Evolent Clinical Guideline 1764 for Knee Arthroscopy

Guideline Number: Evolent_CG_1764	**Applicable Codes**	
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STATEMENT

General Information

It is an expectation that all patients receive care/services from a licensed clinician. All appropriate supporting documentation, including recent pertinent office visit notes, laboratory data, and results of any special testing must be provided. If applicable: All prior relevant imaging results and the reason that alternative imaging cannot be performed must be included in the documentation submitted.

Purpose

This guideline addresses the following elective, non-emergent, arthroscopic knee repair procedures; diagnostic knee arthroscopy, debridement with or without chondroplasty, meniscectomy/meniscal repair/meniscal transplant, ligament reconstruction/repair, articular cartilage restoration/repair (marrow stimulating and restorative techniques) , synovectomy (major [2+ compartments], minor [1 compartment]), loose body removal, lateral release/patellar realignment, manipulation under anesthesia (MUA), and lysis of adhesions for arthrofibrosis of the knee.

Scope

Open, non-arthroplasty knee surgeries are performed instead of an arthroscopy as dictated by the type and severity of injury and/or disease.

Special Note

See legislative language for specific mandates in the State of Washington

GENERAL REQUIREMENTS

- Elective arthroscopic surgery of the knee may be considered if the following general criteria are met:
    - There is clinical correlation of the individual's subjective complaints with objective exam findings and/or imaging (when applicable)
    - Knee pain with documented loss of function: Deviation from normal knee function which may include painful weight bearing and/or inadequate range of motion (> 10 degrees flexion contracture or < 110 degrees flexion or both) to accomplish age-appropriate activities of daily living (ADLs), occupational or athletic requirements)
    - Individual is medically stable and optimized for surgery, and any treatable comorbidities are adequately medically managed such as diabetes, nicotine addiction, or an excessively high BMI. There should also be a shared decision between the patient and physician to proceed with knee surgery when comorbidities exist as it pertains to the increased risk of complications
    - Individual does not have an active local or systemic infection
    - Individual does not have active, untreated drug dependency (including but not limited to narcotics, opioids, or muscle relaxants) unless engaged in a treatment program

- No intra-articular cortisone injections within 4 weeks of surgery [1,2,3]

- Clinical notes should address:
  - Symptom onset, duration, and severity
  - Loss of function and/or limitations
  - Type and duration of non-operative management modalities (where applicable)
- Unless otherwise stated in the subsections below, non-operative management must include **at least TWO** or more of the following, unless otherwise specified [4]:
  - Rest or activity modifications/limitations
  - Ice/heat
  - Protected weight bearing
  - Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics, tramadol
  - Brace/orthosis
  - Physical therapy modalities
  - Supervised home exercise
  - Weight optimization
  - Injections: corticosteroid, NSAID, viscosupplementation

INDICATIONS

Diagnostic Knee Arthroscopy

Diagnostic knee arthroscopy should rarely be required however may be medically necessary when the following criteria are met:

- At least 12 weeks of knee pain with documented loss of function
- History of painful weight bearing and/or physical examination that shows joint line tenderness, effusion and/or limited motion compared to pre-symptomatic joint range
- Indeterminate radiographs **AND** MRI findings. Radiographs and/or MRI should not demonstrate any of the following: Kellgren-Lawrence Grade 3-4 changes (based on weight-bearing radiographs), meniscus tears, ligament tears, loose bodies, stress fractures (including insufficiency fractures) or patellofemoral instability (lateral patellar tilt or patellar subluxation)
- Failure of at least 12 weeks of non-operative treatment, including **at least TWO** of the following [4]:
  - Rest or activity modifications/limitations
  - Ice/heat
  - Protected weight bearing
  - Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics, tramadol

- Brace/orthosis
- Physical therapy modalities
- Supervised home exercise
- Weight optimization
- Corticosteroid injection

- No intra-articular cortisone injections within 4 weeks of surgery [1,2,3]

NOTE: Subchondroplasty and In-office diagnostic arthroscopy (e.g., Mi-Eye, VisionScope) [5] are not managed by Evolent

Chondroplasty

Non-Patellofemoral chondroplasty (Femoral Condyle and Tibial Plateau)

Non-Patellofemoral (femoral condyle and tibial plateau) chondroplasty may be medically necessary when the following criteria are met [6]:

- **At least 12 weeks of knee** pain with documented loss of function
- Two or more or persistent effusion(s)
- MRI results demonstrate evidence of an area of localized articular cartilage damage or an unstable chondral flap
- Failure of **at least 12 weeks** of non-operative treatment, including **at least two** of the following [4]:
  - Rest or activity modifications/limitations
  - Ice/heat
  - Protected weight bearing
  - Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics, tramadol
  - Brace/orthosis
  - Physical therapy modalities
  - Supervised home exercise
  - Weight optimization
  - Corticosteroid injection
- No intra-articular cortisone injections within 4 weeks of surgery [1,2,3]

Patellofemoral chondroplasty

Patellofemoral chondroplasty may be medically necessary when the following criteria are met [7]:

- Anterior knee pain with documented loss of function, exacerbated by activities that load the patellofemoral joint such as ascending or descending stairs or being in seated position for extended periods of time with knee flexed
- Other extra-articular or intra-articular sources of pain or dysfunction have been

excluded (referred hip pain, radicular pain, tendinitis, bursitis, neuroma)

- Physical exam localizes tenderness to the patellofemoral joint
- No evidence of moderate to severe osteoarthritis (Kellgren-Lawrence Grade 3-4 based on weight-bearing radiographs and patellofemoral views [see **Grading Appendix**])
- Failure of **at least 12 weeks** of non-operative treatment, including **at least two** of the following [4]:
  - Rest or activity modifications/limitations
  - Ice/heat
  - Protected weight bearing
  - Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics, tramadol
  - Brace/orthosis
  - Physical therapy modalities
  - Supervised home exercise
  - Weight optimization
  - Corticosteroid injection
- No intra-articular cortisone injections within 4 weeks of surgery [1,2,3]

Meniscectomy/Meniscal Repair

Meniscectomy and/or meniscal repair may be medically necessary when the criteria in any of the following sections are met [8,9]:

- **Section One**
  - Symptomatic meniscal tear confirmed by MRI results that demonstrate a peripheral tear in the vascular zone, root tear, [10] or other tear that the requesting physician considers repairable and is associated with pain localized to the corresponding compartment upon physical examination
  - No Kellgren-Lawrence Grade 3-4 changes on standing X-rays
- **Section Two**
  - MRI demonstrate a meniscus tear in a ~~pediatric or adolescent individual~~**patient age <21 years** who complains of pain or mechanical symptoms or has **ANY** positive meniscal findings on physical examination
- **Section Three**
  - MRI demonstrates a bucket-handle tear of the meniscus and there is a history of acute injury/onset of symptoms with a locked knee and/or mechanical symptoms of locking
- **Section Four:** When a symptomatic meniscus tear is suspected and meets the following criteria:
  - When **at least two** of the following physical examination findings are present or there is at least one of the following physical examination findings and there is a

history of mechanical symptoms such as 'catching' or 'locking':

- Knee joint line pain with forced hyperextension upon physical exam
- Knee joint line pain with maximum flexion upon physical exam
- Knee pain, crepitus, or an audible or palpable click with the McMurray's test or Apley grind test
- Joint line tenderness to palpation upon physical exam

- Weight-bearing X-rays (standing X-rays, Rosenberg view, 45-degree flexed PA view, etc.) demonstrate no moderate or severe osteoarthritic changes defined as Kellgren-Lawrence Grade 3-4 [see **Grading Appendix**]; X-rays should be described as showing either no arthritis or mild/minimal arthritis only

OR

- MRI results confirm a frank meniscal tear (not simply degenerative changes, i.e., fraying) and the MRI **does not** demonstrate any of the following: moderate or severe articular cartilage thinning, full-thickness articular cartilage loss or defects, extrusion of the meniscus, subchondral edema, more than mild osteophytes, subchondral cysts, or an impression of 'moderate' or 'advanced/severe' arthritis (see absolute and relative contraindications). If the MRI demonstrates any of the above-described findings of more than mild arthritis, **weight-bearing X-rays are required** to confirm no moderate or severe articular cartilage loss * (see **background** section).
- Failure of at least 6 weeks of non-operative treatment, including **at least TWO** of the following:
  - Rest or activity modifications/limitations
  - Ice/heat
  - Protected weight bearing
  - Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics, tramadol
  - Brace/orthosis
  - Physical therapy modalities
  - Supervised home exercise
  - Weight optimization
  - Corticosteroid injection
- No intra-articular cortisone injections within 4 weeks of surgery [1,2,3]

Absolute Contraindications Meniscectomy/Meniscal Repair

- Arthroscopic meniscectomy or meniscal repair is never medically necessary in the presence of Kellgren-Lawrence Grade 4 osteoarthritis [8] [see **Grading Appendix**]
- **ANY** intra-articular cortisone injections within 4 weeks of surgery [1,2,3]

Relative Contraindications Meniscectomy / Meniscal Repair

- Meniscectomy or repair is considered **NOT MEDICALLY NECESSARY** in the presence of Kellgren-Lawrence Grade 3 osteoarthritis [see **Grading Appendix**],

Unless [8]:

- There has been the acute onset of locking (does not include catching, popping, cracking, etc.); **AND**
- There is MRI evidence of a bucket-handle **or** displaced meniscal fragment that correlates with the correct compartment (i.e., medial tenderness and locking, for a medial meniscus tear)

- If grade 3 changes are present, only a meniscectomy may be indicated, not a repair. If there is evidence of meniscal extrusion on coronal MRI, with/without subchondral edema, arthroscopy is relatively contraindicated, even if a tear is present

Meniscal Transplant

Meniscal Transplants may be medically necessary when the following criteria are met [9,11]:

- Individual is < 40 years of age
- Individual has no evidence of arthritic changes
- Symptomatic meniscal deficiency confirmed by MRI results that show a meniscal deficient compartment, **OR** previous arthroscopy photographs or video showing subtotal or total meniscectomy
- Failure of at least 6 weeks of non-operative treatment, including **at least two** of the following:
  - Rest or activity modifications/limitations
  - Ice/heat
  - Protected weight bearing
  - Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics, tramadol
  - Brace/orthosis
  - Physical therapy modalities
  - Supervised home exercise
  - Weight optimization
  - Corticosteroid injection

Absolute Contraindications: Meniscal Transplant [11]

- Uncorrected (staged or simultaneous) ligamentous insufficiency (ACL, PCL, MCL, LCL, PMC, PLC)
- Uncorrected (staged or simultaneous) malalignment greater than 5 degrees varus or 5 degrees valgus
- Uncorrected (staged or simultaneous) full-thickness articular cartilage isolated defects (International Cartilage Research Society Grade 3 or 4; Outerbridge Grade IV [see **Grading Appendix**])
- Kellgren-Lawrence Grade 3 or 4 osteoarthritis [see **Grading Appendix**]

- Intra-articular cortisone injections within 4 weeks of surgery [1,2,3]

Ligament Reconstruction or Repair

Anterior Cruciate Ligament (ACL) Repair or Reconstruction with Allograft or Autograft, <u>With or Without Extraarticular Tenodesis</u> *(12,13,14)*

ACL reconstruction or repair may be medically necessary when the criteria in any of the following sections are met and individual has no evidence of severe arthritis defined as Kellgren-Lawrence grade 3 or 4. (If the MRI results demonstrate an ACL tear and there is no mention of significant arthritis, especially in the younger individual, X-rays are not required. However, in others with significant MRI evidence of arthritis, standing X-rays are required to confirm that no Kellgren-Lawrence grade 3 or 4 changes are present).

- **Section One**
  - Acute ACL tear confirmed by MRI in high demand occupation or competitive athlete (as quantified by Marx activity score for athletics (any score > 4) and Tegner activity score for athletics and/or occupation ((score > 2) [see **<u>Grading Appendix</u>**]
- **Section Two**
  - MRI results confirm an ACL tear associated with other ligamentous instability or repairable meniscus
- **Section Three**
  - When the following criteria are met
    - Patient history of instability at the time of an acute injury or history of recurrent knee instability (as defined subjectively as 'giving way', 'giving out', 'buckling', two-fist sign)
    - Physical examination findings demonstrate a positive Lachman test, Lachman test 1A, 1B, 2A, 2B, 3A, 3B, anterior drawer, pivot shift test, or instrumented (KT-1000 or KT-2000) laxity of greater than 3 mm side-side difference
    - MRI results confirm complete ACL tear **<u>or substantial partial tear with a non-functioning ACL as demonstrated on physical examination</u>**

NOTE: Requests for ACL repair or reconstruction in individuals < age 13 will be reviewed on a case-by-case basis [15]

Posterior Cruciate Ligament (PCL) Reconstruction *(16,17)*

PCL reconstruction or repair may be medically necessary when the following criteria are met:

- Knee instability (as defined subjectively as 'giving way', 'giving out' or 'buckling') with clinical findings of any of the following signs/tests: positive posterior drawer, posterior sag, quadriceps active, dial test at 90 degrees knee flexion or reverse pivot shift test
- MRI results confirm complete PCL tear
- Failure of at least 12 weeks of non-operative treatment, including physical therapy emphasizing quadriceps strengthening

- Absence of medial and patellofemoral K-L grade 3-4 changes in chronic tears [see **Grading Appendix**]

The following clinical scenarios will be considered and decided on a case-by-case basis [18]:

- Pediatric and adolescent tears in individuals with open physis or growth plates
- Symptomatic partial tears with persistent instability despite non-operative treatment
- Incidental Kellgren-Lawrence grade 2-3 osteoarthritis [see **Grading Appendix**] in acute/subacute tears with unstable joint
- Acute PCL repair or reconstruction when surgery is also required for the ACL, MCL or LCL
- Tears in individuals < age 13

Collateral Ligament Repair or Reconstruction

Collateral ligament repair or reconstruction should rarely occur independent of additional ligament repair or reconstruction surgery (ACL, MCL, LCL).

All non-traumatic collateral ligament repair/reconstruction requests will be reviewed on a case-by-case basis.

Articular Cartilage Restoration/Repair

Skeletally Immature Indications

Articular cartilage reparative or stimulation procedures may be medically necessary when the following criteria in **ANY** of the following Sections are met [19,20,21]:

- **Section One**
  - Skeletally immature patient
  - Individual is symptomatic (pain, swelling, mechanical symptoms of popping, locking, catching, or limited range of motion)
  - **Asymptomatic patients will be reviewed on a case-by-case basis**
  - Radiographic findings (X-ray or MRI) of a displaced osteochondral lesion
- **Section Two**
  - Skeletally immature patient
  - Individual is symptomatic (pain, swelling, mechanical symptoms of popping, locking, catching, or limited range of motion)
  - Radiographic findings (X-ray or MRI) findings of a stable osteochondral lesion
  - Failure of at least **12 weeks** of non-operative treatment, including at least **two** of the following:
    - Rest or activity modifications/limitations
    - Ice/heat
    - Protected weight bearing
    - Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics, tramadol

- Brace/orthosis
- Physical therapy modalities
- Supervised home exercise
- Weight optimization
- Corticosteroid injection

Exclusion (applies to all criteria above)

- Exclude individuals with evidence of meniscal deficiency and/or malalignment if these are not being addressed (meniscal transplant and/or lateral release/patellar realignment procedure) at the same time as the cartilage restoration procedure

Skeletally Mature Indications

Articular cartilage reparative marrow stimulation procedures

Reparative marrow stimulation techniques such as microfracture & drilling [22,23] may be medically necessary when the following criteria are met [24,25,26]:

- Skeletally mature adult
- Individuals are symptomatic with anterior knee pain, swelling, mechanical symptoms of popping, locking, catching, or limited range of motion
- For trochlea or patellar lesions physical examination findings should be localized to the patellofemoral joint
- MRI confirms an isolated full-thickness chondral or osteochondral lesion of the femoral condyle, trochlea, or patella < 2.0 cm^2
- Physical exam findings and/or (imaging) results confirm no ligamentous instability
- For femoral condyle lesions, no evidence of prior meniscectomy in same compartment unless concurrent meniscal transplant performed
- Failure of at least **12 weeks** of non-operative treatment, including at least **TWO** of the following:
  - Rest or activity modifications/limitations
  - Ice/heat
  - Protected weight bearing
  - Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics, tramadol
  - Brace/orthosis
  - Physical therapy modalities
  - Supervised home exercise
  - Weight optimization
  - Corticosteroid injection
- No intra-articular cortisone injections within 4 weeks of surgery [1,2,3]

NOTE: Abrasion arthroplasty is included in coding but is not indicated

Articular cartilage restorative procedures – femoral condyle and trochlea

Restorative procedures for articular cartilage loss may include the following: osteochondral autograft transfer (OAT), osteochondral allograft transplantation (OCA), autologous chondrocyte implantation (ACI), or matrix autologous chondrocyte implantation (MACI). The OAT or OCA procedures are preferable if the lesion involves subchondral bone. [22,23,27]

An articular cartilage restorative procedure may be medically necessary when the following criteria are met [24,25,26]:

- Skeletally mature adult
- Individual has been symptomatic (pain, swelling, mechanical symptoms of popping, locking, catching, or limited range of motion) for at least 6 months
- Individual is < 50 years of age
- BMI < 35 (optimal outcomes if patient BMI < 30)
- No prior meniscectomy in same compartment (unless concurrent or staged meniscal transplant performed)
- MRI results confirm an isolated full thickness chondral or osteochondral lesion of the femoral condyles or trochlea with stable surrounding articular cartilage:
  - < 2.0 cm^2 - OAT
  - > 2.0 cm^2 - ACI, MACI, OCA
- MRI and/or physical findings confirm knee has normal alignment as defined as +/- 3 degrees from neutral on full-length mechanical axis long-leg x-ray (unless concurrent or staged tibial or femoral osteotomy performed) and stability (unless concurrent ligamentous repair or reconstruction performed)
- MRI and/or X-rays shows no evidence of osteoarthritis (no greater than Kellgren-Lawrence Grade 2 changes on weight-bearing X-rays [see **Grading Appendix**])
- Failure of at least **12 weeks** of non-operative treatment, including at least **TWO** of the following:
  - Rest or activity modifications/limitations
  - Ice/heat
  - Protected weight bearing
  - Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics, tramadol
  - Brace/orthosis
  - Physical therapy modalities
  - Supervised home exercise
  - Weight optimization
  - Corticosteroid injection
- No prior meniscectomy in same compartment (unless concurrent or staged meniscal transplant performed)
- No intra-articular cortisone injections within 4 weeks of surgery [1,2,3]

Articular cartilage restorative procedures - patella

Restorative procedures for articular cartilage loss of the patella may include the following: osteochondral autograft transfer (OAT), osteochondral allograft transplantation (OCA), autologous chondrocyte implantation (ACI), or matrix autologous chondrocyte implantation (MACI), with or without tibial tubercle osteotomy. * [22,28]

An articular cartilage restorative procedure may be medically necessary when the following criteria are met [24,25,26]:

- Anterior knee pain and loss of function
- Individual is < 50 years of age
- BMI < 35 (optimal outcomes if patient BMI < 30)
- Other extra-articular or intra-articular sources of pain or dysfunction have been excluded (referred pain, radicular pain, tendinitis, bursitis, neuroma)
- Physical exam localizes tenderness to the patellofemoral joint with pain aggravated by activities that load the joint (single leg squat, descending > ascending stairs or stair climbing, and being in seated position for extended periods of time with knee flexed)
- MRI results confirm an isolated full thickness chondral or osteochondral lesion of the patella:
  - < 2.0 cm^2 - OAT
  - > 2.0 cm^2 - ACI, MACI, OCA
- No evidence of associated osteoarthritis greater than Kellgren-Lawrence 2 of the patellofemoral joint or medial/lateral compartments on weight bearing X-rays [see **Grading Appendix**]
- Failure of at least **12 weeks** of non-operative treatment, including at least **TWO** of the following:
  - Rest or activity modifications/limitations
  - Ice/heat
  - Protected weight bearing
  - Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics, tramadol
  - Brace/orthosis
  - Physical therapy modalities
  - Supervised home exercise
  - Weight optimization
  - Corticosteroid injection
- No intra-articular cortisone injections within 4 weeks of surgery [1,2,3]

***Patellofemoral Chondrosis**

For isolated tibial tubercle osteotomy for patellofemoral chondrosis without articular cartilage restoration procedures, the same criteria above apply except patellofemoral X-rays should

document Kellgren-Lawrence grade 3 or 4 changes with no more than K-L 2 changes of the medial and lateral compartments on weight-bearing X-rays.

