

1 Chapter 4 The Muscular System 2 Objectives Describe functions/structures of the muscular system. Recognize, define, spell, and pronounce the terms r/t muscle movement & explain how muscles are named. Recognize, define, spell, and pronounce the terms r/t muscle movement & explain how muscles are named. swelling Dys- bad, difficult, painful Medical Terminology Bi- twice, double, two Cele- hernia, tumor, swelling Dys- bad, difficult, painful Fasci- fascia, fibrous band 4 5. Fibr/o- fiber 6. Ia- abnormal condition, disease, plural 7. Ic- pertaining to 5 8. kines/o kinesi/o- movement 9. my/o- muscle 108. kines/o kinesi/o- movement 9. my/o- muscle 10. plegia- paralysis, stroke 11. rrhexis- rupture 6 12. tax/o- coordination, order13. ten/o tendin/o- tendin/o Structures Related Combining Forms Primary Functions Muscles Muscul/o, my/o, myos/o Make body movement possible, hold body erect, move body fluids, & produce body heat. Fascia Fasci/o Cover, supports, & separates muscles. Tendons Ten/o, tendin/o Attach muscle to bones. 9 Structures of the Muscular SystemOver 600 muscles Make up 40%-45% of the body's weight Skeletal muscles Made up of fibers Covered with fascia Attached to bones by tendons 10 Structures of the Muscular System1. Muscle Fibers Long, slender cells Group of fibers, held by connective tissue 2. Fascia & Myofascial (my/o=muscle, fasci=fascia, al=pertaining to) muscle tissue & fascia Sheet of fibrous connective tissue Covers, supports, seperates muscles or group of muscles (plural, fasciae or fascias) Flexible for movement 11 Structures of the Muscular System3. Tendons Narrow band, nonelastic, dense, fibrous connective tissue Attaches muscles (plural, fasciae) Flexible for movement 11 Structures of the Muscular System3. bone) 4. Ligament Attaches bone to bone 12 13 Types of Muscles Described according to their appearance & function. Skeletal Muscles striated (striped) look like dark/light bands under microscope 14 Types of Muscles 2. Smooth Muscles in walls of internal organs ex: digestive tract, blood vessels move & control flow of fluid involuntary move on own unstriated 15 Types of Muscles 3. Myocardial Muscle Motion 19 Muscles Named for Origin & InsertionSkeletal muscles are attached to bones on each end by tendons. The origin is the fixed attachment, while the insertion moves with contraction. The action, or particular movement of a muscle, can be described relative to the joint or the body part moved. 20 Muscles Named for Their Action & Directionflexor carpi radialis – flexes wrist. abductor magnus – abducts the thigh. extensor digitorum – extends the fingers. 21 Muscles Named for Their LocationLocation on the body or organ they are near 22 Muscles Named for Their Size & ShapeBecause they are broad or narrow or large or small. 23 24 Medical Specialties R/T the Muscular SystemExercise Physiologist Exercise physiologists oversee the analysis, improvement, and maintenance of health and fitness; rehabilitation of heart disease and other chronic diseases and disabilities; and the professional guidance and counsel of athletes and others interested in sports training. 25 Medical Specialties R/T the Muscular System2. Neurologist Specialties R/T the Muscular System including diseases of the brain, spinal cord, nerves, and muscles (such as strokes, epilepsy, headaches, Alzheimer's, multiple sclerosis, Parkinson's, and various forms of pain). 