PRACTICAL ENGLISH FOR MEDICAL STUDENTS

实用医学英语教程

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復旦大學出版社

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前　言

《实用医学英语教程》是依据《大学英语课程教学要求》、根据医学专业特点而编写的专业英语必修课程教材。本教程满足了大学英语教学从普通英语(English for General Purpose, EGP)向专门用途英语(English for Specific Purpose, ESP)转变的时代需求,丰富了多元化的大学英语教材体系。

《实用医学英语教程》适用于医学英语入门课程。本教程内容丰富,语言特色鲜明,强调实用,兼顾学术。它不仅涵盖了医学英语必备的听、说、读、写、译五个方面的内容,而且结合医学专业特点,特别增设了医学英语的基本构词法及配套练习。本教程基于医学英语课程要求和特点,为已经完成大学通用英语学习且具有一定医学知识的医学生专门编写而成。它以人体八大系统为纲,基本涵盖各类实用型医学英语,帮助学生初步掌握医学英语的特点和规律,建立起医学专业英语词汇体系,基本实现自主阅读、口头交流和书面表达,为未来的临床、科研、对外学术交流和医学服务打下基础。本书最大特点在于重视医学英语初学者入门阶段的需求,弥补了目前市场上众多医学英语教材偏重医学深度专题、忽略初学者基本功的缺陷。

《实用医学英语教程》共分八个单元,分别介绍骨肌系统、消化系统、呼吸系统、泌尿系统、生殖系统、循环系统、内分泌系统和神经系统。各单元由 Part A、Part B 和 Part C 三个部分组成。其中,Part A 以阅读文章为依托,介绍各系统的术语词汇,辅以相应的练习;Part B 以医学英语科技论文为授课范例,突出科技论文的语言特色,介绍科技论文阅读方法;Part C 主要以科普形式展示医学科普知识。三个部分以基础性、学术性和科普性相辅相成,构成较为完整且实用性强的基础医学英语教材体系。

