

The Latin Language and Medical Terminology Basics: textbook (III—IV a. I.)

КУПИТИ



The textbook is aimed to teach students the principles of the Latin grammar and medical terminology (anatomo-histological, pharmaceutical and clinical) in accordance with the demands of the European Credit Transfer System. The changes introduced into the latest issues of the International Anatomical, Histological and Chemical Nomenclatures are included in the textbook. 31 units constitute the foundation of the textbook supplemented with tables of the basic suffixes, prefixes, combining forms and anatomical terms, Latin-English and English-Latin glossaries, exercises, prescriptions, etc. There is also given information on ancient medicine. The development of medicine as a separate science and particularly the final dissociation of the medical terminology resulted in the strengthening of its ties with other sciences. Thus the Latin language is an effectual means of broadening the outlook of a future doctor. The Latin aphorisms and quotations that supplement the textbook will assist in developing the logical and rational understanding of the peculiarities of the Latin grammar and will provide students with ample opportunity to estimate at true worth the uniqueness and wisdom of the ancient world. The textbook is designed both for classroom use and for self-study training. The authors hope that the textbook will arouse interest in further studying of the medical language by giving students and teachers of higher education establishments — medical universities, institutes and academies the essential language tools to understanding the meaning and proper use of anatomical, histological, pharmaceutical and clinical terms.

THE LATIN LANGUAGE

AND MEDICAL TERMINOLOGY BASICS

TEXTBOOK

Edited by PhD, Associate Professor L.Yu. Smolska

Fourth edition

APPROVED

by the Ministry of Education and Science of Ukraine as a textbook for students of higher medical education establishments

RECOMMENDED

by the Academic Board of O.O. Bogomolets National Medical University as a textbook for students of higher medical education establishments

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PREFACE

The English language, as well as most modern European languages including the Slavic ones, is a descendant of the Latin language. In its turn, Latin is a descendant of an ancient language commonly called Indo-European. Although these languages are different in structure, some similarities can be found. A characteristic of the Indo-European languages is expressing syntactic relations by means of word endings, and English words proved to be scarcely inflected. Still, there are more than 75 % Latin words in the English language, especially among medical terms.

As a matter of fact, Latin was the language of ancient Romans, who together with Greeks were the creators of the ancient civilization – the basis of the European culture. The Latin alphabet was derived from Greek (via the Etruscans, a tribe that inhabited Italian territories), which can be seen from its name: *ALPHA-BETA*, the first two letters of the Greek alphabet. In their turn, the English, German, Polish and other alphabets were derived from the Latin one. As the Roman state developed, the Roman armies moved throughout Mediterranean lands, bringing Latin to the outlying regions of the known world. Over time, the colloquial language, influenced by the native tongues and dialects, evolved into a group of new languages called the Romance languages.

It is well known that medical science was highly developed as early as ancient times. One of the most famous physicians at that time in Greece was Hippocrates (460–377 BC); in ancient Rome – Claudius Galenus (130–200 AD); in Arabia – Avicenna (Ibn Sina, 980–1037 AD). The latter wrote the *Canon of Medicine*, in which he described and classified different topics of medicine.

This textbook will acquaint students with medical terminology. It is a historical fact that the Greek and Latin languages are the source of medical vocabulary formation. Medical terminology consists of several groups of words: words of Greek and Latin origin; words artificially created on the basis of Latin and Greek words; words originated from other languages, mostly Arabic, because the ancient Arabic medical school has greatly influenced the European medical science; words of some other languages. Such a variety has been conditioned by the historical development of medical science. Consequently, along with studying Latin grammar and vocabulary, we suggest learning Greek equivalents of some Latin medical terms.

In this manual, great attention has been paid to word-forming elements of Latin and Greek origin – nouns, adjectives, numerals and other parts of speech. The book

offers applied study of the Latin language. The main objective of the course is to master the terminology fundamentals. It is essential for the understanding and using of medical terms.

One should know that the first Anatomical Nomenclature was adopted at the Basel congress of the Anatomische Gesellschaft (Anatomical Society) in 1895 and was called the Baseler Nomina Anatomica – BNA. At the same time, as morphology was developing, anatomical terminology was improving and expanding, and the German Anatomical Society initiated a new register of terms (Jena, 1935). This register was named the Jenaer Nomina Anatomica – JNA – and was used in Europe only.

