Clinical Policy: Mechanical Stretching Devices for Joint Stiffness and Contracture

Reference Number: CP.MP.144 [Coding Implications](#Coding_Implications)

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[Revision Log](#Revision_Log)

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## Description

Mechanical stretching devices are used for the prevention and treatment of joint contractures of the extremities, with the goal to maintain or restore range of motion (ROM) to the joint. A variety of mechanical stretching devices are available for extension or flexion of the shoulder, elbow, wrist, fingers, knee, ankle, and toes. These devices are generally used as adjunct treatment to physical therapy and/or exercise.

## Policy/Criteria

1. It is the policy of health plans affiliated with Centene Corporation® that the low-load prolonged-duration stretch (LLPS) device /dynamic stretch device is **medically necessary** for rehabilitation following extensor tendon injuries of the finger.
2. It is the policy of health plans affiliated with Centene Corporation that the static progressive stretch (SPS) device is considered **not medically necessary** for the shoulder, wrist, knee, ankle, or toe joints.
3. It is the policy of health plans affiliated with Centene Corporation that LLPS is considered **not medically necessary** for the shoulder, ankle, or toe joints.
4. Patient-actuated serial stretch (PASS) devices are considered **not medically necessary** for any indications.

## Background

A joint contracture is characterized by chronically reduced ROM secondary to structural changes in non-bony tissues, including muscle, tendons, ligaments, and skin. Prolonged immobilization of joints following surgery or trauma is the most common cause of joint contractures. A number of different modalities are used to treat or prevent joint contractures.

Mechanical stretching devices have been investigated for the treatment of joint contractures. The use of these devices is based on the theory that passive motion early in the healing process can promote movement of the synovial fluid, and thus promote lubrication of the joint; stimulate the healing of articular tissues; prevent adhesions and joint stiffness; and reduce edema without interfering with the healing of incisions or wounds over the moving joint.

Several types of devices exist, including low-load prolonged duration stretch devices (LLPS) (also referred to as dynamic splinting), static progressive stretch devices (SPS), and patient-actuated serial stretch (PASS) (also known as patient-directed serial stretch) 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.
* SPS devices hold the joint in a set position but allow for manual modification of the joint angle and may allow for active motion without resistance (inelastic traction). This type of device itself does not exert a stress on the tissue unless the joint angle is set at the maximum ROM.
* PASS devices permit resisted active and passive motion within a limited range utilizing pneumatic or hydraulic systems that can be adjusted by the patient. The extensionaters use pneumatic systems while the flexionaters use hydraulic systems. These devices require custom fitting.

Mechanical stretching devices are commonly used in the post-operative period, following an injury or when addressing joint stiffness in the knee, ankle, toe, shoulder, elbow, wrist, or finger. Peer reviewed studies investigating mechanical stretching devices are limited. The best evidence is available in studies evaluating LLPS when used at the knee, elbow, wrist, and following extensor tendon injuries of the finger and for SPS when used at the elbow.

Several authors have looked at the implementation of dynamic splinting at the finger following an extensor tendor repair. Results from a small, prospective, randomized trial comparing dynamic splinting to static splinting suggest that dynamic splinting of complex lacerations of the extensor tendons in zones V-VII provides improved functional outcomes at 4 and 12 weeks and 6 months when compared with static splinting.1 Another small, prospective, randomized, controlled study comparing postoperative dynamic- versus static- splinting outcomes of patients following extensor tendon repair reported dynamic splinting of simple, complete lacerations of the extensor tendons in zones V and VI. Dynamic splinting provided improved functional outcomes at 4, 6, and 8 weeks but not by 6 months when compared with static splinting.2

