09-E0000-47

Original Effective Date: 12/15/03

Reviewed: 05/22/25

Revised: 06/15/25

Subject: Mechanical Stretching Devices for Treatment of Joint Stiffness and Contractures

THIS MEDICAL COVERAGE GUIDELINE IS NOT AN AUTHORIZATION, CERTIFICATION, EXPLANATION OF BENEFITS, OR A GUARANTEE OF PAYMENT, NOR DOES IT SUBSTITUTE FOR OR CONSTITUTE MEDICAL ADVICE. ALL MEDICAL DECISIONS ARE SOLELY THE RESPONSIBILITY OF THE PATIENT AND PHYSICIAN. BENEFITS ARE DETERMINED BY THE GROUP CONTRACT, MEMBER BENEFIT BOOKLET, AND/OR INDIVIDUAL SUBSCRIBER CERTIFICATE IN EFFECT AT THE TIME SERVICES WERE RENDERED. THIS MEDICAL COVERAGE GUIDELINE APPLIES TO ALL LINES OF BUSINESS UNLESS OTHERWISE NOTED IN THE PROGRAM EXCEPTIONS SECTION.

Position Statement	Billing/Coding	Reimbursement	Program Exceptions	Definitions	Related Guidelines
Other	References	Updates			

DESCRIPTION:

Physical and occupational therapy are used to improve or restore range of motion (ROM) by manually stretching contracted ligaments, tendons and tissue when abnormal tightening has occurred. This may be brought about by injury, disease or surgery. There are also mechanical stretching devices that can assist in restoring or improving ROM and may be rented or purchased for use at home, as an adjunct to the therapy. The devices are also used post-operatively when surgery has been performed for certain conditions but these devices are not continuous passive motion (CPM) machines. CPM machines are used just after a surgery or injury to improve healing, reduce edema & pain, and to help prevent contractures.

Mechanical stretching devices, also known as dynamic splinting devices, are spring-loaded, adjustable, and designed to provide low-load prolonged stretch while patients are asleep or at rest. These devices (for both extension as well as flexion) are available and are marketed for the treatment of joint stiffness due to immobilization or limited ROM. Several types of mechanical stretching devices are available including:

- Dynamic (low-load prolonged stretch [LLPS]) devices which permit resisted active and passive motion within a restricted range.
- Bi-directional static progressive (SP) devices which maintain the joint in a set position but permit manual modification of the joint and may allow for active motion without resistance.
- Patient-actuated serial stretch (PASS) devices which allow resisted active and passive motion within a limited range.

Several FDA approved commercial stretching devices are available but there is no evidence that one type of device is superior over others.

Summary and Analysis of Evidence: Dynamic low-load prolonged stretch devices are commonly used by orthopedists and physical therapists for select patients. For example, John et al (2011) concluded that "Dynamic splinting was effective in reducing contracture of postoperative hallux limitus in this study; experimental patients gained a mean 250% improvement in AROM. This modality should be considered for standard of care in treating postoperative hallux limitus." For static progressive stretch devices the evidence includes random control trials, systematic review, and case series. The evidence on static progressive stretch devices does not currently support an improvement in pain and function with static progressive stretch compared to alternative treatments such as dynamic splinting. Dynamic splints are used for 8 to 24 hours per day while static progressive stretch devices require several 30 minute sessions. It is not known whether patient compliance would be higher with the static progressive stretch devices resulting in an improvement in clinical outcomes. For serial stretch devices the evidence includes random control trials and observational studies. Further high-quality comparative trials are needed to determine whether these patient-controlled devices improve functional outcomes better than alternative treatments and identify the patient populations that might benefit. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

POSITION STATEMENT:

Dynamic (LLPS) devices **meet the definition of medical necessity** for use on the toe, knee, elbow, wrist or finger for **ONE** of the following indications:

1. As an adjunct to physical therapy in members with documented signs and symptoms of significant motion stiffness/loss in the sub-acute injury or post-operative period (i.e., at least three (3) weeks but less than four (4) months after injury or surgery); **OR**
2. In the acute post-operative period for members who have a prior documented history of motion stiffness/loss in a joint and are having additional surgery or procedures done to improve motion to that joint; **OR**
3. The member is unable to perform and/or benefit from standard physical therapy modalities because of an inability to exercise or participate in the treatment program. In this instance, use of a dynamic device for as long as four (4) months with documented improvement, and then for as long as improvement can continue to be documented would be considered medically necessary.

