

Osteoarthritis Rehabilitation

ACG: A-0368 (AC)

[Link to Codes](#)

MCG Health
Ambulatory Care
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Clinical Indications

- Osteoarthritis rehabilitation may be indicated for **1 or more** of the following:
 - Initial therapy, when **ALL** of the following are present:
 - Osteoarthritis of **1 or more** of the following joints:
 - Ankle^[1]
 - Elbow(7)(8)^[1]
 - Hand or wrist(10)(11)(12)(13)^[1]
 - Hip(22)(23)(24)(25)^[1]
 - Knee(22)(36)(37)(38)^[1]
 - Shoulder(47)^[1]
 - Spine(48)(49)^[1]
 - Patient is expected to be able to adequately participate in and respond as planned to proposed treatment.
 - Recent change in status, as indicated by **1 or more** of the following(3):
 - Change of symptoms or function in patient with previous chronic or stable osteoarthritis
 - Recent diagnosis of osteoarthritis
 - Extended therapy, when **ALL** of the following are present(49)(52)(53)(54):
 - Functional progress has been made during initial therapy, or patient requires maintenance therapy plan^[A] to prevent further deterioration or preserve existing function.
 - Goals of therapy are not yet met.
 - Patient is actively participating in treatment sessions.

- Patient is adherent to plan of care.

Treatment Plan

- Treatment plan includes:
 - Goals of therapy(48)(55)(56):
 - Decreased inflammation
 - Decreased pain(3)(57)(58)
 - Decreased progression of disease
 - Improved self-reported quality of life(3)(59)
 - Increased functional independence with mobility-related tasks(45)(58)(59)(60)
 - Increased strength and range of motion(1)(15)(49)(57)
 - Increased understanding of self-management of health and disease process(36)(60)(61)
 - Planned interventions(62)(63):
 - Education(36)(38)(45):
 - Activity modifications(3)(22)(48)(64)
 - Disease process
 - Home exercises for strengthening, range of motion, flexibility, pain reduction, and proprioception(11)(40)(47)(51)
 - Medication use(3)(65)(66)
 - Self-management of disease(3)(36)
 - Work and home environment modifications(7)(22)
 - Therapeutic modalities:
 - Adaptive or assistive devices for safe completion of activities of daily living or instrumental activities of daily living(3)(22)(56)(64)
 - Aerobic exercises(3)(10)(22)(36)(58)(67)
 - Ambulatory assistive device for lower extremity arthritis(10)(22)(23)(68)
 - Aquatic therapy for knee or hip osteoarthritis. See Aquatic Therapy [AC](#) for further information.(3)(10)(36)(45)
 - Balance and proprioceptive activities for lower extremity osteoarthritis(1)(45)(48)
 - Functional mobility retraining(48)
 - Heat and cold modalities(3)(59)(69)(70)
 - Knee brace(3)(59)(71)(72)
 - Patellar taping for knee osteoarthritis(73)(74)
 - Protective splinting (eg, elbow or carpal-metacarpal osteoarthritis)(3)(9)(10)(12)(18)
 - Range-of-motion exercises(7)(21)(22)(47)
 - Strengthening exercises(10)(18)(22)(36)(47)
 - Stretching exercises(2)(22)(47)
 - Weight loss for overweight or obese patients with lower extremity osteoarthritis(3)(10)

Visits per Episode

ICD-10-CM Code	Diagnosis Description	One Visit Episode %	Mean *	25th %ile *	50th %ile (Median) *	75th %ile *	Episode > 1 Year % *
M15.0	Primary generalized (osteo)arthritis	22.62%	13.0	4	9	18	1.54%
M15.9	Polyosteoarthritis, unspecified	20%	10.6	4	7	14	0.93%
M16.0	Bilateral primary osteoarthritis of hip	19.69%	11.1	4	8	14	1.52%