Dynamic splinting and static progressive stretch devices have both been applied at the elbow in isolation and in comparison to one another. Gallucci and colleagues (2004) looked at a sample of 30 patients who were at least 78 days after surgery or trauma who had a functional arc of movement of less than 100 degrees at the elbow. They found that 2/3 of patients were able to achieve at least a 100 degree arc and therefore, improved function after using a dynamic splint for 75 days.3 In a randomized controlled pilot study of 30 patients, Lai and colleagues (2009) found significant improvements in ROM when dynamic splinting was added to the control treatment of botulinum toxin type-A and occupational therapy treatment.4 Bhat and colleagues (2010) and Gelinas and colleagues (2000) found similar benefit to SPS at the elbow.5,6 In both cases, SPS was introduced to the patient approximately 4.5 to 5 months after injury or surgery and once improvements from therapy were stagnant. A functional ROM or arc of movement was achieved in 19 out of 30 patients and 11 out of 22 patients respectively.5,6 Doomberg and colleagues (2006) also demonstrated improvements with ROM overall after SPS intervention but noted that early splinting after the initial injury rather than after elbow encapselectomy yielded greater results.7 Lindenhovius and colleagues (2012) performed a prospective randomized controlled trial looking at the benefit of dynamic splinting versus SPS in improving range of motion and function as measured by the Disabilities of the Arm, Shoulder, and Hand (DASH).8 No significant difference was found between the two groups prior to treatment or after 3, 6 or 12 month follow-ups. Veltman and colleagues (2015) completed a systematic review on the topic that included the results form 232 patients with a similar outcome showing that each device was beneficial but that one was not more effective than the other.9

At the knee and wrist, dynamic splinting has been identified as beneficial when further progression of range of motion is needed after surgery or an injury. Pace and colleagues (2018) performed a Level IV retrospective study, looking at the implementation of dynamic splinting following knee surgery in 74 adolescents and children who had ROM deficits in flexion, extension, or both directions.10 84% of the patients experienced a significant increase in ROM and 58% were able to avoid further surgical intervention. Willis and colleagues (2016) looked at the treatment of carpal tunnel syndrome using dynamic splinting at the wrist.11 They performed a randomized control trial where the experimental group was provided with dynamic splinting in addition to anti-inflammatories and a stretching program. Those patients who received dynamic splinting in addition to the other treatments had a significant decline in the need for surgical intervention after conservative management was complete. Similarly, Glasgow and colleagues (2011) and Shah and colleagues (2002) looked at the effect of dynamic splinting at the hand and forearm respectively and demonstrated improvements in range of motion after injury in both areas.12.13

Although limited, high-level evidence still exists to address the efficacy of LLPS and SPS interventions, a current review of the literature supports the medical necessity of the current clinical policy. A variety of randomized control trials, observational studies, case series, and medical community acceptance confirms the benefits of dynamic LLPS devices at the knee, elbow, wrist, and fingers and SPS devices at the elbow when used to relieve persistent joint stiffness that can occur after injury or surgery.

While additional evidence is emerging, there is insufficient evidence in the published peer-reviewed literature to support the use of dynamic LLPS at other joints to include the foot, ankle, and shoulder or SPS devices at any joint other than the elbow. There is insufficient evidence in the published medical literature to demonstrate the safety, efficacy, and long-term outcomes on the use of patient-actuated serial stretch (PASS) devices.

**Coding Implications**

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**HCPCS Codes considered medically necessary when meeting policy criteria**

| **HCPCS Codes** | **Description** |
| --- | --- |
| E1825 | Dynamic adjustable finger extension/flexion device, includes soft interface material |

