

# Medicaid Disability Manual

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## 101.00 Musculoskeletal System

A. Disorders of the musculoskeletal system may result from hereditary, congenital, or acquired pathologic processes. Impairments may result from infectious, inflammatory, or degenerative processes, traumatic or developmental events, or neoplastic, vascular, or toxic/metabolic diseases.

B. Loss of function.

1. General. We evaluate impairments with neurological causes under 111.00, as appropriate.

2. How we define loss of function in these listings.

a. General. Regardless of the cause(s) of a musculoskeletal impairment, functional loss for purposes of these listings is defined as the inability to ambulate effectively on a sustained basis for any reason, including pain associated with the underlying musculoskeletal impairment, or the inability to perform fine and gross movements effectively on a sustained basis for any reason, including pain associated with the underlying musculoskeletal impairment.

The inability to ambulate effectively or the inability to perform fine and gross movements effectively must have lasted, or be expected to last, for at least 12 months. For the purposes of these criteria, consideration of the ability to perform these activities must be from a physical standpoint alone. When there is an inability to perform these activities due to a mental impairment, the criteria in 112.00ff are to be used. We will determine whether a child can ambulate effectively or can perform fine and gross movements effectively based on the medical and other evidence in the case record, generally without developing additional evidence about the child's ability to perform the specific activities listed as examples in 101.00B2b (2) and (3) and 101.00B2c (2) and (3).

b. What we mean by inability to ambulate effectively.

(1) Definition. Inability to ambulate effectively means an extreme limitation of the ability to walk; i.e., an impairment that interferes very seriously with the child's ability to independently initiate, sustain, or complete activities. Ineffective ambulation is defined generally as having insufficient lower extremity functioning (see 101.00J) to permit independent ambulation without the use of a hand-held assistive device(s) that limits the functioning of both upper extremities. (Listing 101.05C is an exception to this general definition because the child has the use of only one upper extremity due to amputation of a hand.)

(2) How we assess inability to ambulate effectively for children too young to be expected to walk independently. For children who are too young to be expected to walk independently, consideration of function must be based on assessment of limitations in the ability to perform comparable age-appropriate activities with the lower extremities, given normal developmental expectations. For such children, an extreme level of limitation means skills or performance at no greater than one-half of age-appropriate expectations based on an overall developmental assessment rather than on one or two isolated skills.

(3) How we assess inability to ambulate effectively for older children. Older children, who would be expected to be able to walk when compared to other children the same age who do

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not have impairments, must be capable of sustaining a reasonable walking pace over a sufficient distance to be able to carry out age-appropriate activities. They must have the ability to travel age-appropriately without extraordinary assistance to and from school or a place of employment.

Therefore, examples of ineffective ambulation for older children include, but are not limited to, the inability to walk without the use of a walker, two crutches or two canes, the inability to walk a block at a reasonable pace on rough or uneven surfaces, the inability to use standard public transportation, the inability to carry out age-appropriate school activities independently, and the inability to climb a few steps at a reasonable pace with the use of a single hand rail. The ability to walk independently about the child's home or a short distance at school without the use of assistive devices does not, in and of itself, constitute effective ambulation.

c. What we mean by inability to perform fine and gross movements effectively.

(1) Definition. Inability to perform fine and gross movements effectively means an extreme loss of function of both upper extremities; i.e., an impairment that interferes very seriously with the child's ability to independently initiate, sustain, or complete activities. To use their upper extremities effectively, a child must be capable of sustaining such functions as reaching, pushing, pulling, grasping, and fingering in an age-appropriate manner to be able to carry out age-appropriate activities.

(2) How we assess inability to perform fine and gross movements in very young children. For very young children, we consider limitations in the ability to perform comparable age-appropriate activities involving the upper extremities compared to the ability of children the same age who do not have impairments. For such children, an extreme level of limitation means skills or performance at no greater than one-half of age-appropriate expectations based on an overall developmental assessment.

(3) How we assess inability to perform fine and gross movements in older children. For older children, examples of inability to perform fine and gross movements effectively include, but are not limited to, the inability to prepare a simple meal and feed oneself, the inability to take care of personal hygiene, or the inability to sort and handle papers or files, depending upon which activities are age-appropriate.

d. Pain or other symptoms. Pain or other symptoms may be an important factor contributing to functional loss. In order for pain or other symptoms to be found to affect a child's ability to function in an age-appropriate manner or to perform basic work activities, medical signs or laboratory findings must show the existence of a medically determinable impairment(s) that could reasonably be expected to produce the pain or other symptoms.

