

499721 Medical Terminology (MED-2557)

“Structure of Medical Terms 1”

Natapol Supanatsetakul M.D., Ph.D.

Research Unit for Learning Foreign Language in Medicine

Department of Pathology

Faculty of Medicine, Naresuan University

1 กรกฎาคม 2557

Topics

- Introduction and Lesson plan
- Class activities
- Lecture and Discussion
 - Classification of medical terms
 - Terms built from Greek or Latin word parts
 - Terms **NOT** built from Greek or Latin word parts
 - Structure of medical terms
- Homework

Etymology

- Etymology = the study of the history of words, their origins and meanings that have changed over time
- ศัพทมูลวิทยา หมายถึง น. วิชาว่าด้วยที่มา และประวัติของคำ (อ. etymology)
- นิรุกติศาสตร์ หมายถึง น. วิชาว่าด้วยที่มาและความหมายของคำ (นิรุกติ หมายถึง ภาษา, คำพูด)
- Philology = the study of language in written historical sources (ancient languages: Greek, Latin, Sanskrit, etc.)
- Historical linguistics = ภาษาศาสตร์เชิงประวัติ

ชนิดของคำศัพท์เฉพาะด้านการแพทย์

- คำศัพท์ที่**สร้าง**จากส่วนประกอบของคำในภาษากรีก หรือ ภาษาลาติน (Terms built from Greek or Latin word parts)
- คำศัพท์ที่**ไม่ได้สร้าง**จากส่วนประกอบของคำในภาษากรีก หรือภาษาลาติน (Terms **NOT** built from Greek or Latin word parts)

Terms built from Greek or Latin word parts

- คำอุปสรรค หรือ คำเสริมหน้า (prefixes)
- คำปัจจัย หรือ อากม หรือ คำต่อท้าย (suffixes)
- รากศัพท์ (word roots)
- สระเชื่อมคำ (combining vowels)
- Combining forms = รากศัพท์/สระเชื่อมคำ

ตัวอย่าง

Hypercholesterolemia (Dorland's pocket, p. 370)

= an excess of cholesterol in the blood

- ประกอบขึ้นจาก

1. **hyper-** [Gr.] : above, beyond, extreme

2. **cholesterol** : chol/e [Gr.] = bile

sterol = steroid group structure

ster/o (solid) + -ol (oil)

3. **-em-** [Gr.] : blood, **-emia** : condition in blood

Terms **NOT** built from Greek or Latin word parts

- Eponyms
- Acronyms
- English modern language
- Derived from ancient languages or other languages

ส่วนประกอบของคำศัพท์ (word parts)

- Terms built from Greek or Latin word parts
 - คำอุปสรรค หรือ คำเสริมหน้า (prefixes)
 - คำปัจจัย หรือ อากม หรือ คำต่อท้าย (suffixes)
 - Combining forms = รากศัพท์/สระเชื่อมคำ

Characteristics of a Prefix

- A single letter or group of letters that ends with a hyphen
- Appear at the beginning of a word
- Modify or clarify the meaning of the combining form
- Optional word part
- More than one prefix can be combined

Some common prefixes

- Prefixes for Location or Direction
- Prefixes for Amount, Number, or Speed
- Prefixes for Degree, Size or Quality

Some common prefixes

• Prefixes for Location or Direction

ab-, ad-	abduction, adduction
endo-, exo-, ec-, ecto-	endothelium, exogenous, ectoderm
epi-, super-, supra-, infra-, sub-	epidermis, subcutaneous
intra-, extra-, inter-	intravenous, intercostal
peri-, para-, juxta-	pericardial, parathyroid, juxtaglomerular
trans-, dia-, per-	translocation, diapedesis, percutaneous
pre-, post-, pro-, retro-	prenatal, postnatal, retrograde
ante-, post-	antemortem, postpartum

Some common prefixes

• Prefixes for Amount, Number, or Speed

hyper- hypo-	hypertension, hyponatremia
hemi-	hemiplegia, hemiparesis
uni-, bi-, tri-, tetra-,	unilateral, bilateral, trisomy,
quadri-, poly-	tetraploidy, quadriplegia,
	polyarthritis
brady-, tachy-	bradycardia, tachypnea

Some common prefixes

- Prefixes for Degree, Size or Quality

a-, an-	aphasia, anesthesia
anti-, contra-, counter-	antibiotic, contraceptive, counterstain
de-	dementia
dys- mal-	dysphagia, malnutrition
eu-	euthyroidism
neo-	neoplasm
re-	respiration
macro-, micro-	macrocephaly, microscope

Characteristics of a Suffix

- A single letter or group of letters that begins with a hyphen
- Appear at the end of a word
- Modify or clarify the meaning of the combining form
- Most medical words contain a suffix
- More than one suffix can be combined

Some common suffixes

- Suffixes for Adjectives
- Suffixes for Processes
- Suffixes for Diseases
- Suffixes for Diagnostic, Medical, and Surgical Procedures
- Suffixes for Medical Specialties and Specialists

Some common suffixes

- Suffixes for Adjectives, "pertaining to"

-ac	cardiac
-al	intestinal
-ar	muscular
-ary	urinary
-ic	pelvic
-ine	uterine
-ive	digestive
-ous	venous
-eal	pharyngeal

