Diagnosis: Medial meniscal tear, treated conservatively, asymptomatic.

Impairment Rating: Regional impairment: Diagnosis: "meniscal injury" and per criteria of "partial (medial or lateral) meniscectomy, meniscal tear, or meniscal repair" assigned to class 1 with mid-range default value of 2% LEI. Adjustment grids: Functional history: Grade modifier 0; Physical examination: Grade modifier 0; Clinical studies: Grade 1 (chondromalacia). With 2 grade modifier 0's, adjustments moved 2 to the left of mid-range default resulting in grade A and final rating of 1% LEI and converts to 1% WPI.

Class 1 Example Calculation			
CDX	GMFH	GMPE	GMCS
1	0	0	1

(0 − 1) −1
+ (0 − 1) −1
+ (1 − 1) 0
Net adjustment = −2

Adjustment of −2 equals 2 positions to the left of default grade C resulting in grade A

Class 1, grade A = 1%

EXAMPLE 16-9: S/P ANTERIOR CRUCIATE RECONSTRUCTION AND MEDIAL MENISCUS REPAIR

Subject: 52-year-old man.

History: Sustained twisting injury to right knee on a slippery surface while carrying sheet rock. He heard a "pop" and had swelling of joint over next day and examination revealed hemarthrosis, positive Lachman's test, and medial joint line tenderness. An MRI revealed a torn anterior cruciate ligament and bucket handle tear of the medial meniscus. The patient underwent arthroscopic anterior cruciate reconstruction and repair of the torn medial meniscus 1 year ago. He reported severe ongoing pain and nearly total functional loss of his extremity.

Physical Exam: 5° flexion contracture, normal flexion and no effusion. "Give way" weakness of his quadriceps and no atrophy. There is mild laxity of the ACL. His gait was unremarkable when exiting the examination room.

Clinical Studies: Current weight-bearing X rays show bioabsorbable fixation of the ACL in good position with a normal 5 mm joint space in all 3 compartments.

Diagnosis: s/p anterior cruciate ligament reconstruction and medial meniscus repair.

Comment: The methodology requires the examiner to pick one diagnosis for the region. The anterior instability diagnosis was chosen, and the effect of the meniscal tear is reflected in the adjustments.

Impairment Rating: Diagnosis: "cruciate or collateral ligament injury" with mild instability assigned to class 1 with a default value of 10% LEI. Functional history judged unreliable in the presence of only mild instability and no atrophy, and thus not used in rating. Physical exam instability not used as a grade modifier since stability was used in class assignment. No atrophy would be grade 0, but 5° flexion contracture would be rated at 10% LEI by Table 16-23, and Table 16-25 indicates a 10% LEI rating would be a mild degree of problem, or a grade 1 modifier from Table 16-7. The anterior cruciate reconstruction, in good position without joint space narrowing on current weight-bearing X rays, by itself would be a grade 1, mild pathology adjustment. The presence of the meniscal tear and subsequent repair (documented in the operation report) would justify moving up a grade to grade 2 for the final clinical studies adjustment. The net adjustment is +1, so class 1, grade D, or 12% LEI is the final rating.

CLASS 2

4% to 25% Impairment of the Lower Extremity

EXAMPLE 16-10: SUBLUXING PATELLA

Subject: 3[illegible]-year-old female.

History: Notes that her left knee has been "giving-out" when squatting to change the arm on equipment she operated. She underwent a rehabilitation program that has decreased the pain, but she still remains symptomatic when not maintaining her exercise program. She was found to be at MMI following 6 months of rehabilitation. She says that her knee hurts in the front most of the time, especially when climbing stairs. She has an antalgic limp despite use of a patellar tracking brace.

Physical Exam: She has valgus deformity (knocked-knees) and severe laxity of the patellar mechanism with an apprehension sign on palpating the patella and checking for stability. She has significant crepitus in the patellofemoral (P-F) joint. Her knee is otherwise slightly lax to valgus and varus stress with the knee flexed. No effusion is palpable. There is 2.5 cm of thigh atrophy.

