



Louisiana

Mechanical Stretch Devices for Joint Stiffness and Contractures

Policy # 00193

Original Effective Date: 02/23/2006

Current Effective Date: 08/01/2021

Applies to all products administered or underwritten by Blue Cross and Blue Shield of Louisiana and its subsidiary, HMO Louisiana, Inc. (collectively referred to as the "Company"), unless otherwise provided in the applicable contract. Medical technology is constantly evolving, and we reserve the right to review and update Medical Policy periodically.

Note: Continuous Passive Motion (CPM) is addressed separately in medical policy 00020.

When Services May Be Eligible for Coverage

Coverage for eligible medical treatments or procedures, drugs, devices or biological products may be provided only if:

- *Benefits are available in the member's contract/certificate, and*
- *Medical necessity criteria and guidelines are met.*

Based on review of available data, the Company may consider low-load prolonged-duration stretch (LLPS) (Dynamic Splinting) devices for use on the knee, elbow, and wrist or finger to be **eligible for coverage**.**

Examples of LLPS devices include Dynasplint System^{®‡} (Dynasplint Systems Inc.); Ultraflex (Ultraflex Systems Inc.); LMB Pro-Glide devices (DeRoyal Industries); Advance Dynamic ROM^{®‡}, Saunders^{®‡}, Pronex^{®‡} (Empi).

Patient Selection Criteria

Coverage eligibility may be considered for low-load prolonged-duration stretch (LLPS) (Dynamic Splinting) devices for use on the knee, elbow, and wrist or finger when **ANY** of the following criteria are met:

- As an adjunct to physical therapy in members with documented signs and symptoms of significant motion stiffness/loss in the sub-acute injury or postoperative period (≥ 3 weeks but ≤ 4 months after injury or surgery); **OR**
- In the acute post-operative period for members who have a prior documentation of motion stiffness/loss in a joint and are having additional surgery or procedures done to improve motion in that joint; **OR**

©2021 Blue Cross and Blue Shield of Louisiana

Blue Cross and Blue Shield of Louisiana is an independent licensee of the Blue Cross and Blue Shield Association and incorporated as Louisiana Health Service & Indemnity Company.

No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, or otherwise, without permission from Blue Cross and Blue Shield of Louisiana.



Louisiana

Mechanical Stretch Devices for Joint Stiffness and Contractures

Policy # 00193

Original Effective Date: 02/23/2006

Current Effective Date: 08/01/2021

- As an alternative to manipulation under anesthesia.

Note:

Covered devices will be initially approved for monthly rental for up to four (4) months.

One-time additional monthly rental for up to four (4) months will be approved only when the following criteria are met and documented in medical records:

- *Persistent significant motion stiffness/loss*
- *Significant improvement after initial use*
- *Compliance with conventional therapy and daily device use.*

When Services Are Considered Investigational

Coverage is not available for investigational medical treatments or procedures, drugs, devices or biological products.

The use of low-load prolonged-duration stretch (LLPS) (Dynamic Splinting) devices when patient selection criteria are not met is considered to be **investigational***, including but not limited to:

- The management of chronic fixed contractures due to joint trauma, fractures, burns, brain and spinal cord injuries, rheumatoid arthritis, plantar fasciitis, multiple sclerosis, muscular dystrophy, cerebral palsy, or other chronic conditions; OR
- When conventional methods of treating stiff or contracted joints have not been attempted; OR
- If there is no significant improvement after four months of use: OR
- If initiated more than four months post-operatively (unless it is to be used as an alternative to manipulation under anesthesia); OR
- The use on any other joint not mentioned above.

Based on review of available data, the Company considers static progressive stretch devices, e.g. Joint Active Systems^{®‡} (JAS) Static Progressive Stretch devices (finger, wrist, elbow, shoulder, knee, ankle), JAS^{®‡} Pronation/Supination device, Static-Pro^{®‡} Knee, Stat-A-Dyne^{®‡}, AliMed^{®‡} Turnbuckle Orthosis, and Mayo Aircast^{®‡} to be **investigational.***

©2021 Blue Cross and Blue Shield of Louisiana

Blue Cross and Blue Shield of Louisiana is an independent licensee of the Blue Cross and Blue Shield Association and incorporated as Louisiana Health Service & Indemnity Company.

No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, or otherwise, without permission from Blue Cross and Blue Shield of Louisiana.