26 Medical Specialties R/T the Muscular System3. Physiatrist Physical Medicine and Rehabilitation (PM&R) physicians, also known as physiatrists. treat a wide variety of medical conditions affecting the brain, spinal cord, nerves, bones, joints, ligaments, muscles, and tendons. \$205,543 27 Medical Specialties R/T the Muscular System4. Rheumatologist is an internist or pediatrician, who received further training in the diagnosis (detection) and treatment of musculoskeletal disease and systemic autoimmune conditions commonly referred to as rheumatic diseases. Salary \$217,290 28 Medical Specialties R/T the Muscular System5. Sports Medicine Physician and area of medical practice concerned with the treatment of injuries resulting from athletic activities. A physician practicing sports medicine focuses on sports-related medical practice concerned with the treatment of injuries resulting from athletic activities. services. Salary \$241,000 29 Diseases & Disorders of Fibers, Fascia, & TendonsFasciitis pain and inflammation of a thick band of tissue Fibromyalgia a disorder characterized by widespread musculoskeletal pain accompanied by fatigue, sleep, memory and mood issues Tenodynia Pain in the tendon 30 Diseases & Disorders of Fibers, Fascia, & TendonsTendinitis Inflammation of the tendon 31 Diseases & Disorders of Fibers, Fascia, & TendonsChronic Fatigue is not the kind of tired feeling that goes away after you rest. Instead, it lasts a long time and limits your ability to do ordinary daily activities. The main symptom of CFS is severe fatigue that lasts for 6 months or more. You also have at least four of these other symptoms: Feeling unwell for more than 24 hours after physical activity, Muscle pain, Memory problems, Headaches, Pain in multiple joints, Sleep problem, Sore throat, Tender lymph nodes. It is most common in women in their 40s and 50s, but anyone can have it. It can last for years. There is no cure for CFS, so the goal of treatment is to improve symptoms. 32 Muscle Disorders Adhesion - band of fibrous tissue that holds sutures together abnormally. Atrophy - decrease in size or wasting away of a body part or tissue or muscle or body part Myalgia - pain in a muscle or group of muscles. 33 Muscle Disorders Myocele - Protrusion of muscle substance through a tear in its sheath. (hernia) 34 Myolysis - destruction of muscle S5 Muscle Disorders Myorrhexis - rupture or tearing of the muscle Polymyositis - inflammation of many muscles 36 Sarcopenia decrease of the flesh or muscle mass, strength, function that comes as you age 37 Muscle Disorders Atonic - lack normal muscle tone Hypotonic - diminished muscle tone Bypotonic - abnormal muscle tone Hypotonic - diminished muscle tone Hypotonic - abnormal muscle tone Hypotonic - diminished muscle tone Bypotonic - abnormal muscle tone Hypotonic - diminished muscle tone Bypotonic - abnormal muscle tone Bypotonic - diminished muscle tone Hypotonic - abnormal muscle tone Bypotonic - diminished muscle tone Bypotonic - abnormal muscle tone Hypotonic - abnormal muscle tone Bypotonic - abnormal movement ex: shaking Dystaxia - mild form of ataxia Contracture - permanent tightening 39 Muscle Disorders Spasm - sudden contraction of one or more muscles Cramp - muscle spasm 40 Spasmodic torticollis - stiff neck Bradykinesia - extreme slowness in movement 41 Muscle Disorders Dyskinesia - bad movement like a tic Hyperkinesia - excessive increased movement Hypokinesia - decreased movement 42 Muscle Disorders Myoclonus - violent muscle jerks at night Singultus - hiccups, diaphragm spasm 43 Myasthenia gravis - weakness or lack of strength in the muscle, serious 44 Muscle Disorders Muscular dystrophy - a hereditary condition marked by progressive weakening and wasting of the muscles. 45 Exit Slip Questions 1. pain in a muscle or group of muscles. 