Clinical Studies: X rays reveal a "lateral tilt" of the patella in the femoral groove with a shallow groove, and she has a positive "Q angle." The MRI is otherwise without new lesions except for the presence of the structural abnormalities of the P-F joint and moderate "chondromalacia patella."

TABLE 16-3 (CONTINUED) Knee Regional Grid – Lower Extremity Impairments

DIAGNOSTIC CRITERIA (KEY FACTOR)	CLASS 0	CLASS 1	CLASS 2	CLASS 3	CLASS 4
CLASS DEFINITIONS	No problem	Mild problem	Moderate problem	Severe problem	Very severe problem
IMPAIRMENT RANGES	0% LE	1%–13% LE	14%–25% LE	26%–49% LE	50%–100% LE
GRADE		A B C D E	A B C D E	A B C D E	A B C D E
LIGAMENT / BONE / JOINT		**Do not use with PE stability**	**Do not use with PE stability**		
Cruciate or collateral ligament injury; Surgery not rating factor	0 No instability	7 8 10 12 13 Mild laxity	14 15 16 17 18 Moderate laxity		
Cruciate and collateral ligament injury; Surgery not rating factor	0 No instability	7 8 10 12 13 Mild laxity	19 20 22 24 25 Moderate laxity	31 34 37 40 43 Severe laxity	
Patellar Lesion		**Do not use with PE stability**	**Do not use with PE stability**		
Patellar subluxation or dislocation	0 No instability	5 6 7 8 9 Mild instability	14 15 16 17 18 Moderate instability 19 20 22 24 25 Severe instability		
Patellectomy		5 6 7 8 9 Partial	19 20 22 24 25 Total		
Fracture		**Do not use with CS x ray alignment**	**Do not use with CS x ray alignment**	**Do not use with CS x ray alignment**	
Femoral shaft fracture	0 Non-displaced, with no significant objective abnormal findings at MMI	5 6 7 8 9 Abnormal examination findings and <10° angulation	14 15 16 17 18 10°–19° angulation	31 34 37 40 43 20°+ angulation	52 56 60 64 68 Non-union and/or infected
Supracondylar or intercondylar fracture	0 Non-displaced, with no significant objective abnormal findings at MMI	3 4 5 6 7 Non-displaced with abnormal examination findings 7 8 10 12 13 5°–9° angulation	19 20 22 24 25 10°–19° angulation	31 34 37 40 43 20°+ angulation or > 2 mm articular surface step off	52 56 60 64 68 Non-union and/or infected
Patellar fracture	0 Non-displaced, with no significant objective abnormal findings at MMI	5 6 7 8 9 Non-displaced with abnormal examination findings 7 8 10 12 13 Articular surface displaced 3 mm or less	14 15 16 17 18 Displaced with nonunion		
Tibial plateau fracture	0 Non-displaced, with no significant objective abnormal findings at MMI	3 4 5 6 7 Non-displaced with abnormal examination findings 7 8 10 12 13 < 9° angulation	19 20 22 24 25 10°–19° angulation or ≤2 mm articular surface step off	31 34 37 40 43 20°+ angulation or > 2 mm articular surface step off	52 56 60 64 68 Non-union and/or infected, or severe comminuted, displaced

TABLE 16-4 (CONTINUED) Hip Regional Grid – Lower Extremity Impairments

DIAGNOSTIC CRITERIA (KEY FACTOR)	CLASS 0	CLASS 1	CLASS 2	CLASS 3	CLASS 4
CLASS DEFINITIONS	No problem	Mild problem	Moderate problem	Severe problem	Very severe problem
IMPAIRMENT RANGES	0% LE	1%–13% LE	14%–25% LE	26%–49% LE	50%–100% LE
GRADE		A B C D E	A B C D E	A B C D E	A B C D E
Osteotomy / Joint Replacement					
s/p Femoral osteotomy			20 22 24 25 Fair or good result	31 34 37 40 43 Poor result (effusion, limited motion, instability)	
Partial or total hip replacement			21 23 25 25 25 Good result (good position, stable, functional)	31 34 37 40 43 Fair result (fair position, mild instability and/or mild motion deficit)	59 63 67 71 75 Poor result (poor position, moderate to severe instability, and/or moderate to severe motion deficit) 67 71 75 79 83 Poor result with chronic infection

16.3 Adjustment Grid and Grade Modifiers—Non-Key Factors

The adjustment grids, as described in the introduction, are used to assign a grade within the class defined by the regional grid. The grade for a given class is determined by considering functional history, physical examination findings and the results of relevant clinical studies (See Table 16-5).

