INVESTICE DO ROZVOJE VZDĚLÁVÁNÍ
TENTO PROJEKT JE SPOLUFINANCOVÁN EVROPSKÝM SOCIÁLNÍM FONDEM A STÁTNÍM ROZPOČTEM ČESKÉ REPUBLIKY.

ODBORNÁ ANGLIČTINA PRO STUDENTY SE SPEC. POTŘEBAMI PŘI STUDIU 1

MARKÉTA POŠTULKOVÁ

PODPORA TERCIÁRNÍHO VZDĚLÁVÁNÍ STUDENTŮ SE SPECIFICKÝMI VZDĚLÁVACÍMI POTŘEBAMI NA OSTRAVSKÉ UNIVERZITĚ V OSTRAVĚ

CZ.1.07/2.2.00/29.0006

OSTRAVA, ZÁŘÍ 2013

Studijní opora je jedním z výstupu projektu ESF OP VK.

Číslo Prioritní osy:	7.2
Oblast podpory:	7.2.2 – Vysokoškolské vzdělávání
Příjemce:	Ostravská univerzita v Ostravě
Název projektu:	Podpora terciárního vzdělávání studentů se specifickými vzdělávacími potřebami na Ostravské univerzitě v Ostravě
Registrační číslo projektu:	CZ.1.07/2.2.00/29.0006
Délka realizace:	6.2.2012 – 31.1.2015
Řešitel:	PhDr. Mgr. Martin Kaleja, Ph.D.

Tento projekt je spolufinancován Evropským sociálním fondem a státním rozpočtem České republiky.

Název: Odborná angličtina pro studenty se spec. potřebami při studiu 1
Autor: Mgr. Markéta Poštulková

Studijní opora k inovovanému předmětu: *Odborná angličtina 1 (KRE/OARH1 + KRE/OAET1)*

Jazyková korektura nebyla provedena, za jazykovou stránku odpovídá autor.

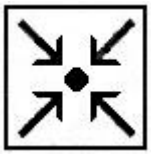
Recenzent: *Mgr. Ivona Závacká, PhD.*
Ostravská univerzita v Ostravě

ISBN 978-80-7464-432-0

OBSAH:

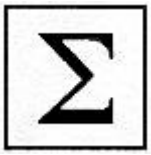
Vysvětlivky k používaným symbolům

Průvodce studiem – vstup autora do textu, specifický způsob kterým se studentem komunikuje, povzbuzuje jej, doplňuje text o další informace.



Příklad – objasnění nebo konkretizování problematiky na příkladu ze života, z praxe, ze společenské reality apod.

K zapamatování



Shrnutí – shrnutí předcházející látky, shrnutí kapitoly.

Literatura – použitá ve studijním materiálu, pro doplnění a rozšíření poznatků.

Kontrolní otázky a úkoly – prověřují, do jaké míry studující text a problematiku pochopil, zapamatoval si podstatné a důležité informace a zda je dokáže aplikovat při řešení problémů.

Úkoly k textu – je potřeba je splnit neprodleně, neboť pomáhají k dobrému zvládnutí následující látky.

Korespondenční úkoly – při jejich plnění postupuje studující podle pokynů s notnou dávkou vlastní iniciativy. Úkoly se průběžně evidují a hodnotí v průběhu celého kurzu.

Otázky k zamyšlení

Část pro zájemce – přináší látku a úkoly rozšiřující úroveň základního kurzu. Pasáže i úkoly jsou dobrovolné.

Úvod

Následující distanční text je určen studentům oborů fyzioterapie a ergoterapie se spec. potřebami při studiu, kterým nabízí texty k procvičování v rámci předmětu Odborná angličtina 1. Zpravidla internetové zdroje, z nichž byly texty převzaty nebo upraveny, jsou uvedeny vždy v záhlaví kapitoly.

Předpokládá se, že s textem nebudou pracovat studenti filologických studijních oborů, proto je pro snadnější práci se studijní oporou volen jako průvodní jazyk distančního textu jazyk český.

Distanční text obsahuje témata obecně zdravotnická popisující především lidské tělo, a dále kapitoly věnované onemocněním a příznakům nemocí. Cílem textu je poskytnout studentům vhodné texty k osvojení odborné terminologie a možnost jejich procvičení ve vhodných úkolech a cvičeních, a také k diskusi o dané problematice. Aktivní práce s textem by vám měla umožnit číst s porozuměním anglicky psanou literaturu odborně zaměřenou na zdravotnickou problematiku a zlepšit vaši dovednost vyjádřit se v cizím (anglickém) jazyce k předkládaným odborným tématům.

Po prostudování textu budete znát:

- slovní zásobu související s lidským tělem a jeho jednotlivými systémy,
- základní fráze pro komunikaci s pacientem.

Získáte:

- potřebnou odbornou zdravotnickou, popř. lékařskou terminologii,
- větší sebevědomí při práci s odborným textem a vyjadřováním v anglickém jazyce.

1 Lidské tělo

V této kapitole se dozvíte:

- obecné informace o lidském těle včetně několika zajímavostí

Po jejím prostudování byste měli být schopni:

- popsat základní části lidského těla,
- uvést několik zajímavostí o lidském těle.

Klíčová slova kapitoly: human body, head, trunk, upper limb, lower limb, organ systems, medicine, anatomy, biochemistry, physiology.

Průvodce studiem

Na zvládnutí této kapitoly budete potřebovat 120 minut.

Text v této kapitole byl zpracován dle

http://www.kidskonnect.com/subject-index/31-health/337-human-body.html

http://en.wikipedia.org/wiki/Human_body

Otázky k zamyšlení:

Jaké části lidského těla již dokážete anglicky pojmenovat?

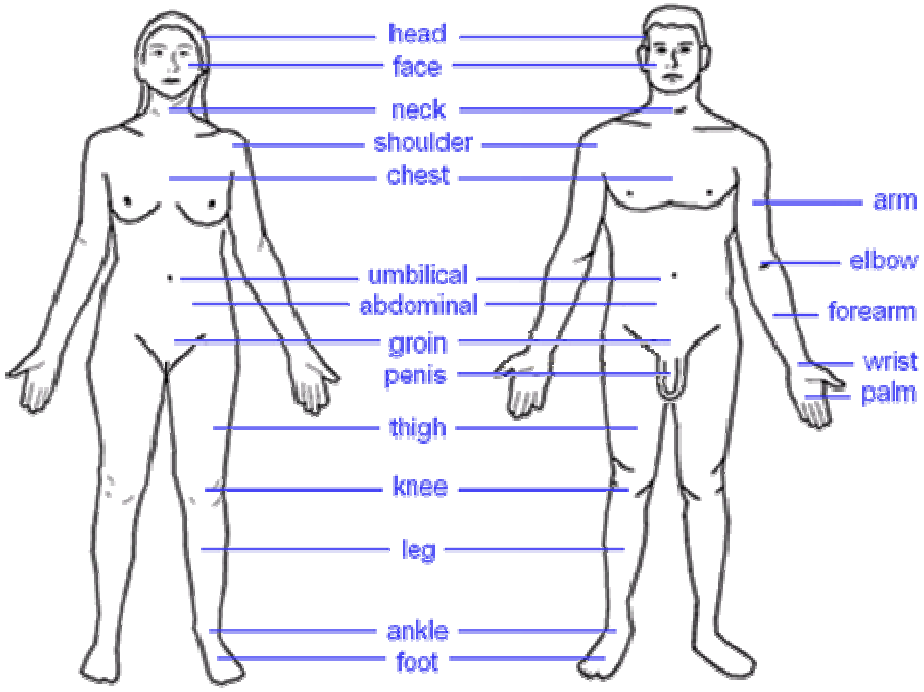
1.1 Human body

The human body is the entire structure of a human organism, and consists of a head, neck, torso, two arms and two legs. By the time the human reaches adulthood, the body consists of close to 100 trillion cells, the basic unit of life. These cells are organised biologically to eventually form the whole body. Every square inch of the human body has about 19 million skin cells. Every hour about 1 billion cells in the human body must be replaced. The adult body is made up of 206 bones, 600 muscles, and 22 internal organs. The human body is made to stand erect, walk on two feet, use the arms to carry and lift, and has opposable thumbs (able to grasp).

The head is composed of the hair, eyes, ears, nose, forehead, cheeks, mouth

and chin. The neck distinguishes the head from the trunk. Trunk (torso) is the central part of the body from which the neck and limbs extend. It includes the thorax and abdomen. Most critical organs are housed within the trunk. In the upper chest, the heart and lungs are protected by the rib cage, and the abdomen contains the majority of organs responsible for digestion: the liver, the large and small intestines, the gallbladder, the ureters, the bladder and the urethra. Finally, the pelvic region houses both the male and female reproductive organs.

The upper limb (upper extremity / arm) is the region extending from the shoulder to the hand, including the arm, elbow, forearm, wrist and hand with the fingers and the thumb. The lower limb (lower extremity / leg) comprises the thigh, knee, calf, ankle and foot.



http://www.red-grey.co.uk/general/map-of-body-organs.html

The organ systems of the body include the circulatory system (heart, blood, vessels), respiratory system (nose, trachea, lungs), immune system (many types of protein, cells, organs, tissues), skeletal system (bones), excretory system (lungs, large intestine, kidneys), urinary system (bladder, kidneys), muscular system (muscles), endocrine system (glands), digestive system (mouth, esophagus, stomach, intestines), nervous system (brain, spinal

cord, nerves) and reproductive system (male and female reproductive organs).

Medicine is the art and science of healing. It encompasses a range of health care practices evolved to maintain and restore health by the prevention and treatment of illness. Anatomy is the study of the physical structure of organisms. Biochemistry is the study of the chemistry taking place in living organisms, especially the structure and function of their chemical components. Physiology is the study of the normal functioning of the body and the underlying regulatory mechanisms.

Část pro zájemce

Metric equivalents of some English units of measure

inch = 2.54 centimetres

foot = 30.48 centimetres

yard = 0,9144 metres

mile = 1609.344 metres

pound = 453.59237 grams

ounce = 28.349523125 grams

1.2 Some stunning facts about human body

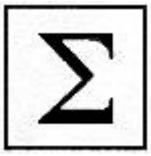
- Every square inch of the human body has about 19 million skin cells.
- Every hour about 1 billion cells in the human body must be replaced.
- The average human head has about 100,000 hairs.
- Children tend to grow faster in the spring.
- More people have brown eyes than any other color.
- Only 10% of the population are left handed.
- More men are color-blind than women.
- Infants blink only once or twice a minute while adults average around 10.
- The circulatory system of arteries, veins, and capillaries is about 60,000 miles long.

- The heart beats more than 2.5 billion times in an average lifetime. It creates enough pressure when it pumps out to the body to squirt blood 30 feet.
- It takes about 20 seconds for a red blood cell to circle the whole body.
- The human brain weighs about 3 pounds.
- One fourth of the bones in your body are in your feet.
- The most sensitive finger on the human is the index finger.
- Your sense of smell is around 10000 times more sensitive than your sense of taste.
- The strongest muscle in the body is the tongue.
- There are about 9,000 taste buds on the surface of the tongue, in the throat, and on the roof of the mouth.
- As well as having unique fingerprints, humans also have unique tongue prints.

1.3 Slovní zásoba ke kapitole 1

adulthood	dospělost	make up	tvořit
average	průměrný	muscle	sval
blink	mrkat	opposable	protistojný
blood	krev	red blood cell	červená krvinka
bone	kost	replace	nahradit
cell	buňka	restore	obnovit
digestive	trávící	science	věda
encompass	zahrnovat	squirt	vystříknout
entire	celý	surface	povrch
erect	vzpřímený	take place	probíhat
gland	žláza	taste bud	chuťový pohárek
grasp	uchopit	tissue	tkáň
healing	léčení, hojení, uzdravování	torso / trunk	trup
index finger	ukazováček	underlying	základní
lift	zvednout	vein	žíla
maintain	udržet	vessel	céva

Shrnutí kapitoly



- V této kapitole jste si rozšířili slovní zásobu o lidském těle a zajímavá fakta o něm.

Kontrolní otázky a úkoly:

1. What are the main parts of human body?
2. Give example of at least 6 organ systems.
3. Explain what medicine, physiology and anatomy deal with.
4. Describe the human body in as many details as you can.
5. Which of the facts mentioned in the text was the most stunning one to you?

Úkoly k textu

Match the beginning and ending of phrases. Tvořte slovní spojení.

1. blood	A. bud
2. chemical	B. cell
3. index	C. component
4. internal	D. finger
5. respiratory	E. organ
6. taste	F. system

Complete the table with words from the box. Doplňte slova do tabulky.
abdomen / ankle / arm / chest / elbow / finger / gallbladder / knee / stomach / thigh / toe / wrist

Trunk	*Upper limb*	*Lower limb*

Část pro zájemce

Use the correct noun with the verbs. Spojte podstatné jméno s vhodnou skupinou sloves:

eyes / hair / head / nose / teeth

1. blow your …….
2. brush – clean your …….
3. brush – comb – dye – lose – wash your…….
4. close – open – rub – ruin your …….
5. hit – nod – scratch – shake – turn your…….

Complete the sentences with the words. Použijte ve větách tato slova:

ear / ears / eye / face / mouth / nose / tongue

1. Don't tell me the answer. It's on the tip of my _____.
2. Excuse me, could you keep an _____ on my dog for a moment?
3. I hear you are going to live in India. I couldn't believe my _____ when George told me.
4. I'm not going to work today. I can't _____ another day of sitting in front of the computer.
5. I've told you before. Keep your out of my business.
6. She never listens to anything anybody says. It just goes in one _____ and out the other.
7. Why did you have to tell John about me dancing with Pete at the party? You've got a big _____.

Citovaná a doporučená literatura

- Gogelová, H.: Angličtina pro fyzioterapeuty. GRADA Publishing, 2011. ISBN: 978-80-247-3531-3.
- Lahodová, E.: Angličtina pro VOŠ a bakalářské obory s medicínským zaměřením. Eurolex Bohemia, Praha, 2004. ISBN: 80-86432-87-4.
- http://www.helpforenglish.cz
- http://iteslj.org/v/ei/body.html
- http://medical-dictionary.thefreedictionary.com/
- http://www.kidskonnect.com/subject-index/31-health/337-human-body.html
- http://en.wikipedia.org/wiki/Human_body

2 Lidský životní cyklus

V této kapitole se dozvíte:

- jaké jsou etapy lidského života a jejich stručnou charakteristiku.

Po jejím prostudování byste měli být schopni:

- charakterizovat jednotlivá stádia lidského života.

Klíčová slova kapitoly: life cycle, newborn, toddler, puberty, adolescence, preschool children, school children, adulthood, middle age, old age.

Průvodce studiem

Na zvládnutí této kapitoly budete potřebovat asi 140 minut.

Texty v této kapitole převzaty a zpracovány dle

The Merck Manual of Diagnosis and Therapy. 18th edition, 2006. ISBN: 0911910-18-2.

http://en.wikipedia.org/wiki/Stages_of_human_development

http://en.wikipedia.org/wiki/Erikson%27s_stages_of_psychosocial_development/

2.1 Childhood

A newborn is an infant who is within hours, days, or up to a few weeks from birth. In medical contexts, newborn or neonate refers to an infant in the first 28 days after birth. After birth, the baby sleeps much of the time. It sucks, clears the airway and responds with crying to discomforts and intrucions.

