Manipulation Under Anesthesia (for Ohio Only)

Policy Number: CS075OH.D
Effective Date: April 1, 2026

➲ Instructions for Use

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Related Policy

- Manipulative Therapy (for Ohio Only)

Application

This Medical Policy only applies to the state of Ohio. Any requests for services that are stated as unproven or services for which there is a coverage or quantity limit will be evaluated for medical necessity using Ohio Administrative Code 5160-1-01.

Coverage Rationale

Manipulation under anesthesia is proven and medically necessary for:

- Knee joint for Arthrofibrosis following total knee arthroplasty, knee surgery, or fracture
- Shoulder joint for adhesive capsulitis (frozen shoulder) when certain criteria are met. For medical necessity clinical coverage criteria, refer to the InterQual® CP: Procedures, Manipulation Under Anesthesia, Shoulder.

  Click here to view the InterQual® criteria.

Manipulation under anesthesia is unproven and not medically necessary for all other conditions (whether for single or serial manipulations), including but not limited to the following, due to insufficient evidence of efficacy:

- Ankle
- Finger
- Hip joint or adhesive capsulitis of the hip
- Knee joint - any condition other than for Arthrofibrosis following total knee arthroplasty, knee surgery, or fracture
- Pelvis
- Spine
- Temporomandibular joint
- Toe
- Wrist

This policy does not apply to the following:

- Manipulation of the finger on the day following the injection of collagenase clostridium histolyticum (Xiaflex®) to treat Dupuytren contracture
- Closed reduction of a fracture or joint dislocation unless specified
- Elbow joint for Arthrofibrosis following elbow surgery or fracture

Definitions

Arthrofibrosis: A complication of injury or trauma in which an excessive scar tissue response leads to painful restriction of joint motion, with scar tissue forming within the joint and surrounding soft tissue spaces and persisting despite rehabilitation exercises and stretches (International Pain Foundation).

Applicable Codes

The following list(s) of procedure and/or diagnosis codes is provided for reference purposes only and may not be all inclusive. Listing of a code in this policy does not imply that the service described by the code is a covered or non-covered health service. Benefit coverage for health services is determined by federal, state, or contractual requirements and applicable laws that may require coverage for a specific service. The inclusion of a code does not imply any right to reimbursement or guarantee claim payment. Other Policies and Guidelines may apply.

CPT Code	Description
21073	Manipulation of temporomandibular joint(s) (TMJ), therapeutic, requiring an anesthesia service (i.e., general or monitored anesthesia care)
22505	Manipulation of spine requiring anesthesia, any region
23700	Manipulation under anesthesia, shoulder joint, including application of fixation apparatus (dislocation excluded)
25259	Manipulation, wrist, under anesthesia
26340	Manipulation, finger joint, under anesthesia, each joint
27198	Closed treatment of posterior pelvic ring fracture(s), dislocation(s), diastasis or subluxation of the ilium, sacroiliac joint, and/or sacrum, with or without anterior pelvic ring fracture(s) and/or dislocation(s) of the pubic symphysis and/or superior/inferior rami, unilateral or bilateral; with manipulation, requiring more than local anesthesia (i.e., general anesthesia, moderate sedation, spinal/epidural)
27275	Manipulation, hip joint, requiring general anesthesia
27570	Manipulation of knee joint under general anesthesia (includes application of traction or other fixation devices)
27860	Manipulation of ankle under general anesthesia (includes application of traction or another fixation apparatus)

HCPCS Code	Description
D7830	Manipulation under anesthesia

Diagnosis Code	Description
Knee	
M24.661	Ankylosis, right knee
M24.662	Ankylosis, left knee
M24.669	Ankylosis, unspecified knee
Shoulder	
M24.611	Ankylosis, right shoulder
M24.612	Ankylosis, left shoulder
M24.619	Ankylosis, unspecified shoulder
M75.00	Adhesive capsulitis of unspecified shoulder
M75.01	Adhesive capsulitis of right shoulder
M75.02	Adhesive capsulitis of left shoulder

