stomach or duodenum).



# FACE OF THE PATIENT



## Face in patients with diseases of kidney:

•- facies nephritica - the face is edematous and often pale. Swelling usually appears first around the eyes and in the morning. The eyes may become slit like when edema is pronounced.

# FACE OF THE PATIENT



## Face in patients with infectious disease:

- facies fibrilis is characterized hyperemic skin sparkling eyes and excited expression;
- facies in patients with louse-borne typhus: general hyperemia, the sclera is injected ("rabbit eye");
- facies in patients with typhoid fever: slightly icteric yellow color;
- facies in patients with meningitis: the countenance of the read, anisocoria (different size of pupils), ptosis;
- facies in patients with cholera - frequent blinking, changing grimace, disorderly (irregular) mobility of face;
- facies leontina with nodular thickening of the skin under the eyes and over the eyebrows, with flattered nose is observed in leprosy;
- facies in patients with parotitis (mumps) swelling of parotid glands, which are visible above the angles of the jaw. At first it may be unilateral swelling, gradually become bilateral swelling due to the parotid gland enlargement;
- facies in patients with whooping cough: puffy face with edematous eyelids, conjunctiva hemorrhage, constant tears.

# FACE OF THE PATIENT

## Faces in patients with diseases of blood system:

- facies anemic - very pale, with greenish tint in patients with iron deficiency anaemia
- facies as a “wax-doll”: very pale with yellowish tint and seemingly translucent skin.



# FACE OF THE PATIENT

## Faces in patients with another pathology:

•- facies cachectica - very pale, with like earth like tint, pinched nose. Patient loss of weight significantly. These features are observed in patients with malignant tumor of digestive system;



# FACE OF THE PATIENT

## Faces in patients with another pathology:

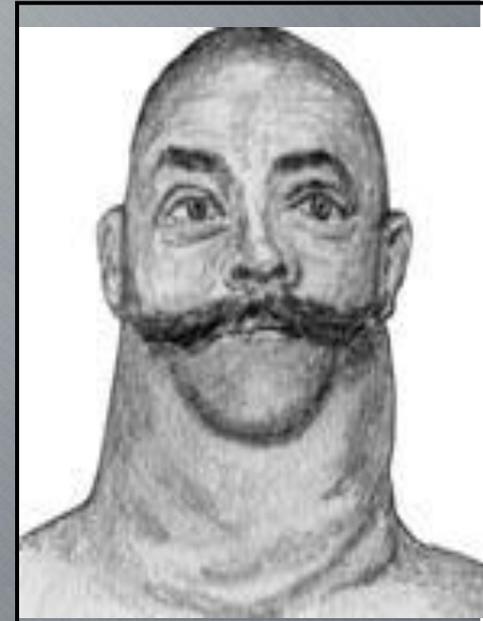
- facies potatorice - hyperemic skin, especially nose, cyanosis of the nose, lips, cheek, observed on alcohol abuse;
- Stokes collar - means edematous neck with associated with edematous face due to the compression of lymph ducts and veins with enlarged mediastinal lymph nodes, tumor of mediastinum, adhesive mediastinopericarditis, excessive effusion in the pleural and pericardial cavity.



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# SKIN

## Examination of the skin:

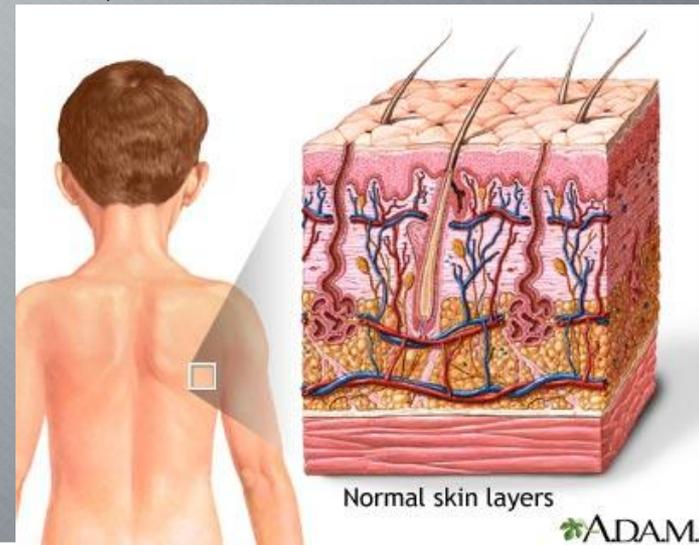
- visual;
- palpative;



# SKIN

## Order of inspection of the skin:

- color;
- eruption of the skin;
- turgor and elasticity (visual and palpative methods);
- moist of the skin (visual and palpative methods);
- edema;
- temperature of the skin;
- subcutaneous veins;



# COLOR OF THE SKIN

*In healthy person* skin has corporeal color (*cutis coloris somatici*), without eruption, moderate moisture and elasticity, preserved turgor.

There are next *pathological changes of the skin color*:



pale, red, cyanotic,  
yellow and bronze.

**NB !**

The **pale and red color of the skin** related to the thickness, blood circulation, innervation and may be ***transient character in physiological condition*** (***fear, high and low temperature of the air***).