M16.11	Unilateral primary osteoarthritis, right hip	26.78%	11.9	5	9	16	1.02%
M16.12	Unilateral primary osteoarthritis, left hip	27.81%	12.0	5	9	16	1.27%
M16.9	Osteoarthritis of hip, unspecified	11.76%	11.7	4	11	16	2.5%
M17.0	Bilateral primary osteoarthritis of knee	17.59%	10.5	4	7	13	0.99%
M17.10	Unilateral primary osteoarthritis, unspecified knee	15.65%	12.8	5	9	17	2.71%
M17.11	Unilateral primary osteoarthritis, right knee	13.84%	14.0	5	11	19	0.86%
M17.12	Unilateral primary osteoarthritis, left knee	14.12%	14.4	6	11	20	0.91%
M17.31	Unilateral post-traumatic osteoarthritis, right knee	15.83%	13.0	5	9	19	0.85%
M17.32	Unilateral post-traumatic osteoarthritis, left knee	13.99%	12.4	5	9	18	0%
M17.9	Osteoarthritis of knee, unspecified	14.16%	12.3	5	10	17	1.03%
M18.0	Bilateral primary osteoarthritis of first carpometacarpal joints	29.67%	6.4	3	5	8	0.33%
M18.11	Unilateral primary osteoarthritis of first carpometacarpal joint, right hand	22.56%	9.2	4	7	12	0.68%
M18.12	Unilateral primary osteoarthritis of first carpometacarpal joint, left hand	20.46%	9.0	3	6	12	0.61%
M18.9	Osteoarthritis of first carpometacarpal joint, unspecified	29.13%	9.5	5	8	13	0%

M19.011	Primary osteoarthritis, right shoulder	12.88%	13.3	5	10	19	0.79%
M19.012	Primary osteoarthritis, left shoulder	14.54%	14.6	5	11	20	1.71%
M19.019	Primary osteoarthritis, unspecified shoulder	12.31%	11.0	4	7	14	0.88%
M19.021	Primary osteoarthritis, right elbow	9.78%	10.9	4	8	15	0%
M19.031	Primary osteoarthritis, right wrist	22.22%	9.2	3	6	12	0.71%
M19.032	Primary osteoarthritis, left wrist	31.9%	7.2	3	5	8	0%
M19.041	Primary osteoarthritis, right hand	25.69%	8.8	3	6	12	1.06%
M19.042	Primary osteoarthritis, left hand	23.5%	9.4	4	7	12	0.56%
M19.049	Primary osteoarthritis, unspecified hand	30.82%	7.3	3	5	8	0%
M19.071	Primary osteoarthritis, right ankle and foot	39.02%	11.3	4	8	15	0.67%
M19.072	Primary osteoarthritis, left ankle and foot	40%	11.4	4	9	16	1.59%
M19.079	Primary osteoarthritis, unspecified ankle and foot	33.6%	11.1	4	7	13	0%
M19.90	Unspecified osteoarthritis, unspecified site	19.13%	9.5	3	6	12	0.83%
Z98.1	Arthrodesis status	11.67%	12.3	4	9	15	2.27%

* Visit Summary for Episodes with 2 or more Visits

Evidence Summary

Background

Osteoarthritis is a chronic localized joint disease and a leading cause of musculoskeletal pain and disability.(1)(2)(3) **(EG 2)** Rehabilitation intervention for osteoarthritis may include prevention, restoration, and maintenance. Prevention consists of education about the disease and self-management, with the long-term goal of reducing the severity and duration of the disability.(1) **(EG 2)** Restorative treatments are designed to help patients regain function in order to lessen their symptoms and to educate patients to improve their functional level.(3)(4) **(EG 1)** A maintenance treatment plan stresses ongoing self-management and joint protection.(3) **(EG 2)**

Criteria

The evidence for the clinical indications found in this guideline includes 36 published peer reviewed articles, 5 specialty society or other evidence-based guidelines, 3 Cochrane systematic reviews, and 8 book sections.

For ankle osteoarthritis, evidence demonstrates a net benefit, but of less than moderate certainty, and may consist of a consensus opinion of experts, case studies, and common standard care. **(RG A2)** Physical therapy may improve function of the osteoarthritic ankle by strengthening muscles that stabilize the ankle (eg, calf, peroneal, soleus, tibialis anterior), improving proprioception, and facilitating aerobic exercise.(5) **(EG 2)** Physical therapy for ankle osteoarthritis may include muscle strengthening, ankle and hindfoot joint mobilization, and gait education.(6) **(EG 2)**

For elbow osteoarthritis, evidence demonstrates a net benefit, but of less than moderate certainty, and may consist of a consensus opinion of experts, case studies, and common standard care. **(RG A2)** Range of motion, joint protection, and activity modification are primary components of therapy for elbow osteoarthritis.(7)(8)(9) **(EG 2)**