Louisiana

Mechanical Stretch Devices for Joint Stiffness and Contractures

Policy # 00193

Original Effective Date: 02/23/2006

Current Effective Date: 08/01/2021

Based on review of available data, the Company considers patient-actuated serial stretch (PASS) devices, e.g. End Range of Motion Improvement ERMI Knee Extensionator, ERMI Knee/Ankle Flexionator, ERMI Shoulder Flexionator, ERMI MPJ Extensionator, and ERMI Elbow Extensionator to be **investigational**.*

Background/Overview

Range of Motion Impairments

Loss of full range of motion occurs in a significant proportion of patients following surgical procedures around a joint, such as total knee arthroplasty or anterior cruciate ligament reconstruction. The most common cause of severe postoperative motion loss is the development of intra-articular or extra-articular arthrofibrosis. Arthrofibrosis, characterized by periarticular fibrosis and bands of scar tissue, is described as a painful loss of end range of motion compared with the normal contralateral side. Loss of knee range of motion can lead to impairments in walking, sitting, rising from a chair, and navigating stairs. In 2010, Stephenson et al estimated that based on the annual rates of total knee arthroplasty and anterior cruciate ligament reconstruction, the number of major knee surgery patients affected by arthrofibrosis in the United States would be at least 85,000 per year, and approximately 21,000 patients each year would be at risk of requiring additional surgery.

Treatment

Treatment of arthrofibrosis may include physical therapy, manipulation under anesthesia, arthroscopic or open lysis of adhesions, or revision surgery. Conservative treatment typically consists of postoperative physical therapy with pressure stretching techniques and home exercises. When rehabilitation has failed, serial casting, static braces, or dynamic splints that provide low-load prolonged stretch may be used. Dynamic splints use spring loading or elastic bands to provide low-intensity tension (less than that exerted by a physical therapist) and are designed to be worn over relatively long periods (ie, 6-8 hours or overnight). The efficacy of a stretching regimen to permanently remodel tissue is considered to be a function of the intensity, length of the session, number of sessions per day, and number of days per week that stretching is performed.

This evidence review focuses on patient-controlled mechanical devices that provide either moderate- to high-intensity stretch or static progressive stretch in the home. Patient-controlled stretching devices are used at home to increase range of motion in patients who have impaired functional status

©2021 Blue Cross and Blue Shield of Louisiana

Blue Cross and Blue Shield of Louisiana is an independent licensee of the Blue Cross and Blue Shield Association and incorporated as Louisiana Health Service & Indemnity Company.

No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, or otherwise, without permission from Blue Cross and Blue Shield of Louisiana.



Louisiana

Mechanical Stretch Devices for Joint Stiffness and Contractures

Policy # 00193

Original Effective Date: 02/23/2006

Current Effective Date: 08/01/2021

due to decreased range of motion. We address 2 types of commercially available devices. Static progressive stretch devices (eg, Joint Active Systems (JAS), Static-Pro) provide low- to moderate-intensity stretching with a crank or ratchet that progressively increases the stretch within each session, and serial stretch devices (eg, End Range of Motion Improvement (ERMI)) use hydraulics to alternate between periods of higher intensity stretch and relaxation.

Improvement in functional outcomes, such as the ability to perform activities of daily living, is the primary goal of this intervention. Joint range of motion is an intermediate outcome. In 2000, 1 small study by Rowe et al. correlated knee range of motion with functional parameters and concluded that 110° is considered the functional range of motion necessary to allow patients to perform common activities of daily living such as navigating stairs, rising from a low chair or commode, entering or exiting a car, or tying one's shoes. This threshold of range of motion is therefore used as a measure of treatment success for individual patients. Loss of knee range of motion of more than 15°, which occurs in about 1% to 2% of patients after anterior cruciate ligament reconstruction, has been associated with loss of quadriceps muscle strength and the development of osteoarthritis. According to the knee examination form developed by the International Knee Documentation Committee (2000), an extension deficit of 6° to 10° or a flexion deficit of 16° to 25° when compared with the noninvolved knee is categorized "abnormal," and an extension deficit of more than 10° or a flexion deficit of more than 25° when compared with the noninvolved knee is categorized "severely abnormal." Range of motion thresholds in joints other than the knee have been less clearly defined.