Articular Cartilage Restoration and Repair Exclusions

- **These requests are excluded from consideration under this guideline:**
  - Micronized cartilage extracellular matrix (BioCartilage)
  - Autologous Matrix-Induced Chondrogenesis (AMIC)
  - Bone marrow aspirate concentrate (BMAC) implantation
  - Hybrid ACI/OAT procedure
  - Particulated juvenile allograft cartilage (PJAC, DeNovo)
  - Particulated autologous cartilage implantation (PACI)
  - Viable cartilage allograft putty (CartiMax)
  - Decellularized Osteochondral Allograft Plugs (e.g., Chondrofix)
  - Cryopreserved viable osteochondral allograft (CVOCA; Cartiform and ProChondrix)
  - Aragonite biphasic osteochondral scaffolds (Agili-C™)
  - Human umbilical cord blood-derived mesenchymal stem cells (CARTISEM)

Synovectomy (Major [2+ compartments], Minor [1 compartment])

Synovectomy may be medically necessary when the criteria in **any** of the following sections are met [29,30]:

- **Section One**
  - Proliferative rheumatoid synovium (in individuals with established rheumatoid arthritis ~~according to the American College of Rheumatology Guidelines [see Grading Appendix]~~**)**
  - Non-responsive to disease modifying drug (DMARD) therapy for at least 6 months
  - At least one instance of aspiration of joint effusion and corticosteroid injection (if no evidence of infection)
  - Failure of **at least 6 weeks** of non-operative treatment, including at least **two** of the following:
    - Rest or activity modifications/limitations
    - Ice/heat
    - Protected weight bearing
    - Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics, tramadol
    - Brace/orthosis
    - Physical therapy modalities

        - Supervised home exercise
        - Weight optimization
        - Corticosteroid injection
- **Section Two**
    - Hemarthrosis from injury, coagulopathy or bleeding disorder confirmed by physical exam, joint aspiration, and/or MRI
- **Section Three**
    - Proliferative pigmented villonodular synovitis, synovial chondromatosis, sarcoid synovitis, or similar proliferative synovial disease, traumatic hypertrophic synovitis**, cyclops lesion, or fat pad syndrome** confirmed by history, MRI, or biopsy [31,32]
    - At least one instance of aspiration of joint effusion and injection of corticosteroid (if no evidence of infection)
    - Failure of **at least 6 weeks** of non-operative treatment, including **at least two** of the following:
        - Rest or activity modifications/limitations
        - Ice/heat
        - Protected weight bearing
        - Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics, tramadol
        - Brace/orthosis
        - Physical therapy modalities
        - Supervised home exercise
        - Weight optimization
        - Corticosteroid injection
- **Section Four**
    - **Patient is symptomatic and there is detection of a** painful plica confirmed by physical exam
    - MRI **confirms the presence of a plica**
    - Failure of **at least 12 weeks** of non-operative treatment, including **at least two** of the following:
        - Rest or activity modifications/limitations
        - Ice/heat
        - Protected weight bearing
        - Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics, tramadol
        - Brace/orthosis
        - Physical therapy modalities
        - Supervised home exercise

        - Weight optimization
        - Corticosteroid injection
    - No intra-articular cortisone injections within 4 weeks of surgery [1,2,3]

Loose Body Removal

Loose body removal may be medically necessary when the following criteria are met:

- Documentation of mechanical symptoms that cause limitation or loss of function
- X-ray, CT, or MRI documentation of a loose body
- No intra-articular cortisone injections within 4 weeks of surgery [1,2,3]

Lateral Release/Patellar Realignment

This guideline describes indications for surgical procedures to address patellofemoral pain disorders and abnormal alignment of the extensor mechanism of the knee by arthroscopic and/or open surgical techniques.

Lateral Patellar Compression Syndrome

Surgical intervention for the treatment of lateral patellar compression syndrome is indicated when the following criteria are met [33,34,35]:

- No evidence of patellar dislocation
- Reproducible isolated lateral patellofemoral pain with patellar tilt test
- Evidence of lateral patellar tilt from radiologic images (patellofemoral view: Merchant (45 degrees flexion; and/or skyline (60-90 degrees flexion); and/or sunrise (60-90 degrees flexion)
- Associated lateral patella facet Kellgren-Lawrence changes grade 1, 2, or 3 [see **Grading Appendix**]
- No evidence of medial patellofemoral changes (Kellgren-Lawrence Grade 2 osteoarthritis or higher [see **Grading Appendix**])
- Failure of **at least 6 months** of non-operative treatment, including quadriceps strengthening and appropriate hamstring/IT band stretching and patellar mobilization techniques, and **at least one** of the following:
    - Rest or activity modifications/limitations
    - Ice/heat
    - Protected weight bearing
    - Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics, tramadol
    - Brace/orthosis
    - Physical therapy modalities
    - Supervised home exercise
    - Weight optimization
    - Corticosteroid injection

- No intra-articular cortisone injections within 4 weeks of surgery [1,2,3]

Patellar Malalignment and/or Patellar Instability

Surgical intervention for the treatment of patellar malalignment and/or patellar instability is indicated when the following criteria in any of the following sections are met [36,37,38,39]:

- **Section One**
  - Acute traumatic patellar dislocation is associated with an osteochondral fracture, loose body, vastus medialis obliquus/medial patellofemoral ligament muscle avulsion, or other intra-articular injury that requires urgent operative management.
- **Section Two**
  - **First time patellar dislocation (not subluxation)**
  - **Age < 25**
  - **Any of the following:**
    - **Imaging demonstrates a TT-TG distance of 15 mm or greater**
    - **Trochlear dysplasia**
    - **Patella alta**
- **Section Three**
  - **History of 2 or more patellar dislocations**
  - Radiologic confirmation of MPFL (medial patellofemoral ligament) deficiency (including evidence of acute or remote injury, scarring, incomplete healing, etc.) **and there is a TT-TG distance of 15** mm **or greater, trochlear dysplasia, or patella alta**
  - Physical examination demonstrates evidence of patellar instability (positive apprehension test, increased lateral patellar translation, etc.)
- **Section Four**
  - When **ALL** of the following criteria have been met:
    - **Patient complains of patellar subluxation or has a history of only one patellar dislocation (see Section Two above)**
    - Physical exam has patellofemoral tenderness and abnormal articulation of the patella in the femoral trochlear groove (patellar apprehension or positive J sign)
    - Radiologic and/or advanced images (CT or MRI) rule out fracture or loose body, and show abnormal articulation, trochlear dysplasia, abnormal TT-TG distance (tibial tubercle-trochlear groove) ***** or other abnormality related to malalignment
    - Failure of at least 6 months of non-operative treatment, including at least 3 months of physical therapy, and **ONE** of the following:
      - Rest or activity modifications/limitations
      - Ice/heat
      - Protected weight bearing

- Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics, tramadol
- Brace/orthosis
- Supervised home exercise
- Weight optimization
- Corticosteroid injection

- No intra-articular cortisone injections within 4 weeks of surgery [1,2,3]

*****The tibial tubercle-trochlear groove (TT-TG) distance is normally @5-10 mm. Some authors use 13 mm as a cut-off and most agree that a TT-TG of 15 mm or over is abnormal. [40] TT-TG values over 17 mm indicate other possible bony abnormalities such as increased femoral anteversion that may cause patellar instability. [38,41]

Manipulation Under Anesthesia (MUA)

Manipulation under anesthesia (MUA) may be indicated when the following criteria are met [42,43]:

- Individual is less than 20 weeks after ligamentous or joint reconstruction
- Physical exam findings demonstrate inadequate range of motion of the knee defined as less than 110 degrees of flexion or lack of full extension
- Failure to improve range of motion of the knee despite 6 weeks (12 visits) of documented physical therapy

Lysis of Adhesions for Arthrofibrosis of the Knee

Surgical indications are based on relevant clinical symptoms, physical exam, radiologic findings, time from primary surgery, and response to conservative management when medically appropriate. Improved range of motion may be accomplished through arthroscopically assisted or open lysis of adhesions with general anesthesia, regional anesthesia, or sedation. [43,44]

Lysis of adhesions for arthrofibrosis of the knee may be indicated when all the following criteria are met:

- Individual is > 12 weeks post-surgery fracture or resolved infection
- Physical exam findings demonstrate inadequate range of motion of the knee, defined as < 110 degrees of flexion or lack of full extension
- Failure to improve range of motion of the knee despite 6 weeks (12 visits) of documented physical therapy
- ~~Individual has native knee~~
- ~~Manipulation under anesthesia is also performed~~
- No intra-articular cortisone injections within 4 weeks of surgery [1,2,3]

LEGISLATIVE LANGUAGE

Washington

20080815B – Knee Arthroscopy for Osteoarthritis of the knee [45]

Washington State Health Care Authority Technology Assessment

Health Technology Clinical Committee

Final Findings and Decisions

- **HTCC Coverage Determination**
  - Knee Arthroscopy for osteoarthritis of the knee is not a covered benefit. This decision does not apply to the use of knee arthroscopy for other diagnostic and therapeutic purposes.
- **HTCC Reimbursement Determination**
  - **Limitations of Coverage**
    - Not applicable
  - **Non-Covered Indicators**
    - Osteoarthritis of the Knee

20240920A – Treatment for chondral defects of the knee [46]

Washington State Health Care Authority Technology Assessment

Health Technology Clinical Committee

Final Findings and Decisions

- **HTCC Coverage Determination**
  - **Treatments for chondral defects of the knee with matrix-induced autologous chondrocyte implantation (MACI) and other FDA-approved 3rd generation autologous chondrocyte implantation (ACI), osteochondral autologous transplantation (OATS), and osteochondral allograft transplantation (OCA) are covered benefits with conditions.**
  - **Treatments for chondral defects of the knee with cell-free implants and autologous matrix-induced chondrogenesis (AMIC) are not covered benefits.**
- **HTCC Reimbursement Determination**
-
  - **Limitations of coverage:**
    - **MACI, OATS, and OCA:**
      - **Symptomatic, single or multiple full-thickness (Outerbridge Classification of Grade III or IV) articular cartilage defects of the femoral condyle (medial, lateral, or trochlea) and/or patella;**
      - **Documented closure of growth plates in adolescent individuals;**
      - **Age <50, older at the discretion of the agency;**
      - **Body mass index <35; AND**
      - **Excluding malignancy, degenerative arthritis (Kellgren-Lawrence**

Grade 3 or 4), or inflammatory arthritis in the joint.

- □ **For MACI, articular cartilage lesions ≥3cm^2 in size;**
- □ **For OATS, articular cartilage lesions 2cm^2 – 4cm^2 in size;**

- **Non-covered indicators:**
  - **Uncorrected malalignment or ligamentous deficiency, unless a corrective procedure is performed prior to or concomitantly.**
  - **Cell-free implants and autologous matrix-induced chondrogenesis (AMIC) are not covered benefits.**

CODING AND STANDARDS

Coding

CPT Codes

Knee Manipulation Under Anesthesia (MUA): 27570, 29884

Knee Ligament Reconstruction/Repair: 27405, 27407, 27409, 27427, 27428, 27429, 29888, 29889

Knee Meniscectomy/Meniscal Repair/Meniscal Transplant: 27332, 27333, 27403, 29868, 29880, 29881, 29882, 29883

Knee Surgery – Other: 27412, 27415, 27416, 27418, 27420, 27422, 27424, 27425, 29866, 29867, 29870, 29873, 29874, 29875, 29876, 29877, 29879, 29885, 29886, 29887, G0289

Applicable Lines of Business

☒	CHIP (Children's Health Insurance Program)
☒	Commercial
☒	Exchange/Marketplace
☒	Medicaid
☐	Medicare Advantage

BACKGROUND

Meniscectomy and Arthritis of the Knee

There is a high incidence of incidental meniscal findings on knee MRI in middle-aged and elderly individuals and several studies have indicated that there is no difference in outcome between operative and non-operative treatment of individuals with degenerative meniscus tears, especially when associated with an arthritic knee. [8,47] Arthroscopic debridement of degenerative meniscus tears in those with visible arthritis is generally not recommended

and, in some cases, may worsen the symptoms and progression of the arthritis. [8,48] Studies have also demonstrated an increased incidence of revision arthroplasty, infection, loosening and stiffness in individuals who underwent a knee arthroscopy prior to a total knee arthroplasty.

The imaging evaluation of the knee for individuals with meniscus tears should be individualized, the goal of which is to recommend treatment for only those with no or minimal associated arthritis.

Although most individuals that have a request for arthroscopic meniscectomy will have had **BOTH** an MRI **AND** X-rays of the knee, only one of these tests is required for approval, provided all other criteria for meniscectomy have been met. For example, if there has been a failure to improve with 6 weeks of non-operative treatment and there are physical examination findings of a meniscus tear, an MRI is not required, only weight-bearing X-rays that demonstrate no more than mild arthritis. Likewise, if an MRI describes a frank meniscus tear and does not describe any significant associated arthritis, weight-bearing X-rays are not required. However, as noted above, if an MRI demonstrates findings of more than mild arthritis, **weight-bearing X-rays are required** to confirm no moderate or severe articular cartilage loss.

Grading Appendix

Kellgren-Lawrence Grading System (Standing/weight-bearing X-rays) (49)

Grade	Description
0	No radiographic features of osteoarthritis
1	Possible joint space narrowing and osteophyte formation
2	Definite osteophyte formation with possible joint space narrowing
3	Moderate multiple osteophytes, definite narrowing of joint space, some sclerosis and possible deformity of bone contour
4	Large osteophytes, marked narrowing of joint space, severe sclerosis, and definite deformity of bone contour

Outerbridge Arthroscopic Grading System (50)

Grade	Description
0	Normal cartilage
I	Softening and swelling/blistering
II	Partial thickness defect, fissures < 1.5cm diameter/wide
III	Fissures /defects down to subchondral bone with intact calcified cartilage layer, diameter > 1.5cm

Grade	Description
IV	Exposed subchondral bone

Marx Scale [51]

For determination of activity level in acute ACL tears. Indicate how often you performed each activity in your healthiest and most active state, in the past year.

Activity/Movement	Less than one time in a month	One time in a month	One time in a week	2 or 3 times in a week	4 or more times in a week
Running: running while playing a sport or jogging	0	1	2	3	4
Cutting: changing directions while running	0	1	2	3	4
Deceleration: coming to a quick stop while running	0	1	2	3	4
Pivoting: turning your body with your foot planted while playing sport; For example: skiing, skating, kicking, throwing, hitting a ball (golf, tennis, squash), etc.	0	1	2	3	4

Tegner Scores [52]

For determination of activity level in acute ACL tears. Indicate in the spaces below the **HIGHEST** level of activity that you participated in **BEFORE YOUR INJURY** and the highest level you are able to participate in **CURRENTLY**.

Level	Activity Description
Level 10	Competitive sports- soccer, football, rugby (national elite)
Level 9	Competitive sports- soccer, football, rugby (lower divisions), ice hockey, wrestling, gymnastics, basketball
Level 8	Competitive sports- racquetball or bandy, squash or badminton, track and field athletics (jumping, etc.), down-hill skiing

Level	Activity Description
Level 7	Competitive sports- tennis, running, motorcars speedway, handball Recreational sports- soccer, football, rugby, bandy, ice hockey, basketball, squash, racquetball, running
Level 6	Recreational sports- tennis and badminton, handball, racquetball, down-hill skiing, jogging at least 5 times per week
Level 5	Work- heavy labor (construction, etc.) Competitive sports- cycling, cross-country skiing; Recreational sports- jogging on uneven ground at least twice weekly
Level 4	Work- moderately heavy labor (e.g., truck driving, etc.)
Level 3	Work- light labor (nursing, etc.)
Level 2	Work- light labor Walking on uneven ground possible, but impossible to backpack or hike
Level 1	Work- sedentary (secretarial, etc.)
Level 0	Sick leave or disability pension because of knee problems

POLICY HISTORY

Date	Summary
November 2024	• This guideline replaces Evolent Clinical Guideline 316 for Knee Arthroscopy • For meniscectomy requirements in a younger population, 'pediatric or adolescent' was changed to patients < 21. • Added fat pad syndrome and cyclops lesions to list of indications for synovectomy • Added indications for first time patellar dislocations • Deleted the requirement for 6 months of physical therapy when there have been 2 or more patellar dislocations and there are significant anatomic abnormalities such as a TT-TG distance of 15 mm or greater, trochlear dysplasia, or patella alta • Deleted the requirement for a manipulation under anesthesia when lysis of adhesion surgery is performed • Legislative Requirements added for the State of Washington for 20240920A – Treatment for chondral

Date	Summary
	defects of the knee
December 2023	• Legislative Requirements added for the State of Washington for Knee Arthroscopy 20080815B • Revised surgical optimization and physician/patient discussion language • Reorganized ACL Repair/Reconstruction Section • Added table of contents • Adjusted Background Section • Updated References
June 2023	• Updated references pertaining to the relationship of meniscectomy and arthritis of the knee • Clarification of the requirement of X-rays for ACL reconstruction • Additional references for articular cartilage restorative procedures • Revision of the listing of articular cartilage restorative procedures • Clarification of the lesion size for articular cartilage restorative procedures of the knee: < 2.0 cm^2 - OAT; > 2.0 cm^2 - ACI, MACI, OCA • Non-operative treatment requirement for articular cartilage procedures changed from 6 months to 3 months • Listing of investigational/non-covered articular cartilage procedures • Added CPT codes: 29885, 29886. 29887
~~May 2022~~	~~• Updated references~~ ~~Added cortisone injection within 4 weeks of arthroscopy as a contraindication.~~ ~~Expanded references pertaining to recommendations against the use of arthroscopy for arthritis, with or without associated meniscus tears.~~ ~~Included references pertaining to total knee arthroplasty complications in those with prior arthroscopic surgery of the knee~~ ~~Replaced "patient" with "individual" where appropriate~~

LEGAL AND COMPLIANCE

Guideline Approval

Committee

Reviewed / Approved by Evolent Specialty Clinical Guideline Review Committee

Disclaimer

Evolent Clinical Guidelines do not constitute medical advice. Treating health care professionals are solely responsible for diagnosis, treatment, and medical advice. Evolent uses Clinical Guidelines in accordance with its contractual obligations to provide utilization management. Coverage for services varies for individual members according to the terms of their health care coverage or government program. Individual members' health care coverage may not utilize some Evolent Clinical Guidelines. A list of procedure codes, services or drugs may not be all inclusive and does not imply that a service or drug is a covered or non-covered service or drug. Evolent reserves the right to review and update this Clinical Guideline in its sole discretion. Notice of any changes shall be provided as required by applicable provider agreements and laws or regulations. Members should contact their Plan customer service representative for specific coverage information.