If there is no significant improvement (i.e. documentation of progression toward goals, increased range of motion, advancing ability to perform activities of daily living (ADLs) or return to prior ability to perform ADLs) after four (4) months of use, dynamic (LLPS) devices **do not meet the definition of medical necessity**

The use of dynamic (LLPS) devices **does not meet the definition of medical necessity** for members unable to benefit from standard physical therapy modalities because of an inability to exercise or participate in the treatment plan after documentation of no improvement despite use for four (4) months.

The use of dynamic (LLPS) devices in the management of chronic contractures (no significant change in motion for a four (4) month period) **OR** chronic joint stiffness due to joint trauma, fractures, burns, head and spinal cord injuries, rheumatoid arthritis, multiple sclerosis, muscular dystrophy or cerebral palsy **does not meet the definition of medical necessity**.

Dynamic (LLPS) devices are considered **experimental or investigational** for use on any other joint or any other conditions/indications not listed above, including but not limited to the management of chronic joint stiffness and/or chronic or fixed contractures.

The use of patient-actuated serial stretch (PASS) and bi-directional static progressive (SP) devices is considered **experimental or investigational** for all indications. There is insufficient evidence in the published medical literature to permit conclusions on safety, efficacy and long-term outcomes.

BILLING/CODING INFORMATION:

HCPCS Coding:

E1800	Dynamic adjustable elbow extension and flexion device, includes soft interface material
E1801	Static progressive stretch/patient actualized serial stretch elbow device, extension and/or flexion, with or without range of motion adjustment, includes all components and accessories **(Investigational)**
E1802	Dynamic adjustable forearm pronation/supination device, includes soft interface material **(Investigational)**
E1803	Dynamic adjustable elbow extension only device, includes soft interface material
E1804	Dynamic adjustable elbow flexion only device, includes soft interface material
E1805	Dynamic adjustable wrist extension and flexion device, includes soft interface material
E1806	Static progressive stretch wrist device, flexion and/or extension, with or without range of motion adjustment, includes all components and accessories **(Investigational)**
E1807	Dynamic adjustable wrist extension only device, includes soft interface material
E1808	Dynamic adjustable wrist flexion only device, includes soft interface material
E1810	Dynamic adjustable knee extension and flexion device, includes soft interface material
E1811	Static progressive stretch/patient actualized serial stretch knee device, extension and/or flexion, with or without range of motion adjustment, includes all components and accessories **(Investigational)**
E1812	Dynamic knee, extension/flexion device with active resistance control
E1813	Dynamic adjustable knee extension only device, includes soft interface material
E1814	Dynamic adjustable knee flexion only device, includes soft interface material
E1815	Dynamic adjustable ankle extension and flexion, includes soft interface material **(Investigational)**