Low-load Prolonged-duration Stretch (LLPS) (Dynamic Splinting) Devices

LLPS devices permit resisted active and passive motion (elastic traction) within a limited range. LLPS devices maintain a set level of tension by means of incorporated springs. Most spring loaded dynamic splinting devices are designed to provide a low load, prolonged stretch to joints that have reduced range of motion secondary to immobilization, surgery, contracture, fracture, dislocation, or a number of additional non-traumatic disorders. Most of these devices are adjustable-tension controlled units that provide a continuous dynamic stretch while patients are asleep or at rest. Commonly time of use is continuously for 6 – 12 hours, which can be at night or can be two three-hour sessions during the day for less than four months. The objective of stretch therapy is to improve range of motion without compromising the stability and quality of the connective tissue and joint. Currently, dynamic splinting devices are available for but not limited to the elbow, wrist, knee, ankle, and toes. Examples of LLPS devices include Dynasplint System (Dynasplint SystemsInc.); Ultraflex

©2021 Blue Cross and Blue Shield of Louisiana

Blue Cross and Blue Shield of Louisiana is an independent licensee of the Blue Cross and Blue Shield Association and incorporated as Louisiana Health Service & Indemnity Company.

No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, or otherwise, without permission from Blue Cross and Blue Shield of Louisiana.



Louisiana

Mechanical Stretch Devices for Joint Stiffness and Contractures

Policy # 00193

Original Effective Date: 02/23/2006

Current Effective Date: 08/01/2021

(Ultraflex Systems Inc.); LMB Pro-Glide devices (DeRoyalIndustries); Advance Dynamic ROM, Saunders, Pronex (Empi).

Static Progressive Stretch Devices

Static progressive stretch devices provide a low- to moderate-intensity force to hold a joint at its end range and gradually increase the stretch. In contrast to the long periods of low-intensity stretch provided by dynamic splinting devices, patient-controlled serial stretch and static progressive stretch devices are designed to be used for 15 to 30 minutes, in up to 8 sessions per day. Static progressive stretch devices are available for the knee, shoulder, ankle, wrist, and for pronation and supination. Patients are typically instructed to use them for 30 minutes, 3 times a day. During each session, patients adjust their device by turning a ratchet or turnbuckle to the maximum tolerated position of end-range stretch. Each position is held for several minutes to allow for tissue relaxation to occur, and the device is then advanced to a new position of stretch. It is proposed that the systems unload the joint to reduce joint surface pressures during the stretch. Devices that provide static progressive stretch include JAS (Joint Active Systems), Static-Pro (DeRoyal), Stat-A-Dyne (Ortho-Innovations), AliMed Turnbuckle Orthosis (AliMed), and Mayo Aircast (DJO).

Serial Stretch Devices

Serial stretch devices (e.g., ERMI) use hydraulics to alternate between periods of higher intensity stretch and relaxation.

Examples include End Range of Motion Improvement ERMI Knee Extensionator, ERMI Knee/Ankle Flexionator, ERMI Shoulder Flexionator, ERMI MPJ Extensionator, and ERMI Elbow Extensionator.

FDA or Other Governmental Regulatory Approval

U.S. Food and Drug Administration (FDA)

The U.S. Food and Drug Administration (FDA) has determined that devices classified as “Exerciser, Non-Measuring” are considered Class I devices and exempt from 510(k) requirements. This classification does not require submission of clinical data on efficacy, only notification to the FDA prior to marketing. FDA product code: ION

©2021 Blue Cross and Blue Shield of Louisiana

Blue Cross and Blue Shield of Louisiana is an independent licensee of the Blue Cross and Blue Shield Association and incorporated as Louisiana Health Service & Indemnity Company.

No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, or otherwise, without permission from Blue Cross and Blue Shield of Louisiana.



Louisiana

Mechanical Stretch Devices for Joint Stiffness and Contractures

Policy # 00193

Original Effective Date: 02/23/2006

Current Effective Date: 08/01/2021

Rationale/Source

Low-load Prolonged-duration Stretch (LLPS) (Dynamic Splinting) Devices

Evidence from five randomized controlled trials (RCTs) and two uncontrolled studies suggests that low-load prolonged-duration stretch (LLPS) for finger contractures following surgical extensor injury repair may increase range of motion (ROM) faster than static splinting. However, the treatment benefit is small and the final outcome is similar to that achieved with static splinting. Furthermore, LLPS did not significantly improve hand function and grip strength, indicating that the small short-term gains in ROM may not be clinically meaningful and that LLPS may not improve final outcomes. There was a paucity of studies investigating mechanical stretching devices for other applications, including contracture of the fingers following flexor injury or trauma, the hand, wrist, elbow, shoulder, and the knee. Because there were only one or two studies available for each device type, a systematic analysis of the evidence was not possible. No safety issues associated with mechanical stretching devices were identified in the reviewed studies.