The grade modifiers associated with functional history, physical examination and clinical studies will be used to calculate a net adjustment, that permits modification of the default value, grade C, up or down within a given class adjustment. When determining the grade modifier, assess each of the components of the adjustment (eg, soft tissue findings, stability, and alignment, etc) and use the highest class modifier as the value for that adjustment in the net adjustment calculation. For example, on physical examination, soft tissue findings may be characterized as grade modifier 0 and stability findings may be grade modifier 2. The class modifier for physical examination would then be grade modifier 2, because it is the higher of the 2 grades. If a grade modifier, or non-key factor, was used for

TABLE 16-5

Adjustment Grid: Summary

	Specific Adjustment Grid	Grade Modifier 0	Grade Modifier 1	Grade Modifier 2	Grade Modifier 3	Grade Modifier 4
FUNCTIONAL HISTORY	Table 16-6	No problem	Mild problem	Moderate problem	Severe problem	Very severe problem
PHYSICAL EXAMINATION	Table 16-7	No problem	Mild problem	Moderate problem	Severe problem	Very severe problem
CLINICAL STUDIES	Table 16-8	No problem	Mild problem	Moderate problem	Severe problem	Very severe problem

primary placement in the regional grid, it may not be used again in the impairment calculation. For example, if a diagnostic class was determined using range of motion as a factor, then range of motion is not considered again when determining the physical examination adjustment factor. The non-key factors must be consistent, reliable and associated with the diagnosis.

If any of these factors are determined by the examiner to be unreliable or inconsistent, they should be disregarded in the grading adjustment. The examiner should explain in the evaluation report the basis for grade assignment or discounting of a specific adjustment for lack of reliability.

16.3a Adjustment Grid—Functional History

Grade assignment for functional symptoms is based on subjective reports that are attributable to the impairment. Grading is based on the extent to which functional symptoms interfere with different levels of activities, as summarized in Table 16-6, Functional History Adjustment. As explained in Section 1.8e History of Clinical Presentation, in general, individuals with no symptoms will be assigned grade modifier 0, and those who are nonambulatory will be assigned grade modifier 4.

Functional history grade modifier should be applied only to the single, highest diagnosis-based impairment (DBI). Specific jurisdictions may modify this process such that functional history adjustment is considered for each diagnosis-based impairment (DBI) or not considered at all as a grade modifier.

The need for assistive devices is based on objective medical reasons and not for pain or alleged insecurity. The evaluating physician may use outcome instruments and inventories as part of the process of evaluating functional symptoms. Further information on inventories for the lower extremity is provided on the Web site of the American Academy of Orthopedic Surgeons. Inventories must be widely accepted and have documented reliability and validity. The American Academy of Orthopaedic Surgery Lower Limb Instrument is 1 inventory that may be used; information and scoring is provided at the AAOS Web site. An inventory is used only to assist the examiner in defining the grade for functional history and does not serve as a basis for defining further impairment nor does the score reflect an impairment percentage (see Table 16-6).

The examiner must assess the reliability of the functional reports recognizing the potential influence of behavioral and psychosocial factors. Therefore, the examiner must use appropriate clinical judgment in interpreting subjective reports. Gait abnormalities must be observed and consistent. If the grade for functional history differs by 2 or more grades from that defined by physical examination or clinical studies the functional history should be assumed to be unreliable. If the functional history is determined to be unreliable or inconsistent with other documentation, it is excluded from the grading process.