The **yellow, cyanotic and bronze color of the skin** are due to the changing of the chemical blood content and are observed only in pathological condition except physiological jaundice at newborn.



# ***Pale color of the skin (cutis pallide)***

Can be physiological and pathological.

**Transient physiological pallid** skin pear is due to the vasomotor reaction of central (fear) and peripheral origin (effect of low temperature).

**Constant physiological pallid** skin is observed in patients with thick skin, insufficient development of subcutaneous vessels.





*Pathological pallid* skin is connected with amount and quality of blood.

observed in patients with decreased number of erythrocytes and/or hemoglobin content in a blood unit volume, classified as anemia, which accompanied such diseases :

- hemoblastosis,
- different forms of anemia;
- acute and chronic infections with hemolysis (malaria, sepsis)
- chronic toxicity.

# ***Red color of the skin*** ***(cutis rubra s. erythema)***

Can be *local* or *diffuse* related to the quality of blood, circulation and innervation, thickness of the skin.

Red color of the skin can be of *physiological* origin in persons who are

- permanently exposed to high temperature;
- sunshine;
- with superficial location of skin vessels;
- excitement.





*Pathological* red color may be transient in **fever**.  
In patient with **pneumonia** the redness is located on checks, more pronounced **on the side of the affected lung**.

*Local erythema* as **two-sided blush** is characteristic of mitral stenosis (“mitral batter fly” with cyanotic tint), lupus hemoglobin concentration erythematous (“lupus buffer fly”) and tuberculosis.

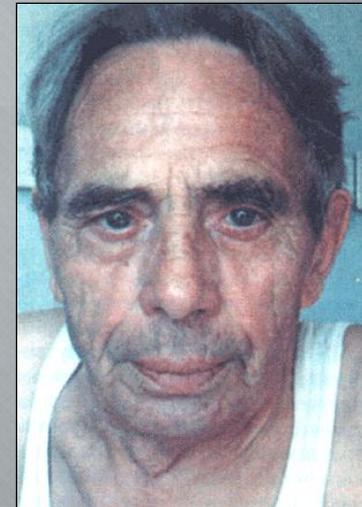
*Constant diffuse erythema* is observed in polycythemia (**erythraemia**) - excessive production by bone marrow erythroid precursor and consequently the erythrocyte count hemoglobin concentration increases in peripheral blood.

# ***Cyanosis***

## ***(cutis cyanotica)***



Can be due to the changing the quality of blood – (accumulation of the carbon dioxide and reduced restored hemoglobin) and venous congestion.



There are three forms of cyanosis:

- central or diffuse,
- peripheral or acrocyanosis
- local .





*Central or diffuse cyanosis (cyanosis diffuse)*

may be observed in such pathological states as:

- chronic lung diseases (chronic bronchitis, acute pneumonia, emphysema, pneumosclerosis, bronchial asthma, atelectasis, thromboembolism of the pulmonary artery);
- poisoning of the hemolytic substances;
- congenital heart disease.

## *Peripheral or acrocyanosis*

is observed in patients with congestive heart failure.

The blue color appears in the lips, cheeks, ear auricles, tip of the nose, and fingers.

## *Local cyanosis (cyanosis localis)*

is observed in patients with thrombosis of artery or vein.





# ***Yellow skin and mucosa***

## ***(cutis icterica, s. icterus)***

due to increased concentration of bilirubin in the blood (**bilirubinemia**) and accumulation it in the tissue and skin.

Initial and moderate yellow skin is named **subicterus** pronounced yellow color defines as **jaundice**.

- Physiological
- Pathological
- Exogenic jaundice

are differentiated.



*Physiological jaundice*

is observed in newborn

at first 5-7 days and resulted from hemolysis of

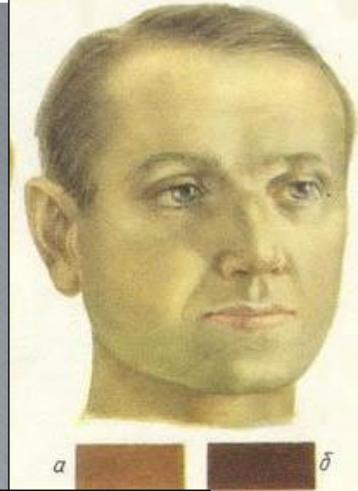
excessive erythrocyte amount

during transition to external respiration.