The term infant is typically applied to children between the ages of 1 month and 12 months. The infant depends on the parents, especially the mother, for food, sustenance, and comfort. The child's relative understanding of world and society come from the parents and their interaction with the child.

A newborn's head is very large in proportion to the rest of the body, and the cranium is enormous relative to his or her face. While the adult human skull is about 1/8 of the total body length, the newborn's is about 1/4. In developed

countries, infants are typically 3–4 kg in weight and 50–60 cm in height at birth.

Physical growth includes attainment of full height and appropriate weight and an increase in size of all organs (except lymphatic tissue, which decreases in size). Growth from birth to adolescence occurs in two distinct phases. The first phase (from birth to about age 1 to 2 years) is one of rapid growth, although the rate of growth decreases over that period. In the second stage (from about 2 years to the onset of puberty), growth occurs in relatively constant annual increments. Environmental influences, ranging from nutrition to stimulation and from the impact of disease to the effects of psychologic factors, interact with genetic factors to determine the pace and pattern of development.

Motor development includes fine motor (eg, picking up small objects, drawing) and gross motor (eg, walking, climbing stairs) skills. Children typically begin to walk at 12 months, can climb stairs at 21 months, and run well at 2 years, but the age at which these milestones are achieved by normal children varies widely. The ability to understand language precedes the ability to speak; children with few words usually can understand a great deal. Most children can say “Dada” and “Mama” by 12 months, use several words by 18 months, and combine words into some sentences by 2 years. The average 3-years-old can carry on a conversation. Cognitive and social/emotional development refers to the intellectual and psychologic maturation of children as their physical development allows them to interact more and more with other people and the external world.

A toddler is a young child, usually defined as being between the ages of one and three. The toddler years are a time of great cognitive, emotional and social development. Change may occur as a result of genetic processes known as maturation, or may be due to environmental factors and learning. Usually it involves an interaction between the two.

Toddlers are able to control the large muscles, which enable walking, running, jumping and climbing. They are also able to control small muscles, enabling them to feed themselves, draw and manipulate objects. They can respond to sounds, respond to his name and understand several words. At 18 months the toddler walks well. He can climb stairs holding on and speak about 10 words. He pulls toys on strings and partially feeds himself. At 2 years he runs well and

climbs up and down stairs alone. He can turn single book pages and make 2- or 3-word sentences.

By 3 he rides a tricycle and dresses well except for buttons and laces. He can count to 10, use plurals and recognize at least 3 colours. Children at this age like to explore their world around them and they are constantly learning about their environment. Caution must be taken at this age while children may explore things that are dangerous to their health and safety. At this age, children develop their first interests.

Preschool children (3 to 6 years) are learning to master the world around them, learning basic skills and principles of physics. Things fall down, not up. Round things roll. They learn how to zip and tie, count and speak with ease. At this stage, the child wants to begin and complete their own actions for a purpose. Guilt is a confusing new emotion. During this stage, the child learns to take initiative and prepare for leadership and goal achievement roles.

Activities sought out by a child in this stage may include risk-taking behaviors, such as crossing a street alone or riding a bike without a helmet. Within instances requiring initiative, the child may also develop negative behaviors. These behaviors are a result of the child developing a sense of frustration for not being able to achieve a goal as planned and may engage in behaviors that seem aggressive, ruthless, and overly assertive to parents. Aggressive behaviors, such as throwing objects or hitting, are examples of observable behaviors during this stage.

School children at this age (6 to 12 years) are becoming more aware of themselves as individuals. They are now more reasonable to share and cooperate. Children gain a better understanding of cause and effect, and of calendar time. At this stage, children are eager to learn and accomplish more complex skills: reading, writing, telling time. They also get to form moral values, recognize cultural and individual differences and are able to manage most of their personal needs. At this age, children start recognizing their special talents and continue to discover interests as their education improves.

2.2 Puberty

Puberty is a period of several years in which rapid physical growth and psychological changes occur, culminating in sexual maturity. The average

onset of puberty is at 10 or 11 for girls and age 11 or 12 for boys. Every person's individual timetable for puberty is influenced primarily by heredity, although environmental factors, such as diet and exercise, also exert some influence. Some of the most significant parts of pubertal development involve distinctive physiological changes in individuals' height, weight, body composition, and circulatory and respiratory systems. These changes are largely influenced by hormonal activity.

Guiding people through the period of adolescence is a challenge for parents because most adolescents struggle with issues of identity, autonomy, sexuality, and relationships. Many unhealthy behaviours that begin during adolescence (eg, smoking, drug use, violence) eventually cause morbidity later in life.

2.3 Adulthood

Historically and cross-culturally, adulthood has been determined primarily by the start of puberty (the appearance of secondary sex characteristics such as menstruation in women, ejaculation in men, and pubic hair in both sexes). Young adults (19 to 40 years) are still eager to blend their identities with friends. They want to fit in. Once people have established their identities, they are ready to make long-term commitments to others. They become capable of forming intimate, reciprocal relationships (eg, through close friendships or marriage) and willingly make the sacrifices and compromises that such relationships require.

Middle age is the period beyond young adulthood but before the onset of old age, which is around the third quarter of the average life span of human beings. Middle-aged adults often show visible signs of ageing such as loss of skin elasticity and graying of the hair. Physical fitness usually wanes, strength and flexibility also decrease throughout middle age. However, people age at different rates and there can be significant differences between individuals of the same age. The primary developmental task of this stage is one of contributing to society and helping to guide future generations.

The boundary between middle age and old age (seniors / the elderly) cannot be defined exactly because it does not have the same meaning in all societies. People can be considered old when they become grandparents, or when they

retire. Most countries have accepted the chronological age of 65 years as a definition of 'elderly' or older person.

There is often a general physical decline, and people become less active. Old age can cause, amongst other things:

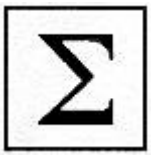
- wrinkles and liver spots on the skin,
- change of hair colour to gray or white,
- reduced circulatory system function and blood flow,
- reduced lung capacity,
- reduced immune system function,
- hearing loss,
- diminished eyesight,
- slower reaction times and agility,
- reduced ability to think clearly,
- difficulty recalling memories,
- depressed mood,
- greater susceptibility to bone diseases such as osteoarthritis.

It is during this time that we contemplate our accomplishments and are able to develop integrity if we see ourselves as leading a successful life. If we see our life as unproductive, or feel that we did not accomplish our life goals, we become dissatisfied with life and develop despair, often leading to depression and hopelessness.

2.4 Slovní zásoba ke kapitole 2

accomplishment	výkon, výsledek	life span	délka života
achieve	dosáhnout	master	zvládnout
agility	mrštnost	maturation	dozrávání
airway	dýchací cesty	milestone	milník
appropriate	vhodný, přiměřený	newborn	novorozenec
assertive	troufalý	observable	pozorovatelný
attainment	dosažení	obvious	zřejmý
blend	smísit	occur	nastat, vyskytovat se
breast	prs, hruď	pace	tempo
caution	opatrnost	pattern	vzor, systém
contemplate	rozjímat	precede	předcházet
contribute	přispět, podílet se	purpose	účel, cíl

decline	pokles, úpadek	range	být v rozmezí
depend	záviset	rate	rychlost, míra
despair	zoufalství	recognize	poznat, uznat
determine	určit, stanovit	relative	ve vztahu k
eager	dychtivý	require	vyžadovat, potřebovat
engage	angažovat, účastnit se	ruthless	krutý
feed	krmit	sacrifice	oběť
fit in	zapadnout, zařadit se	sign	znak
gain	získat	skill	dovednost
goal	cíl	skull	lebka
gross	hrubý	strength	síla
growth	růst, vývoj	striking	neobyčejný
guide	vést, nasměrovat	struggle with	potýkat se
guilt	vina	suck	sát
impact	dopad, vliv	susceptibility	náchylnost, sklon
improve	zlepšit	sustenance	výživa
increase	zvětšení, růst	undergo	podstoupit, prodělat
increment	přírůstek	value	hodnota
intrusion	narušení	violence	násilný čin
involve	zahrnovat, týkat se	wane	ztrácet se, slábnout



Shrnutí kapitoly

- V této kapitole jste získali informace o etapách lidského života, na jejichž základě byste měli být schopni jednotlivá stádia charakterizovat.

Kontrolní otázky a úkoly:

1. What are the main stages of human life cycle? Characterize each of them.

Úkoly k textu

Which word does not match and why? Které slovo se nehodí k ostatním a proč?

a. babble – cry – suck – suffer
b. comprise – contain – divide – include
c. chin – jaw – shin – temple
d. kidney – liver – palate – spleen
e. adult – appearance – infant – toddler

Put the sentences in the most logical order. Logicky seřaďte následující věty.

a. She gave birth to a beautiful baby girl.
b. She got pregnant.
c. She went into labour.
d. They called her Catherine.
e. She was in labour for six hours.
f. She was rushed to the maternity ward.
g. She had a scan to see if the baby was OK.

Část pro zájemce

Complete the sentences. Doplňte.
crawl / maturity / milestones / stature / weaned

1. After sitting, babies learn to _____ and then to walk.
2. A child who has started eating solid food has been _____.
3. Someone who is not very tall is said to be of short _____.
4. The stages in a child's development are known as the _____.
5. A child who is beginning to develop sexually has reached _____.

Citovaná a doporučená literatura

- Glendinning, E. H., Howard, R.: Professional English in Use. Medicine. Cambridge University Press, 2007. ISBN 978-0-521-68201-5.
- The Merck Manual of Diagnosis and Therapy. 18th edition, 2006. ISBN: 0911910-18-2.
- http://www.bbc.co.uk/science/humanbody
- http://en.wikipedia.org/wiki/Stages_of_human_development

- http://en.wikipedia.org/wiki/Erikson%27s_stages_of_psychosocial_development/
- http://medical-dictionary.thefreedictionary.com/

3 Kostra – Skeleton

V této kapitole se dozvíte:

- slovní zásobu týkající se lidské kostry.

Po jejím prostudování byste měli být schopni:

- pojmenovat části kostry.

Klíčová slova kapitoly: skeleton, joints, bone, cartilage, axial skeleton, appendicular skeleton, layers, ossification.

Průvodce studiem

Na zvládnutí této kapitoly budete potřebovat asi 180 minut.

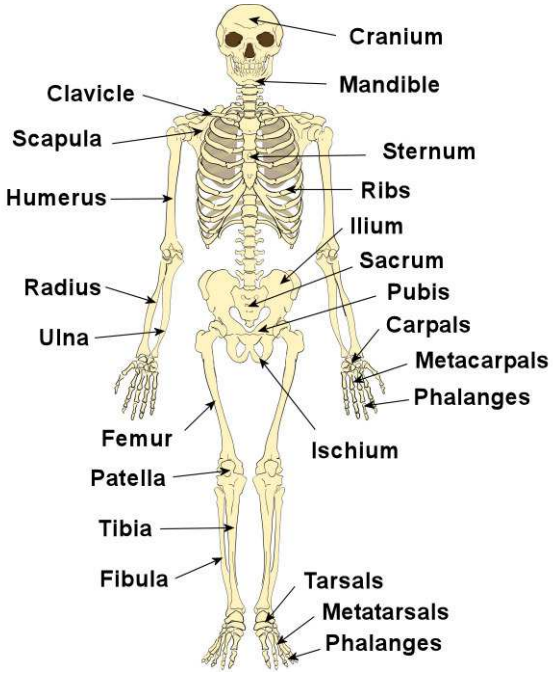
Texty v této kapitole zpracovány dle

http://www.mananatomy.com/body-systems/skeletal-system

http://www.merckmanuals.com/home/print/sec05/ch055/ch055a.html

http://orthoinfo.aaos.org/topic.cfm?topic=A00127

Check the pronunciation and meaning of the bones in the picture. Ověřte si výslovnost a příp. české názvy kostí na obrázku.



http://teachpe.com/anatomy/skeleton.php#a

3.1 Skeletal system

Skeletal system is the system of bones, associated cartilages and joints of human body. Together these structures form the human skeleton. Skeleton can be defined as the hard framework of human body around which the entire body is built. Almost all the hard parts of human body are components of human skeletal system.

Joints are very important because they make the hard and rigid skeleton allow different types of movements at different locations. If the skeleton were without joints, no movement would have taken place. Bone is a tough and rigid form of connective tissue. It is the weight bearing organ of human body and it is responsible for almost all strength of human skeleton. Cartilage is also a form of connective tissue but is not as tough and rigid as bone. The main difference in the cartilage and bone is the mineralization factor. Bones are highly mineralized with calcium salts while cartilages are not. Joints are important components of human skeleton because they make the human skeleton mobile. A joint occurs between “two or more bones”, “bone and cartilage” and “cartilage and cartilage”.

Human skeleton gives strength, support and shape to the body. Without a hard and rigid skeletal system, human body cannot stand upright, and it will become just a bag of soft tissues without any proper shape. The skeleton protects inner soft but vital organs like heart and brain from external shocks. Any damage to these organs can prove fatal, therefore protective function of skeleton is very important. Bones of the human skeleton in all parts of body provide attachment to the muscles, which provide motor power for producing movements of body parts and thus produce movements according to the needs of the human body. In bones like the sternum, and heads of tibia new blood cells are produced.

3.2 Division of the skeleton

Human skeleton can be divided into two divisions, axial and appendicular skeleton. Axial skeleton forms the axis of human body. It consists of skull, vertebral column and thoracic cage. Skull is that part of human skeleton that forms the bony framework of the head. It consists of 22 different bones that are divided into two groups: bones of cranium and bones of face. Vertebral column

is a flexible column of vertebrae, connecting the trunk of human body to the skull and appendages. It is composed of 33 vertebrae which are divided into 5 regions: cervical, thoracic, lumbar, sacral, and coccygeal. Rib cage is a bony cage enclosing vital human organs formed by the sternum and ribs. There are 12 pairs of ribs.

Appendicular skeleton is the skeleton of appendages of human body. It consists of shoulder girdle, skeleton of upper limb, pelvic girdle and skeleton of lower limb. Shoulder girdle attaches the upper limb to body trunk and is formed by two bones: clavicle and scapula. The skeleton of each upper limb consists of 30 bones. There are two pelvic girdles (one for each lower limb) but unlike the pectoral girdles, they are jointed with each other at symphysis pubis. Each pelvic girdle is a single bone in adults.

The skeleton of each lower limb consists of 30 bones.

Bones are classified into four groups:

- Long bones (such as the femur, humerus and metatarsals) have a body longer than it is wide, have a hard outer casing with spongy bone in the centre.
- Short bones are roughly as wide as they are long (such as the carpals and tarsals in the wrist and foot). They contain large amounts of bone marrow to make blood vessels.
- Flat bones (such as the skull and shoulder blade) are strong, flat pieces of bone. Their main functions are protection and muscle attachment.
- Irregular bones do not fit into any of the other categories and often have an unusual shape. These are bones such as the vertebrae, sacrum and mandible.