TABLE 16-6

Functional History Adjustment – Lower Extremities

	Grade Modifier 0	Grade Modifier 1	Grade Modifier 2	Grade Modifier 3	Grade Modifier 4
CLASS DEFINITIONS	**No problem**	**Mild problem**	**Moderate problem**	**Severe problem**	**Very severe problem**
GAIT DERANGEMENT	None	Antalgic limp with asymmetric shortened stance, corrects with footwear modifications and/or orthotics	Antalgic limp (in the presence of objectively defined significant pathology) with asymmetric shortened stance; stable with use of external orthotic device (eg, ankle-foot orthosis), routine use of single gait aid (cane or crutch), or positive Trendelenburg test	Antalgic/unstable transfers and ambulation requires routine use of gait aids (2 canes or crutches) or KAFO brace[a]	Nonambulatory
AAOS LOWER LIMB INSTRUMENT (OR OTHER INVENTORY)	Normal	Mild deficit	Moderate deficit	Severe deficit	Near-total to total deficit

[a] KAFO indicates knee, ankle, foot orthosis; AAOS, American Academy of Orthopaedic Surgeons.

16.3b Adjustment Grid—Physical Examination

When performing a physical examination, the clinician needs to determine the significance of the findings related to the impairment being evaluated. For the purposes of this evaluation, greater weight is given to those findings that are more objective. Some parameters described in the adjustment grid may be region-specific.

If multiple diagnoses are rated, the examiner should determine the appropriate impairment class for each diagnosis, and the examiner must distinguish which physical examination findings are associated with each specific ratable condition. If a physical finding, for example, range of motion, has been used to determine class placement, that specific finding should not be used to select a grade modifier. If physical examination findings are determined to be unreliable or inconsistent, or they are for conditions unrelated to the condition being rated, they are excluded from the grading process. The physician must explain, in the report, the rationale for the choice of grade.

Table 16-7, Physical Examination Adjustment, summarizes the grading process. Specific parameters are provided in the adjustment grid for the appropriate region.

Stability, alignment and deformity are determined clinically and/or on the basis of radiographic studies; specific parameters may vary by region.

Range of motion is graded according to the process and the criteria specified in Section 16.7. Lower extremity impairment can be evaluated by assessing the range of motion of its joints, recognizing that pain and motivation may affect the measurements. If it is clear to the evaluator that a restricted range of motion has an organic basis, 3 measurements should be obtained and the greatest range measured should be used for the determination of impairment. If multiple previous evaluations have been documented,

TABLE 16-7

Physical Examination Adjustment – Lower Extremities

	Grade Modifier 0	Grade Modifier 1	Grade Modifier 2	Grade Modifier 3	Grade Modifier 4
CLASS DEFINITIONS	**No problem**	**Mild problem**	**Moderate problem**	**Severe problem**	**Very severe problem**
OBSERVED AND PALPATORY FINDINGS (tenderness, swelling, mass, or crepitance)	No consistent findings	Minimal palpatory findings, consistently documented, without observed abnormalities	Moderate palpatory findings, consistently documented, and supported by observed abnormalities	Severe palpatory findings, consistently documented, and supported by observed moderate or greater abnormalities	Very severe palpatory findings, consistently documented, and supported by observed severe abnormalities
STABILITY	Stable	Grade 1 (slight) instability	Grade 2 (moderate) instability	Grade 3 (serious) instability	Gross instability
KNEE		Grade 1 Lachman's test; slight laxity patellar mechanism	Grade 2 Lachman's test; moderate laxity patellar mechanism	Grade 3 Lachman's test; severe laxity patellar mechanism	Multi-directional instability
ALIGNMENT/ DEFORMITY	Normal for individual with symmetry to opposite side	Mild	Moderate	Severe	Very severe
RANGE OF MOTION (reference Section 16.7)	None	Mild or arthrodesis in position of function	Moderate	Severe	Very severe
MUSCLE ATROPHY (asymmetry compared to opposite normal)	<1 cm	1.0–1.9 cm	2.0–2.9 cm	3.0–3.9cm+	4.0 cm+
LIMB LENGTH DISCREPANCY	<1.9 cm	2.0–2.9 cm	3–4.9 cm	5.0–5.9 cm+	6.0 cm+

and there is inconsistency in a rating class between the findings of 2 observers, or in the findings on separate occasions by the same observer, the results are considered invalid. Range of motion restrictions in multiple directions do increase the impairment. The total values for the foot/ankle, knee, or hip are compared to the criteria in Section 16-7, Range of Motion Impairment, to define the range of motion grade modifier. Range of motion impairment is not combined with the diagnosed-based impairment.