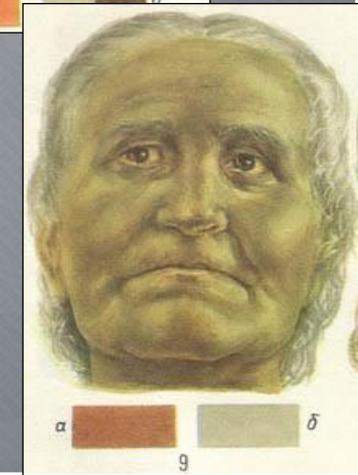
**Pathological jaundice** are divided into **three types** according to their etiology:



1. **hemolytic or suprahepatic jaundice** (*icterus colore citricoluto s. icterus suprahepatica*) is characterized by **lemon-yellow tint** due to the **excessive hemolysis of erythrocytes** in the cells of the reticulohistocytic system (spleen, liver, bone marrow);

2. **parenchymatous or hepatic jaundice** (*icterus colore rubiginoso s. icterus hepatica*) is characterized by **orange-yellow tint** due to the **damage of hepatocytes** and disorders of their function (inversion of unbound bilirubin to bound), observe in acute and chronic hepatitis, poisoning;

3. **obstructive or subhepatic jaundice** (*icterus colore luteoviridi s. icterus infrahepatica*) is characterized by **greenish-yellow tint** due to the **accumulation of bilirubin** (the product of gradual oxidation of bilirubin) resulted from partial or complete obstruction of the common bile duct in patients with stones in the gall bladder, cancer of the head of the pancreas, cancer of the major duodenal papilla.





***Brown or bronze*** skin can observe in physiological and pathological condition.

### **Physiological brown color**

is of transient character and observes during prolonged exposure of sunshine (gelioxanthosis) and in pregnancy (as a separate brown points).



### **Pathological brown or bronze color**

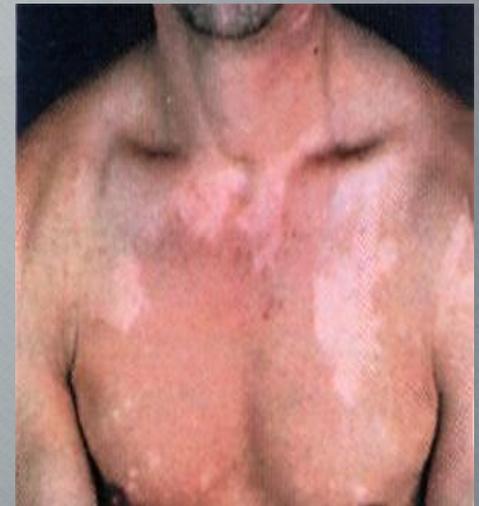
• In Addison's disease or bronze disease resulted from the adrenal insufficiency in patients with hypofunction of adrenal gland .

• Hemochromatosis (bronzed diabetes or pigmentary cirrhosis of the liver). The disease is associated with inherited disorder of iron metabolism, excessive absorption of iron in the intensive and accumulation of hemosiderin in various tissues and organs, in the first instance in the liver and pancreas

# DEPIGMENTATION



- vitiligo,
- leukoderma
- albinismus



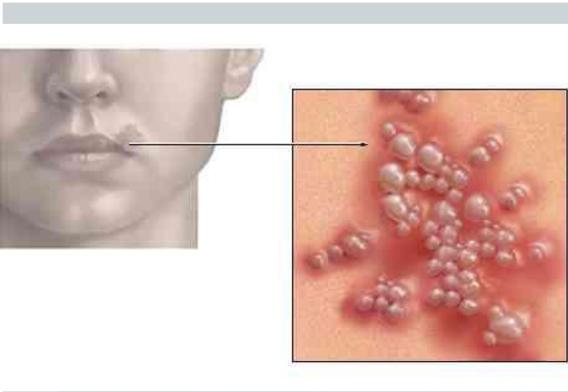
# Decreased pigmentation



**Albinism** – at birth the whole skin is white and pigment is also deficient in the hair, iris, and retina.

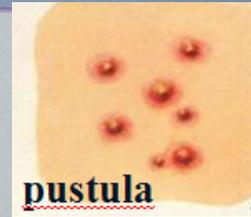
**Vitiligo** – complete loss of melanocytes from affected parts. Segmental vitiligo is restricted to one part of the body. Generalized vitiligo is often symmetrical and frequently involves the hands, wrists, knees and neck as well as around the body orifices.

**Hypopigmentation** is due to the decreased production of pituitary melanotrophic hormone in the patients with hypopituitarism. The complexion has a pale, yellow tinge; there is skin atrophy.

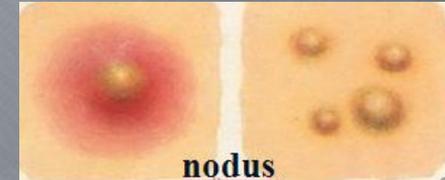
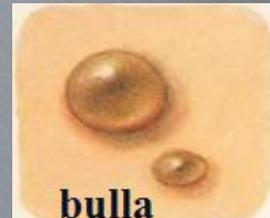


# Eruptions of the skin

1. Herpetic lesions (herpes);
2. Haemorrhage lesions are different forms;
  - petechia – small pointed hemorrhages;
  - ecchymoses – large black and blue spots, a large extravasation of blood into the skin;
  - purpura (hemopurpura) – red spots of different size, vary of color from red to yellow-greenish;
  - hematoma – a swelling from gross bleeding;



3. Roseola;
4. Erythema;
5. Weals (urticaria, nettle rash);
6. Teleangioectasia;
7. Ulcer (ulcus);
8. Abscess;
9. Acne vulgaris;
10. Decubitis;
11. Scars;



# Turgor and elasticity of the skin

**Turgor (turgor)** of the tissue depends:

- on the blood circulation
- innervation and metabolism
- development of the subcutaneous tissue

***Elasticity means flexibility of the skin.***

can be determined by pressing a fold of skin on the extensor surface of the arm between the thumb and the forefinger.

