The Musculoskeletal System (Upper Body)

Trainee Handout

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Objectives

Demonstrate a general understanding of the basic principles for applying the Rating Schedule in evaluating musculoskeletal disabilities.

References

[**38 CFR 4.26 Bilateral factor**](http://vbaw.vba.va.gov/bl/21/publicat/Regs/Part4/4_26.htm)

[**38 CFR 4.40 Functional loss**](http://vbaw.vba.va.gov/bl/21/publicat/Regs/Part4/4_40.htm)

[**38 CFR 4.43 Osteomyelitis**](http://vbaw.vba.va.gov/bl/21/publicat/Regs/Part4/4_43.htm)

[**38 CFR 4.44 The Bones**](http://vbaw.vba.va.gov/bl/21/publicat/Regs/Part4/4_44.htm)

[**38 CFR 4.45 The joints**](http://vbaw.vba.va.gov/bl/21/publicat/Regs/Part4/4_45.htm)

[**38 CFR 4.55 Principles of combined ratings for muscle injuries**](http://vbaw.vba.va.gov/bl/21/publicat/Regs/Part4/4_55.htm)

[**38 CFR 4.56 Evaluation of muscle disabilities**](http://vbaw.vba.va.gov/bl/21/publicat/Regs/Part4/4_56.htm)

[**38 CFR 4.58 Arthritis due to strain**](http://vbaw.vba.va.gov/bl/21/publicat/Regs/Part4/4_58.htm)

[**38 CFR4.59 Painful motion**](http://vbaw.vba.va.gov/bl/21/publicat/Regs/Part4/4_59.htm)

[**38 CFR 4.61 Examination**](http://vbaw.vba.va.gov/bl/21/publicat/Regs/Part4/4_61.htm)

[**38 CFR 4.62 Circulatory disturbances**](http://vbaw.vba.va.gov/bl/21/publicat/Regs/Part4/4_62.htm)

[**38 CFR 4.63 Loss of use of hand or foot**](http://vbaw.vba.va.gov/bl/21/publicat/Regs/Part4/4_63.htm)

[**38 CFR 4.66 Sacroiliac joint**](http://vbaw.vba.va.gov/bl/21/publicat/Regs/Part4/4_66.htm)

[**38 CFR 4.68 Amputation rule**](http://vbaw.vba.va.gov/bl/21/publicat/Regs/Part4/4_68.htm)

[**38CFR 4.69 Dominant hand**](http://vbaw.vba.va.gov/bl/21/publicat/Regs/Part4/4_69.htm)

[**38 CFR 4.71 Measurement of ankylosis and joint motion**](http://vbaw.vba.va.gov/bl/21/publicat/Regs/Part4/4_71.htm)

[**38 CFR 4.71a Schedule of Ratings-Musculoskeletal System**](http://vbaw.vba.va.gov/bl/21/publicat/Regs/Part4/4_71a.htm)

[**38 CFR 4.73 Schedule of Ratings-Muscle Injuries**](http://vbaw.vba.va.gov/bl/21/publicat/Regs/Part4/4_73.htm)

[**M21-1, Part III, Subpart iv.3.D - Examination Reports**](https://vaww.compensation.pension.km.va.gov/system/templates/selfservice/va_ka/#!agent/portal/554400000001034/article/554400000015812/M21-1-Part-III-Subpart-iv-Chapter-3)

[**M21-1, Part III, Subpart iv, 4, A - Musculoskeletal Conditions**](https://vaww.compensation.pension.km.va.gov/system/templates/selfservice/va_ka/#!agent/portal/554400000001034/article/554400000014194/M21-1-Part-III-Subpart-iv-Chapter-4)

[**M21-1, Part III, Subpart iv, 6, D - Codesheet Section**](https://vaww.compensation.pension.km.va.gov/system/templates/selfservice/va_ka/#!agent/portal/554400000001034/article/554400000014207/M21-1-Part-III-Subpart-iv-Chapter-6)

[**Jones v. Principi - No. 01-291 August 26, 2004**](https://vaww.compensation.pension.km.va.gov/system/templates/selfservice/va_ka/portal.html?portalid=554400000001034)

Topic 1: Evaluation Considerations

**Functional Loss**

38 CFR 4.40 provides that disability of the musculoskeletal system is primarily the inability, due to damage or infection in parts of the system, to perform the normal working movements of the body with normal excursion, strength, speed, coordination and endurance. It is, therefore, essential that the examination adequately portray the anatomical damage as well as the functional loss with respect to all of these elements. The functional loss may be due to absence of or pathology affecting part or all of the necessary bones, joints and muscles, or it may be due to pain. We consider pain in evaluating disabilities when adequate pathology is present and evidenced by the visible behavior of the claimant undertaking the motion. We also consider weakness and limitation of motion in evaluating disabilities. Objective evidence of weakness is manifest by motor strength tests and clinical findings of atrophy (a diminution of tone and size of the muscle).

A precedential Court decision, *DeLuca v. Brown*, 1995, requires that we consider evidence showing not only limitation of motion, but also any evidence demonstrating weakened movement, excess fatiguability, incoordination and pain in evaluating disabilities. The Court held that the Rating Schedule does not prohibit consideration of a higher evaluation based on a greater limitation of motion due to pain on use including during flare-ups. The medical examiner is to give an opinion on whether pain could significantly limit functional ability during flare-ups or used repeatedly over time. The examiner is to express this additional limitation in degrees of additional range of motion lost due to pain on use or during flare-ups. If the examiner cannot provide this opinion without resorting to speculation, he/she is to express that, rather than guessing whether or not any additional limitation of motion occurs on repetitive movement.

The Rating Schedule provides that in evaluating the joints, a complete medical examination is required to understand the nature and extent of the claimant’s disabilities. Examiners should provide information not only on the history and objective findings on exam, but also furnish findings of any of the following: (38 CFR 4.45)

* less movement than normal (due to ankylosis, limitations, contracted scars, etc.)
* more movement than normal (from a flail joint, nonunion of fracture, relaxation of ligament, etc.)
* weakened movement (due to muscle or tendon injury, disease or injury to nerves)
* excess fatigability (Miriam-Webster’s Collegiate Dictionary, Tenth Edition)
* incoordination, impaired ability to execute skilled movements smoothly
* pain on movement, swelling, deformity, or atrophy of disuse

Ideally, in the examination report, each of these should be noted, whether by objective findings or by absence. The examiner should furnish the limitation of motion, in degrees, resulting from these factors. The examiner should ask the claimant for information on flare-ups and frequency of flare-ups of symptoms that are intermittent or experienced only after a period of use or time. For example, if the Veteran has normal range of motion of the left knee from 0 – 140 degrees, but the examiner states that in her opinion the Veteran’s additional loss of range of motion due to pain, weakness, fatigability, and weakness, and considering flare-ups and pain on repeated use, is 10 degrees (in extension), evaluate the motion based on this limitation. As mentioned, the examiner should state the limits of functional ability during flare-ups in terms of degree of motion loss or state that it is not possible to do so without resort to speculation.

Arthritis of joints is rated based on whether the joint is major or minor as follows:

**Major Joints**

* Shoulder
* Elbow
* Wrist
* Hip
* Knee
* Ankle

**Groups of Minor Joints**

Multiple Involvements of the Interphalangeal, Metacarpal and Carpal Joints of the Upper Extremities

Cervical Vertebrae

Dorsal Vertebrae

Lumbar Vertebrae

Lumbosacral articulation and both sacroiliac joints (are to be rated on disturbance of lumbar spine functions)

In considering the residuals of an injury, it is essential to understand the medical and industrial history of the claimant from the original injury, considering the condition’s nature and attendant circumstances, course of recovery, effect of treatment, and periods of incapacity. This consideration will aid in understanding the etiology (or origin) of the disability and whether findings show a chronic condition or permanent residual disability. (38 CFR 4.41)

**Painful Motion**

The Rating Schedule states that with any form of arthritis painful motion is an important factor of disability; and the facial expression, wincing, etc., on pressure or manipulation, should be carefully noted and definitely related to affected joints. The intent of the Rating Schedule is to recognize painful motion with joint or periarticular pathology as productive of disability. 38 CFR 4.59 provides that findings of painful, unstable, or malaligned joints due to healed injury should be entitled *at least the minimum compensable rating* (10 percent) for the joint.