The evaluation of neurologic deficits is explained in Section 16.4, Peripheral Nerve Impairments.

For muscle atrophy, the limb circumference should be measured and compared to the opposite limb at equal distances from either the joint line or another palpable anatomic structure. For example, thigh circumference may be measured 10 cm above the patella and compared a similar measure on the other thigh. Calf circumference is compared at the level of maximum circumference bilaterally. Neither limb should have swelling or varicosities that would invalidate the measurements.

To determine limb length discrepancy, place the individual supine on the examination table with the legs in the same position. Measure the distance between the anterior superior iliac spine and the medial malleolus on the involved side, and compare it with the opposite side. Teleroentgenography is recommended. If surface measurements with a tape measure from the anterior superior iliac spine to medial malleolus are used, they should be repeated 3 times and averaged to reduce measurement error.

16.3c Adjustment Grid—Clinical Studies

The patient may have undergone a variety of special tests including imaging studies and electromyographic studies. The physician should review these studies, and note their interpretations. Whenever possible, the physician should personally review the studies and report agreement or disagreement with previous interpretations. Studies must be reliable and pertinent. For adjustment purposes, findings at MMI are used.

Imaging studies are used to grade arthritis. Cartilage interval or joint space is the best roentgenographic indicator of disease stage and impairment for a person with arthritis of the lower extremity. The hallmark of all types of arthritis is thinning of the articular cartilage; this correlates well with disease progression. The impairment estimates in a person with arthritis of the lower extremity are based on standard X rays taken with the individual standing, if possible. The ideal film-to-camera distance is 90 cm (36 in), and the beam should be at the level of and parallel to the joint surface. Evaluation of the foot joints requires a lateral view for the hindfoot and an anteroposterior view for the midfoot and forefoot. An oblique view taken with internal rotation will assist in viewing the metatarsal and metatarsophalangeal joints. The ankle X ray must be taken in a mortise view, which is 10° internal rotation; 10° flexion or extension is permissible. The estimate for the patellofemoral joint is based on a "sunrise view" taken at 40° flexion or on a true lateral view. In the case of the knee, the joint should ideally be in neutral flexion-extension position (0°) to evaluate the X rays. Impairments of individuals with knee flexion contractures should not be estimated using X rays because measurements are unreliable. X rays of the hip joint are taken in the neutral position. The cartilage interval (joint space) of the hip is relatively constant in the various positions; therefore, positioning is not as critical as for the knee X rays (see Table 16-8).

Electrodiagnostic studies should be performed by a licensed physician who is qualified by education, training, and experience in these procedures. Typically, these studies are performed by board certified neurologists and physical medicine specialists. Some jurisdictions allow others to perform such studies. The studies must be performed in accordance with established standards.

16.3d Impairment Calculation Methodology

As described in the preceding parts of this chapter, impairment is calculated by identifying an impairment class that reflects the diagnosis, and a grade that considers functional, physical and clinical facets of the condition. The impairment class (IC) is determined first, by using the corresponding diagnosis-based regional grid. The grades are then determined using the adjustment grids.

Each regional grid provides a range of impairment values for each specific diagnosis. Each cell within a regional grid contains a range of impairment values, represented by a series of 5 numbers that correspond to grades A- E. Once the impairment class is determined according to diagnostic criteria, the final impairment grade within a particular class is determined by the non-key factors, or grade modifiers, identified in the adjustment grids. The first grade (A) is the lowest impairment rating that could be assigned for the class; the last grade (E) is the highest. For most impairment rating scenarios, the middle grade (C) and the correlating numerical impairment value in that class will serve as the default impairment value, which is adjusted to reflect the non-key factors.