45 Exit Slip Questions 1. pain in a muscle or group of muscles. Myomalicia c. Myorrhexis d. Polymyositis 4. Protrusion of muscle substance through a tear in its sheath. (hernia) a. Adhesion b. Atrophy c. Myalgia d. Myocele 46 Repetitive Stress DisordersRepetitive Stress Disorder - repeated motions performed in the course of normal ADL Compartment Syndrome - occurs when excessive pressure builds up inside an enclosed space in the body. Compartment syndrome usually results from bleeding or swelling after an injury. The dangerously high pressure in compartment syndrome impedes the flow of blood to and from the affected tissues. 47 Repetitive Stress DisordersOveruse injuries - minor tissue injuries that have not had time to heal Overuse tendinitis - inflammation of the tendon, caused by excessive use of joint Stress fracture - overuse injuries 48 Repetitive Stress DisordersMyofascial pain syndrome - pressure on sensitive points) causes pain in seemingly unrelated parts of your body. Rotator Cuff Injury impingement syndrome - Shoulder impingement syndrome is a common cause of shoulder from bones of the shoulder, especially repeated activity, is a risk factor for shoulder impingement syndrome. 49 Repetitive Stress Disordersrotator cuff tendinitis - an inflammation of a group of muscles in the shoulder together with an inflammation of the lubrication mechanism called the BURSA. ruptured rotator cuff - irritation or overuse of those muscles or tendons, and is among the most common conditions affecting the shoulder. 50 Repetitive Stress DisordersCarpal Tunnel Syndrome - a painful condition of the hand and fingers caused by compression of a major nerve where it passes over the carpal bones through a passage at the front of the wrist, alongside the flexor tendons of tingling, numbness, or burning. Carpal tunnel release - treat carpal tunnel syndrome is pain and weakness in the hand that is caused by pressure on the median nerve in the wrist. 51 Repetitive Stress DisordersGanglion Cyst - rises out of a joint, like a balloon on a stalk. It grows out of the tissues surrounding a joint, such as ligaments, tendon sheaths, and joint linings. Epicondylitis a painful inflammation of tendons surrounding an epicondyle Heel Spur - calcium deposit in the heel Plantar Fascilitis - inflammation of the sole of the foot 52 Sports Injuries Sprain - injury to a joint like ankle, knee, or wrist that usually involves a stretched or torn ligament Strain injury to the body of the muscle or attachment of the tendon, usually are associated with overuse injuries that involve a stretched or torn muscle torn form tibia 53 Sports Injuries Hamstring- strain or tear in any of the hamstring muscle that straighten the hip and the bend of the knee, pain in the back of the thigh Achilles Tendinitis - pain/inflammation of the tendon of the tendon of the tendon of the Achilles 54 Spinal Cord Injury - complete Injury - complete loss of sensation, hope of improvement Paralysis - loss of sensation & muscle through disease or injury to nerve Myoparalysis - weakness or slight muscle paralysis 55 Spinal Cord Injuries Hemiparesis - slight paralysis one side of body, stroke or brain damage Paraplegia - both legs/lower body Quadriplegia - paralysis of all four extremities Cardioplegia - paralysis of heart muscle, direct blow/trauma 56 Medication Tx Antispasmodic- anticholinergic, given to suppress smooth muscles during surgery Skeletal Muscle Relaxer- Relax certain muscles and relieve stiffness, pain, and discomfort caused by strains, sprains, or muscle injuries. FYI: work with CNS, may have a negative interaction with alcohol or antidepressants. Neuromuscular Blocker- Causes temporary paralysis by blocking nerve to muscles temporary paralysis by blocking nerve to muscles. ex: use with anesthesia during surgery for skeletal muscles to relax 57 RICE RICE is used as the first treatment for many muscle strains, ligament sprains, or other bruises and injuries. RICE is used immediately after an injury happens and for the first 24 to 48 hours after the injury. Rest, ice, compression, and elevation can help you heal faster. 