**However, for a claimant with a shoulder disability resulting in painful motion of the shoulder joint, the appropriate DC for the joint involved would be** [**38 CFR 4.71a, DC 5201**](http://www.ecfr.gov/cgi-bin/text-idx?SID=fa97f8a169e2599f5b20e5743ae50517&mc=true&node=se38.1.4_171a&rgn=div8)**, and 20 percent would be the minimum compensable rating.**

Evidence of muscle spasm may be characteristic of painful motion. Crepitation, an audible clicking or popping sound, may also serve to identify points of contact that are diseased. Flexion would elicit such manifestations. The examiner should test the joints for pain on both active and passive motion, weight bearing and non-weight bearing; and if possible, provide the range of motion of the opposite undamaged joint for comparison purposes.

**Dominant Hand**

In evaluating disabilities of the upper extremities it is important to discern, if possible, whether the claimant is left handed or right handed (that is, whether the Veteran is left hand dominant or right hand dominant). Examiners may also describe these as the major or minor hand or extremity. The reason for needing this information is that evaluation percentages involving the upper extremities will allow for a greater evaluation when the condition affects the major, or dominant, hand. The major or minor hand or extremity is not to be confused with the major or minor joints, which are described in 38 CFR 4.45. The major or minor hand or extremity refers to which is the dominant hand or extremity, the left or right hand, whereas the major or minor joints are the classification of the joints of the body used in evaluating disability from arthritis.

38 CFR 4.69 provides that only one upper extremity will be considered dominant as determined by the evidence of record (Service Medical Records will usually contain this information on entrance and discharge Reports of Medical History), or by testing on VA examination. In the case of an ambidextrous claimant where neither hand is clearly dominant, consider the injured hand to be the dominant, or major, hand for rating purposes.

Once the major extremity has been established, it will continue to be accepted as such, and no change may be accepted thereafter.

**Circulatory Disturbances**

Any circulatory disturbances, especially of the lower extremity following injury in the popliteal space, must not be overlooked, and require rating generally as phlebitis.

(38 CFR 4.62)

**Medical Examinations**

The VA examiner will report evidence of additional loss of range of motion due to such factors as weakness, fatigue, incoordination, and pain as outlined in 38 CFR 4.45. Examiner will furnish a medical history of the injury and fully describe clinical findings. In addition, the examiner will often request additional x-rays, lab work, MRI or CT scan for evaluating the condition at issue as needed or as directed by the Rating Specialist. The examination report should include the findings from these x-rays and other studies and the examiner’s correlation of such studies. Often, the exam report will be released to the Regional Office before the examiner’s comments on the results of those x-rays or tests have been included. If an examiner’s correlation is necessary, follow local procedures for requesting an addendum to the exam report to ask for the examiner’s comments based on review of the x-ray or other test findings.

Complete range of motion studies are required to properly evaluating disabilities of the musculoskeletal system. Accurate measurement of the length of stumps, dimensions and location(s) of scar(s), and, if necessary, range of motion studies in terms of degrees should be reported where required. A goniometer is an instrument that may be used for the measurement of limitation of motion. Examiners are to describe fully and accurately any scar so that residual level of disability may be evaluated. The scar location, length, width, and depth; whether such scar is painful, inflamed, adherent to the underlying tissue, causes limitation of motion, is exceptionally disfiguring, etc., is required. Evaluate these scars separately and even compensably. (38 CFR 4.44 through 4.46, 4.59, 4.61, and 4.71). The Rating Schedule provides diagrams of normal range of motion studies for major joints (Plates I and II, available as attachments in this guide) in the chapter on evaluating disabilities of the musculoskeletal system. Refer the student to the Disability Benefits Questionaires Switch Board – DBQ, which provide the normal ranges of motion.

**Amputation Rule**

38 CFR 4.68 of the Rating Schedule provides that the combined rating evaluation for disabilities of an extremity shall not exceed the rating for the amputation at the elective level were amputation to be performed.

Topic 2: Rating the Musckuloskeletal System

**The Skull**

For loss of part of the skull, the loss must include both the inner and outer tables, that is, the inner and outer layers of compact bony tissue of the principle bones of the skull.

Secondary damage caused by loss of part of the skull, such as paralysis or Jacksonian epilepsy (DC 8912) and traumatic encephalopathy (brain disease due to trauma, DC 8045) will be rated separately and combined with the skull loss evaluation. The brain hernia mentioned in the Rating Schedule means a protrusion of a part of the brain through an abnormal opening.

To determine the area of skull loss in square centimeters, when the area is square or rectangular, multiply the length times the width. When the area is circular, square the diameter, then multiply times 0.7854. That is, multiply the diameter by itself, then multiply this amount by 0.7854 to obtain the square centimeters. The examiner may also use the size of a 25-cent piece or a 50-cent piece to describe the size of skull loss. When there is more than one separate area of loss of skull bone, evaluate based on the sum total of the areas to be evaluated as if a single disability entity.

Square Centimeters converted to Square Inches

1 sq. cm = 0.1550 sq. inches

2 sq. cm = 0.3100 sq. inches

3 sq. cm = 0.4650 sq. inches

4 sq. cm = 0.6200 sq. inches

5 sq. cm = 0.7750 sq. inches

6 sq. cm = 0.9300 sq. inches

7 sq. cm = 1.0850 sq. inches

8 sq. cm = 1.2400 sq. inches

**The Ribs**

Resection of the ribs is removal of a portion or part of the rib, and is rated under DC 5297. The Rating Schedule provides that the rating for rib resection or removal is not to be applied with ratings for purulent pleurisy, lobectomy, pneumonectomy, or injuries of the pleural cavity, because the evaluations for these other disabilities already takes into account impairment due to corresponding rib removal or rib resection.

However, a rating for rib resection will be allowed and rated as rib removal when done during thoracoplasty for collapse therapy or to accomplish obliteration of space, and will be combined with the rating for lung collapse, or with the rating for lobectomy, pneumonectomy or the graduated ratings for pulmonary tuberculosis.

**The Spine**

The spine is the centerpiece of the body’s skeletal framework and is the means through which the body's communication network of nerves operates. It houses the central nervous system spinal cord. The spine is flexible to permit bodily movement and very strong to provide body support. The spine is susceptible to many types of injuries. If any injury is severe enough to crush the spinal cord or sever the spinal nerve cord, the use of the body from the site of the injury downward could be completely lost.

**Evaluation Considerations**

Low Back Pain (LBP), Lumbosacral Strain (LS), and Subsequently Developing Herniation of a Nucleus Pulposus (HNP).

A common theme in low back claims exists where the Veteran establishes service connection for LS with LBP (DC 5237) and develops after service herniation of nucleus pulposus, leading potentially to more severe complications as contemplated under DC 5243, intervertebral disc syndrome.

The rating specialist should not rush to disassociate the two conditions and deny HNP as "remote from service." A service connected LS or LBP disablement certainly may progress causing muscle spasm, spinal listing and degenerative changes (DC 5237). As herniation of nuclear material usually occurs after the onset of degenerative changes, there should be no hesitancy to associate HNP with an established progressive LBP-LS syndrome.

However, in claims where the service connected LS-LBP has long been asymptomatic, without a clinical record of complications, and a subsequent post-service injury precipitates HNP, the rating specialist may deny the disc syndrome in the absence of medical findings objectively demonstrating a causal relationship.

**Residuals of Fracture of Vertebra**

Evaluate a fracture of a vertebra or dislocation under DC 5235. X-ray evidence is usually required to show evidence of vertebral deformity. A 10 percent evaluation should be assigned for a vertebral deformity alone when there is evidence of vertebral body fracture with loss of 50 percent or more of the height.

**Ankylosis and Limitation of Motion of the Spine**

Ankylosis is the abnormal immobility of a joint. Complete ankylosis means there is no movement possible. Diagnostic codes 5235 through 5243 apply the same criteria when considering limitation of motion and ankylosis in the evaluation criteria of the spine.