3.3 Bone structure and ossification

Bones are made up of several layers. The outermost layer is called the periosteum. There is then an outer layer of strong compact (hard) bone. The centre of bones contains spongy bone. Some spongy bone contains red bone marrow, which makes red blood cells. The marrow cavity contains yellow marrow which makes white blood cells.

Because bone is made up of minerals and is hard, many people think that it is not living material. But a bone in a living animal consists of both living tissue

and non-living substances. Within the "alive bone" are blood vessels, nerves, collagen, and living cells. The nonliving, but very important, substances in bone are the minerals and salts.

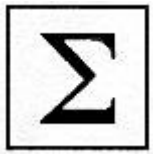
Bone is deposited in proportion to the compressional load that the bone must carry. For instance, the bones of athletes become considerably heavier than those of nonathletes. Also, if a person has one leg in a cast but continues to walk on the opposite leg, the bone of the leg in the cast becomes thin and as much as 30% decalcified within a few weeks, while the opposite bone remains thick and normally calcified.

Ossification is the process by which cartilage is turned to bone. When we are born our bones are actually cartilage. The process of ossification turns the cartilage to bone. This can take up to a few years for some bones.

3.4 Slovní zásoba ke kapitole 3

adjust	přizpůsobit, upravit	layer	vrstva
allow	dovolit	peak	vrcholný
amount	množství	pelvic girdle	pánevní pletenec
appendage	přívěsek	perform	vykonat, účinkovat
axis	osa	physician	lékař
brittle	křehký	provide	poskytovat
casing	obal, povlak	remain	zůstat
cast	sádra	replace	nahradit
cartilage	chrupavka	require	požadovat, být zapotřebí
connective tissue	pojivová tkáň	rib cage	hrudní koš
contain	obsahovat	shape	tvar
dairy products	mléčné výrobky	skull	lebka
damage	poškození	spongy	houbovitý, pórovitý
density	hustota	strength	síla, pevnost
framework	rámec, kostra	support	podpěra
intake	příjem	undergo	podstoupit, vytrpět
irregular	nepravidelný	vertebra	obratel
joint	kloub	vertebral column	páteř

Shrnutí kapitoly



- V této kapitole jste si osvojili slovní zásobu týkající se kostry, díky které byste měli být schopni popsat její části.

Kontrolní otázky a úkoly:

1. Describe the human skeleton.
2. What does axial/appendicular skeleton mean?
3. What groups of cant he bones be dividend into?
4. Explain the term „ossification“.
5. How can you make your bones strong and healthy?

Úkoly k textu

What are the English names for these bones? Jaké jsou anglické názvy těchto kostí?

breastbone / collarbone / jaw bone / kneecap / rib / shinbone / shoulder blade / skull / spine / thigh bone

English name	*Anatomical name*
	cranium
	mandible
	vertebral column
	sternum
	costa
	clavicle
	scapula
	femur
	patella
	tibia

Korespondenční úkoly

What are these diseases of the skeletal system: osteoarthritis, osteoporosis and poliomyelitis? Characterize each in 2-3 sentences and cite the sources of information. O jaká onemocnění se jedná: osteoarthritis, osteoporosis and poliomyelitis? Charakterizujte každé z nich ve 2-3 větách a uveďte informační zdroj.

Citovaná a doporučená literatura

- Glendinning, E. H., Howard, R.: Professional English in Use. Medicine. Cambridge University Press, 2007. ISBN: 978-0-521-68201-5.
- Gogelová, H.: Angličtina pro fyzioterapeuty. GRADA Publishing, 2011. ISBN: 978-80-247-3531-3.
- Lahodová, E.: Angličtina pro VOŠ a bakalářské obory s medicínským zaměřením. Eurolex Bohemia, Praha, 2004. ISBN: 80-86432-87-4.
- http://www.bbc.co.uk/science/humanbody
- http://www.medtropolis.com/VBody.asp
- http://www.nsbri.org/humanphysspace/indexb.html
- http://medical-dictionary.thefreedictionary.com/
- http://www.mananatomy.com/body-systems/skeletal-system
- http://www.merckmanuals.com/home/print/sec05/ch055/ch055a.html
- http://orthoinfo.aaos.org/topic.cfm?topic=A0012

4 Svaly

V této kapitole se dozvíte:

- slovní zásobu týkající se svalů.

Po jejím prostudování byste měli být schopni:

- popsat typy svalů v lidském těle,
- objasnit jejich význam pro fungování lidského těla,
- vyjmenovat některé možné poruchy svalového aparátu.

Klíčová slova kapitoly: muscles, skeletal, smooth, cardiac, agonist, antagonist, exercise, muscle disorders.

Průvodce studiem

Na zvládnutí této kapitoly budete potřebovat asi 180 minut, tak se pohodlně usaďte a nenechte se nikým a ničím rušit.

Texty v této kapitole zpracovány dle

http://www.wemove.org/spa/spa_nmc.html

http://www.bbc.co.uk/science/humanbody/body/

http://www.nlm.nih.gov/medlineplus/muscledisorders.html

http://kidshealth.org/parent/general/body_basics/bones_muscles_joints.html#

The bones provide the structure or support for the body, and the muscles provide the ability to move. The human body has more than 650 muscles, which make up half of a person's body weight. They are connected to bones by tough, cord-like tissues called tendons, which allow the muscles to pull on bones. Most muscles reach from one bone to another and usually cross a joint. The muscles cause the bones to move in relationship to each other.

4.1 Kinds of muscles

Humans have three different kinds of muscle:

Skeletal muscle is attached to bone, mostly in the legs, arms, abdomen, chest, neck, and face. Skeletal muscles are called striated because they are made up of fibers that have horizontal stripes when viewed under a microscope. These muscles hold the skeleton together, give the body shape, and help it with everyday movements (known as voluntary muscles because you can control their movement). They can contract (shorten or tighten) quickly and powerfully, but they tire easily and have to rest between workouts.

Smooth, or involuntary, muscle is also made of fibers, but this type of muscle looks smooth, not striated. Generally, we can't consciously control our smooth muscles; rather, they are controlled by the nervous system automatically (which is why they are also called involuntary). Examples of smooth muscles are the walls of the stomach and intestines, which help break up food and move it through the digestive system. Smooth muscle is also found in the walls of blood vessels, where it squeezes the stream of blood flowing through the vessels to help maintain blood pressure. Smooth muscles take longer to contract than skeletal muscles do, but they can stay contracted for a long time because they do not tire easily.

Cardiac muscle is found in the heart. The walls of the heart's chambers are composed almost entirely of muscle fibers. Cardiac muscle is also an involuntary type of muscle. Its rhythmic, powerful contractions force blood out of the heart as it beats.

4.2 How muscles work

Most muscles of the musculoskeletal system work in pairs – called agonists and antagonists. During a movement, the muscle responsible for moving the body part contracts or shortens; this muscle is called the agonist. The antagonist muscle acts against or in opposition to the agonist muscle, stretching when the agonist contracts. The antagonist muscle is responsible for moving the body part back to its original position. A muscle acts as the agonist in one action and as an antagonist in the opposite action. For example, when bending the elbow and raising the hand toward the shoulder, the biceps muscle contracts and is the agonist; the triceps muscle stretches and is the antagonist. When the movement is reversed and the elbow is extended, the triceps muscle contracts (is the agonist) and the biceps muscle lengthens (is the antagonist).

The movement of muscles is coordinated and controlled by the nervous system. A part of the brain called the motor cortex sends messages or signals through the spinal cord to the nerves in the body that then "tell" the muscle to move. The motor cortex on the right side of the brain controls the left side of the body, while the left side of the brain controls the right side of the body. An area deep within the brain called the thalamus relays and processes the information between the other areas of the brain and the spinal cord.

When muscles receive a signal (are stimulated), they contract. This signal may be a message that the muscle receives from the brain in response to a person's desire to move; this is a voluntary stimulus. The signal may be a reflex, or an involuntary stimulus. A reflex occurs, for example, when the doctor taps the patient's knee with a rubber hammer and the lower leg jerks upward.

4.3 Exercise and disorders

All types of exercise involve using your muscles to generate movement. Regular exercise can increase muscle size, strength and endurance. But not all exercise produces the same effect. Endurance exercises like running or cycling make your muscles stronger and less likely to get tired. This sort of exercise does not only benefit your skeletal muscles. It also:

- enlarges your heart so it can pump blood around your body more quickly,
- increases the capacity of your lungs so you can breathe in more oxygen with each breath,
- improves your digestion,
- makes your metabolism more efficient,
- strengthens your skeleton,
- improves your coordination.

Endurance exercise is not, however, the best type of exercise to do if you want to make your muscles bigger. You can increase muscle size by doing resistance exercises. Resistance exercise involves using your muscles to move an extremely heavy load. This type of exercise forces your muscles to contract as hard as they can, which leads to an increase in the number of contractile filaments within your muscle cells. This makes your muscle cells enlarge and,

as a result, it makes your muscles bigger. Some forms of exercise offer the benefits of both endurance and resistance exercise. Swimming improves endurance, and as you have to push against water to move forward, it is a resistance exercise, too.

If you are doing intense exercise, other systems in your body focus their efforts on helping your muscles. Your heart beats more quickly so that it can pump more blood to your muscles, to provide them with more oxygen and nutrients. Your digestive system slows down so that it does not use up energy that your muscles need.

There are many problems that can affect muscles. Muscle disorders can cause weakness, pain or even paralysis. There may be no known cause for a muscle disorder. Some known causes include:

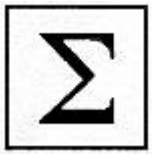
- injury or overuse, such as sprains or strains, cramps, tendinitid or fracture,
- genetics, such as muscular dystrophy,
- some cancers,
- inflammation,
- diseases of nerves that affect muscles,
- infections,
- certain medicines.

4.4 Slovní zásoba ke kapitole 4

affect	postihnout, zasáhnout	receive	dostat, obdržet
bend	ohnout	relay	přenášet
consider	považovat, pokládat	respond	odpovědět, reagovat
cramp	křeč	rubber hammer	gumové kladívko
desire	přání, touha	smooth	hladký
		spinal cord	mícha
encircle	obepínat, obklopit	sprain	vyvrtnutí, výron
exhibit	projevit	strain	natažení, namožení
fibre	vlákno	striated / striped	příčně pruhovaný
inflammation	zánět	supply	zásobovat, dodávat

jerk	cuknout, trhnout	surround	obklopit
process	zpracovat	tap	poklepat
raise	zvednout	work out	cvičit, sportovat

Shrnutí kapitoly



- V této kapitole jste si osvojili slovní zásobu týkající se svalstva. Měli byste být schopni popsat význam svalstva v lidském těle, typy svalů a jejich fungování.

Kontrolní otázky a úkoly:

1. What types of muscles do you know and where can they be found?
2. How do skeletal muscles work in the human body?
3. What health problems can affect muscles?
4. Why is exercise benefitial for the body?

Úkoly k textu

Fill in the words from the box. Doplňte chybějící slova.

allows – although – cage – levers – made up – serves

The skeleton is a mobile framework _____ of more than 200 bones, approximately half of which are in the hands and feet. _____ individual bones are rigid, the skeleton as a whole is remarkably flexible and _____ the human body huge range of movement. The skeleton _____ as a rigid framework for the body and as a protective _____ for the body's internal organs. It also provides _____ for the skeletal muscles.

Otázky k zamyšlení:

1. What kind of exercise would you recommend to overweight young people? Why?

Citovaná a doporučená literatura

- Glendinning, E. H., Howard, R.: Professional English in Use. Medicine. Cambridge University Press, 2007. ISBN: 978-0-521-68201-5.
- Gogelová, H.: Angličtina pro fyzioterapeuty. GRADA Publishing, 2011. ISBN: 978-80-247-3531-3.
- Lahodová, E.: Angličtina pro VOŠ a bakalářské obory s medicínským zaměřením. Eurolex Bohemia, Praha, 2004. ISBN: 80-86432-87-4.
- http://www.bbc.co.uk/science/humanbody
- http://www.medtropolis.com/VBody.asp
- http://medical-dictionary.thefreedictionary.com/
- http://www.wemove.org/spa/spa_nmc.html
- http://www.bbc.co.uk/science/humanbody/body/
- http://www.nlm.nih.gov/medlineplus/muscledisorders.html
- http://kidshealth.org/parent/general/body_basics/bones_muscles_joints.html#

5 Oběhová soustava

V této kapitole se dozvíte:

- slovní zásobu potřebnou k popisu oběhové soustavy.

Po jejím prostudování byste měli být schopni:

- popsat popsat oběhovou soustavu, její jednotlivé součásti, fungování a některá onemocnění.

Klíčová slova kapitoly: circulatory system, heart, chamber, atrium, ventricle, septum, valve, circulatory circuit, blood vessels, arteries, veins, arterioles, capillaries, venules, blood, red blood cells, white blood cells, platelets, blood clot, plasma, atherosclerosis, angina, heart attack, high blood pressure, peripheral artery disease, stroke.

Průvodce studiem

Na zvládnutí této kapitoly budete potřebovat asi 180 minut.

Texty v této kapitole zpracovány dle

http://www.accessexcellence.org/AE/AEC/CC/heart_anatomy.php

http://anthro.palomar.edu/blood/blood_components.htm

http://kidshealth.org/kid/talk/qa/blood.html#

http://kidshealth.org/PageManager.jsp?lic=1&article_set=54036&cat_id=20607#

The circulatory (cardiovascular) system comprises the heart, veins, arteries and capillaries. The primary function of the heart is to circulate the blood, and through the blood, oxygen and vital minerals are transferred to the tissues and organs that comprise the body.

5.1 Parts of the circulatory system

The human heart is a muscular pump. While most of the hollow organs of the body do have muscular layers, the heart is almost entirely muscle. Unlike most of the other hollow organs, whose muscle layers are composed of smooth

muscle, the heart is composed of cardiac muscle. All muscle types function by contraction, which causes the muscle cells to shorten.

The heart is made up of four different blood-filled areas, and each of these areas is called a chamber. There are two chambers on each side of the heart. One chamber is on the top and one chamber is on the bottom. The two chambers on top are called the atria. The atria are the chambers that fill with the blood returning to the heart from the body and lungs. The heart has a left atrium and a right atrium.

The two chambers on the bottom are called the ventricles. The heart has a left ventricle and a right ventricle. Their job is to squirt out the blood to the body and lungs. Running down the middle of the heart is a thick wall of muscle called the septum. Its job is to separate the left side and the right side of the heart.

The atria and ventricles work as a team — the atria fill with blood, then dump it into the ventricles. The ventricles then squeeze, pumping blood out of the heart. While the ventricles are squeezing, the atria refill and get ready for the next contraction. A valve lets something in and keeps it there by closing. The mitral valve and the tricuspid valve let blood flow from the atria to the ventricles. The aortic and pulmonary valve are in charge of controlling the flow as the blood leaves the heart. These valves all work to keep the blood flowing forward. They open up to let the blood move ahead, then they close quickly to keep the blood from flowing backward.

A physician listening carefully to the heart can detect if the valves are closing completely or not. Instead of a distinctive valve sound, the physician may hear a swishing sound if they are letting blood flow backward. When the swishing is heard tells the physician where the leaky valve is located. The heart is responsible for pumping the blood to every cell in the body. It is also responsible for pumping blood to the lungs, where the blood gives up carbon dioxide and takes on oxygen.