E1816	Static progressive stretch/patient actualized serial stretch ankle device, flexion and/or extension, with or without range of motion adjustment, includes all components and accessories **(Investigational)**
E1818	Static progressive stretch/patient actualized serial stretch forearm pronation / supination device, with or without range of motion adjustment, includes all components and accessories **(Investigational)**
E1820	Replacement soft interface material, dynamic adjustable extension/flexion device
E1821	Replacement soft interface material/cuffs for bi-directional static progressive stretch device **(Investigational)**
E1822	Dynamic adjustable ankle extension only device, includes soft interface material (**Investigational**)
E1823	Dynamic adjustable ankle flexion only device, includes soft interface material (**Investigational**)
E1825	Dynamic adjustable finger extension and flexion device, includes soft interface material
E1826	Dynamic adjustable finger extension only device, includes soft interface material
E1827	Dynamic adjustable finger flexion only device, includes soft interface material
E1828	Dynamic adjustable toe extension only device, includes soft interface material
E1829	Dynamic adjustable toe flexion only device, includes soft interface material
E1830	Dynamic adjustable toe extension and flexion device, includes soft interface material
E1831	Static progressive stretch toe device, extension and/or flexion, with or without range of motion adjustment, includes all components and accessories **(Investigational)**
E1832	Static progressive stretch finger device, extension and/or flexion, with or without range of motion adjustment, includes all components and accessories **(Investigational)**
E1840	Dynamic adjustable shoulder flexion/abduction/rotation device, includes soft interface material **(Investigational)**
E1841	Static progressive stretch/patient actualized serial stretch shoulder device, with or without range of motion adjustment, includes all components and accessories **(Investigational)**

ICD-10 Diagnosis Codes That Support Medical Necessity:

M12.521 – M12.529	Traumatic arthropathy, elbow
M12.531 – M12.539	Traumatic arthropathy, wrist
M12.541 – M12.549	Traumatic arthropathy, hand
M12.561 – M12.569	Traumatic arthropathy, knee
M17.10 – M17.5	Osteoarthritis of knee

M18.0 – M18.9	Osteoarthritis of first carpometacarpal joint
M19.021 – M19.029	Primary osteoarthritis, elbow
M19.031 – M19.039	Primary osteoarthritis, wrist
M19.041 – M19.049	Primary osteoarthritis, hand
M19.221 – M19.229	Secondary osteoarthritis, elbow
M19.231 – M19.239	Secondary osteoarthritis, wrist
M19.241 – M19.249	Secondary osteoarthritis, hand
M22.2X1 – M22.92	Disorder of patella
M23.00 – M23.92	Internal derangement of knee
M24.121 – M24.129	Other articular cartilage disorders, elbow
M24.131 – M24.139	Other articular cartilage disorders, wrist
M24.141 – M24.149	Other articular cartilage disorders, hand
M24.521 – M24.529	Contracture, elbow
M24.531 – M24.539	Contracture, wrist
M24.541 – M24.549	Contracture, hand
M24.561 – M24.569	Contracture, knee
M25.621 – M25.629	Stiffness of unspecified elbow, not elsewhere classified
M25.631 – M25.639	Stiffness of unspecified wrist, not elsewhere classified
M25.641 – M25.649	Stiffness of unspecified hand, not elsewhere classified
M25.661 – M25.669	Stiffness of unspecified knee, not elsewhere classified
S52.001A – S52.099S	Fracture of upper end of ulna
S52.101A – S52.189S	Fracture of upper end of radius
S52.201A – S52.299S	Fracture of shaft of ulna
S52.301A – S52.399S	Fracture of shaft of radius
S52.501A – S52.599S	Fracture of the lower end of radius
S52.601A – S52.699S	Fracture of lower end of ulna
S53.001A – S53.096S	Subluxation and dislocation of radial head
S53.101A – S53.196S	Subluxation and dislocation of ulnohumeral joint
S53.401A – S53.499S	Sprain of elbow
S56.001A – S56.499S	Injury of flexor muscle, fascia and tendon of finger
S62.001A – S62.92xS	Fracture at wrist and hand level
S63.001A – S63.92xS	Dislocation and sprain of joints and ligaments at wrist and hand level
S66.001 – S66.999S	Injury of muscle, fascia and tendon at wrist and hand level
S83.101A – S83.92xS	Dislocation and sprain of joints and ligaments of knee
S92.401A – S92.919S	Fracture of toe
S93.10A – S93.149S	Subluxation and dislocation of toe

REIMBURSEMENT INFORMATION:

If there is no significant improvement (i.e. documentation of progression toward goals, increased range of motion, advancing ability to perform activities of daily living (ADLs) or return to prior ability to perform ADLs) after four (4) months of use, dynamic (LLPS) devices **do not meet the definition of medical necessity**. The use of these devices beyond four (4) months is subject to medical review of

documentation. Documentation should include changes in range of motion (ROM) to the affected joint, changes in the member's ability to perform ADLs or perform activities outside the home.