**ICD-10-CM Diagnosis Codes that Support Coverage Criteria**

| **ICD-10-CM Code** | **Description** |
| --- | --- |
| M24.541 – M24.549 | Contracture, hand |
| M25.641 - M25.649 | Stiffness of hand, not elsewhere classified |
| M84.441S | Pathological fracture, right hand, sequela |
| M84.442S | Pathological fracture, left hand, sequela |
| M84.443S | Pathological fracture, unspecified hand, sequela |
| M84.444S | Pathological fracture, right finger(s), sequela |
| M84.445S | Pathological fracture, left finger(s), sequela |
| M84.446S | Pathological fracture, unspecified finger(s), sequela |
| S61.001A - S61.459S | Open wound of fingers and hands |
| S62.201A - S62.92XS | Fracture of hand |
| S63.101A - S63.106S | Unspecified subluxation and dislocation of thumb |
| S63.111A - S63.116S | Subluxation and dislocation of metacarpophalangeal joint of thumb |
| S63.121A - S63.126S | Subluxation and dislocation of unspecified interphalangeal joint of thumb |
| S63.200A - S63.209S | Unspecified subluxation of other finger |
| S63.210A - S63.219S | Subluxation of metacarpophalangeal joint of finger |
| S63.220A - S63.229S | Subluxation of unspecified interphalangeal joint of finger |
| S63.230A - S63.239S | Subluxation of proximal interphalangeal joint of finger |
| S63.240A - S63.249S | Subluxation of distal interphalangeal joint of finger |
| S63.250A - S63.259S | Unspecified dislocation of other finger |
| S63.260A - S63.269S | Dislocation of metacarpophalangeal joint of finger |
| S63.270A - S63.279S | Dislocation of unspecified interphalangeal joint of finger |
| S63.280A - S63.289S | Dislocation of proximal interphalangeal joint of finger |
| S63.290A - S63.299S | Dislocation of distal interphalangeal joint of finger |
| S66.001A - S66.009S | Unspecified injury of long flexor muscle, fascia and tendon of thumb at wrist and hand level |
| S66.011A - S66.019S | Strain of long flexor muscle, fascia, and tendon of thumb at wrist and hand level |
| S66.021A - S66.029S | Laceration of long flexor muscle, fascia, and tendon of thumb at wrist and hand level |
| S66.091A - S66.099S | Other specified injury of long flexor muscle, fascia, and tendon of thumb at wrist and hand level |
| S66.100A - S66.109S | Unspecified injury of flexor muscle, fascia and tendon of right index finger at wrist and hand level |
| S66.110A - S66.119S | Strain of flexor muscle, fascia, and tendon of other and unspecified finger at wrist and hand level |
| S66.120A - S66.129S | Laceration of flexor muscle, fascia, and tendon of other and unspecified finger at wrist and hand level |
| S66.190A – S66.199S | Other injury of flexor muscle, fascia, and tendon of other and unspecified finger at wrist and hand level |
| S66.201A - S66.209S | Unspecified injury of extensor muscle, fascia and tendon of thumb at wrist and hand level |
| S66.211A - S66.219S | Strain of extensor muscle, fascia and tendon of thumb at wrist and hand level |
| S66.221A -S66.229S | Laceration of extensor muscle, fascia and tendon of thumb at wrist and hand level |
| S66.291A - S66.299S | Other specified injury of extensor muscle, fascia and tendon of thumb at wrist and hand level |
| S66.300A - S66.309S | Unspecified injury of extensor muscle, fascia and tendon of other and unspecified finger at wrist and hand level |
| S66.310A - S66.319S | Strain of extensor muscle, fascia and tendon of other and unspecified finger at wrist and hand level |
| S66.320A - S66.329S | Laceration of extensor muscle, fascia and tendon of other and unspecified finger at wrist and hand level |
| S66.390A - S66.399S | Other injury of extensor muscle, fascia and tendon of other and unspecified finger at wrist and hand level |
| S66.401A - S66.499S | Injury of intrinsic muscle, fascia and tendon of thumb at wrist and hand level |
| S66.500A - S66.599S | Injury of intrinsic muscle, fascia and tendon of other and unspecified finger at wrist and hand level |
| S67.00XA - S67.92XS | Crushing injury of wrist, hand and fingers |