Although there is inadequate data in the published peer reviewed literature to validate the effectiveness of dynamic splinting in improving joint range of motion, this technology is widely used in the Orthopedic and Physical Therapy communities for selected patient populations. On the basis of national community standards, dynamic splinting may be considered eligible for coverage with criteria in the clinical settings outlined under the coverage section of this document.

Patient-controlled End Range of Motion Stretching Devices

Patient-controlled stretching devices are used at home to increase range of motion in patients who have impaired functional status due to decreased range of motion. We address 2 types of commercially available devices. Static progressive stretch devices (eg, Joint Active Systems, Static-Pro) provide low- to moderate-intensity stretching with a crank or ratchet that progressively increases the stretch within each session, and serial stretch devices (eg, End Range of Motion Improvement ERMI) use hydraulics to alternate between periods of higher intensity stretch and relaxation.

For individuals who have functional limitations in range of motion who receive static progressive stretch devices and physical therapy, the evidence includes randomized controlled trials (RCTs), a systematic review, and case series. Relevant outcomes include symptoms, change in disease status, functional outcomes, and quality of life. Three RCTs have evaluated static progressive stretch

©2021 Blue Cross and Blue Shield of Louisiana

Blue Cross and Blue Shield of Louisiana is an independent licensee of the Blue Cross and Blue Shield Association and incorporated as Louisiana Health Service & Indemnity Company.

No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, or otherwise, without permission from Blue Cross and Blue Shield of Louisiana.



Louisiana

Mechanical Stretch Devices for Joint Stiffness and Contractures

Policy # 00193

Original Effective Date: 02/23/2006

Current Effective Date: 08/01/2021

devices but comparators in each differed (physical therapy, a dynamic splint, and a serial stretch device). 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. One RCT found greater improvements in range of motion and Western Ontario and McMaster University Osteoarthritis Index scores with serial stretch devices for the knee compared with static progressive stretch devices. Another RCT evaluating static progressive stretch for shoulder adhesive capsulitis found significant differences in shoulder range of motion compared with physical therapy alone at the end of 4 weeks of treatment, with no difference in pain and function. A third RCT found comparable improvements in most outcomes for the static progressive stretch device compared with dynamic splinting, and a systematic review of case reports and series found similar clinical efficacy for increasing elbow range of motion between static progressive stretch devices and dynamic splints. 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 is higher with static progressive stretch devices. The evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

For individuals who have functional limitations in range of motion who receive serial stretch devices and physical therapy, the evidence includes a RCT and observational studies. Relevant outcomes include symptoms, change in disease status, functional outcomes, and quality of life. The best evidence consists of serial stretching with End Range of Motion Improvement (ERMI) devices used to treat knee range of motion. One small RCT and a larger retrospective comparative study have reported that high-intensity stretching with ERMI devices improved range of motion more than lower intensity stretching devices in patients who were post-injury or surgery. Other available data consist of retrospective case series that have demonstrated improved range of motion in patients whose range had plateaued with physical therapy. The clinical significance of gains in this surrogate outcome measure is unclear. 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.

Supplemental Information

The purpose of the following information is to provide reference material. Inclusion does not imply endorsement or alignment with the evidence review conclusions.

©2021 Blue Cross and Blue Shield of Louisiana

Blue Cross and Blue Shield of Louisiana is an independent licensee of the Blue Cross and Blue Shield Association and incorporated as Louisiana Health Service & Indemnity Company.

No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, or otherwise, without permission from Blue Cross and Blue Shield of Louisiana.



Louisiana

Mechanical Stretch Devices for Joint Stiffness and Contractures

Policy # 00193

Original Effective Date: 02/23/2006

Current Effective Date: 08/01/2021

Practice Guidelines and Position Statements

Guidelines or position statements will be considered for inclusion in ‘Supplemental Information’ if they were issued by, or jointly by, a US professional society, an international society with US representation, or National Institute for Health and Care Excellence (NICE). Priority will be given to guidelines that are informed by a systematic review, include strength of evidence ratings, and include a description of management of conflict of interest.

No guidelines or statements were identified.

U.S. Preventive Services Task Force Recommendations

Not applicable.