Description of Services

Manipulation under anesthesia is a noninvasive procedure that combines manual manipulation of a joint or the spine with an anesthetic. Individuals who are unable to tolerate manual procedures due to pain, spasm, muscle contractures, or guarding may benefit from the use of an anesthetic agent prior to manipulation. Anesthetics may include intravenous general anesthesia or mild sedation, injection of an anesthetic to the affected area, oral medication such as muscle relaxants, inhaled anesthetics, or any other type of anesthetic medication therapy. Because the person's protective reflex mechanism is absent under anesthesia, manipulation using a combination of specific short lever manipulations, passive stretches, and specific articular and postural kinesthetic maneuvers to break up fibrous adhesions and scar tissue around the joint and surrounding tissue is made less difficult. Manipulation procedures can be performed under either general anesthesia, mild sedation, or local injection of an anesthetic agent to the affected area (Reid and Desimone, 2002).

Spinal manipulation under anesthesia consists of spinal manipulation and stretching procedures performed on the individual after an anesthetic is administered (e.g., mild sedation, general anesthesia). This is typically performed by chiropractors, osteopathic physicians, and orthopedic physicians, along with an anesthesiologist. Theoretically, spinal manipulation under anesthesia is thought to stretch the joint capsules to break up adhesions within the spinal column to allow for greater mobility and reduced back pain; however, this has not been proven to be safe or effective in the peer-reviewed literature.

Clinical Evidence

Knee

Patel et al. (2025) conducted a systematic review and meta-analysis to identify risk factors associated with postoperative knee stiffness requiring manipulation under anesthesia (MUA) following primary total knee arthroplasty (TKA). The authors screened six databases from inception to October 1, 2023, reviewing 1,108 abstracts and 390 full-text articles. A total of 53 studies, involving 2,931,517 individuals, met the inclusion criteria. The key findings from the review found five significant risk factors. The risk factors found were younger age (mean difference, -4.23 years; 95% CI, -8.17 to -0.29), Black race [odds ratio (OR), 1.94; 95% CI, 1.56-2.40], smoking (OR, 1.43; 95% CI, 1.02-2.02), preoperative American Society of Anesthesiologists score of ≤ 2 (OR, 0.64; 95% CI, 0.55-0.76), and prior knee procedure (OR, 2.00; 95% CI, 1.49-2.69). No significant associations were found for sex, obesity, or diabetes. The authors concluded that these findings suggest that younger age, Black race, smoking, lower American Society of Anesthesiologists scores, and prior knee surgery are strong predictors of postoperative stiffness requiring MUA. Surgeons should consider these risk factors during preoperative planning to optimize outcomes and individuals' satisfaction. The limitations of the review include the focus solely on MUA after primary TKA (excluding revision cases and alternative treatments), retrospective study designs, potential selection bias, and heterogeneity across the included studies.

Walsh et al. (2024) conducted a single-institution retrospective study examining outcomes in patients who underwent MUA, with or without arthroscopic lysis of adhesions (aLOA), following primary TKA. Of 17,000 TKAs performed, 726 cases involving MUA or aLOA plus MUA were identified. The study assessed demographics, perioperative variables, and postoperative outcomes. Treatment failure was defined as a repeat procedure, revision for arthrofibrosis, or failure to achieve ≥ 50% intraoperative flexion gain. The key findings from the study showed that failure rates were higher in the aLOA plus MUA group (52.3%) than the MUA group (40%) ($p = 0.028$). MUAs were performed earlier post surgery (70.5 vs 207.1 days; $p < 0.001$), had lower all-cause revision rates (6.9% vs 15.9%; $p = 0.003$), and resulted in greater final knee flexion gains (24.6° vs 11.9°). Successful MUAs gained 33° of flexion, while successful aLOA plus MUAs gained 27.6°. In unsuccessful cases, MUAs gained only 6.1°, and aLOA plus MUAs lost 0.2°. Patients with unsuccessful MUAs tended to be less healthy, were more likely to have a history of cancer, and had cruciate-retaining (CR) implants. The authors concluded that both MUA and aLOA plus MUA are effective interventions for post-TKA stiffness, with expected flexion gains of 27° to 33° in successful cases. However, MUAs were associated with more consistent improvements and lower risk. Failures typically presented early and did not recover. Limitations of the study include its retrospective design, lack of matched controls, single-center setting, potential selection bias, and limited follow-up duration.