In 1950, at the Fifth International Congress of Anatomists there was made a decision to check and renew the existing register of anatomical terms to make them shorter and easier to memorize. The renewed and optimized register of terms was presented at the Sixth International Congress of Anatomists (Paris, 1955). The new register was named the Parisiana Nomina Anatomica (PNA). This version of anatomical nomenclature was widely used, but at each subsequent International Congress of Anatomists several changes were introduced (Montreal, 1987; Budapest, 1988; New York, 1989). In 1989 the Federative Committee on Anatomical Terminology (FCAT, now called FICAT) was established to prepare revised lists of anatomical terms. After that, in Sao Paulo (1997), the latest universal anatomical nomenclature was approved.

Each lesson in the textbook introduces new word forms and vocabulary followed by a variety of exercises based on the new material. A special section entitled "Do you know that..." deals with some historical and cultural events connected with medical science. Some Latin sayings and proverbs are given to acquaint students with ancient social order and philosophy.

The manual aims to answer the question of the essential nature of medical terminology fundamentals. The chapters of this textbook represent three parts of medical terminology: anatomical, clinical and pharmaceutical terms. At the end of the manual, a dictionary of the most basic and frequently used medical terms can be found. This Latin-English and English-Latin glossaries are intended to acquaint students with scientific medical terms.

Pavlo Sodomora

Invia est in medicīna via sine lingua Latīna There is no way in medicine without Latin language

THEME

The Latin alphabet. The pronunciation of vowels, diphthongs and consonants

OBJECTIVES

- to learn names and writing of Latin letters
- to practise pronunciation of letters and letter combinations

§ 1 The Latin alphabet

The Latin alphabet initially contained 21 letters (1st cent. B.C.). But later, due to the necessity to transliterate Greek words, new letters -y (igrek) and z (zet) were added for the reproduction of Greek letters and sounds. In the course of time the specific pronunciation of these letters was lost, but the letters remained in the borrowings of Greek origin.

The Latin alphabet consisting of 26 letters was established in Western Europe since the 16th century. Letters *j* and *v* were introduced into practice by *Peter Ramus*. Also, the letter *w* was initially used in borrowings, such as geographical and proper names, as well as in medical and pharmaceutical terms.

U 1 1 T

Letter	Name	Latin pronunciation	English pronunciation
Aa	а	а	[ei]
Bb	be	b	[bi:]
Сс	се	c, k	[si:], [kei]
Dd	de	d	[di:]
Ee	е	е	[i:]
Ff	ef	f	[ef]
Gg	ge	g	[dʒi:]
Hh	ha	h	[eit∫]
li	i	е	[ai]
Jj	jot	j	[dʒei]
Kk	ка	k	[kei]
Ц	el	ľ	[el]
Mm	em	m	[em]
Nn	en	n	[en]
Oo	0	0	[ov]
Pp	ре	р	[pi:]
Qq	qu	qu	[kju:]
Rr	er	r	[a:]
Ss	es	s, z	[es], [zed]
Tt	te	t	[ti:]
Uu	u	u	[ju:]
Vv	ve	V	[vi:]
Ww	W	V	['dʌbl'ju:]
Xx	ex	ks, kz	[eks]
Yy	igrek	е	[wai]
Zz	zet	Z, C	[zed]

§ 2 The pronunciation of vowels

There are six vowels in Latin: **a, e, i, o, u, y.** The pronunciation of these sounds is similar to the pronunciation of corresponding English ones, though some peculiarities do exist: **ána** – equally; **línea** – line; **ós** – bone; **intérnus** – internal; **inférior** – inferior.

- I, i A vowel "i" is pronounced as "i" before and after consonants, e.g.: ita such, túnica layer. "I" is pronounced as "j" at the beginning of a word or a syllable, before a vowel and between two vowels. In modern medical and pharmaceutical terminology the letter "j" is used in the above-mentioned cases, e.g.: májor big, jejúnum intestine, majális May*.
 - N.B.! There is no "j" in the borrowings of Greek origin, because there was no "j" in the Greek language, e.g.: Iódum Iodine (G. iódes violet), Iodofórmium iodoform, iódidum iodide, Iodinólum iodinole).
- Y, y A vowel "y" is pronounced as "i" and is used only in the borrowings of Greek origin, e.g.: pylórus pylorus, myológia myology.

