

I TEXTS AND EXERCISES (BASIC PART)

1 Human Body

The human body consists of the head, neck, trunk and the limbs (extremities).

The head is the seat of the brain, several sense organs and inlets for air and food. It consists of the cranium covered by the scalp with hair, and the face.

The face is made up of the forehead, the eyes with eyebrows and upper and lower eyelids, the cheeks, the nose in the middle of the face, the mouth with two lips, the tongue and teeth, the chin and the ears.

The neck joins the head and the trunk. It contains the cervical vertebrae, the pharynx, the larynx and vessels and nerves. The thyroid gland lies on the anterior aspect of the neck.

The diaphragm divides the trunk into the thoracic cavity and the abdominal cavity at its lower end. The bony framework of the thorax is the sternum and vertebral column connected by the ribs. The vertebral column is composed of vertebrae, each having a spinal canal through which runs the spinal cord. The principal parts of the thorax are the lungs, the heart, the great blood vessels, the trachea and the oesophagus. On the chest we see two nipples and, in women, the breasts.

Inside the abdominal cavity we find the stomach, the liver, the gallbladder, the pancreas, the spleen, the kidneys, the urinary bladder, the small and large intestines, and the internal reproductive organs.

The upper extremity is divided into the shoulder, the upper arm, the elbow, the forearm, the wrist and the hand. The parts of the hand include: the back and the palm of the hand, four fingers and a thumb.

The lower extremity is attached to the pelvic girdle. It is constituted by the hip, the thigh, the knee with the patella, the lower leg with the shin in front and calf at the back, the ankle and the foot. The foot consists of the instep (dorsum), the sole, the arches, and five toes.

The skeleton of an adult consists of more than 200 bones which are made up of hard osseous tissue. The point where two bones meet is a joint or articulation. The movement is made possible by the contraction and the extension of muscles. We distinguish between voluntary and involuntary muscles.

The whole body is covered by the skin. There are five senses in our body: sight, hearing, smell, taste and touch.

The human body is a complex of units and systems with their numerous organs and parts and all their functions have to work as a whole.

abdominal [æb'dominl] *adj.*; **anterior** [æn'tiəriə] *adj.*; **cervical** [sə:vɪkl/sə:'vaɪkl] *adj.*; **cranium** [kreɪnjəm] *n.*; **diaphragm** [daɪəfræm] *n.*; **dorsum** [do:səm] *n.*; **larynx** [læriŋks] *n.*; **muscle** [masl] *n.*; **oesophagus** [i:'sofəgəs] *n.*; **pancreas** [pæŋkriəs] *n.*; **patella** [pə'telə] *n.*; **pharynx** [færiŋks] *n.*; **spinal** [spainl] *adj.*; **sternum** [stɜ:nəm] *n.*; **stomach** [stamək] *n.*; **thoracic** [θo:'ræsɪk] *n.*; **thorax** [θo:ræks] *n.*; **trachea** [trə'ki:ə] *n.*; **vertebral** [vɜ:tibrəl] *adj.*

VOCABULARY

ankle [æŋkl]	kotník
arch [a:č]	oblouk; klenba
articulation [a:tɪkjʊ'leɪʃn]	kloub
attach [ə'tæč]	přípevnit, připoutat
back of the hand	hřbet ruky
blood [bləd]	krev
bone [bəʊn]	kost
bony [bəʊni]	kostní; kostěný
brain [breɪn]	mozek
breast [brest]	prs, prsa
calf [ka:f]	lýtko
cavity [kævəti]	dutina
cheek [či:k]	tvář
chest [čest]	hrud', hrudník, prsa
chin [čɪn]	brada
connect [kə'nekt]	spojovat
cover [kavə]	pokrývat
distinguish [dɪstɪŋɡwɪʃ]	rozeznat, odlišit
divide [di'vaɪd]	rozdělit
ear [iə]	ucho
elbow [elbəʊ]	loket
extremity [ɪks'tremɪti]	končetina
eyebrow [aɪbraʊ]	obočí
eyelid [aɪlɪd]	oční víčko
finger [fɪŋgə]	prst
foot [fʊt] (<i>pl. feet</i> [fi:t])	noha
forearm [fo:ra:m]	předloktí
forehead [fo:hed]	čelo
framework [freɪmwɜ:k]	podpěra, rámec
gallbladder [gɔ:l,blædə]	žlučník
girdle [gɜ:dl]	pletenec
hearing [hiəriŋ]	sluch
hip [hɪp]	bok, kyčel
inlet [ɪnlet]	vstup, vchod, přívod
intestine [ɪn'testɪn]	střevo
join [dʒɔɪn]	připojit (se)
joint [dʒɔɪnt]	kloub
kidney [kɪdni]	ledvina