Plate V of the Rating Schedule (also available as an attachment on page 26 of this guide) provides figures with the normal ranges of motion for the spine as follows:

**Thoracaolumbar spine**

Forward Flexion 0 to 90 degrees

Extension 0 to 30 degrees

Left Lateral Flexion 0 to 30 degrees

Right Lateral Flexion 0 to 30 degrees

Left Lateral Rotation 0 to 30 degrees

Right Lateral Rotation 0 to 30 degrees

**Cervical spine**

Forward Flexion 0 to 45 degrees

Extension 0 to 45 degrees

Left Lateral Flexion 0 to 45 degrees

Right Lateral Flexion 0 to 45 degrees

Left Lateral Rotation 0 to 80 degrees

Right Lateral Rotation 0 to 80 degrees

**Intervertebral Disc Syndrome (IVDS)**

IVDS is a group of signs and symptoms resulting from displacement of an intervertebral disc or disc fragments at any level of the spine. There are usually pain and other signs and symptoms at or near the site of the disc, and there may be pain referred to more remote areas, plus neurologic abnormalities due to irritation or pressure on adjacent nerves or nerve roots.

A slipped, herniated, ruptured, prolapsed, bulging, or protruded disc, degenerative disc disease (DDD), sciatica, discogenic pain syndrome, herniated nucleus pulposus, pinched nerve, etc., are other names for IVDS. There may be some differences, but these terms are not well defined and are often used interchangeably.

IVDS commonly includes back pain and sciatica (pain along the course of the sciatic nerve) in the case of lumbar disc disease, and neck plus arm or hand pain in the case of cervical disc disease. It may also include scoliosis, paravertebral muscle spasm, limitation of motion of the spine, tenderness over the spine, limitation of straight leg raising, and neurologic findings corresponding to the level of the disc. If the disc compresses the cauda equina (the collection of nerve roots extending from the lower end of the spinal cord), bowel or bladder sphincter functions or sexual function may also be affected.

The evaluation criteria for rating disabilities under IVDS (formerly DC 5293) was revised effective September 23, 2002. Under the new criteria IVDS that is primarily disabling because of periods of acute symptoms that require bed rest according to the cumulative amount of time over the course of a year that the patient is incapacitated, i.e., requires bed rest and treatment by a physician, is evaluated at 60 percent if there are incapacitating episodes of at least six weeks total duration during the past 12 months; at 40 percent if there are incapacitating episodes of at least four but less than six weeks total duration during the past 12 months; at 20 percent if there are incapacitating episodes of at least two but less than four weeks total duration during the past 12 months; and at 10 percent if there are incapacitating episodes of at least one but less than two weeks total duration during the past 12 months.

IVDS that is disabling primarily because of chronic orthopedic manifestations (e.g., painful muscle spasm or limitation of motion), chronic neurologic manifestations (e.g., footdrop, muscle weakness or atrophy, or sensory loss), or a combination of both, is evaluated by assigning separate evaluations for the orthopedic and neurologic manifestations, using DC 5243 hyphenated with the appropriate orthopedic (musculoskeletal) or neurologic code.

When IVDS is disabling both because of incapacitating episodes and persistent orthopedic or neurologic manifestations, whichever alternative method of evaluation results in a higher evaluation is used.

**Sacro-Iliac Injury and Weakness**

An injury or weakness at the point of articulation between the sacrum and the ilium (the wide upper portion of the hip bone) should be rated under DC 5236. This revised evaluation criteria became effective September 26, 2003 under the general rating formula for diseases and injuries of the spine.

**Lumbosacral Strain**

A lumbosacral strain involves injury to the associated muscles, ligaments or tendons of the lumbosacral spine, and will be rated under DC 5237. This revised evaluation criteria became effective September 26, 2003 under the general rating formula for diseases and injuries of the spine.

**Removal of the Coccyx**

Diagnostic code 5298 is for removal of the coccyx. The coccyx is the tailbone, located at the base of the spine. For partial or complete removal, a 10 percent evaluation is assigned when there are painful residuals. Assign a 0 percent evaluation in the absence of painful residuals.

Topic 3: Arthritis, Acute, Subacute, or Chronic Diseases

**Arthritis Due to Strain**

When there is a service incurred lower extremity amputation or shortening, a disabling arthritis developing in the same extremity, or in both lower extremities; including arthritis of the lumbosacral joints and lumbar spine, if associated with the leg amputation or shortening; will be considered as service incurred. This will generally require separate evaluation of the arthritis in the joints directly subject to strain. Amputation or injury to an upper extremity is not considered as a causative factor with subsequently developing arthritis except in joints subject to direct strain or actually injured. (38 CFR 4.58)

**Other Types of Arthritis**

Gonorrheal, pneumococcic, typhoid, syphilitic, streptococcic, and other types of arthritis, DC 5004 through 5009, are not truly rheumatoid arthritis, but the Rating Schedule provides they will be evaluated (that is, rated) as for rheumatoid arthritis. Each of these conditions results from pyogenic or microbial organisms associated with an underlying disease process. For example, gonorrheal arthritis, also known as urethral arthritis, is due to invasion of the joint by the gonococcus and is usually associated with gonorrheal urethritis. Pneumococcic arthritis is due to pneumococcus, syphilitic arthritis is associated with or due to syphilis, etc. Medical evidence will establish the etiology, or root cause, of the type of arthritis present. Symptoms are usually of sudden onset, most often found in large, weight-bearing joints and the wrists.

Arthritis due to trauma, DC 5010, is caused by a direct wound or injury. Like degenerative arthritis, it should be substantiated by x-ray findings, however, it differs from degenerative arthritis in that degenerative arthritis may affect other joints over the passage of time, whereas arthritis due to trauma is limited to the injured joint. Arthritis due to trauma will be evaluated, or rated, as degenerative arthritis.

**Osteomyelitis**

Osteomyelitis, DC 5000, is an inflammation of bone matter, and may be either active or inactive. When there is an active process, an infection is present and the condition requires antibiotic treatment. For rating purposes, the condition is considered inactive when there has been no recurrence or evidence of active infection in the past five years. The condition is not to be rated as osteomyelitis if it has been cured by removal (amputation) or radical resection of the affected bone. 38 CFR 4.43 provides that osteomyelitis, once identified, should be considered as a continuously disabling process whether or not an actively discharging sinus (an air space within the substance of bone; an abnormal channel permitting release of pus) or other evidence of infection is manifest from time to time, unless the source of infection is entirely removed by amputation. When no amputation or removal of the infected part has taken place, osteomyelitis may continue as a permanent rating to be combined with other ratings for residual conditions, limiting evaluations to not exceeding the amputation ratings at the site of election (the Amputation Rule, 38 CFR 4.68).

In evaluating osteomyelitis, the presence of the condition in the pelvis, vertebrae, or extending into major joints, or with a long history of such constitutional symptoms as anemia or amyloid liver changes, may allow for a 100 percent evaluation. A 60 percent evaluation is for frequent episodes of osteomyelitis, with constitutional symptoms, such as those mentioned above (anemia, amyloid liver changes). Lesser evaluations are assigned for lesser levels of severity. For example a 30 percent evaluation may be assigned when there is definite involucrum or sequestrum, that is, when there is definite evidence showing necrotic (or dead) bone, whether or not there is discharging sinus (drainage of pus).

The 20 and 10 percent evaluations assignable may be for historical evaluation or for other reasons. Note (1) under DC 5000 for osteomyelitis provides that a rating of 10 percent, as an exception to the amputation rule, is to be assigned in any case of active osteomyelitis where the amputation rating for the affected part is 0 percent. Note (2) of DC 5000 for osteomyelitis states that a 20 percent evaluation may be assigned following the initial infection of active osteomyelitis with no subsequent reactivation. The prerequisite for this historical rating is an established recurrent osteomyelitis. To qualify for the 10 percent rating as an historical evaluation, two or more episodes following the initial infection are required. The 20 percent rating assigned as an historical evaluation based on evidence of active infection within the past five years must be distinguished from the 20 percent evaluation authorized when there is a discharging sinus. The historical 20 percent rating or the 10 percent rating, when applicable, will be assigned once only to cover disability at all sites of previously active infection with a future ending date in the case of the 20 percent rating.

1. An initial episode of active osteomyelitis is not a basis for either of the historical ratings. Do not assign the 20 percent historical evaluation until the first "recurrent" episode of osteomyelitis. Then assign a 20 percent historical evaluation that will be extended for 5 years from the date of examination showing the osteomyelitis to be inactive. Assign a closed rating at the expiration of the 5-year extension.
2. Assign the 10 percent historical evaluation only if there have been two or more recurrences of active osteomyelitis following the initial infection.
3. Although saucerization, sequestrectomy or guttering might be successful in treating osteomyelitis, do not discontinue the historical rating since cure of the osteomyelitis may not be considered attained unless there has been removal or radical resection of the affected bone.