For hand or wrist osteoarthritis, evidence demonstrates at least moderate certainty of at least moderate net benefit. **(RG A1)** A systematic review of 7 randomized controlled trials evaluating exercise for patients with hand osteoarthritis pooled data and concluded that exercise was associated with improved hand pain (5 studies) and finger joint stiffness (4 studies) in the short term. However, the authors noted that the magnitude of improvements was small and the available evidence base was limited by small study sizes.(14) **(EG 1)** Another systematic review supported the use of a hand splint for hand osteoarthritis to improve hand function, strength, and range of motion. The review concluded that programs of joint protection, advice, and home exercises are effective at improving grip strength and hand function.(15) **(EG 1)** A systematic review and meta-analysis of 5 randomized controlled trials (198 patients) evaluating physical therapies for trapeziometacarpal osteoarthritis reported that, at 4 weeks post intervention, both unimodal and multimodal physical therapy interventions were associated with reductions in pain intensity compared with sham control or placebo. However, multimodal therapy was not associated with improvements in pinch strength, and unimodal therapy was not associated with improvements in grip strength or self-reported hand function.(16) **(EG 1)** A randomized controlled trial of 80 women with hand osteoarthritis found that the addition of home-based exercises to being given information only significantly improved functional scale scores after 3 months, and concluded that hand exercises were well-tolerated and significantly improved activity performance, grip strength, pain, and fatigue.(17) **(EG 1)** An expert consensus guideline on the management of hand osteoarthritis recommends exercises for hand strength and function for all patients and orthoses for patients who have thumb base osteoarthritis.(18) **(EG 2)** A specialty society guideline strongly recommends exercise for all hand osteoarthritis patients and orthoses for patients with osteoarthritis limited to the first carpometacarpal joint; conditional recommendations include heat, cooling, Kinesio taping, and paraffin treatments for all hand osteoarthritis patients.(10) **(EG 2)** Clinical practice guidelines found consensus for evidence-based interventions for hand osteoarthritis that include strengthening exercises and patient education; further high-quality studies are warranted to determine which specific exercises and dosages provide the most benefit.(19)(20) **(EG 2)** Review articles advise both strengthening and range-of-motion exercises for hand and wrist osteoarthritis.(11)(12)(13)(21) **(EG 2)**

For hip osteoarthritis, evidence demonstrates at least moderate certainty of at least moderate net benefit. **(RG A1)** Guidelines recommend physical therapy for patients with symptomatic hip osteoarthritis.(10)(22)(26)(27) **(EG 2)** A systematic review of 21 trials studying exercise interventions for people with hip and/or knee osteoarthritis found some evidence of improvement in physical function, depression, and pain.(28) **(EG 1)** A systematic review and meta-analysis of 7 randomized controlled trials (886 patients) evaluating the effects of exercise with and without manual therapy for treatment of hip osteoarthritis found high-quality evidence that exercise improved physical function and pain compared with control interventions.(29) **(EG 1)** A multicenter randomized controlled trial that included 109 patients with severe osteoarthritis of the hip evaluated the effectiveness of hip replacement compared with resistance training and found, after 6 months of follow-up, that patients who received hip replacement had significantly greater improvements in hip pain and function compared with patients who received exercise treatment.(30) **(EG 1)** A randomized controlled trial of 209 hip osteoarthritis patients concluded that 12 weeks of exercise therapy (consisting of 1 group intervention per week and 2 home exercise programs per week) resulted in statistically significant reduction in pain and functional improvement; however, no significant improvement was found in health-related quality of life.(31) **(EG 1)** Long-term follow-up of 53 patients enrolled in a randomized trial found that a 12-week exercise program may reduce the need for total hip replacement in patients with hip osteoarthritis.(32) **(EG 1)** A 3-arm parallel-group randomized clinical trial that included 118 patients with unilateral hip osteoarthritis found that a combined intervention of individualized manual therapy and physiotherapist-taught patient education was more effective in reducing pain than a minimal control intervention involving stretching exercises at home.(33) **(EG 1)** An observational study of 16,499 patients with hip or knee osteoarthritis found that participation in an 8-week course of exercise therapy led to a reduction in the percentage of patients using acetaminophen, NSAIDs, or opioids for pain (62.2% at baseline vs 44.1% after intervention).(34) **(EG 2)** A specialty society guideline strongly recommends cane use, exercise, self-efficacy and self-management programs, tai chi, and weight loss in patients with hip osteoarthritis.(10) **(EG 2)** Specialty society guidelines state that physical therapy can be considered for patients with hip osteoarthritis with mild to moderate symptoms to improve function and reduce pain.(22)(35) **(EG 2)** Review articles support exercise programs combined with education and behavioral strategies to increase physical activity levels and manage symptoms in hip osteoarthritis.(2)(23)(36) **(EG 2)** Evidence-based interventions for hip osteoarthritis care include strengthening, aerobic exercise, and patient education.(20) **(EG 2)**