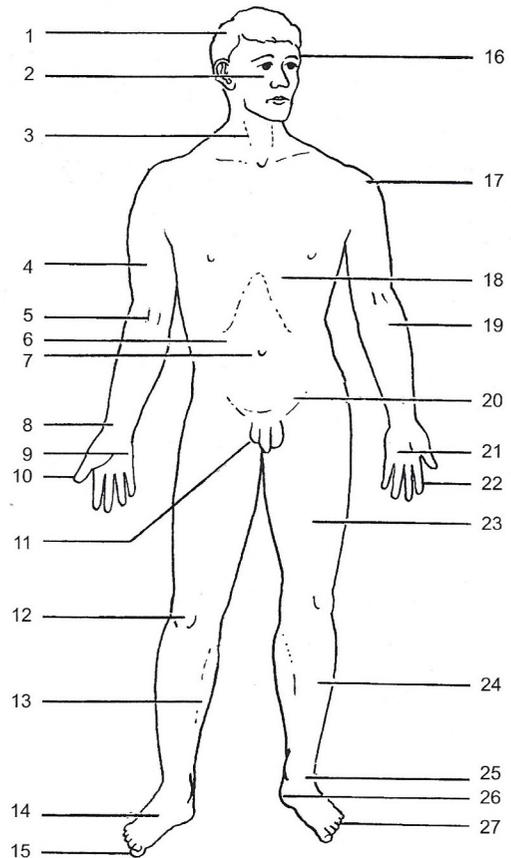
- knee [ni:] koleno
- limb [lim] úd, končetina
- lip [lip] ret, pysk
- liver [livə] játra
- lower [ləʊə] dolní
- lung [laŋ] plíce (sg.)
- mouth [mauθ] ústa
- movement [mu:vmənt] pohyb
- neck [nek] krk (*anat.*), krček (*stom.*), hrdlo (*gyn.*), šije (*ort.*)
- nipple [nɪpl] bradavka
- osseous [osɪəs] kostní, kostěný
- palm [pa:m] dlaň
- pelvic [pelvɪk] pánevní
- point [point] bod, tečka
- rib [rɪb] žebro
- seat [si:t] sídlo, ohnisko, ložisko
- shin [ʃɪn] holeň
- shoulder [ʃəʊldə] rameno
- sight [saɪt] zrak
- smell [smel] čich; vonět
- sole [səʊl] chodidlo, plocha nohy
- spinal cord [spainl ko:d] mícha
- spleen [spli:n] slezina
- taste [teɪst] chuť; ochutnat
- thigh [θaɪ] stehno
- thumb [θam] palec u ruky
- thyroid [θaɪrɔɪd] štítný; štítná žláza
- toe [təʊ] prst u nohy
- tongue [taŋ] jazyk
- tooth [tu:θ] (*pl. teeth* [ti:θ]) zub
- touch [taʃ] dotyk; dotýkat se
- trunk [traŋk] trup; kmen (*nervový, cévní*)
- upper [apə] horní
- urinary [juərɪnəri] bladder močový měchýř
- vessel [vesl] céva
- voluntary [vɒləntəri] volní, vůlí ovladatelný
- whole [həʊl] celý
as a w. – jako celek
- wrist [rɪst] zápěstí

2. Give short answers.

(e.g. "Yes, they are", "No, it isn't"):

- Are the lungs situated inside the chest?
- Does the spinal cord run through the vertebral column?
- Is the wrist part of the foot?
- Does each hand have four fingers?
- Are bones made up of hard osseous tissue?
- Does the cardiac muscle contract regularly?
- Do we find the liver and gallbladder inside the thoracic cavity?

3. Supply appropriate words to label the diagrams:



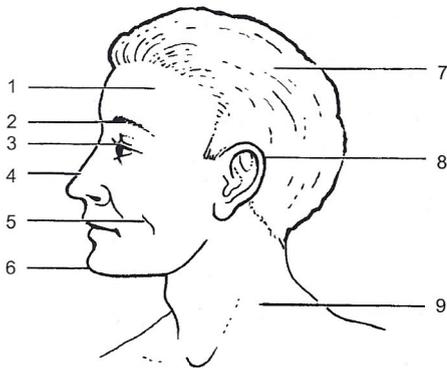
EXERCISES

1. Answer the following questions (use your dictionary if necessary):

- What are the main parts of the human body?
- What does the neck contain?
- Which organs do we find in the abdominal cavity?
- How many bones are there in the skeleton of an adult human?
- What is the difference between voluntary and involuntary muscles?
- Which important organs can be found inside the thorax?
- To what part of the human body does the thumb belong?

A

1	_____	10	_____	19	_____
2	_____	11	_____	20	_____
3	_____	12	_____	21	_____
4	_____	13	_____	22	_____
5	_____	14	_____	23	_____
6	_____	15	_____	24	_____
7	_____	16	_____	25	_____
8	_____	17	_____	26	_____
9	_____	18	_____	27	_____



B

- | | | |
|---------|---------|---------|
| 1 _____ | 4 _____ | 7 _____ |
| 2 _____ | 5 _____ | 8 _____ |
| 3 _____ | 6 _____ | 9 _____ |

4. Fill in the blanks:

- The _____ are the two outside parts of the mouth.
- We have five _____ on our left hand, and five on the right one.
- On our feet, we have ten _____.
- The foot is joined to the leg by the _____.
- We hear with our _____ and see with our _____.
- The hand is joined to the arm by the _____.
- The _____ is between the shoulder and the wrist.
- We think with our _____ which is inside our head.
- The _____ is the lowest part of the face.
- The left _____ is on the left side of the face, and the right _____ is on the right side of the face.
- The main parts of the human body are _____, _____, _____ and _____.
- The neck _____ the cervical _____, the pharynx, _____ and _____ and nerves.
- The lower _____ is _____ to the trunk by _____.
- The dorsum, _____, the heel, _____, _____, _____ constitute the foot.
- The thoracic and abdominal _____ are _____ by the diaphragm.

