

Chapter 14: Muscular System

Building a Medical Terminology Foundation 2e – Student Companion by Kimberlee Carter; Marie Rutherford; and Connie Stevens

This book is intended as a companion to *Building a Medical Terminology Foundation 2e* (<https://ecampusontario.pressbooks.pub/medicalterminology2/>).

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Muscular System

If you would like to review the textbook chapter content, please visit [Chapter 14: Muscular System \[New Tab\]](#).

Learning Objectives

- Identify the anatomy of the muscular system and describe the main functions of the muscular system
- Analyze, translate, and define medical terms and common abbreviations of the muscular system
- Practice the spelling and pronunciation of muscular system terminology
- Identify the medical specialties associated with the muscular system and explore common diseases, disorders, diagnostic tests and procedures

Key Word Components

Identify meanings of key word components of the muscular system:

Prefixes

- a- (absence of, without)
- ab- (away from)
- ad- (towards)
- dys- (painful, difficult, abnormal, labored)
- hyper- (above, excessive)
- inter- (between)
- intra- (within, in)
- poly- (many, much)
- sub- (below, under)

- supra- (above)
- sym- (together, joined)
- syn- (together, joined)

Combining Forms

- anky/o (stiff or bent)
- fasci/o fascia (forms sheaths enveloping muscles)
- fibr/o (fibrous connective tissue)
- kinesi/o (movement, motion)
- kyph/o (hump)
- lamin/o lamina (thin, flat plate or layer)
- leiomy/o (smooth [viseral] muscle that lines the walls of internal organs)
- my/o (muscle)
- myocardi/o (heart muscle)
- myos/o (muscle)
- plant/o (sole of the foot)
- rhabdomy/o (skeletal [striated] muscle connected to bones)
- sarc/o (flesh, connective tissue)
- ten/o (tendon)
- tendin/o (tendon)
- tend/o (tendon)

Suffixes

- -al (pertaining to)
- -algia (pain)
- -ar (pertaining to)
- -asthenia (weakness)
- -centesis (surgical puncture to aspirate fluid)
- -desis (surgical fixation, fusion)
- -ectomy (excision, surgical removal, cutting out)
- -gram (the record, radiographic image)
- -graphy (process of recording, radiographic imaging)
- -ic (pertaining to)
- -itis (inflammation)
- -lysis (loosening, separating, dissolution)
- -oid (resembling)
- -oma (tumor)
- -osis (abnormal condition)
- -penia (abnormal reduction)

- -physis (growth)
- -plasty (surgical repair)
- -rrhaphy (suturing, repairing)
- -sarcoma (malignant tumor)
- -schisis (split, fissure)
- -scopy (process of viewing, visual examination)
- -tome (instrument used to cut)
- -tomy (incision, cut into)
- -trophy (nourishment, development)

Muscular System Words

Muscular System Medical Terms (Text Version)

Practice the following muscular system words by breaking into word parts and pronouncing.

1. **rhabdomyolysis (rhabd/o/my/o/lysis)**
 - dissolution of a striated muscle
2. **bradykinesia (brady/kines/ia)**
 - condition of slow movement
3. **myorrhaphy (my/o/rrhaphy)**
 - suturing of a muscle
4. **dystrophy (dys/trophy)**
 - abnormal development
5. **tendinitis (tendin/itis)**
 - inflammation of the tendon
6. **electromyogram (electr/o/my/o/gram)**
 - record of the electricity of the muscle
7. **hyperkinesia (hyper/kines/ia)**
 - condition of excessive movement
8. **myasthenia (my/asthenia)**

- weakness of muscles, muscle weakness
- 9. **hypertrophy (hyper/trophy)**
 - excessive development
- 10. **dyskinesia (dys/kines/ia)**
 - condition of difficult movement
- 11. **tenomyoplasty (ten/o/my/o/plasty)**
 - surgical repair of tendon and muscle
- 12. **myeloma (myel/oma)**
 - tumour in the spinal cord
- 13. **myalgia (my/algia)**
 - painful muscles
- 14. **polymyositis (poly/myos/itis)**
 - inflammation of many muscles
- 15. **tenorrhaphy (ten/o/rrhaphy)**
 - suturing of a tendon
- 16. **fibromyalgia (fibr/o/my/algia)**
 - pain in the fibers of muscles

Activity source: Muscular System Medical Terms by Kimberlee Carter, from *Building a Medical Terminology Foundation* by Kimberlee Carter and Marie Rutherford, licensed under CC BY- 4.0. /Text version added.