Medicare National Coverage

There is no national coverage determination. In the absence of a national coverage determination, coverage decisions are left to the discretion of local Medicare carriers.

Ongoing and Unpublished Clinical Trials

A search of [ClinicalTrials.gov](https://clinicaltrials.gov) in January 2021 did not identify any ongoing or unpublished trials that would likely influence this review.

References

1. Blue Cross and Blue Shield Association, Medical Policy Reference Manual, “Patient-Controlled End Range of Motion Stretching Devices”, 1.03.05, April 2021.
2. 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.* May 2010; 26(5): 1109-18. PMID 20225995
3. Jacobs CA, Sciascia AD. Factors that influence the efficacy of stretching programs for patients with hypomobility. *Sports Health.* Nov 2011; 3(6): 520-3. PMID 23016052
4. Rowe PJ, Myles CM, Walker C, et al. Knee joint kinematics in gait and other functional activities measured using flexible electrogoniometry: how much knee motion is sufficient for normal daily life?. *Gait Posture.* Oct 2000; 12(2): 143-55. PMID 10998612
5. Shelbourne KD, Gray T. Minimum 10-year results after anterior cruciate ligament reconstruction: how the loss of normal knee motion compounds other factors related to the

©2021 Blue Cross and Blue Shield of Louisiana

Blue Cross and Blue Shield of Louisiana is an independent licensee of the Blue Cross and Blue Shield Association and incorporated as Louisiana Health Service & Indemnity Company.

No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, or otherwise, without permission from Blue Cross and Blue Shield of Louisiana.



Louisiana

Mechanical Stretch Devices for Joint Stiffness and Contractures

Policy # 00193

Original Effective Date: 02/23/2006

Current Effective Date: 08/01/2021

- development of osteoarthritis after surgery. *Am J Sports Med.* Mar 2009; 37(3): 471-80. PMID 19059893
6. International Knee Documentation Committee (IKDC). IKDC: Knee Form. 2000; https://www.sportsmed.org/aossmimis/Staging/Research/IKDC_Forms.aspx.
 7. Sodhi N, Yao B, Anis HK, et al. Patient satisfaction and outcomes of static progressive stretch bracing: a 10-year prospective analysis. *Ann Transl Med.* Feb 2019; 7(4): 67. PMID 30963062
 8. Papotto BA, Mills T. Treatment of severe flexion deficits following total knee arthroplasty: a randomized clinical trial. *Orthop Nurs.* Jan-Feb 2012; 31(1): 29-34. PMID 22278649
 9. Ibrahim MI, Johnson AJ, Pivec R, 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. PMID 23662659
 10. Ibrahim M, Donatelli R, Hellman M, et al. Efficacy of a static progressive stretch device as an adjunct to physical therapy in treating adhesive capsulitis of the shoulder: a prospective, randomised study. *Physiotherapy.* Sep 2014; 100(3): 228-34. PMID 24211154
 11. Hussein AZ, Ibrahim MI, Hellman MA, et al. Static progressive stretch is effective in treating shoulder adhesive capsulitis: Prospective, randomized, controlled study with a two-year follow-up. *Eur J Physiother.* Jun 24 2015;17(3):138-147.
 12. Lindenhovius AL, Doornberg JN, Brouwer KM, et al. A prospective randomized controlled trial of dynamic versus static progressive elbow splinting for posttraumatic elbow stiffness. *J Bone Joint Surg Am.* Apr 18 2012; 94(8): 694-700. PMID 22517385
 13. Bonutti PM, McGrath MS, Ulrich SD, et al. Static progressive stretch for the treatment of knee stiffness. *Knee.* Aug 2008; 15(4): 272-6. PMID 18538574
 14. Ulrich SD, Bonutti PM, Seyler TM, et al. Restoring range of motion via stress relaxation and static progressive stretch in posttraumatic elbow contractures. *J Shoulder Elbow Surg.* Mar 2010; 19(2): 196-201. PMID 19959379
 15. Muller AM, Sadoghi P, Lucas R, 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.* Aug 2013; 22(8): 1146-52. PMID 23796383
 16. McGrath MS, Ulrich SD, Bonutti PM, et al. Static progressive splinting for restoration of rotational motion of the forearm. *J Hand Ther.* Jan-Mar 2009; 22(1): 3-8; quiz 9,. PMID 18950990
 17. McGrath MS, Ulrich SD, Bonutti PM, et al. Evaluation of static progressive stretch for the treatment of wrist stiffness. *J Hand Surg Am.* Nov 2008; 33(9): 1498-504. PMID 18984330

©2021 Blue Cross and Blue Shield of Louisiana

Blue Cross and Blue Shield of Louisiana is an independent licensee of the Blue Cross and Blue Shield Association and incorporated as Louisiana Health Service & Indemnity Company.