5.2 Circulatory circuit and blood vessels

The heart is able to pump blood to both regions efficiently because there are really two separate circulatory circuits with the heart as the common link. In the pulmonary circuit, blood leaves the heart through the pulmonary arteries,

goes to the lungs, and returns to the heart through the pulmonary veins. In the systemic circuit, blood leaves the heart through the aorta, goes to all the organs of the body through the systemic arteries, and then returns to the heart through the systemic veins.

The heart must have its own source of oxygenated blood which is supplied by own set of blood vessels. These are the coronary arteries. There are two main ones with two major branches each. They arise from the aorta right after it leaves the heart. The coronary arteries eventually branch into capillary beds that course throughout the heart walls and supply the heart muscle with oxygenated blood. The coronary veins return blood from the heart muscle, but instead of emptying into another larger vein, they empty directly into the right atrium.

There are three types of vessels - arteries, veins, and capillaries. Arteries, veins, and capillaries are not anatomically the same. They are not just tubes through which the blood flows. Both arteries and veins have layers of smooth muscle surrounding them. Arteries have a much thicker layer, and many more elastic fibers as well. They have the property of elasticity, meaning that they can expand to accept a volume of blood, then contract and squeeze back to their original size after the pressure is released. The elasticity maintains the pressure on the blood when the heart relaxes, and keeps it flowing forward. If the arteries did not have this property, the blood pressure would be more like 120/0, instead of the 120/80 that is normal.

Arteries branch into arterioles as they get smaller. Arterioles eventually become capillaries, which are very thin and branching. Capillaries are really more like a web than a branched tube. It is in the capillaries that the exchange between the blood and the cells of the body takes place. In the special capillaries of the kidneys, the blood gives up many waste products in the formation of urine. Capillary beds are also the sites where white blood cells are able to leave the blood and defend the body against harmful invaders. As the capillaries begin to thicken and merge, they become venules. Venules eventually become veins and head back to the heart. Veins do not have as many elastic fibers as arteries. Veins do have valves, which keep the blood from pooling and flowing back to the legs under the influence of gravity. When these valves break down, as often happens in older or inactive people, the

blood does flow back and pool in the legs. The result is varicose veins, which often appear as large purplish tubes in the lower legs.

5.3 Blood

The average person has about 4-6 liters of blood which consists of red blood cells, white blood cells, platelets, plasma, hormones and proteins. Blood is an essential part of the circulatory system. Red blood cells (erythrocytes) make up most of the cells in the blood. They carry around an important chemical called haemoglobin that gives blood its red color and delivers oxygen to all parts of your body. White blood cells (leukocytes) are bigger than red blood cells. There are usually not a whole lot of white blood cells floating around in your blood when you are healthy. Once you fall ill, though, your body makes some more to protect you. There are a couple types of white blood cells. Platelets, also called thrombocytes, are tiny round cells that help to make sure you do not bleed too much once you get a cut or scrape. The platelets and a web of protein come together to make a blood clot. The clot keeps the blood inside the vessel while the break in the blood vessel heals up. Plasma is a yellowish liquid that is mostly water. But it also carries important nutrients, hormones, and proteins throughout the body. Plasma also carries away cell waste. Nutrients, hormones, proteins, and waste are dissolved in the plasma.

5.4 Disorders of the circulatory system

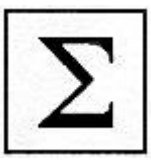
No discussion of the circulatory system would be complete without mentioning some of the problems that can occur. As mentioned earlier, several problems can occur with the valves of the heart. The coronary arteries are also subject to problems. Atherosclerosis is a degenerative disease that results in narrowing of the coronary arteries. This is caused by fatty deposits, most notably cholesterol, on the interior walls of the coronary arteries. When the walls become narrowed or occluded, they reduce the blood flow to the heart muscle. If the artery remains open to some degree, the reduced blood flow is noticed when the heart is under stress during periods of rapid heartbeat. The resulting pain is called angina. When the artery is completely closed or occluded, a section of the heart muscle can no longer get oxygenated blood, and begins to die. This is called a heart attack. Disorders may also include heart failure, high blood pressure,

irregular heart rhythms (arrhythmias), congenital heart defects, heart valve problems, peripheral artery disease (PAD) and stroke.

5.5 Slovní zásoba ke kapitole 5

adhere	přilnout	lifespan	životnost, délka života
adjacent	sousední, sousedící	link	spojení, vztah
alien	cizí	merge	propojit
antibody	protilátka	notice	všimnout si, zaregistrovat
arise	vycházet	occlude	zavřít, zablokovat
arrangement	uspořádání	pain	bolest
atrium, atria	srdeční síň	platelet	krevní destička
blood clot	krevní sraženina	plug	ucpat
blood flow	průtok krve	property	vlastnost
branch	větev	push	tlačit
capillary bed	kapilární řečiště	release	uvolnit
carry out	provést, vykonat	solution	roztok
chamber	komora, dutina	stem cell	kmenová buňka
(pulmonary, systemic) circuit	(plicní, tělní) oběh	stroke	úder; mozková mrtvice
course	protékat	sufficient	dostatečný, adekvátní
disorder	porucha, potíž	swish	šustit
efficient	účinný	tube	trubice
empty	vyprázdnit, vlévat se	varicose vein	křečová žíla
fail	selhat	valve	chlopeň
feature	rys, znak	vein	žíla
force	vytlačit	ventricle	(srdeční) komora
get rid	zbavit se	venule	žilka
harmful	škodlivý, zhoubný	volume	objem
hollow	dutý, dutina	waste product	odpadní produkt
influence	vliv, účinek	wound	zranění

Shrnutí kapitoly



- V této kapitole jste si osvojili slovní zásobu týkající se oběhové soustavy.
- Díky ní byste měli zvládnout popsat oběhovou soustavu, její jednotlivé součásti, fungování a některá onemocnění..

Kontrolní otázky a úkoly:

1. What does the circulatory system consist of?
2. How does the heart function – what parts of the heart are important for the circulation?
3. What is the difference between the pulmonary and systemic circuit?
4. What kinds of blood vessels do you know? Where can they be found?
5. What components of blood do you know? What are they important for?
6. What are common diseases/disorders of the circulatory system?

Úkoly k textu

Fill in. Doplňte.

blood / cord / dystrophy / exercise / girdle / movement

muscular _____

oxygenated _____

resistance _____

shoulder _____

spinal _____

voluntary _____

Korespondenční úkoly

Find details about the first heart transplant:Who performed it and when was it?

Zjistěte podrobnosti o první transplantaci srdce: Kdo ji provedl a kdy?

Citovaná a doporučená literatura

- Glendinning, E. H., Howard, R.: Professional English in Use. Medicine. Cambridge University Press, 2007. ISBN: 978-0-521-68201-5.
- Gogelová, H.: Angličtina pro fyzioterapeuty. GRADA Publishing, 2011. ISBN: 978-80-247-3531-3.
- Lahodová, E.: Angličtina pro VOŠ a bakalářské obory s medicínským zaměřením. Eurolex Bohemia, Praha, 2004. ISBN: 80-86432-87-4.

- http://www.bbc.co.uk/science/humanbody/body/factfiles/heart/heart.shtml
- http://www.medtropolis.com/VBody.asp
- http://medical-dictionary.thefreedictionary.com/
- http://www.accessexcellence.org/AE/AEC/CC/heart_anatomy.php
- http://anthro.palomar.edu/blood/blood_components.htm
- http://kidshealth.org/kid/talk/qa/blood.html#
- http://kidshealth.org/PageManager.jsp?lic=1&article_set=54036&cat_id=20607#

6 Dýchací soustava

V této kapitole se dozvíte:

- slovní zásobu potřebnou k popisu dýchací soustavy.

Po jejím prostudování byste měli být schopni:

- vyjmenovat části dýchací soustavy,
- objasnit fungování dýchací soustavy a uvést některá onemocnění.

Klíčová slova kapitoly: respiratory system, oxygen, airways, nose, windpipe, mouth, lungs, carbon dioxide, air sacs, capillaries, oxygen-rich blood, diaphragm, bronchitis, flu, asthma, cystic fibrosis, chronic obstructive pulmonary disease, tuberculosis.

Průvodce studiem

Na zvládnutí této kapitoly budete potřebovat asi 180 minut.

Texty v této kapitole zpracovány dle

http://www.nhlbi.nih.gov/health/health-topics/topics/hlw/system.html

http://www.livescience.com/22616-respiratory-system.html

The respiratory system is a series of organs responsible for taking in oxygen and expelling carbon dioxide. The human body needs oxygen to sustain itself. After four to six minutes brain cells without oxygen brain cells are destroyed and an extended period of hypoxia (decrease in oxygen) leads to brain damage and ultimately death.

In humans, the average rate of breathing is dependent upon age. Newborns up to 6 weeks take 30 to 60 breaths per minute, while the average resting respiratory rate for adults is 12 to 20 breaths per minute. Physical exertion also has an impact on respiratory rate and healthy adults can average 45 breaths per minute during strenuous exercise.

6.1 Parts of the respiratory system

When we breathe, we inhale oxygen and exhale carbon dioxide. This exchange of gases is the respiratory system's means of getting oxygen to the blood. Respiration is achieved through the mouth, nose, trachea, lungs, and diaphragm.

The airways are pipes that carry oxygen-rich air to your lungs and carbon dioxide, a waste gas, out of your lungs. The airways include:

- nose and linked air passages (called nasal cavities),
- mouth,
- larynx, or voice box,
- trachea, or windpipe,
- tubes called bronchial tubes or bronchi, and their branches.

Air first enters the body through nose or mouth, which wets and warms the air because cold, dry air can irritate the lungs. The air then travels through your voice box and down your windpipe. The windpipe splits into two bronchial tubes that enter your lungs. Except for the mouth and some parts of the nose, all of the airways have special hairs called cilia that are coated with sticky mucus. The cilia trap germs and other foreign particles that enter your airways when you breathe in air. These fine hairs then sweep the particles up to the nose or mouth. From there, they are swallowed, coughed, or sneezed out of the body. Nose hairs and mouth saliva also trap particles and germs.

The lungs and linked blood vessels deliver oxygen to the body and remove carbon dioxide from the body. The lungs lie on either side of the breastbone and fill the inside of the chest cavity. The left lung is slightly smaller than the right lung to allow room for the heart. Within the lungs, the bronchi branch into thousands of smaller, thinner tubes called bronchioles. These tubes end in bunches of tiny round air sacs called alveoli. Each of these air sacs is covered in a mesh of tiny blood vessels called capillaries. The capillaries connect to a network of arteries and veins that move blood through the body. The pulmonary artery and its branches deliver blood rich in carbon dioxide (and lacking in oxygen) to the capillaries that surround the air sacs. Inside the air sacs, carbon dioxide moves from the blood into the air. At the same time,

oxygen moves from the air into the blood in the capillaries. The oxygen-rich blood then travels to the heart through the pulmonary vein and its branches. The heart pumps the oxygen-rich blood out to the body.

The lungs are divided into five main sections called lobes. Some people need to have a diseased lung lobe removed. However, they can still breathe well using the rest of their lung lobes. Muscles near the lungs help expand and tighten the lungs to allow breathing. These muscles include the:

- diaphragm,
- intercostal muscles,
- abdominal muscles,
- muscles in the neck and collarbone area.

The diaphragm's job is to help pump the carbon dioxide out of the lungs and pull the oxygen into the lungs. The diaphragm is a sheet of muscles that lies across the bottom of the chest cavity. As the diaphragm contracts and relaxes, breathing takes place. When the diaphragm contracts, oxygen is pulled into the lungs. When the diaphragm relaxes, carbon dioxide is pumped out of the lungs.

A respiratory control center at the base of the brain controls the breathing. This center sends ongoing signals down the spine and to the nerves of the muscles involved in breathing.

6.2 Diseases

Many steps are involved in breathing. If injury, disease, or other factors affect any of the steps, you may have trouble breathing. Bronchitis is an inflammation of the bronchial tubes. It causes a cough that often brings up mucus, as well as shortness of breath, wheezing, and chest tightness. There are two main types of bronchitis – acute and chronic.

The same viruses that cause acute bronchitis often cause colds and the flu. Between 5% and 20% of people in the USA get the flu each year. The flu can be serious or even deadly for elderly people, newborn babies, and people with certain chronic illnesses.

Asthma is a lung condition that causes difficulty breathing, and the tendency to develop the condition is often inherited. People with asthma have inflamed airways that produce lots of thick mucus and are also overly sensitive to certain

things, like exercise, dust, or cigarette smoke. This hyperreactivity causes the smooth muscle that surrounds the airways to tighten up.

Cystic fibrosis is a genetic disorder that particularly affects the lungs and digestive syste. Normally, mucus in the lungs traps germs, which are then cleared out of the lungs. But in cystic fibrosis, the thick, sticky mucus and the germs it has trapped remain in the lungs, which become infected.

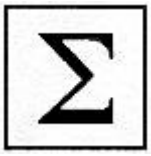
Chronic Obstructive Pulmonary Disease (COPD) makes it hard for you to breathe. In COPD, the airways and air sacs lose their shape. Cigarette smoking is the most common cause of COPD. Breathing in other kinds of irritants, like pollution, dust or chemicals, may also cause or contribute to COPD. Treatment can make you more comfortable, but there is no cure.

Tuberculosis (TB) is a disease caused by bacteria called Mycobacterium tuberculosis. The bacteria usually attack the lungs, but they can also damage other parts of the body. If not treated properly, TB can be deadly. Active TB can usually be cured by taking several medicines for a long period of time.

6.3 Slovní zásoba ke kapitole 6

air flow	proudění vzduchu	inherit	zdědit
air passages (airways)	dýchací cesty	irritant	dráždivá látka
air sack	plicní sklípek	mesh	pletivo, mřížka
bloodstream	krevní oběh	mucus	hlen, sliz
breathing rate	dechová frekvence	ongoing	trvalý
buildup	nahromadění, zvýšení	particle	částice
bunch	trs, shluk	pattern	vzor, schéma, obraz
cavity	dutina	physical exertion	fyzická námaha
cilium, cilia	řasinka	saliva	slina
contribute	přispět	sticky	lepkavý, vlhký
deliver	dodat, roznášet	strenuous	usilovný, namáhavý
dust	prach	sweep	smést, shrnout
effort	snaha, úsilí, námaha	trap	chytit
germ	bakterie	trigger	spustit, vyvolat
inflammation	zánět	wheeze	sípat

Shrnutí kapitoly



- V této kapitole jste si osvojili slovní zásobu týkající se dýchací soustavy, která vám pomůže při popisu fungování dýchací soustavy a některých onemocnění.

Kontrolní otázky a úkoly:

1. What is the function of the respiratory system in the body?
2. What organs (body parts) are involved in respiration?
3. Describe what happens during breathing in and out.
4. What muscles participate in breathing?
5. Give examples of respiratory diseases.