§ 3 The Greek prefixes, roots and suffixes containing the letter "y"

		Meaning	Examples
	dys-	disorder, distur- bance	dysfúnctio – any disturbance or abnormality in the function of an organ or part
Prefix	hуро-	under, beneath, below, decreased, abnormally low	hypogástrium – the lower front central region of the abdomen, below the navel
	hyper-	over, excess, in- creased, abnor- mally high	hypertónia – high blood pres- sure

^{*} A twofold writing of such terms is possible: jejunum or ieiunum. Besides, in International Medical Terminology the letter **J** is commonly used.

	my(o)-	muscle	<i>myológia</i> – science about muscles
	-oxy-	oxy	Oxygénium – oxygen
	-hydr-	water	Hydrogénium – hydrogen
Root	-physi-	nature	physiológia – physiology
	-glyc-	sweet	Glycyrrhíza - Liquorice, licorice
	-pyr-	fever	antipyréticus – fever reducer, antipyretic
	-тус-	fungus	Biomycinum - Biomycin
	-poly-	many	polyvitamínum – multivitamin
Suffix	-yl-	indicates on che- mical composition	salicýlicus – salicylic

§ 4 The pronunciation of diphthongs

The combination of two vowels is called a "diphthong". There are the following diphthongs in Latin: *ae*, *oe*, *au*, *eu*, *ou*¹. Diphthongs *ae* and *oe* are pronounced as [e]: *aegrótus* – sick, *cóena* – meal.

If there are two dots (") above the second component of the diphthong ae or oe, such combination is not considered as a diphthong. Consequently, each letter should be read separately, e.g., \acute{aer} – air, \acute{Aloe} – Aloe, \acute{aiploe} – diploe.

 $\mathbf{au} - \mathbf{au} (\mathbf{av}) \mathbf{A} \hat{\mathbf{u}} \mathbf{r} \mathbf{u} \mathbf{m} - \mathbf{gold}$

eu – eu (ev) *pneumonía* – inflammation of lungs

ou – u croupósus – croupous

N.B! The endings **-eus**, **-eum** are not diphthongs, therefore they should be read separately, e.g.: **scaphoideus** – scaphoid.

§ 5 The pronunciation of consonants

There is a twofold way of pronunciation of some consonants depending on their position in the word. Usually these rules of pronunciation are similar to English ones but still, there is a reason to review them more precisely.



- before vowels **e** (**ae**, **oe**) and **i**, **y**, e.g.: **cérebrum** – cerebrum, **medicina** – medicine, **caécus** – blind, **coéna** – meal, **cytus** – cell;

- in other cases, e.g.: *cór* - heart, *cútis* - skin, *occipitális* - occipital;

¹ The diphthong **ou** came into medical terminology from the French language.

- G, g is similar to English consonant g, e.g.: glándula gland, grávis heavy;
- H, h is similar to English consonant h, e.g.: húmerus humerus, hómo human;
- K, κ is used only in borrowings, e.g.: skéleton (Greek) skeleton, Kálium (Arabic) Potassium, keratítis (Greek) inflammation of cornea, kefir (Arabic) kefir;
- L, 1 is always a palatalized sound, unlike the English one, e.g.:
 lóngus long;
 - s e.g.: sánus healthy, cósta rib;
- between two vowels, e.g.: *nasális* nasal, and also between vowels and consonants *m*, *n*: *ménsis* month;
- V, v like English consonant v, e.g.: vértebra vertebra, víta life;
- kz between two vowels, e.g.: exémplar example, pléxus plexus;
 - ks in other cases, e.g.: léx law, fórnix fornix;
- z is used in borrowings of Greek origin, e.g.: horizontális horizontal, zóna belt, zygóma zygomatic bone;
 - in borrowings, e.g.: **Zincum** zinc (German), **influénza** c flu (Italian);
- W, w in borrowings, e.g.: unguéntum Wilkinsóni Wilkinson's ointment, sýndrŏmum Wilsoni Wilson's syndrome.