Refer to M21-1MR, III.iv.4.A. for examples demonstrating the proper rating procedures for osteomyelitis.

**Rheumatoid Arthritis**

Rheumatoid arthritis, DC 5002, may be evaluated as an active or inactive process. A confirmed diagnosis generally requires correlation of blood work. The sedimentation rate (ESR level) is usually elevated in 90 percent of the cases. Examination findings often note soft tissue changes about the joints, joint effusion (fluid about the joint), limitation of motion usually first affecting proximal interphalangeal and metacarpophalangeal joints; and in more severe and late cases, there may be present constitutional symptoms such as emaciation, anemia, deformities, contractures, subluxations, and muscle and bone atrophy. The condition progresses with inflammatory changes affecting the synovial membranes and may be manifested by evidence of pain, swelling and stiffness of the joints. It usually occurs before middle age and its onset may be acute with a febrile attack. Late radiographic changes may show diminished density of bone substance or articular ends. Haygarth’s nodes, an enlargement of the proximal interphalangeal joints of the fingers, an important diagnostic sign, may also be noted.

**Rheumatoid Arthritis of the Spine**

Rheumatoid arthritis of the spine, also diagnosed as rheumatoid spondylitis, ankylosing spondylitis, or Marie-Strumpell disease is manifested clinically by calcification of the anterior and lateral spinal ligaments, limitation of motion of the spine, diminished chest expansion with involvement of the costovertebral articulations and flattening of the lumbar curve. The sacroiliac joints are usually affected showing evidence of lateral sclerosis.

In the advanced stages, this condition results in a bent-over posture, rigid spine with kyphotic deformity, a waddling gait, and frequently, fusion of the upper cervical and the sacroiliac joints occurs.

*Evaluation Considerations*

With rheumatoid arthritis (DC 5002), give special attention to the following in addition to, or in advance of, demonstrable x-ray changes:

1. Muscle spasm;
2. Periarticular and articular soft tissue changes, such as synovial hypertrophy (swelling of the synovial membrane), villose hypertrophy, flexion contracture deformities, joint effusion, destruction of articular cartilage; and ankylosis or limitation of motion of joint due to bony changes;
3. Constitutional changes such as emaciation, anemia, muscular and bone atrophy, skin complications, gastrointestinal symptoms, capillary stasis, imbalance in water metabolism (dehydration), vascular changes, cardiac involvement, dry joints, low renal function, postural deformities, and low grade edema of the extremities.

When evaluating rheumatoid arthritis as an active process, the rating should not be combined with the residual ratings for limitation of motion or ankylosis, but rather, assign the higher evaluation of the more appropriate diagnostic code. As an active process, a 100 percent evaluation is warranted when the evidence shows constitutional manifestations associated with active joint involvement, causing total incapacitation. If not considered totally incapacitating, a lesser 60 percent evaluation may be assigned if the evidence shows weight loss and anemia productive of severe impairment of health, or severely incapacitating exacerbations occurring four or more times a year, or a lesser number if over prolonged periods.

As an inactive process, the condition should be rated based on chronic residuals, such as limitation of motion or ankylosis, under the appropriate diagnostic codes of the Rating Schedule for the specific joint(s) involved. Limitation of motion should be objectively confirmed by findings such as swelling, muscle spasm or satisfactory evidence of painful motion. However, if the level of limitation of motion is not of a compensable level (at least 10 percent or more), a rating of 10 percent may be assigned for each such major joint or group of minor joints affected by limitation of motion, to be combined, not added, under DC 5002.

**Degenerative Arthritis (hypertrophic or osteoarthritis)**

Degenerative arthritis, also known as osteoarthritis or hypertrophic arthritis, DC 5003, is marked by degeneration of the joint cartilage or hypertrophy of the bone. X-ray evidence should be used to substantiate a diagnosis. The condition may be manifested by pain, stiffness and limitation of motion of affected joints. Degenerative arthritis established by x-ray findings will be rated on the basis of limitation of motion under the appropriate diagnostic codes for the specified joint or joints involved (DC 5200 etc.), except when the level of limitation of motion of the specific joint or joints involved is not compensable under the appropriate diagnostic codes. In these cases, a rating of 10 percent will be assigned for each such major joint or group of minor joints affected, to be combined, not added, under DC 5003. Again, in order to assign the 10% for each major joint, the limitation of motion must have shown findings such as swelling, muscle spasm, or satisfactory evidence of painful motion described by the examiner.

In the absence of limitation of motion, a 20 percent evaluation may be assigned for x-ray evidence of involvement of two or more major joints or two or more minor joint groups, with occasional incapacitating exacerbations. A 10 percent evaluation may be assigned with x-ray evidence of involvement of two or more major joints or 2 or more minor joint groups, without occasional incapacitating exacerbations. The Rating Schedule notes that the 20 and 10 percent evaluations based on x-ray findings should not be combined with ratings based on limitation of motion. The 20 and 10 percent evaluations based on x-ray findings as noted above, will not be applicable for rating conditions under DC 5013 to 5024, inclusive (such as osteoporosis, benign bone growths, gout, bursitis, synovitis, tenosynovitis, etc.).

Refer to M21-1MR, III.iv.4.A for examples of rating degenerative arthritis.

**Disposition of Arthritis Cases Previously Rated as a Single Disability**

RVSRs may encounter cases where arthritis of multiple joints was previously rated as a single disability. These cases will be re-rated as follows:

1. If the separate evaluation of the arthritic disability results in no change in the combined degree previously assigned and if a rating is required, re-rate using the new procedure (that is, a separate evaluation for each affected joint, as applicable) with the same effective date as previously assigned.
2. If re-rating using the new procedures results in an increased combined evaluation, apply 38 CFR 3.105(a) to retroactively increase the evaluation. NOTE: This is actually not a correction of the previous decision, but a re-rating called for under a change in procedures.
3. If re-rating using the new procedure results in a reduced combined evaluation, apply 38 CFR 3.105(a) and (e), unless the assigned percentage is protected under 38 CFR. 3.951.

**Caisson Disease of Bones**

This condition, DC 5011, is also known as decompression sickness, diver’s paralysis, or tunnel disease. It is very rare today, but when found, should be rated based on chronic residual disabilities, such as arthritis, spinal cord involvement, or deafness, depending on the severity of the disability and its manifestations. The condition may be present in those working under high-pressure conditions, such as in caissons, diving bells or tunnels, or even in scuba divers. It may occur when there is a rapid ascent to normal pressure from depths of greater than 27-30 feet, but it is may also be found when there is a rapid ascent from sea level to high altitudes, without adequate pressurizing protection. The causative factor is the release of bubbles of atmospheric gasses in the body.

**New Growths of Bones**

Malignant growth of bony structures, DC 5012, is treated similarly to malignancies of other body systems. A malignancy is a cancerous condition, as opposed to a benign is non-cancerous. For malignancies of the bones under this diagnostic code, allow an assignment of a total 100 percent evaluation for one year following the cessation of surgical, x-ray, antineoplastic chemotherapy, or other therapeutic procedure. At this point, if there has been no local recurrence or metastases, the rating evaluation will be based on residual disability.

Benign new growths of bones, DC 5015, are non-cancerous, and will be evaluated based on limitation of motion of affected parts, or as degenerative arthritis.

**Other Disabilities of the Bones and Joints**

Diagnostic codes 5013 through 5024, except Gout (DC 5017), will be rated as degenerative arthritis (DC 5003) based on limitation of motion of affected part(s). The 10 and 20 percent evaluations for x-ray findings do not apply (see Note (2) under DC 5003). Gout, which is discussed below, will be rated as for DC 5002, rheumatoid arthritis.

*Osteoporosis* – DC 5013, is an abnormal porousness or rarefication caused by the enlargement of bone canals or the formation of abnormal bone spaces. It may be due to the aging process and usually occurs from age 60 and following. It is often causative of hip fractures in the elderly or post-menopausal women.

*Osteomalacia* – DC 5014, is a softening of the bones (osteo- of or pertaining to the bones, and -malacia a softening), and may be due to a calcium/phosphorous deficiency. This condition may be manifested by muscular weakness, listlessness, aching and bowing of the bones.