For knee osteoarthritis, evidence demonstrates at least moderate certainty of at least moderate net benefit. **(RG A1)** A systematic review of 21 trials studying exercise interventions for people with hip and/or knee osteoarthritis found some evidence of improvement in physical function, depression, and pain.(28) **(EG 1)** A systematic review of 139 randomized controlled trials (12,468 patients) that evaluated the benefit of exercise therapy for patients with osteoarthritis of the knee found low-certainty to moderate-certainty evidence that exercise improved pain, physical function, and quality of life in the short term. However, the authors noted that the improvements might not be clinically significant.(39) **(EG 1)** Another systematic review of 26 randomized controlled trials found that land-based strengthening exercise programs with or without the addition of other types of therapeutic exercise (eg, coordination, balance, functional) significantly improved pain relief, physical function, and quality of life for patients with knee osteoarthritis.(37) **(EG 1)** A meta-analysis that included 7 randomized controlled trials and 560 participants with knee osteoarthritis found that proprioceptive exercises significantly improved functional outcomes during the first 8 weeks of exercises.(40) **(EG 1)** A systematic review and meta-analysis that included 48 randomized controlled trials and over 4000 patients concluded that optimal exercises for knee osteoarthritis should have one goal and focus on improving aerobic capacity, quadriceps muscle strength, or lower extremity performance; for best results, the exercises should be supervised, carried out 3 days a week, and comprise at least 12 sessions.(41) **(EG 1)** A systematic review and meta-analysis identified 11 randomized trials (724 patients) evaluating the efficacy of stationary cycling exercise for knee osteoarthritis and found that cycling exercise was associated with reduced pain and improved sport performance (as measured by Western Ontario and McMaster Universities Osteoarthritis Index (WOMAC) or Knee Injury and Osteoarthritis Outcome Score) compared with no exercise. No clinically significant difference in stiffness, function, or quality of life was seen between groups.(42) **(EG 1)** A randomized controlled trial of 156 adults with knee osteoarthritis compared physical therapy with intra-articular glucocorticoid injection. At 1-year follow-up, the physical therapy group reported significantly greater improvement in pain, function, and stiffness, as measured by the WOMAC. The authors noted that recruitment strategy, provider visit frequency, and receipt of the unassigned therapy in a small number of patients in each arm may have limited the study results.(43) **(EG 1)** A systematic review and meta-analysis of 11 randomized controlled trials (956 patients) evaluating the effectiveness of home-based vs center-based exercise therapy found that home-based exercise was as effective as center-based exercise for improving pain, physical function, and muscle strength in people with knee osteoarthritis.(44) **(EG 1)** An observational study of 16,499 patients with hip or knee osteoarthritis found that participation in an 8-week course of exercise therapy led to a reduction in the percentage of patients using acetaminophen, NSAIDs, or opioids for pain (62.2% at baseline vs 44.1% after intervention).(34) **(EG 2)** Guidelines recommend physical therapy for patients with symptomatic knee osteoarthritis.(10)(22)(26)(45) **(EG 2)** A specialty society guideline strongly recommends cane use, exercise, knee brace use, self-efficacy and self-management programs, tai chi, and weight loss for patients with knee osteoarthritis.(10) **(EG 2)** An international specialty society guideline recommends structured land-based or water-based physical activity for the management of knee osteoarthritis.(46) **(EG 2)**