REFERENCES

1. Belk J, Keeling L, Kraeutler M, Snow M, Mei-Dan O et al. Risk of Infection in Knee Arthroscopy Patients Undergoing Corticosteroid Injections in the Perioperative Period. Orthopaedic Journal of Sports Medicine. 2021; 9: 10.1177/23259671211032941.

2. Forsythe B, Forlenza E M, Agarwalla A, Cohn M R, Lavoie-Gagne O et al. Corticosteroid Injections 1 Month Before Arthroscopic Meniscectomy Increase the Risk of Surgical-Site Infection. Arthroscopy. 2021; 37: 2885-2890.e2. 10.1016/j.arthro.2021.02.047.

3. Lee W, Bhattacharjee S, Lee M, Ho S, Athiviraham A. A Safe Interval between Preoperative Intra-articular Corticosteroid Injections and Subsequent Knee Arthroscopy. Journal of Knee Surgery. 2022; 35: 47-53. 10.1055/s-0040-1712949.

4. American Academy of Orthopaedic Surgeons. Management of Osteoarthritis of the Knee (Non-Arthroplasty) Evidence-Based Clinical Practice Guideline. American Academy of Orthopaedic Surgeons. 2021; Accessed: 09/23/2024. https://www.aaos.org/oak3cpg.

5. DeClouette B, Birnbaum A, Campbell H, Bi A, Lin C. Needle Arthroscopy Demonstrates High Sensitivity and Specificity for Diagnosing Intra-Articular Shoulder and Knee Pathology. Cureus. 2022; 14: e33189. 10.7759/cureus.33189.

6. Anderson D, Rose M, Wille A, Wiedrick J, Crawford D. Arthroscopic Mechanical Chondroplasty of the Knee Is Beneficial for Treatment of Focal Cartilage Lesions in the Absence of Concurrent Pathology. Orthopaedic Journal of Sports Medicine. 2017; 5: 232596711770721. 10.1177/2325967117707213.

7. Kiel J, Kaiser K. Patellofemoral Arthritis [Updated 2023 Jun 12]. Stat Pearls Publishing. 2023; Accessed: 09/23/2024. https://www.ncbi.nlm.nih.gov/books/NBK513242/.

8. Burgess C J, De Cicco F L. Meniscectomy [Updated 2023 May 23]. Stat Pearls Publishing. 2023; Accessed: 09/23/2024. https://www.ncbi.nlm.nih.gov/books/NBK559105/.

9. Raj M A, Bubnis M A. Knee Meniscal Tears [Updated 2023 Jul 17]. Stat Pearls Publishing. 2023; Accessed: 09/24/2024. https://www.ncbi.nlm.nih.gov/books/NBK431067/.

10. Krych A J, Lamba A, Wang A S, Boos A M, Camp C L et al. Nonoperative Management of Degenerative Medial Meniscus Posterior Root Tears: Poor Outcomes at a Minimum 10-Year Follow-up. American Journal of Sports Medicine. 2023; 51: 2603-2607. 10.1177/03635465231185132.

11. Getgood A, LaPrade R F, Verdonk P, Gersoff W, Cole B et al. International Meniscus Reconstruction Experts Forum (IMREF) 2015 Consensus Statement on the Practice of Meniscal Allograft Transplantation. The American Journal of Sports Medicine. 2017; 45: 1195-1205. 10.1177/0363546516660064.

12. Bosco F, Giustra F, Masoni V, Capella M, Sciannameo V et al. Combining an Anterolateral Complex Procedure With Anterior Cruciate Ligament Reconstruction Reduces the Graft Reinjury Rate and Improves Clinical Outcomes: A Systematic Review and Meta-analysis of Randomized Controlled Trials. The American journal of sports medicine. 2024; 52: 2129-2147. 10.1177/03635465231198494.

13. Evans J, Mabrouk A, Nielson J I. Anterior Cruciate Ligament Knee Injury [Updated 2023 Nov 17]. Stat Pearls Publishing. 2023; Accessed: 09/24/2024. https://www.ncbi.nlm.nih.gov/books/NBK499848/.

14. Filbay S R, Grindem H. Evidence-based recommendations for the management of anterior cruciate ligament (ACL) rupture. Best Practice and Research Clinical Rheumatology. 2019; 33: 33-47. 10.1016/j.berh.2019.01.018.

15. Shultz S J, Cruz M R, Casey E, Dompier T P, Ford K R et al. Sex-Specific Changes in Physical Risk Factors for Anterior Cruciate Ligament Injury by Chronological Age and Stages of Growth and Maturation From 8 to 18 Years of Age. Journal of Athletic Training. 2022; 57: 830-876. 10.4085/1062-6050-0038.22.

16. Bedi A, Musahl V, Cowan J B. Management of Posterior Cruciate Ligament Injuries. Journal of the American Academy of Orthopaedic Surgeons. 2016; 24: 277-289. 10.5435/JAAOS-D-14-00326.

17. Raj M A, Mabrouk A, Varacallo M. Posterior Cruciate Ligament Knee Injuries [Updated 2023 Aug 8]. Stat Pearls Publishing. 2023; Accessed: 09/24/2024. https://www.ncbi.nlm.nih.gov/books/NBK430726/.

18. Scarcella M J, Yalcin S, Scarcella N R, Saluan P, Farrow L D. Outcomes of Pediatric Posterior Cruciate Ligament Reconstruction: A Systematic Review. Orthopaedic Journal of Sports Medicine. 2021; 9: 232596712110325. 10.1177/23259671211032539.

19. Chau M, Klimstra M, Wise K, Ellermann J, Tóth F et al. Osteochondritis Dissecans. Journal of Bone and Joint Surgery. 2021; 103: 1132-1151. 10.2106/JBJS.20.01399.

20. Salzmann G, Niemeyer P, Hochrein A, Stoddart M, Angele P. Articular Cartilage Repair of the Knee in Children and Adolescents. Orthopaedic Journal of Sports Medicine. 2018; 6: 232596711876019. 10.1177/2325967118760190.

21. Valtanen R, Arshi A, Kelley B, Fabricant P, Jones K. Articular Cartilage Repair of the Pediatric and Adolescent Knee with Regard to Minimal Clinically Important Difference: A Systematic Review. CARTILAGE. 2020; 11: 9-18. 10.1177/1947603518783503.

22. Cong B, Sun T, Zhao Y, Chen M. Current and Novel Therapeutics for Articular Cartilage Repair and Regeneration. Therapeutics and Clinical Risk Management. 2023; 19: 485-502. 10.2147/TCRM.S410277.

23. Niemeyer P, Laute V, Zinser W, Becher C, Kolombe T et al. A Prospective, Randomized, Open-Label, Multicenter, Phase III Noninferiority Trial to Compare the Clinical Efficacy of Matrix-Associated Autologous Chondrocyte Implantation With Spheroid Technology Versus Arthroscopic Microfracture for Cartilage Defects of the Knee. Orthopaedic Journal of Sports Medicine. 2019; 7: 10.1177/2325967119854442.

24. Filho J, Sousa E. Treatment of Chondral Lesions in the Knee. Rev Bras Ortop. 2023; 58: e551-e556. 10.1055/s-0043-1772196.

25. Hinckel B, Thomas D, Vellios E, Hancock K, Calcei J et al. Algorithm for Treatment of Focal Cartilage Defects of the Knee: Classic and New Procedures. CARTILAGE. 2021; 13: 473S-495S. 10.1177/1947603521993219.

26. Mall N, Harris J, Cole B. Clinical Evaluation and Preoperative Planning of Articular Cartilage Lesions of the Knee. Journal of the American Academy of Orthopaedic Surgeons. 2015; 23: 633-640. 10.5435/JAAOS-D-14-00241.

27. Weishorn J, Wiegand J, Zietzschmann S, Koch K, Rehnitz C et al. Factors Influencing Long-term Outcomes After Matrix-Induced Autologous Chondrocyte Implantation: Long-term Results at 10 Years. American Journal of Sports Medicine. 2024; 10.1177/03635465241270152.

28. Ginesin E, Chari N, Barnhart J, Wojnowski N, Patel R. Cartilage Restoration for Isolated Patellar Chondral Defects: An Updated Systematic Review. Orthopaedic Journal of Sports Medicine. 2023; 11: 10.1177/23259671231153422.

29. Badin D, Leland C R, Bronheim R S, Balmuri N, Lee R J. Synovectomy in juvenile idiopathic arthritis: A protocol for systematic review and meta-analysis. Medicine (United States). 2022; 101: E32278. 10.1097/MD.0000000000032278.

30. Chalmers P, Sherman S, Raphael B, Su E. Rheumatoid synovectomy: Does the surgical approach matter? Clinical Orthopaedics and Related Research. 2011; 469: 2062-2071. 10.1007/s11999-010-1744-3.

31. Chandra A, Agarwal S, Donahue A, Handorf E, Abraham J. Arthroscopic Versus Open Management of Diffuse-Type Tenosynovial Giant Cell Tumor of the Knee: A Meta-analysis of Retrospective Cohort Studies. Journal of the American Academy of Orthopaedic Surgeons Global Research and Reviews. 2021; 4: 10.5435/JAAOSGlobal-D-21-00217.

32. Fecek C, Carter K R. Pigmented Villonodular Synovitis [Updated 2023 Aug 7]. Stat Pearls Publishing. 2023; Accessed: 09/25/2024. https://www.ncbi.nlm.nih.gov/books/NBK549850

33. Bump J M, Lewis L. Patellofemoral Syndrome [Updated 2023 Feb 13]. Stat Pearls Publishing. 2023; Accessed: 09/25/2024. https://www.ncbi.nlm.nih.gov/books/NBK557657/.

34. Petersen W, Ellermann A, Gösele-Koppenburg A, Best R, Rembitzki I et al. Patellofemoral pain syndrome. Knee Surgery, Sports Traumatology, Arthroscopy. 2014; 22: 2264-2274. 10.1007/s00167-013-2759-6.

35. Saper M, Shneider D. Diagnosis and Treatment of Lateral Patellar Compression Syndrome. Arthroscopy Techniques. 2014; 3: e633-e638. 10.1016/j.eats.2014.07.004.

36. Arshi A, Cohen J, Wang J, Hame S, McAllister D. Operative Management of Patellar Instability in the United States: An Evaluation of National Practice Patterns, Surgical Trends, and Complications. Orthopaedic Journal of Sports Medicine. 2016; 4: 10.1177/2325967116662873.

37. Dennis E, Gruber S, Marmor W, Shubin Stein B. Evaluation and management of patellar instability. Annals of Joint. 2022; 7: 10.21037/aoj-2020-02.

38. Severino N R, Severino F R, De Camargo O P A, Guglielmetti L G B, De Oliveira V M. Update on Patellar Instability. Rev Bras Ortop. 2021; 56: 147-153. 10.1055/s-0040-1713389.

39. Wolfe S, Varacallo M, Thomas J D, Carroll J J, Kahwaji C I. Patellar Instability [Updated 2023 Feb 13]. Stat Pearls Publishing. 2023; Accessed: 09/25/2024. https://www.ncbi.nlm.nih.gov/books/NBK482427

40. Brady J, Rosencrans A, Shubin Stein B. Use of TT-PCL versus TT-TG. Current Reviews in Musculoskeletal Medicine. 2018; 11: 261-265. 10.1007/s12178-018-9481-4.

41. Barbosa R, da Silva M, Macedo C, Santos C. Imaging evaluation of patellofemoral joint instability: a review. Knee Surgery and Related Research. 2023; 35: 10.1186/s43019-023-00180-8.

42. Colacchio N, Abela D, Bono J, Shah V, Bono O. Efficacy of manipulation under anesthesia beyond three months following total knee arthroplasty. Arthroplasty Today. 2019; 5: 515-520. 10.1016/j.artd.2019.08.002.

43. Fackler N, Chin G, Karasavvidis T, Bohlen H, Smith E et al. Outcomes of Arthroscopic Lysis of Adhesions for the Treatment of Postoperative Knee Arthrofibrosis: A Systematic Review. Orthopaedic Journal of Sports Medicine. 2022; 10: 10.1177/23259671221124911.

44. Eggeling L, Klepsch L, Akoto R, Frosch K. Clinical results after very early, early and late arthroscopic arthrolysis of the knee. International Orthopaedics. 2022; 46: 265-271. 10.1007/s00264-021-05193-0.

45. Washington State Health Care Authority. Knee Arthroscopy for Osteoarthritis of the Knee [Adopted October 17, 2008]. Washington State Health Care Authority. 2008; Accessed: 09/25/2024. https://www.hca.wa.gov/assets/program/decision_finding_knee_final%5B1%5D.pdf.

46. Washington State Health Care Authority. Treatments for chondral defects of the knee [Adopted January 31, 2025]. Washington State Health Care Authority. 2025; Accessed: 02/05/2025. https://www.hca.wa.gov/assets/program/chondral-defects-final-findings-and-decision.pdf

47. Kise N, Risberg M, Stensrud S, Ranstam J, Engebretsen L. Exercise therapy versus arthroscopic partial meniscectomy for degenerative meniscal tear in middle aged patients: randomised controlled trial with two year follow-up. BMJ. 2016; i3740. 10.1136/bmj.i3740.

48. Migliorini F, Oliva F, Eschweiler J, Cuozzo F, Hildebrand F. No evidence in support of arthroscopic partial meniscectomy in adults with degenerative and nonobstructive meniscal symptoms: a level I evidence-based systematic review. Knee Surgery. 2023; 31: 1733-1743. 10.1007/s00167-022-07040-0.

49. Kellgren J, Lawrence J. Radiological Assessment of Osteo-Arthrosis. Annals of the Rheumatic Diseases. 1957; 16: 494-502. 10.1136/ard.16.4.494.

50. Slattery C, Kweon C. Classifications in Brief: Outerbridge Classification of Chondral Lesions. Clinical Orthopaedics and Related Research. 2018; 476: 2101-2104. 10.1007/s11999.0000000000000255.

51. Marx R, Stump T, Jones E, Wickiewicz T, Warren R. Development and Evaluation of an Activity Rating Scale for Disorders of the Knee. The American Journal of Sports Medicine. 2001; 29: 213-218. 10.1177/03635465010290021601.

52. Tegner Y, Lysholm J. Rating systems in the evaluation of knee ligament injuries. Clinical Orthopaedics and Related Research. 1985; 198: 43-49. 10.1097/00003086-198509000-00007.

Evolent Clinical Guideline 1764 for Knee Arthroscopy

Guideline Number: Evolent_CG_1764	**Applicable Codes**	
"Evolent" refers to Evolent Health LLC and Evolent Specialty Services, Inc. 		
Original Date: November 2015	**Last Revised Date:** November 2024	**Implementation Date:** July 2025

TABLE OF CONTENTS

STATEMENT

General Information

It is an expectation that all patients receive care/services from a licensed clinician. All appropriate supporting documentation, including recent pertinent office visit notes, laboratory data, and results of any special testing must be provided. If applicable: All prior relevant imaging results and the reason that alternative imaging cannot be performed must be included in the documentation submitted.

Purpose

This guideline addresses the following elective, non-emergent, arthroscopic knee repair procedures; diagnostic knee arthroscopy, debridement with or without chondroplasty, meniscectomy/meniscal repair/meniscal transplant, ligament reconstruction/repair, articular cartilage restoration/repair (marrow stimulating and restorative techniques) , synovectomy (major [2+ compartments], minor [1 compartment]), loose body removal, lateral release/patellar realignment, manipulation under anesthesia (MUA), and lysis of adhesions for arthrofibrosis of the knee.

Scope

Open, non-arthroplasty knee surgeries are performed instead of an arthroscopy as dictated by the type and severity of injury and/or disease.

Special Note

See legislative language for specific mandates in the State of Washington

GENERAL REQUIREMENTS

- Elective arthroscopic surgery of the knee may be considered if the following general criteria are met:
    - There is clinical correlation of the individual's subjective complaints with objective exam findings and/or imaging (when applicable)
    - Knee pain with documented loss of function: Deviation from normal knee function which may include painful weight bearing and/or inadequate range of motion (> 10 degrees flexion contracture or < 110 degrees flexion or both) to accomplish age-appropriate activities of daily living (ADLs), occupational or athletic requirements)
    - Individual is medically stable and optimized for surgery, and any treatable comorbidities are adequately medically managed such as diabetes, nicotine addiction, or an excessively high BMI. There should also be a shared decision between the patient and physician to proceed with knee surgery when comorbidities exist as it pertains to the increased risk of complications
    - Individual does not have an active local or systemic infection
    - Individual does not have active, untreated drug dependency (including but not limited to narcotics, opioids, or muscle relaxants) unless engaged in a treatment program

- No intra-articular cortisone injections within 4 weeks of surgery [1,2,3]

- Clinical notes should address:
  - Symptom onset, duration, and severity
  - Loss of function and/or limitations
  - Type and duration of non-operative management modalities (where applicable)
- Unless otherwise stated in the subsections below, non-operative management must include **at least TWO** or more of the following, unless otherwise specified [4]:
  - Rest or activity modifications/limitations
  - Ice/heat
  - Protected weight bearing
  - Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics, tramadol
  - Brace/orthosis
  - Physical therapy modalities
  - Supervised home exercise
  - Weight optimization
  - Injections: corticosteroid, NSAID, viscosupplementation

INDICATIONS

Diagnostic Knee Arthroscopy

Diagnostic knee arthroscopy should rarely be required however may be medically necessary when the following criteria are met:

- At least 12 weeks of knee pain with documented loss of function
- History of painful weight bearing and/or physical examination that shows joint line tenderness, effusion and/or limited motion compared to pre-symptomatic joint range
- Indeterminate radiographs **AND** MRI findings. Radiographs and/or MRI should not demonstrate any of the following: Kellgren-Lawrence Grade 3-4 changes (based on weight-bearing radiographs), meniscus tears, ligament tears, loose bodies, stress fractures (including insufficiency fractures) or patellofemoral instability (lateral patellar tilt or patellar subluxation)
- Failure of at least 12 weeks of non-operative treatment, including **at least TWO** of the following [4]:
  - Rest or activity modifications/limitations
  - Ice/heat
  - Protected weight bearing
  - Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics, tramadol

- Brace/orthosis
- Physical therapy modalities
- Supervised home exercise
- Weight optimization
- Corticosteroid injection

- No intra-articular cortisone injections within 4 weeks of surgery [1,2,3]

NOTE: Subchondroplasty and In-office diagnostic arthroscopy (e.g., Mi-Eye, VisionScope) [5] are not managed by Evolent

Chondroplasty

Non-Patellofemoral chondroplasty (Femoral Condyle and Tibial Plateau)

Non-Patellofemoral (femoral condyle and tibial plateau) chondroplasty may be medically necessary when the following criteria are met [6]:

- At least 12 weeks of knee pain with documented loss of function
- Two or more or persistent effusion(s)
- MRI results demonstrate evidence of an area of localized articular cartilage damage or an unstable chondral flap
- Failure of **at least 12 weeks** of non-operative treatment, including **at least two** of the following [4]:
  - Rest or activity modifications/limitations
  - Ice/heat
  - Protected weight bearing
  - Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics, tramadol
  - Brace/orthosis
  - Physical therapy modalities
  - Supervised home exercise
  - Weight optimization
  - Corticosteroid injection
- No intra-articular cortisone injections within 4 weeks of surgery [1,2,3]