*Osteitis Deformans* – DC 5016, is also known as Paget’s disease. It is a chronic and progressive bone disease characterized by enlargement and deformity of body parts, including the skull and bones of the arms and legs, pelvis, vertebrae, shoulder blades, a spreading of the lower thorax, and forward bowing of the legs. In advanced cases, there will be a shortened stature and waddling gait. There may be abnormally frequent fractures with minimal trauma.

*Gout* – DC 5017, is to be evaluated as rheumatoid arthritis (DC 5002). Gout is a disturbance of uric acid metabolism resulting in an excess of uric acid in the blood, with recurrent attacks of acute arthritis that may become chronic and deforming. The attacks are frequently nocturnal, and any or all joints may be affected, though usually the lower extremities, especially the great toe.

*Hydrarthrosis, intermittent* – DC 5018, is a disease process characterized by a periodic swelling of one or several joints without the presence of fever, and is often accompanied by pain. The knee is most commonly affected, but this condition may also affect other joints. Attacks usually occur at regular intervals and may last several hours to several days. Swelling tends to develop with such great rapidity that there may be a sensation of water rushing into the joint.

*Bursitis* – DC 5019, is a condition of an inflamed bursa. The bursa is a sac or sac-like cavity filled with a fluid situated at joints where friction would otherwise develop. It may be manifested by pain, swelling, tenderness, muscle weakness, and limitation of motion.

*Synovitis* – DC 5020, is an inflammation of a synovial membrane, which is the thin layer of tissue covering a surface, lining a cavity, or dividing a space or organ and which secretes synovial fluid.

*Myositis* – DC 5021, is an inflammation of voluntary muscles.

*Periostitis* – DC 5022, is the inflammation of the periosteum, which is the tough, fibrous membrane surrounding bone. It may be manifested by swelling and tenderness of the bone at the site of the inflammation, as well as by an aching pain.

*Myositis Ossificans* – DC 5023, is the inflammation of a voluntary muscle and may be characterized by bony deposits or ossification of the muscles. It may be limited to one muscle, or may involve many muscles. It may be sudden in onset and may result in fever and extreme exhaustion.

*Tenosynovitis* – DC 5024, is the inflammation of the tendon sheaths, which are the structures enclosing the fibrous cord by which the muscle attaches to bone.

*Fibromyalgia* – DC 5025, was added to the Rating Schedule effective May 7, 1996. Fibromyalgia is a syndrome characterized by chronic, widespread musculoskeletal pain associated with multiple tender or “trigger” points, and often with multiple somatic complaints, such as sleep disorders, anxiety, fatigue, headache, and irritable bowel symptoms. Other possible associated complaints include neurologic symptoms such as numbness and weakness, without objective neurologic findings, depression, Raynaud’s like syndrome (symptoms of cold extremities), and weakness. Widespread pain means pain in both the left and right sides of the body, that is both above and below the waist, and that affects both the axial skeleton (i.e., the cervical spine, anterior chest, thoracic spine, or low back) and the extremities. A minimum 10 percent evaluation is assigned when the evidence shows continuous medication is required for control of symptoms, with higher evaluations assigned based on more severe levels of disability.

Topic 4: Prosthetic Implants and Anatomical Loss and Loss Of Use

**Prosthetic Implants**

Prosthetic implants of joints are artificial, fabricated metal and plastic devices used to replace lost or severely impaired joints, and may also be used to relieve pain and restore function and mobility. Compensable evaluations may be assigned for prosthetic replacements of certain major joints. The Rating Schedule allows for assignment of a temporary total 100 percent evaluation for a one-year period following the replacement (prosthetic implant) of a shoulder, elbow, wrist, hip, knee, or ankle joint. The one year period begins after the end of at least a one month total temporary convalescent period allowed under 38 CFR 4.30 following hospital discharge. At the conclusion of the one-year period (usually a total of 13 months at 100 percent when entitlement to paragraph 30 benefits is considered), an evaluation will be assigned based on residual level of disability.

The rating specialist should note that for DC 5051 through 5056, which correspond to replacement of the joints mentioned, a minimum compensable rating evaluation will be assigned. This minimal level will vary for prosthetic implants involving the upper extremities, depending upon whether the extremity involved is the major or minor (dominant or non-dominant). Special monthly compensation may also be assigned during the period of total evaluation should the permanent use of crutches be required.

**Anatomical Loss and Loss of Use**

To determine the level of amputation may require medical evidence or x-ray studies. Although anatomical loss may not be present, the claimant may have a loss of use of the extremity. A painful neuroma (new growth around the amputation stump) shall be assigned the evaluation for the elective site of reamputation. The question of how high the re-amputation would have to be to remove the painful neuroma is a medical determination.

**Loss of Use of Hand or Foot**

38 CFR 4.63 provides that the loss of use of a hand or foot, for the purpose of special monthly compensation, will be held to exist when no effective function remains other than that which would be equally well served by an amputation stump at the site of election below the elbow or knee, with use of a suitable prosthetic appliance. This determination is to be made based on the actual remaining function of the hand or foot, such as whether the acts of grasping, manipulation, etc., in the case of the hand, or of balance and propulsion, etc., in the case of the foot, could be accomplished equally well by an amputation stump with prosthesis. In requesting examinations for determining loss of use, the rating specialist should not ask the examiner to state whether there is loss of use of an extremity, but rather, should ask for a description of the remaining function.

**Combinations of Anatomical Loss and Loss of Use Disabilities**

Diagnostic codes 5104 to 5111 provide for a total 100 percent evaluation based on combinations of disabilities related to the anatomical loss or loss of use of certain combinations of disabilities. Entitlement to higher special monthly compensation may result based on such combinations of anatomical loss or loss of use of these cited disabilities.

**Amputations of the Upper Extremities**

Diagnostic codes 5120 through 5156 apply to amputations of the upper extremities. These disabilities may entitle the Veteran to additional Special Monthly Compensation.

5120 Disarticulation is the amputation of the arm at the shoulder joint.

5121 Arm amputation above the insertion of the deltoid muscle. Insertion means the place of attachment of a muscle to a bone. In this case, the deltoid muscle is attached to the humerus along the middle outer side.

5122 Amputation below the insertion point of the deltoid muscle.

5123 Amputation of forearm above insertion of pronator teres. This is the muscle that pronates the hand. Its insertion is along the outer shaft of the radius.

5124 Amputation below insertion of pronator teres.

5125 Loss of use of the hand. This will be held to exist when no effective function remains other than that which would be equally well served by an amputation stump with a suitable prosthetic appliance.

**Finger Disabilities**

The criteria for evaluating finger disabilities was revised on August 26, 2002 to include updated medical terminology and unambiguous criteria and reflect medical advances since the last revision. The revision also provided new tables for evaluation of ankylosis or limitation of motion of single or multiple digits of the hand and 3 new diagnostic codes were added, DC 5228, DC 5229 and DC 5230 for the evaluation of limitation of motion of the thumb, the index or long finger and the ring or little finger. The term used to describe the middle digit was changed from “middle” to “long” finger and the term for the place where the fingertips normally meet the palm when they are in full flexion was changed from “medical transverse fold of the palm” to “proximal transverse crease of the palm.”

The fingers are now identified as the thumb, index, long, ring, and little or sometimes, as numbers 1 through 5, counting from number 1 as the thumb up to number 5, the little finger. It is important in evaluating finger disabilities to discern which hand is the major, or dominant.

Evaluating multiple finger disabilities is complex, because there may be amputations at different levels involving more than one finger, or they may be combinations of partial or whole loss of fingers, as well as ankylosed fingers (fingers having limited or no movement). Evaluation is based on consideration of many factors, including the level of amputation and the severity of ankylosis. It is important to refer to the illustration of the bones of the hand in the Rating Schedule (Plate III, also available as an attachment on page 39 of this guide) when evaluating finger disabilities, and that there is complete medical evidence showing range of motion capabilities. Motion of the thumb and fingers should describe how near, in centimeters, the tip of the thumb can approximate (come to touching) the fingers, or how near the tops of the fingers can approximate the proximal transverse crease of the palm (38 CFR 4.71).

The ratings for multiple finger amputations under diagnostic codes 5126 through 5151 apply to multiple finger amputations, where the level of amputation is at the proximal interphalangeal joint or through the proximal phalange.

Amputations through the long phalanges *will be rated as prescribed for unfavorable ankylosis of the fingers*, under DC 5216 through 5219.

Amputations at the distal joints, or through distal phalanges, other than negligible losses,

*will be rated as for favorable ankylosis*, using DC 5220 through 5223.

