

Knee Orthoses

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Introduction

Knee orthoses (braces) are addressed by this guideline.

Health Equity Consideration

Health equity is the highest level of health for all individuals; health inequity is the avoidable difference in health status or distribution of health resources due to the social conditions in which individuals are born, grow, live, work, and age. Social determinants of health are the conditions in the environment that affect a wide range of health, functioning, and quality of life outcomes and risks. Examples include the following: safe housing, transportation, and neighborhoods; racism, discrimination, and violence; education, job opportunities, and income; access to nutritious foods and physical activity opportunities; access to clean air and water; and language and literacy skills.

Criteria

Pre-Fabricated Knee Orthoses with Joints

Pre-fabricated knee orthosis with joints are considered medically necessary for an ambulatory or pre-ambulatory individual when **all** of the following apply:

- The individual has the potential to walk, but they encounter muscular weakness or structural abnormalities in the knee.
- Stabilizing the individual's knee is necessary for medical reasons.
- The individual's function will be improved by using the orthosis.

Pre-Fabricated Knee Orthoses with a Locking Knee Joint or a Rigid Knee Orthosis

Pre-fabricated knee orthoses with a locking knee joint or a rigid knee orthosis are considered medically necessary when **both** of the following apply:

- The individual has a knee contracture.
- The individual has at least 10 degrees of movement at the knee joint, which indicates it is possible to correct the non-fixed contracture.

Pre-Fabricated Knee Orthoses Immobilizer without Joints or with Adjustable Knee Joints

Pre-fabricated knee orthoses without joints or with adjustable knee joints are considered medically necessary for an individual when **all** of the following applies:

- The individual can walk, but they encounter muscular weakness or structural abnormalities in the knee.
- There is documentation of **any** of the following:
 - The individual recently injured their knee.
 - The individual has arthritis in their knee, which makes it hard for them to walk.
 - Stabilizing the individual's knee is necessary for medical reasons.
- The individual's function will be improved by using the brace.

Custom Fabricated Knee Orthoses

Custom fabricated knee orthoses are considered medically necessary when criteria for a pre-fabricated knee orthosis has been met and there is documentation of **any** of the following:

- The individual is unable to be fitted with a pre-made brace.
- The condition requiring the brace is anticipated to be permanent or of long-standing duration beyond six months.
- The individual has a leg or knee deformity that necessitates a custom-made brace for a proper fit.
- A custom-made brace is necessary due to short or tall stature.

Additional Criteria

- Heavy-duty knee joints are considered medically necessary for individuals who weigh more than 300 pounds.
- Up to two removable soft interfaces are considered medically necessary per year.
- Concentric adjustable torsion style mechanisms used to assist knee joint extension are considered medically necessary for individuals who require knee extension assist in the absence of any co-existing joint contracture.
- For concentric adjustable torsion style mechanisms used for the treatment of contractures, see **Dynamic Joint Extension and Flexion Orthoses**.
- Knee orthosis addition codes (see table below) describing components or features that can be physically incorporated in the specified pre-fabricated base orthosis are considered medically necessary when **all** of the following apply:
 - The addition is provided at the same time as the related base code orthosis.
 - The base orthosis is medically necessary.
 - The addition is medically necessary.

Base Code	Addition Codes (Eligible for Separate Payment)
L1832	L2397, L2795, L2810
L1833	L2397, L2795, L2810
L1843	L2385, L2395, L2397
L1845	L2385, L2395, L2397, L2795
L1850	L2397
L1851	L2385, L2395, L2397
L1852	L2385, L2395, L2397, L2795

- Reimbursement for computer-aided design/computer-aided manufacturing (CAD/CAM) technology used to fabricate an orthosis is included in the allowance of the codes for custom fabricated orthoses.
- Evaluation of the individual, measurement and/or casting, and fitting/adjustments of the orthosis are included in the allowance for the orthosis.

Not Covered

- Prophylactic knee braces
- Pre-fabricated knee braces with an inflatable air bladder (HCPCS L1847)

Replacement Criteria

- Same or Similar Durable Medical Equipment
 - Duplication of the same or similar orthoses within the same case is considered not medically necessary.
- A replacement orthosis is medically necessary when **all** of the following apply:
 - The individual has been seen recently by their provider and has a documented care plan that includes the use of the brace.
 - There is clinical documentation of **any** of the following:
 - The individual is no longer able to wear the brace because of growth or a change in physical condition.
 - The brace has been lost or stolen.
 - The brace is broken, unable to be repaired, and no longer under warranty.