Patellofemoral chondroplasty

Patellofemoral chondroplasty may be medically necessary when the following criteria are met [7]:

- Anterior knee pain with documented loss of function, exacerbated by activities that load the patellofemoral joint such as ascending or descending stairs or being in seated position for extended periods of time with knee flexed
- Other extra-articular or intra-articular sources of pain or dysfunction have been

excluded (referred hip pain, radicular pain, tendinitis, bursitis, neuroma)

- Physical exam localizes tenderness to the patellofemoral joint
- No evidence of moderate to severe osteoarthritis (Kellgren-Lawrence Grade 3-4 based on weight-bearing radiographs and patellofemoral views [see **Grading Appendix**])
- Failure of **at least 12 weeks** of non-operative treatment, including **at least two** of the following [4]:
  - Rest or activity modifications/limitations
  - Ice/heat
  - Protected weight bearing
  - Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics, tramadol
  - Brace/orthosis
  - Physical therapy modalities
  - Supervised home exercise
  - Weight optimization
  - Corticosteroid injection
- No intra-articular cortisone injections within 4 weeks of surgery [1,2,3]

Meniscectomy/Meniscal Repair

Meniscectomy and/or meniscal repair may be medically necessary when the criteria in any of the following sections are met [8,9]:

- **Section One**
  - Symptomatic meniscal tear confirmed by MRI results that demonstrate a peripheral tear in the vascular zone, root tear, [10] or other tear that the requesting physician considers repairable and is associated with pain localized to the corresponding compartment upon physical examination
  - No Kellgren-Lawrence Grade 3-4 changes on standing X-rays
- **Section Two**
  - MRI demonstrate a meniscus tear in a patient age <21 years who complains of pain or mechanical symptoms or has **ANY** positive meniscal findings on physical examination
- **Section Three**
  - MRI demonstrates a bucket-handle tear of the meniscus and there is a history of acute injury/onset of symptoms with a locked knee and/or mechanical symptoms of locking
- **Section Four:** When a symptomatic meniscus tear is suspected and meets the following criteria:
  - When **at least two** of the following physical examination findings are present or there is at least one of the following physical examination findings and there is a

history of mechanical symptoms such as 'catching' or 'locking':

- Knee joint line pain with forced hyperextension upon physical exam
- Knee joint line pain with maximum flexion upon physical exam
- Knee pain, crepitus, or an audible or palpable click with the McMurray's test or Apley grind test
- Joint line tenderness to palpation upon physical exam

- Weight-bearing X-rays (standing X-rays, Rosenberg view, 45-degree flexed PA view, etc.) demonstrate no moderate or severe osteoarthritic changes defined as Kellgren-Lawrence Grade 3-4 [see **Grading Appendix**]; X-rays should be described as showing either no arthritis or mild/minimal arthritis only

OR

- MRI results confirm a frank meniscal tear (not simply degenerative changes, i.e., fraying) and the MRI **does not** demonstrate any of the following: moderate or severe articular cartilage thinning, full-thickness articular cartilage loss or defects, extrusion of the meniscus, subchondral edema, more than mild osteophytes, subchondral cysts, or an impression of 'moderate' or 'advanced/severe' arthritis (see absolute and relative contraindications). If the MRI demonstrates any of the above-described findings of more than mild arthritis, **weight-bearing X-rays are required** to confirm no moderate or severe articular cartilage loss * (see **background** section).
- Failure of at least 6 weeks of non-operative treatment, including **at least TWO** of the following:
  - Rest or activity modifications/limitations
  - Ice/heat
  - Protected weight bearing
  - Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics, tramadol
  - Brace/orthosis
  - Physical therapy modalities
  - Supervised home exercise
  - Weight optimization
  - Corticosteroid injection
- No intra-articular cortisone injections within 4 weeks of surgery [1,2,3]

Absolute Contraindications Meniscectomy/Meniscal Repair

- Arthroscopic meniscectomy or meniscal repair is never medically necessary in the presence of Kellgren-Lawrence Grade 4 osteoarthritis [8] [see **Grading Appendix**]
- **ANY** intra-articular cortisone injections within 4 weeks of surgery [1,2,3]

Relative Contraindications Meniscectomy/Meniscal Repair

- Meniscectomy or repair is considered **NOT MEDICALLY NECESSARY** in the presence of Kellgren-Lawrence Grade 3 osteoarthritis [see **Grading Appendix**],

Unless [8]:

- There has been the acute onset of locking (does not include catching, popping, cracking, etc.); **AND**
- There is MRI evidence of a bucket-handle **or** displaced meniscal fragment that correlates with the correct compartment (i.e., medial tenderness and locking, for a medial meniscus tear)

- If grade 3 changes are present, only a meniscectomy may be indicated, not a repair. If there is evidence of meniscal extrusion on coronal MRI, with/without subchondral edema, arthroscopy is relatively contraindicated, even if a tear is present

Meniscal Transplant

Meniscal Transplants may be medically necessary when the following criteria are met [9,11]:

- Individual is < 40 years of age
- Individual has no evidence of arthritic changes
- Symptomatic meniscal deficiency confirmed by MRI results that show a meniscal deficient compartment, **OR** previous arthroscopy photographs or video showing subtotal or total meniscectomy
- Failure of at least 6 weeks of non-operative treatment, including **at least two** of the following:
  - Rest or activity modifications/limitations
  - Ice/heat
  - Protected weight bearing
  - Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics, tramadol
  - Brace/orthosis
  - Physical therapy modalities
  - Supervised home exercise
  - Weight optimization
  - Corticosteroid injection

Absolute Contraindications: Meniscal Transplant [11]

- Uncorrected (staged or simultaneous) ligamentous insufficiency (ACL, PCL, MCL, LCL, PMC, PLC)
- Uncorrected (staged or simultaneous) malalignment greater than 5 degrees varus or 5 degrees valgus
- Uncorrected (staged or simultaneous) full-thickness articular cartilage isolated defects (International Cartilage Research Society Grade 3 or 4; Outerbridge Grade IV [see **Grading Appendix**])
- Kellgren-Lawrence Grade 3 or 4 osteoarthritis [see **Grading Appendix**]

- Intra-articular cortisone injections within 4 weeks of surgery [1,2,3]

Ligament Reconstruction or Repair

Anterior Cruciate Ligament (ACL) Repair or Reconstruction with Allograft or Autograft, With or Without Extraarticular Tenodesis *(12,13,14)*

ACL reconstruction or repair may be medically necessary when the criteria in any of the following sections are met and individual has no evidence of severe arthritis defined as Kellgren-Lawrence grade 3 or 4. (If the MRI results demonstrate an ACL tear and there is no mention of significant arthritis, especially in the younger individual, X-rays are not required. However, in others with significant MRI evidence of arthritis, standing X-rays are required to confirm that no Kellgren-Lawrence grade 3 or 4 changes are present).

- **Section One**
  - Acute ACL tear confirmed by MRI in high demand occupation or competitive athlete (as quantified by Marx activity score for athletics (any score > 4) and Tegner activity score for athletics and/or occupation ((score > 2) [see **Grading Appendix**]
- **Section Two**
  - MRI results confirm an ACL tear associated with other ligamentous instability or repairable meniscus
- **Section Three**
  - When the following criteria are met
    - Patient history of instability at the time of an acute injury or history of recurrent knee instability (as defined subjectively as 'giving way', 'giving out', 'buckling', two-fist sign)
    - Physical examination findings demonstrate a positive Lachman test, Lachman test 1A, 1B, 2A, 2B, 3A, 3B, anterior drawer, pivot shift test, or instrumented (KT-1000 or KT-2000) laxity of greater than 3 mm side-side difference
    - MRI results confirm complete ACL tear or substantial partial tear with a non-functioning ACL as demonstrated on physical examination

NOTE: Requests for ACL repair or reconstruction in individuals < age 13 will be reviewed on a case-by-case basis [15]

Posterior Cruciate Ligament (PCL) Reconstruction *(16,17)*

PCL reconstruction or repair may be medically necessary when the following criteria are met:

- Knee instability (as defined subjectively as 'giving way', 'giving out' or 'buckling') with clinical findings of any of the following signs/tests: positive posterior drawer, posterior sag, quadriceps active, dial test at 90 degrees knee flexion or reverse pivot shift test
- MRI results confirm complete PCL tear
- Failure of at least 12 weeks of non-operative treatment, including physical therapy emphasizing quadriceps strengthening

- Absence of medial and patellofemoral K-L grade 3-4 changes in chronic tears [see **Grading Appendix**]

The following clinical scenarios will be considered and decided on a case-by-case basis [18]:

- Pediatric and adolescent tears in individuals with open physis or growth plates
- Symptomatic partial tears with persistent instability despite non-operative treatment
- Incidental Kellgren-Lawrence grade 2-3 osteoarthritis [see **Grading Appendix**] in acute/subacute tears with unstable joint
- Acute PCL repair or reconstruction when surgery is also required for the ACL, MCL or LCL
- Tears in individuals < age 13

Collateral Ligament Repair or Reconstruction

Collateral ligament repair or reconstruction should rarely occur independent of additional ligament repair or reconstruction surgery (ACL, MCL, LCL).

All non-traumatic collateral ligament repair/reconstruction requests will be reviewed on a case-by-case basis.

Articular Cartilage Restoration/Repair

Skeletally Immature Indications

Articular cartilage reparative or stimulation procedures may be medically necessary when the following criteria in **ANY** of the following Sections are met [19,20,21]:

- **Section One**
  - Skeletally immature patient
  - Individual is symptomatic (pain, swelling, mechanical symptoms of popping, locking, catching, or limited range of motion)
  - Asymptomatic patients will be reviewed on a case-by-case basis
  - Radiographic findings (X-ray or MRI) of a displaced osteochondral lesion
- **Section Two**
  - Skeletally immature patient
  - Individual is symptomatic (pain, swelling, mechanical symptoms of popping, locking, catching, or limited range of motion)
  - Radiographic findings (X-ray or MRI) findings of a stable osteochondral lesion
  - Failure of at least **12 weeks** of non-operative treatment, including at least **two** of the following:
    - Rest or activity modifications/limitations
    - Ice/heat
    - Protected weight bearing
    - Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics, tramadol

- Brace/orthosis
- Physical therapy modalities
- Supervised home exercise
- Weight optimization
- Corticosteroid injection

Exclusion (applies to all criteria above)

- Exclude individuals with evidence of meniscal deficiency and/or malalignment if these are not being addressed (meniscal transplant and/or lateral release/patellar realignment procedure) at the same time as the cartilage restoration procedure

Skeletally Mature Indications

Articular cartilage reparative marrow stimulation procedures

Reparative marrow stimulation techniques such as microfracture & drilling [22,23] may be medically necessary when the following criteria are met [24,25,26]:

- Skeletally mature adult
- Individuals are symptomatic with anterior knee pain, swelling, mechanical symptoms of popping, locking, catching, or limited range of motion
- For trochlea or patellar lesions physical examination findings should be localized to the patellofemoral joint
- MRI confirms an isolated full-thickness chondral or osteochondral lesion of the femoral condyle, trochlea, or patella < 2.0 cm^2
- Physical exam findings and/or (imaging) results confirm no ligamentous instability
- For femoral condyle lesions, no evidence of prior meniscectomy in same compartment unless concurrent meniscal transplant performed
- Failure of at least **12 weeks** of non-operative treatment, including at least **TWO** of the following:
  - Rest or activity modifications/limitations
  - Ice/heat
  - Protected weight bearing
  - Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics, tramadol
  - Brace/orthosis
  - Physical therapy modalities
  - Supervised home exercise
  - Weight optimization
  - Corticosteroid injection
- No intra-articular cortisone injections within 4 weeks of surgery [1,2,3]

NOTE: Abrasion arthroplasty is included in coding but is not indicated

Articular cartilage restorative procedures – femoral condyle and trochlea

Restorative procedures for articular cartilage loss may include the following: osteochondral autograft transfer (OAT), osteochondral allograft transplantation (OCA), autologous chondrocyte implantation (ACI), or matrix autologous chondrocyte implantation (MACI). The OAT or OCA procedures are preferable if the lesion involves subchondral bone. [22,23,27]

An articular cartilage restorative procedure may be medically necessary when the following criteria are met [24,25,26]:

- Skeletally mature adult
- Individual has been symptomatic (pain, swelling, mechanical symptoms of popping, locking, catching, or limited range of motion) for at least 6 months
- Individual is < 50 years of age
- BMI < 35 (optimal outcomes if patient BMI < 30)
- No prior meniscectomy in same compartment (unless concurrent or staged meniscal transplant performed)
- MRI results confirm an isolated full thickness chondral or osteochondral lesion of the femoral condyles or trochlea with stable surrounding articular cartilage:
  - < 2.0 cm^2 - OAT
  - > 2.0 cm^2 - ACI, MACI, OCA
- MRI and/or physical findings confirm knee has normal alignment as defined as +/- 3 degrees from neutral on full-length mechanical axis long-leg x-ray (unless concurrent or staged tibial or femoral osteotomy performed) and stability (unless concurrent ligamentous repair or reconstruction performed)
- MRI and/or X-rays shows no evidence of osteoarthritis (no greater than Kellgren-Lawrence Grade 2 changes on weight-bearing X-rays [see **Grading Appendix**])
- Failure of at least **12 weeks** of non-operative treatment, including at least **TWO** of the following:
  - Rest or activity modifications/limitations
  - Ice/heat
  - Protected weight bearing
  - Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics, tramadol
  - Brace/orthosis
  - Physical therapy modalities
  - Supervised home exercise
  - Weight optimization
  - Corticosteroid injection
- No prior meniscectomy in same compartment (unless concurrent or staged meniscal transplant performed)
- No intra-articular cortisone injections within 4 weeks of surgery [1,2,3]

Articular cartilage restorative procedures - patella

Restorative procedures for articular cartilage loss of the patella may include the following: osteochondral autograft transfer (OAT), osteochondral allograft transplantation (OCA), autologous chondrocyte implantation (ACI), or matrix autologous chondrocyte implantation (MACI), with or without tibial tubercle osteotomy. * [22,28]

An articular cartilage restorative procedure may be medically necessary when the following criteria are met [24,25,26]:

- Anterior knee pain and loss of function
- Individual is < 50 years of age
- BMI < 35 (optimal outcomes if patient BMI < 30)
- Other extra-articular or intra-articular sources of pain or dysfunction have been excluded (referred pain, radicular pain, tendinitis, bursitis, neuroma)
- Physical exam localizes tenderness to the patellofemoral joint with pain aggravated by activities that load the joint (single leg squat, descending > ascending stairs or stair climbing, and being in seated position for extended periods of time with knee flexed)
- MRI results confirm an isolated full thickness chondral or osteochondral lesion of the patella:
  - < 2.0 cm^2 - OAT
  - > 2.0 cm^2 - ACI, MACI, OCA
- No evidence of associated osteoarthritis greater than Kellgren-Lawrence 2 of the patellofemoral joint or medial/lateral compartments on weight bearing X-rays [see **Grading Appendix**]
- Failure of at least **12 weeks** of non-operative treatment, including at least **TWO** of the following:
  - Rest or activity modifications/limitations
  - Ice/heat
  - Protected weight bearing
  - Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics, tramadol
  - Brace/orthosis
  - Physical therapy modalities
  - Supervised home exercise
  - Weight optimization
  - Corticosteroid injection
- No intra-articular cortisone injections within 4 weeks of surgery [1,2,3]

***Patellofemoral Chondrosis**

For isolated tibial tubercle osteotomy for patellofemoral chondrosis without articular cartilage restoration procedures, the same criteria above apply except patellofemoral X-rays should

document Kellgren-Lawrence grade 3 or 4 changes with no more than K-L 2 changes of the medial and lateral compartments on weight-bearing X-rays.

Articular Cartilage Restoration and Repair Exclusions

- **These requests are excluded from consideration under this guideline:**
  - Micronized cartilage extracellular matrix (BioCartilage)
  - Autologous Matrix-Induced Chondrogenesis (AMIC)
  - Bone marrow aspirate concentrate (BMAC) implantation
  - Hybrid ACI/OAT procedure
  - Particulated juvenile allograft cartilage (PJAC, DeNovo)
  - Particulated autologous cartilage implantation (PACI)
  - Viable cartilage allograft putty (CartiMax)
  - Decellularized Osteochondral Allograft Plugs (e.g., Chondrofix)
  - Cryopreserved viable osteochondral allograft (CVOCA; Cartiform and ProChondrix)
  - Aragonite biphasic osteochondral scaffolds (Agili-C™)
  - Human umbilical cord blood-derived mesenchymal stem cells (CARTISEM)

Synovectomy (Major [2+ compartments], Minor [1 compartment])

Synovectomy may be medically necessary when the criteria in **any** of the following sections are met [29,30]:

- **Section One**
  - Proliferative rheumatoid synovium (in individuals with established rheumatoid arthritis)
  - Non-responsive to disease modifying drug (DMARD) therapy for at least 6 months
  - At least one instance of aspiration of joint effusion and corticosteroid injection (if no evidence of infection)
  - Failure of **at least 6 weeks** of non-operative treatment, including at least **two** of the following:
    - Rest or activity modifications/limitations
    - Ice/heat
    - Protected weight bearing
    - Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics, tramadol
    - Brace/orthosis
    - Physical therapy modalities
    - Supervised home exercise

        - Weight optimization
        - Corticosteroid injection
- **Section Two**
    - Hemarthrosis from injury, coagulopathy or bleeding disorder confirmed by physical exam, joint aspiration, and/or MRI
- **Section Three**
    - Proliferative pigmented villonodular synovitis, synovial chondromatosis, sarcoid synovitis, or similar proliferative synovial disease, traumatic hypertrophic synovitis, cyclops lesion, or fat pad syndrome confirmed by history, MRI, or biopsy [31,32]
    - At least one instance of aspiration of joint effusion and injection of corticosteroid (if no evidence of infection)
    - Failure of **at least 6 weeks** of non-operative treatment, including **at least two** of the following:
        - Rest or activity modifications/limitations
        - Ice/heat
        - Protected weight bearing
        - Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics, tramadol
        - Brace/orthosis
        - Physical therapy modalities
        - Supervised home exercise
        - Weight optimization
        - Corticosteroid injection
- **Section Four**
    - Patient is symptomatic and there is detection of a painful plica confirmed by physical exam
    - MRI confirms the presence of a plica
    - Failure of **at least 12 weeks** of non-operative treatment, including **at least two** of the following:
        - Rest or activity modifications/limitations
        - Ice/heat
        - Protected weight bearing
        - Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics, tramadol
        - Brace/orthosis
        - Physical therapy modalities
        - Supervised home exercise
        - Weight optimization

        - Corticosteroid injection
    - No intra-articular cortisone injections within 4 weeks of surgery [1,2,3]

Loose Body Removal

Loose body removal may be medically necessary when the following criteria are met:

- Documentation of mechanical symptoms that cause limitation or loss of function
- X-ray, CT, or MRI documentation of a loose body
- No intra-articular cortisone injections within 4 weeks of surgery [1,2,3]

Lateral Release/Patellar Realignment

This guideline describes indications for surgical procedures to address patellofemoral pain disorders and abnormal alignment of the extensor mechanism of the knee by arthroscopic and/or open surgical techniques.