Úkoly k textu

Match the words. Přiřaďte slova.

chamber / fibre / irritant / lung / mucus / smooth / strain / striated / stroke / valve / venule / windpipe

Muscles	Circulation	Respiration

Citovaná a doporučená literatura

- Glendinning, E. H., Howard, R.: Professional English in Use. Medicine. Cambridge University Press, 2007. ISBN: 978-0-521-68201-5.
- Gogelová, H.: Angličtina pro fyzioterapeuty. GRADA Publishing, 2011. ISBN: 978-80-247-3531-3.
- Lahodová, E.: Angličtina pro VOŠ a bakalářské obory s medicínským zaměřením. Eurolex Bohemia, Praha, 2004. ISBN: 80-86432-87-4.
- http://kidshealth.org/teen/your_body/body_basics/lungs.html
- http://www.nhlbi.nih.gov/health/health-topics/topics/hlw/whathappens.html
- http://www.nhlbi.nih.gov/health/health-topics/topics/hlw/system.html
- http://www.livescience.com/22616-respiratory-system.html

7 Trávicí soustava

V této kapitole se dozvíte:

- slovní zásobu potřebnou k popisu trávicí soustavy.

Po jejím prostudování byste měli být schopni:

- popsat části trávicí soustavy,
- objasnit její fungování a vyjmenovat některá onemocnění.

Klíčová slova kapitoly: digestive system, mouth, esophagus, digestion, stomach, small intestine, large intestine, rectum, pancreas, liver, bile, gallbladder, enzymes, common digestive problems, heartburn, diarrhoea, constipation, appendicitis, celiac disease, Crohn's disease, gallstones, peptic ulcers, colon cancer, cancer of the rectum.

Průvodce studiem

Na zvládnutí této kapitoly budete potřebovat asi 180 minut.

Texty v této kapitole zpracovány dle

http://teachpe.com/anatomy/human_digestive_system.php

http://digestive.niddk.nih.gov/ddiseases/pubs/yrdd/

http://science.nationalgeographic.com/science/health-and-human-body/human-body/digestive-system-article.html

http://www.bbc.co.uk/bitesize/ks3/science/organisms_behaviour_health/diet_drugs/revision/5/

http://www.webmd.com/digestive-disorders/default.htm

The primary function of the digestive system is to break down food both mechanically and by the use of enzymes, so that it can be used by the body for energy and cell growth and repair. The human digestive systém consists of a large number of organs and processes with the combined functions of breaking down our food into smaller molecules which can be used to produce energy and for other nutritional purposes; and excreting the waste consumed and produced by the system.

7.1 Parts of the digestive system

The mouth is the starting point of digestion. Here the process of chewing starts to break down food and enzymes such as salivary lipase and amylase also start to chemically break down the food. Once you swallow the food moves into the esophagus where continual waves of involuntary contraction push the food into the stomach. The stomach has both a mechanical and a chemical function in digestion. The upper part of the smooth (involuntary) stomach muscle relaxes to allow a large volume of food to be stored. The lower muscle then contracts in a rhythmical manner in order to churn the food inside and mix it together with the gastric acid (mainly hydrochloric acid) and digestive enzymes which break it down further. The stomach must then empty its contents into the small intestine.

In the small intestine food is subjected to yet more enzymes, those from the pancreas and from the glands within the intestine walls which break down carbohydrates and proteins. It is also mixed with a product of the liver which is stored and released into the intestine by the gall bladder. This is commonly known as bile. Bile works to dissolve fat so that it can be digested by the other enzymes. Rhythmic smooth muscle contraction continues within the small intestine and pushes the digesting food through its narrow tube. Once the food is completely broken down into its individual components it is absorbed through the intestinal walls, into the blood flow of the capillaries which surround the intestine.

The large intestine continues the food's journey and is the body's last chance to absorb any water and minerals still remaining. The rest of the contents of the large intestine is waste such as undigestible pieces of food and fiber. This is passed through to the rectum where it is stored until you go to the toilet.

7.2 Process of digestion

The digestive glands that act first are in the mouth – the salivary glands. The next set of digestive glands is in the stomach lining. They produce stomach acid and an enzyme that digests protein. A thick mucus layer coats the mucosa and helps keep the acidic digestive juice from dissolving the tissue of the

stomach itself. In most people, the stomach mucosa is able to resist the juice, although food and other tissues of the body cannot.

After the stomach empties the food and juice mixture into the small intestine, the juices of two other digestive organs mix with the food. One of these organs, the pancreas, produces a juice that contains a wide array of enzymes to break down the carbohydrate, fat, and protein in food. The pancreas is a gland organ located behind the stomach that manufactures a cocktail of enzymes that are pumped into the duodenum. Other enzymes that are active in the process come from glands in the wall of the intestine. The second organ, the liver, produces yet another digestive juice – bile. The liver itself is the body's main chemical factory, performing hundreds of different functions. The liver also breaks down unwanted chemicals, such as any alcohol consumed, which is detoxified and passed from the body as waste. Bile is stored between meals in the gallbladder. This pear-shaped sac squeezes out green-brown bile, a waste product collected from the liver that contains acids for dissolving fatty matter. At mealtime, bile is squeezed out of the gallbladder, through the bile ducts, and into the intestine to mix with the fat in food. The bile acids dissolve fat into the watery contents of the intestine, much like detergents that dissolve grease from a frying pan. After fat is dissolved, it is digested by enzymes from the pancreas and the lining of the intestine.

Our teeth break food down into small pieces when we chew. This is only a start to the process of digestion, as chewed pieces of food are still too large to be absorbed by the body. Food has to be broken down chemically into really small particles before it can be absorbed. Enzymes are needed so that this break-down happens quickly enough to be useful. Different types of enzymes can break down different nutrients. Minerals, vitamins and water are already small enough to be absorbed by the body without being broken down, so they are not digested. Digestive enzymes cannot break down fibre, which is why it cannot be absorbed by the body.

7.3 Disorders

The digestive system is an intricate system that can be disrupted by disease, diet, and emotional stress. Common digestive problems such as heartburn (gastroesophageal reflex disease – GERD), inflammatory bowel disease (IBD),

and irritable bowel syndrome (IBS) cause millions of people to suffer daily and limit quality of life. Digestive problems often result in symptoms such as bloating, diarrhoea, gas, stomach pain, and stomach cramps. Other disorders of the digestive system involve e.g. constipation, appendicitis or bowel obstruction.

Celiac disease is a problem with digesting gluten, a protein in foods like bread, crackers, and pasta, affecting the absorption of nutrients.

Crohn's disease is a chronic inflammatory disease of the digestive tract. Crohn's treatment consists of lifestyle changes, such as exercise and a healthy diet, as well as over-the-counter antidiarrhetics and prescription anti-inflammatory medication.

Gallstones are pieces of solid material that form in the gallbladder. These stones develop because cholesterol and pigments in bile sometimes form hard particles. Gallstones are usually treated with surgery to take out the gallbladder. The traditional operation is called an open cholecystectomy. A newer procedure, called laparoscopic cholecystectomy, is less invasive, has fewer complications, and is used more often.

Peptic ulcers are holes or breaks in the protective lining of the duodenum or the stomach – areas that come into contact with stomach acids and enzymes.

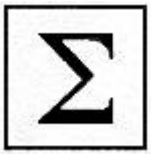
Colon cancer and cancer of the rectum usually begin as a small polyp. While most colon polyps are benign, some do become cancerous. Colon cancer symptoms may include a change in bowel habits or bleeding, but usually colon cancer strikes without symptoms. That is why it is important to get a colon cancer screening test, such as a colonoscopy. If the cancer is found early, the doctor can use surgery, radiation, and/or chemotherapy for effective treatment.

7.4 Slovní zásoba ke kapitole 7

acid	kyselina	grease	mastnota, tuk
array	řada, množství	heartburn	pálení žáhy
bile	žluč	intricate	složitý
bile duct	žlučovod	lining	výstelka
bloating	nadýmání	nutrient	živina
bowel	břevo, obsah střev	over-the-counter (OTC)	volně prodejný lék
chew	žvýkat	pass	procházet
churn	čeřit, vířit, tlouci	perform	vykonávat
break down	rozložit	procedure	postup

coat	vrstva, povlak	resist	bránit se, odolat
combine	sloučit, smísit	result in	mít za následek
constipation	zácpa	split	rozštěpit
content	obsah	squeeze out	vymáčknout
detergents	(čisticí) prostředek	starch	škrob
diarrhoea	průjem	storage depots	zásoby, skladiště
disrupt	narušit	strike	udeřit, zaútočit
dissolve	rozpustit	swallow	polknout
fiber	vlákno, vláknina	take on	přijmout, nabývat
gluten	lepek	ulcer	vřed

Shrnutí kapitoly



- V této kapitole jste si osvojili slovní zásobu týkající se trávící soustavy a měli byste zvládnout popsat její fungování.

Kontrolní otázky a úkoly:

1. What is the function of the digestive system?
2. What does the digestive system consist of?
3. Why are the vitamins important for the body?
4. Describe the process of digestion.

Úkoly k textu

Across

5. mineral which helps to harden bones

7. there are two types of this: sugars and starches

8. they help to build and repair body tissue

Down

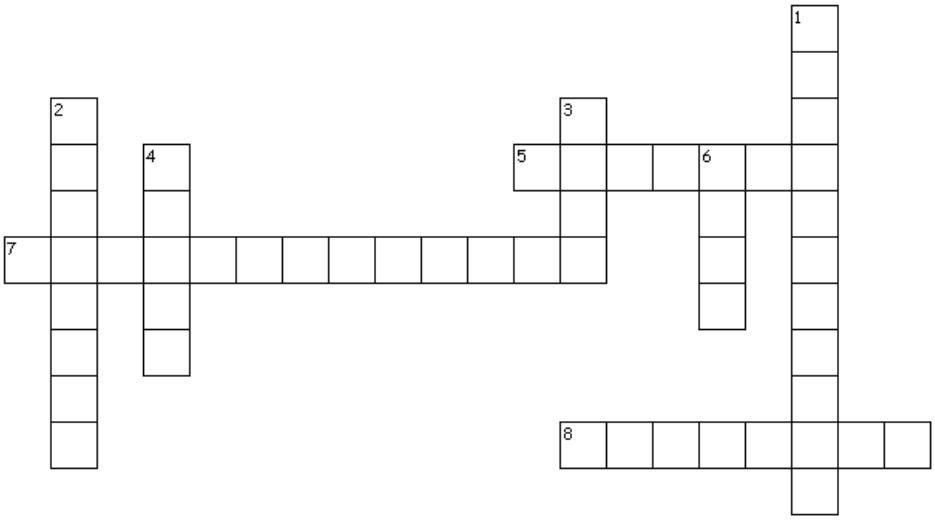
1. mineral which is contained in red blood cells and carries oxygen

2. required for blood clotting, vision, red blood cell formation, bones and teeth; they sometimes come in tablets as supplements

3. provide slow release energy, but more than 5% in the diet can be bad

4. helps the digestive system to function efficiently

6. a lack of this mineral can result in anaemia



Korespondenční úkoly

What are so-called eating disorders? Explain in about 100 words. Co jsou tzv. poruchy příjmu potravy? Napište přibližně 100 slov.

Citovaná a doporučená literatura

- Glendinning, E. H., Howard, R.: Professional English in Use. Medicine. Cambridge University Press, 2007. ISBN: 978-0-521-68201-5.
- Gogelová, H.: Angličtina pro fyzioterapeuty. GRADA Publishing, 2011. ISBN: 978-80-247-3531-3.
- Lahodová, E.: Angličtina pro VOŠ a bakalářské obory s medicínským zaměřením. Eurolex Bohemia, Praha, 2004. ISBN: 80-86432-87-4.
- http://www.nlm.nih.gov/medlineplus
- http://www.medtropolis.com/VBody.asp
- http://medical-dictionary.thefreedictionary.com/
- http://teachpe.com/anatomy/human_digestive_system.php
- http://digestive.niddk.nih.gov/ddiseases/pubs/yrdd/
- http://science.nationalgeographic.com/science/health-and-human-body/human-body/digestive-system-article.html
- http://www.bbc.co.uk/bitesize/ks3/science/organisms_behaviour_health/diet_drugs/revision/5/
- http://www.webmd.com/digestive-disorders/default.htm

Místo pro poznámky:

8 Nervová soustava

V této kapitole se dozvíte:

- slovní zásobu potřebnou k popisu nervové soustavy.

Po jejím prostudování byste měli být schopni:

- popsat součásti nervové soustavy,
- objasnit její fungování,
- vyjmenovat některá onemocnění nervové soustavy.

Klíčová slova kapitoly: nerves, cells, central nervous system, peripheral nervous system, brain, lobes, spinal cord, meninges, cerebrospinal fluid, neuron, cell body, dendrites, axon, somatic nervous system, autonomic nervous system, neurologic diseases

Průvodce studiem

Na zvládnutí této kapitoly budete potřebovat asi 180 minut.

Texty v této kapitole zpracovány dle

http://www.news-medical.net/health/What-is-the-Nervous-System.aspx

http://www.nlm.nih.gov/medlineplus/neurologicdiseases.html

The nervous system is a complex network of nerves and cells that carry messages to and from the brain and spinal cord to various parts of the body. The nervous system includes the central nervous system and the peripheral nervous system. The central nervous system is made up of the brain and spinal cord and the peripheral nervous system is made up of the somatic and the autonomic nervous systems.

8.1 Parts of the nervous system

The central nervous system is divided into two major parts: the brain and the spinal cord. The brain lies within the skull and is shaped like a mushroom. The brain consists of four principal parts:

- the brain stem,

- the cerebrum,
- the cerebellum,
- the diencephalon.

The brain weighs approximately 1.3 to 1.4 kg. It has nerve cells called the neurons and supporting cells called the glia. In the brain there are the grey matter which receives and stores impulses and the white matter which carries impulses to and from grey matter and consists of the nerve fibers (axons).

The brain stem is located between the pons and the spinal cord and is only about one inch long. The cerebrum forms the bulk of the brain and is supported on the brain stem. The cerebrum is divided into two hemispheres. Each hemisphere controls the activities of the side of the body opposite that hemisphere. The hemispheres are further divided into four lobes:

- frontal lobe, which is involved in speech, thought, emotion, and skilled movements,
- temporal lobes, which are involved in hearing and storing memory,
- parietal lobe, which perceives and interprets sensations like touch, temperature and pain,
- occipital lobe, which detects and interprets visual images.

The spinal cord is a long tube like structure which extends from the brain. The spinal cord is composed of a series of 31 segments. A pair of spinal nerves comes out of each segment. The region of the spinal cord from which a pair of spinal nerves originates is called the spinal segment. Both motor and sensory nerves are located in the spinal cord. The spinal cord is about 43 cm long in adult women and 45 cm long in adult men and weighs about 35-40 grams. It lies within the vertebral column (back bone).

The meninges are three layers or membranes that cover the brain and the spinal cord. They offer protection to the brain and the spinal cord by acting as a barrier against bacteria and other microorganisms.

The cerebrospinal fluid (CSF) circulates around the brain and spinal cord. It protects and nourishes the brain and spinal cord.

The neuron is the basic unit in the nervous system. It is a specialized conductor cell that receives and transmits electrochemical nerve impulses. A typical

neuron has a cell body and long arms that conduct impulses from one body part to another body part.

There are three different parts of the neuron:

- the cell body,
- dendrites,
- axon.