Definitions

- A **contracture** is the chronic loss of joint mobility caused by structural changes in tissue, including muscles, ligaments, fascia, and tendons. Contractures are distinguished from the temporary loss of range of motion of a joint following injury, surgery, or other immobilization.
- A **non-fixed contracture** is defined as a joint contracture with at least 10 degrees of passive movement on range of motion testing.
- A **knee flexion contracture** is a condition in which there is shortening of the muscles and/or tendons with the resulting inability to bring the knee to 0 degrees extension or greater (i.e., hyperextension) by passive range of motion. Zero degrees knee extension is when the femur and tibia are in alignment in a horizontal plane.
- A **knee extension contracture** is a limitation of knee joint mobility characterized by an inability to achieve normal physiologic flexion due to the knee being fixed in an extended position, preventing approximation of the upper and lower leg on passive range of motion.

Evidence Discussion

Acute knee injuries are often associated with an inability to bear weight, swelling, or signs of instability. The literature suggests that knee injuries should be immobilized with a knee brace during the clinical evaluation period. A hinged brace may be used to stabilize the knee if there is evidence of multiligamentous injury (Karlin et al., 2020). Moreover, confirmed knee sprains may be non-operatively treated with a controlled-motion hinged brace for four to six weeks (Miller and Azar, 2021). In situations when there is concern for multiligamentous injury or patellar dislocation, knee immobilizers may be used with the initiation of an appropriate rehabilitation program if indicated.

A 2024 randomized study (Mahmoodi et al.) evaluated three orthotic interventions for medial knee osteoarthritis and found that individuals who used either a knee orthosis or an ankle foot orthosis demonstrated significant improvement across all Knee Injury and Osteoarthritis Outcome Score subscales after six weeks. These improvements reflected meaningful gains in pain, functional mobility, and overall knee related quality of life. In contrast, individuals who used a foot orthosis did not show significant changes. The authors concluded that knee orthoses or ankle foot orthoses could improve clinical outcomes and should be considered as viable conservative treatment options for individuals with medial knee osteoarthritis. Study limitations included a small sample of 30 individuals, which reduced statistical power, and a short follow up duration that limited assessment of longer term outcomes and durability of treatment effects.

A 2024 literature review (Swami et al.) evaluated the effectiveness of knee orthoses for individuals with osteoarthritis and found consistent reports of immediate reductions in joint pain along with improvements in functional mobility, balance, strength, walking speed, step length, quality of life, and joint stiffness. In a narrative review of 17 articles, 16 demonstrated that knee orthoses improved pain, balance, walking speed, step length, quality of life, and functional outcomes, while 1 article reported that foot orthoses were more effective for improving the knee adduction moment, pain, and function. These findings supported the potential of knee orthoses to enhance conservative management by improving alignment, stability, and overall functional performance, which could help delay surgical intervention for some individuals. However, the review noted considerable variability in study designs, brace types, and outcome measures, and some comparisons suggested that alternative orthotic devices could offer equal or greater benefit in specific biomechanical domain

Rezaei et al., (2022) compared a conventional knee brace with a knee brace with a pneumatic cuff during walking in a patient with medial compartment knee osteoarthritis. The results of the study demonstrated that the knee range of motion (ROM) was reduced by 24% using the pneumatic knee brace without foot pressure. When conventional three points knee pressure were used, the degree of freedom on the knee sagittal plane dropped by 13%. The study concluded that pneumatic knee braces can significantly reduce knee range of motion (ROM), especially during the swing phase of gait. This reduction in ROM may lead to shorter step lengths and decreased foot clearance, potentially impacting mobility.

A 2023 literature review (Cui et al.) examined advances in orthotic device use for individuals with stroke and reported that orthoses played an important role in preventing deformity, improving motor function, and supporting gait by compensating for neurological dysfunction. The authors found that early orthotic intervention improved joint alignment, reduced secondary complications, and enhanced movement and participation in daily activities. The authors concluded that orthotic devices were effective rehabilitation tools for improving motor performance and functional abilities after stroke, including lower limb impairments that contribute to gait abnormalities such as knee instability and recurvatum. However, the authors noted limitations, including heterogeneity in orthotic designs, a lack of standardized protocols for device prescription, variable study quality, and gaps in evidence regarding optimal timing and long term outcomes.

There has been conflicting evidence regarding the use of bracing after ACL injury. A 2022 American Academy of Orthopaedic Surgeons (AAOS) clinical practice guideline does not support the routine use of functional knee bracing following isolated ACL reconstruction. The authors noted that limited studies demonstrate no significant differences between braced and unbraced individuals returning to full activity following isolated primary ACL reconstruction. In addition, the authors

reported a variance of bracing protocols and relatively small size of the study cohorts in the existing literature and thus recommend that additional research is warranted. Moreover, the AAOS guidelines report that prophylactic knee bracing is not a preferred option to prevent ACL injury. Although knee bracing may potentially be acceptable to athletes participating in higher risk sports, the authors noted that there is ample evidence that prophylactic knee bracing alters lower extremity biomechanics, and moreover, it is not likely feasible to employ prophylactic braces in every athlete for each competition and practice of high risk sport for ACL injury.