The musculoskeletal listings that include pain or other symptoms among their criteria also include criteria for limitations in functioning as a result of the listed impairment, including limitations caused by pain. It is, therefore, important to evaluate the intensity and persistence of such pain or other symptoms carefully in order to determine their impact on the child's functioning under these listings. See also §§ 404.1525(f) and 404.1529 of this part, and §§ 416.925(f) and 416.929 of part 416 of this chapter.

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## C. Diagnosis and evaluation.

1. General. Diagnosis and evaluation of musculoskeletal impairments should be supported, as applicable, by detailed descriptions of the joints, including ranges of motion, condition of the musculature (e.g., weakness, atrophy), sensory or reflex changes, circulatory deficits, and laboratory findings, including findings on x-ray or other appropriate medically acceptable imaging. Medically acceptable imaging includes, but is not limited to, x-ray imaging, computerized axial tomography (CAT scan) or magnetic resonance imaging (MRI), with or without contrast material, myelography, and radionuclear bone scans. "Appropriate" means that the technique used is the proper one to support the evaluation and diagnosis of the impairment.

2. Purchase of certain medically acceptable imaging. While any appropriate medically acceptable imaging is useful in establishing the diagnosis of musculoskeletal impairments, some tests, such as CAT scans and MRIs, are quite expensive, and we will not routinely purchase them. Some, such as myelograms, are invasive and may involve significant risk. We will not order such tests. However, when the results of any of these tests are part of the existing evidence in the case record we will consider them together with the other relevant evidence.

3. Consideration of electrodiagnostic procedures. Electrodiagnostic procedures may be useful in establishing the clinical diagnosis, but do not constitute alternative criteria to the requirements of 101.04.

D. The physical examination must include a detailed description of the rheumatological, orthopedic, neurological, and other findings appropriate to the specific impairment being evaluated. These physical findings must be determined on the basis of objective observation during the examination and not simply a report of the child's allegation; e.g., "He says his leg is weak, numb."

Alternative testing methods should be used to verify the abnormal findings; e.g., a seated straight-leg raising test in addition to a supine straight-leg raising test. Because abnormal physical findings may be intermittent, their presence over a period of time must be established by a record of ongoing management and evaluation. Care must be taken to ascertain that the reported examination findings are consistent with the child's age and activities.

## E. Examination of the spine.

1. General. Examination of the spine should include a detailed description of gait, range of motion of the spine given quantitatively in degrees from the vertical position (zero degrees) or, for straight-leg raising from the sitting and supine position (zero degrees), any other appropriate tension signs, motor and sensory abnormalities, muscle spasm, when present, and deep tendon reflexes. Observations of the child during the examination should be reported; e.g., how he or she gets on and off the examination table.

Inability to walk on the heels or toes, to squat, or to arise from a squatting position, when appropriate, may be considered evidence of significant motor loss. However, a report of atrophy is not acceptable as evidence of significant motor loss without circumferential measurements of both thighs and lower legs, or both upper and lower arms, as appropriate, at

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a stated point above and below the knee or elbow given in inches or centimeters. Additionally, a report of atrophy should be accompanied by measurement of the strength of the muscle(s) in question generally based on a grading system of 0 to 5, with 0 being complete loss of strength and 5 being maximum strength. A specific description of atrophy of hand muscles is acceptable without measurements of atrophy but should include measurements of grip and pinch strength. However, because of the unreliability of such measurement in younger children, these data are not applicable to children under 5 years of age.

2. When neurological abnormalities persist. Neurological abnormalities may not completely subside after treatment or with the passage of time. Therefore, residual neurological abnormalities that persist after it has been determined clinically or by direct surgical or other observation that the ongoing or progressive condition is no longer present will not satisfy the required findings in 101.04. More serious neurological deficits (paraparesis, paraplegia) are to be evaluated under the criteria in 111.00ff.

F. Major joints refers to the major peripheral joints, which are the hip, knee, shoulder, elbow, wrist-hand, and ankle-foot, as opposed to other peripheral joints (e.g., the joints of the hand or forefoot) or axial joints (i.e., the joints of the spine.) The wrist and hand are considered together as one major joint, as are the ankle and foot. Since only the ankle joint, which consists of the juncture of the bones of the lower leg (tibia and fibula) with the hindfoot (tarsal bones), but not the forefoot, is crucial to weight bearing, the ankle and foot are considered separately in evaluating weight bearing.

G. Measurements of joint motion are based on the techniques described in the chapter on the extremities, spine, and pelvis in the current edition of the “Guides to the Evaluation of Permanent Impairment” published by the American Medical Association.