In a 2024 randomized controlled trial, Abdel et al. sought to investigate the effect of adjuvant anti-inflammatory medications with MUA and physical therapy on range of motion (ROM) and outcomes. In the trial, there were 124 participants from 15 different institutions, all of whom received TKA for osteoarthritis and developed stiffness after the surgery. All participants received MUA when the ROM was < 90° at 4 and 12 weeks post operation. The randomization occurred via permuted block design while controls received MUA and physical therapy, while the treatment group also received one dose of pre-MUA intravenous dexamethasone and 14 days of celecoxib. The ROM and clinical outcomes were assessed at 6 weeks and 1 year. The trial results found that the ROM significantly improved a mean of 46° from a pre-MUA ROM of 72° to 118° immediately following MUA ($p < 0.001$). The ROM was similar between the treatment and

control groups at 6 weeks following MUA (101° vs 99°, respectively; p = 0.35) and at 1 year following MUA (108° vs 108°, respectively; p = 0.98). The limitations of the study include the lack of masking to either the participants or their surgeons due to the study design and feasibility. The authors concluded that the clinical outcomes were similar at both end points.

A systematic review by Hopper et al. (2024) sought to determine what factors are associated with an increased risk of arthrofibrosis requiring MUA or LOA after anterior cruciate ligament reconstruction (ACLR). The review found that 11 studies, including 333,876 ACLRs with 4,842 subsequent MUAs or LOA (1.45%), were analyzed. Increasing age was associated with an increased risk in three studies (p < 0.001, p < 0.05, p < 0.01) but was found to have no association with another two. Other factors that were identified by multiple studies as risk factors for MUA/LOA were female sex (four studies), earlier surgery (five studies), use of anticoagulants other than aspirin (two studies), and concomitant meniscal repair (four studies). The limitations of the review are the different ways that outcomes were recorded, making it challenging to compare results. The authors concluded that 1.45% of the individuals who underwent ACLR and were included in this systematic review had to undergo a subsequent MUA/LOA to treat arthrofibrosis. Female sex, older age, earlier surgery, use of anticoagulants other than aspirin, and concomitant meniscal repair were associated with an increased risk of MUA/LOA. The modifiable risks, including the use of anticoagulants and the time between injury and surgery, can be considered when making treatment decisions.

In 2024, Akhtar et al. undertook a systematic review and meta-analysis to evaluate the functional and clinical outcomes of early vs delayed MUA for stiffness following TKA. The results of the review demonstrated that pre-MUA and post-MUA knee flexion in the early/delayed groups was 71.3°/77.9° and 103.0°/96.1°, respectively. On meta-analysis, pre-MUA knee flexion was significantly higher in the delayed group (p = 0.003), whereas post-MUA flexion was similar in both groups (p = 0.36). The mean gain in knee flexion in the early and delayed groups was 32.0°/19.2°. The surgical complication and revision TKA rates in the early and delayed groups were 4.9%/10.3% and 5%/9%, respectively. A meta-analysis found the risk of surgical or medical complications and revision TKA to be significantly higher in the delayed MUA group (p < 0.00001 and = 0.002, respectively). The limitations of the review are the considerable variability in reporting of post-MUA functional outcomes, which limited our meta-analysis to only analyzing post-MUA knee flexion from only six of the total 14 studies. Similarly, the pooled mean post-MUA gain in flexion was nearly two times higher in the early vs delayed group, but given the variable reporting of the data, a meta-analysis was not possible. The authors concluded that although post-MUA knee flexion was similar in those undergoing early and delayed MUA following TKA, the mean gain in flexion in early individuals was nearly double that in delayed individuals. Delayed individuals also had significantly higher risks of surgical or medical complications and revision TKA following MUA.