A 2022 American Academy of Orthopaedic Surgeons (AAOS) clinical practice guideline provided a moderate recommendation that brace treatment could be used to improve pain, function, and quality of life in individuals with knee osteoarthritis (Brophy and Fillingham, 2022). The authors noted that braces can provide pain relief and improved function in individuals with unicompartmental knee osteoarthritis. In addition, there is a subjective feeling of normal tibiofemoral kinematics, which may transfer to an increased confidence and sense of security in the knee. However, the authors noted that future high quality studies are warranted to assess the efficacy of unloader braces versus knee sleeves in a population with a similar mechanical axis and a similar degree of osteoarthritis.

Codes Addressed in this Guideline

The inclusion of any code in this table does not imply that the code is under management or requires prior authorization. Refer to the applicable health plan for management details. Prior authorization of a code listed in this table is not a guarantee of payment. The Certificate of Coverage or Evidence of Coverage policy outlines the terms and conditions of the member's health insurance policy.

HCPCS	Description
L1810	Knee orthosis, elastic with joints, prefabricated item that has been trimmed, bent, molded, assembled, or otherwise customized to fit a specific patient by an individual with expertise
L1812	Knee orthosis, elastic with joints, prefabricated, off-the-shelf
L1820	Knee orthosis, elastic with condylar pads and joints, with or without patellar control, prefabricated, includes fitting and adjustment
L1821	Knee orthosis, elastic with condylar pads and joints, with or without patellar control, prefabricated, off-the-shelf

HCPCS	Description
L2999	Lower extremity orthoses, not otherwise specified
L1831	Knee orthosis, locking knee joint(s), positional orthosis, prefabricated, includes fitting and adjustment
L1836	Knee orthosis, rigid, without joint(s), includes soft interface material, prefabricated, off-the-shelf
L1830	Knee orthosis, immobilizer, canvas longitudinal, prefabricated, off-the-shelf
L1832	Knee orthosis, adjustable knee joints (unicentric or polycentric), positional orthosis, rigid support, prefabricated item that has been trimmed, bent, molded, assembled, or otherwise customized to fit a specific patient by an individual with expertise
L1833	Knee orthosis, adjustable knee joints (unicentric or polycentric), positional orthosis, rigid support, prefabricated, off-the shelf
L1843	Knee orthosis, single upright, thigh and calf, with adjustable flexion and extension joint (unicentric or polycentric), medial-lateral and rotation control, with or without varus/valgus adjustment, prefabricated item that has been trimmed, bent, molded, assembled, or otherwise customized to fit a specific patient by an individual with expertise
L1845	Knee orthosis, double upright, thigh and calf, with adjustable flexion and extension joint (unicentric or polycentric), medial-lateral and rotation control, with or without varus/valgus adjustment, prefabricated item that has been trimmed, bent, molded, assembled, or otherwise customized to fit a specific patient by an individual with expertise
L1850	Knee orthosis, Swedish type, prefabricated, off-the-shelf
L1851	Knee orthosis (KO), single upright, thigh and calf, with adjustable flexion and extension joint (unicentric or polycentric), medial-lateral and rotation control, with or without varus/valgus adjustment, prefabricated, off-the-shelf

HCPCS	Description
L1852	Knee orthosis (KO), double upright, thigh and calf, with adjustable flexion and extension joint (unicentric or polycentric), medial-lateral and rotation control, with or without varus/valgus adjustment, prefabricated, off-the-shelf
L1834	Knee orthosis, without knee joint, rigid, custom fabricated
L1840	Knee orthosis, derotation, medial-lateral, anterior cruciate ligament, custom fabricated
L1844	Knee orthosis, single upright, thigh and calf, with adjustable flexion and extension joint (unicentric or polycentric), medial-lateral and rotation control, with or without varus/valgus adjustment, custom fabricated
L1846	Knee orthosis, double upright, thigh and calf, with adjustable flexion and extension joint (unicentric or polycentric), medial-lateral and rotation control, with or without varus/valgus adjustment, custom fabricated
L1847	Knee orthosis, double upright with adjustable joint, with inflatable air support chamber(s), prefabricated item that has been trimmed, bent, molded, assembled, or otherwise customized to fit a specific patient by an individual with expertise
L1848	Knee orthosis, double upright with adjustable joint, with inflatable air support chamber(s), prefabricated, off-the-shelf
L1860	Knee orthosis, modification of supracondylar prosthetic socket, custom fabricated (sk)
L2385	Addition to lower extremity, straight knee joint, heavy duty, each joint
L2395	Addition to lower extremity, offset knee joint, heavy duty, each joint
L2397	Addition to lower extremity orthosis, suspension sleeve
L2795	Addition to lower extremity orthosis, knee control, full kneecap

HCPCS	Description
L2810	Addition to lower extremity orthosis, knee control, condylar pad
K0672	Addition to lower extremity orthosis, removable soft interface, all components, replacement only, each

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