5. Which words in the text mean something like "be formed by"? Remember these prepositional phrases.

- _____
- _____
- _____
- _____

6. Vocabulary revision. Solve these riddles:

- They may be short or long. Women often polish them. It is a bad habit to bite them. (N_____)

- Don't say anything. Keep your (m_____) shut.
- It is an important part of our body. It consists of bones. (S_____)
- They protect our eyes. We have two upper ones and two lower ones. (E_____)
- The part of the body between the hand and the forearm is called the (w_____).
- (S_____) is the part of the foot on which we walk.
- This word in plural has the same pronunciation as the word "niece". (K_____)
- The lowest part of a face is called (c_____).
- He lost his (s_____) in an accident. Now he uses a white stick.

7. Language practice. Pair work.

Make polite request using the following verbs and the body vocabulary. Use your dictionary.

Ex.: Hold your head up, please.

Will you hold your head up, please?

Would you hold your head up, please?

to open – to shut – to move – to turn – to bend – to touch – to arch – to lift – to raise – to lower – to put out – to wriggle – to hold – to straighten – to keep sth. open – to show – to cross

8. Compound words. Look at the dictionary entry of compounds formed with the word "hand" and then fill in the gaps:

- The man was surprised when the policeman put _____ on his wrists.
- She likes exercises. To do a _____ is no problem for her.
- What a horrible _____! I can't read a word.
- The drivers often use a _____.
- When you need a detailed information about poisonous mushrooms, look into the _____.
- She lost a _____ with all her money.

9. Body idioms. Can you find the Czech equivalents to these idioms?

- He was having difficulty with his exam so *I gave him a hand*.
- My neighbour *is very nosy*. She always wants to know who comes to see me.
- I am taking my final exams next week. *Keep your fingers crossed for me*.
- Why *is he nosing around* all the time? Is he looking for somebody?
- You missed the train! Why didn't you *thumb a lift* to get there in time?

hand

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handle

up a *handful* of sand. 2 [sing] ~ (of sb/sth) small number: a *handful* of people. 3 a *handful* [sing] (infml) person or animal that is difficult to control: *That young lad is quite a handful*, ie is lively and troublesome.

□ **'handbag** (US *purse*) *n* small bag for money, keys, etc, carried esp by women. ⇨ illu at LUGGAGE.

'hand-baggage *n* [U] (US) = HAND-LUGGAGE.

'handball *n* [U] any of several games in which players throw a ball to each other or hit it (usu with a gloved hand) against a wall.

'hand-barrow *n* light two-wheeled barrow.

'handbill *n* printed advertisement or announcement distributed by hand.

'handbook *n* small book giving useful facts; guidebook: a *car handbook* ○ a *handbook of wild flowers*. Cf MANUAL *n* 1.

'handbrake *n* (in a motor vehicle) brake operated by hand, used when the vehicle is stationary: *Don't drive with the handbrake on*. ⇨ illu at App 1, page xii.

'handcart *n* = CART 1.

'handclap *n* [sing] clapping of the hands: *give sb a slow handclap*, ie clap slowly and rhythmically to show impatience.

'handcuffs *n* [pl] pair of metal rings joined by a chain, for fastening round the wrists of prisoners: *The prisoner wore (a pair of) handcuffs*. ⇨ illu at SHACKLE. **'handcuff** *v* [esp passive: Tn, Tn-pr] ~ sb (to sth/sb) put handcuffs on sb: *The demonstrator had handcuffed herself to the railings*.

'hand-grenade *n* grenade thrown by hand.

'hand-gun *n* (esp US) gun that is held and fired with one hand; pistol.

'hand-held *adj* held in the hand: *film taken with a hand-held camera*.

'handhold *n* thing that a climber may grip, eg on a rock face.

'hand-luggage (US *'hand-baggage*) *n* [U] luggage that is light enough to be carried by hand.

'handmade *adj* made by hand: *handmade pottery*. Cf MACHINE-MADE (MACHINE).

'handmaid (also *'handmaiden*) *n* (arch) female servant.

'hand-picked *adj* carefully chosen.

'handrail *n* narrow rail for holding as a support, eg when going up or down stairs. ⇨ illu at STAIR.

'handsaw *n* saw used with one hand only.

'handshake *n* 1 shaking of sb's hand with one's own, as a greeting, etc. 2 (idm) a *golden handshake* ⇨ GOLDEN.

'hands-on *adj* [attrib] practical: *have hands-on experience of a computer keyboard*.

'handspring *n* somersault in which a person lands first on his hands and then on his feet.

'handstand *n* balancing on one's hands with one's feet in the air: *do a handstand*.

'handwriting *n* [U] 1 writing with a pen, pencil, etc. 2 person's particular style of this: *I can't read his handwriting*.

'handwritten *adj* written by hand (ie not printed or typed): *Letters of application must be handwritten*.

hand² /hænd/ *v* 1 [Tn-p, Dn-n, Dn-pr] ~ sth (to sb) give or transfer sth with one's hand or hands: *He handed round the biscuits*. ○ *Please hand me that book*. ○ *She handed it to the boy*. 2 (idm) *hand/give sb sth on a plate* ⇨ PLATE'. 3 (phr v) *hand sth down (to sb)* (a) pass sth on by tradition, inheritance, etc: *stories handed down from generation to generation* ○ *Most of my clothes were handed down to me by my older brother*. (b) (esp

US) announce sth formally or publicly: *hand down a budget, legal decision, verdict*. **hand sth in (to sb)** bring or give sth; offer or submit sth: *Hand in your examination papers now, please*. ○ *She handed in her resignation*. **hand sth on (to sb)** send or give sth to another person: *Please hand on the magazine to your friends*. **hand sth out (to sb)** distribute sth: *Relief workers were handing out emergency rations (to the survivors)*. **hand (sth) over (to sb)** transfer (a position of authority or power) to sb: *I am resigning as chairman and handing over to my deputy*. ○ *hand over power to an elected government*. **hand sb over to sb** (esp at a meeting, on TV, etc or on the telephone) let sb listen or speak to another person: *I'm handing you over now to our home affairs correspondent*. **hand sb/sth over (to sb)** deliver sb/sth, esp to authority: *They handed him/their weapons over to the police*.

hand it to sb (infml) (always with *must* or *have (got) to*) give sb the praise that he deserves: *You've got to hand it to her — she's damned clever*.