In the 2024 randomized prospective trial, authors Tille et al. sought to evaluate differences between CR and posterior stabilized (PS) implant systems regarding knee function, patient-reported outcome measures (PROMs), and complication rates. The trial results demonstrated minor differences between treatment groups regarding demographic factors. In the PS group, the duration of surgery was longer (mean PS, 81.4 min vs CR, 76.0 min, p = 0.006). Better flexion (median PS, 120.0° vs CR, 115°, p = 0.017) and an overall better ROM (median PS, 120.0° vs CR, 115.0°, p = 0.008) in the PS group were observed. PROMs did not differ between groups. At the 2-year follow-up, there were no revisions in either cohort. Five participants needed reoperations. Three people needed MUA: two in the CR and one in the PS group. The limitations of the trial were the differences in participant demographics (age and body mass index) between treatment groups, despite randomization. The authors concluded that while PS TKA achieved a better flexion capability, PROMs were similar with CR and PS TKA. The CR implant design continues to be a reliable option for individuals with an intact posterior cruciate ligament.

In 2023, Grace and colleagues studied the impact of early MUA on cementless fixation by comparing functional outcomes and survivorship of cementless and cemented TKA through a multicenter study. A consecutive series of individuals who underwent MUA for postoperative stiffness within 90 days of primary unilateral TKA were found, and cases involving extensive hardware removal were excluded. TKAs undergoing MUA and cemented TKAs undergoing MUA were propensity-matched 1:1 using age, gender, body mass index, and year of surgery. At baseline, both groups had comparable baseline Knee Injury and Osteoarthritis Outcome Scores, and Short Form (SF)-12 Physical and SF-12 Mental scores. The study resulted in both groups having MUA-related complications as equivalently low (p = 0.324), with one patella component dissociation in the cementless group. In the perioperative period, no tibial or femoral components acutely loosened. The postoperative Knee Injury and Osteoarthritis Outcome Scores and SF-12 Mental scores were similar between groups, demonstrating p = 0.101 and p = 0.380, respectively. There was a 98.0% 6-year survivorship free from any revision after MUA in both groups (p = 1.000). The limitations of the study include a low overall rate of aseptic loosening after TKA, which could demonstrate an underpowering of the difference in such aseptic loosening rates. Also, the study did not include the outcome variables that could further characterize how cementless TKA individuals do after early MUA. The authors concluded that in the early postoperative MUA after cementless TKA, there is no association with increased MUA-related complications or worse outcomes in individuals compared with cemented TKA. The SF survivorship remained comparable between groups, suggesting the bone-implant interface's high durability. Future

studies, with the inclusion of additional variables in addition to a higher number of individuals, would better characterize this population and could be particularly suited for implantation using robotic technology, which would be beneficial.

Fackler and associates (2022) systematically reviewed the literature assessing the efficacy of and complications with arthroscopic LOA and MUA for postoperative arthrofibrosis of the knee and evaluated whether any relevant subgroups were associated with different clinical presentations and outcomes. The included studies consisted of pre-and postoperative ROM measurements for the treated individuals, with the studies that reported outcomes in those with isolated cyclops lesions after ACLR excluded. The results of the review included 240 individuals, with a mean time from index surgery to arthroscopic LOA and MUA of 8.4 months and a mean postoperative follow-up of 31.2 months. The studies showed a significant improvement (41.6) in the arc of motion after arthroscopic LOA. Significant improvements in outcome measures, including the International Knee Documentation Committee, Western Ontario and McMaster Universities Osteoarthritis Index, and Knee Injury and Osteoarthritis Outcome Score, were reported after arthroscopic LOA across all applicable studies. Of 240 people, a single complication (synovial fistula) occurred after LOA and MUA, which resolved without intervention. The limitations of the study include (1) the nonrandomized nature of the included studies, which increases the risk of selection bias and confounding; (2) the lack of assessment of the publications for bias of outcomes of interest because less than 10 studies were synthesized for each outcome; and (3) significant heterogeneity for the study due to the wide range of definitions for arthrofibrosis. The authors concluded that a significant challenge for surgeons continues to be knee arthrofibrosis post operation; however, when extensive nonoperative treatment fails, arthroscopic LOA and MUA may be a safe and efficacious treatment for arthrofibrosis in the postoperative knee.