Pronouncing and Defining Commonly Abbreviated Muscular System Terms

Practice pronouncing and defining these commonly abbreviated muscular system terms:

- ACL (anterior cruciate ligament)
- AROM (active range of motion)
- BKA (below knee amputation)
- BMD (bone mineral density)

- Ca (Calcium)
- CK (creatine kinase)
- CTS (carpal tunnel syndrome)
- DC (Doctor of Chiropractic)
- DEXA or DXA (dual-energy x-ray absorptiometry)
- DO (Doctor of Osteopathy)
- EMG (Electromyogram)
- ESR (erythrocyte sedimentation rate)
- IM (intramuscular)
- MD (Muscular Dystrophy)
- MG (myasthenia gravis)
- NSAID (Nonsteroidal anti-inflammatory drugs, pronounced en-said)
- OA (osteoarthritis)
- Ortho (orthopedics)
- OT (occupational therapist)
- P (pulse)
- PT (physical therapist)
- RA (rheumatoid arthritis)
- ROM (range of motion)
- THR (total hip replacement)
- TKR (total knee replacement)
- TMJ (temporomandibular joint)

Sorting Terms

Sort the terms from the word lists above into the following categories:

- **Disease and Disorder** (terms describing any deviation from normal structure and function)
- **Diagnostic** (terms related to process of identifying a disease, condition, or injury from its signs and symptoms)
- **Therapeutic** (terms related to treatment or curing of diseases)
- **Anatomic** (terms related to body structure)

Medical Terms in Context

Place the following medical terms in context to complete the scenario below:

Musculoskeletal System – Referral Letter (Text version)

Use the words below to fill in the referral letter:

- CTS
- tingling
- numbness
- osteoarthritis
- clumsiness
- metacarpal
- atrophy
- arthrodesis
- flexion
- tenorrhaphy
- median
- ligament

PATIENT NAME: Mrs. Anna JONES

AGE: 65

SEX: Female

DOB: June 29

REASON FOR REFERRAL: Evaluation and consideration for surgery for treating carpal tunnel syndrome.

Dear Dr. Porter

I am referring Mrs. Jones for evaluation and consideration for surgery for treating _____[Blank 1]. Mrs. Jones is 65 years old. She has moved to this area 2 years ago and I have been her primary care physician since then. Recently she has been complaining of _____[Blank 2], tingling, burning, and pain in her right hand, primarily in the thumb, index, and middle fingers. Occasionally the pain and _____[Blank 3] travel up the forearm toward her shoulder. The patient reports that the pain and unusual sensations have started gradually and worsened over the past couple of years.

The patient has worked as a data entry clerk at a pharmaceutical company for 35 years. Her work involved sitting at her desk and typing on a computer for an average of 7 hours on each workday. She is retired now. The patient reports that during the past few months she has also felt weakness and _____[Blank 4] in her hand, and this has made her everyday life difficult. She can tell that her grip is not as strong as before since she frequently drops things. Now she is finding the simple tasks such as buttoning her clothes, cutting vegetables, and brushing her teeth challenging. The x-ray of the right hand and wrist shows clear signs of _____[Blank 5] and osteoporosis of carpal and _____[Blank 6] bones. On visual examination there is no muscle . The wrist has limited _____[Blank 7] and extension range of motion.

It is important to note that the patient had been in a car accident in her teenage years and had suffered from a compact fracture of her left wrist bones. Multiple surgeries, including arthroplasty and _____[Blank 8], were done to restore the functionality of the left wrist and hand. Eventually, her orthopedic surgeon performed a subtotal _____[Blank 9] of the wrist to provide a stable and pain-free joint with a limited useful range of motion.

Based on the aforementioned observations and findings I have determined that Mrs. Jones is a fit candidate for CTS surgery. A proper cut in the transverse carpal _____[Blank 10] would release the pressure off the _____[Blank 11] nerve and relieve the symptoms.

Thank you for seeing Mrs. Jones. Please do not hesitate to contact me directly with any questions or comments

you may have concerning her care. Also, please keep me updated on her progress and kindly refer her back to my care once her condition resolves.

Trevor Sharpe, MD, Family Medicine

Note: Report samples (H5P and Pressbooks) are to encourage learners to identify correct medical terminology and do not represent the Association for Health Documentation Integrity (AHDI) formatting standards.

Check your answers: ¹

Activity source: Musculoskeletal System – Referral Letter by Saeedeh Akram and Heather Scudder, from *Building a Medical Terminology Foundation* by Kimberlee Carter and Marie Rutherford, licensed under CC BY-4.0. /Text version added.