TABLE 16-8

Clinical Studies Adjustment – Lower Extremities[a]

	Grade Modifier 0	Grade Modifier 1	Grade Modifier 2	Grade Modifier 3	Grade Modifier 4
CLASS DEFINITIONS	**No problem**	**Mild problem**	**Moderate problem**	**Severe problem**	**Very severe problem**
IMAGING STUDIES	No available clinical studies or relevant findings	Clinical studies confirm diagnosis; mild pathology	Clinical studies confirm diagnosis; moderate pathology	Clinical studies confirm diagnosis; severe pathology	Clinical studies confirm diagnosis; very severe pathology
X RAYS					
ARTHRITIS *Note:* Do not use when X-ray cartilage interval is used in diagnostic impairment definition		Cartilage interval normal or less than 25% loss compared to opposite uninjured side; cystic changes on 1 side of joint; loose body <5 mm	Cartilage interval present; however, 25% to 50% loss compared to opposite uninjured side; cystic changes on both sides of joint; loose body 5 mm or greater or multiple loose bodies; radiographic evidence of mild posttraumatic arthrosis or avascular necrosis	Cartilage interval present; however, >50% lost compared to opposite uninjured side; radiographic evidence of moderate posttraumatic arthrosis or avascular necrosis	No cartilage interval; radiographic evidence of severe posttraumatic arthrosis or avascular necrosis
STABILITY Foot/Ankle *Note:* Do not use when X-ray stress opening is used in diagnostic impairment definition		AP stress radiograph: 2- to 3-mm excess opening or 5°–9° varus opening compared to normal opposite side	AP stress radiograph: 4- to 6-mm excess translation or 10–15° varus opening compared to normal opposite side Lateral stress radiograph: anterior drawer 4- to 6-mm excess translation compared to normal side	AP stress radiographs: >6-mm excess translation or >15° varus opening compared to normal opposite side Lateral stress radiograph: anterior drawer >6-mm excess translation compared to normal side	
ALIGNMENT Foot/Ankle *Note:* Do not use when X-ray angulation is used in diagnostic impairment definition		Syndesmosis normal; healed angulation or rotational deformity <5° in any plane	Syndesmosis laxity with separation demonstrated on foot external rotation AP ankle radiograph compared to opposite normal ankle Healed, angular or rotational deformity 5°–15° in any plane	Healed, angular or rotational deformity >15° in any plane	Severe multiplanar deformity
KNEE *Note:* Do not use when X-ray angulation is used in diagnostic impairment definition		<10° angulation/ rotational deformity single plane	10°–20° angulation/ rotational deformity single plane	>20° angulation/ rotational deformity 1–2 planes	Severe multiplanar deformity

(continued)

TABLE 16-8 (CONTINUED) Clinical Studies Adjustment – Lower Extremities

HIP *Note:* Do not use when X-ray angulation is used in diagnostic impairment definition			Femoral osteotomy in good position	Femoral osteotomy in suboptimal position	
NERVE CONDUCTION TESTING	Normal	Conduction Delay (sensory and/or motor)	Motor Conduction Block	Partial Axonal Loss	Total Axonal Loss/Denervation
ELECTRO-DIAGNOSTIC (EMG) TESTING *Note:* If the test results meet some of, but not all of the criteria for a specific class, the next lower class is the class to be used in rating the impairment	Normal	Needle EMG done at least 3 weeks but less than 9 months after injury shows at least 1+ fibrillation potentials and positive waves in at least 2 muscles innervated by the injured nerve. If the EMG study is first done more than 9 months post-injury, the exam shows high amplitude polyphasic muscle potentials in at least 1 muscle and recruitment in that muscle is at least mildly reduced.	Needle EMG done at least 3 weeks but less than 9 months after injury shows at least 2+ fibrillation potentials and positive waves in at least 2 muscles innervated by the injured nerve. If the EMG study is first done more than 9 months post-injury, the exam shows high amplitude polyphasic muscle potentials in at least 2 muscles and recruitment in those muscles is at least moderately decreased.	Needle EMG done at least 3 weeks but less than 9 months after injury shows at least 3+ fibrillation potentials and positive waves in at least 3 muscles innervated by the injured nerve. If the EMG study is first done more than 9 months post-injury, the exam shows high amplitude polyphasic muscle potentials in at least 3 muscles and recruitment in those muscles is severely decreased.	Needle EMG done at least 3 weeks but less than 9 months after injury shows at least 4+ fibrillation potentials and positive waves in at least 3 muscles innervated by the injured nerve. If the EMG study is first done more than 9 months post-injury, the exam shows no motor units (fibrofatty replacement of muscle) in at least 2 muscles.