Haffar et al. (2022) conducted a systematic review comparing outcomes of MUA, aLOA, and revision TKA for the treatment of arthrofibrosis and stiffness after TKA. The primary end point was PROMs, and the secondary outcomes were ROM and the percentage of those who pursued further treatment for stiffness. There were 40 studies included in the review, 17 of which applied to MUA. For MUA, the authors noted an average ROM increase of 20.97° post operation. The authors also noted that all studies that reported preoperative and postoperative Knee Society Score clinical and functional scores showed improvement at the final follow-up following MUA. Additionally, only 17% of individuals who received MUA required further care. Limitations include the poor quality of evidence for many studies included in this review.

Lim et al. (2021) conducted a study that evaluated the effect of MUA outcomes using clinical outcomes regarding ROM and personal satisfaction following TKA. This was a retrospective study of 97 people post bilateral primary TKA. The study showed that postoperative flexion was significantly greater in the MUA group at the 6-month follow-up and at the 2-year follow-up. Additionally, at the 12-month follow-up, patient satisfaction scores were substantially higher in the MUA group. The authors concluded that MUA improves clinical outcomes such as ROM and satisfaction after primary TKA.

Randsborg et al. (2020) evaluated a case series of participants who experienced MUA for knee stiffness following TKA. Overall, 24 participants met the inclusion criteria; MUA was performed following TKA, along with 2 to 3 days of continuous passive motion therapy and enhanced physiotherapy with home exercises on discharge. The authors concluded that the study supports previous findings that MUA for knee joint stiffness following TKA improves ROM, both in the short and long term. Limitations include the small sample size, lack of a comparison group undergoing a different treatment or no treatment, and retrospective design (included in Haffar et al., 2022, systematic review).

Gu et al. (2018) conducted a systematic review of the efficacy of MUA for stiffness following TKA. Overall, 22 studies (1,488 people) reported on ROM after MUA, and four studies (81 people) reported ROM after repeat MUA. However, none of the studies appeared to include a comparison group without MUA, limiting the conclusions that can be drawn. All studies reported a pre-MUA motion of less than 90°, while the mean ROM at the last follow-up exceeded 90° in all studies except two. For studies reporting ROM improvement following repeat MUA, the mean premanipulation ROM was 80°, and the mean postmanipulation ROM was 100.6°. The authors concluded that MUA remains an efficacious, minimally invasive treatment option for postoperative stiffness following TKA and provides clinically significant improvement in ROM for most individuals, with the best outcomes occurring in those treated within 12 weeks post operation. The quality of studies, variability of inclusion criteria and methods for reporting the data, lack of comparison groups, and variability in the physical therapy regimens were just a few limitations identified in this systematic review. Additional research is expected to provide clarity regarding the timing of MUA interventions and postprocedure physical therapy protocol.

Fabricant et al. (2018) evaluated a case series of 90 individuals aged 18 years or younger who underwent LOA and MUA at an urban tertiary care hospital following prior knee surgery. The primary purpose of this study was to report improvements in ROM following LOA/MUA in children and adolescents with knee arthrofibrosis and, secondarily, to evaluate for any effect of preoperative dynamic splinting on ROM outcomes. Demographic, clinical, ROM, and revision data were all compiled. The mean time from index surgery to LOA/MUA was 6.0 ±4.4 months, and follow-up was 42 ±56 months. The authors found that 62% of the individuals had full ROM at follow-up, and 25% had functional ROM. It was

concluded that LOA/MUA for children with arthrofibrosis in the knees resulted in significant improvements in ROM, with 90% revision-free success. Limitations of the study include the lack of a comparison group and small sample size (included in the Fackler, 2022, systematic review).