The fold disappears quickly on normal skin when the pressure is released. In cases with decreased turgor, the fold persists for a long period of time.



## *Diagnostic meaning of the diminished turgor:*

- – oncology pathology (cachexia);
- – stenosis of the esophagus or pylorus;
- – endocrine pathology (Addison's disease, Simond's disease);
- – infections with dehydration (cholera, dysentery).



**Edema** may be caused by penetration of fluid through the capillary walls and its accumulation in tissues.

According to the pathogenic and location factors, edema **may be general and local.**



**General edema** associated with disease of the heart, kidneys, and endocrine disorders is characterized by symmetrical localization in some regions of the body or general overspreading of edema throughout the entire body.

**Local edema** is a result of some local disorders in the blood

or lymph circulation; inflammation; allergic process:

- **local congestive edema** is usually associated with thrombosis of the veins, compression of the veins by tumor or enlarged lymph nodes;
- **inflammatory edema (oedema inflammatorium)** is observed in erysipelas, rheumatic polyarthritis, rheumatoid arthritis;
- **angioneurotative edema (oedema angioneuroticum)** Quin's edema as a result of allergic reaction.



**General edema** overspread throughout the entire body is named *anasarca*.

If **edema is generalized** fluid may accumulate in the body's cavities:

- in the abdomen (*ascitis*),
- in pleural cavity (*hydrothorax*),
- in pericardium (*hydropericardium*).



Рисунок 1. Рентген  
легких. Правост.



## Subcutaneous fat.

In order to assess the degrees of subcutaneous fat you should take a fold of the skin wrinkle and fat over Traube's cavity and measure the thickness.

In normosthenic person this size is 1,5-2 cm.

- more than 2 cm it reflects the excessive accumulation of subcutaneous fat;
- less than 1,5 cm – deficiency;
- less than 0,5 cm – the sign of cachecxia;

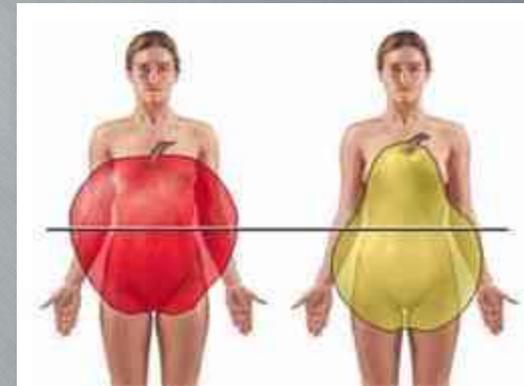


Excessive accumulation of fat in the cells and tissue is defined as obesity (adipositas).

## Types of obesity:

–ginoid types of obesity is characterized by uniformly fat distribution with more pronounced accumulation at the buttock and hip. Another terms of this type of obesity: peripheral, buttock-thigh;

–android types of obesity is characterized by accumulation of fat mainly at the upper part of the body, stomach (abdomen), and completely absence of fat at the buttock and legs. Another terms obesity: abdominal, central, male obesity.



**Emaciation (macies)** is divided into three groups:

- loss of weight (demetritio);
- disturbances of weight (dystrophia);
- acute and excessive loss of weight (cachexia).





# Lymph nodes

are revealed during general inspection, using palpation.

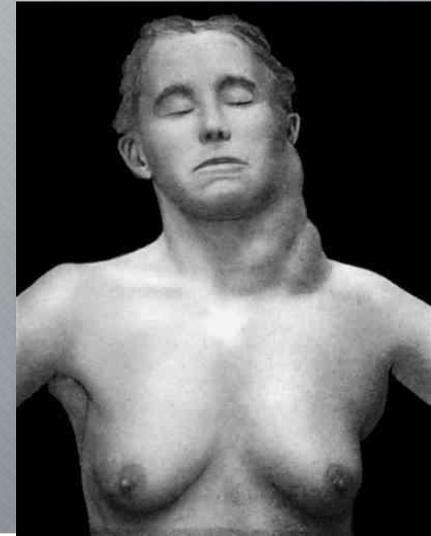
Regional lymph nodes include: submandibular, parotid, occipital, posterior and anterior cervical, supraclavicular, subclavicular, axillary, cubital, inguinal, popliteal.

The examination of lymph nodes is performed by simple inspection and superficial palpation of the symmetrical region following the certain consequence: *location, size, consistency, pain, mobility, color of the skin over the lymph nodes.*

Normal lymph nodes cannot be detected visually or by palpation.

*The main causes of the enlargement of the lymph nodes:*

- infections (tuberculosis, AIDS, brucellosis, infectious mononucleosis, tularemia, plague);
- inflammation (local or generalized);
- diseases of the blood (leukemia, lymphogranulomatosis);
- lymphatic metastatic spread.