TABLE 16-9 Methodology for Determining the Grade in an Impairment Class

DIAGNOSTIC CRITERIA (KEY FACTOR)	CLASS 0	CLASS 1	CLASS 2	CLASS 3	CLASS 4
IMPAIRMENT RANGES[a]	0% LE	1%–13% LE	14%–25% LE	26%–49% LE	50%–100% LE
GRADE		A B **C** D E	A B **C** D E	A B **C** D E	A B **C** D E
EXAMPLE RATING		3 4 **5** 6 7 ↑ Class 1 Default	16 18 **20** 22 24 ↑ Class 2 Default	26 28 **30** 32 34 ↑ Class 3 Default	50 52 **54** 56 58 ↑ Class 4 Default

[a] LE indicates lower extremity.

Once the class is determined, the grade is initially assigned to the default impairment (C) rating. This initial default value may be modified up or down within a class by calculating a net adjustment, based upon the grade modifiers. Using the **Net Adjustment Formula,** the assigned value for each grade modifier (0 to 4) is compared with the number of the impairment class (0 to 4) using the **Net Adjustment Formula,** described in the box entitled: **Net Adjustment Formula: Mathematical Explanation.** The net adjustment value is used to move up a grade (+ net adjustment value) or down a grade (− net adjustment value) within a class. If all of the grade modifier numbers are the same as the impairment class number, the net adjustment will be 0 and the default value (C) will be the impairment rating value for that diagnosis. Grade adjustments do not permit a change in class, regardless of the magnitude of the net adjustment.

Method

1. Determine the class first, using the relevant regional grid, by choosing the appropriate diagnosis for the condition in the left-most column. Select the class for that diagnosis based on the criteria specified in the columns for classes 0 to 4.
2. Using the adjustment grids for functional history, physical examination and clinical studies, identify the appropriate grade for each, using grade modifiers:
   a. If there are multiple components to a grade modifier, such as physical examination (which may include palpatory findings, alignment, instability), choose the most objective grade modifier with the highest value, associated with the diagnosis being rated. *If a grade modifier is found to be unreliable or inconsistent, it should be disregarded and eliminated from the calculation.*
   b. If a particular criterion such as range of motion was used to determine impairment class, it may not be used again to determine the grade and is disregarded in the impairment calculation.
   c. Functional history grade modifier should be applied only to the highest diagnosed-based impairment. Specific jurisdictions may modify this process such that functional history adjustment is considered for each diagnosed-based impairment or not considered at all as a grade modifier.
3. Applying the **Net Adjustment Formula**, as shown in the box, calculate the net adjustment value by subtracting the numerical value of the class (CDX) from the numerical value of the grade modifier for each component (functional history, physical examination and clinical studies) and add those values. That net adjustment value will determine how many places up or down from the default value "C' the rating should move and the corresponding numerical value for the impairment.

Net Adjustment Formula: Mathematical Explanation

Net adjustment may be obtained by a mathematical formula and then use of the resultant value to define the grade. The following abbreviations are used:

CDX = Class of Diagnosis (Regional Grid)
GMFH = Grade Modifier for Functional History
GMPE = Grade Modifier for Physical Examination
GMCS = Grade Modifier for Clinical Studies

Net Adjustment = (GMFH − CDX) + (GMPE − CDX) + (GMCS − CDX)

Grade Assignments

Net Adjustment (from default C)	Grade
−2	A
−1	B
0	C
1	D
2	E

For example, if the diagnosis is in impairment class 2, then CDX = 2. If net adjustment value is −2, then the Grade is A.

To further illustrate this process, if the key factor identifies class 3, and non-key factors identify grade modifier 1 and grade modifier 4 with the third non-key factor determined to be unreliable, this would produce differences of −2 (1 − 3) and +1 (4 − 3), respectively. These (−2 + 1) add to a net adjustment of −1, moving the rating to 1 lower grade within that class (ie, 1 position to the left) and the corresponding impairment percentage. In this example, if the non-key factors both identified grade modifier 1 the differences would total −4 [net adjustment = (1−3) + (1−3) = −4]. Since this procedure does not allow jumping from 1 class to a lower (or higher) class, the rating would move to the lowest grade within a class. In this example, if all non-key factors identified grade 3 you would remain at the default mid position.