本教程编者怀着为大学英语教学改革和医学专业英语发展贡献绵薄之力的愿望,集思广益、通力合作,完成了这本综合性入门医学英语教材。由于本教程

涉及面广，加之医学英语的特殊性和复杂性、医学词汇的丰富性和多样性，以及编者医学知识的有限性，疏误之处在所难免，恳请读者不吝赐教，以利于本教程的不断改进和完善。

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《实用医学英语教程》

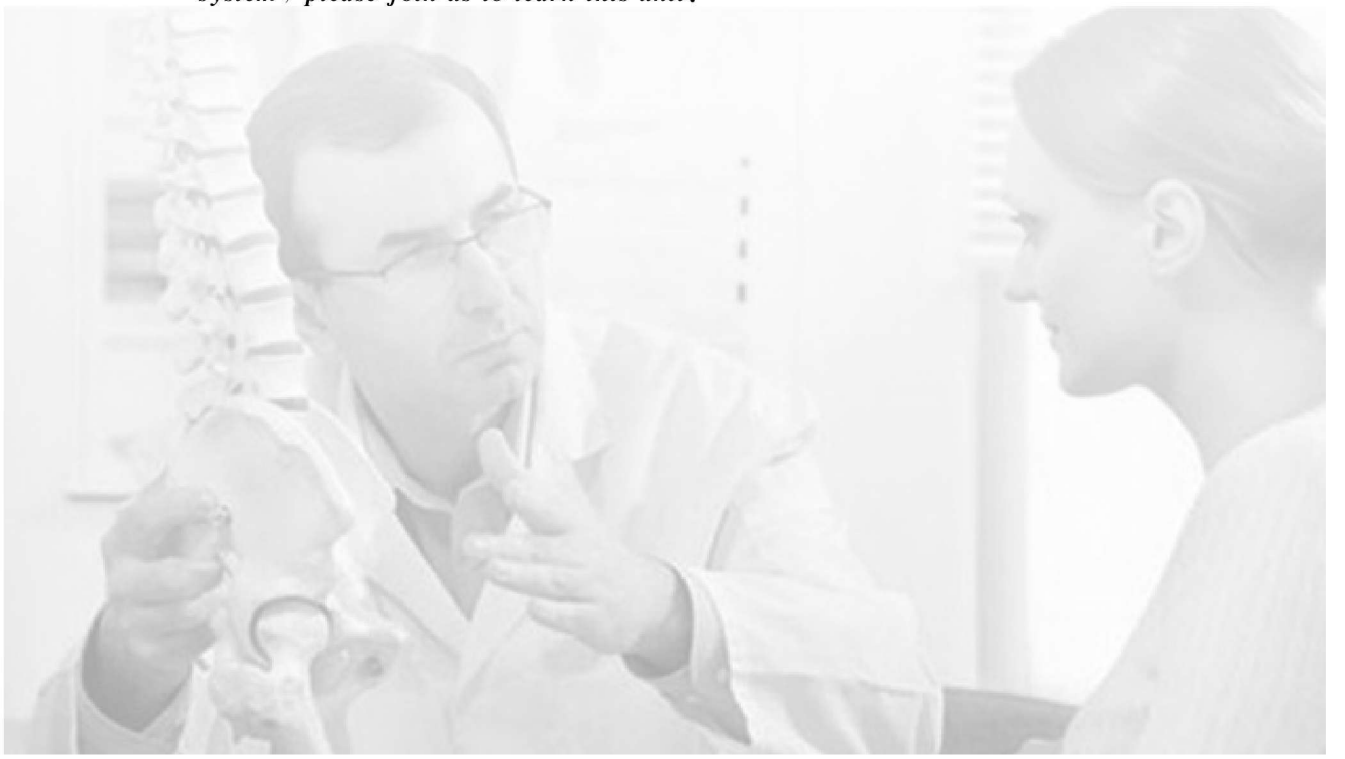
部分资料

Unit One

The Musculoskeletal System

Preview

The musculoskeletal system consists of the bones, the muscles and synostosis. The bones are joined together to form the skeleton, thus constituting the basic form of the human body and providing attachment to the muscles. Under the control of the nerves, the muscles contract and pull the bones attached to them, with the movable synostosis as hinges, resulting in lever movement. The main functions of the musculoskeletal system are movement, support and protection. To know more about the musculoskeletal system, please join us to learn this unit.



Medical Terminology

English word	Root	Chinese meaning
bone	oste(o)-	骨
bursa	burs(o)-	囊
cartilage	chondr(o)-	软骨
humerus	humer(o)-	肱骨
ilium	ili(o)-	髂骨
joint	arthr(o)-	关节
marrow	myel(o)-	骨髓
muscle	muscul(o)-; my(o)-; myos(o)-	肌肉
radius	radi(o)-	桡骨
skull	crani(o)-	头骨
sternum	stern(o)-	胸骨
tarsus	tars(o)-	跗骨
tendon	ten(o)-; tend(o)-; tendin(o)-	肌腱
thorax	thorac(o)-	胸,胸腔
ulna	uln(o)-	尺骨
vertebra	vertebr(o)-	脊椎

Part A

The Musculoskeletal System

Introduction

The **musculoskeletal** system, as its name suggests, relates to the **skeleton** and the muscles of the body. But more specifically, the musculoskeletal system includes bones, muscles, **joints**, cartilages, **ligaments**, **tendons**, and **bursae**. The musculoskeletal system provides the framework and allows for movement of the body.

The Skeletal System

The skeletal system includes all of bones, cartilages, and ligaments of the body that support and give shape to the body and body structures. For adults, there are 206 bones in the skeleton.

Bones

A bone is formed by the gradual addition of calcium and phosphorus salts to cartilage (a type of dense connective tissue). Several different types of bones are found based on their shapes and fall into four categories: long bones, short bones, irregular bones and flat bones.

A long bone has a **diaphysis** composed of[1] compact bone tissue. Within the diaphysis is a **medullary** cavity containing bone marrow, like the **femur** and the **humerus.** The majority of bones in the human body are long bones. These bones have similar structure with a diaphysis that widens at each end which is called an **epiphysis** that covered by **articular** cartilage. Short bones are designated as wide as they are long. Examples are the **carpals** and the **tarsals**. Irregular bones received their name because their shapes are irregular.

The Skeleton

The skeleton is subdivided into two major divisions — the **axial** and **appendicular.** The axial skeleton consists of the bones of the skull and trunk

of a vertebrate, while the appendicular skeleton is composed of the bones of the upper limbs and the lower limbs. The skeleton is also inclusive of the **pectoral** girdle, or shoulder girdle, attaching the upper limbs to the body, and the pelvic girdle that attaches the lower limbs to the body.