# Muscular system

The main methods of examination are inspection and palpation.

During examination of the muscular system doctor should **assess**:

- the level of development;
- gender and age correspondence;
- pain muscular tonus;
- evidence of cramps;

In **normal condition** the muscular system develops

- corresponding to sex and age,
- the muscular tonus is present,
- painlessness,
- cramps and atrophy are absent.





*Disorders* of voluntary muscles include:

- muscular dystrophy;
- metabolic and endocrine myopathy;
- congenital myopathy;
- toxic myopathy;
- disorders of the neuromuscular junction.

# Bones system

The main methods of examination of bones system are inspection and palpation.

The attention should be paid to the

- development of the skeleton,
- correspondence to the age and sex,
- the presence of visible deformities (fracture, curvature, enlargement).



## Deformity of extremities



Hypocratic fingers or clubbing of the terminal phalanges of the fingers and toes, which resembles clock glass.

Pseudohypoparathyroidism as a congenital tissue resistance to the effects of parathyroid hormone. The patients have skeletal abnormalities such as a small stature and short 4<sup>th</sup> and 5<sup>th</sup> metacarpals.





Scleroderma – the disorders of connective tissue characterized by fibrosis and degenerative changes in the skin and extremities.

“Claw foot” is characterized by the presence of a high medial arch and secondary metatarsal collositis with clawing of the toes.



Raynaud’s disease is characterized by “*dead fingers*” – transient pallor of the fingers and toes, sometimes nail fold infarction, leg ulcers or purpura. Large areas of skin necrosis or digital gangrene may observe.



# Congenital deformity of extremities

***Syndactyly*** – union of fingers or toes;

***polydactyly*** – fingers more than five;

***hemimelia*** – absence of the distal segment of an extremity;

***amelia*** – absence of an extremity;



*talipomanus* – congenital club hand; congenital radio-ulnar synostosis; deformity of the femoral neck, congenital dislocation of the femur; club foot; bilateral club foot; valgus foot; congenital flat/splay foot,

*brachydactily* – inherited abnormality shortening of finger detected during child birth.



# The common causes of the bones system abnormalities

Pathology	Examples
Endocrine pathology Infections	Acromegaly, achondroplasia, hypopituitarism, hypothyroidism, Cushing's syndrome Tuberculosis, syphilis
Hypo- and avitaminosis	Rickets (Rachitis)
Diseases of the blood system	Leukemia, congenital hemolytic anemia, lymphogranulomatosis, polycythaemia, multiple myeloma
Oncology	Sarcoma, metastatic spread
Congenital pathology	Deformity of the thorax, cleft lip, Cherechewski-Turner syndrome, Marfan's syndrome, Klinefelter's syndrome, Edwards syndrome, mucopolysaccharidoses, Ehlers-Danlos syndrom

# Joints system

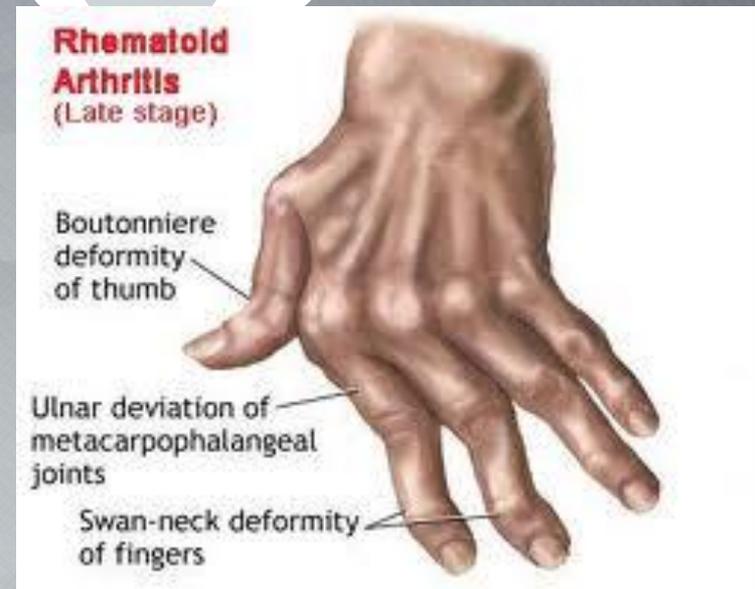
**Examination of the joints** is performed in such consequence:

- symmetrical joints of the upper extremities, symmetrical joints of the low extremities
- head
- neck and spine



*Attention should be paid to :*

- Shape
- Configuration
- Swelling
- Hyperemia



Using palpation you should reveal possible pain, fluid in the joint cavity, and crackle.



In clinical practice it is important to assess joints movements.

**Two kinds of movement are distinguished:**

**active movement**, which is fulfilled by patient according to the doctor's instruction

**passive movement**, which perform doctor.

**Simultaneous restriction active and passive movement** suggests the affection of the joints (rheumatoid arthritis, rheumatic polyarthritis).