Lateral Patellar Compression Syndrome

Surgical intervention for the treatment of lateral patellar compression syndrome is indicated when the following criteria are met [33,34,35]:

- No evidence of patellar dislocation
- Reproducible isolated lateral patellofemoral pain with patellar tilt test
- Evidence of lateral patellar tilt from radiologic images (patellofemoral view: Merchant (45 degrees flexion; and/or skyline (60-90 degrees flexion); and/or sunrise (60-90 degrees flexion)
- Associated lateral patella facet Kellgren-Lawrence changes grade 1, 2, or 3 [see **Grading Appendix**]
- No evidence of medial patellofemoral changes (Kellgren-Lawrence Grade 2 osteoarthritis or higher [see **Grading Appendix**])
- Failure of **at least 6 months** of non-operative treatment, including quadriceps strengthening and appropriate hamstring/IT band stretching and patellar mobilization techniques, and **at least one** of the following:
    - Rest or activity modifications/limitations
    - Ice/heat
    - Protected weight bearing
    - Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics, tramadol
    - Brace/orthosis
    - Physical therapy modalities
    - Supervised home exercise
    - Weight optimization
    - Corticosteroid injection
- No intra-articular cortisone injections within 4 weeks of surgery [1,2,3]

Patellar Malalignment and/or Patellar Instability

Surgical intervention for the treatment of patellar malalignment and/or patellar instability is indicated when the following criteria in any of the following sections are met [36,37,38,39]:

- **Section One**
  - Acute traumatic patellar dislocation is associated with an osteochondral fracture, loose body, vastus medialis obliquus/medial patellofemoral ligament muscle avulsion, or other intra-articular injury that requires urgent operative management
- **Section Two**
  - First time patellar dislocation (not subluxation)
  - Age < 25
  - Any of the following:
    - Imaging demonstrates a TT-TG distance of 15 mm or greater
    - Trochlear dysplasia
    - Patella alta
- **Section Three**
  - History of 2 or more patellar dislocations
  - Radiologic confirmation of MPFL (medial patellofemoral ligament) deficiency (including evidence of acute or remote injury, scarring, incomplete healing, etc.) and there is a TT-TG distance of 15 mm or greater, trochlear dysplasia, or patella alta
  - Physical examination demonstrates evidence of patellar instability (positive apprehension test, increased lateral patellar translation, etc.)
- **Section Four**
  - When **ALL** of the following criteria have been met:
    - Patient complains of patellar subluxation or has a history of only one patellar dislocation (see Section Two above)
    - Physical exam has patellofemoral tenderness and abnormal articulation of the patella in the femoral trochlear groove (patellar apprehension or positive J sign)
    - Radiologic and/or advanced images (CT or MRI) rule out fracture or loose body, and show abnormal articulation, trochlear dysplasia, abnormal TT-TG distance (tibial tubercle-trochlear groove) ***** or other abnormality related to malalignment
    - Failure of at least 6 months of non-operative treatment, including at least 3 months of physical therapy, and **ONE** of the following:
      - □ Rest or activity modifications/limitations
      - □ Ice/heat
      - □ Protected weight bearing
      - □ Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics, tramadol

- □ Brace/orthosis
- □ Supervised home exercise
- □ Weight optimization
- □ Corticosteroid injection

- No intra-articular cortisone injections within 4 weeks of surgery [1,2,3]

*****The tibial tubercle-trochlear groove (TT-TG) distance is normally @5-10 mm. Some authors use 13 mm as a cut-off and most agree that a TT-TG of 15 mm or over is abnormal. [40] TT-TG values over 17 mm indicate other possible bony abnormalities such as increased femoral anteversion that may cause patellar instability. [38,41]

Manipulation Under Anesthesia (MUA)

Manipulation under anesthesia (MUA) may be indicated when the following criteria are met [42,43]:

- Individual is less than 20 weeks after ligamentous or joint reconstruction
- Physical exam findings demonstrate inadequate range of motion of the knee defined as less than 110 degrees of flexion or lack of full extension
- Failure to improve range of motion of the knee despite 6 weeks (12 visits) of documented physical therapy

Lysis of Adhesions for Arthrofibrosis of the Knee

Surgical indications are based on relevant clinical symptoms, physical exam, radiologic findings, time from primary surgery, and response to conservative management when medically appropriate. Improved range of motion may be accomplished through arthroscopically assisted or open lysis of adhesions with general anesthesia, regional anesthesia, or sedation. [43,44]

Lysis of adhesions for arthrofibrosis of the knee may be indicated when all the following criteria are met:

- Individual is > 12 weeks post-surgery fracture or resolved infection
- Physical exam findings demonstrate inadequate range of motion of the knee, defined as < 110 degrees of flexion or lack of full extension
- Failure to improve range of motion of the knee despite 6 weeks (12 visits) of documented physical therapy
- No intra-articular cortisone injections within 4 weeks of surgery [1,2,3]

LEGISLATIVE LANGUAGE

Washington

20080815B – Knee Arthroscopy for Osteoarthritis of the knee [45]

Washington State Health Care Authority Technology Assessment

Health Technology Clinical Committee

Final Findings and Decisions

- **HTCC Coverage Determination**
  - Knee Arthroscopy for osteoarthritis of the knee is not a covered benefit. This decision does not apply to the use of knee arthroscopy for other diagnostic and therapeutic purposes.
- **HTCC Reimbursement Determination**
  - **Limitations of Coverage**
    - Not applicable
  - **Non-Covered Indicators**
    - Osteoarthritis of the Knee

CODING AND STANDARDS

Coding

CPT Codes

Knee Manipulation Under Anesthesia (MUA): 27570, 29884

Knee Ligament Reconstruction/Repair: 27405, 27407, 27409, 27427, 27428, 27429, 29888, 29889

Knee Meniscectomy/Meniscal Repair/Meniscal Transplant: 27332, 27333, 27403, 29868, 29880, 29881, 29882, 29883

Knee Surgery – Other: 27412, 27415, 27416, 27418, 27420, 27422, 27424, 27425, 29866, 29867, 29870, 29873, 29874, 29875, 29876, 29877, 29879, 29885, 29886, 29887, G0289

Applicable Lines of Business

☒	CHIP (Children's Health Insurance Program)
☒	Commercial
☒	Exchange/Marketplace
☒	Medicaid
☐	Medicare Advantage

BACKGROUND

Meniscectomy and Arthritis of the Knee

There is a high incidence of incidental meniscal findings on knee MRI in middle-aged and elderly individuals and several studies have indicated that there is no difference in outcome

between operative and non-operative treatment of individuals with degenerative meniscus tears, especially when associated with an arthritic knee. [8,46] Arthroscopic debridement of degenerative meniscus tears in those with visible arthritis is generally not recommended and, in some cases, may worsen the symptoms and progression of the arthritis. [8,47] Studies have also demonstrated an increased incidence of revision arthroplasty, infection, loosening and stiffness in individuals who underwent a knee arthroscopy prior to a total knee arthroplasty.

The imaging evaluation of the knee for individuals with meniscus tears should be individualized, the goal of which is to recommend treatment for only those with no or minimal associated arthritis.

Although most individuals that have a request for arthroscopic meniscectomy will have had **BOTH** an MRI **AND** X-rays of the knee, only one of these tests is required for approval, provided all other criteria for meniscectomy have been met. For example, if there has been a failure to improve with 6 weeks of non-operative treatment and there are physical examination findings of a meniscus tear, an MRI is not required, only weight-bearing X-rays that demonstrate no more than mild arthritis. Likewise, if an MRI describes a frank meniscus tear and does not describe any significant associated arthritis, weight-bearing X-rays are not required. However, as noted above, if an MRI demonstrates findings of more than mild arthritis, **weight-bearing X-rays are required** to confirm no moderate or severe articular cartilage loss.

Grading Appendix

Kellgren-Lawrence Grading System (Standing/weight-bearing X-rays) (48)

Grade	Description
0	No radiographic features of osteoarthritis
1	Possible joint space narrowing and osteophyte formation
2	Definite osteophyte formation with possible joint space narrowing
3	Moderate multiple osteophytes, definite narrowing of joint space, some sclerosis and possible deformity of bone contour
4	Large osteophytes, marked narrowing of joint space, severe sclerosis, and definite deformity of bone contour

Outerbridge Arthroscopic Grading System (49)

Grade	Description
0	Normal cartilage
I	Softening and swelling/blistering
II	Partial thickness defect, fissures < 1.5cm diameter/wide

Grade	Description
III	Fissures /defects down to subchondral bone with intact calcified cartilage layer, diameter > 1.5cm
IV	Exposed subchondral bone

Marx Scale *(50)*

For determination of activity level in acute ACL tears. Indicate how often you performed each activity in your healthiest and most active state, in the past year.

Activity/Movement	Less than one time in a month	One time in a month	One time in a week	2 or 3 times in a week	4 or more times in a week
Running: running while playing a sport or jogging	0	1	2	3	4
Cutting: changing directions while running	0	1	2	3	4
Deceleration: coming to a quick stop while running	0	1	2	3	4
Pivoting: turning your body with your foot planted while playing sport; For example: skiing, skating, kicking, throwing, hitting a ball (golf, tennis, squash), etc.	0	1	2	3	4

Tegner Scores *(51)*

For determination of activity level in acute ACL tears. Indicate in the spaces below the **HIGHEST** level of activity that you participated in **BEFORE YOUR INJURY** and the highest level you are able to participate in **CURRENTLY**.

Level	Activity Description
Level 10	Competitive sports- soccer, football, rugby (national elite)
Level 9	Competitive sports- soccer, football, rugby (lower divisions), ice hockey, wrestling, gymnastics, basketball
Level 8	Competitive sports- racquetball or bandy, squash or badminton, track and field athletics (jumping, etc.), down-hill skiing
Level 7	Competitive sports- tennis, running, motorcars speedway, handball Recreational sports- soccer, football, rugby, bandy, ice hockey, basketball, squash, racquetball, running

Level	Activity Description
Level 6	Recreational sports- tennis and badminton, handball, racquetball, down-hill skiing, jogging at least 5 times per week
Level 5	Work- heavy labor (construction, etc.) Competitive sports- cycling, cross-country skiing; Recreational sports- jogging on uneven ground at least twice weekly
Level 4	Work- moderately heavy labor (e.g., truck driving, etc.)
Level 3	Work- light labor (nursing, etc.)
Level 2	Work- light labor Walking on uneven ground possible, but impossible to backpack or hike
Level 1	Work- sedentary (secretarial, etc.)
Level 0	Sick leave or disability pension because of knee problems

POLICY HISTORY

Date	Summary
November 2024	• This guideline replaces Evolent Clinical Guideline 316 for Knee Arthroscopy • For meniscectomy requirements in a younger population, 'pediatric or adolescent' was changed to patients < 21. • Added fat pad syndrome and cyclops lesions to list of indications for synovectomy • Added indications for first time patellar dislocations • Deleted the requirement for 6 months of physical therapy when there have been 2 or more patellar dislocations and there are significant anatomic abnormalities such as a TT-TG distance of 15 mm or greater, trochlear dysplasia, or patella alta • Deleted the requirement for a manipulation under anesthesia when lysis of adhesion surgery is performed
December 2023	• Legislative Requirements added for the State of Washington for Knee Arthroscopy 20080815B • Revised surgical optimization and physician/patient discussion language

Date	Summary
	• Reorganized ACL Repair/Reconstruction Section • Added table of contents • Adjusted Background Section • Updated References
June 2023	• Updated references pertaining to the relationship of meniscectomy and arthritis of the knee • Clarification of the requirement of X-rays for ACL reconstruction • Additional references for articular cartilage restorative procedures • Revision of the listing of articular cartilage restorative procedures • Clarification of the lesion size for articular cartilage restorative procedures of the knee: < 2.0 cm^2 - OAT; > 2.0 cm^2 - ACI, MACI, OCA • Non-operative treatment requirement for articular cartilage procedures changed from 6 months to 3 months • Listing of investigational/non-covered articular cartilage procedures • Added CPT codes: 29885, 29886. 29887

LEGAL AND COMPLIANCE

Guideline Approval

Committee

Reviewed / Approved by Evolent Specialty Clinical Guideline Review Committee

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REFERENCES

1. Belk J, Keeling L, Kraeutler M, Snow M, Mei-Dan O et al. Risk of Infection in Knee Arthroscopy Patients Undergoing Corticosteroid Injections in the Perioperative Period. Orthopaedic Journal of Sports Medicine. 2021; 9: 10.1177/23259671211032941.

2. Forsythe B, Forlenza E M, Agarwalla A, Cohn M R, Lavoie-Gagne O et al. Corticosteroid Injections 1 Month Before Arthroscopic Meniscectomy Increase the Risk of Surgical-Site Infection. Arthroscopy. 2021; 37: 2885-2890.e2. 10.1016/j.arthro.2021.02.047.

3. Lee W, Bhattacharjee S, Lee M, Ho S, Athiviraham A. A Safe Interval between Preoperative Intra-articular Corticosteroid Injections and Subsequent Knee Arthroscopy. Journal of Knee Surgery. 2022; 35: 47-53. 10.1055/s-0040-1712949.

4. American Academy of Orthopaedic Surgeons. Management of Osteoarthritis of the Knee (Non-Arthroplasty) Evidence-Based Clinical Practice Guideline. American Academy of Orthopaedic Surgeons. 2021; Accessed: 09/23/2024. https://www.aaos.org/oak3cpg.

5. DeClouette B, Birnbaum A, Campbell H, Bi A, Lin C. Needle Arthroscopy Demonstrates High Sensitivity and Specificity for Diagnosing Intra-Articular Shoulder and Knee Pathology. Cureus. 2022; 14: e33189. 10.7759/cureus.33189.

6. Anderson D, Rose M, Wille A, Wiedrick J, Crawford D. Arthroscopic Mechanical Chondroplasty of the Knee Is Beneficial for Treatment of Focal Cartilage Lesions in the Absence of Concurrent Pathology. Orthopaedic Journal of Sports Medicine. 2017; 5: 232596711770721. 10.1177/2325967117707213.

7. Kiel J, Kaiser K. Patellofemoral Arthritis [Updated 2023 Jun 12]. Stat Pearls Publishing. 2023; Accessed: 09/23/2024. https://www.ncbi.nlm.nih.gov/books/NBK513242/.

8. Burgess C J, De Cicco F L. Meniscectomy [Updated 2023 May 23]. Stat Pearls Publishing. 2023; Accessed: 09/23/2024. https://www.ncbi.nlm.nih.gov/books/NBK559105/.

9. Raj M A, Bubnis M A. Knee Meniscal Tears [Updated 2023 Jul 17]. Stat Pearls Publishing. 2023; Accessed: 09/24/2024. https://www.ncbi.nlm.nih.gov/books/NBK431067/.

10. Krych A J, Lamba A, Wang A S, Boos A M, Camp C L et al. Nonoperative Management of Degenerative Medial Meniscus Posterior Root Tears: Poor Outcomes at a Minimum 10-Year Follow-up. American Journal of Sports Medicine. 2023; 51: 2603-2607. 10.1177/03635465231185132.

11. Getgood A, LaPrade R F, Verdonk P, Gersoff W, Cole B et al. International Meniscus Reconstruction Experts Forum (IMREF) 2015 Consensus Statement on the Practice of Meniscal Allograft Transplantation. The American Journal of Sports Medicine. 2017; 45: 1195-1205. 10.1177/0363546516660064.

12. Bosco F, Giustra F, Masoni V, Capella M, Sciannameo V et al. Combining an Anterolateral Complex Procedure With Anterior Cruciate Ligament Reconstruction Reduces the Graft Reinjury Rate and Improves Clinical Outcomes: A Systematic Review and Meta-analysis of Randomized Controlled Trials. The American journal of sports medicine. 2024; 52: 2129-2147. 10.1177/03635465231198494.

13. Evans J, Mabrouk A, Nielson J I. Anterior Cruciate Ligament Knee Injury [Updated 2023 Nov 17]. Stat Pearls Publishing. 2023; Accessed: 09/24/2024. https://www.ncbi.nlm.nih.gov/books/NBK499848/.

14. Filbay S R, Grindem H. Evidence-based recommendations for the management of anterior cruciate ligament (ACL) rupture. Best Practice and Research Clinical Rheumatology. 2019; 33: 33-47. 10.1016/j.berh.2019.01.018.

15. Shultz S J, Cruz M R, Casey E, Dompier T P, Ford K R et al. Sex-Specific Changes in Physical Risk Factors for Anterior Cruciate Ligament Injury by Chronological Age and Stages of Growth and Maturation From 8 to 18 Years of Age. Journal of Athletic Training. 2022; 57: 830-876. 10.4085/1062-6050-0038.22.

16. Bedi A, Musahl V, Cowan J B. Management of Posterior Cruciate Ligament Injuries. Journal of the American Academy of Orthopaedic Surgeons. 2016; 24: 277-289. 10.5435/JAAOS-D-14-00326.

17. Raj M A, Mabrouk A, Varacallo M. Posterior Cruciate Ligament Knee Injuries [Updated 2023 Aug 8]. Stat Pearls Publishing. 2023; Accessed: 09/24/2024. https://www.ncbi.nlm.nih.gov/books/NBK430726/.

18. Scarcella M J, Yalcin S, Scarcella N R, Saluan P, Farrow L D. Outcomes of Pediatric Posterior Cruciate Ligament Reconstruction: A Systematic Review. Orthopaedic Journal of Sports Medicine. 2021; 9: 232596712110325. 10.1177/23259671211032539.

19. Chau M, Klimstra M, Wise K, Ellermann J, Tóth F et al. Osteochondritis Dissecans. Journal of Bone and Joint Surgery. 2021; 103: 1132-1151. 10.2106/JBJS.20.01399.

20. Salzmann G, Niemeyer P, Hochrein A, Stoddart M, Angele P. Articular Cartilage Repair of the Knee in Children and Adolescents. Orthopaedic Journal of Sports Medicine. 2018; 6: 232596711876019. 10.1177/2325967118760190.

21. Valtanen R, Arshi A, Kelley B, Fabricant P, Jones K. Articular Cartilage Repair of the Pediatric and Adolescent Knee with Regard to Minimal Clinically Important Difference: A Systematic Review. CARTILAGE. 2020; 11: 9-18. 10.1177/1947603518783503.

22. Cong B, Sun T, Zhao Y, Chen M. Current and Novel Therapeutics for Articular Cartilage Repair and Regeneration. Therapeutics and Clinical Risk Management. 2023; 19: 485-502. 10.2147/TCRM.S410277.

23. Niemeyer P, Laute V, Zinser W, Becher C, Kolombe T et al. A Prospective, Randomized, Open-Label, Multicenter, Phase III Noninferiority Trial to Compare the Clinical Efficacy of Matrix-Associated Autologous Chondrocyte Implantation With Spheroid Technology Versus Arthroscopic Microfracture for Cartilage Defects of the Knee. Orthopaedic Journal of Sports Medicine. 2019; 7: 10.1177/2325967119854442.

24. Filho J, Sousa E. Treatment of Chondral Lesions in the Knee. Rev Bras Ortop. 2023; 58: e551-e556. 10.1055/s-0043-1772196.

25. Hinckel B, Thomas D, Vellios E, Hancock K, Calcei J et al. Algorithm for Treatment of Focal Cartilage Defects of the Knee: Classic and New Procedures. CARTILAGE. 2021; 13: 473S-495S. 10.1177/1947603521993219.

26. Mall N, Harris J, Cole B. Clinical Evaluation and Preoperative Planning of Articular Cartilage Lesions of the Knee. Journal of the American Academy of Orthopaedic Surgeons. 2015; 23: 633-640. 10.5435/JAAOS-D-14-00241.

27. Weishorn J, Wiegand J, Zietzschmann S, Koch K, Rehnitz C et al. Factors Influencing Long-term Outcomes After Matrix-Induced Autologous Chondrocyte Implantation: Long-term Results at 10 Years. American Journal of Sports Medicine. 2024; 10.1177/03635465241270152.