The skull is divided into two parts consisting of the **cranium** and facial bones. These bones surround and protect the brain and the structures related to it, such as eyes, ears, nasal cavity, and oral cavity from injury. The cranium encases the brain and consists of the frontal, parietal, temporal, ethmoid, sphenoid, and occipital bones. Nearly all the facial bones are joined together by sutures, so they are immovable. The facial bones, surrounding the mouth, nose and eyes, include the mandible, maxilla, zygomatic, vomer, palatine, nasal, and lacrimal bones.

The trunk of the body consists of the vertebral column, sternum, and rib cage. The vertebral or spinal column, composed of 26 vertebrae, is divided into five sections: cervical vertebrae, thoracic vertebrae, **lumbar** vertebrae, **sacrum**, and **coccyx**. Located between each pair of vertebrae from the cervical through the lumbar regions is an intervertebral disk. Each disk is composed of fibrocartilage to provide flexibility as a **cushion** between the vertebrae. The rib cage, providing support for organs, such as the heart and lungs, contains 12 pairs of ribs that attached at the back to the vertebral column. Among them, ten of these pairs are attached to the front sternum. Furthermore, the lowest two pairs of floating ribs are attached only to the vertebral column.

The appendicular skeleton consists of the pectoral girdle, upper extremities, pelvic girdle, and lower extremities. These are the bones for our appendages or limbs and along with the muscles attached to them. They are responsible for providing the structures which allow the body to move.

The pectoral girdle, the set of bones in the appendicular skeleton, which connects to the arm on each side, is composed of the clavicle and scapula bones[2]. It attaches the upper extremity to the axial skeleton by articulating with the sternum anteriorly and the vertebral column posteriorly. The upper extremity is the region in a vertebrate animal extending from the deltoid region up to the hand and including the humerus, **ulna**, **radius**, carpals, metacarpals, and **phalanges**.

The pelvic girdle contains the **ilium**, **ischium**, and **pubis**. It **articulates** with the sacrum posteriorly to attach the lower extremity, especially the

femur, to form the hip joint. The lower extremity bones include the femur, **patella, tibia, fibula**, tarsals, **metatarsals**, and phalanges (Fig. 1 - 1).

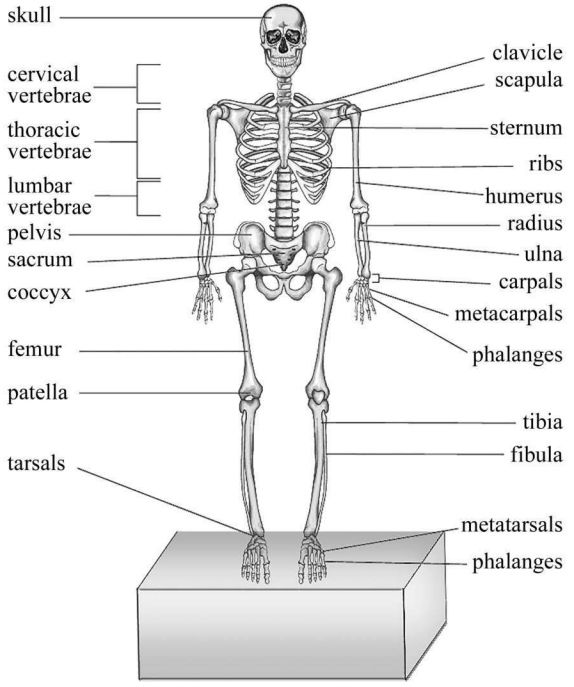


Fig. 1 - 1 The Skeleton

The Muscular System

The muscular system is responsible for the movement of the human body with its ability to contract. Attached to the bones of the skeletal system are about 638 named muscles. Constructed of skeletal muscle tissue, blood vessels, tendons, and nerves, each of these muscles is a discrete organ. Muscle tissue is also found inside of the heart, digestive organs, and blood vessels. There are three distinct types of muscles: **visceral, cardiac**, and skeletal (Fig. 1 - 2).