H. Documentation.

1. General. Musculoskeletal impairments frequently improve with time or respond to treatment. Therefore, a longitudinal clinical record is generally important for the assessment of severity and expected duration of an impairment unless the child is a newborn or the claim can be decided favorably on the basis of the current evidence.

2. Documentation of medically prescribed treatment and response. Many children, especially those who have listing-level impairments, will have received the benefit of medically prescribed treatment. Whenever evidence of such treatment is available it must be considered.

3. When there is no record of ongoing treatment. Some children will not have received ongoing treatment or have an ongoing relationship with the medical community despite the existence of a severe impairment(s). In such cases, evaluation will be made on the basis of the current objective medical evidence and other available evidence, taking into consideration the child’s medical history, symptoms, and medical source opinions. Even though a child who does not receive treatment may not be able to show an impairment that meets the criteria of one of the musculoskeletal listings, the child may have an impairment(s) that is either medically or, in the case of a claim for benefits under part 416 of this chapter, functionally equivalent in severity to one of the listed impairments.

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4. Evaluation when the criteria of a musculoskeletal listing are not met. These listings are only examples of common musculoskeletal disorders that are severe enough to find a child disabled. Therefore, in any case in which a child has a medically determinable impairment that is not listed, an impairment that does not meet the requirements of a listing, or a combination of impairments no one of which meets the requirements of a listing, we will consider whether the child's impairment(s) is medically or, in the case of a claim for benefits under part 416 of this chapter, functionally equivalent in severity to the criteria of a listing. (See §§ 404.1526, 416.926, and 416.926a.)

Individuals with claims for benefits under part 404, who have an impairment(s) with a level of severity that does not meet or equal the criteria of the musculoskeletal listings may or may not have the RFC that would enable them to engage in substantial gainful activity. Evaluation of the impairment(s) of these individuals should proceed through the final steps of the sequential evaluation process in 404.1520 (or, as appropriate, the steps in the medical improvement review standard in 404.1594).

## I. Effects of treatment.

1. General. Treatments for musculoskeletal disorders may have beneficial effects or adverse side effects. Therefore, medical treatment (including surgical treatment) must be considered in terms of its effectiveness in ameliorating the signs, symptoms, and laboratory abnormalities of the disorder, and in terms of any side effects that may further limit the child.

2. Response to treatment. Response to treatment and adverse consequences of treatment may vary widely. For example, a pain medication may relieve a child's pain completely, partially, or not at all. It may also result in adverse effects, e.g., drowsiness, dizziness, or disorientation, that compromise the child's ability to function. Therefore, each case must be considered on an individual basis, and include consideration of the effects of treatment on the child's ability to function.

3. Documentation. A specific description of the drugs or treatment given (including surgery), dosage, frequency of administration, and a description of the complications or response to treatment should be obtained. The effects of treatment may be temporary or long-term. As such, the finding regarding the impact of treatment must be based on a sufficient period of treatment to permit proper consideration or judgment about future functioning.

## J. Orthotic, prosthetic, or assistive devices.

1. General. Consistent with clinical practice, children with musculoskeletal impairments may be examined with and without the use of any orthotic, prosthetic, or assistive devices as explained in this section.

2. Orthotic devices. Examination should be with the orthotic device in place and should include an evaluation of the child's maximum ability to function effectively with the orthosis. It is unnecessary to routinely evaluate the child's ability to function without the orthosis in place. If the child has difficulty with, or is unable to use, the orthotic device, the medical basis for the difficulty should be documented. In such cases, if the impairment involves a lower extremity or extremities, the examination should include information on the child's ability to

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ambulate effectively without the device in place unless contraindicated by the medical judgment of a physician who has treated or examined the child.

3. Prosthetic devices. Examination should be with the prosthetic device in place. In amputations involving a lower extremity or extremities, it is unnecessary to evaluate the child's ability to walk without the prosthesis in place. However, the child's medical ability to use a prosthesis to ambulate effectively, as defined in 101.00B2b, should be evaluated. The condition of the stump should be evaluated without the prosthesis in place.

4. Hand-held assistive devices. When a child with an impairment involving a lower extremity or extremities uses a hand-held assistive device, such as a cane, crutch or walker, examination should be with and without the use of the assistive device unless contraindicated by the medical judgment of a physician who has treated or examined the child. The child's ability to ambulate with and without the device provides information as to whether, or the extent to which, the child is able to ambulate without assistance. The medical basis for the use of any assistive device (e.g., instability, weakness) should be documented. The requirement to use a hand-held assistive device may also impact on the child's functional capacity by virtue of the fact that one or both upper extremities are not available for such activities as lifting, carrying, pushing, and pulling.