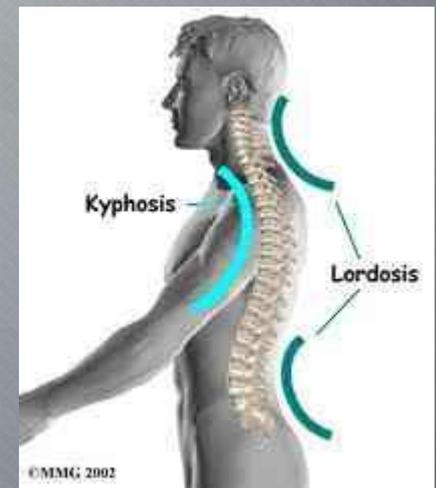
**Restriction of active,  
but preservation of passive**

movements is observed in patients with coma  
and during disorders of local joint circulation  
and innervation.

# Examination of the spine

In normal condition there are four physiological curvature of the spine:

- – cervical curvature of the spine column with forward convexity – lordosis;
- – thoracic backward curvature of the spinal column – kyphosis;
- – lumbar forward curvature – lordosis;
- – pelvic kyphosis.



# *Head*



During inspection of the head you should pay attention on the

size,

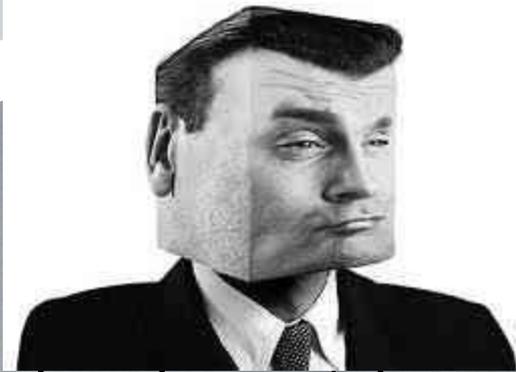
- shape,
- position,
- movement and state of eyes, nose, mouth, tongue, and teeth.

*Head size* may be

- normal,
- enlarged (macrocephalia)
- small (microcephalia).



# *Head Shape*



A **“square” head** with “bossing” of the frontal and parietal bones and delayed closure of the anterior fontanelle in childhood is characteristic of rickets.

May be **craniotabes** – small round unossified areas in the membranous bones of the skull.

“Bossing” of the skull, prominent malar bones and protuberant teeth are development in **sickle-cell anemia**.

A head bossing due to the bone marrow hyperplasia appears in child with **beta-thalassemia**. The skull radiograph shows a “hair on end” appearance and general widening of the medullary spaces, which may interfere with the development of the paranasal sinuses;



**“tringle” head** develops due to the intrauterus craniosynostosis, closing the skull fissura, elevation of intracerebral pressure. The characteristic features: high forehead, exophthalmus, ptosis, and nose as beak;

**Local osteomalacia** of skull bone is characteristic of multiple myeloma (disease of blood);

**A “square” head**, flattened on top, with prominent frontal tubers, can indicate congenital syphilis.

# *Position of the Head*

depends on state of spine and nervous system:

- **immovable head** is observed at ankylosing spondyloarthritis, Bechterew-Strumpal-Mari's disease, vertebral osteochondrosis, myositis, myopathy, fusion of cervical vertebral (Klippel-Fell's disease cervical ribs);
- **torticollis (stiff-neck)** – turning head in one side may be acquired and occur due to the myositis. More commonly the reason are congenital muscular torticollis (Grisel's disease), spastic torticollis;
- **neck stiffness with head throw back** is specific for meningitis or tetanus.

stiff-neck



# *Movement of the head*



**Involuntary shaking** head associated with tremor of the hands occurs at patients with Parkinsonis disease;

**Non-rhythmic tremor** of the head is the symptom of chorea, st. Vitus's dance;

**Shaking head synchronous with heart function** (with pulse wave a head throw back) named as Musset's sign is observed at aortic regurgitation

# Eyes

Ptosis (drooping of the eyelid)



ADAM

Inspection of the eyes can reveal some essential diagnostic signs.

It is necessary to exam :

- eyelids
- eye slit
- eyeball
- sclera
- cornea of the eye
- pupils

xanthomas

## *Eyelids:*



- swallowing and pigmentation is the sign of dermatomyositis;
- edema of the eyelids is the first indication of the nephritis;
- narrowing of the eye slit occurs in myxedema and general edema (anasarca);
- dark eyelids are the characteristic of Addison's disease and diffuse toxic goiter;
- xanthomas at eyelids indicate deranged cholesterol metabolism – atherosclerosis, liver cirrosis, cholestatic jaundice;
- persistent drooping of the upper eyelids (ptosis) may be congenital or acquired origin.

## *Eyeball:*

- **anophthalmia** – bilateral or unilateral absence of eye or presence of rudimentary eye due to the inherited disorders;
- **microphthalmia** – small size of eyeball is observed in some inherited syndromes (gingival fibromatosis, depigmentation and microphthalmia, Cohem syndrome: hemifacial microsomia);



# *Eyeball:*

**EXOPHTALMIA (protrusion of the eyeball) is observed:**

*bilateral* - in thyrotoxicosis, strong myopia, some inherited abnormalities (Kleeblattshädel anomaly; cranio-facial dysostosis – Cronzon syndrom);

*unilateral* – in patient with retrobulbar tumor, brain abscess, paresis of nervus faciales;



# *Eyeball:*

ENOPHTALMIA – (recession of the eyeball) is observed :

*bilateral* – in hypothyroidism, peritonitis (Hippocrates face), agonia, cholera;

*unilateral* – Klod-Bernard-Horner syndrom, enophtalmia is a sign of inherited pathology (hemifacial atrophy progressive, Cockayne syndrome).