Visceral muscle, or smooth muscle, making up the walls of the hollow organs and the walls of ducts, is found inside of organs like the stomach, intestines, and blood vessels. As the weakest muscle tissues, visceral muscle makes organs contract to move substances through the organ and these wavelike movements propel materials through the systems. Because visceral

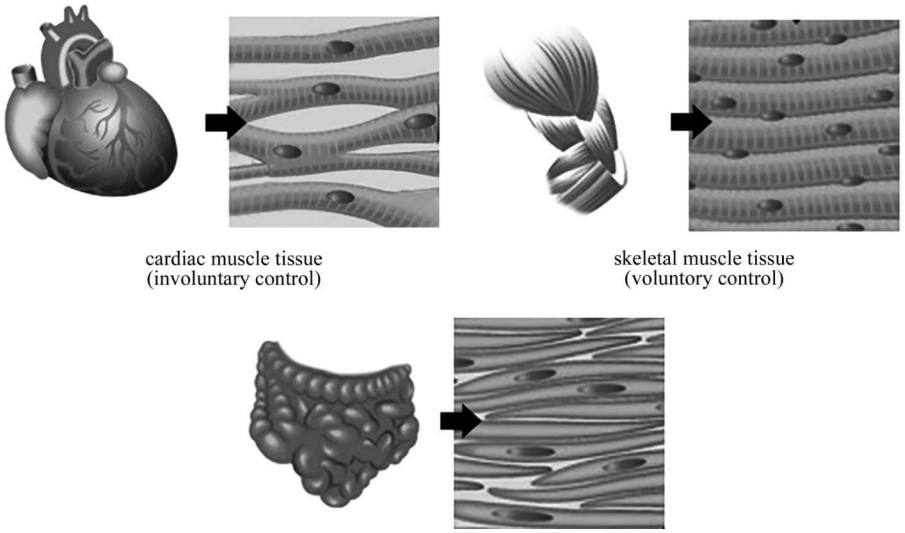


Fig.1－2　Three Different Types of Muscles

muscle is controlled by the unconscious part of the brain, it is known as involuntary muscle.

Found only in the heart, cardiac muscle is responsible for pumping blood throughout the body. Cardiac muscle, as an involuntary muscle, stimulates itself to contract, while hormones and signals from the brain adjust the rate of contraction. Because of its self-stimulation, cardiac muscle is considered to be autorhythmic or **intrinsically** controlled. The cells of cardiac muscle are branched X or Y shaped cells tightly connected together by special junctions called intercalated disks — made up of finger-like projections from two neighboring cells that interlock and provide a strong bond between the cells.

Skeletal muscle, moving all bones, as well as controlling facial expression and eye movements, is the **voluntary muscle** tissue in the human body. Skeletal muscle derives its name from the fact that these muscles always connect to the skeleton in at least one place. Most skeletal muscles are attached to two bones across a joint, so the muscle serves to move parts of those bones closer to each other. Skeletal muscle cells form when many smaller progenitor cells lump themselves together to form long, straight, multinucleated fibers, which is as striated and strong as cardiac muscle.

New Words

musculoskeletal [ˌmʌskjʊləʊˈskelɪtəl] *adj*. 肌(与)骨骼的
skeleton ['skelɪtən] *n*. 骨骼
adj. 骨骼的
joint [dʒɔɪnt] *n*. 关节
ligament ['lɪgəmənt] *n*. 韧带
tendon ['tendən] *n*. 筋,腱
bursa ['bɜːsə] *n*. 囊,黏液囊
skeletal ['skelɪtəl] *adj*. 骨骼的
diaphysis [daɪˈæfəsɪs] *n*. 骨干
medullary [meˈdʌlərɪ] *adj*. 髓质的,骨髓的
femur ['fiːmə(r)] *n*. 股骨
humerus ['hjuːmərəs] *n*. 肱骨
epiphysis [ɪˈpɪfɪsɪs] *n*. 骺
articular [ɑːˈtɪkjʊlə(r)] *adj*. 关节的
carpal ['kɑːpəl] *n*. 腕骨
adj. 腕骨的
tarsal ['tɑːsəl] *n*. 跗骨
adj. 跗骨的
axial ['æksɪəl] *adj*. 轴的
appendicular [ˌæpənˈdɪkjʊlə(r)] *adj*. 附属物的,四肢的
pectoral ['pektərəl] *adj*. 胸部的
cranium ['kreɪnɪəm] *n*. 头盖骨
lumbar ['lʌmbə(r)] *adj*. 腰部的
sacrum ['seɪkrəm] *n*. 荐骨,骶骨
coccyx ['kɒksɪks] *n*. 尾骨
cushion ['kʊʃən] *n*. 垫
ulna ['ʌlnə] *n*. 尺骨
radius ['reɪdɪəs] *n*. 桡骨
phalange ['fælændʒ] *n*. 指骨,趾骨
ilium ['ɪlɪəm] *n*. 髂骨
ischium ['ɪskɪəm] *n*. 坐骨