The cell body is like any other cell with a nucleus and has several highly branched, thick extensions that appear like cables and are called dendrites. The dendrite's function is to carry a nerve impulse into the cell body. An axon is a long, thin process that carries impulses away from the cell body to another neuron or tissue. There is usually only one axon per neuron.

The peripheral nervous system is made up of two parts:

- somatic nervous system,
- autonomic nervous system .

The somatic nervous system consists of peripheral nerve fibers that pick up sensory information or sensations from the peripheral or distant organs (those away from the brain like limbs) and carry them to the central nervous system. These also consist of motor nerve fibers that come out of the brain and take the messages for movement and necessary action to the skeletal muscles. For example, on touching a hot object the sensory nerves carry information about the heat to the brain, which in turn, via the motor nerves, tells the muscles of the hand to withdraw it immediately. The whole process takes less than a second to happen. The cell body of the neuron that carries the information often lies within the brain or spinal cord and projects directly to a skeletal muscle.

Another part of the nervous system is the autonomic nervous system. It controls the nerves of the inner organs of the body on which humans have no conscious control. This includes the heartbeat, digestion, breathing (except conscious breathing) etc. The nerves of the autonomic nervous system enervate the smooth involuntary muscles of the (internal organs) and glands and cause them to function and secrete their enzymes etc.

8.2 Neurologic diseases

There are more than 600 neurologic diseases. Major types include

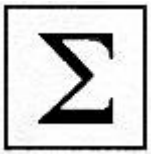
- diseases caused by faulty genes, such as Huntington's disease and muscular dystrophy,
- problems with the way the nervous system develops, such as spina bifida,
- degenerative diseases, where nerve cells are damaged or die, such as Parkinson's disease and Alzheimer's disease,
- diseases of the blood vessels that supply the brain, such as stroke,
- injuries to the spinal cord and brain,
- seizure disorders, such as epilepsy,
- cancer, such as brain tumors,
- infections, such as meningitis.

Other problems with the central nervous system include headaches and migraines or head injuries. Many conditions may also affect the peripheral nerves of the body leading to loss of sensation and paralysis. Often the peripheral nerves have the capacity to regenerate if they are injured. But this process of regeneration may take years of exercise and physiotherapy.

8.3 Slovní zásoba ke kapitole 8

appear	vypadat, zdát se	originate	vzejít, zrodit se
brain stem	mozkový kmen	pick up	zachytit
bulk	množství, objem	process	výrůstek
conductor	řídicí	seizure	záchvat
extension	prodloužení	sensation	pocit
faulty	vadný	spinal cord	mícha
layer	vrstva	store	uložit
lobe	lalok	supply	zásobovat
matter	hmota	transmit	přenášet
meninx	mozkomíšní plena	withdraw	stáhnout (zpět), odebrat
nourish	vyživovat		

Shrnutí kapitoly



- V této kapitole jste si osvojili slovní zásobu o nervové soustavě a na jejím základě byste měli být schopni popsat její fungování..

Kontrolní otázky a úkoly:

1. What does the nervous system consist of?
2. What types of neurons are there?
3. What is a reflex?
4. What are the peripheral and central nervous systems?
5. What diseases/disorders of the nervous system do you know?

Úkoly k textu

Translate the following phrases with „brain“. Přeložte následující spojení se slovem „brain“:

brain cell –

brain concussion –

brain damage –

brain death –

brain haemorrhage –

brain scanner –

brain stem –

brain tissue –

brain tumour –

Match. Spojujte.

1. appear
2. increase
3. maintain
4. notice
5. occur
6. push
7. restore
8. surround

A. obklopit

B. obnovit, vrátit

C. tlačit

D. udržet, zachovat

E. všimnout si, zpozorovat

F. vyskytovat se, přihodit se

G. zdát se, vypadat

H. zvýšit, zvětšit

1. ___, 2. ___, 3. ___, 4. ___, 5. ___, 6. ___, 7. ___, 8. ___.

Korespondenční úkoly

1. Choose one of the neurologic disorders mentioned above and characterize it in 100 words. Cite the source of information. Vyberte si jedno z výše uvedených neurologických onemocnění a charakterizujte ho 100 slovy. Uveďte zdroj svých informací.

Citovaná a doporučená literatura

- Glendinning, E. H., Howard, R.: Professional English in Use. Medicine. Cambridge University Press, 2007. ISBN: 978-0-521-68201-5.
- Gogelová, H.: Angličtina pro fyzioterapeuty. GRADA Publishing, 2011. ISBN: 978-80-247-3531-3.
- Lahodová, E.: Angličtina pro VOŠ a bakalářské obory s medicínským zaměřením. Eurolex Bohemia, Praha, 2004. ISBN: 80-86432-87-4.
- http://medical-dictionary.thefreedictionary.com/
- http://www.news-medical.net/health/What-is-the-Nervous-System.aspx
- http://www.nlm.nih.gov/medlineplus/neurologicdiseases.html

9 Smyslové orgány

V této kapitole se dozvíte:

- slovní zásobu týkající se smyslových orgánů.

Po jejím prostudování byste měli být schopni:

- vysvětlit vysvětlit význam a fungování smyslů v lidském těle.

Klíčová slova kapitoly: eyes, sight, retina, optic nerve, optic disc, rods, cones, lens, vision impairment, blindness, ears, hearing, hearing disorders, deafness, hearing loss, taste, tongue, smell, nasal cavity, skin, touch.

Průvodce studiem

Na zvládnutí této kapitoly budete potřebovat asi 150 minut.

Texty v této kapitole zpracovány dle

http://www.bbc.co.uk/science/humanbody/body/index.shtml?nervous

http://www.nlm.nih.gov/medlineplus/hearingdisordersanddeafness.html

9.1 Vision

Eyes are the organs of sight. In order to see, however, one also needs optic nerves to transmit nerve impulse to the brain, which then adjusts and interprets the images of the surrounding world. The eyes are hollow fluid-filled spheres. Their walls are made up of three different layers, or coats:

- Outside is the white sclera, which has a transparent window at the front of the eye called the cornea.
- In the middle is a coat containing the coloured iris.
- Inside, at the back of the eye, is the retina, where light rays are turned into images.

The retina contains millions of receptor cells. They respond to light entering the eye, which is why they are called photoreceptors which contain visual pigments. When light strikes these pigments, they briefly lose their colour. This

bleaching process triggers nerve impulses, which are transmitted to the brain via the optic nerve.

The optic nerve runs out of the back of the eye. It originates in an area of the retina called the optic disc, where you have no photoreceptors. This part of the retina is commonly known as the 'blind spot'. There are two types of photoreceptor cells: rods and cones. The rods detect colours in shades of grey and they can sense shape and movement. There are about 120 million rods in the eye. They are densest at the edge of the retina and don't need a lot of light to work. So they are used in dim light. The cones see colours. There are three different types of cone, each of which contains a pigment that responds to a different wavelength of light - green, red or blue. If the brain receives impulses from more than one type of cone at the same time, one sees mixed colours. In the eye there are around 7 million cones. They are densest at the centre of the retina and need bright light to function. This is why, when it is dark, one can only detect shades of grey.

Before light rays touch retina, they travel through a disc-shaped lens. The lens bends light rays to focus them exactly on the retina. Muscles in the eye can change the shape of the lens, thereby adjusting its light-bending power. This allows people to focus on different objects. By focussing images on the retina, the lens turns them upside down. To see properly, the brain has to turn them the right way up again. The brain also needs to merge the two slightly different images captured by each of the eyes into one. By doing so, the brain creates a 3D picture.

Vision impairment, or low vision, means that even with eyeglasses, contact lenses, medicine or surgery, one does not see well. Vision impairment can range from mild to severe. The leading causes of vision impairment and blindness in the United States are age-related eye diseases: macular degeneration, cataract and glaucoma. Other eye disorders, eye injuries and birth defects can also cause vision loss.

A loss of vision means that the person may have to reorganize his/her life and learn new ways of doing things. If he/she has some vision, visual aids such as special glasses and large print books can make life easier. There are also devices to help those with no vision, like text-reading software and braille

books. Sometimes, vision loss is preventable. Regular comprehensive eye examinations and prompt treatment are critical.

9.2 Hearing

Ears are the organs of hearing. In order to hear, however, one also needs cochlear nerves to transmit nerve impulses to the brain, which then interpret the sounds coming from the surrounding world. Ear is divided into outer, middle and inner ear. Because you have two ears, you are able to locate the source of a sound. If a sound comes from the right, for instance, it will reach your right ear slightly sooner than your left ear. Or it will be slightly louder in your right ear. As a result, you will recognise the sound as coming from your right. Ears are not only the organs of hearing. They also help you keep your balance.

It is frustrating to be unable to hear well enough to enjoy talking with friends or family. Hearing disorders make it hard, but not impossible, to hear. They can often be helped. Deafness can keep you from hearing sound at all.

What causes hearing loss? Some possibilities are

- heredity
- diseases such as ear infections and meningitis
- trauma
- certain medicines
- long-term exposure to loud noise
- ageing

There are two main types of hearing loss. One happens when the inner ear or auditory nerve is damaged. This type is permanent. The other kind happens when sound waves cannot reach the inner ear. Earwax build-up, fluid or a punctured eardrum can cause it. Untreated, hearing problems can get worse. If one has trouble hearing, he/she can get help. Possible treatments include hearing aids, cochlear implants, special training, certain medicines and surgery.

9.3 Taste, smell and skin

The sense of taste protects from unsafe foods. If one ate poisonous or rotten foods, he would probably spit them out immediately, because they usually taste

revolting. That way, one stops them from entering the stomach. The sense of taste also helps to maintain a consistent chemical balance in the body. Liking sugar and salt for example, satisfies the body's need for carbohydrates and minerals. Similarly, eating sour foods such as oranges and lemons supplies the body with essential vitamins. The mouth contains around 10,000 taste buds, most of which are located on and around the tiny bumps on the tongue. Every taste bud detects five primary tastes – sour, sweet, bitter, salty and salts of certain acids. Each of the taste buds contains 50-100 specialised receptor cells.

The sense of smell warns one of dangers such as smoke and poisonous gases. It also helps to appreciate the full flavours of food and drink. The sense of smell is 10,000 times more sensitive than the sense of taste. One is able to detect thousands of different smells. The receptors that sense smells are called olfactory receptors. They occupy a stamp-sized area in the roof of the nasal cavity. Tiny hairs, made of nerve fibres, dangle from all olfactory receptors. They are covered with a layer of mucus. If a smell, formed by chemicals in the air, dissolves in this mucus, the hairs absorb it and excite the olfactory receptors. A few molecules are enough to activate these extremely sensitive receptors. When the olfactory receptors are stimulated, they transmit impulses to the brain. This pathway is directly connected to the limbic system, the part of the brain that deals with emotions. That's why reactions to smell are rarely neutral - one usually either likes or dislikes a smell. Smells also leave long-lasting impressions and are strongly linked to memories. The scent of mown grass, for example, might remind you of a childhood summer holiday.

The skin and deeper tissues contain millions of sensory receptors. Without them, one wouldn't be able to sense and respond to the environment. They register what's happening on the body's surface and then send signals to the spinal cord and brain. Most of the touch receptors sit close to the skin's surface. Some of them, however, are located further down. The skin receptors do not only respond to touch. They also register pain as well as warmth and cold. The pain receptors are the most numerous. Every square centimetre of the skin contains around 200 pain receptors but only 15 receptors for pressure, 6 for cold and 1 for warmth.

9.4 Slovní zásoba ke kapitole 9

aid	pomůcka	lens	čočka
appreciate	ocenit	light ray	světelný paprsek
bend	ohnout	link	spojený, provázaný
bleach	bělit, odbarvit	macular degeneration	degenerace žluté skvrny
blindness	nevidomost	mild	mírný, lehký
bump	bulka, otok	occupy	zaujímat, zahrnovat
capture	zachytit	olfactory	čichový
cataract	šedý zákal	optic disc	slepá skvrna
coat	vrstva, obal	originate	vzniknout, zrodit se, vzejít
comprehensive	zevrubný	punctured	propíchnutý, proražený
cone	čípek	range	rozprostírat se
cornea	rohovka	recognise	rozpoznat
critical	rozhodující	remind	připomenout
dangle	(volně) viset	revolting	odporný, nechutný
deafness	hluchota	rod	tyčinka
device	zařízení, přístroj	rotten	zkažený, shnilý
dim light	tlumené světlo	satisfy	uspokojit
earwax	ušní maz	scent	vůně, aroma
edge	okraj, hrana	severe	vážný, kritický
exposure	vystavení	sour	kyselý
flavour	chuť, příchuť	spit out	vyplivnout
focus	zaostřit, zaměřit	strike	zasáhnout
glaucoma	zelený zákal	trauma	úraz
impairment	zhoršení, poškození	warn	varovat, upozornit
impression	dojem, otisk	wavelength	vlnová délka

Část pro zájemce

Match the parts of the sentences. Spojte části vět.

1. I hate the smell of
2. I hate the taste of
3. I love the feel of
4. I love the sight of
5. I love the sound of

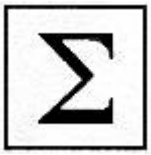
a. birds singing outside my house.
b. cheap perfume.
c. gin. It's much too strong for me.
d. my own home when I'm back from holiday.
e. velvet. It's so soft.

1. ____, 2. ___, 3. ___, 4. ___, 5. ___.

Use the correct form of the verbs see, hear, feel, touch and smell in the following situations. Použijte v následujících situacích správné tvary sloves „see", „hear", „feel", „touch" a „smell".

1. "I _____ a rat" means that someone is suspicious about something.
2. I _____ you're thinking of retiring early.
3. I know you're thinking of emigrating to the USA, but I _____ you're making a big mistake.
4. Some of her experiences from Africa _____ me a lot.
5. You must be making a lot of money. I _____ you have just bought a brand-new Porsche.

Shrnutí kapitoly



- V této kapitole jste si osvojili slovní zásobu týkající se smyslových orgánů a díky ní byste měli být schopni vysvětlit význam a fungování smyslů v lidském těle.

Kontrolní otázky a úkoly:

1. What senses and organs of senses have the humans got?
2. Why are the senses important to us?

Úkoly k textu

Find synonyms. Najděte slova stejného významu.

allow / chest / form / joint / pass / raise / striated / surround

articulation = ...

breast = ...

course = ...

encircle = ...

let = ...

lift = ...

shape = ...

striped = ...

Korespondenční úkoly

What are the Braille system and sign language? Who are the users of these systems? Who invented them? Co je to Braillovo písmo a znaková řeč? Kdo jsou uživatelé těchto systémů? Kdo je vynalezl?

Citovaná a doporučená literatura

- Glendinning, E. H., Howard, R.: Professional English in Use. Medicine. Cambridge University Press, 2007. ISBN: 978-0-521-68201-5.
- Gogelová, H.: Angličtina pro fyzioterapeuty. GRADA Publishing, 2011. ISBN: 978-80-247-3531-3.
- Lahodová, E.: Angličtina pro VOŠ a bakalářské obory s medicínským zaměřením. Eurolex Bohemia, Praha, 2004. ISBN: 80-86432-87-4.
- http://medical-dictionary.thefreedictionary.com/
- http://www.bbc.co.uk/science/humanbody/body/index.shtml?nervous
- http://www.nlm.nih.gov/medlineplus/hearingdisordersanddeafness.html

Místo pro poznámky:

10 Ostatní soustavy lidského těla

V této kapitole se dozvíte:

- slovní zásobu vztahující se k ostatním soustavám lidského těla – krycí, vylučovací, rozmnožovací soustavě a lymfatickému systému.