□ **'hand-me-downs** (also *'reach-me-downs*) *n* [pl] used or unwanted things (esp clothes) that are given to another person, esp a younger brother or sister: *I don't want your old hand-me-downs!*

'hand-out *n* 1 (esp) food, money or clothes given free to a needy person. 2 (a) leaflet, etc distributed free of charge. (b) prepared statement given, eg by a politician, to newspaper men. (c) duplicated sheet containing examples, etc distributed by a teacher.

'hand-over *n* (period of) transfer, esp of power or responsibility.

han-di-cap /'hændikæp/ *n* 1 thing that makes progress or success difficult. 2 physical or mental disability: *Deafness can be a serious handicap*.

3 (a) race or competition in which the competitors are given disadvantages in order to make their chances of success more equal. (b) disadvantage given in this way, eg a weight to be carried by a horse. 4 number of strokes by which a golfer normally exceeds par for the course.

▷ **han-di-cap** *v* (-pp-) [Tn esp passive] give or be a disadvantage to (sb): *be handicapped by a lack of education*. **han-di-capped** *adj* suffering from a serious physical or mental disability. **the han-di-capped** *n* [pl v] handicapped people: *a school for the severely handicapped*.

han-di-craft /'hændikra:ft/ *n* [U, C] work that needs both skill with the hands and artistic skill, eg needlework, pottery, woodwork: *an exhibition of handicraft(s)*.

handi-work /'hændrɜ:k/ *n* [U] 1 work done by the hands. 2 (often ironic) thing done by a particular person: *Is that drawing on the board your handiwork, Clare?*

hand-ker-chief /'hæŋkətʃɪf, also -tʃɪf/ *n* (pl ~s or *handkerchieves* -tʃɪ:vz/) (usu square) piece of cloth or paper tissue for blowing the nose into, wiping the face, etc.

handle /'hændl/ *n* 1 part of a tool, cup, bucket, door, drawer, etc, by which it may be held, carried or controlled. 2 fact that may be taken advantage of: *His indiscretions gave his enemies a handle to use against him*. 3 (sl) title: *have a handle to one's name*, ie have a title, eg 'Sir' or 'Lord'. 4 (idm) *fly off the handle* ⇨ FLY².

▷ **handle** *v* 1 [Tn] touch (sth) with or hold (sth) in the hand(s): *Gelignite is dangerous stuff to handle*. ○ *Wash your hands before you handle food*. ○ *Fragile — handle with care*. 2 [Tn] deal with, manage or control (people, a situation, a machine,

6. We can't afford to buy this car. *It costs an arm and a leg*.
7. *I can't stomach* that singer. Whenever he is on TV I switch it off.
8. When her husband comes home late, *she's got a very sharp tongue*.

10. Try the crossword:

1. Its work is to make bile which helps to change the food one eats so that body can use it.
2. One of the tubes that carry the blood through one's body.
3. The ability to notice sounds with the ears.
4. The condition of one's body.
5. The lower limb of the human body.

- How often do you change your toothbrush?
- Have you already had many dental problems?
- What kind of toothpaste do you use? Why?
- Do you follow your dentist's advice?
- etc.

3. Can you explain the following words in English?

mum-to-be	plaque	saliva
appointment	“wisdom teeth”	socket
crown	denture	pulp

4. Read the dialogue. Have you ever had a similar dream? Tell us about it.

A Nightmare

Mick: Do you often have dreams, Frank?

Frank: No, not very often.

Jeff: I do. I had a terrible dream last night.

Frank: So you had a nightmare, not a dream!

Jeff: Alright. I had a nightmare last night.

Mick: What was it about?

Jeff: I dreamt I had toothache, and...

Mick: But that's not a nightmare, I often have toothaches.

Frank: Yes, you've got bad teeth!

Mick: Oh no, I haven't!

Jeff: Well, anyway, I had toothache, and I went to the dentist. And the dentist had an enormous pair of pincers...

Frank: What, like a crab?

Jeff: Yes, just like that, but much, much bigger! And he started to pull out my tooth. He pulled and he pulled, but the tooth grew bigger and bigger. And in the end, he pulled my head off!

Mick: Ugh! Horrible! I had a nice dream last night.

Frank: About girls?

5. These phrases are the most common on toothpaste boxes. Read and translate them into Czech:

- contains fluoride, allantoin and extracts from healing plants that have anti-inflammatory, disinfecting and healing effects,
- abrasive ingredients prohibit the build-up of plaque on the teeth and strengthen teeth against decay,
- leaves a long-lasting feeling of fresh breath,
- very effectively maintains healthy gums and teeth,
- prevents parodontosis,
- prevents gum inflammation,
- healing of the inflammation is already under way,
- fresh, pleasantly scented.