For shoulder osteoarthritis, evidence demonstrates a net benefit, but of less than moderate certainty, and may consist of a consensus opinion of experts, case studies, and common standard care. **(RG A2)** Therapeutic exercise programs that include joint mobilization techniques (eg, active-assisted, auto-assisted, or passive) with concurrent initiation of stretching exercises are recommended for glenohumeral osteoarthritis. Strength training with progressive resistance is added when mobility improves and pain subsides. Most programs that have shown benefit for glenohumeral osteoarthritis last at least 12 weeks.(47) **(EG 2)**

For spine osteoarthritis, evidence demonstrates a net benefit, but of less than moderate certainty, and may consist of a consensus opinion of experts, case studies, and common standard care. **(RG A2)** A prospective series of 30 patients with newly diagnosed degenerative cervical spine disease found that 2 physiotherapist visits were associated with a significant reduction in pain scores, improvement in activities of daily living (especially the ability to carry heavy objects), and slight improvement in neck range of motion.(50) **(EG 2)** A retrospective chart review that included 22 adult patients with confirmed spine arthritis who had been discharged from physical therapy for over 6 months found that a home exercise program provided by a physical therapist performed 4 to 7 days per week was associated with significantly lower mean pain scores as compared with the same program performed fewer days per week.(51) **(EG 2)**

Rationale

Use of this MCG care guideline helps the clinician determine if a particular treatment, medication, or service might be appropriate for a specific patient, taking into account their unique health complexities.

Use of these evidence-based clinical criteria to support decision making benefits the patient by identifying patient-specific complex clinical factors and conditions, promoting personalized treatment. Utilizing evidence-based clinical criteria promotes patient safety by helping ensure that potential patient benefits outweigh the risks. In addition, the use of evidence-based guidelines can increase consistency in treatment thresholds, leading to less variation in care and promoting equitable treatment among patients.

Related CMS Coverage Guidance

This guideline supplements but does not replace, modify, or supersede existing Medicare regulations or applicable National Coverage Determinations (NCDs) or Local Coverage Determinations (LCDs).

Code of Federal Regulations (CFR): 42 CFR 419.22(75); 42 CFR 422.101(76)

Internet-Only Manual (IOM) Citations: CMS IOM Publication 100-02, Medicare Benefit Policy Manual, Chapter 14 - Medical Devices(77); CMS IOM Publication 100-02, Medicare Benefit Policy Manual, Chapter 15 - Covered Medical and Other Health Services(52); CMS IOM Publication 100-02, Medicare Benefit Policy Manual, Chapter 16 - General Exclusions from Coverage(78)

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Footnotes

[A] According to the Centers for Medicare and Medicaid Services (CMS), a maintenance therapy program helps to maintain the patient's current condition or to prevent or slow further deterioration. CMS specifies that skilled therapy services are necessary for the performance of a safe and effective maintenance program only when (a) the particular patient's special medical complications require the skills of a qualified therapist to perform a therapy service that would otherwise be considered nonskilled, or (b) the needed therapy procedures are of such complexity that the skills of a qualified therapist are required to perform the procedure.(52) [A in Context Link 1]

Codes

ICD-10 Diagnosis: M15.0, M15.1, M15.2, M15.3, M15.8, M15.9, M16.0, M16.10, M16.11, M16.12, M16.2, M16.30, M16.31, M16.32, M16.4, M16.50, M16.51, M16.52, M16.6, M16.7, M16.9, M17.0, M17.10, M17.11, M17.12, M17.2, M17.30, M17.31, M17.32, M17.4, M17.5, M17.9, M18.0, M18.10, M18.11, M18.12, M18.2, M18.30, M18.31, M18.32, M18.4, M18.50, M18.51, M18.52, M18.9, M19.011, M19.012, M19.019, M19.021, M19.022, M19.029, M19.031, M19.032, M19.039, M19.041, M19.042, M19.049, M19.071, M19.072, M19.079, M19.09, M19.121, M19.122, M19.129, M19.131, M19.132, M19.139, M19.141, M19.142, M19.149, M19.171, M19.172, M19.179, M19.19, M19.221, M19.222, M19.229, M19.231, M19.232, M19.239, M19.241, M19.242, M19.249, M19.271, M19.272, M19.279, M19.29, M19.90, M19.91, M19.92, M19.93, Z51.89, Z71.82, Z71.89, Z98.1 [Hide]

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