K. Disorders of the spine, listed in 101.04, result in limitations because of distortion of the bony and ligamentous architecture of the spine and associated impingement on nerve roots (including the cauda equina) or spinal cord. Such impingement on nerve tissue may result from a herniated nucleus pulposus, spinal stenosis, arachnoiditis, or other miscellaneous conditions.

1. Herniated nucleus pulposus is a disorder frequently associated with the impingement of a nerve root, but occurs infrequently in children. Nerve root compression results in a specific neuro-anatomic distribution of symptoms and signs depending upon the nerve root(s) compromised.

## 2. Spinal arachnoiditis

### a. General

Spinal arachnoiditis is a condition characterized by adhesive thickening of the arachnoid which may cause intermittent ill-defined burning pain and sensory dysesthesia, and may cause neurogenic bladder or bowel incontinence when the cauda equina is involved.

### b. Documentation

Although the cause of spinal arachnoiditis is not always clear, it may be associated with chronic compression or irritation of nerve roots (including the cauda equina) or the spinal cord. For example, there may be evidence of spinal stenosis, or a history of spinal trauma or meningitis. Diagnosis must be confirmed at the time of surgery by gross description, microscopic examination of biopsied tissue, or by findings on appropriate medically acceptable imaging. Arachnoiditis is sometimes used as a diagnosis when such a diagnosis is unsupported by clinical or laboratory findings. Therefore, care must be taken to ensure that the diagnosis is documented as described in 101.04. Individuals with arachnoiditis, particularly when it involves the

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lumbosacral spine, are generally unable to sustain any given position or posture for more than a short period of time due to pain.

3. Lumbar spinal stenosis is a condition that may occur in association with degenerative processes, or as a result of a congenital anomaly or trauma, or in association with Paget's disease of the bone. Pseudoclaudication, which may result from lumbar spinal stenosis, is manifested as pain and weakness, and may impair ambulation. Symptoms are usually bilateral, in the low back, buttocks, or thighs, although some individuals may experience only leg pain and, in a few cases, the leg pain may be unilateral. The pain generally does not follow a particular neuro-anatomical distribution, i.e., it is distinctly different from the radicular type of pain seen with a herniated intervertebral disc, is often of a dull, aching quality, which may be described as "discomfort" or an "unpleasant sensation," or may be of even greater severity, usually in the low back and radiating into the buttocks region bilaterally. The pain is provoked by extension of the spine, as in walking or merely standing, but is reduced by leaning forward. The distance the individual has to walk before the pain comes on may vary. Pseudoclaudication differs from peripheral vascular claudication in several ways. Pedal pulses and Doppler examinations are unaffected by pseudoclaudication. Leg pain resulting from peripheral vascular claudication involves the calves, and the leg pain in vascular claudication is ordinarily more severe than any back pain that may also be present. An individual with vascular claudication will experience pain after walking the same distance time after time, and the pain will be relieved quickly when walking stops.

4. Other miscellaneous conditions that may cause weakness of the lower extremities, sensory changes, areflexia, trophic ulceration, bladder or bowel incontinence, and that should be evaluated under 101.04 include, but are not limited to, osteoarthritis, degenerative disc disease, facet arthritis, and vertebral fracture. Disorders such as spinal dysrhapism (e.g., spina bifida), diastematomyelia, and tethered cord syndrome may also cause such abnormalities. In these cases, there may be gait difficulty and deformity of the lower extremities based on neurological abnormalities, and the neurological effects are to be evaluated under the criteria in 111.00.

L. Abnormal curvatures of the spine. Abnormal curvatures of the spine (specifically, scoliosis, kyphosis and kyphoscoliosis) can result in impaired ambulation, but may also adversely affect functioning in body systems other than the musculoskeletal system. For example, an individual's ability to breathe may be affected; there may be cardiac difficulties (e.g., impaired myocardial function); or there may be disfigurement resulting in withdrawal or isolation. When there is impaired ambulation, evaluation of equivalence may be made by reference to 114.09A. When the abnormal curvature of the spine results in symptoms related to fixation of the dorsolumbar or cervical spine, evaluation of equivalence may be made by reference to 114.09C. When there is respiratory or cardiac involvement or an associated mental disorder, evaluation may be made under 103.00ff, 104.00ff, or 112.00ff, as appropriate. Other consequences should be evaluated according to the listing for the affected body system.