§ 6 The combinations of letters ngu, qu, su, ti

- ngu before vowels is pronounced as ngv, e.g.: sánguis blood, unguéntum ointment.
 before consonants is pronounced as ngu, e.g.: ángulus angle, língula tongue.
- qu is pronounced as kv, e.g.: áqua water, antíquus ancient.
- su before vowels in the same syllable is pronounced as sv,
 e.g.: suávis pleasant, consuetúdo habit.
- ti before vowels is pronounced as ci, e.g.: injéctio injection, operátio operation.
 - before consonants "s" or "x" is pronounced as *ti*, e.g.: *combustio* combustion (E), *mixti* mixture (E).

Medical and pharmaceutical terms of non-Latin origin are pronounced due to the rules of their original language, e.g.: French: dragée – dragee; cháncre – chancre; English: shunt – shunt, bypass; German: Spátel – spatula, spreader; Stamm – strain, etc.

§ 7 The pronunciation of letter combinations ch, ph, th, rh, sch.

Combinations of these letters are only used in words of Greek origin. They are pronounced exactly as in English.

ch - ch: chórda - chord, string; cóncha - concha

rh - r: **rháphe** – raphe, seam, suture; **rheumatismus** – rheumatism

th - t: thórax - thorax; uréthra - urethra

ph - f: pharynx – pharynx; periphéricus – peripheral

The capital letter is usually used:

- at the beginning of a sentence;
- for proper names, names of months;
- with names of chemical elements, plants and animals.

Assignments for self-control:

- What letters and diphthongs are used to express the sound "e"?
- How can the vowel "i" be pronounced?
- How can the sound "j" be expressed at the beginning of a word?
- By what letter combination can the sound "f" be expressed?
- What vowel is the consonant "q" usually combined with?
- How is the consonant "s" pronounced between two vowels?
- How is the letter combination "ti" pronounced between consonants?



Exercises:

I. Read medical terms, paying particular attention to the pronunciation of vowels:

inférior, supérior, antérior, postérior, anatómia, junctúra, májor, mínor, Iódum, mémbrum, mediánus, fibra, Iodinólum, artéria, palátum, pýramis, systéma, sýndrŏmum, hypotónia, symbiósis, hyoídeus, fóvea, nódus, parietális, hypogástrium, hýdrops, hypertónia, dysbacteriósis, Hydrárgyrum, gossýpium, gýrus.

II. Read terms, paying special attention to the pronunciation of diphthongs:

oedéma, aúris, faúces, pleúra, áër, díploë, perinaéus, ápnoë, Áloë, gangraéna, gynaecológia, haemostáticus, lambdoídeus, oesóphagus, aequális, foétor.

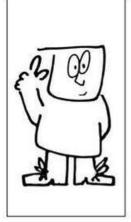
III. Read the terms and comment on their pronunciation:

árcus, cávum, cránium, cérebrum, cáput, crísta, maxílla, cervicális, coerúleus, caécum, lámina, súlcus, labiális, mandíbula, púlvis, básis, incisívus, Oxygénium, cóccyx, lárynx, spinósus, eczéma, Zíncum, proximális, influénza, glóttis, cápsula, ángulus, periodóntium, quadrátus, sublinguális, substántia, articulátio, phárynx, thórax, sphenoidális, chirúrgicus, ischiádicus, thyroídeus, hemisphérium, brónchus, periphéricus, antebráchium, adenohypóphysis, sphíncter, lýmpha, erythrocýtus, quíntus, rádix, gingíva, cór, subcutáneus, Kálium, praeparátum.

IV. Study the medical terms listed below and read them aloud:

A) Cóstae vérae, glándulae nasáles, córpus búccae, canális caróticus, rádix déntis, véna maxilláris extérna, canáles alveoláres, músculus palatoglóssus, artéria faciális transvérsa, véna ázygos, músculus zygomáticus májor, régio cóxae, márgo radiális, fácies palmáres digitórum, fóssa coronoídea, músculus pyramidális, búrsae mémbri inferióris, palátum mólle, taénia omentális, válvula semilunáris déxtra, véna canális pterygoídei, árcus zygomáticus, línea trapezoídea, párs squamósa, sánguis venósus, márgo línguae, línea oblíqua, vértebrae thorácicae, sectiónes hypothálami, synchondrósis cóstae prímae.