28. Ginesin E, Chari N, Barnhart J, Wojnowski N, Patel R. Cartilage Restoration for Isolated Patellar Chondral Defects: An Updated Systematic Review. Orthopaedic Journal of Sports Medicine. 2023; 11: 10.1177/23259671231153422.

29. Badin D, Leland C R, Bronheim R S, Balmuri N, Lee R J. Synovectomy in juvenile idiopathic arthritis: A protocol for systematic review and meta-analysis. Medicine (United States). 2022; 101: E32278. 10.1097/MD.0000000000032278.

30. Chalmers P, Sherman S, Raphael B, Su E. Rheumatoid synovectomy: Does the surgical approach matter? Clinical Orthopaedics and Related Research. 2011; 469: 2062-2071. 10.1007/s11999-010-1744-3.

31. Chandra A, Agarwal S, Donahue A, Handorf E, Abraham J. Arthroscopic Versus Open Management of Diffuse-Type Tenosynovial Giant Cell Tumor of the Knee: A Meta-analysis of Retrospective Cohort Studies. Journal of the American Academy of Orthopaedic Surgeons Global Research and Reviews. 2021; 4: 10.5435/JAAOSGlobal-D-21-00217.

32. Fecek C, Carter K R. Pigmented Villonodular Synovitis [Updated 2023 Aug 7]. Stat Pearls Publishing. 2023; Accessed: 09/25/2024. https://www.ncbi.nlm.nih.gov/books/NBK549850

33. Bump J M, Lewis L. Patellofemoral Syndrome [Updated 2023 Feb 13]. Stat Pearls Publishing. 2023; Accessed: 09/25/2024. https://www.ncbi.nlm.nih.gov/books/NBK557657/.

34. Petersen W, Ellermann A, Gösele-Koppenburg A, Best R, Rembitzki I et al. Patellofemoral pain syndrome. Knee Surgery, Sports Traumatology, Arthroscopy. 2014; 22: 2264-2274. 10.1007/s00167-013-2759-6.

35. Saper M, Shneider D. Diagnosis and Treatment of Lateral Patellar Compression Syndrome. Arthroscopy Techniques. 2014; 3: e633-e638. 10.1016/j.eats.2014.07.004.

36. Arshi A, Cohen J, Wang J, Hame S, McAllister D. Operative Management of Patellar Instability in the United States: An Evaluation of National Practice Patterns, Surgical Trends, and Complications. Orthopaedic Journal of Sports Medicine. 2016; 4: 10.1177/2325967116662873.

37. Dennis E, Gruber S, Marmor W, Shubin Stein B. Evaluation and management of patellar instability. Annals of Joint. 2022; 7: 10.21037/aoj-2020-02.

38. Severino N R, Severino F R, De Camargo O P A, Guglielmetti L G B, De Oliveira V M. Update on Patellar Instability. Rev Bras Ortop. 2021; 56: 147-153. 10.1055/s-0040-1713389.

39. Wolfe S, Varacallo M, Thomas J D, Carroll J J, Kahwaji C I. Patellar Instability [Updated 2023 Feb 13]. Stat Pearls Publishing. 2023; Accessed: 09/25/2024. https://www.ncbi.nlm.nih.gov/books/NBK482427

40. Brady J, Rosencrans A, Shubin Stein B. Use of TT-PCL versus TT-TG. Current Reviews in Musculoskeletal Medicine. 2018; 11: 261-265. 10.1007/s12178-018-9481-4.

41. Barbosa R, da Silva M, Macedo C, Santos C. Imaging evaluation of patellofemoral joint instability: a review. Knee Surgery and Related Research. 2023; 35: 10.1186/s43019-023-00180-8.

42. Colacchio N, Abela D, Bono J, Shah V, Bono O. Efficacy of manipulation under anesthesia beyond three months following total knee arthroplasty. Arthroplasty Today. 2019; 5: 515-520. 10.1016/j.artd.2019.08.002.

43. Fackler N, Chin G, Karasavvidis T, Bohlen H, Smith E et al. Outcomes of Arthroscopic Lysis of Adhesions for the Treatment of Postoperative Knee Arthrofibrosis: A Systematic Review. Orthopaedic Journal of Sports Medicine. 2022; 10: 10.1177/23259671221124911.

44. Eggeling L, Klepsch L, Akoto R, Frosch K. Clinical results after very early, early and late arthroscopic arthrolysis of the knee. International Orthopaedics. 2022; 46: 265-271. 10.1007/s00264-021-05193-0.

45. Washington State Health Care Authority. Knee Arthroscopy for Osteoarthritis of the Knee [Adopted October 17, 2008]. Washington State Health Care Authority. 2008; Accessed: 09/25/2024. https://www.hca.wa.gov/assets/program/decision_finding_knee_final%5B1%5D.pdf.

46. Kise N, Risberg M, Stensrud S, Ranstam J, Engebretsen L. Exercise therapy versus arthroscopic partial meniscectomy for degenerative meniscal tear in middle aged patients: randomised controlled trial with two year follow-up. BMJ. 2016; i3740. 10.1136/bmj.i3740.

47. Migliorini F, Oliva F, Eschweiler J, Cuozzo F, Hildebrand F. No evidence in support of arthroscopic partial meniscectomy in adults with degenerative and nonobstructive meniscal symptoms: a level I evidence-based systematic review. Knee Surgery. 2023; 31: 1733-1743. 10.1007/s00167-022-07040-0.

48. Kellgren J, Lawrence J. Radiological Assessment of Osteo-Arthrosis. Annals of the Rheumatic Diseases. 1957; 16: 494-502. 10.1136/ard.16.4.494.

49. Slattery C, Kweon C. Classifications in Brief: Outerbridge Classification of Chondral Lesions. Clinical Orthopaedics and Related Research. 2018; 476: 2101-2104. 10.1007/s11999.0000000000000255.

50. Marx R, Stump T, Jones E, Wickiewicz T, Warren R. Development and Evaluation of an Activity Rating Scale for Disorders of the Knee. The American Journal of Sports Medicine. 2001; 29: 213-218. 10.1177/03635465010290021601.

51. Tegner Y, Lysholm J. Rating systems in the evaluation of knee ligament injuries. Clinical Orthopaedics and Related Research. 1985; 198: 43-49. 10.1097/00003086-198509000-00007.

Evolent Clinical Guideline 1764 for Knee Arthroscopy

Guideline Number: Evolent_CG_1764	**Applicable Codes**	
"Evolent" refers to Evolent Health LLC and Evolent Specialty Services, Inc. 		
Original Date: November 2015	**Last Revised Date:** November 2024	**Implementation Date:** July 2025

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STATEMENT

General Information

It is an expectation that all patients receive care/services from a licensed clinician. All appropriate supporting documentation, including recent pertinent office visit notes, laboratory data, and results of any special testing must be provided. If applicable: All prior relevant imaging results and the reason that alternative imaging cannot be performed must be included in the documentation submitted.

Purpose

This guideline addresses the following elective, non-emergent, arthroscopic knee repair procedures; diagnostic knee arthroscopy, debridement with or without chondroplasty, meniscectomy/meniscal repair/meniscal transplant, ligament reconstruction/repair, articular cartilage restoration/repair (marrow stimulating and restorative techniques) , synovectomy (major [2+ compartments], minor [1 compartment]), loose body removal, lateral release/patellar realignment, manipulation under anesthesia (MUA), and lysis of adhesions for arthrofibrosis of the knee.

Scope

Open, non-arthroplasty knee surgeries are performed instead of an arthroscopy as dictated by the type and severity of injury and/or disease.

Special Note

See legislative language for specific mandates in the State of Washington

GENERAL REQUIREMENTS

- Elective arthroscopic surgery of the knee may be considered if the following general criteria are met:
    - There is clinical correlation of the individual's subjective complaints with objective exam findings and/or imaging (when applicable)
    - Knee pain with documented loss of function: Deviation from normal knee function which may include painful weight bearing and/or inadequate range of motion (> 10 degrees flexion contracture or < 110 degrees flexion or both) to accomplish age-appropriate activities of daily living (ADLs), occupational or athletic requirements)
    - Individual is medically stable and optimized for surgery, and any treatable comorbidities are adequately medically managed such as diabetes, nicotine addiction, or an excessively high BMI. There should also be a shared decision between the patient and physician to proceed with knee surgery when comorbidities exist as it pertains to the increased risk of complications
    - Individual does not have an active local or systemic infection
    - Individual does not have active, untreated drug dependency (including but not limited to narcotics, opioids, or muscle relaxants) unless engaged in a treatment program

- No intra-articular cortisone injections within 4 weeks of surgery [1,2,3]

- Clinical notes should address:
  - Symptom onset, duration, and severity
  - Loss of function and/or limitations
  - Type and duration of non-operative management modalities (where applicable)
- Unless otherwise stated in the subsections below, non-operative management must include **at least TWO** or more of the following, unless otherwise specified [4]:
  - Rest or activity modifications/limitations
  - Ice/heat
  - Protected weight bearing
  - Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics, tramadol
  - Brace/orthosis
  - Physical therapy modalities
  - Supervised home exercise
  - Weight optimization
  - Injections: corticosteroid, NSAID, viscosupplementation

INDICATIONS

Diagnostic Knee Arthroscopy

Diagnostic knee arthroscopy should rarely be required however may be medically necessary when the following criteria are met:

- At least 12 weeks of knee pain with documented loss of function
- History of painful weight bearing and/or physical examination that shows joint line tenderness, effusion and/or limited motion compared to pre-symptomatic joint range
- Indeterminate radiographs **AND** MRI findings. Radiographs and/or MRI should not demonstrate any of the following: Kellgren-Lawrence Grade 3-4 changes (based on weight-bearing radiographs), meniscus tears, ligament tears, loose bodies, stress fractures (including insufficiency fractures) or patellofemoral instability (lateral patellar tilt or patellar subluxation)
- Failure of at least 12 weeks of non-operative treatment, including **at least TWO** of the following [4]:
  - Rest or activity modifications/limitations
  - Ice/heat
  - Protected weight bearing
  - Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics, tramadol

- Brace/orthosis
- Physical therapy modalities
- Supervised home exercise
- Weight optimization
- Corticosteroid injection

- No intra-articular cortisone injections within 4 weeks of surgery [1,2,3]

NOTE: Subchondroplasty and In-office diagnostic arthroscopy (e.g., Mi-Eye, VisionScope) [5] are not managed by Evolent

Chondroplasty

Non-Patellofemoral chondroplasty (Femoral Condyle and Tibial Plateau)

Non-Patellofemoral (femoral condyle and tibial plateau) chondroplasty may be medically necessary when the following criteria are met [6]:

- At least 12 weeks of knee pain with documented loss of function
- Two or more or persistent effusion(s)
- MRI results demonstrate evidence of an area of localized articular cartilage damage or an unstable chondral flap
- Failure of **at least 12 weeks** of non-operative treatment, including **at least two** of the following [4]:
  - Rest or activity modifications/limitations
  - Ice/heat
  - Protected weight bearing
  - Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics, tramadol
  - Brace/orthosis
  - Physical therapy modalities
  - Supervised home exercise
  - Weight optimization
  - Corticosteroid injection
- No intra-articular cortisone injections within 4 weeks of surgery [1,2,3]

Patellofemoral chondroplasty

Patellofemoral chondroplasty may be medically necessary when the following criteria are met [7]:

- Anterior knee pain with documented loss of function, exacerbated by activities that load the patellofemoral joint such as ascending or descending stairs or being in seated position for extended periods of time with knee flexed
- Other extra-articular or intra-articular sources of pain or dysfunction have been

excluded (referred hip pain, radicular pain, tendinitis, bursitis, neuroma)

- Physical exam localizes tenderness to the patellofemoral joint
- No evidence of moderate to severe osteoarthritis (Kellgren-Lawrence Grade 3-4 based on weight-bearing radiographs and patellofemoral views [see **Grading Appendix**])
- Failure of **at least 12 weeks** of non-operative treatment, including **at least two** of the following [4]:
  - Rest or activity modifications/limitations
  - Ice/heat
  - Protected weight bearing
  - Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics, tramadol
  - Brace/orthosis
  - Physical therapy modalities
  - Supervised home exercise
  - Weight optimization
  - Corticosteroid injection
- No intra-articular cortisone injections within 4 weeks of surgery [1,2,3]

Meniscectomy/Meniscal Repair

Meniscectomy and/or meniscal repair may be medically necessary when the criteria in any of the following sections are met [8,9]:

- **Section One**
  - Symptomatic meniscal tear confirmed by MRI results that demonstrate a peripheral tear in the vascular zone, root tear, [10] or other tear that the requesting physician considers repairable and is associated with pain localized to the corresponding compartment upon physical examination
  - No Kellgren-Lawrence Grade 3-4 changes on standing X-rays
- **Section Two**
  - MRI demonstrate a meniscus tear in a patient age <21 years who complains of pain or mechanical symptoms or has **ANY** positive meniscal findings on physical examination
- **Section Three**
  - MRI demonstrates a bucket-handle tear of the meniscus and there is a history of acute injury/onset of symptoms with a locked knee and/or mechanical symptoms of locking
- **Section Four:** When a symptomatic meniscus tear is suspected and meets the following criteria:
  - When **at least two** of the following physical examination findings are present or there is at least one of the following physical examination findings and there is a

history of mechanical symptoms such as 'catching' or 'locking':

- Knee joint line pain with forced hyperextension upon physical exam
- Knee joint line pain with maximum flexion upon physical exam
- Knee pain, crepitus, or an audible or palpable click with the McMurray's test or Apley grind test
- Joint line tenderness to palpation upon physical exam

- Weight-bearing X-rays (standing X-rays, Rosenberg view, 45-degree flexed PA view, etc.) demonstrate no moderate or severe osteoarthritic changes defined as Kellgren-Lawrence Grade 3-4 [see **Grading Appendix**]; X-rays should be described as showing either no arthritis or mild/minimal arthritis only

OR

- MRI results confirm a frank meniscal tear (not simply degenerative changes, i.e., fraying) and the MRI **does not** demonstrate any of the following: moderate or severe articular cartilage thinning, full-thickness articular cartilage loss or defects, extrusion of the meniscus, subchondral edema, more than mild osteophytes, subchondral cysts, or an impression of 'moderate' or 'advanced/severe' arthritis (see absolute and relative contraindications). If the MRI demonstrates any of the above-described findings of more than mild arthritis, **weight-bearing X-rays are required** to confirm no moderate or severe articular cartilage loss * (see **background** section).
- Failure of at least 6 weeks of non-operative treatment, including **at least TWO** of the following:
  - Rest or activity modifications/limitations
  - Ice/heat
  - Protected weight bearing
  - Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics, tramadol
  - Brace/orthosis
  - Physical therapy modalities
  - Supervised home exercise
  - Weight optimization
  - Corticosteroid injection
- No intra-articular cortisone injections within 4 weeks of surgery [1,2,3]

Absolute Contraindications Meniscectomy/Meniscal Repair

- Arthroscopic meniscectomy or meniscal repair is never medically necessary in the presence of Kellgren-Lawrence Grade 4 osteoarthritis [8] [see **Grading Appendix**]
- **ANY** intra-articular cortisone injections within 4 weeks of surgery [1,2,3]

Relative Contraindications Meniscectomy / Meniscal Repair

- Meniscectomy or repair is considered **NOT MEDICALLY NECESSARY** in the presence of Kellgren-Lawrence Grade 3 osteoarthritis [see **Grading Appendix**],

Unless [8]:

- There has been the acute onset of locking (does not include catching, popping, cracking, etc.); **AND**
- There is MRI evidence of a bucket-handle **or** displaced meniscal fragment that correlates with the correct compartment (i.e., medial tenderness and locking, for a medial meniscus tear)

- If grade 3 changes are present, only a meniscectomy may be indicated, not a repair. If there is evidence of meniscal extrusion on coronal MRI, with/without subchondral edema, arthroscopy is relatively contraindicated, even if a tear is present

Meniscal Transplant

Meniscal Transplants may be medically necessary when the following criteria are met [9,11]:

- Individual is < 40 years of age
- Individual has no evidence of arthritic changes
- Symptomatic meniscal deficiency confirmed by MRI results that show a meniscal deficient compartment, **OR** previous arthroscopy photographs or video showing subtotal or total meniscectomy
- Failure of at least 6 weeks of non-operative treatment, including **at least two** of the following:
  - Rest or activity modifications/limitations
  - Ice/heat
  - Protected weight bearing
  - Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics, tramadol
  - Brace/orthosis
  - Physical therapy modalities
  - Supervised home exercise
  - Weight optimization
  - Corticosteroid injection

Absolute Contraindications: Meniscal Transplant [11]

- Uncorrected (staged or simultaneous) ligamentous insufficiency (ACL, PCL, MCL, LCL, PMC, PLC)
- Uncorrected (staged or simultaneous) malalignment greater than 5 degrees varus or 5 degrees valgus
- Uncorrected (staged or simultaneous) full-thickness articular cartilage isolated defects (International Cartilage Research Society Grade 3 or 4; Outerbridge Grade IV [see **Grading Appendix**])
- Kellgren-Lawrence Grade 3 or 4 osteoarthritis [see **Grading Appendix**]

- Intra-articular cortisone injections within 4 weeks of surgery [1,2,3]

Ligament Reconstruction or Repair

Anterior Cruciate Ligament (ACL) Repair or Reconstruction with Allograft or Autograft, With or Without Extraarticular Tenodesis *(12,13,14)*

ACL reconstruction or repair may be medically necessary when the criteria in any of the following sections are met and individual has no evidence of severe arthritis defined as Kellgren-Lawrence grade 3 or 4. (If the MRI results demonstrate an ACL tear and there is no mention of significant arthritis, especially in the younger individual, X-rays are not required. However, in others with significant MRI evidence of arthritis, standing X-rays are required to confirm that no Kellgren-Lawrence grade 3 or 4 changes are present).

- **Section One**
  - Acute ACL tear confirmed by MRI in high demand occupation or competitive athlete (as quantified by Marx activity score for athletics (any score > 4) and Tegner activity score for athletics and/or occupation ((score > 2) [see **Grading Appendix**]
- **Section Two**
  - MRI results confirm an ACL tear associated with other ligamentous instability or repairable meniscus
- **Section Three**
  - When the following criteria are met
    - Patient history of instability at the time of an acute injury or history of recurrent knee instability (as defined subjectively as 'giving way', 'giving out', 'buckling', two-fist sign)
    - Physical examination findings demonstrate a positive Lachman test, Lachman test 1A, 1B, 2A, 2B, 3A, 3B, anterior drawer, pivot shift test, or instrumented (KT-1000 or KT-2000) laxity of greater than 3 mm side-side difference
    - MRI results confirm complete ACL tear or substantial partial tear with a non-functioning ACL as demonstrated on physical examination

NOTE: Requests for ACL repair or reconstruction in individuals < age 13 will be reviewed on a case-by-case basis [15]

Posterior Cruciate Ligament (PCL) Reconstruction *(16,17)*

PCL reconstruction or repair may be medically necessary when the following criteria are met:

- Knee instability (as defined subjectively as 'giving way', 'giving out' or 'buckling') with clinical findings of any of the following signs/tests: positive posterior drawer, posterior sag, quadriceps active, dial test at 90 degrees knee flexion or reverse pivot shift test
- MRI results confirm complete PCL tear
- Failure of at least 12 weeks of non-operative treatment, including physical therapy emphasizing quadriceps strengthening

- Absence of medial and patellofemoral K-L grade 3-4 changes in chronic tears [see **Grading Appendix**]

The following clinical scenarios will be considered and decided on a case-by-case basis [18]:

- Pediatric and adolescent tears in individuals with open physis or growth plates
- Symptomatic partial tears with persistent instability despite non-operative treatment
- Incidental Kellgren-Lawrence grade 2-3 osteoarthritis [see **Grading Appendix**] in acute/subacute tears with unstable joint
- Acute PCL repair or reconstruction when surgery is also required for the ACL, MCL or LCL
- Tears in individuals < age 13

Collateral Ligament Repair or Reconstruction

Collateral ligament repair or reconstruction should rarely occur independent of additional ligament repair or reconstruction surgery (ACL, MCL, LCL).