LOINC Codes:

The following information may be required documentation to support medical necessity: Physician history and physical, attending physician treatment plan, progress notes, and visit notes.

Documentation Table	LOINC Codes	LOINC Time Frame Modifier Code	LOINC Time Frame Modifier Codes Narrative
Physician history and physical	28626-0	18805-2	Include all data of the selected type that represents observations made six months or fewer before starting date of service for the claim
Attending physician visit notes	18733-6	18805-2	Include all data of the selected type that represents observations made six months or fewer before starting date of service for the claim.
Attending physician progress note	18741-9	18805-2	Include all data of the selected type that represents observations made six months or fewer before starting date of service for the claim.
Treatment plan	18776-5	18805-2	Include all data of the selected type that represents observations made six months or fewer before starting date of service for the claim

PROGRAM EXCEPTIONS:

Federal Employee Program (FEP): Follow FEP guidelines.

State Account Organization (SAO): Follow SAO guidelines.

Medicare Advantage Products: No National Coverage Determination (NCD) and/or Local Coverage Determination (LCD) were found at the time of the last guideline reviewed date

If this Medical Coverage Guideline contains a step therapy requirement, in compliance with Florida law 627.42393, members or providers may request a step therapy protocol exemption to this requirement if based on medical necessity. The process for requesting a protocol exemption can be found at Coverage Protocol Exemption Request

DEFINITIONS:

No guideline specific definitions apply.

RELATED GUIDELINES:

Continuous Passive Motion Device 09-E0000-16
Physical Therapy (PT) and Occupational Therapy (OT) 01-97000-01

OTHER:

None applicable.

REFERENCES:

1. Bhave A, Sodhi N, Mont MA. Static Progressive Stretch Orthosis-Consensus Modality to Treat Knee Stiffness-Rationale and Literature Review. Ann Transl Med, 7 (Suppl 7), S256 Oct 2019.
2. Blue Cross Blue Shield Association Evidence Positioning System®; 1.03.05 Patient-Controlled End Range of Motion Stretching Devices; 04/25.
3. Bonutti PM, McGrath MS, et al, Static Progressive Stretch for the Treatment of Knee Stiffness, Knee. 2008 Aug;15(4):272-6.
4. Bonutti PM, McGrath MS, et al, Static Progressive Stretch Improves Range of Motion in Arthrofibrosis Following Total Knee Arthroplasty, Knee Surg Sports Traumatol Arthrosc. 2010 Feb;18(2):194-9.
5. Dempsey AL, Branch TP, et al, High-intensity mechanical therapy for loss of knee extension for worker's compensation and non-compensation patients. Sports Med Arthrosc Rehabil Ther Technol. 2010 Oct 12;2:26.
6. Dempsey AL, Mills T, Karsch RM, Branch TP, Maximizing total end range time is safe and effective for the conservative treatment of frozen shoulder patients. Am J Phys Med Rehabil. 2011 Sep;90(9):738-45.
7. Doormberg JN, Ring D, et al, Static Progressive Splinting for Posttraumatic Elbow Stiffness, J Orthop Trauma. 2006 Jul;20(6):400-4.
8. Gaspar PD, Willis FB, Adhesive capsulitis and dynamic splinting: a controlled, cohort study. BMC Musculoskeletal Disorders 2009, 10:111.
9. Gelinas, J.J., Faber, K.J., Patterson, S.D., & King, G.J. (2000). The effectiveness of turnbuckle splinting for elbow contractures. Journal of Bone and Joint Surgery, 82(1), 74-78.
10. Grissom SP, Blanton S, Treatment of Upper Motoneuron Plantarflexion Contractures by Using an Adjustable Ankle-Foot Orthosis, Arch Phys Med Rehabil. 2001 Feb;82(2):270-3.
11. Ibrahim MI, Johnson AJ, et al, Treatment of Adhesive Capsulitis of the Shoulder with a Static Progressive Stretch Device: A Prospective, Randomized Study, J Long Term Eff Med Implants. 2012;22(4):281-91.
12. John MM, Kalish S, et al. Dynamic splinting for postoperative hallux limitus: a randomized, controlled trial. J Am Podiatr Med Assoc. 2011 Jul-Aug;101(4):285-8. PMID: 21816996.
13. John MM, Willis FB, Dynamic Splinting for Hallux Valgus and Hallux Varus: A Pilot Study, The Foot and Ankle Online Journal 3 (1): 1, Jan 2010.
14. Johnson AJ, McKenzie SA, et al, Assessment of Static Progressive Stretch for Treatment of Shoulder Stiffness. A Prospective Case Series. JLTMI; April2013;Vol22(4) 293-303.
15. Lindenhovius AL, Doornberg JN, et al, A Prospective Randomized Controlled Trial of Dynamic Versus Static Progressive Elbow Splinting for Posttraumatic Elbow Stiffness, J Bone Joint Surg AM. 2012; 94:694-100.
16. Lucado AM, Li Z, et al, Changes in Impairment and Function After Static Progressive Splinting for Stiffness After Distal Radius Fracture, J Hand Ther. 2008 Oct-Dec;21(4):319-25.

17. MacKay-Lyons, M. (1989). Low-load, prolonged stretch in treatment of elbow flexion contractures secondary to head trauma: a case report. Physical Therapy, 69(4), 292.
18. Magnusson, S.P., Simonsen, E.B., Aagaard, P., & Kjaer, M. (1996). Biomechanical responses to repeated stretches in human hamstring muscle in vivo. American Journal of Sports Medicine, 24(5), 622.
19. McClure, P.W., Blackburn, L.G., Dusold, C. (1994). The use of splints in the treatment of joint stiffness: biologic rationale and an algorithm for making clinical decisions. Physical Therapy, 74(12), 18.
20. McGrath MS, Bonutti PM, et al, Static Progressive Splinting for Restoration of Rotational Motion of the Forearm, J Hand Ther. 2009 Jan-Mar;22(1):3-8.
21. McElroy MJ, Costa CR, et al, Use of a Static Progressive Stretch Orthosis to Treat Post-Traumatic Ankle Stiffness, BMC Research Notes 2012, 5:348-356.
22. Michlovitz SL, Harris BA, et al, Therapy Interventions for Improving Joint Range of Motion: A Systematic Review, J Hand Ther. 2004 Apr-Jun;17(2):118-31.
23. Müller AM, Sadoghi P, et al, Effectiveness of Bracing in the Treatment of Nonosseous Restriction of Elbow Mobility: A Systematic Review and Meta-Analysis of 13 Studies; J Shoulder Elbow Surg. 2013 Aug;22(8):1146-52.
24. Papotto BA, Mills T, Treatment of Severe Flexioni Deficits Following Total Knee Arthroplasty: A Randomized Clinical Trial, Orthop Nurs. 2012 Jan-Feb;31(1):29-34.
25. Rompe JD, et al, Plantar Fascia-Specific Stretching Versus Radial Shock-Wave Therapy as Initial Treatment of Plantar Fasciopathy, The Journal of Bone and Joint Surgery (American), 2010; 92: 2514-2522.
26. Sharma NK, Loudon JK, Static Progressive Stretch Brace as a Treatment of Pain and Functional Limitations Associated with Plantar Fasciitis: A Pilot Study, Foot Ankle Spec 2012; 3; 117-124.
27. Sheridan L, Lopez A, et al, Plantar Fasciopathy Treated with Dynamic Splinting, Journal of the American Podiatric Medical Association, Vol 100 Number 3, 161-165, 2010.
28. Sodhi N, Yao B, et al. Patient Satisfaction and Outcomes of Static Progressive Stretch Bracing: A 10-year Prospective Analysis. Ann Transl Med, 7 (4), 67 Feb 2019. PMID 30963062.
29. Stephenson JJ, Quimbo RA, Gu T, Knee-attributable medical costs and risk of re-surgery among patients utilizing non-surgical treatment options for knee arthrofibrosis in a managed care population, Curr Med Res Opin. 2010 May;26(5):1109-18.
30. Thomas JL, et al, the Diagnosis and Treatment of Heel Pain: A Clinical Practice Guideline – Revision 2010, The Journal of Foot & Ankle Surgery 49 (2010) S1-S19; accessed at acfas.org 06/12.
31. Teytelbaum DE, Kumar NS, et al. Efficacy of a high-intensity home stretching device and traditional physical therapy in non-operative management of adhesive capsulitis - a prospective, randomized control trial. BMC Musculoskelet Disord. 2024 Apr 20;25:305.
32. Uhl TL, Jacobs CA, Torque measures of common therapies for the treatment of flexion contractures. J Arthroplasty. 2011 Feb;26(2):328-34.
33. U.S. Food & Drug Administration (FDA); accessed at fda.gov.