pubis ['pju:bɪs] *n*. 耻骨
articulate [ɑ:'tɪkjʊleɪt] *vt*. (用关节)连接
patella [pə'telə] *n*. 膝盖骨
tibia ['tɪbɪə] *n*. 胫骨
fibula ['fɪbjʊlə] *n*. 腓骨
metatarsal [ˌmetə'tɑ:səl] *n*. 跖骨
adj. 跖骨的
visceral ['vɪsərəl] *adj*. 内脏的
cardiac ['kɑ:dɪæk] *adj*. 心脏的
intrinsically [ɪn'trɪnsɪkəlɪ] *adv*. 从本质上
voluntary muscle ['vɒləntərɪ mʌsl] 随意肌

Notes

1. 在医学英语中,表示"分类"的表达方式多种多样,例如:be divided into, be subdivided into, fall into, classify 等。"组成"的表达方式包括:be composed of, consist of, be made up of, make up, be comprised of 等。
2. The pectoral girdle, the set of bones in the appendicular skeleton, which connects to the arm on each side, is composed of the clavicle and scapula bones. 医学英语的句式特征在本句中有集中体现,如非人称主语"the pectoral girdle",非限定性定语从句"which connects to...",被动句式"is composed of..."等。

Exercises

Vocabulary

Ⅰ. Fill in the blanks with the words given below. Change the form where necessary.

appendicular	scapula	vertebral	cranium	sternum
ligaments	radius	pectoral	tendons	visceral

1. The skeleton system is divided into two groups: the axial skeleton and the _____ skeleton.

2. The axial skeleton, making up 80 of 206 bones, is subdivided into three groups: the skull, the bony thorax, and the _____ column.
3. The skull, or _____, could be thought of as the most important structure in skeleton, especially considering that it houses the brain.
4. The breast bone, or _____, is around 6 inches (15 cm) tall, spanning about half the length of the ribs.
5. The _____ girdle, or shoulder girdle connects the arm to the axial body.
6. The forearm is composed of only two bones, the _____ and the ulna.
7. Each of these muscles is a discrete organ constructed of skeletal muscle tissue, blood vessels, _____, and nerves.
8. There are three types of muscle tissue: _____, cardiac, and skeletal.
9. As fascinating as they are, muscles alone can't do the job. At every joint, _____ and tendons also help out.
10. The _____, or shoulder blade, and the clavicle, or collarbone, make up the girdle.

Medical Terminology

Ⅱ. Choose the definition from Column B that best matches the root or affix in Column A.

Column A	Column B
( ) **1.** man(o)-	A. breastbone
( ) **2.** ten (o)-	B. radius
( ) **3.** crani(o)-	C. clavicle
( ) **4.** sacr(o)-	D. hand
( ) **5.** cost(o)-	E. sacrum
( ) **6.** ligament(o)-	F. skull
( ) **7.** stern(o)-	G. rib
( ) **8.** cleid(o)-	H. tendon
( ) **9.** radi(o)-	I. ligament
( ) **10.** muscul(o)-	J. muscle

Medical Word Building

Ⅲ. The surfix -(*o*)*plasty* can be added to some medical terms to form another term with the meaning of *molding*. For example, coreoplasty means "plastic operation on the pupil". Complete each of the following sentences with the proper form of the words given in the box.

tendoplasty	osteoplasty	cranioplasty	arthroplasty	fasciaplasty

1. _____ refers to reparative surgery of an injured tendon.
2. _____ is the surgical repair or alteration of bone, especially for the replacement of lost bone tissue or reconstruction of defective bony parts.
3. The aim of _____ is not only a cosmetic issue, but also a repair of cranial defects.
4. _____ is kind of plastic surgery on a fascia.
5. Arthroscopic assessment can be helpful, but there is no fact to indicate whether it is indispensable before patellofemoral _____.

Sentence Structure

Ⅳ. Combine the following groups of sentences after the model, using an non-restrictive attributive clause(非限定性定语从句).

Model: The pectoral girdle is the set of bones in the appendicular skeleton and connects to the arm on each side.
The pectoral girdle is composed of the clavicle and scapula bones.
→ The pectoral girdle, the set of bones in the appendicular skeleton, which connects to the arm on each side, is composed of the clavicle and scapula bones.

1. The skeleton forms the framework of the body, protects vital organs, and works with the muscular system to produce movement. The human adult skeleton is composed of 206 bones.
→ _____
_____