**HCPCS Codes considered NOT medically necessary per this policy**

| **HCPCS Codes** | **Description** |
| --- | --- |
| E1399 | Durable medical equipment, miscellaneous |
| E1806 | Static progressive stretch wrist device, flexion and/or extension, with or without range of motion adjustment, includes all components and accessories |
| E1811 | Static progressive stretch knee device, extension and/or flexion, with or without range of motion adjustment, includes all components and accessories |
| E1815 | Dynamic adjustable ankle extension/flexion device, includes soft interface material |
| E1816 | Static progressive stretch ankle device, flexion and/or extension, with or without range of motion adjustment, includes all components and accessories |
| E1818 | Static progressive stretch forearm pronation/supination device, with or without range of motion adjustment, includes all components and accessories |
| E1830 | Dynamic adjustable toe extension/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 |
| E1840 | Dynamic adjustable shoulder flexion/abduction/rotation device, includes soft interface material |
| E1841 | Static progressive stretch shoulder device, with or without range of motion adjustment, includes all components and accessories |

| **Reviews, Revisions, and Approvals** | **Date** | **Approval Date** |
| --- | --- | --- |
| Policy developed | 04/17 | 04/17 |
| References reviewed and updated. Codes updated. | 03/18 | 03/18 |
| Removed the following codes from being not medically necessary: E1800, E1801, E1802, E1805, E1810, E1812. Clarified in policy/criteria the joints for which devices are not medically necessary. | 03/19 | 04/19 |
| Added code E1399 as not medically necessary | 06/19 |  |

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**Important Reminder**

This clinical policy has been developed by appropriately experienced and licensed health care professionals based on a review and consideration of currently available generally accepted standards of medical practice; peer-reviewed medical literature; government agency/program approval status; evidence-based guidelines and positions of leading national health professional organizations; views of physicians practicing in relevant clinical areas affected by this clinical policy; and other available clinical information. The Health Plan makes no representations and accepts no liability with respect to the content of any external information used or relied upon in developing this clinical policy. This clinical policy is consistent with standards of medical practice current at the time that this clinical policy was approved. “Health Plan” means a health plan that has adopted this clinical policy and that is operated or administered, in whole or in part, by Centene Management Company, LLC, or any of such health plan’s affiliates, as applicable.

The purpose of this clinical policy is to provide a guide to medical necessity, which is a component of the guidelines used to assist in making coverage decisions and administering benefits. It does not constitute a contract or guarantee regarding payment or results. Coverage decisions and the administration of benefits are subject to all terms, conditions, exclusions and limitations of the coverage documents (e.g., evidence of coverage, certificate of coverage, policy, contract of insurance, etc.), as well as to state and federal requirements and applicable Health Plan-level administrative policies and procedures.

This clinical policy is effective as of the date determined by the Health Plan. The date of posting may not be the effective date of this clinical policy. This clinical policy may be subject to applicable legal and regulatory requirements relating to provider notification. If there is a discrepancy between the effective date of this clinical policy and any applicable legal or regulatory requirement, the requirements of law and regulation shall govern. The Health Plan retains the right to change, amend or withdraw this clinical policy, and additional clinical policies may be developed and adopted as needed, at any time.

This clinical policy does not constitute medical advice, medical treatment or medical care. It is not intended to dictate to providers how to practice medicine. Providers are expected to exercise professional medical judgment in providing the most appropriate care, and are solely responsible for the medical advice and treatment of members. This clinical policy is not intended to recommend treatment for members. Members should consult with their treating physician in connection with diagnosis and treatment decisions.

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**Note: For Medicaid members**, when state Medicaid coverage provisions conflict with the coverage provisions in this clinical policy, state Medicaid coverage provisions take precedence. Please refer to the state Medicaid manual for any coverage provisions pertaining to this clinical policy.

**Note: For Medicare members,** to ensure consistency with the Medicare National Coverage Determinations (NCD) and Local Coverage Determinations (LCD), all applicable NCDs, LCDs, and Medicare Coverage Articles should be reviewed prior to applying the criteria set forth in this clinical policy. Refer to the CMS website at <http://www.cms.gov> for additional information.

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