No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, or otherwise, without permission from Blue Cross and Blue Shield of Louisiana.



Louisiana

Mechanical Stretch Devices for Joint Stiffness and Contractures

Policy # 00193

Original Effective Date: 02/23/2006

Current Effective Date: 08/01/2021

18. Lucado AM, Li Z, Russell GB, et al. Changes in impairment and function after static progressive splinting for stiffness after distal radius fracture. *J Hand Ther.* Oct-Dec 2008; 21(4): 319-25. PMID 19006757
19. Branch TP, Karsch RE, Mills TJ, et al. Mechanical therapy for loss of knee flexion. *Am J Orthop (Belle Mead NJ).* Apr 2003; 32(4): 195-200. PMID 12723771
20. Dempsey AL, Mills T, Karsch RM, et al. Maximizing total end range time is safe and effective for the conservative treatment of frozen shoulder patients. *Am J Phys Med Rehabil.* Sep 2011; 90(9): 738-45. PMID 21430510
21. Anneluuk Lindenhovius, M.D., PhD, Job Doornberg M.D., PhD et. al A Prospective Randomized Controlled Trial of Dynamic Versus Static Progressive Elbow Splinting for Post-Traumatic Elbow Stiffness. *J Bone Joint Surg Am: April 2012; Vol 94-A (8) 694-700.*
22. Branch TP, Karsch RE, Mills TJ, Palmer MT. Mechanical therapy for loss of knee flexion. *Am J Orthop.* 2003;32(4):195-200.
23. Glasgow C, Fleming J, Tooth LR, & Hockey RL. The long-term relationship between duration of treatment and contracture resolution using dynamic orthotic devices for the stiff proximal interphalangeal joint: A prospective cohort study. *J Hand Ther.* 2012 Jan;25(1):38-47.
24. Glasgow C, Tooth LR, Fleming J, & Peters S. Dynamic splinting for the stiff hand after trauma: Predictors of contracture resolution. *J Hand Ther.* 2011 Jul-Sep;24(3):195-205.
25. Glasgow C, Tooth LR, Fleming J, Peters S. Dynamic splinting for the stiff hand after trauma: predictors of contracture resolution. *J Hand Ther.* 2011 Jul-Sep;24(3):195-205.
26. Harvey L, Herbert R, Crosbie J. Does stretching induce lasting increases in joint ROM? A systematic review. *Physiother Res Int.* 2002;7(1):1-13.
27. John MM, Kalish S, Perns SV, Willis FB. Dynamic splinting for postoperative hallux limitus: a randomized, controlled trial. *J Am Podiatr Med Assoc.* 2011 Jul-Aug;101(4):285-8.
28. Mahmoud I Ibrahim, Aaron J. Johnson et. al Treatment of Adhesive Capsulitis of the Shoulder with a Static Progressive Stretch Device: A Prospective Randmized Study. *JLTMI; April 2013; Vol2294) 281-291.*
29. McClure PW, Blackburn LG, Dusold C. The use of splints in the treatment of joint stiffness: Biologic rationale and an algorithm for making clinical decisions. *Phys Ther.* 1994; 74(12):1201-1107.

Policy History

Original Effective Date: 02/23/2006

©2021 Blue Cross and Blue Shield of Louisiana

Blue Cross and Blue Shield of Louisiana is an independent licensee of the Blue Cross and Blue Shield Association and incorporated as Louisiana Health Service & Indemnity Company.

No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, or otherwise, without permission from Blue Cross and Blue Shield of Louisiana.