Amputation or resection of metacarpal bones (more than one-half the bone lost) in multiple finger injuries *will require a rating of 10 percent added* to (not combined with) the ratings, multiple finger amputations, subject to the amputation rule applied to the forearm.

Diagnostic codes 5152 through 5156 apply to single finger amputations of whole or parts of single fingers.

Combinations of finger amputations at various levels, or finger amputations with ankylosis or limitation of motion of the fingers will be rated on the basis of the grade of disability, i.e., amputation, unfavorable ankylosis, which is most representative of the levels or combinations of disability. With an even number of fingers involved, and adjacent grades of disability, select the higher of the two grades.

Loss of use of the hand will be held to exist when no effective function remains other than that which would be equally well served by an amputation stump with a suitable prosthetic appliance.

**Evaluating Multiple Finger Disabilities**

Specific directions on how to evaluate a Veteran with multiple disabilities of fingers in the same hand can be found in the rating schedule under the section “Multiple Finger Amputations” following Diagnostic Code 5151 and immediately following the heading “Evaluation of Ankylosis or Limitation of Motion of Single or Multiple Digits of the Hand.” Be sure to pay attention to the “Note” in each subsection.

Diagnostic codes 5216 through 5219 apply to unfavorable ankylosis of multiple fingers. DC 5220 through 5223 apply to favorable ankylosis of multiple fingers. DC 5224 through 5227 apply to ankylosis of individual fingers. DC 5228 through 5230 apply to limitation of motion of individual fingers.

For the index, long, ring, and little fingers (digits II, III, IV, and V), zero degrees of flexion represents the fingers fully extended, making a straight line with the rest of the hand. The position of function of the hand is with the wrist dorsiflexed 20 to 30 degrees, the metacarpophalangeal and proximal interphalangeal joints flexed to 30 degrees, and the thumb (digit I) abducted and rotated so that the thumb pad faces the finger pads. Only joints in these positions are considered to be in favorable position. For digits II through V, the metacarpophalangeal joint has a range of zero to 90 degrees of flexion, the proximal interphalangeal joint has a range of zero to 100 degrees of flexion, and the distal (terminal) interphalangeal joint has a range of zero to 70 or 80 degrees of flexion.

When two or more digits of the same hand are affected by any combination of amputation, ankylosis, or limitation of motion that is not otherwise specified in the rating schedule, the evaluation level assigned will be that *which best represents the overall disability* (i.e., amputation, unfavorable or favorable ankylosis, or limitation of motion), *assigning the higher level of evaluation when* the level of disability is equally balanced between one level and the next higher level.

For evaluation of ankylosis of the index, long, ring, and little fingers:

* If both the metacarpophalangeal and proximal interphalangeal joints of a digit are ankylosed, and either is in extension or full flexion, or there is rotation or angulation of a bone, *evaluate as amputation without metacarpal resection*, at proximal interphalangeal joint or proximal thereto.
* If both the metacarpophalangeal and proximal interphalangeal joints of a digit are ankylosed, *evaluate as unfavorable ankylosis*, even if each joint is individually fixed in a favorable position.
* If only the metacarpophalangeal or proximal interphalangeal joint is ankylosed, and there is a gap of more than two inches (5.1 cm.) between the fingertip(s) and the proximal transverse crease of the palm, with the finger(s) flexed to the extent possible, *evaluate as unfavorable ankylosis*.
* If only the metacarpophalangeal or proximal interphalangeal joint is ankylosed, and there is a gap of two inches (5.1 cm.) or less between the fingertip(s) and the proximal transverse crease of the palm, with the finger(s) flexed to the extent possible, *evaluate as favorable ankylosis*.

For evaluation of ankylosis of the thumb:

* If both the carpometacarpal and interphalangeal joints are ankylosed, and either is in extension or full flexion, or there is rotation or angulation of a bone, *evaluate as amputation at* metacarpophalangeal joint or through proximal phalanx.
* If both the carpometacarpal and interphalangeal joints are ankylosed, *evaluate as unfavorable ankylosis*, even if each joint is individually fixed in a favorable position.
* If only the carpometacarpal or interphalangeal joint is ankylosed, and there is a gap of more than two inches (5.1 cm.) between the thumb pad and the fingers, with the thumb attempting to oppose the fingers, *evaluate as unfavorable ankylosis*.
* If only the carpometacarpal or interphalangeal joint is ankylosed, and there is a gap of two inches (5.1 cm.) or less between the thumb pad and the fingers, with the thumb attempting to oppose the fingers, *evaluate as favorable ankylosis*.

If there is limitation of motion of two or more digits, evaluate each digit separately and combine the evaluations.

**Evaluating Non-amputation Disabilities of the Upper Extremities**

As with all disabilities of the upper extremities, it is important to determine which extremity is dominant or major. That is, whether the Veteran is right handed or left handed. Recall that once we determine which extremity is dominant or major this will not change, and will continue in all subsequent rating decisions.

The evaluations assignable for disabilities affecting the shoulder, arm, elbow and forearm are self-explanatory. The meanings of favorable and unfavorable ankylosis are explained where applicable in evaluating disabilities of these extremities. The Rating Schedule contains illustrations showing the normal range of motion and describes planes of motion affecting joints of the upper extremities. Plate I (available on page 37 of this guide) applies to the shoulder, elbow and wrist. Select the diagnostic code most closely describing the level of impairment of the injured or diseased part.

Note that the scapula and humerus move as one piece, and as such, may be evaluated under DC 5200 based on ankylosis of scapulohumeral articulation. Shoulder disabilities may likewise be evaluated based on limitation of motion of the arm, under DC 5201. Here, the degree of disability falls into one of three categories: limitation of motion to shoulder level, to midway between the side and shoulder level, or to 25 degrees from side. Evaluate the humerus based on degree of impairment, the most severe being the loss of head of the humerus, known as a flail shoulder. A flail joint is a condition in which active or voluntary motion of a joint is not possible. Active motion means the movement of the extremity by its own muscle action.

***JUDICIAL REVIEW CONFERENCE CALL*** dated January 8, 2004, cited *Mariano v. Principi,* No. 01-467, October 22, 2003, DC 5201. The issue in this case was an increased disability rating for service-connected residuals of a gunshot wound (GSW) to the Veteran’s left shoulder affecting Muscle Group (MG) I, which was rated as 10% disabling. The Court held, among other things, that VA’s interpretation that 38 CFR 4.71a (DC 5201) measures abduction only was invalid.

The rating criteria under DC 5201 for “Arm, limitation of motion of” can be satisfied with range of motion measurements taken in either the shoulder forward elevation (flexion) plane or the shoulder abduction plane. See Plate 1.

When considering the disability evaluation for arm limitation of motion (LOM) under DC 5201, decision makers must carefully analyze the credibility and probative value of range of motion (ROM) measurements for both shoulder forward elevation (flexion) and shoulder abduction. Utilizing the DC 5201 rating criteria, decision makers should assign a disability evaluation which supports the highest overall disability evaluation for arm LOM based on shoulder forward elevation (flexion) or shoulder abduction ROM measurements.

The rating criteria under DC 5202 thru 5203 provide additional evaluation criteria for other impairments of the upper arm most notably dislocations of the scapulohumeral joint, scapula and clavicle.

DC 5205 thru 5213, provides evaluation criteria for disabilities involving the elbow, and forearm, including both the radius and the ulna, as well as pronation and supination movements of the hand. DC 5214 and 5215 provide evaluation criteria for disabilities of the wrist.

Topic 5: Muscle Injuries/Groups

**Muscle Injury Considerations**

Disability from injuries of muscles presents a special problem. Injuries may result in damage to muscles, bones and nerves. 38 CFR 4.14 provides that pyramiding, or the evaluation of the same disability under various diagnoses, is to be avoided. Disability from injuries to the muscles, nerves and joints of an extremity may overlap so that special rules are included in the appropriate body system for their evaluation.