All non-traumatic collateral ligament repair/reconstruction requests will be reviewed on a case-by-case basis.

Articular Cartilage Restoration/Repair

Skeletally Immature Indications

Articular cartilage reparative or stimulation procedures may be medically necessary when the following criteria in **ANY** of the following Sections are met [19,20,21]:

- **Section One**
  - Skeletally immature patient
  - Individual is symptomatic (pain, swelling, mechanical symptoms of popping, locking, catching, or limited range of motion)
  - Asymptomatic patients will be reviewed on a case-by-case basis
  - Radiographic findings (X-ray or MRI) of a displaced osteochondral lesion
- **Section Two**
  - Skeletally immature patient
  - Individual is symptomatic (pain, swelling, mechanical symptoms of popping, locking, catching, or limited range of motion)
  - Radiographic findings (X-ray or MRI) findings of a stable osteochondral lesion
  - Failure of at least **12 weeks** of non-operative treatment, including at least **two** of the following:
    - Rest or activity modifications/limitations
    - Ice/heat
    - Protected weight bearing
    - Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics, tramadol

- Brace/orthosis
- Physical therapy modalities
- Supervised home exercise
- Weight optimization
- Corticosteroid injection

Exclusion (applies to all criteria above)

- Exclude individuals with evidence of meniscal deficiency and/or malalignment if these are not being addressed (meniscal transplant and/or lateral release/patellar realignment procedure) at the same time as the cartilage restoration procedure

Skeletally Mature Indications

Articular cartilage reparative marrow stimulation procedures

Reparative marrow stimulation techniques such as microfracture & drilling [22,23] may be medically necessary when the following criteria are met [24,25,26]:

- Skeletally mature adult
- Individuals are symptomatic with anterior knee pain, swelling, mechanical symptoms of popping, locking, catching, or limited range of motion
- For trochlea or patellar lesions physical examination findings should be localized to the patellofemoral joint
- MRI confirms an isolated full-thickness chondral or osteochondral lesion of the femoral condyle, trochlea, or patella < 2.0 cm^2
- Physical exam findings and/or (imaging) results confirm no ligamentous instability
- For femoral condyle lesions, no evidence of prior meniscectomy in same compartment unless concurrent meniscal transplant performed
- Failure of at least **12 weeks** of non-operative treatment, including at least **TWO** of the following:
  - Rest or activity modifications/limitations
  - Ice/heat
  - Protected weight bearing
  - Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics, tramadol
  - Brace/orthosis
  - Physical therapy modalities
  - Supervised home exercise
  - Weight optimization
  - Corticosteroid injection
- No intra-articular cortisone injections within 4 weeks of surgery [1,2,3]

NOTE: Abrasion arthroplasty is included in coding but is not indicated

Articular cartilage restorative procedures – femoral condyle and trochlea

Restorative procedures for articular cartilage loss may include the following: osteochondral autograft transfer (OAT), osteochondral allograft transplantation (OCA), autologous chondrocyte implantation (ACI), or matrix autologous chondrocyte implantation (MACI). The OAT or OCA procedures are preferable if the lesion involves subchondral bone. [22,23,27]

An articular cartilage restorative procedure may be medically necessary when the following criteria are met [24,25,26]:

- Skeletally mature adult
- Individual has been symptomatic (pain, swelling, mechanical symptoms of popping, locking, catching, or limited range of motion) for at least 6 months
- Individual is < 50 years of age
- BMI < 35 (optimal outcomes if patient BMI < 30)
- No prior meniscectomy in same compartment (unless concurrent or staged meniscal transplant performed)
- MRI results confirm an isolated full thickness chondral or osteochondral lesion of the femoral condyles or trochlea with stable surrounding articular cartilage:
  - < 2.0 cm^2 - OAT
  - > 2.0 cm^2 - ACI, MACI, OCA
- MRI and/or physical findings confirm knee has normal alignment as defined as +/- 3 degrees from neutral on full-length mechanical axis long-leg x-ray (unless concurrent or staged tibial or femoral osteotomy performed) and stability (unless concurrent ligamentous repair or reconstruction performed)
- MRI and/or X-rays shows no evidence of osteoarthritis (no greater than Kellgren-Lawrence Grade 2 changes on weight-bearing X-rays [see **Grading Appendix**])
- Failure of at least **12 weeks** of non-operative treatment, including at least **TWO** of the following:
  - Rest or activity modifications/limitations
  - Ice/heat
  - Protected weight bearing
  - Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics, tramadol
  - Brace/orthosis
  - Physical therapy modalities
  - Supervised home exercise
  - Weight optimization
  - Corticosteroid injection
- No prior meniscectomy in same compartment (unless concurrent or staged meniscal transplant performed)
- No intra-articular cortisone injections within 4 weeks of surgery [1,2,3]

Articular cartilage restorative procedures - patella

Restorative procedures for articular cartilage loss of the patella may include the following: osteochondral autograft transfer (OAT), osteochondral allograft transplantation (OCA), autologous chondrocyte implantation (ACI), or matrix autologous chondrocyte implantation (MACI), with or without tibial tubercle osteotomy. * [22,28]

An articular cartilage restorative procedure may be medically necessary when the following criteria are met [24,25,26]:

- Anterior knee pain and loss of function
- Individual is < 50 years of age
- BMI < 35 (optimal outcomes if patient BMI < 30)
- Other extra-articular or intra-articular sources of pain or dysfunction have been excluded (referred pain, radicular pain, tendinitis, bursitis, neuroma)
- Physical exam localizes tenderness to the patellofemoral joint with pain aggravated by activities that load the joint (single leg squat, descending > ascending stairs or stair climbing, and being in seated position for extended periods of time with knee flexed)
- MRI results confirm an isolated full thickness chondral or osteochondral lesion of the patella:
  - < 2.0 cm^2 - OAT
  - > 2.0 cm^2 - ACI, MACI, OCA
- No evidence of associated osteoarthritis greater than Kellgren-Lawrence 2 of the patellofemoral joint or medial/lateral compartments on weight bearing X-rays [see **Grading Appendix**]
- Failure of at least **12 weeks** of non-operative treatment, including at least **TWO** of the following:
  - Rest or activity modifications/limitations
  - Ice/heat
  - Protected weight bearing
  - Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics, tramadol
  - Brace/orthosis
  - Physical therapy modalities
  - Supervised home exercise
  - Weight optimization
  - Corticosteroid injection
- No intra-articular cortisone injections within 4 weeks of surgery [1,2,3]

***Patellofemoral Chondrosis**

For isolated tibial tubercle osteotomy for patellofemoral chondrosis without articular cartilage restoration procedures, the same criteria above apply except patellofemoral X-rays should

document Kellgren-Lawrence grade 3 or 4 changes with no more than K-L 2 changes of the medial and lateral compartments on weight-bearing X-rays.

Articular Cartilage Restoration and Repair Exclusions

- **These requests are excluded from consideration under this guideline:**
  - Micronized cartilage extracellular matrix (BioCartilage)
  - Autologous Matrix-Induced Chondrogenesis (AMIC)
  - Bone marrow aspirate concentrate (BMAC) implantation
  - Hybrid ACI/OAT procedure
  - Particulated juvenile allograft cartilage (PJAC, DeNovo)
  - Particulated autologous cartilage implantation (PACI)
  - Viable cartilage allograft putty (CartiMax)
  - Decellularized Osteochondral Allograft Plugs (e.g., Chondrofix)
  - Cryopreserved viable osteochondral allograft (CVOCA; Cartiform and ProChondrix)
  - Aragonite biphasic osteochondral scaffolds (Agili-C™)
  - Human umbilical cord blood-derived mesenchymal stem cells (CARTISEM)

Synovectomy (Major [2+ compartments], Minor [1 compartment])

Synovectomy may be medically necessary when the criteria in **any** of the following sections are met [29,30]:

- **Section One**
  - Proliferative rheumatoid synovium (in individuals with established rheumatoid arthritis)
  - Non-responsive to disease modifying drug (DMARD) therapy for at least 6 months
  - At least one instance of aspiration of joint effusion and corticosteroid injection (if no evidence of infection)
  - Failure of **at least 6 weeks** of non-operative treatment, including at least **two** of the following:
    - Rest or activity modifications/limitations
    - Ice/heat
    - Protected weight bearing
    - Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics, tramadol
    - Brace/orthosis
    - Physical therapy modalities
    - Supervised home exercise

        - Weight optimization
        - Corticosteroid injection
- **Section Two**
    - Hemarthrosis from injury, coagulopathy or bleeding disorder confirmed by physical exam, joint aspiration, and/or MRI
- **Section Three**
    - Proliferative pigmented villonodular synovitis, synovial chondromatosis, sarcoid synovitis, or similar proliferative synovial disease, traumatic hypertrophic synovitis, cyclops lesion, or fat pad syndrome confirmed by history, MRI, or biopsy [31,32]
    - At least one instance of aspiration of joint effusion and injection of corticosteroid (if no evidence of infection)
    - Failure of **at least 6 weeks** of non-operative treatment, including **at least two** of the following:
        - Rest or activity modifications/limitations
        - Ice/heat
        - Protected weight bearing
        - Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics, tramadol
        - Brace/orthosis
        - Physical therapy modalities
        - Supervised home exercise
        - Weight optimization
        - Corticosteroid injection
- **Section Four**
    - Patient is symptomatic and there is detection of a painful plica confirmed by physical exam
    - MRI confirms the presence of a plica
    - Failure of **at least 12 weeks** of non-operative treatment, including **at least two** of the following:
        - Rest or activity modifications/limitations
        - Ice/heat
        - Protected weight bearing
        - Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics, tramadol
        - Brace/orthosis
        - Physical therapy modalities
        - Supervised home exercise
        - Weight optimization

        - Corticosteroid injection
    - No intra-articular cortisone injections within 4 weeks of surgery [1,2,3]

Loose Body Removal

Loose body removal may be medically necessary when the following criteria are met:

- Documentation of mechanical symptoms that cause limitation or loss of function
- X-ray, CT, or MRI documentation of a loose body
- No intra-articular cortisone injections within 4 weeks of surgery [1,2,3]

Lateral Release/Patellar Realignment

This guideline describes indications for surgical procedures to address patellofemoral pain disorders and abnormal alignment of the extensor mechanism of the knee by arthroscopic and/or open surgical techniques.

Lateral Patellar Compression Syndrome

Surgical intervention for the treatment of lateral patellar compression syndrome is indicated when the following criteria are met [33,34,35]:

- No evidence of patellar dislocation
- Reproducible isolated lateral patellofemoral pain with patellar tilt test
- Evidence of lateral patellar tilt from radiologic images (patellofemoral view: Merchant (45 degrees flexion; and/or skyline (60-90 degrees flexion); and/or sunrise (60-90 degrees flexion)
- Associated lateral patella facet Kellgren-Lawrence changes grade 1, 2, or 3 [see **Grading Appendix**]
- No evidence of medial patellofemoral changes (Kellgren-Lawrence Grade 2 osteoarthritis or higher [see **Grading Appendix**])
- Failure of **at least 6 months** of non-operative treatment, including quadriceps strengthening and appropriate hamstring/IT band stretching and patellar mobilization techniques, and **at least one** of the following:
    - Rest or activity modifications/limitations
    - Ice/heat
    - Protected weight bearing
    - Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics, tramadol
    - Brace/orthosis
    - Physical therapy modalities
    - Supervised home exercise
    - Weight optimization
    - Corticosteroid injection
- No intra-articular cortisone injections within 4 weeks of surgery [1,2,3]

Patellar Malalignment and/or Patellar Instability

Surgical intervention for the treatment of patellar malalignment and/or patellar instability is indicated when the following criteria in any of the following sections are met [36,37,38,39]:

- **Section One**
  - Acute traumatic patellar dislocation is associated with an osteochondral fracture, loose body, vastus medialis obliquus/medial patellofemoral ligament muscle avulsion, or other intra-articular injury that requires urgent operative management
- **Section Two**
  - First time patellar dislocation (not subluxation)
  - Age < 25
  - Any of the following:
    - Imaging demonstrates a TT-TG distance of 15 mm or greater
    - Trochlear dysplasia
    - Patella alta
- **Section Three**
  - History of 2 or more patellar dislocations
  - Radiologic confirmation of MPFL (medial patellofemoral ligament) deficiency (including evidence of acute or remote injury, scarring, incomplete healing, etc.) and there is a TT-TG distance of 15 mm or greater, trochlear dysplasia, or patella alta
  - Physical examination demonstrates evidence of patellar instability (positive apprehension test, increased lateral patellar translation, etc.)
- **Section Four**
  - When **ALL** of the following criteria have been met:
    - Patient complains of patellar subluxation or has a history of only one patellar dislocation (see Section Two above)
    - Physical exam has patellofemoral tenderness and abnormal articulation of the patella in the femoral trochlear groove (patellar apprehension or positive J sign)
    - Radiologic and/or advanced images (CT or MRI) rule out fracture or loose body, and show abnormal articulation, trochlear dysplasia, abnormal TT-TG distance (tibial tubercle-trochlear groove) ***** or other abnormality related to malalignment
    - Failure of at least 6 months of non-operative treatment, including at least 3 months of physical therapy, and **ONE** of the following:
      - □ Rest or activity modifications/limitations
      - □ Ice/heat
      - □ Protected weight bearing
      - □ Pharmacologic treatment: oral/topical NSAIDS, acetaminophen, analgesics, tramadol

- □ Brace/orthosis
- □ Supervised home exercise
- □ Weight optimization
- □ Corticosteroid injection

- No intra-articular cortisone injections within 4 weeks of surgery [1,2,3]

*****The tibial tubercle-trochlear groove (TT-TG) distance is normally @5-10 mm. Some authors use 13 mm as a cut-off and most agree that a TT-TG of 15 mm or over is abnormal. [40] TT-TG values over 17 mm indicate other possible bony abnormalities such as increased femoral anteversion that may cause patellar instability. [38,41]

Manipulation Under Anesthesia (MUA)

Manipulation under anesthesia (MUA) may be indicated when the following criteria are met [42,43]:

- Individual is less than 20 weeks after ligamentous or joint reconstruction
- Physical exam findings demonstrate inadequate range of motion of the knee defined as less than 110 degrees of flexion or lack of full extension
- Failure to improve range of motion of the knee despite 6 weeks (12 visits) of documented physical therapy

Lysis of Adhesions for Arthrofibrosis of the Knee

Surgical indications are based on relevant clinical symptoms, physical exam, radiologic findings, time from primary surgery, and response to conservative management when medically appropriate. Improved range of motion may be accomplished through arthroscopically assisted or open lysis of adhesions with general anesthesia, regional anesthesia, or sedation. [43,44]

Lysis of adhesions for arthrofibrosis of the knee may be indicated when all the following criteria are met:

- Individual is > 12 weeks post-surgery fracture or resolved infection
- Physical exam findings demonstrate inadequate range of motion of the knee, defined as < 110 degrees of flexion or lack of full extension
- Failure to improve range of motion of the knee despite 6 weeks (12 visits) of documented physical therapy
- No intra-articular cortisone injections within 4 weeks of surgery [1,2,3]

LEGISLATIVE LANGUAGE

Washington

20080815B – Knee Arthroscopy for Osteoarthritis of the knee [45]

Washington State Health Care Authority Technology Assessment

Health Technology Clinical Committee

Final Findings and Decisions

- **HTCC Coverage Determination**
  - Knee Arthroscopy for osteoarthritis of the knee is not a covered benefit. This decision does not apply to the use of knee arthroscopy for other diagnostic and therapeutic purposes.
- **HTCC Reimbursement Determination**
  - **Limitations of Coverage**
    - Not applicable
  - **Non-Covered Indicators**
    - Osteoarthritis of the Knee

20240920A – Treatment for chondral defects of the knee [46]

Washington State Health Care Authority Technology Assessment

Health Technology Clinical Committee

Final Findings and Decisions

- **HTCC Coverage Determination**
  - Treatments for chondral defects of the knee with matrix-induced autologous chondrocyte implantation (MACI) and other FDA-approved 3rd generation autologous chondrocyte implantation (ACI), osteochondral autologous transplantation (OATS), and osteochondral allograft transplantation (OCA) are **covered benefits with conditions**.
  - Treatments for chondral defects of the knee with cell-free implants and autologous matrix-induced chondrogenesis (AMIC) are **not covered benefits**.
- **HTCC Reimbursement Determination**
  - **Limitations of coverage:**
    - MACI, OATS, and OCA:
      - Symptomatic, single or multiple full-thickness (Outerbridge Classification of Grade III or IV) articular cartilage defects of the femoral condyle (medial, lateral, or trochlea) and/or patella;
      - Documented closure of growth plates in adolescent individuals;
      - Age <50, older at the discretion of the agency;
      - Body mass index <35; AND
      - Excluding malignancy, degenerative arthritis (Kellgren-Lawrence Grade 3 or 4), or inflammatory arthritis in the joint.
      - For MACI, articular cartilage lesions ≥3cm^2 in size;
      - For OATS, articular cartilage lesions 2cm^2 – 4cm^2 in size;
- **Non-covered indicators:**
  - Uncorrected malalignment or ligamentous deficiency, unless a corrective procedure is performed prior to or concomitantly.

- Cell-free implants and autologous matrix-induced chondrogenesis (AMIC) are not covered benefits.

CODING AND STANDARDS

Coding

CPT Codes

Knee Manipulation Under Anesthesia (MUA): 27570, 29884

Knee Ligament Reconstruction/Repair: 27405, 27407, 27409, 27427, 27428, 27429, 29888, 29889

Knee Meniscectomy/Meniscal Repair/Meniscal Transplant: 27332, 27333, 27403, 29868, 29880, 29881, 29882, 29883

Knee Surgery – Other: 27412, 27415, 27416, 27418, 27420, 27422, 27424, 27425, 29866, 29867, 29870, 29873, 29874, 29875, 29876, 29877, 29879, 29885, 29886, 29887, G0289

Applicable Lines of Business

☒	CHIP (Children's Health Insurance Program)
☒	Commercial
☒	Exchange/Marketplace
☒	Medicaid
☐	Medicare Advantage

BACKGROUND

Meniscectomy and Arthritis of the Knee

There is a high incidence of incidental meniscal findings on knee MRI in middle-aged and elderly individuals and several studies have indicated that there is no difference in outcome between operative and non-operative treatment of individuals with degenerative meniscus tears, especially when associated with an arthritic knee. [8,47] Arthroscopic debridement of degenerative meniscus tears in those with visible arthritis is generally not recommended and, in some cases, may worsen the symptoms and progression of the arthritis. [8,48] Studies have also demonstrated an increased incidence of revision arthroplasty, infection, loosening and stiffness in individuals who underwent a knee arthroscopy prior to a total knee arthroplasty.

The imaging evaluation of the knee for individuals with meniscus tears should be individualized, the goal of which is to recommend treatment for only those with no or minimal associated arthritis.