This toothbrush is acceptable as an effective cleansing device for use as a part of a program for good oral hygiene to supplement the regular professional care required for oral health.

6. Translate. Use the words and phrases from ex. 5.

Hlavní příčinou vzniku zubního kazu a parodontózy jsou zubní povlaky vznikající ze zbytků potravy a ze slin. Tyto povlaky obsahují různé mikroorganismy, jejichž produkty mohou vyvolávat záněty dásní a poškozovat zubní sklovinu. Proto je nezbytné jejich pravidelné odstraňování vhodnou zubní pastou, čištění chrupu po každém jídle, nejméně však dvakrát denně ... Tato nová pasta představuje ideální spojení tradice, výrobních zkušeností a nejnovějších poznatků.

3 Blood System and Circulation

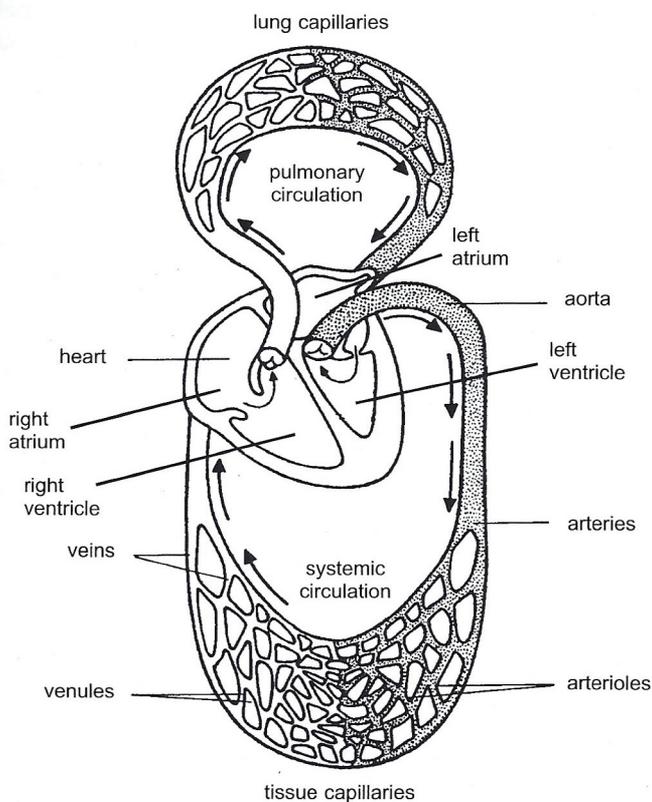
Practise reading the medical vocabulary used in the texts of Unit 3:

angina [ændʒinə/æn'dʒaɪnə] *n.*; **anterior** [æn'tiəriə] *adj.*; **aorta** [ei'ɔ:tə] *n.*; **apex** [eɪpɛks] *n.*; **apnoea** [æ'pni:ə] *n.*; **arterial** [a:'tiəriəl] *adj.*; **arteriole** [a:'tiəriəʊl] *n.*; **artery** [a:təri] *n.*; **atrium** [a:'triəm] *n.*; **bacteria** [bæk'tiəriə] *n.*; **carbon dioxide** [ka:bn dai'oksaid]; **cardiac** [ka:diæk] *adj.*; **deoxygenate** [di:'oksɪdʒineɪt] *v.*; **diabetic coma** [daiə'betɪk kəʊmə] *n.*; **diastolic** [daiə'stolɪk] *adj.*; **dyspnoea** [dis'pni:ə] *n.*; **erythrocyte** [e'riθrəsait] *n.*; **phagocyte** [fægəsait] *n.*; **frequency** [fri:kwənsi] *n.*; **function** [fʌŋkʃn] *n.*; **haemoptysis** [hi:'moptɪsɪs] *n.*; **haemorrhage** [hemərɪdʒ] *n.*; **h(a)emostasis** [hi:'mostəsis] *n.*; **hormone** [hɔ:məʊn] *n.*; **hyperpnoea** [haɪpə'pni:ə] *n.*; **hypertension** [haɪpə'tenʃn] *n.*; **infant** [ɪnfənt] *n.*; **infection** [ɪn'fekʃn] *n.*; **irregularity** [ɪregjʊ'lærəti] *n.*; **leucocyte** [lju:kəsait] *n.*; **lymph** [lɪmf] *n.*; **medulla** [me'dalə] *n.*; **membrane** [membreɪn] *n.*; **muscle** [mʌsl] *n.*; **muscular** [mʌskjʊlə] *adj.*; **myocardium** [maɪə'ka:diəm] *n.*; **nervous** [nə:vəs] *adj.*; **nuclei** [nju:kliai] – *pl. of nucleus* [nju:kliəs] *n.*; **orthopnoea** [ɔ:θə'pni:ə] *n.*; **oxygen** [ɒksɪdʒən] *n.*; **pigmentation** [pɪgmən'teɪʃn] *n.*; **plasma** [plæzmə] *n.*; **primary** [praɪməri] *adj.*; **pulmonary** [pʌlmənəri] *adj.*; **pulse** [pʌls] *n.*; **radial** [reɪdʒəl] *adj.*; **radius** [reɪdʒəs] *n.*; **rhythm** [rɪðm] *n.*; **septum** [septəm] *n.*; **substance** [sʌbstəns] *n.*; **systolic** [sɪs'tolɪk] *adj.*; **thrombocyte** [θrɒmbəsait] *n.*; **uraemia** [juə'ri:mɪə] *n.*; **urea** [juəriə] *n.*; **vein** [veɪn] *n.*; **venae cavae** [vi:ni: keɪvi:] – *pl. of vena cava* [vi:nə keɪvə]; **ventricle** [ventrɪkl] *n.*; **venule** [venju:l] *n.*