COMMITTEE APPROVAL:

This Medical Coverage Guideline (MCG) was approved by the Florida Blue Medical Policy and Coverage Committee on 05/22/25.

GUIDELINE UPDATE INFORMATION:

12/15/03	New Medical Coverage Guideline.
01/01/05	Code E1841 added with HCPCS update.
01/01/06	Annual HCPCS coding update: add E1812.
02/15/06	Biennial review; coverage unchanged.
07/15/07	Biennial review, coverage statements maintained, Medicare Advantage section updated, guideline reformatted, references updated.
01/01/08	2008 Annual HCPCS update: revised E1801, E1806, E1811, E1816, E1818, and E1841.
02/15/09	Biennial review: position statements maintained, MCG title, description section and references updated.
02/15/10	Annual Review: position statements maintained, description section, coding and references updated.
10/15/10	Revision; related ICD-10 codes added.
01/01/11	Annual HCPCS coding update. Added E1831.
04/15/11	Review; position statement maintained, description section, program exceptions, and references updated.
10/01/11	Revision; formatting changes
08/15/12	Review; position statements, description section, billing/coding, and references updated; formatting changes.
08/15/13	Annual Review; position statements, billing/coding information, and references updated; formatting changes.
11/15/13	Revision: references updated.
09/15/14	Annual review; position statement, reimbursement, and reference sections updated; formatting changes.
04/15/15	Review; position statement and references updated.
10/01/15	Revision; ICD10 coding section updated.
11/01/15	Revision: ICD-9 Codes deleted.
06/15/18	Review; position statements maintained and references updated.
06/15/20	Review; Position statements maintained and references updated.
05/01/21	Revised; CMN information removed.
05/15/22	Review: Position statements maintained; references updated.
01/01/24	Position statements maintained.
06/15/24	Review: Position statements maintained; description and references updated.
01/01/25	Annual CPT/HCPCS Coding Update: Codes E1803, E1804, E1807, E1808, E1813, E1814, E1822, E1823, E1826-E1829 added; codes E1800, E1805, E1810, E1815, E1825, E1830 revised.
04/01/25	Quarterly CPT/HCPCS coding update. Code E1832 added; codes E1801, E1811, E1816, E1818, E1841 revised.
06/15/25	Review: Position statements maintained; references updated.