A matched case control study was conducted by Pierce et al. (2017) to assess the incidence of revision TKA among those who underwent or did not undergo MUA after initial TKA. A prospectively collected database of two high-volume institutions was assessed for individuals who required a single MUA following TKA between 2005 and 2011. The study included 138 knees, with a mean 8.5-year follow-up post MUA. This was compared with a matched cohort (1:1) that underwent TKA during the same time but did not require an MUA. Incidence of revision surgery and clinical outcomes were compared between the two cohorts. Nine knees underwent revision in the MUA cohort, and seven revisions were performed in the matched cohort. The mean Knee Society Score and clinical scores were similar between the two cohorts. The authors concluded that undergoing an MUA was not associated with an increased risk of revision TKA. However, individuals requiring MUA after an initial TKA may have been different from those not requiring MUA, limiting the conclusions that can be derived from this study (included in the Haffar et al., 2022, systematic review).

Spine

The effectiveness of MUA for various joints, including the spine, demonstrates negligible improvements, and the procedures have not been consistently supported by high-quality studies. They are limited by small sample sizes, limited control groups, and inadequate masking. The potential risks and lack of reliable benefits make MUA an unfavorable option compared with alternative therapies.

Taber et al. (2014) performed a retrospective chart review of 18 cases treated with MUA for lumbopelvic pain at an outpatient ambulatory surgical center. Patients with pre- and postintervention Oswestry Low Back Pain Disability Index (ODI) scores were included, along with those having lumbopelvic and hip complaints. ODI scores were assessed within 1 week prior to MUA and again 2 weeks after the procedure. The patients underwent two to four chiropractic MUA procedures over the course of a week per the National Academy of Manipulation Under Anesthesia physicians' protocols. Preprocedural ODI scores ranged from 38 to 76; postprocedural scores range from 0 to 66. For each person, ODI scores were lower, with an average decrease of 20.6. The authors identified that 16 of the 18 patients experienced meaningful improvement of their pain. Limitations of the study include the small study size, lack of control group, potential performance bias, and insufficient data on long-term safety. The authors suggested that future large-scale, carefully controlled prospective studies be performed.

The methodological limitations of studies reported in a narrative review (DiGiorgi, 2013) of the literature investigating spinal MUA (SMUA) concluded that "the evidence of treatment efficacy [SMUA] remains limited, with published studies that are generally weak in their methodological quality and consistently varied across multiple domains which do not permit comparative analysis toward generalization." Similarly, a review (Dagenais et al., 2008) of medication-assisted manipulation (MAM) in individuals having chronic low back pain reported that "there is insufficient research to guide clinicians, policy makers, and especially individuals' decision whether to consider this treatment [spinal MAM] approach." MUA for low back pain has been used for many years; however, there is insufficient evidence in the published literature to support the long-term safety and efficacy of its use.

In a prospective study in 68 participants with chronic low-back pain, Kohlbeck et al. (2005) compared changes in pain and disability for chronic low back pain receiving treatment with MAM with those in participants who were receiving spinal manipulation only. All participants received an initial 4- to 6-week trial of spinal manipulation therapy (SMT), after which 42 people received supplemental intervention with MAM and the remaining 26 participants continued with SMT. Low back pain and disability measures favored the MAM group over the SMT-only group at 3 months. The authors concluded that MAM appears to offer some people increased improvement in low back pain and disability; however, the study is limited by the lack of randomization, small sample size, insufficient data on long-term safety, and significant baseline differences between groups for the primary outcome variable (pain/disability scale).