3.1 Heart and Blood

Our heart is a hollow, muscular, coneshaped organ lying between the lungs. The heart is about the size of a closed fist. Its wall consists largely of cardiac muscle (myocardium), lined and surrounded by membranes. It is divided by a septum into separate right and left halves, each of which is divided into an upper chamber called an atrium and a lower chamber – ventricle. Deoxygenated blood from the venae cavae passes through the right atrium to the right ventricle. This contracts and pumps blood to the lungs via the pulmonary artery. The

newly oxygenated blood returns to the left atrium via the pulmonary veins and passes through to the left ventricle. This forcefully contracts, pumping blood out to the body via the great artery – aorta. The direction of blood flow within the heart is controlled by valves.



About 5 litres of blood fill our arteries, veins and capillaries. Blood is a red fluid. It contains formed elements (blood cells) and a fluid portion called plasma. The formed elements of the blood are the erythrocytes (red blood cells), leucocytes (white blood cells), and thrombocytes or platelets (clotting cells).

Erythrocytes bring oxygen to the tissue cells and return to the plasma. Leucocytes attack and consume bacteria. They are less numerous than the red blood cells. The primary function of blood platelets is hemostasis (blood clotting).

The blood system has many functions. Blood carries vital materials such as oxygen, nutrients and hormones to tissue cells and transports waste materials, such as carbon dioxide and urea away. Blood, as well as lymph, protects the body by carrying disease-fighting cells (phagocytes) and protein substances – antibodies which combat infection.

VOCABULARY

- branch** [bra:nč/bra:nš] větvit se
- circulation** [sə:kju'leišn] cirkulace, oběh
- pulmonary** [palmənəri] c. – malý oběh krevní, plicní oběh
- systemic** [sis'temik] c. – velký oběh krevní
- clot** [klot] koagulovat, srážet se
- combat** [kom'bæt] bojovat s čím, proti čemu

- fluid** [flu:ɪd] tekutina
- hollow** [holəu] dutý
- numerous** [nju:mərəs] četný, početný
- nutrient** [nju:triənt] potrava, živina
- platelet** [pleɪtlɪt] destička
- red blood cell** [sel] červená krvinka
- tissue** [ti:ʃu:/tisju:] tkáň; tkáňový
- valve** [vælv] chlopeň, záklopka
- vein** [veɪn] vena, žíla
- white blood cell** bílá krvinka

3.2 Temperature. Pulse. Blood Pressure (BP). Respiration (TPR)

When a nurse looks after her patients in the daytime or at night, she can see the changes in the patients' condition. She takes their temperature, pulse and blood pressure to check the work of their heart and observes their breathing.

Human beings maintain an almost constant body temperature. The normal temperature of some adults is as low as 97 °F (36,1 °C) and in others, it is as high as 99 °F (37,2 °C). There is also a normal daily variation of about one degree. The temperature is lowest in the early hours of the morning and highest in the evening.

Body heat is produced by metabolic and muscular activity. It is lost by evaporation of sweat from the skin, expiration of air from the lungs and excretion of urine and faeces. The balance between heat production and heat loss is maintained by the heat-regulating centre in the hypothalamus, which is sensitive to minute variations in the temperature of the blood passing through it.

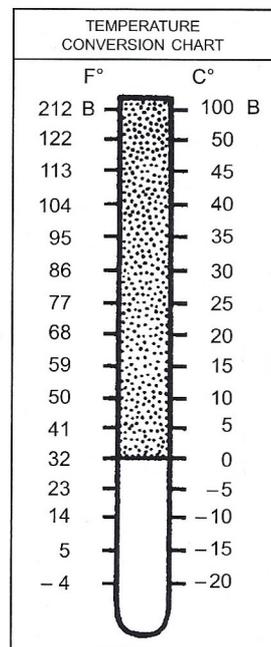
Fever is the rise of the body temperature above normal. In some diseases the temperature rises gradually, in others it rises high on the very first day. The symptoms of high temperature are headache, aches all over the body, red face, hot dry skin, loss of appetite, quick pulse and breathing.

Study the Fahrenheit and Centigrade (Celsius) thermometric scale and the conversion tables:

The Fahrenheit thermometric scale extends from 0° to 212°.

- 0 °F = -18 °C
- 32 °F = 0 °C (freezing point)
- 212 °F = 100 °C (boiling point)

Normal body temperature is 98,4 °F.



TO CONVERT CENTIGRADE TO FAHRENHEIT

$$^{\circ}\text{C} : 5 = \square \times 9 = \square + 32 = ^{\circ}\text{F}$$

TO CONVERT FAHRENHEIT TO CENTIGRADE

$$^{\circ}\text{F} - 32 = \square : 9 = \square \times 5 = ^{\circ}\text{C}$$

VOCABULARY

evaporation [ivæpə'reiʃn] odpařování
faeces [fi:si:z] výkaly, fekálie
loss [los] ztráta
loss of appetite – nechutenství
maintain [meɪn'tein] udržovat, zachovávat
minute [mai'nju:t] nepatrný, sotva postižitelný
sweat [swet] pot

The average **pulse** rate in adults is said to be 72 beats per minute. In an infant, the pulse rate can be as rapid as 140 beats per minute. After heavy exercises the heart works faster and the pulse will be faster too, perhaps 100 beats. After a minute or two the pulse will be normal again. The irregularities occur both in health and in illness. If the nurse sees any, she must immediately tell the doctor.