Louisiana

Mechanical Stretch Devices for Joint Stiffness and Contractures

Policy # 00193

Original Effective Date: 02/23/2006

Current Effective Date: 08/01/2021

Current Effective Date: 08/01/2021

01/04/2006	Medical Director review
01/17/2006	Medical Policy Committee
02/23/2006	Quality Care Advisory Council approval
05/02/2007	Medical Director review
05/23/2007	Medical Policy Committee approval. Coverage eligibility unchanged.
11/05/2008	Medical Director review
11/18/2008	Medical Policy Committee approval. Changed title of policy to “Dynamic Range of Motion Devices”. Removed 1st investigational statement, “The use of dynamic range of motion when the above patient selection criteria are not met is considered investigational.*”. Rationale updated.
10/01/2009	Medical Policy Committee review
10/14/2009	Medical Policy Implementation Committee approval. No change to coverage.
10/14/2010	Medical Policy Committee review
10/20/2010	Medical Policy Implementation Committee approval. Coverage eligibility unchanged.
10/06/2011	Medical Policy Committee review
10/19/2011	Medical Policy Implementation Committee approval. Coverage eligibility unchanged.
02/02/2012	Medical Policy Committee review
02/15/2012	Medical Policy Implementation Committee approval. Coverage for static progressive stretch devices and low-load prolonged-duration stretch (LLPS) added. Title changed from Dynamic Range of Motion to Mechanical Stretch Devices for Joint Stiffness and Contractures.
03/07/2013	Medical Policy Committee review
03/20/2013	Medical Policy Implementation Committee approval. Coverage eligibility unchanged.
03/06/2014	Medical Policy Committee review
03/19/2014	Medical Policy Implementation Committee approval. Coverage eligibility unchanged.
06/25/2015	Medical Policy Committee review
07/15/2015	Medical Policy Implementation Committee approval. Coverage eligibility unchanged.
06/30/2016	Medical Policy Committee review

©2021 Blue Cross and Blue Shield of Louisiana

Blue Cross and Blue Shield of Louisiana is an independent licensee of the Blue Cross and Blue Shield Association and incorporated as Louisiana Health Service & Indemnity Company.

No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, or otherwise, without permission from Blue Cross and Blue Shield of Louisiana.



Louisiana

Mechanical Stretch Devices for Joint Stiffness and Contractures

Policy # 00193

Original Effective Date: 02/23/2006

Current Effective Date: 08/01/2021

07/20/2016 Medical Policy Implementation Committee approval. Coverage eligibility unchanged.

01/01/2017 Coding update: Removing ICD-9 Diagnosis codes

07/06/2017 Medical Policy Committee review

07/19/2017 Medical Policy Implementation Committee approval. Added “the treatment of joint stiffness” and “the joint does not have chronic or fixed contractures and” to coverage statement and deleted the last criteria bullet “the joint does not have chronic or fixed contractures”.

07/05/2018 Medical Policy Committee review

07/11/2018 Medical Policy Implementation Committee approval. Coverage eligibility unchanged.

07/03/2019 Medical Policy Committee review

07/18/2019 Medical Policy Implementation Committee approval. Coverage eligibility unchanged.

07/02/2020 Medical Policy Committee review

07/08/2020 Medical Policy Implementation Committee approval. Added “physical” to the third criteria bullet before “inability to exercise” for clarification. Coverage eligibility unchanged.

05/06/2021 Medical Policy Committee review

05/12/2021 Medical Policy Implementation Committee approval. Coverage section completely revised and primarily tracks BCBSA of Kansas City with additional revisions.

Next Scheduled Review Date: 05/2022

Coding

The five character codes included in the Blue Cross Blue Shield of Louisiana Medical Policy Coverage Guidelines are obtained from Current Procedural Terminology (CPT®)‡, copyright 2020 by the American Medical Association (AMA). CPT is developed by the AMA as a listing of descriptive terms and five character identifying codes and modifiers for reporting medical services and procedures performed by physician.

The responsibility for the content of Blue Cross Blue Shield of Louisiana Medical Policy Coverage Guidelines is with Blue Cross and Blue Shield of Louisiana and no endorsement by the AMA is intended or should be implied. The AMA disclaims responsibility for any consequences or liability

©2021 Blue Cross and Blue Shield of Louisiana

Blue Cross and Blue Shield of Louisiana is an independent licensee of the Blue Cross and Blue Shield Association and incorporated as Louisiana Health Service & Indemnity Company.

No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, or otherwise, without permission from Blue Cross and Blue Shield of Louisiana.