Test Your Knowledge

Test your knowledge by answering the questions below:

Muscular System Glossary Reinforcement Activity (Text version)

1. Muscle that is associated with the walls of internal organs and is responsible for involuntary muscle movement is called _____[Blank 1].
 - a. Skeletal muscle
 - b. Smooth muscle
 - c. Cardiac muscle
2. Paralysis that effects one side of the body is called_____ [Blank 2].
 - a. paraplegia
 - b. paresis
 - c. hemiplegia
3. An injury to a joint whereby a ligament is stretched or torn is called _____[Blank 3].
 - a. a sprain
 - b. a strain
 - c. fibromyalgia

4. Myasthenia Gravis is _____[Blank 4].
- pain in the fibrous tissues of muscles.
 - grave or serious muscle weakness.
 - partial paralysis wherein there is still some control of the muscles.
5. Skeletal muscle is responsible for _____[Blank 5].
- voluntary muscle movement.
 - pumping blood.
 - involuntary muscle movement.

Check your answers:²

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Notes

1. CTS, 2.numbness, 3.tingling, 4.clumsiness, 5.osteoarthritis, 6.metacarpal, 7.atrophy, 8. tenorrhaphy, 9.arthrodesis, 10. ligament, 11.median
1. Smooth muscle, 2. hemiplegia, 3. a sprain, 4. grave or serious muscle weakness, 5.voluntary muscle movement



Skeletal and Muscle Systems Chapter 13 and 14 Worksheet

Instructions

Work through the chapter and find the meaning for the following prefixes, suffixes, and abbreviations. Add in any that are missing on the worksheet.

Prefixes and Suffixes

Prefix	Meaning	Suffix	Meaning
a-		-al	
brady-		-algia	
dys-		-ar	
hyper-		-asthenia	
inter-		-centesis	
intra-		-clasia	
poly-		-clasis	
sub-		-clast	
supra-		-desis	
sym-		-ectomy	
syn-		-gram	
		-graphy	
		-ic	
		-itis	
		-lysis	
		-malacia	
		-oid	
		-oma	
		-osis	
		-penia	
		-physis	
		-plasty	
		-rrhaphy	
		-sarcoma	
		-schisis	
		-scopy	
		-tomy	
		-trophy	

Abbreviations

Abbreviation	Meaning
C1-C7	
CTS	
DC	
DO	
EMG	
fx	
HNP	
L1-L5	
MD	
MG	
OA	
Ortho	
RA	
T1-T12	
THA	
TKA	

Words easily broken into word parts listed by combining form (root)

Review of Word Parts

Please note that sometimes words are made up of word parts but are not translated literally. Several combining forms are shown in bold below. List their meaning from chapter 13 and 14.

ankyl/o

1. ankylosis

aponeur/o

2. aponeurorrhaphy

arthr/o

3. arthritis
4. arthrocentesis
5. arthroclasia
6. arthrodesis
7. arthroplasty

8. arthrography
9. arthroscopy
10. arthralgia
11. osteoarthritis
12. spondylarthritis

burs/o

13. bursitis
14. bursectomy

carp/o

15. carpal
16. carpectomy

chondr/o

17. chondromalacia
18. chondrectomy
19. chondroplasty
20. costochondral

clavic/o

21. sternoclavicular

clavicul/o

22. clavicular

cost/o

23. costectomy
24. intercostal
25. subcostal
26. vertebrocostal

crani/o

27. cranioschisis
28. cranioplasty
29. craniotomy
30. cranial

31. intracranial

disk/o

32. diskitis

33. diskectomy

femor/o

34. femoral

35. Iliofemoral

36. pubofemoral

fibul/o

37. ischiofibular

humer/o

38. humeral

ili/o

39. iliofemoral

ischi/o

40. ischiopubic

kinesi/o

41. bradykinesia

42. dyskinesia

43. hyperkinesia

kyph/o

44. kyphosis

lamin/o

45. laminectomy

lord/o

46. lordosis

lumb/o

- 47. lumbar
- 48. Lumbocostal
- 49. lumbosacral

mandibul/o

- 50. submandibular

maxill/o

- 51. maxillitis
- 52. maxillectomy
- 53. submaxillary

menisc/o

- 54. meniscitis
- 55. meniscectomy

my/o

- 56. electromyogram
- 57. fibromyalgia
- 58. myasthenia
- 59. rhabdomyolysis
- 60. myorrhaphy
- 61. tenomyoplasty
- 62. myalgia

myos/o

- 63. polymyositis

myel/o

- 64. myeloma

oste/o

- 65. osteitis
- 66. osteochondritis
- 67. osteoclasia
- 68. ostectomy

- 69. osteofibroma
- 70. osteomalacia
- 71. osteomyelitis
- 72. osteopenia
- 73. osteosarcoma
- 74. osteoblast
- 75. osteoclast
- 76. osteocyte
- 77. osteonecrosis