M. Under continuing surgical management, as used in 101.07 and 101.08, refers to surgical procedures and any other associated treatments related to the efforts directed toward the salvage or restoration of functional use of the affected part. It may include such factors as post-surgical procedures, surgical complications, infections, or other medical complications, related illnesses, or related treatments that delay the child's attainment of maximum benefit from therapy. When burns are not under continuing surgical management, see 108.00F.

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N. After maximum benefit from therapy has been achieved in situations involving fractures of an upper extremity (101.07), or soft tissue injuries (101.08), i.e., there have been no significant changes in physical findings or on appropriate medically acceptable imaging for any 6-month period after the last definitive surgical procedure or other medical intervention, evaluation must be made on the basis of the demonstrable residuals, if any. A finding that 101.07 or 101.08 is met must be based on a consideration of the symptoms, signs, and laboratory findings associated with recent or anticipated surgical procedures and the resulting recuperative periods, including any related medical complications, such as infections, illnesses, and therapies which impede or delay the efforts toward restoration of function.

Generally, when there has been no surgical or medical intervention for 6 months after the last definitive surgical procedure, it can be concluded that maximum therapeutic benefit has been reached. Evaluation at this point must be made on the basis of the demonstrable residual limitations, if any, considering the child's impairment-related symptoms, signs, and laboratory findings, any residual symptoms, signs, and laboratory findings associated with such surgeries, complications, and recuperative periods, and other relevant evidence.

O. Major function of the face and head, for purposes of listing 101.08, relates to impact on any or all of the activities involving vision, hearing, speech, mastication, and the initiation of the digestive process.

P. When surgical procedures have been performed, documentation should include a copy of the operative notes and available pathology reports.

## **101.01 Category of Impairments, Musculoskeletal**

**101.02 Major dysfunction of a joint(s) (due to any cause):** Characterized by gross anatomical deformity (e.g., subluxation, contracture, bony or fibrous ankylosis, instability) and chronic joint pain and stiffness with signs of limitation of motion or other abnormal motion of the affected joint(s), and findings on appropriate medically acceptable imaging of joint space narrowing, bony destruction, or ankylosis of the affected joint(s). With:

A. Involvement of one major peripheral weight-bearing joint (i.e., hip, knee, or ankle), resulting in inability to ambulate effectively, as defined in 101.00B2b;

or

B. Involvement of one major peripheral joint in each upper extremity (i.e., shoulder, elbow, or wrist-hand), resulting in inability to perform fine and gross movements effectively, as defined in 101.00B2c.

**101.03 Reconstructive surgery or surgical arthrodesis of a major weight-bearing joint,** with inability to ambulate effectively, as defined in 101.00B2b, and return to effective ambulation did not occur, or is not expected to occur, within 12 months of onset.

**101.04 Disorders of the spine** (e.g., lysosomal disorders, metabolic disorders, vertebral osteomyelitis, vertebral fracture, achondroplasia) resulting in compromise of a nerve root (including the cauda equina) or the spinal cord, with evidence of nerve root compression characterized by neuro-anatomic distribution of pain, limitation of motion of the spine, motor loss (atrophy with associated muscle weakness or muscle weakness) accompanied by sensory

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or reflex loss and, if there is involvement of the lower back, positive straight-leg raising test (sitting and supine).

### **101.05 Amputation (due to any cause).**

A. Both hands;

or

B. One or both lower extremities at or above the tarsal region, with stump complications resulting in medical inability to use a prosthetic device to ambulate effectively, as defined in 101.00B2b, which have lasted or are expected to last for at least 12 months;

or

C. One hand and one lower extremity at or above the tarsal region, with inability to ambulate effectively, as defined in 101.00B2b;

or

D. Hemipelvectomy or hip disarticulation.

### **101.06 Fracture of the femur, tibia, pelvis, or one or more of the tarsal bones.** With:

A. Solid union not evident on appropriate medically acceptable imaging, and not clinically solid;

and

B. Inability to ambulate effectively, as defined in 101.00B2b, and return to effective ambulation did not occur or is not expected to occur within 12 months of onset.

**101.07 Fracture of an upper extremity** with nonunion of a fracture of the shaft of the humerus, radius, or ulna, under continuing surgical management, as defined in 101.00M, directed toward restoration of functional use of the extremity, and such function was not restored or expected to be restored within 12 months of onset.

**101.08 Soft tissue injury (e.g., burns)** of an upper or lower extremity, trunk, or face and head, under continuing surgical management, as defined in 101.00M, directed toward the salvage or restoration of major function, and such major function was not restored or expected to be restored within 12 months of onset. Major function of the face and head is described in 101.00O.