Po jejím prostudování byste měli být schopni:

- stručně popsat a objasnit stručně části a fungování těchto tělesných soustav - krycí, vylučovací, rozmnožovací soustavě a lymfatickému systému.

Klíčová slova kapitoly: integumentary system, epidermis, dermis, melanocytes, urinary system, kidneys, urine, bladder, ureters, urethra, male reproductive system, testes, scrotum, penis, female reproductive system, vagina, uterus, ovaries, menstrual cycle, menopause, lymphatic system, endocrine system, hormones, gland.

Průvodce studiem

Na zvládnutí této kapitoly budete potřebovat asi 150 minut.

Texty v této kapitole zpracovány dle

http://www.bbc.co.uk/science/humanbody/body/

http://kidshealth.org/parent/general/body_basics/endocrine.html#cat20090

http://kidshealth.org/parent/general/body_basics/kidneys_urinary.html#cat20090

http://medical-dictionary.thefreedictionary.com/menopause

10.1 Integumentary system

The integumentary system is the largest organ system in the human body, and is responsible for protecting the body from most physical and environmental factors. The skin is body„s largest organ. It covers the entire body and has a surface area of around 2 square metres. Its thickness varies from 0.5mm on eyelids to 4mm or more on the palms of the hands and the soles of the feet. In total, it accounts for around 16 percent of the body weight.

The skin consists of two main layers: the outer epidermis and the inner dermis. Cells in the deepest layer of the epidermis divide constantly to make new cells.

The new cells are pushed towards the surface of the skin. About every 30 days, the body produces a totally new epidermis. The inner dermis consists of strong collagen and elastic fibres pierced by blood vessels. It also contains touch, pressure and pain sensors and is packed with hair follicles, sweat and oil glands. The oil glands produce a lubricant that keeps the skin soft and prevents the hair from becoming brittle.

The skin contains specialised cells called melanocytes. They produce melanin, a brown substance, which absorbs some of the Sun's harmful ultraviolet rays. Fair-skinned people only have melanin in the lower layers of their epidermis. People with dark skin have larger amounts of melanin in all layers. Freckles and moles are nothing else but small patches of skin with more melanin than in the surrounding area. As you age, the number of collagen and elastic fibres in your dermis decreases. Additionally, you lose fat from the tissue under your skin. As a result, your skin becomes less elastic and begins to sag and wrinkle.

10.2 Urinary system

The urinary system (also called the excretory system) is the organ system that produces, stores, and eliminates urine. In humans it includes two kidneys, two ureters, the bladder and the urethra. The kidneys are beanshaped organs that lie in the abdomen, retroperitoneal to the organs of digestion, around or just below the ribcage and close to the lumbar spine.

The kidneys perform a number of tasks, such as: concentrating urine, regulating electrolytes, and maintaining acid-base homeostasis. The kidney excretes and re-absorbs electrolytes under the influence of local and systemic hormones.

Humans produce about 2.9 litres of urine over 24 hours, although this amount may vary according to circumstances. Because the rate of filtration at the kidney is proportional to the glomerular filtration rate, which is in turn related to the blood flow through the kidney, changes in body fluid status can affect kidney function.

Urine, made in the kidneys, is transported to the bladder via two narrow tubes known as ureters. As the bladder fills up with urine it stretches. An adult bladder can usually hold about a pint of fluid comfortably. It can hold more, but as it gets fuller it can be painful. When the bladder stretches beyond a

certain point, nerves in the bladder wall send a message to the brain telling it that the bladder is getting full and needs to be emptied. The bladder expands as it fills and can hold about 2 cups (half a liter) of urine at any given time (an average adult produces about 6 cups, or. An adult needs to produce and excrete at least one third of 1½ liters, of urine per day) in order to adequately clear waste products from the body. Producing too much or not enough urine may indicate illness.

Urine leaves the body by flowing out of the bladder down a tube called the urethra. The junction between the bladder and urethra is opened and closed by a muscle known as a sphincter. When one decides to urinate the brain tells this sphincter to relax, opening the bladder-urethra junction. At this moment, the bladder contracts, forcing the urine down the urethra and out of the body.

In 24 hours, your kidneys filter around 150 litres of blood and produce roughly 1.5 litres of urine. People can live healthily with one functioning kidney. In fact, some people are born with just one of these organs. If one kidney is removed, the remaining one will enlarge within a few months to take over the role of filtering blood on its own. However, when about 90% of kidney function has been lost, a person can only survive by having dialysis. Dialysis works by using a machine that replicates the blood-cleaning function of healthy kidneys. In the most extreme cases of kidney failure, survival depends on the person receiving a donor organ.

10.3 Reproductive system

The human male reproductive system is a series of organs located outside the body and around the pelvic region of a male that contribute towards the reproductive process. Sperm and male sex hormones are made in two plum sized glands called the testes. The testes lie in a sac called the scrotum that hangs outside the body, between the legs. This arrangement maintains sperm at a temperature slightly below body temperature, which is essential for the production of healthy sperm. Every day a man makes between 50 and 500 million sperm. Sperm and urine both leave the body through a tube called the urethra that runs down the middle of the penis. The male genitals are present in the body at birth, but they are not sexually active until adolescence. At puberty

the testes, penis and scrotum begin to grow. The genitals are mature when the testes produce functional sperm.

The human female reproductive system is a series of organs primarily located inside of the body and around the pelvic region of a female that contribute towards the reproductive process. The human female reproductive system contains three main parts: the vagina, which acts as the receptacle for the male's sperm, the uterus, which holds the developing foetus, and the ovaries, which produce the female's ova. The breasts are also an important reproductive organ during the parenting stage of reproduction.

The female genitals consist of two glands called ovaries that are responsible for producing eggs and female sex hormones. Once women reach sexual maturity, they experience a hormone regulated monthly fertility cycle known as a menstrual cycle. These hormones control the maturation and release of an egg from one of the ovaries every month, and they affect the lining of the womb making it ready to receive a fertilised egg. When a baby girl is born, she already carries all the eggs that she will ever produce through her life.

Menopause represents the end of menstruation. While technically it refers to the final period, it is not an abrupt event, but a gradual process. Menopause is not a disease that needs to be cured, but a natural life-stage transition. However, women have to make important decisions about "treatment," including the use of hormone replacement therapy.

10.4 Lymphatic system and endocrine system

The main function of the lymphatic system is to extract, transport and metabolise lymph, the fluid found in between cells. The lymphatic system is very similar to the circulatory system in terms of both its structure and its most basic function (to carry a body fluid).

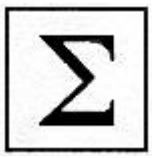
The foundations of the endocrine system are the hormones and glands. As the body's chemical messengers, hormones transfer information and instructions from one set of cells to another. Although many different hormones circulate throughout the bloodstream, each one affects only the cells that are genetically programmed to receive and respond to its message. Hormone levels can be influenced by factors such as stress, infection, and changes in the balance of fluid and minerals in blood.

A gland is a group of cells that produces and secretes, or gives off, chemicals. A gland selects and removes materials from the blood, processes them, and secretes the finished chemical product for use somewhere in the body. Some types of glands release their secretions in specific areas. For instance, exocrine glands, such as the sweat and salivary glands, release secretions in the skin or inside of the mouth. Endocrine glands, on the other hand, release more than 20 major hormones directly into the bloodstream where they can be transported to cells in other parts of the body.

10.5 Slovní zásoba ke kapitole 10

extract	získat, extrahovat	pierce	děrovat, prorazit
fertilise	oplodnit	receptacle	nádoba, schránka
fertility	plodnost	release	uvolnit, vyloučit
foetus	plod	replacement	náhrada
freckle	piha, skvrna	sag	klesnout
hair follicle	vlasový folikul	scrotum	šourek
influence	ovlivnit	sole	chodidlo, ploska nohy
mature	dospět; zralý	testis, testes	varle
mole	mateřské znaménko	transition	přechod
ovary	vaječník	ureter	močovod
ovum, ova	vajíčko	urethra	močová trubice
parenting	rodičovství	uterus, womb	děloha
patch	flek, skvrna	wrinkle	svraštit se

Shrnutí kapitoly



- V této kapitole jste si osvojili slovní zásobu ke zbývajícím soustavám lidského těla – krycí, vylučovací, rozmnožovací a lymfatické. Díky ní byste měli být schopni stručně popsat části a fungování těchto tělesných soustav.

Kontrolní otázky a úkoly:

1. Vztahují se převážně k učivu nebo problematice v rámci dané učební jednotky.
2. Pomáhají studujícím zopakovat si učivo.
3. Nemusejí být s otazníkem, pouze je-li na jejich začátku tázací zájmeno. Může je uvádět i aktivní sloveso (vyjmenujte, zdůvodněte, popište apod.)
4. Odpovědi na ně najdou studující v teoretických pasážích učiva, kapitoly tím, že si je prolistováním textu vyhledají.

Úkoly k textu

Fill in the missing letters from this chapter. Doplňte chybějící písmena z této kapitoly.

W _ _ _ K _ E → E _ _ _ _ _ M _ S → S _ _ _ M → M _ _ _ _ _ _ _ _ E → E _ G → G _ _ _ D → D _ _ _ _ _ _ S → S _ _ N

Otázky k zamyšlení:

1. What are the functions of the integumentary, urinary, reproductive and lymphatic systems?
2. Explain what epidermis, dermis and melanocytes are.
3. How does the body get rid of urine?
4. Can one live with one kidney – how is it possible?
5. What are the parts of male and female reproductive systems?

Citovaná a doporučená literatura

- Glendinning, E. H., Howard, R.: Professional English in Use. Medicine. Cambridge University Press, 2007. ISBN: 978-0-521-68201-5.
- Gogelová, H.: Angličtina pro fyzioterapeuty. GRADA Publishing, 2011. ISBN: 978-80-247-3531-3.
- http://medical-dictionary.thefreedictionary.com/
- http://www.bbc.co.uk/science/humanbody/body/
- http://kidshealth.org/parent/general/body_basics/endocrine.html#cat20090
- http://kidshealth.org/parent/general/body_basics/kidneys_urinary.html#cat20090

11 Zdraví, nemoc a disabilita

V této kapitole se dozvíte:

- slovní zásobu vztahující se ke zdraví, nemoci a poškození organismu.

Po jejím prostudování byste měli být schopni:

- vysvětlit některé užívané termíny týkající se nemoci a disability.

Klíčová slova kapitoly: illness, disease, sickness, condition, disability, International Classification of Functioning, Disability and Health, damage, deficiency, malnutrition, genetic disorders, autoimmune disease, learning disabilities.

Průvodce studiem

Na zvládnutí této kapitoly budete potřebovat asi 180 minut.

Texty v této kapitole převzaty z

http://www.springerlink.com/content/j81081714nkm6117/

http://mh.bmj.com/content/26/1/9.full

http://www.who.int/mediacentre/factsheets/fs352/en/

The World Health Organisation defines health as “a state of complete physical, mental and social well-being, and not merely the absence of disease or infirmity”.

11.1 Illness, disease, sickness and condition

Mosby's Medical dictionary defines illness as an abnormal process in which aspects of the social, physical, emotional, or intellectual condition and function of a person are diminished or impaired compared with that person's previous condition. Disease is any deviation from or interruption of the normal structure or function of any body part, organ, or system that is manifested by a characteristic set of symptoms and signs and whose etiology, pathology, and prognosis may be known or unknown. It is connected with specific diagnosis, e.g. Alzheimer’s disease, Creutzfeldt-Jakob disease, Paget’s disease etc.

Sickness is a condition in which an individual experiences bodily malfunction or discomfort. Another common term is condition, which means ailment or physical disability in general.

11.2 Disability

Over a billion people, about 15% of the world's population, have some form of disability. Between 110 million (2.2%) and 190 million (3.8%) people 15 years and older have significant difficulties in functioning. Furthermore, the rates of disability are increasing in part due to ageing populations and an increase in chronic health conditions. People with disabilities have less access to health care services and therefore experience unmet health care needs.

People with disabilities report seeking more health care than people without disabilities and have greater unmet needs. For example, a recent survey of people with serious mental disorders, showed that between 35% and 50% of people in developed countries, and between 76% and 85% in developing countries, received no treatment in the year prior to the study.

The International Classification of Functioning, Disability and Health (ICF) defines disability as an umbrella term for impairments, activity limitations and participation restrictions. Disability is the interaction between individuals with a health condition (e.g. cerebral palsy, Down syndrome and depression) and personal and environmental factors (e.g. negative attitudes, inaccessible transportation and public buildings, and limited social supports).

Health promotion and prevention activities seldom target people with disabilities. For example women with disabilities receive less screening for breast and cervical cancer than women without disabilities. People with intellectual impairments and diabetes are less likely to have their weight checked. Adolescents and adults with disabilities are more likely to be excluded from sex education programmes.

11.3 Damage, deficiency, malnutrition, genetic disorders, learning disabilities

Devastating damage can occur to any part of the human body,causing a number of complications related to the health, maitainance, and function of the body.

There are a variety of events and conditions that can cause serious damage. For example, physical injury often damages vital organs and structures.

A deficiency in medical terms is a situation where a vital nutrient or bodily enzyme or compound is found to be lacking or even nonexistent.

Due to this, the body's internal processes, which maintain the stability of the system becomes greatly diminished, which can cause disorders and conditions called "deficiency diseases."

Deficiency diseases vary in thein morbidity and remedy, and are the most unrecognized contributors to disease across the globe. Malnutrition is widely regarded as one of the greatest threats to public health, and a large part of that threat are diseases that are generated by nutrient deficiencies.

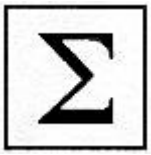
Genetic disorders are disorders that are caused by a mutation of a gene or chromosome in the body. Genetic disorders are often rare in nature, in comparison to mental disorders and disorders that are caused by a bacteria or infection. However, what makes the genetic disorder more complex is that it can also partially be influenced by the environment. Some of the more devastating human genetic disorders are sickle cell anaemia, cystic fibrosis, Down syndrome, or haemophilia.

The immune system plays an essential role in maintaining personal health, as it locates and destroys harmful, invasive entities, such as viruses. However, in some instances, the immune system will not be able to recognize the difference between these foreign entities and the varies constituents of the human body. This is known as autoimmunity. It causes the body to attack itself, resulting is unpleasant and often serious autoimmune disease symptoms.

Learning disabilities represent a growing problem affecting children in the United States. Learning disabilities can cause problems with reading, doing math, and even physically writing down sentences. For those who have a learning disability, there are a number of frustrations and challenges that accompany them throughout their academic life, as well as their adulthoods.