patell/o

- 78. patellectomy
- 79. suprapatellar

pelv/l, pelv/o

- 80. pelvic
- 81. pelvisacral

petr/o

- 82. osteopetrosis

phalang/o

- 83. phalangectomy

pub/o

- 84. pubic

rachi/o

- 85. rachischisis
- 86. rachiotomy

radi/o

- 87. radial
- 88. ulnoradial

sacr/o

- 89. sacral

- 90. sacropenia
- 91. lumbosacral
- 92. pelvisacral

stern/o

- 93. sternoclavicular
- 94. sternoid
- 95. substernal

synovi/o

- 96. synoviosarcoma
- 97. tenosynovitis
- 98. synovectomy

tars/o

- 99. tarsectomy

ten/o

- 100. tenosynovitis
- 101. tenomyoplasty
- 102. tenorrhaphy



(Muscular)

Definitions Using Word Parts – Muscular

Instructions

Type the terms from the numbered list found below. For each term keyed, divide the combining form, suffix, and prefix with a slash to show the individual word parts. Then define the term in your own words according to the rules provided in the resource (reading from the suffix, then back to the beginning of the word, then across). Be sure to number each term in your document.

Example

hepat/itis - inflammation of the liver

Define the following terms by breaking into word parts:

1. Abduction
2. Atrophy
3. Dorsiflexion
4. Dystrophy
5. Electromyogram (EMG)
6. Electromyography
7. Fasciotomy
8. Fibromyalgia
9. Hypertrophy
10. Myalgia
11. Myasthenia
12. Myelogram
13. Myeloma

14. **Myocardial**
15. **Myorrhaphy**
16. **Myositis**
17. **Polymyalgia**
18. **Tenomyoplasty**
19. **Tenoplasty**
20. **Kyphosis**
21. **Laminectomy**
22. **Lordosis**
23. **Lumbosacral**
24. **Meniscectomy**
25. **Osteoarthritis**
26. **Osteomalacia**
27. **Osteomyelitis**
28. **Osteopenia**
29. **Osteosarcoma**
30. **Pelvic**
31. **Phalangeal**
32. **Polyarthritis**
33. **Pubic symphysis**
34. **Radiculopathy**
35. **Sacroiliac**

36. **Scoliosis**
37. **Spondylitis**
38. **Supraclavicular**
39. **Synarthrosis**
40. **Tarsectomy**
41. **Temporomandibular**
42. **Tendinitis**
43. **Vertebroplasty**



Scenario - Skeletal

Instructions

Read aloud the following paragraph, paying close attention to the correct pronunciation of each medical term. Use the phonetic spelling provided with the term to guide you. At the conclusion of reading the paragraph and using this document, compose a list of the bolded medical terms and translate their correct meaning. Be sure to number each term in your list.

Scenario:

Janice, a young 75-year-old mother of four, has persistent midback pain. Her chest x-ray shows **compression fractures (kōm-PRESH-ōn FRAK-chūr)** of her **vertebrae (VĚRT-ě-bră)** and thinning of her bones. A bone density scan confirms the diagnosis of **osteoporosis (os-tē-ō-pō-RŌ-sīs)**. Not long ago, Dr. Phillips, a **rheumatologist (roo-mă-TOL-ō-jist)**, recommended Janice take calcium, vitamin D and Fosamax along with daily estrogen. He encouraged her to start to exercise regularly as her bone mineral density test indicated **osteopenia (os-tē-ō-PĚ-nē-ă)**. Well, she hates taking pills, but she loves to exercise. In addition to the pain, Janice told the doctor she had been noticing her shirts are not fitting correctly, and her grandson had joked about Janice becoming shorter. It appeared to the doctor a little **kyphosis (kī-FŌ-sīs)** was developing. Dr. Phillips noted **scapular (SKĀP-ū-lăr)**, **sternoclavicular (stěr-nō-klă-VĪK-ū-lăr)** and **pelvis sacral asymmetry (PEL-vīs SĀ-krăl ā-SIM-ě-trē)**, all indications of **scoliosis (skō-lē-Ō-sīs)**. He ordered a **spinal radiograph (SPĪ-năl RĀD-ē-ō-graf)** and an MRI for further assessment. The doctor also wanted to rule out the possibility of the autoimmune disorder **Ankylosis Spondylitis (ang-kī-LŌ-sīs spon-dī-LĪT-īs)** with a simple blood test.

Dr. Phillips encouraged Janice to continue with her weight-bearing and resistance type exercises. He suggested low impact aerobics, which consists of simple **flexion (FLEK-shŏn)** and **extension (ek-STEN-shŏn)** movements of the upper and lower extremities with free weights, for muscle strengthening. She does morning yoga faithfully to help with her balance and takes daily walks on her treadmill. These types of exercises work directly on the bones in her legs, hips and lower spine to slow mineral loss.