Although most individuals that have a request for arthroscopic meniscectomy will have had **BOTH** an MRI **AND** X-rays of the knee, only one of these tests is required for approval, provided all other criteria for meniscectomy have been met. For example, if there has been a failure to improve with 6 weeks of non-operative treatment and there are physical examination findings of a meniscus tear, an MRI is not required, only weight-bearing X-rays that demonstrate no more than mild arthritis. Likewise, if an MRI describes a frank meniscus tear and does not describe any significant associated arthritis, weight-bearing X-rays are not required. However, as noted above, if an MRI demonstrates findings of more than mild arthritis, **weight-bearing X-rays are required** to confirm no moderate or severe articular cartilage loss.

Grading Appendix

Kellgren-Lawrence Grading System (Standing/weight-bearing X-rays) *(49)*

Grade	Description
0	No radiographic features of osteoarthritis
1	Possible joint space narrowing and osteophyte formation
2	Definite osteophyte formation with possible joint space narrowing
3	Moderate multiple osteophytes, definite narrowing of joint space, some sclerosis and possible deformity of bone contour
4	Large osteophytes, marked narrowing of joint space, severe sclerosis, and definite deformity of bone contour

Outerbridge Arthroscopic Grading System *(50)*

Grade	Description
0	Normal cartilage
I	Softening and swelling/blistering
II	Partial thickness defect, fissures < 1.5cm diameter/wide
III	Fissures /defects down to subchondral bone with intact calcified cartilage layer, diameter > 1.5cm
IV	Exposed subchondral bone

Marx Scale [51]

For determination of activity level in acute ACL tears. Indicate how often you performed each activity in your healthiest and most active state, in the past year.

Activity/Movement	Less than one time in a month	One time in a month	One time in a week	2 or 3 times in a week	4 or more times in a week
Running: running while playing a sport or jogging	0	1	2	3	4
Cutting: changing directions while running	0	1	2	3	4
Deceleration: coming to a quick stop while running	0	1	2	3	4
Pivoting: turning your body with your foot planted while playing sport; For example: skiing, skating, kicking, throwing, hitting a ball (golf, tennis, squash), etc.	0	1	2	3	4

Tegner Scores [52]

For determination of activity level in acute ACL tears. Indicate in the spaces below the **HIGHEST** level of activity that you participated in **BEFORE YOUR INJURY** and the highest level you are able to participate in **CURRENTLY**.

Level	Activity Description
Level 10	Competitive sports- soccer, football, rugby (national elite)
Level 9	Competitive sports- soccer, football, rugby (lower divisions), ice hockey, wrestling, gymnastics, basketball
Level 8	Competitive sports- racquetball or bandy, squash or badminton, track and field athletics (jumping, etc.), down-hill skiing
Level 7	Competitive sports- tennis, running, motorcars speedway, handball Recreational sports- soccer, football, rugby, bandy, ice hockey, basketball, squash, racquetball, running
Level 6	Recreational sports- tennis and badminton, handball, racquetball, down-hill skiing, jogging at least 5 times per week
Level 5	Work- heavy labor (construction, etc.) Competitive sports- cycling, cross-country skiing; Recreational sports- jogging on uneven ground at least twice weekly

Level	Activity Description
Level 4	Work- moderately heavy labor (e.g., truck driving, etc.)
Level 3	Work- light labor (nursing, etc.)
Level 2	Work- light labor Walking on uneven ground possible, but impossible to backpack or hike
Level 1	Work- sedentary (secretarial, etc.)
Level 0	Sick leave or disability pension because of knee problems

POLICY HISTORY

Date	Summary
November 2024	• This guideline replaces Evolent Clinical Guideline 316 for Knee Arthroscopy • For meniscectomy requirements in a younger population, 'pediatric or adolescent' was changed to patients < 21. • Added fat pad syndrome and cyclops lesions to list of indications for synovectomy • Added indications for first time patellar dislocations • Deleted the requirement for 6 months of physical therapy when there have been 2 or more patellar dislocations and there are significant anatomic abnormalities such as a TT-TG distance of 15 mm or greater, trochlear dysplasia, or patella alta • Deleted the requirement for a manipulation under anesthesia when lysis of adhesion surgery is performed • Legislative Requirements added for the State of Washington for 20240920A – Treatment for chondral defects of the knee
December 2023	• Legislative Requirements added for the State of Washington for Knee Arthroscopy 20080815B • Revised surgical optimization and physician/patient discussion language • Reorganized ACL Repair/Reconstruction Section • Added table of contents • Adjusted Background Section

Date	Summary
	• Updated References
June 2023	• Updated references pertaining to the relationship of meniscectomy and arthritis of the knee • Clarification of the requirement of X-rays for ACL reconstruction • Additional references for articular cartilage restorative procedures • Revision of the listing of articular cartilage restorative procedures • Clarification of the lesion size for articular cartilage restorative procedures of the knee: < 2.0 cm^2 - OAT; > 2.0 cm^2 - ACI, MACI, OCA • Non-operative treatment requirement for articular cartilage procedures changed from 6 months to 3 months • Listing of investigational/non-covered articular cartilage procedures • Added CPT codes: 29885, 29886. 29887

LEGAL AND COMPLIANCE

Guideline Approval

Committee

Reviewed / Approved by Evolent Specialty Clinical Guideline Review Committee

Disclaimer

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REFERENCES

1. Belk J, Keeling L, Kraeutler M, Snow M, Mei-Dan O et al. Risk of Infection in Knee Arthroscopy Patients Undergoing Corticosteroid Injections in the Perioperative Period. Orthopaedic Journal of Sports Medicine. 2021; 9: 10.1177/23259671211032941.

2. Forsythe B, Forlenza E M, Agarwalla A, Cohn M R, Lavoie-Gagne O et al. Corticosteroid Injections 1 Month Before Arthroscopic Meniscectomy Increase the Risk of Surgical-Site Infection. Arthroscopy. 2021; 37: 2885-2890.e2. 10.1016/j.arthro.2021.02.047.

3. Lee W, Bhattacharjee S, Lee M, Ho S, Athiviraham A. A Safe Interval between Preoperative Intra-articular Corticosteroid Injections and Subsequent Knee Arthroscopy. Journal of Knee Surgery. 2022; 35: 47-53. 10.1055/s-0040-1712949.

4. American Academy of Orthopaedic Surgeons. Management of Osteoarthritis of the Knee (Non-Arthroplasty) Evidence-Based Clinical Practice Guideline. American Academy of Orthopaedic Surgeons. 2021; Accessed: 09/23/2024. https://www.aaos.org/oak3cpg.

5. DeClouette B, Birnbaum A, Campbell H, Bi A, Lin C. Needle Arthroscopy Demonstrates High Sensitivity and Specificity for Diagnosing Intra-Articular Shoulder and Knee Pathology. Cureus. 2022; 14: e33189. 10.7759/cureus.33189.

6. Anderson D, Rose M, Wille A, Wiedrick J, Crawford D. Arthroscopic Mechanical Chondroplasty of the Knee Is Beneficial for Treatment of Focal Cartilage Lesions in the Absence of Concurrent Pathology. Orthopaedic Journal of Sports Medicine. 2017; 5: 232596711770721. 10.1177/2325967117707213.

7. Kiel J, Kaiser K. Patellofemoral Arthritis [Updated 2023 Jun 12]. Stat Pearls Publishing. 2023; Accessed: 09/23/2024. https://www.ncbi.nlm.nih.gov/books/NBK513242/.

8. Burgess C J, De Cicco F L. Meniscectomy [Updated 2023 May 23]. Stat Pearls Publishing. 2023; Accessed: 09/23/2024. https://www.ncbi.nlm.nih.gov/books/NBK559105/.

9. Raj M A, Bubnis M A. Knee Meniscal Tears [Updated 2023 Jul 17]. Stat Pearls Publishing. 2023; Accessed: 09/24/2024. https://www.ncbi.nlm.nih.gov/books/NBK431067/.

10. Krych A J, Lamba A, Wang A S, Boos A M, Camp C L et al. Nonoperative Management of Degenerative Medial Meniscus Posterior Root Tears: Poor Outcomes at a Minimum 10-Year Follow-up. American Journal of Sports Medicine. 2023; 51: 2603-2607. 10.1177/03635465231185132.

11. Getgood A, LaPrade R F, Verdonk P, Gersoff W, Cole B et al. International Meniscus Reconstruction Experts Forum (IMREF) 2015 Consensus Statement on the Practice of Meniscal Allograft Transplantation. The American Journal of Sports Medicine. 2017; 45: 1195-1205. 10.1177/0363546516660064.

12. Bosco F, Giustra F, Masoni V, Capella M, Sciannameo V et al. Combining an Anterolateral Complex Procedure With Anterior Cruciate Ligament Reconstruction Reduces the Graft Reinjury Rate and Improves Clinical Outcomes: A Systematic Review and Meta-analysis of Randomized Controlled Trials. The American journal of sports medicine. 2024; 52: 2129-2147. 10.1177/03635465231198494.

13. Evans J, Mabrouk A, Nielson J I. Anterior Cruciate Ligament Knee Injury [Updated 2023 Nov 17]. Stat Pearls Publishing. 2023; Accessed: 09/24/2024. https://www.ncbi.nlm.nih.gov/books/NBK499848/.

14. Filbay S R, Grindem H. Evidence-based recommendations for the management of anterior cruciate ligament (ACL) rupture. Best Practice and Research Clinical Rheumatology. 2019; 33: 33-47. 10.1016/j.berh.2019.01.018.

15. Shultz S J, Cruz M R, Casey E, Dompier T P, Ford K R et al. Sex-Specific Changes in Physical Risk Factors for Anterior Cruciate Ligament Injury by Chronological Age and Stages of Growth and Maturation From 8 to 18 Years of Age. Journal of Athletic Training. 2022; 57: 830-876. 10.4085/1062-6050-0038.22.

16. Bedi A, Musahl V, Cowan J B. Management of Posterior Cruciate Ligament Injuries. Journal of the American Academy of Orthopaedic Surgeons. 2016; 24: 277-289. 10.5435/JAAOS-D-14-00326.

17. Raj M A, Mabrouk A, Varacallo M. Posterior Cruciate Ligament Knee Injuries [Updated 2023 Aug 8]. Stat Pearls Publishing. 2023; Accessed: 09/24/2024. https://www.ncbi.nlm.nih.gov/books/NBK430726/.

18. Scarcella M J, Yalcin S, Scarcella N R, Saluan P, Farrow L D. Outcomes of Pediatric Posterior Cruciate Ligament Reconstruction: A Systematic Review. Orthopaedic Journal of Sports Medicine. 2021; 9: 232596712110325. 10.1177/23259671211032539.

19. Chau M, Klimstra M, Wise K, Ellermann J, Tóth F et al. Osteochondritis Dissecans. Journal of Bone and Joint Surgery. 2021; 103: 1132-1151. 10.2106/JBJS.20.01399.

20. Salzmann G, Niemeyer P, Hochrein A, Stoddart M, Angele P. Articular Cartilage Repair of the Knee in Children and Adolescents. Orthopaedic Journal of Sports Medicine. 2018; 6: 232596711876019. 10.1177/2325967118760190.

21. Valtanen R, Arshi A, Kelley B, Fabricant P, Jones K. Articular Cartilage Repair of the Pediatric and Adolescent Knee with Regard to Minimal Clinically Important Difference: A Systematic Review. CARTILAGE. 2020; 11: 9-18. 10.1177/1947603518783503.

22. Cong B, Sun T, Zhao Y, Chen M. Current and Novel Therapeutics for Articular Cartilage Repair and Regeneration. Therapeutics and Clinical Risk Management. 2023; 19: 485-502. 10.2147/TCRM.S410277.

23. Niemeyer P, Laute V, Zinser W, Becher C, Kolombe T et al. A Prospective, Randomized, Open-Label, Multicenter, Phase III Noninferiority Trial to Compare the Clinical Efficacy of Matrix-Associated Autologous Chondrocyte Implantation With Spheroid Technology Versus Arthroscopic Microfracture for Cartilage Defects of the Knee. Orthopaedic Journal of Sports Medicine. 2019; 7: 10.1177/2325967119854442.

24. Filho J, Sousa E. Treatment of Chondral Lesions in the Knee. Rev Bras Ortop. 2023; 58: e551-e556. 10.1055/s-0043-1772196.

25. Hinckel B, Thomas D, Vellios E, Hancock K, Calcei J et al. Algorithm for Treatment of Focal Cartilage Defects of the Knee: Classic and New Procedures. CARTILAGE. 2021; 13: 473S-495S. 10.1177/1947603521993219.

26. Mall N, Harris J, Cole B. Clinical Evaluation and Preoperative Planning of Articular Cartilage Lesions of the Knee. Journal of the American Academy of Orthopaedic Surgeons. 2015; 23: 633-640. 10.5435/JAAOS-D-14-00241.

27. Weishorn J, Wiegand J, Zietzschmann S, Koch K, Rehnitz C et al. Factors Influencing Long-term Outcomes After Matrix-Induced Autologous Chondrocyte Implantation: Long-term Results at 10 Years. American Journal of Sports Medicine. 2024; 10.1177/03635465241270152.

28. Ginesin E, Chari N, Barnhart J, Wojnowski N, Patel R. Cartilage Restoration for Isolated Patellar Chondral Defects: An Updated Systematic Review. Orthopaedic Journal of Sports Medicine. 2023; 11: 10.1177/23259671231153422.

29. Badin D, Leland C R, Bronheim R S, Balmuri N, Lee R J. Synovectomy in juvenile idiopathic arthritis: A protocol for systematic review and meta-analysis. Medicine (United States). 2022; 101: E32278. 10.1097/MD.0000000000032278.

30. Chalmers P, Sherman S, Raphael B, Su E. Rheumatoid synovectomy: Does the surgical approach matter? Clinical Orthopaedics and Related Research. 2011; 469: 2062-2071. 10.1007/s11999-010-1744-3.

31. Chandra A, Agarwal S, Donahue A, Handorf E, Abraham J. Arthroscopic Versus Open Management of Diffuse-Type Tenosynovial Giant Cell Tumor of the Knee: A Meta-analysis of Retrospective Cohort Studies. Journal of the American Academy of Orthopaedic Surgeons Global Research and Reviews. 2021; 4: 10.5435/JAAOSGlobal-D-21-00217.

32. Fecek C, Carter K R. Pigmented Villonodular Synovitis [Updated 2023 Aug 7]. Stat Pearls Publishing. 2023; Accessed: 09/25/2024. https://www.ncbi.nlm.nih.gov/books/NBK549850

33. Bump J M, Lewis L. Patellofemoral Syndrome [Updated 2023 Feb 13]. Stat Pearls Publishing. 2023; Accessed: 09/25/2024. https://www.ncbi.nlm.nih.gov/books/NBK557657/.

34. Petersen W, Ellermann A, Gösele-Koppenburg A, Best R, Rembitzki I et al. Patellofemoral pain syndrome. Knee Surgery, Sports Traumatology, Arthroscopy. 2014; 22: 2264-2274. 10.1007/s00167-013-2759-6.

35. Saper M, Shneider D. Diagnosis and Treatment of Lateral Patellar Compression Syndrome. Arthroscopy Techniques. 2014; 3: e633-e638. 10.1016/j.eats.2014.07.004.

36. Arshi A, Cohen J, Wang J, Hame S, McAllister D. Operative Management of Patellar Instability in the United States: An Evaluation of National Practice Patterns, Surgical Trends, and Complications. Orthopaedic Journal of Sports Medicine. 2016; 4: 10.1177/2325967116662873.

37. Dennis E, Gruber S, Marmor W, Shubin Stein B. Evaluation and management of patellar instability. Annals of Joint. 2022; 7: 10.21037/aoj-2020-02.

38. Severino N R, Severino F R, De Camargo O P A, Guglielmetti L G B, De Oliveira V M. Update on Patellar Instability. Rev Bras Ortop. 2021; 56: 147-153. 10.1055/s-0040-1713389.

39. Wolfe S, Varacallo M, Thomas J D, Carroll J J, Kahwaji C I. Patellar Instability [Updated 2023 Feb 13]. Stat Pearls Publishing. 2023; Accessed: 09/25/2024. https://www.ncbi.nlm.nih.gov/books/NBK482427

40. Brady J, Rosencrans A, Shubin Stein B. Use of TT-PCL versus TT-TG. Current Reviews in Musculoskeletal Medicine. 2018; 11: 261-265. 10.1007/s12178-018-9481-4.

41. Barbosa R, da Silva M, Macedo C, Santos C. Imaging evaluation of patellofemoral joint instability: a review. Knee Surgery and Related Research. 2023; 35: 10.1186/s43019-023-00180-8.

42. Colacchio N, Abela D, Bono J, Shah V, Bono O. Efficacy of manipulation under anesthesia beyond three months following total knee arthroplasty. Arthroplasty Today. 2019; 5: 515-520. 10.1016/j.artd.2019.08.002.

43. Fackler N, Chin G, Karasavvidis T, Bohlen H, Smith E et al. Outcomes of Arthroscopic Lysis of Adhesions for the Treatment of Postoperative Knee Arthrofibrosis: A Systematic Review. Orthopaedic Journal of Sports Medicine. 2022; 10: 10.1177/23259671221124911.

44. Eggeling L, Klepsch L, Akoto R, Frosch K. Clinical results after very early, early and late arthroscopic arthrolysis of the knee. International Orthopaedics. 2022; 46: 265-271. 10.1007/s00264-021-05193-0.

45. Washington State Health Care Authority. Knee Arthroscopy for Osteoarthritis of the Knee [Adopted October 17, 2008]. Washington State Health Care Authority. 2008; Accessed: 09/25/2024. https://www.hca.wa.gov/assets/program/decision_finding_knee_final%5B1%5D.pdf.

46. Washington State Health Care Authority. Treatments for chondral defects of the knee [Adopted January 31, 2025]. Washington State Health Care Authority. 2025; Accessed: 02/05/2025. https://www.hca.wa.gov/assets/program/chondral-defects-final-findings-and-decision.pdf

47. Kise N, Risberg M, Stensrud S, Ranstam J, Engebretsen L. Exercise therapy versus arthroscopic partial meniscectomy for degenerative meniscal tear in middle aged patients: randomised controlled trial with two year follow-up. BMJ. 2016; i3740. 10.1136/bmj.i3740.

48. Migliorini F, Oliva F, Eschweiler J, Cuozzo F, Hildebrand F. No evidence in support of arthroscopic partial meniscectomy in adults with degenerative and nonobstructive meniscal symptoms: a level I evidence-based systematic review. Knee Surgery. 2023; 31: 1733-1743. 10.1007/s00167-022-07040-0.

49. Kellgren J, Lawrence J. Radiological Assessment of Osteo-Arthrosis. Annals of the Rheumatic Diseases. 1957; 16: 494-502. 10.1136/ard.16.4.494.

50. Slattery C, Kweon C. Classifications in Brief: Outerbridge Classification of Chondral Lesions. Clinical Orthopaedics and Related Research. 2018; 476: 2101-2104. 10.1007/s11999.0000000000000255.

51. Marx R, Stump T, Jones E, Wickiewicz T, Warren R. Development and Evaluation of an Activity Rating Scale for Disorders of the Knee. The American Journal of Sports Medicine. 2001; 29: 213-218. 10.1177/03635465010290021601.

52. Tegner Y, Lysholm J. Rating systems in the evaluation of knee ligament injuries. Clinical Orthopaedics and Related Research. 1985; 198: 43-49. 10.1097/00003086-198509000-00007.