The point where the pulse is most easily felt is on the anterior surface of the wrist where the radial artery crosses the radius. It is not difficult to take it – just put three fingers of the hand over the radial artery and press slightly. A nurse should wait a few seconds before she begins to count the pulse, because the patients may be nervous and their pulse may be faster as a result.

While taking the pulse the nurse must note:

1. the pulse rate, which is the frequency of the heart beat,
2. the strength of the beating,
3. the rhythm,
4. if the pulse is deep or shallow.

VOCABULARY

average [ævəridʒ] průměrný
deep [di:p] hluboký, *zde:* dobře hmatatelný
infant [infənt] kojeneček, dítě do jednoho roku
occur [ə'kə:] stát se, přihodit se
pulse rate [pals reit] tepová frekvence, počet tepů za minutu
rapid [ræpid] rychlý
shallow [ʃæləu] mělký, *zde:* slabý
surface [sə:fis] povrch, plocha

The **blood pressure** is the pressure of blood in the arterial wall. It can be normal, high and low. The normal pressure is between 110–140 (the systolic pressure) over 70–90 (the diastolic pressure). When a nurse

checks the patients' BP, she must think of their age. Patients suffering from hypertension may often complain of headaches, nosebleedings and heartaches. It is a serious matter and a nurse should be very attentive to such patients. These patients should see a doctor for regular check-ups. Untreated hypertension puts one at risk of stroke, angina or a heart attack. High blood pressure can also cause kidney damage and sight problems.

VOCABULARY

attentive [ə'tentiv] pozorný, bedlivý
damage [dæmidʒ] poškození

The **respiration** is under the control of the respiratory center in the medulla of the brain. It is affected by many factors such as exercise, emotional reactions, pain, elevated temperature, shock, haemorrhage and certain drugs. The normal rate of respiration varies with age. The normal rate in adults is about 14 to 20 respirations per minute, in children from 25 to 30. A respiratory rate below 9 is dangerous and should be reported immediately.

Changes in the rate and type of respiration are one of the principal symptoms of disorders of the respiratory system. They are also symptoms of diseases affecting other parts of the body. Respiratory disturbances can be seen in cardiac disease, cerebral depression, uraemia and diabetic coma.

When observing a patient, the rate and depth, and the ease or difficulty of breathing are noted. It is also important to observe, whether breathing is noisy or quiet.

Types of respiration: apnoea, dyspnoea, orthopnoea, hyperpnoea, shallow breathing, stertorous breathing.

Coughing is a reflex action which occurs when the respiratory passages are irritated. Coughing expels irritants such as excess sputum and foreign bodies from the respiratory tract. A cough is known as non-productive (tight cough) when no sputum is expectorated, and when sputum is expectorated, the cough is known as productive (loose cough).

The following terms are used to describe various types of sputum: mucoid sputum, mucopurulent sputum, purulent sputum, rust-coloured sputum. Haemoptysis is the term used to describe the coughing up of bright red, frothy blood from the lungs.

VOCABULARY

affect [ə'fekt] postihnout, ovlivnit, zachvátit, zasáhnout
cough up [kof ap] vykašlávat, kašlat (*krev*)
depth [depθ] hloubka
disorder [dis'o:də] *zde:* potíže, porucha
disturbance [di'stə:bəns] porucha
ease [i:z] snadnost, lehkost
elevate [eliveit] zvýšit

can give you the (3) _____ advice and therapy available, the major part of the job belongs to you. How (4) _____ risk factors do you have?

High cholesterol?
High blood pressure?
Smoking?
Excess weight?
Diabetes?
Sex?
Age (35 to 60)?

Atherosclerosis is a narrowing of the arteries, mainly the coronary arteries, but certain arteries in the (5) _____ as well as in the legs can also be affected. It is a threat to your health. Blockade of arteries often (6) _____ about age 25. When arteries are blocked, you can suffer (7) _____ heart attack (or myocardial infarction), angina or stroke – a blockade of an artery in the brain. Stroke is a leading (8) _____ of death and a major cause of disability at present.

For many people the problem is often high cholesterol but the cause (9) _____ be more than just diet. Some people have a (10) _____ defect that can cause rising of cholesterol level (11) _____ normal. However, most people have nonfamilial hypercholesterolemia.

Measuring atherosclerosis will probably never be as (12) _____ as measuring BP. The most common test is the treadmill (treadwheel) test. When the blood supply to the (13) _____ is inadequate, a change can be (14) _____ in the electrocardiogram even though the person feels (15) _____ normal. This test will show the early signs (16) _____ heart disease.

If you ask what you can do (17) _____ reduce your risk of developing heart disease, the answer is as follows: take an active interest in the health of your heart. Work with your doctor and follow the simple (18) _____ rules:

Stop smoking!
Start a sensible low cholesterol diet!
Keep up with your medication therapy!
Be physically active!
Have your cholesterol and BP checked regularly!