In a prospective controlled study by Palmieri and Smoyak (2002), 87 participants who received either SMUA or traditional chiropractic treatment for low back pain were evaluated. The participants were assigned to one of two groups: 38 to an intervention group that received SMUA and 49 to a nonintervention group that received traditional chiropractic treatment. Participants were followed up for 4 weeks. Self-reported outcomes, including back pain severity and functional status, were used to evaluate changes. The SMUA group had an average decrease of 50% in Numeric Pain Scale scores, while the nonintervention group had a 26% decrease. The SMUA group had an average decrease of 51% in Roland-Morris Questionnaire scores, while the nonintervention group had a 38% decrease. The authors concluded that while there was a greater improvement in the intervention group, additional studies are needed to evaluate the safety and effectiveness of MUA. This study has a high risk of bias due to the methods used to select participants, lack of assessor blinding, failure to isolate the effects of the active intervention, and interpretation of outcomes. Participants were selected largely based on

two criteria: meeting National Academy of MUA Physicians eligibility requirements and having insurance coverage for SMUA. This led to significant baseline heterogeneities between the intervention and control groups. The sample size (n = 87; SMUA group = 38; SMT group = 49) did not reach the anticipated number of participants. The attempt to measure the difference in treatment effect between SMUA and SMT was confounded by the addition of a specific exercise protocol for the SMUA group vs. an undefined "home exercise" program for the SMT group. The follow-up period was limited; therefore, insufficient data on long-term safety are available. Problems with obtaining timely follow-up data were reported. The use of a percentile difference in outcome scores between groups does not consider if each outcome of interest exhibited a clinically meaningful difference between each group. In fact, there were no statistical or clinically meaningful differences between groups. There was a difference of 1.52 points on the Numeric Pain Scale at the initial follow-up and a difference of 1.32 points at the final follow-up (the minimal clinically important change has been widely reported as 2 points). The difference at the initial follow-up for the Roland-Morris Questionnaire was 2.2 points and at the final follow-up was 1 point (as noted in the study, a 4-point difference is necessary for it to be clinically meaningful).

Temporomandibular Joint

The effectiveness of MUA for various joints, including the temporomandibular joint (TMJ), demonstrates negligible improvements, and the procedures have not been consistently supported by high quality studies. They are limited by small sample sizes, limited control groups, and inadequate masking. The potential risks and lack of reliable benefits make MUA an unfavorable option compared with alternative therapies.

Foster et al. (2000) studied 55 individuals receiving manipulation under general anesthesia of the TMJ to determine the success rate of MUA effectiveness to reduce the number of individuals being referred for invasive surgery. Of the 55 individuals participating in this study, 15 improved, 15 did not, six had partial improvement, and 19 were not treated. The median pretreatment opening was 20 mm (range, 13-27 mm). Among those who improved after manipulation, the median opening after treatment was 38 mm (range, 35-56 mm). The authors concluded that MUA may help some people; however, some of those who improved experienced a return of TMJ clicking but not of joint or muscle tenderness. Furthermore, this study is limited by the lack of a comparison group.

Toe

The effectiveness of MUA for various joints, including the toe, demonstrates negligible improvements, and the procedures have not been consistently supported by high-quality studies. They are limited by small sample sizes, limited control groups, and inadequate masking. The potential risks and lack of reliable benefits make MUA an unfavorable option compared with alternative therapies.

Ajwani et al. (2018) assessed 35 individuals who had undergone first metatarsophalangeal (MTP) joint surgery to determine the effectiveness of MUA and steroid injection to treat joint stiffness. Documentation of ROM measurements and radiographs were reviewed. A mixture of depomedrone and bupivacaine were used for the steroid injection. Following MUA, the individuals were given the Manchester–Oxford Foot Questionnaire to complete for assessment of their level of joint pain. The mean premanipulation total range of movement at the first MTP joint was 25° (range, 5°–100°), immediate postmanipulation ROM was 70° (10°–180°), and final follow-up ROM was 50° (10°–90°). The average postoperative Manchester–Oxford Foot Questionnaire score was 25.2 (out of 52). The authors concluded that joint ROM significantly improved after manipulation by a mean of 44.7°. Limitations include the small sample size, retrospective nature, and lack of randomization, with no control or comparative groups.