Louisiana

Mechanical Stretch Devices for Joint Stiffness and Contractures

Policy # 00193

Original Effective Date: 02/23/2006

Current Effective Date: 08/01/2021

attributable or related to any use, nonuse or interpretation of information contained in Blue Cross Blue Shield of Louisiana Medical Policy Coverage Guidelines. Fee schedules, relative value units, conversion factors and/or related components are not assigned by the AMA, are not part of CPT, and the AMA is not recommending their use. The AMA does not directly or indirectly practice medicine or dispense medical services. The AMA assumes no liability for data contained or not contained herein. Any use of CPT outside of Blue Cross Blue Shield of Louisiana Medical Policy Coverage Guidelines should refer to the most current Current Procedural Terminology which contains the complete and most current listing of CPT codes and descriptive terms. Applicable FARS/DFARS apply.

CPT is a registered trademark of the American Medical Association.

Codes used to identify services associated with this policy may include (but may not be limited to) the following:

Code Type	Code
CPT	No codes
HCPCS	E1800, E1801, E1802, E1805, E1806, E1810, E1811, E1812, E1815, E1816, E1818, E1820, E1821, E1825, E1830, E1831, E1840, E1841
ICD-10 Diagnosis	All related diagnoses

*Investigational – A medical treatment, procedure, drug, device, or biological product is Investigational if the effectiveness has not been clearly tested and it has not been incorporated into standard medical practice. Any determination we make that a medical treatment, procedure, drug, device, or biological product is Investigational will be based on a consideration of the following:

- A. Whether the medical treatment, procedure, drug, device, or biological product can be lawfully marketed without approval of the U.S. Food and Drug Administration (FDA) and whether such approval has been granted at the time the medical treatment, procedure, drug, device, or biological product is sought to be furnished; or
- B. Whether the medical treatment, procedure, drug, device, or biological product requires further studies or clinical trials to determine its maximum tolerated dose, toxicity, safety, effectiveness, or effectiveness as compared with the standard means of treatment or diagnosis, must improve health outcomes, according to the consensus of opinion among experts as shown by reliable evidence, including:

©2021 Blue Cross and Blue Shield of Louisiana

Blue Cross and Blue Shield of Louisiana is an independent licensee of the Blue Cross and Blue Shield Association and incorporated as Louisiana Health Service & Indemnity Company.

No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, or otherwise, without permission from Blue Cross and Blue Shield of Louisiana.



Mechanical Stretch Devices for Joint Stiffness and Contractures

Policy # 00193

Original Effective Date: 02/23/2006

Current Effective Date: 08/01/2021

1. Consultation with the Blue Cross and Blue Shield Association technology assessment program (TEC) or other nonaffiliated technology evaluation center(s);
2. Credible scientific evidence published in peer-reviewed medical literature generally recognized by the relevant medical community; or
3. Reference to federal regulations.

****Medically Necessary (or “Medical Necessity”)** - Health care services, treatment, procedures, equipment, drugs, devices, items or supplies that a Provider, exercising prudent clinical judgment, would provide to a patient for the purpose of preventing, evaluating, diagnosing or treating an illness, injury, disease or its symptoms, and that are:

- A. In accordance with nationally accepted standards of medical practice;
- B. Clinically appropriate, in terms of type, frequency, extent, level of care, site and duration, and considered effective for the patient's illness, injury or disease; and
- C. Not primarily for the personal comfort or convenience of the patient, physician or other health care provider, and not more costly than an alternative service or sequence of services at least as likely to produce equivalent therapeutic or diagnostic results as to the diagnosis or treatment of that patient's illness, injury or disease.

For these purposes, “nationally accepted standards of medical practice” means standards that are based on credible scientific evidence published in peer-reviewed medical literature generally recognized by the relevant medical community, Physician Specialty Society recommendations and the views of Physicians practicing in relevant clinical areas and any other relevant factors.

‡ Indicated trademarks are the registered trademarks of their respective owners.

NOTICE: If the Patient’s health insurance contract contains language that differs from the BCBSLA Medical Policy definition noted above, the definition in the health insurance contract will be relied upon for specific coverage determinations.

NOTICE: Medical Policies are scientific based opinions, provided solely for coverage and informational purposes. Medical Policies should not be construed to suggest that the Company recommends, advocates, requires, encourages, or discourages any particular treatment, procedure, or service, or any particular course of treatment, procedure, or service.

©2021 Blue Cross and Blue Shield of Louisiana

Blue Cross and Blue Shield of Louisiana is an independent licensee of the Blue Cross and Blue Shield Association and incorporated as Louisiana Health Service & Indemnity Company.

No part of this publication may be reproduced, stored in a retrieval system, or transmitted, in any form or by any means, electronic, mechanical, photocopying, or otherwise, without permission from Blue Cross and Blue Shield of Louisiana.