11.4 Slovní zásoba ke kapitole 11

access	přístup	malfunction	selhání, nefunkčnost
accompany	doprovázet	malnutrition	podvýživa
ailment	(lehčí) onemocnění, neduh	measure	měřit
attitude	postoj	mode	režim
blurriness	rozmazanost	negotiate	vyjednat
compound	směs	notion	nápad, představa
damage	poškození	perceive	vnímat, chápat
deterioration	zhoršení	prevalent	rozšířený, převládající
determine	určit, stanovit	regarded as	považovaný za
deviation	odchylka	remedy	lék, náprava
diminished	oslabený	restore	obnovit, uzdravit
distinguish	rozeznat, rozlišit	sickle cell anaemia	srpkovitá chudokrevnost
due to	kvůli, způsobený (čím)	strike a bargain	plácnout si, dohodnout se
entity	celek, jednotka	struggle with	bojovat, zápasit
excessive	nadměrný	suffer	trpět
exclude	vyloučit	suggest	navrhnout
gauge	změřit, odhadnout	sustain	podporovat, živit
halt	zastavit	target	vybrat si za cíl
henceforward	nadále, od nynějška	threat	hrozba
infirmity	churavost, slabost	treat	ošetřovat, léčit
interact	působit, vzájemně reagovat	wear away	opotřebovat (se)
lack	nedostatek	well-being	pohoda
likely	pravděpodobný		



Shrnutí kapitoly

- V této kapitole jste si osvojili slovní zásobu týkající se zdraví, nemoci a disability a měli byste být schopni vysvětlit některé užívané termíny z této oblasti.

Kontrolní otázky a úkoly:

1. Give examples of deficiencies and genetic disorders.
2. What is a disability?

Úkoly k textu

Find antonyms. Najděte slova opačného významu.

bitter / illness / improvement / lower / relax / remove / result / weak

cause –

deterioration –

health –

remain –

strong –

sweet –

tighten –

upper –

Correct the spelling if necessary. Opravte pravopis, je-li to nutné.

addition	cartiledge
cerebellum	collour
conciousness	exeption
isofagus	sarrounding
stressfull	suplly

Check the meaning of these phrases. Ověřte si význam následujících spojení.

be sick
condition
cure
difficulty
disorder
disturbance
heal
impairment
intervention
outcome
procedure
respond
session
treat
treatment

Citovaná a doporučená literatura

- Glendinning, E. H., Howard, R.: Professional English in Use. Medicine. Cambridge University Press, 2007. ISBN: 978-0-521-68201-5.
- http://medical-dictionary.thefreedictionary.com/
- http://www.springerlink.com/content/j81081714nkm6117/
- http://mh.bmj.com/content/26/1/9.full
- http://www.who.int/mediacentre/factsheets/fs352/en/

12 Komunikace s pacientem

V této kapitole se dozvíte:

- fráze používané při odebírání pacientovy anamnézy a provádění vyšetření pacienta.

Po jejím prostudování byste měli být schopni:

- komunikovat s pacientem při odebírání anamnézy a vyšetření.

Klíčová slova kapitoly: symptoms, signs, medical history, patient, physical examination, blood tests, x-rays, ultrasound, computed tomography, magnetic resonance imaging, throat cultures, stool tests, urine tests, lumbar puncture, electroencephalography, electrocardiography, electromyography, biopsies.

Průvodce studiem

Na zvládnutí této kapitoly budete potřebovat asi 150 minut.

Texty v této kapitole převzaty z

Glendinning, E. H., Howard, R.: Professional English in Use. Medicine.Cambridge University Press, 2007. ISBN 978-0-521-68201-5.

Gogelová, H.: Angličtina pro fyzioterapeuty. GRADA Publishing, 2011. ISBN 978-80-247-3531-3.

http://www.speakenglish.co.uk/phrases/at_the_doctors

http://kidshealth.org/parent/system/medical/labtest2.html#cat174

The problems a patient reports to the doctor are called symptoms or complaints (pain, nausea etc.). Signs are what doctor finds (also called findings) on examining the patient, e.g. high blood pressure or a rapid pulse rate.

12.1 At the doctor's

Here are some phrases used to greet the patient:

How can I help you?

What's the problem?

What brings you to the clinic today?

What's the trouble?

What are your symptoms?

Possible patient's answers:

I've got a temperature / sore throat / headache / rash.

I've been feeling sick.

My joints are anhing.

I've got a swollen ankle.

I'm in a lot of pain.

I've got a pain in my back.

I think I've pulled a muscle in my leg.

I'm asthmatic / diabetic / epileptic.

I'm having difficulty breathing.

I've been feeling very tired.

I need a sick note.

Úkoly k textu

Who is speaking – the nurse (N) or the patient (P)?

I'd like to see a doctor.

Do you have an appointment?

Is it urgent?

I'd like to make an appointment to see Dr ...

Please take a seat.

The doctor's ready to see you now.

Put the events in the most logical order:

I didn't feel well.

I made an appointment to see the doctor.

I went to see the doctor.

I went to the chemist's to get the medicine.

She examined me.

She gave me a prescription for antibiotics.

She said I had a lung infection.

12.2 Taking medical history

Taking medical history involves asking questions about patien's family, job, home/living situation, life style/recreational activities, allergies/medications, illness/operations/injuries, aids/assistive devices, pain and musculoskeletal symptoms, pain: its intensity, location, quality, onset, duration, alleviating and aggravating factors, effect of pain on daily functions, neurologic signs and symptoms, continence, breathing, cardiovascular signs and symptoms and ADL. Read following examples:

- How old are you?
- Are you married?
- Have you got any children? How old are they?
- Are you pregnant?
- What do you do for living?
- Do you work part time/full time/shifts?
- How long have you had this work?
- Has any previous occupation caused your health problems?
- Where do you live?
- Do you live alone?
- Who will be at home to look after you when you are discharged?
- How do you spend your free time?
- Do you play any sports?
- How often do you exercise?
- Do you smoke?
- Do you have any allergies?
- Are you taking any medications?
- Have you ever had any serious illness?
- Have you ever been admitted to a hospital?
- Have you had any accidents/injuries?
- Do you wear glasses/contact lenses?
- Do you need a walking aid?
- Are you in pain?
- Have your joints ever been swollen?

- Do you have any pain in your limbs/neck/back?
- How bad is the pain? Is it mild, moderate, severe or very severe?
- Where is the pain? Where exactly does it hurt?
- What is the pain like? Is it sharp/dull/constant/intermittent?
- What were you doing when the pain started?
- How long have you had this pain?
- Is the pain there all the time?
- What postures/activities make your symptoms worse?
- Does it go away if you…?
- How does the pain affect your daily life?
- Does the pain wake you up?
- Do you experience any weakness?
- Have you had any falls?
- Do you have any problems with your speech?
- Do you have any difficulty in passing water?
- Do you have any difficulty with your breathing?
- Do you get any pain while breathing?
- Do you experience any swelling in your arms/legs?
- Do you get any chest pain when you climb stairs or run for a bus?
- Do you have any difficulties with washing and dressing up?

12.3 During physical examination

When examining a patient, he/she should be instructed in a clear but polite manner. Sensitivity to the patient's needs should be shown:

- You might feel a little bit of discomfort.
- Tell me if it hurts.
- You're doing very well.

Talk to the patient through the procedure:

- I'm just going to…
- You'll feel…

To instruct the patient you can use these phrases:

- Sit up/down/upright.
- Lie down/on your back/on your belly/on the right side (hip).
- Turn over and lie on your back.
- Bend your knees.
- Straighten your legs.
- Get off the couch and stand up.
- Stand still.
- Bend forward.
- Bend/lean over to the side.
- Reach for the floor.
- Tilt your head back.
- Turn your head to the right.
- Look behind your left shoulder.
- Straighten up.
- Return to starting/upright position.
- Stand with feet apart.
- Stand with knees slightly bent.
- Spread your legs.
- Bring your legs together.
- Put your arms along your body.
- Stretch your arms forwards/out.
- Raise/lift up your arms.
- Lift your arm outwards/sideways.
- Bring your arm up towards your face.
- Make a fist.
- Grip my fingers here.
- Take a deep breath.
- Hold your breath.
- Let yourself go loose./Relax.
- Push against my hand.
- Don’t let me lift your foot off the table.
- Go ahead.

Úkoly k textu

Work in pairs. Take turns to give instructions and execute them. Pracujte ve dvojicích. Střídavě si zadávejte pokyny a provádějte je.

12.4 Tests

Taking a medical history and performing a physical examination usually provide the information a doctor needs to evaluate patient's health or to understand what is causing an illness. But sometimes, doctors need to order tests to find out more.

Blood tests usually can be done in a doctor's office or in a lab where technicians are trained to take blood. If a larger blood sample is needed, the technician drawing the blood will clean the skin, insert a needle into a vein (usually in the arm or hand), and withdraw blood. A bandage and a cotton swab will help stop the flow of blood when the needle is removed. Common blood tests include complete blood count (CBC), blood chemistry test, blood culture and liver function test.

X-rays can help doctors find a variety of conditions, including broken bones and lung infections.

Ultrasound is typically associated with pregnancy, however doctors order ultrasounds in lots of different cases. For example, ultrasounds can be used to look for collections of fluid in the body, for problems with the kidneys, or to look at a baby's brain. An ultrasound is painless and uses high-frequency sound waves to bounce off organs and create a picture. A special jelly is applied to the skin, and a handheld device is moved over the skin. The sound waves that come back produce an image on a screen. The images seen on most ultrasounds are difficult for the untrained eye to decipher, so a doctor will view the image and interpret it.

Computed tomography (CAT scan or CT-Scan) is a kind of X-ray, and typically is ordered to look for things such as appendicitis, internal bleeding, or abnormal growths. A scan may require the use of a contrast material (a dye or other substance) to improve the visibility of certain tissues or blood vessels.

Magnetic resonance imaging (MRI) uses radio waves and magnetic fields to produce an image. MRIs are often used to look at bones, joints, and the brain. While MRIs are not painful, they can be noisy and long.

Doctors often order throat cultures to test for the germs that cause strep throat, which are known as group A streptococcus, or strep. The doctor or medical assistant wipes the back of the throat with a long cotton swab. This tickles the back of the throat and can cause a person to gag, but will be over very quickly, especially if he/she stays still.

Stool (feces) can provide doctors with valuable information about what is wrong when you have a problem in the stomach, intestines, or another part of the gastrointestinal system. The doctor may order stool tests if there is suspicion of something like an allergy, an infection, or digestive problems.

Doctors order urine tests to make sure that the kidneys are functioning properly or when they suspect an infection in the kidneys or bladder.

During a lumbar puncture a small amount of the fluid that surrounds the brain and spinal cord, the cerebrospinal fluid, is removed and examined. In kids, a lumbar puncture is often done to look for meningitis. Other reasons to do lumbar punctures include: to remove fluid and relieve pressure with certain types of headaches, to look for other diseases in the central nervous system, or to place chemotherapy medications into the spinal fluid. Lumbar puncture can be done on an inpatient or outpatient basis, might be uncomfortable but should not be too painful.

Electroencephalography (EEG) is often used to detect conditions that affect brain function, such as epilepsy, seizure disorders, and brain injury. Brain cells communicate by electrical impulses, and an EEG measures and records these impulses to detect anything abnormal. The patient must remain still and lie down while the EEG is done.

Electrocardiography (EKG) measures the heart's electrical activity to help evaluate its function and identify any problems. The EKG can help determine the rate and rhythm of heartbeats, the size and position of the heart's chambers, and whether there is any damage present. EKGs can detect abnormal heart rhythms, some congenital heart defects, and heart tissue that is not getting enough oxygen. The patient must lie down and a series of small electrodes are fixed on the skin with sticky papers on the chest, wrists, and ankles. The patient must sit still and may be asked to hold his or her breath briefly while the heartbeats are recorded.

An EMG (electromyography) measures the response of muscles and nerves to electrical activity. It is used to help determine muscle conditions that might be causing muscle weakness, including muscular dystrophy and nerve disorders. A needle electrode is inserted into the muscle (the insertion might feel similar to a pinch) and the signal from the muscle is transmitted from the electrode through a wire to a receiver, which is connected to a device that displays a readout.

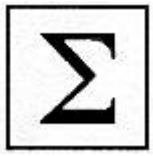
Biopsies are samples of body tissues taken to look for things such as cancer, inflammation, celiac disease, or the presence or absence of certain cells. Biopsies can be taken from almost anywhere, including lymph nodes, bone marrow, or kidneys. Doctors examine the removed tissue under a microscope to make a diagnosis.

12.5 Slovní zásoba ke kapitole 12

admit	přijmout	order	nařídit, objednat
aggravate	přitížit, zhoršit	outpatient	ambulantní
alleviate	zmírnit	pass water	močit
amount	množství	pinch	štípnutí
apart	od sebe, stranou	put on/gain	přibrat
assistive device	asistenční pomůcka	raise	zvednout
bend	pokrčit	readout	zobrazené údaje
bounce off	odrážet	require	vyžadovat, potřebovat
complaint	potíž, stížnost	roll over	přetočit se
decipher	rozluštit	sample	vzorek
determine	určit	sound wave	zvuková vlna
discharge	propustit	sticky	lepkavý
dull	tupý	sharp	ostrý
duration	délka, trvání	shift	směna
fist	pěst	spread (out)	roztáhnout
gag	dávit	suspect	mít podezření
germ	choroboplodný zárodek	suspicion	podezření
grip	uchopit, sevřít	straighten (up)	narovnat
hold	(za)držet	stretch	natáhnout
inpatient	hospitalizovaný	swab	tampón
intermittent	přerušovaný, střídavý	swell	otékat
jelly	gel	tickle	lechtat, šimrat
lean	naklonit	tilt	naklonit
lift up	zvednout	upright	vzpřímený
loose	uvolněný	withdraw	odebrat

medical history	anamnéza	wire	drát
motion	vyprazdňování střev	x-ray	rentgen, rentgenovat
onset	počátek, nápor		

Shrnutí kapitoly



- V této kapitole jste si osvojili slovní zásobu týkající se příznaků nemocí, odebírání anamnézy a pokynů pacientovi při vyšetření a měli byste být schopni používat fráze z této oblasti.

Kontrolní otázky a úkoly:

1. What tests can be done to find out more about the patient's health?
2. Have you undergone any of them?

Úkoly k textu

Which verbs do collocate with these nouns? Která slovesa se pojí s těmito podstatnými jmény?

give / listen to / take

_____ a blood sample

_____ you a check-up

_____ you a prescription

_____ you an injection

_____ your blood pressure

_____ your chest

_____ your pulse

_____ your temperature

Přeložte. Translate.

dolní končetina –

hrudní koš –

mazová žláza –

nosní dutina –

oplodněné vajíčko –

pojivová tkáň –

poruchy příjmu potravy –

příčně pruhované svalstvo –

trávicí systém –

zrakové postižení –

Citovaná a doporučená literatura

- Glendinning, E. H., Howard, R.: Professional English in Use. Medicine. Cambridge University Press, 2007. ISBN 978-0-521-68201-5.
- Gogelová, H.: Angličtina pro fyzioterapeuty. GRADA Publishing, 2011. ISBN: 978-80-247-3531-3.
- http://medical-dictionary.thefreedictionary.com/
- http://www.speakenglish.co.uk/phrases/at_the_doctors
- http://kidshealth.org/parent/system/medical/labtest2.html#cat174