## *Eyeball:*



Movement of the eyeball is synchronous, is fulfilled in some direction (horizontal, vertical, circular) resulted from coordinate function of 6 pairs muscle.

**Disorders of eyeball movement** may be in a form of squint heterotropia (**strabismus**) and **nystagmus**.

# *Eye slit*



-depends on the eyeball and eyelid position.

**Narrowing** of the eye slit may be observed in acute glomerulonephritis, Quenke oedema, myxoedema, peritonitis, and congenital pathology.

**Widening** of the eye slit may be observed in thyrotoxicosis, retrabulbar abscesses.

**Asymmetry** of the eye slit may be at unilateral ptosis, tumor of the brain.

# *SCLERA, CONJUNCTIVA, CORNEA OF THE EYE*



**JELLOW SCLERA** is early sign of jaundice;  
bleeding into the conjunctive and sclera at bacterial  
endocarditis, epilepsy, deficiency of vitamin C;



**RED “AS A RABBIT”** conjunctivae ocular injection at  
typhus;  
single brown spot at conjunctiva may observe at  
Addison’s disease.

***CORNEA*** in normal condition is bright, clear and transparent.

Dull **cornea ulceration**, corneal erosion may be at congenital syphilis, bacterial, mycotic, herpetic keratitis.

**Ageing arcus** (arcus senilis) – white-grey ring 1-2 mm at cornea is the typical symptom of old age.



## Kayser-Fleischer's rings



***IRIS*** may have congenital and acquired pathology:

- **aniridia**— absence of iris inherited origin;
- ocular colobomas of iris, retina, ocular nerve with association with microphthalmia, strabismus, squint due to the congenital pathology;
- **Kayser-Fleischer's rings** at the junction of the cornea and sclera, which characterized by greenish-brown discoloration of the corneal margin appearing first at the upper periphery. These are the most important clinical clue to the diagnosis and they can be seen in most patients with Wilson's disease (hepato-lenticular degeneration) by slit-lamp examination.

## PUPILS:

- examination of the size
- Shape
- reaction to convergence, light
- accommodation



# PUPILS

**MYOSIS** – papillary constriction is observed in uremia, intracranial hemorrhages, brain tumor, neurosyphilis, typhus, chronic poisoning.

In persons with morphine abuse – point-like pupil are typical.



**MYDRIASIS** – papillary dilation is observed in patients with coma (except uremic and apoplectic), syphilis, sometimes at aortic aneurysm.



**ANISOCORIA** – asymmetrical pupils is observed in syphilis, Argyll Robertson's syndrome.



# MOUTH

Attention should be paid to

- Size
- Shape
- symmetry of the angles
- forms and color of the lips
- mouth mucosa



It is necessary to exam teeth, tongue, and gums.

**Mouth shape** in pathological condition may be in a form of macrostomia and microstomia.

**Macrostomia** is a result of congenital pathology.



**Microstomia** has inherited origin and may be acquired (mouth in patients with scleroderma and hypoparathyroidism).



## Asymmetry position of angles mouth

observed in

- local inflammatory process and in patients with lesions, affecting the trygeminus system;
- paralyses of the facial nerve;
- stroke with such clinical feature: unilateral loss of nasolabial fold, mouth deviates to normal size and salvia may drool from it.



# LIPS



Cheilietis

## Size and deformity

Macrocheilia – pathological enlargement of lips observe in acromegaly, hypothyroidism, allergic edema, and congenital pathology.

Cheilietis – inflammatory process commonly at mouth angles is a symptom of iron deficiency anemia, and hypovitaminosis B<sub>2</sub>.

Procheilia – protruding lips in acromegaly.

Opistocheilia – retracted lips in patients without teeth and peritonitis.



*Acheilia* (absence of lips), *syncheilia* (adhesion of lateral portion of the lips), *brachycheilia* (shortening of the middle portion of the upper lip) are the signs of congenital pathology.

*Cheiloshisis* – labial cleft (“hare”-lip) is a symptom of congenital pathology (Bixler syndrome – hypertelorism, microtonia, facial clefting and conductive deafness; cleft lip with or without cleft palate, median cleft-face syndrome).

Bumpy lips and tongue neuromas are in patients with multiple endocrine neoplasia (bilateral pheochromocytomas and medullary carcinoma of thyroid gland).



## COLOR OF THE LIPS

**Acrocyanosis** – blue color of the lips is characteristic of mitral stenosis, heart failure.

**Hyperemic lips** – high temperature, inflammatory processes.



**Pale lips** – acute and chronic bleeding, oncological process, leukemia, hypo- and aplastic anemia.



# Tongue



In health the tongue is moist with only slight white fur on the dorsum.