Feuerstein et al. (2016) performed a medical records review study (n = -38) to investigate the intermediate- and long-term outcomes of first MTP joint manipulation for arthrofibrosis that developed, specifically, as a complication of hallux valgus surgery. Medical records were reviewed at the Weil Foot and Ankle Institute, IL, to identify those who had undergone first MTP joint MUA. Before the person’s visit, the medical records were reviewed to assess the course and timing of the procedures, visual analog scale (VAS) score before manipulation, and ROM of the first MTP joint after hallux valgus correction and before manipulation and first MTP joint ROM immediately after manipulation. Manipulation procedures occurred at a mean of 1.2 years from the date of the initial hallux valgus correction. The research visits occurred at a mean of 6.5 years after the first MTP joint manipulation. Before manipulation, the patients had a mean VAS score of 6.5. At the research visit, the mean VAS score was 2.3. The authors concluded that joint motion was significantly improved in the direction of dorsiflexion and plantar flexion from before manipulation to both immediately after manipulation and at the final follow-up visit. They stated that the study demonstrated that joint MUA could be a useful treatment modality to increase mobility and decrease pain in the person. The limitations of the study include the lack of randomization, lack of a control or comparison group, and potential selection bias.

Other

Clinical evidence was not identified regarding MUA for treating any condition (for single or serial manipulations) related to the following:

- Ankle
- Finger
- Hip
- Pelvis
- Wrist

Clinical Practice Guidelines

American Association of Oral and Maxillofacial Surgeons (AAOMS)

In 2023, the AAOMS created Clinical Practice Guidelines for Oral and Maxillofacial Surgery on TMJ surgery. For inflammatory arthropathy, the AAOMS recommends manipulation as a surgical management for active (progressive) TMJ disease and stable (nonprogressive) TMJ disease. The AAOMS's recommendations for mandibular dislocation include recurrent or persistent surgical management, including manipulation and relocation of the condyle. Lastly, for ankylosis and restricted jaw motion, the AAOMS recommends brisement (forceful manipulation of jaw under general anesthesia).

American College of Occupational and Environmental Medicine (ACOEM)

In a recommendation regarding MUA, the ACOEM concludes that MUA and medication-assisted spinal manipulation (MASM) are not recommended due to the lack of quality studies that solely evaluate MUA or MASM for the treatment of acute, subacute, or chronic lower back pain (Hegmann et al., 2020).

In a recommendation regarding MUA, the ACOEM (2016) has concluded that MUA and MASMs are not recommended due to insufficient evidence of safety and effectiveness for acute, subacute, and chronic cervicothoracic pain.

U.S. Food and Drug Administration (FDA)

This section is to be used for informational purposes only. FDA approval alone is not a basis for coverage.

Manipulation is a procedure and therefore is not subject to FDA regulation.

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Policy History/Revision Information

Date	Summary of Changes
04/01/2026	**Definitions** • Updated definition of “Arthrofibrosis” **Supporting Information** • Updated *Clinical Evidence* and *References* sections to reflect the most current information • Archived previous policy version CS075OH.C

Instructions for Use

This Medical Policy provides assistance in interpreting UnitedHealthcare standard benefit plans. When deciding coverage, the federal, state (Ohio Administrative Code [OAC]) or contractual requirements for benefit plan coverage must be referenced as the terms of the federal, state (OAC) or contractual requirements for benefit plan coverage may differ from the standard benefit plan. In the event of a conflict, the federal, state (OAC) or contractual requirements for benefit plan coverage govern. Before using this policy, please check the federal, state (OAC) or contractual requirements for benefit plan coverage. UnitedHealthcare reserves the right to modify its Policies and Guidelines as necessary. This Medical Policy is provided for informational purposes. It does not constitute medical advice.

UnitedHealthcare uses InterQual® for the primary medical/surgical criteria, and the American Society of Addiction Medicine (ASAM) for substance use, in administering health benefits. If InterQual® does not have applicable criteria, UnitedHealthcare may also use UnitedHealthcare Medical Policies, Coverage Determination Guidelines, and/or Utilization Review Guidelines that have been approved by the Ohio Department for Medicaid Services. The UnitedHealthcare Medical Policies, Coverage Determination Guidelines, and Utilization Review Guidelines are intended to be used in connection with the independent professional medical judgment of a qualified health care provider and do not constitute the practice of medicine or medical advice.