Some common suffixes

• Suffixes for Processes

-ation	urination
-ion	digestion
-genesis	organogenesis
-lysis	glycolysis
-stasis	hemostasis
-therapy	radiotherapy

Some common suffixes

• Suffixes for Diseases

-ia	pneumonia
-emia	hypoxemia
-ism	hyperthyroidism
-itis	pharyngitis
-megaly	hepatomegaly
-oma	lipoma
-osis	psychosis
-pathy	neuropathy
-algia	myalgia
-phobia	photophobia

Some common suffixes

• Suffixes for Diagnostic, Medical, and Surgical Procedures

-tomy, -ectomy,	phlebotomy, appendectomy
-graph, -graphy, -gram,	EKG
-meter, -metry,	thermometer, spirometry
-scope, -scopy,	microscope, sigmoidoscopy
-stomy	colostomy
-plasty	rhinoplasty
-centesis	pericardiocentesis

Some common suffixes

• Suffixes for Medical Specialties and Specialists

-iatry	psychiatry
-ics	pediatrics
-ist	pediatrist
-logy	pathology
-ian	pediatrician

Plural Endings

- Some plural endings:

carcinoma – carcinomata	ganglion – ganglia
larynx – larynges	biopsy – biopsies
vertebra – vertebrae	thorax – thoraces
testis – testes	appendix – appendices
ovum – Ova	fungus – fungi

Characteristics of a Combining Form

- A word root and a combining vowel separated by a forward slash
- Foundation of a word
- Contain the principal meaning of a word
- Most medical words contain a combining form
- More than one combining form can be placed one right after the other

Some Combining Forms

- Color

chlor/o, chrom/o, cyan/o, erythr/o, leuk/o, melan/o, xanth/o

- Body as a whole

cephal/o, crani/o, cervic/o, thorac/o, abdomin/o, lumb/o, pelv/i, viscer/o, dors/o, ventr/o, anter/o, poster/o, medi/o, later/o, proxim/o, dist/o, hist/o, cyt/o, kary/o, nucle/o

Some Combining Forms

- Skin:** derm/o, dermat/o, cutane/o, melan/o, onych/o
- Lung:** pulmon/o, pneum/o, pneumon/o, pneumat/o
- KUB:** nephro/o, ren/o, ureter/o, cyst/o, urethr/o
- GI:** gastr/o, duoden/o, col/o, colon/o, proct/o, an/o
- CVS:** cardi/o, vas/o, arteri/o, phleb/o, ven/o
- EENT:** ophthalm/o, ot/o, nas/o, rhin/o, pharyng/o
- Bone:** oste/o, chrondr/o, arthr/o, my/o, ten/o, tendin/o
- CNS:** encephal/o, mening/o, neur/o, myel/o, psych/o
- Repro:** oophor/o, salping/o, hyster/o, orchi/o, prostat/o

Analyzing Terms

- adenocarcinoma = aden/o + carcin/o + -oma
- choledocholithiasis = choledoch/o + lith/o + -iasis
- erythrocyte = erythr/o + -cyte
- pathology = path/o + -logy
- pediatrics, pediatrician = ped/o + -iatrics
= ped/o + -ian
- podiatry, podiatric medicine, podiatrist
= pod/o + -iatry ; -ic ; -ist

Terms **NOT** built from Greek or Latin word parts

- Eponyms
- Acronyms
- English modern language
- Derived from ancient languages or other languages

Eponyms

- Down syndrome
— John Langdon Down, English physician
- Parkinson syndrome
— James Parkinson, English physician
- Alzheimer's disease
— Alois Alzheimer, German psychiatrist & neuropathologist
- Babinski sign
— Joseph Babinski, French neurologist of Polish origin
- Possessive form ending with 's is becoming less common

Acronyms, Abbreviations

- Appear both with and without periods
- AIDS = acquired immunodeficiency syndrome
- AML = acute myelogenous leukemia
- CT = computed tomography
- ERCP = endoscopic retrograde cholangiopancreatography
- PTCA = percutaneous transluminal coronary angioplasty
- In prescription: Rx
- Vitamin B 1 tab. p.o. t.i.d p.c. & h.s.
=Recipe 1 tabella per os, ter in die, post cibos et hora somni
=Take 1 tablet of Vitamin B by mouth three times per day after meals and at bedtime.

English modern Language

- Complete blood count (CBC)
- Posttraumatic stress disorder (PTSD)
- nuclear scanner
- pregnancy test
- Terms generated from the advancement of technologies and innovations

Ancient languages

• thorax	Greek	θώραξ (<i>thorax</i>)
• nucleus	Latin	<i>nucleus</i>
• pelvis	Latin	<i>pelvis</i>
• phobia	Greek	φόβος (<i>phobos</i>)
• artery	Latin	<i>arteria</i>
• muscle	Latin	<i>musculus</i>
• bladder	English	<i>blaedre</i>
• heart	English	<i>heorte</i>
• drug	Dutch	<i>droog</i>
• physician	French	<i>physicien</i>

Greek and Roman Mythology

- hermaphrodite, hermaphroditism
- echo, echocardiography
- narcissism
- Achilles tendon
- caput medusae
- cyclopia
- Adam's apple
- hygiene

Other Languages

- petit mal, grand mal, curette, migraine, bruit, cul de sac, milieu
- Antikörper = antibody
- Minamata, Itai-itai, *Orientia tsutsugamushi*
- pellagra, influenza, petechia, malaria
etc.