Even though your BP and cholesterol may be fine (19) _____, both may change over time. Help your physician help you by getting (20) _____ check-ups!

best heart cause worry perfectly today of begin
may above regular common-sense many
to genetic brain from simple starts seen

6 a) Find the Czech equivalents to these English idioms:

It Made My Blood Boil

- A: You don't sound very cheerful. Have you had a bad day?
B: Not really. It was the journey home.
A: Oh. Had to wait a long time at the bus-stop, did you?
B: No. It was this man on the bus... Ooh, he made me so angry!
A: Why? What happened?
B: Well, the bus was packed and a lot of people were standing. Then a seat came free, and I stood back to let an old lady sit down. But before she could get there, a man from behind me just threw himself into it.
A: You shouldn't get upset about these things.
B: I was furious. I glared at him, but he just sat there and smiled.
A: Try to forget about it.
B: Oh, *it makes my blood boil* when people behave like that.

(= **He really got my blood up.**
Hot-blooded – In cold blood.)

To Have Your Heart in Your Mouth

- A: Hello, Pat.
B: Hello, Sheila.
A: I saw you on television last week. I thought you were ever so good.
B: Thanks. I don't think I'd like to do it again though.
A: Why not? Don't you enjoy it?
B: Well, I was so nervous.
A: You didn't look nervous.
B: Well, I was. When the cameras were on me, my heart was beating so fast. And my knees were shaking. And my mouth was so dry I could hardly speak. It was terrifying.
A: Really? You didn't look at all worried.
B: Well, I can tell you, when it was my turn to speak, I really *had my heart in my mouth*.

(= **I really had butterflies in my tummy/stomach**)

b) Look at the next three idioms:

Have a heart! (= *show some pity! be merciful!*) You want me to do all that work tonight? Have a heart! I'm tired.

Have a heart of stone (= *be cruel, unfeeling*) He turned the television off in the middle of the children's favourite programme. He must have a heart of stone.

A heart-to-heart talk (= *an intimate talk*) The boy seems very unhappy: you'd better have a heart-to-heart talk with him.

c) Try to choose the right answer:

John's father was a sailor and I think he will be one too; the sea is in his...

- a) blood
- b) nerve
- c) heart
- d) brain
- e) nose

☺ **Let's Laugh a Little**

Doctor's wife: "Now, my dear, you must forget your profession if you go to see our friends with me."

Her husband: "What have I done?"

Doctor's wife: "Why, you feel the pulse of everyone who gives you his hand."

4 First Aid

4.1 Basic Elements of First Aid

People should know how to behave in various life-threatening situations and how to provide first aid. When an accident happens we should keep calm and act without panic. Study the following rules of first aid provided on bleeding, nosebleeds, broken bones, burns and scalds and fainting etc.

❑ BLEEDING

In case of large cuts when bleeding occurs apply pressure directly on the bleeding part with a pad, e.g. a clean cloth. (Your fingers will do if necessary.) If possible, lift the wounded part into the air. Apply a dressing and bandage firmly. If the blood seeps through the dressing, put another bandage over the top of the original. Do not remove the dressing once in place. Call for medical help.

❑ NOSEBLEEDS (EPISTAXIS)

Ask the casualty to sit down with his head bent forwards, loosen any tight clothing from around his neck and chest. Pinch the soft part of his nose firmly for about 10 minutes – longer if necessary. Ask the casualty to breathe through his mouth. Do not plug casualty's nose. Do not allow the casualty to pick or blow his nose. Seek medical help if the bleeding does not stop or if it reoccurs.

❑ BROKEN BONES

A broken bone is also known as a fracture. Fractures are usually closed or concealed. They may be open when the bone has gone through the skin or where there is a wound leading to the break.

Features of broken bones are as follows:

- A snap of bone might have been heard by the casualty.
- Pain at or near the fracture.
- The casualty cannot move the part normally.
- Tenderness, swelling and perhaps, later on, bruising.
- Odd shape or strange angle.

Do not move the injured person unless he is in danger of further injury. Support and steady the injured part until it is supported by other means. Use rolled up blankets, coats, bags etc. to support the injury. If it is an open fracture, cover lightly with a clean dressing. Do not put pressure on it. To control any bleeding gently press the sides of the wound together. Do not give the casualty anything to eat, drink or smoke. Arrange transport to hospital.

❑ BURNS AND SCALDS

Burns result from dry heat, scalding from moist or wet heat. Burns may be superficial – very tender and with red skin, or they may be blistered or deep – with waxy, pale or even charred skin.

The treatment for burns and scalds is exactly the same. Place the area under cold, slowly running water or immerse in cold water for at least 10 minutes, or longer if the pain persists. Remove any rings, watches, tight clothing etc. before the area starts to swell. Do not remove any clothing that is stuck to the skin. Cover the area with any clean, non fluffy material. Seek medical help. Never apply fats, creams, ointments or sticking plasters. Do not interfere with blisters.

❑ FAINTING

The casualty feels weak and lightheaded and falls to the ground. The pulse is usually slow or weak. If the casualty feels faint sit him down his head between his knees. Loosen tight clothing from around his chest, neck and waist. If the casualty has fallen to the ground leave him there but raise his legs in the air. Watch the airway, breathing and pulse and be prepared to resuscitate.

❑ CHOKING

Open the airway and remove any visible obstruction such as false teeth or food. Encourage coughing. Bend the casualty forwards. Slap sharply between the shoulder blades up to four times. Check the mouth, remove the obstruction if it is visible. Repeat back slaps if necessary. If the casualty stops breathing, follow