The principles of combined ratings for muscle injuries is explained in 38 CFR 4.55 to deal exclusively with the principles of rating muscle injuries as follows:

1. A muscle injury rating will not be combined with a peripheral nerve paralysis rating of the same body part unless the injuries affect entirely different functions.
2. For rating purposes the skeletal muscles of the body are divided into 23 muscle groups in 5 anatomical regions: 6 muscle groups for the shoulder girdle and arm (DC 5301 through 5306); 3 muscle groups for the forearm and hand (DC 5307 through 5309); and 5 muscle groups for the torso and neck (DC 5319 through 5323). The three (3) muscle groups for the foot and leg (DC 5310 through 5312); 6 muscle groups for the pelvic girdle and thigh (DC 5313 through 5318) are discussed in the curriculum for Rating Musculoskeletal System (Lower extremities)
3. There will be no rating assigned for muscle groups which act upon an ankylosed joint, with the following exceptions:
4. In the case of an ankylosed shoulder, if muscle groups I and II are severely disabled, the evaluation of the shoulder joint under DC 5200 will be elevated to the level for unfavorable ankylosis if not already assigned, but the muscle groups themselves will not be rated.
5. The combined evaluation of muscle groups acting upon a single unankylosed joint must be lower than the evaluation for unfavorable ankylosis of that joint except in the case of muscle groups I and II acting upon the shoulder.
6. For compensable muscle group injuries which are in the same anatomical region but do not act on the same joint, the evaluation for the most severely injured muscle group will be increased by one level and used as the combined evaluation for the affected muscle groups.
7. For muscle group injuries in different anatomical regions that do not act upon ankylosed joints, each muscle group injury shall be separately rated and the ratings combined under the provisions of §4.25.

For evaluating muscle disabilities, 38 CFR 4.56 provides a description of slight, moderate, moderately severe, and severe level of disability as applies to DC 5301 through 5323.

The Rating Schedule provides that an open comminuted fracture with muscle or tendon damage will be rated as a severe injury of the muscle group involved unless, for locations such as in the wrist or over the tibia, evidence establishes that the muscle damage is minimal.

A through and through injury with muscle damage shall be evaluated as no less than a moderate injury for each group of muscles damaged.

For VA rating purposes the cardinal signs and symptoms of muscle disability are loss of power, weakness, lowered threshold of fatigue, fatigue-pain, impairment of coordination and uncertainty of movement.

Evaluate muscle injuries as slight, moderate, moderately severe, or severe. Under DC 5301 through 5323, disabilities resulting from muscle injuries are classified as follows:

**Slight Disability of Muscles**

1. Type of injury. Simple wound of muscle without debridement or infection.
2. History and complaint. Service department record of superficial wound with brief treatment and return to duty. Healing with good functional results. No cardinal signs or symptoms of muscle disability as defined in paragraph (c) of this section.
3. Objective findings. Minimal scar. No evidence of fascial defect, atrophy, or impaired tonus. No impairment of function or metallic fragments retained in muscle tissue.

**Moderate Disability of Muscles**

1. Type of injury. Through and through or deep penetrating wound of short track from a single bullet, small shell or shrapnel fragment, without explosive effect of high velocity missile, residuals of debridement, or prolonged infection.
2. History and complaint. Service department record or other evidence of in-service treatment for the wound. Record of consistent complaint of one or more of the cardinal signs and symptoms of muscle disability as defined in paragraph (c) of this section, particularly lowered threshold of fatigue after average use affecting the particular functions controlled by the injured muscles.
3. Objective findings. Entrance and (if present) exit scars, small or linear, indicating short track of missile through muscle tissue. Some loss of deep fascia or muscle substance or impairment of muscle tonus and loss of power or lowered threshold of fatigue when compared to the sound side.

**Moderately Severe Disability of Muscles**

1. Type of injury. Through and through or deep penetrating wound by small high velocity missile or large low-velocity missile, with debridement, prolonged infection or sloughing of soft parts, and intermuscular scarring.
2. History and complaint. Service department record or other evidence showing hospitalization for a prolonged period for treatment of wound. Record of consistent complaint of cardinal signs and symptoms of muscle disability as defined in paragraph (c) of this section and, if present, evidence of inability to keep up with work requirements.
3. Objective findings. Entrance and (if present) exit scars indicating track of missile through one or more muscle groups. Indications on palpation of loss of deep fascia, muscle substance, or normal firm resistance of muscles compared with sound side. Tests of strength and endurance compared with sound side demonstrate positive evidence of impairment.

**Severe Disability of Muscles**

1. Type of injury. Through and through or deep penetrating wound due to high-velocity missile, or large or multiple low velocity missiles, or with shattering bone fracture or open comminuted fracture with extensive debridement, prolonged infection, or sloughing of soft parts, intermuscular binding and scarring.
2. History and complaint. Service department record or other evidence showing hospitalization for a prolonged period for treatment of wound. Record of consistent complaint of cardinal signs and symptoms of muscle disability as defined in paragraph (c) of this section, worse than those shown for moderately severe muscle injuries, and if present, evidence of inability to keep up with work requirements.
3. Objective findings. Ragged, depressed and adherent scars indicating wide damage to muscle groups in missile track. Palpation shows loss of deep fascia or muscle substance, or soft flabby muscles in wound area. Muscles swell and harden abnormally in contraction. Tests of strength, endurance, or coordinated movements compared with the corresponding muscles of the uninjured side indicate severe impairment of function. If present, the following are also signs of severe muscle disability:
   1. X-ray evidence of minute multiple scattered foreign bodies indicating intermuscular trauma and explosive effect of the missile.
   2. Adhesion of scar to one of the long bones, scapula, pelvic bones, sacrum or vertebrae, with epithelial sealing over the bone rather than true skin covering in an area where bone is normally protected by muscle.
   3. Diminished muscle excitability to pulsed electrical current in electro diagnostic tests.
   4. Visible or measurable atrophy.
   5. Adaptive contraction of an opposing group of muscles.
   6. Atrophy of muscle groups not in the track of the missile, particularly of the trapezius and serratus in wounds of the shoulder girdle.
   7. Induration or atrophy of an entire muscle following simple piercing by a projectile. (Authority: 38 USC 1155)

**Upper Body Muscle Groups**

For rating purposes, the muscles of the body are divided into groups identified by Roman numerals, as follows:

Muscle Group Location

I– IV Shoulder and Shoulder Girdle

V – VI Arm

VII – IX Forearm and Hand

XIX – XXI Trunk

XXII – XIII Neck

The term “Muscle Group” may be abbreviated as “MG” on the Rating Code sheet. For example, disability affecting the muscles in Group II might be seen abbreviated as “Residual of injury to MG II.”

**Schedule for Rating Muscle Injuries**

The Rating Schedule breaks down the muscle groups into five anatomical regions: the shoulder girdle and arm (DC 5301 through 5306), the forearm and hand (DC 5307 through 5309), and the torso and neck (DC 5313 through 5318). Under each section, the muscle groups are shown by Roman numerals, identified Group I through XXIII, each having its own diagnostic code. It should be noted that muscles do not usually work in isolation, but may have overlapping functions, working in conjunction with other groups of muscles, and this should be considered in determining evaluations for muscle disabilities.

Under diagnostic codes 5301 through 5323, disabilities resulting from muscle injuries are classified as slight, moderate, moderately severe, or severe. Refer to the previous discussion of 38 CFR 4.56 under the lesson for muscle injury considerations for a description of the evaluation of muscle disabilities criteria.

**Shoulder Girdle and Arm**

Diagnostic Code

5301 Group I These muscles have the function of upward rotation of the scapula; elevation of the arm above the shoulder level.

5302 Group II These muscles have the function of lowering the arm from vertical overhead to hanging at the side, and downward rotation of the scapula.

5303 Group III These muscles of the shoulder girdle raise and abduct the arm to the level of the shoulder.

5304 Group IV These muscles stabilize the shoulder against injury in strong movements, holding the head of the humerus in socket, and are also used in abduction, outward rotation, and inward rotation of the arm.

5305 Group V These muscles function in elbow supination and flexion.

5306 Group VI This group of muscles extends the elbow.

5307 Group VII These muscles provide flexion of wrist and fingers.

5308 Group VIII These muscles provide extension of wrist, fingers and thumb; abduction of thumb.

5309 Group IX These muscles act in strong grasping movements and are supplemented by the intrinsic muscles in delicate manipulative movements.

It should be noted that the hand is so compact a structure that isolated muscle injuries are rare, being nearly always complicated with injuries of bones, joints, tendons, etc. Rate on limitation of motion, with a minimum 10 percent.

**The Torso and Neck**

5319 Group XIX These muscles function for support and compression of abdominal wall and lower thorax. They are also used for flexion and lateral motions of the spine and act in concert with MG II in strong downward movements of the arm.