B) Processus styloideus ulnae, aquedúctus mesencéphali, fóssa hypophysiális, labyrínthus ethmoidális, kyphósis thorácica, árbor bronchiális, trochánter májor, cartilágo thyroídea, vása sanguínea, vértebrae coccýgeae, gýri cérebri, crús verticále, córpus striátum, radiátio óptica, fascículus laterális, vértex córneae, húmor aquósus, córpus vítreum, dúctus lactíferi, artéria pulmonális déxtra, músculus procérus, procéssus styloídeus úlnae, protuberántia occipitális extérna.



Do you know that...

...in the very old days the physiologists dreamed up some funny and fancy fairy tales about this world of ours and its makeup. The Greek philosopher Aristotle taught that the earth and ourselves, too, were composed of 4 substances: first, "fire", which was hot and dry; second, "air", which was warm and moist; third, "the earth", which he rated cold and dry; and fourth, "water", cold and moist. Fire, air, earth, water, these were the four "elements"; and Aristotle believed that the way they were combined or were "woven together" in you gave your complexion. The word "complexion" suggests this idea for it is from Latin "com" – together, and "plecto" –" braid" or "weave".

Aphorisms and quotations:

Omnia itiněra Romam ducunt. – All roads lead to Rome.

Cum fuĕris Romae, Romāno vivĭto more. — When at Rome, do as the Romans do.

Cogito ergo sum. - I think, therefore I exist.

Dum spiro, spero. - While I breathe, I hope.

Nulla regăla est sine exceptione. — There is no rule without an exception.

Errāre humānum est. – To err is human.

Non scholae, sed vitae discimus We do not study for school but for life

THEME

The stress. The length and brevity of a syllable

OBJECTIVES

- to learn how to stress Latin words
- to learn the rules on length and brevity of a syllable

§ 8 The length and brevity of a syllable. The stress

The Latin word has as many syllables, as vowels. The syllables are to be counted from the end of a word (from the right to the left), e. g:

Only the second or third syllable can be stressed. The Latin language, unlike the English one, has long and short vowels. The place of stress depends on the length or brevity of the second syllable: if the second syllable is long, the stress remains on the second syllable; if it is short, the stress moves to the third syllable.

The length or brevity of a vowel depends on its position or on its nature. Diphthongs are always long by their nature, e.g.:

gangraena - mortification, gangrene, pharmaceuta - pharmacist,

The length or brevity of a vowel is indicated in a dictionary: the length is denoted with a dash () above the vowel, the brevity is marked with a tick (), e. g.: ā, ă, ē, ĕ.

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The syllable is long, if:

- The vowel is followed by two or more consonants, e.g.: malignus – malignant, maxilla – the upper jaw².
- The vowel is followed by x, z, e.g.: refléxus reflex, Orýza rice.

The syllable is short, if:

- The vowel is followed by one more vowel, e.g.: *líněa* line, *cránĭum* skull, *fácĭes* surface.
- The vowel is followed by the letter h, e.g.: éxtrăho extract.

The length and brevity of some suffixes which are frequently used in medical terminology

The following syllables are always long:

-āl-	costālis	costal
-ār-	ulnāris	ulnar
-āt-	digitātus	digitate
-īn-	palatīnus	palatine
-ōs-	squamōsus	squamous
-úr-	fissúra	fissure
-út-	dilútus	diluted

The following syllables are always short:

-bĭl-	sanabĭlis	curable
-ĭc-	lymphatĭcus	lymphatic
-ŏl-	malleŏlus	malleolus
-ŭl-	ventricŭlus	ventricle

The place of a stress depends on the length or brevity of a syllable. Borrowings of Greek origin are stressed according to the rules of the Greek language, therefore some of these words do not fall under the aforementioned rules, e.g.: cryotherapía – cryotherapy, pharmacía – pharmacy; but: hystológia – histology, etc.

² Exception: the vowel is not lenghthened by consonants **b**, **p**, **d**, **t**, **c**, **g** in combination with **r**, **l**, e.g.: cérĕbrum – brain, Ephĕdra – ephedra.

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