As explained in other chapters, a modification of this process is required for class 4 impairments;

these impairments are uncommon. If the key factor is class 4, and both non-key factors were grade modifier 4, the differences would summate to zero, and placement in a grade above the default value C in class 4 would not be possible. In order to correct this deficiency, if the key factor is class 4, automatically add +1 to the value of each non-key factor. For example, if the key factor is class 4, and the first non-key factor was grade 3, the second was grade 4, the differences are −1 and zero. Adding +1 to each of these yields zero and +1; this summates to +1. Consequently, the final class 4 and the final impairment is class 4 grade D.

Example: Meniscectomy

The use of the adjustment process can be illustrated by the rating of a partial medial meniscectomy. According to the knee regional grid, this results in class 1 impairment. If on the basis of the use of the adjustment table, it was determined that the non-key factors were normal functional history, unremarkable examination (grade modifier 0), and MRI study that confirmed the meniscal tear (grade modifier 1), the net adjustment is calculated NA = GMPE − CDX + GMCS − CDX or (0−1) + (0 − 1) + (1 − 1) = −2, and moves the grade within the class 2 positions to the left of the default value (1% lower extremity). For this diagnosis, it would remain at 1% lower extremity.

16.3e Lower Extremity Examples

Foot and Ankle Impairment Examples (see Table 16-2, Foot and Ankle Regional Grid)

CLASS 0

0% Impairment of the Lower Extremity

EXAMPLE 16-1: CONTUSION

Subject: 25-year-old man

History: Dropped a concrete block on his right foot. X rays revealed no fracture and he was treated conservatively for a "contusion." He continued to have complaints of severe pain and was diagnosed by a consultant physician as having reflex sympathetic dystrophy. The patient declined recommended treatment.

Current Symptoms: One year later he is being seen for an impairment evaluation reporting that he has severe right foot pain (averaging 9 on scale of 0 to 10) and significant difficulty walking and standing.

Physical Exam: He displays antalgic gait in the examination room, however on leaving the office his gait appeared normal. He reported severe tenderness on palpation of the dorsum of his right foot; however there were no objective findings. There were no findings to support a diagnosis of CRPS.

Clinical Studies: X rays of the right foot were normal.

Diagnosis: h/o contusion right foot with ongoing pain complaints unsupported by objective findings.

Comment: There are no objective findings clinically or radiographically of an ongoing physical problem. His subjective complaints are not supported and the gait inconsistency suggests significant behavioral overlay and the potential of purposeful misrepresentation.

Impairment Rating: Regional impairment: Diagnosis: "contusion, resolved" and per criteria of "soft tissue" and "contusion/crush injury" assigned to class 0 with 0% lower extremity impairment. With class 0 adjustment is not required, however the physical examination and clinical studies also support class 0. The functional history was determined to be unreliable. Regional impairment: 0% LEI or 0% WPI.

CLASS 1

1% to 13% Impairment of the Lower Extremity

EXAMPLE 16-2: PLANTAR FASCIITIS

Subject: 45-year-old woman.

History: Has developed the new onset of plantar fasciitis of the right heel after 6 months on her new job that requires standing on her feet all day on a concrete floor. She is 160 cm (5 ft 4 in) tall and weighs 45 kg (100 lb). She wears a comfortable shoe, is not athletic, does not attend a gym or jog, denies hobbies, is in excellent health and takes no medication. She reports that she is currently unable to work at her usual job because of her chronic heel pain, which persists in spite of 6 months off. She is able to walk 10 blocks, although she is symptomatic. Her pain is worse in the morning when she first gets out of bed. She uses a cushioned heel insert. She has failed nonoperative treatment and does not want surgery.

Physical Exam: Severe focal tenderness over the medial calcaneal tuberosity of the right foot where the plantar fascia inserts. Negative percussion sign over the posterior tibial nerve and no tenderness over the medial heel. She has no atrophy and her motor strength