The papillae are readily seen.

With inspecting the tongue attention should be paid to its *shape and size, surface, movement, color, and the state of papillae.*

## Shape and size



Macroglossia – enlargement of the tongue is a sign of congenital pathology (Daun's disease; Beckwith-Wiedeman syndrome – macroglossia, visceromegalia, omphalocele; glycogenosis type II – macroglossia, cardiomegalia, myotonia; cerebral gigantism).



Microglossia – decreased tongue observed in the patients with cholera, typhus, starvation, and vitamin B<sub>12</sub>-deficiency.



Unilateral atrophy of the tongue occurs at pyramidal tract lesion.

Flat tongue due to the atrophy of its base resulted from ulcerative stomatitis and scarification of the soft palate and pharynx in secondary syphilis.



**Fur of the tongue in pathological conditions has diagnostic significance:**

Coated (**furred tongue**) is observed at gastritis, peritonitis, colitis, fever, infections (hepatitis), and pneumonia;

**Coated in the center** and at the base but clear the tip and margins of the tongue is typical to typhoid fever.

Additional diagnostic meaning is a fur character and color:

**White fur** observe at typhus, pneumonia and peritonitis;

**White-gray fur** observe at gastritis, virus hepatitis, and some infections;

**White-dirty or yellow fur** – at peritonitis;

**White-blue** – in rheumatic polyarthritis;

**White-yellow fur** in those who smoke excessively;

**Crimson-red** (strawberry/raspberry) tongue observe in scarlet fever;



Dry tongue is an indication of dehydration with followed formation of erosion hemorrhage and observed in peritonitis, and severe infections. Dryness of the mouth (xerostomia) may be caused by anticholinergic or antidepressant drugs; but commonly it is due to anxiety.



**Glossitis** may be a prominent feature of stomatitis resulting from nutrition deficiency and overdose of antibiotics.





## Surface of the tongue

Atrophy of lingual papilla cause smooth (as if polished) crimson tongue, Hunter's glossitis, which may observe in the patients with B<sub>12</sub>-deficiency anemia.

The glassy tongue is characteristic of gastric cancer, pellagra, and sprue.

The local thickening of the tongue with chronic migrating superficial glossitis named as geographical tongue is found in the patients with hyperacidity of gastric juice.

Grooved (fluted) tongue, with multiple wrinkles is characteristic of acromegaly.

There are some patches, ulceration at the mouth.

Leucoplakia is white, firm, smooth patches beginning at the side of the tongue and later spreading over the dorsum. In the early stages the tongue is not painful but later fissures split the patches with tenderness. Hairy leucoplakia occurs in AIDS.

Syphilis may present as a painful solitary ulcer usually on the tongue or palate.



## Neck

**Attention should be paid to the shape and size, symmetry skin colour presence of scars and visible pulsation.**

Changing *neck shape and sized* depend on constitutional type, the state of lymph nodes, thyroid gland, cervical column and musels development.

**Short thick neck** is observed in hyperstenic persons. In pathological condition such neck may be in patients with lung emphysema, obesity, hypothyroidism, Gushing's disease, and pronounced enlargement of thyreoid gland.

**Long slim neck** with prominent cartilage is observed in asthenic persons. In pathology, slim neck may be in patients with disorders of pituitary (sex) gland, starvation, cachexia.



***Skin colour*** at the neck region indicates to some pathology:

- pigmentation with outlined border is observed in Addison's disease;
- multiple round white spots (syphilitic leucoderma) as a necklace (collar Veneris) in syphilis;
- legible limited red-brown line due to the skin atrophy is observed in pellagra (hypovitaminosis) column casae;
- scars at neck indicate to the previous tuberculous lymphadenitis.

Prerugium-syndrom – a skin fold placed on the side neck surface from mastoid process is a sign of Shereshevsky-Turner syndrome.

Pulsation of the carotid artery (carotid shudder, saltus carotidum) appears due to the changing of blood pressure and filling of arteries during systole and diastole in patients with aortic regurgitation, hyperthyroidism, and fever.

Swollen and pulsation of jugular veins is explained by difficulty of blood flow to right atrium in tricuspid regurgitation, pericarditis, and chronic lung diseases.

Thyroid gland placed on anterior surface of cricoid cartilage. In normal condition in health persons thyroid gland is impalpable. The thyroid isthmus is often but not always palpable. The lobes are more lateral than isthmus and harder to feel.

Coiter is a general term for an enlarged thyroid gland and observed in Basedovica disease (hyperthyroidism), autoimmune thyroiditis (Shasimoto goiter) and endemic goiter.

The diffuse enlargement of thyroid gland is observed in hyperthyroidism, cancer of the thyroid gland is characterized by asymmetric separate nodes with unequal surface.

# NAILS



it is a combination of both .....  
leuco and koilonychia



Typical nail changes of  
pachyonychia congenita: yellow-  
gray discoloration and thickening  
of nail plates, subungual  
hyperkeratosis, upward angulation  
of the nail and pincer nail  
deformity

# NAILS



Pale nails