5320 Group XX These muscles are used for postural support of the body, extension and lateral movements of the spine.

5321 Group XXI These are the muscles of respiration, also called the thoracic muscle group.

5322 Group XXII These are the muscles used for rotary and forward movements of the head, for respiration and for swallowing. They are located in the front of the neck.

5323 Group XXIII These muscles are used for movements of the head, fixation of the shoulder movements. They are located on the side and back of the neck.

**Miscellaneous**

5324 Rupture of diaphragm with herniation, rate under DC 7346 (hiatal hernia).

5325 Muscle Injury, facial Muscles. Evaluate functional impairment as seventh (facial) cranial nerve neuropathy (DC 8207), disfiguring scar (DC 7800), etc. Rate at a minimum evaluation of 10 percent if there is any interference with mastication (chewing).

Consider injury to cranial nerves. Rate at a minimum of 10 percent if there is any interference with mastication when evaluating prior to July 3, 1997.

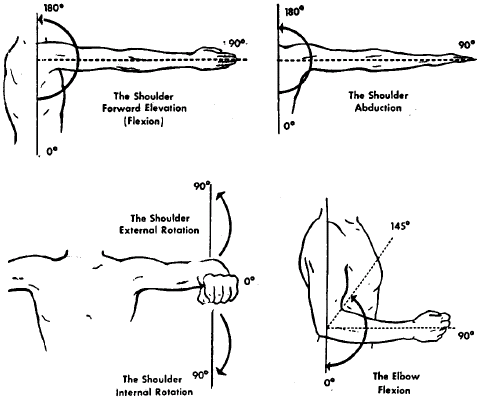
5326 A muscle hernia, extensive without other injury to the muscle. Rate at 10 percent.

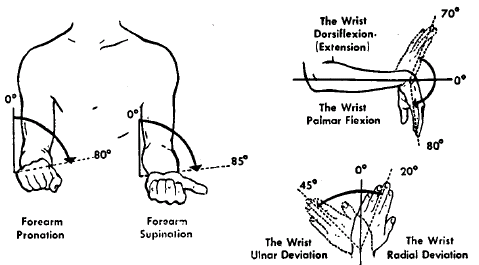
5327 Muscle, neoplasm of, malignant (excluding soft tissue sarcoma which is rated under DC 5329) – 100 percent. *In a note, the revision provides that a rating of 100 percent shall continue beyond the cessation of any surgery, radiation treatment, antineoplastic chemotherapy or other therapeutic procedures.* Six months after discontinuance of such treatment, the appropriate disability rating shall be determined by mandatory VA examination. Any change in evaluation based upon that or any subsequent examination shall be subject to the provisions of 38 CFR 3.105(e) of this chapter. If there has been no recurrence or metastasis (spread of the cancer), rate on residual impairment of function.

5328 Muscle, neoplasm, benign, postoperative – Rate on impairment of function; i.e., limitation of motion or scars.

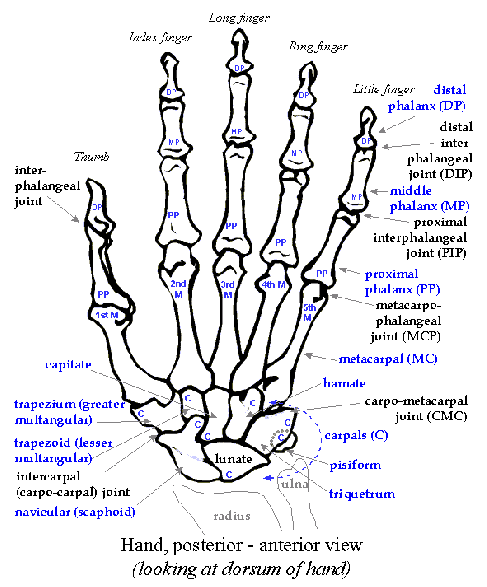
5329 Sarcoma, soft tissue (of muscle, fat or fibrous connective tissue). The evaluation criteria are the same as for DC 5327, both prior to and after revision.

Attachment A: Plate 1 – Joint Range of Motion, Upper Extremities

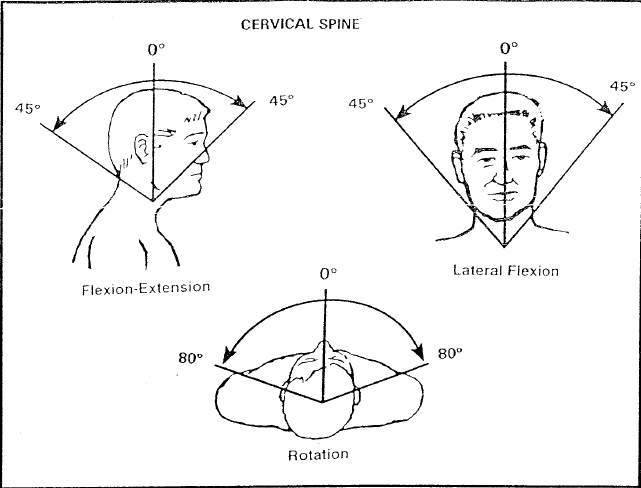


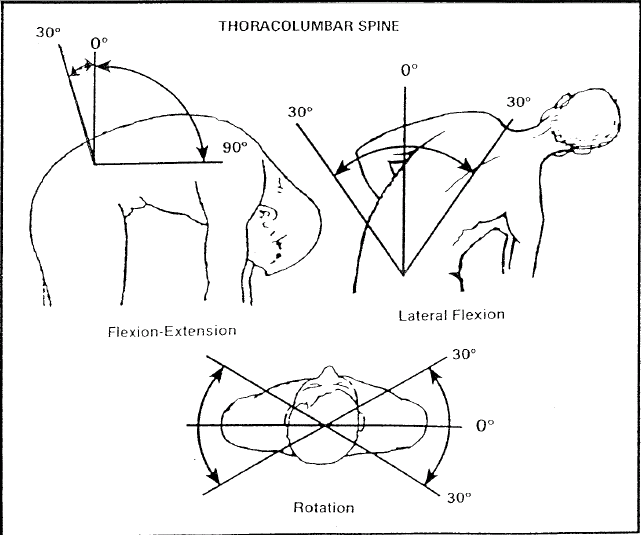


Attachment B: Plate III – Bones of the Hand



Attachment C: Plate V – Range of Motion, Cervical and Thoracolumbar Spine





Practical Exercise

Directions:

1. The service medical records show the Veteran suffered a blow to his mid-low back area in November 1993 aboard ship when a refueling winch handle spun out of control. SMR's show that routine therapy and medication were not successful in easing the pain. He was boarded out on TDRL by a Physical Evaluation Board with a 10 percent disability. Current VA examination continued the diagnosis of lumbosacral strain. Range of motion studies showed slight limitation of the lumbosacral spine, with complaints of pain. He takes Motrin daily for control of the pain. Flexion of the lumbar spine was 85 degrees. Extension was 30 degrees. Lateral bending was 30 degrees, left and right. Rotation was 30 degrees, left and right.

Based on the above fact pattern, what diagnostic code and evaluation would you assigned for the disability?

1. Medical records note straight leg raising to 50 degrees on left. The Veteran complains of low back pain radiating down the left leg with intermittent relief by Motrin. Diagnostic testing revealed no neurologic abnormalities. Private medical record gives history of lifting injury and confirms MRI finding of HNP. The Veteran’s Physician indicates that he prescribed one week of bed rest during the past 12 months.

Based on the above fact pattern, what diagnostic code and evaluation would you assigned for the disability?

1. If a major joint reveals x-ray evidence of arthritis and the Veteran has pain on motion but the schedule fails to support a compensable evaluation under the appropriate diagnostic code for limitation of motion what evaluation should be assigned?
2. Furnish evaluation and diagnostic code or codes for the following disability. The Veteran is suffering from residuals of fractured vertebra at L-3. Exam shows range of motion of lumbar spine to be forward flexion to 85 degrees, extension to 30 degrees, lateral flexion to 30 degrees and rotation to 30 degrees. X-ray at exam reveals evidence of spurring of L-3 vertebra and evidence of old fracture.
3. The Veteran has a service connected multiple finger injury. Exam findings reveal an amputation of the ring finger through the middle phalanx and amputation of little finger through proximal phalanx. Determine the level at which this single hand multiple finger disability should be evaluated.