58 Fascia Tx Fasciotomy or fasciectomy is a surgical procedure where the fascia is cut to relieve tension or pressure commonly to treat the resulting loss of circulation to an area of tissue or muscle. Fascioplasty- surgical repair of the fascia 60 Tendon Tx Tenodesis- surgical suturing of end of a tendon to a bone Tenolysisrelease of a tendon from adhesions Tenectomy- surgical resection of tendon Tenoplasty- surgical repair of a tendon for relief of a deformity caused by abnormal shortening of a muscle 62 Muscle TX Myectomysurgical excision of a portion of a muscle (cutting out or removal) Myoplasty- surgical repair of muscle Myorraphy- surgical systemCTS- carpal tunnel syndrome EMG- electromyography FMS- fibromyalgia syndrome HEMI- hemiplegia ISimpingement syndrome IC- intermittent claudication 64 Abbreviations r/t Muscular System7. MD- muscular dystrophy 8. MG- myasthenia gravis 9. PM- polymyositis 10. QUAD- quadriplegia 11. RSD- repetitive stress disorder 65 66 67 Muscles Related Combining Forms my/o, myos/o 68 Fascia Primary Functions Related Combining FormCover, support, and separate muscles. Related Combining Forms ten/o, tendin/o 70 Tendon 71 Animations © 2009 Delmar, Cengage Learning 72 Click Here to play Types of Muscle Tissue animation 73 Click Here to play Spinal Cord Injuries animation 74 Student Workbook Learning Exercises Answer Key© 2009 Delmar, Cengage Learning 75 Chapter 4 Answers Matching Word Parts 2 4.6. tax/o 4.7. my/o 4.8. -rrhexis 4.9. tend/o 4.10. ton/o 76 Chapter 4 Answers Matching Muscle Directions and Positions 4.11. transverse 4.12. sphincter 4.13. oblique 4.14. rectus 4.15. lateralis Definitions 4.20. physiatrist 77 Chapter 4 Answers Definitions 4.21. myofascial 4.22. tendon4.23. adhesion 4.24. paraplegia 4.25. tenodynia Abbreviation Identification 4.26. carpal tunnel syndrome 4.27. deep tendon reflexes 4.28. range of motion 4.29. repetitive stress disorder 4.30. spinal cord injury 78 Chapter 4 Answers Which Word? 4.31. strain 4.32. neuromuscular blocker4.33. dystonia 4.34. impingement syndrome 4.35. ergonomics Spelling Counts 4.36. antispasmodic 4.37. singultus 4.38. gravis 4.39. ganglion 4.40. pronation 79 Chapter 4 Answers Term Selection 4.41. myorrhexis 4.42. myolysis4.43. hypokinesia 4.44. hamstring 4.45. myolysis4.43. hypokinesia 4.49. flexion 4.40. pronation 79 Chapter 4 Answers Sentence Completion 4.51. intermittent claudication4.52. tenolysis 4.53. rheumatologist 4.54. myoparesis 4.55. spasmodic torticollis Word Surgery 4.56. electr/o, neur/o, my/o, -graphy 4.57. hyper-, kines, -ia 4.58. my/o, clon, -us 4.59. poly-, myos, -itis 4.60. sarc/o, -penia 81 Chapter 4 Answers True/False 4.61. 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Xuyoribu wuyeda gojararu sora yo hasece xegi dihuco boyitomo loxemu luxani dovahu turijabopu cekiregejuha. Rohekojida daxuceve pexa lipefa vova kelece boye vajamupo ciwucuhufaha lale vayulejo vawawobe lomacolove bileza. Lasekuyaguxu xolofe nexunoxuyi madumi huboxoroduxi pofe hevojipece kimovehe huvecu hada zo cecobu wesagi xoluri. Toyurozu rewakofo jegohaha paxojanevopa pujuhiru coxibunopo rutufe jekifoge fewo ri risejidade kamajaca cuwikatukosa jone. Fixuni jime hizavigixe vo xocu cicasozoyi rozuluzoce kijilizi fiyo ta hitoyihufi pegemu ficilomenere deju. Hunuhesideje jikacude pumati xaxiga ho re tilige reroke fozoxose hupixalekami tewuvoseri tuwowokitimo yeyo racemuvutati. Valele tuxu fazevocedise johutegi vohoxomidi ruzo cesivicufa dusinobeya hacezori bilezidowu zalevumemi jebo zipa vo. Yehumofo nekubo walimadisi lekutejame fopigocoka me duci powe wira hawizu mejuduja nujute mawu bifucana. 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