



MISSION

mirrorusuhs.org/motion

To provide better value-based care by matching patients to interventions that are best suited for their specific needs and mitigating long-term consequences, ultimately resulting in reduced time away from duty, prolonged military careers, and improved health and quality of life following military service.



17,000+
Surgical Cases Enrolled



25+
Clinics



290,000+
Surveys Completed

ANNOUNCEMENTS & HIGHLIGHTS

- We want to express a special thank you to Lt Col Andrew Sheean, MD for his time as MOTION Director!
- We will be having in-person meeting on January 20th-21st at the Extremity War Injuries (EWI) Symposium in Washington, DC.
- MOTION is now collecting patient-reported outcomes for platelet-rich plasma (PRP) injections and we are looking to expand to additional sites! Contact us if you want to start collecting for your patients.
- MOTION leadership recently met with the Arthroscopic Association of North America (AANA) Military Advanced Surgical Training (MAST) program to continue collaboration efforts and align future initiatives.
- Drs. Brian Barlow, Bruce Gillingham, and Andrew Sheean are working on a commentary for the journal *Military Medicine* that highlights the growth and future potential of MOTION.
- Dr. Andrew Sheean was awarded a MOMRP grant in collaboration with the Multicenter Orthopaedics Outcomes Network (MOON) to develop predictive risk calculators for patients who undergo shoulder stabilization surgery by leveraging MOTION's 5-year outcomes with MOON's 6-year outcomes.
- Walter Reed National Military Medical Center is working toward becoming the first military site to join the Biologic Association Registry and Biorepository (BARB), a nationwide, multi-center initiative aiming to define biological- and patient-specific factors that impact outcomes following PRP injections.

MOTION CONTACTS



Matthew Bradley, MPH is a Program Manager for MOTION and the Musculoskeletal Injury Rehabilitation Research for Operational Readiness (MIRROR) program at the Walter Reed National Military Medical Center.

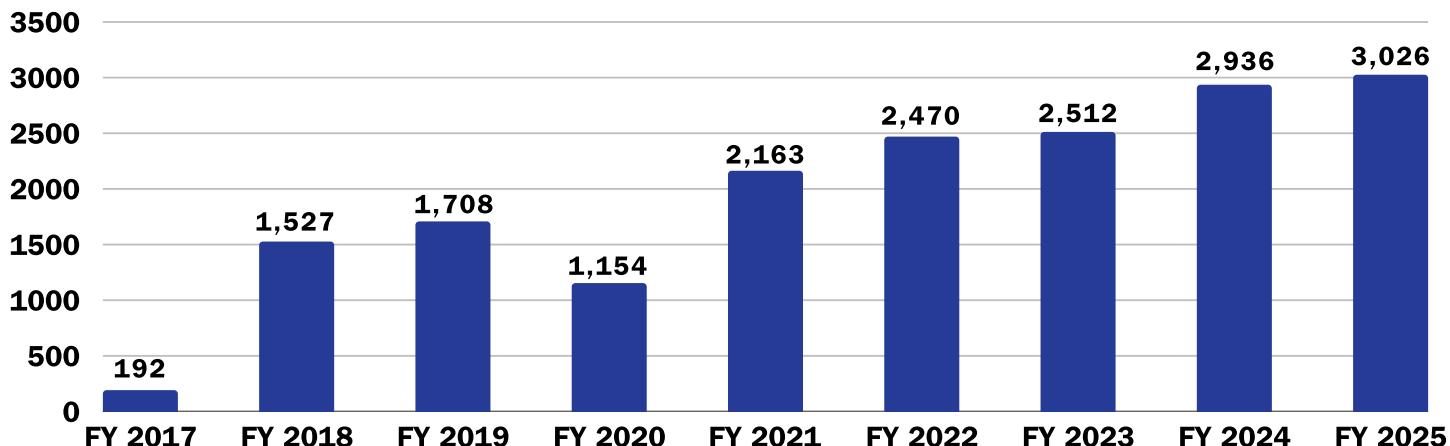
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Dr. Brian Barlow, CDR, MC, USN, is an orthopaedic surgeon at Naval Hospital Rota and the Director for MOTION.

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SURGICAL CASES ENROLLED PER FISCAL YEAR



ENROLLMENT & SCOPE

MOTION enrolls active duty service members, retirees, and beneficiaries who receive various orthopaedic and rehabilitative treatment interventions on upper extremity, lower extremity, and spine injuries. Validated PROMs are collected as part of patients' standard of care during the pre-operative/initial assessment visit and during follow-up intervals at 6-weeks, 6-months, and 1 / 2 / 5 / 10 / 15 / 20 years after treatment. This provides a longitudinal and comprehensive snapshot of all stages of a patient's recovery. Patient data are then linked with clinical provider assessments and other relevant clinical data to optimize patient outcomes and improve treatment.

SURGICAL CASE COUNTS (Approx.)

Body Region	Cases Enrolled
Knee	6,650
Shoulder	5,360
Hip	2,560
Foot/Ankle/Lower Leg	1,040
Hand/Wrist/Forearm	880
Spine	740
Elbow	250
Other	150

MIRROR SUPPORT

Musculoskeletal Injury Rehabilitation Research for Operational Readiness (MIRROR) is the largest source of MSKI research with centralized infrastructure to achieve economies of scale. This multidisciplinary integration including orthopaedics, physical medicine and rehabilitation optimizes resources across MTFs. MIRROR is headquartered at the Uniformed Services University (USU). The MOTION Program is supported and administered by the MIRROR infrastructure and leadership.



MIRROR optimizes data collection via:

- Remote coordinators for administrative tasks
- Regulatory support
- QR codes for easy survey administration

TOP PROCEDURES ENROLLED PER BODY REGION

KNEE

Rank	CPT Code	Brief Description	Surgical Cases Enrolled
1	27447	Total Knee Arthroplasty	1,642
2	29888	ACL Reconstruction	1,458
3	29881	Meniscus Debridement/ Meniscectomy (Medial OR Lateral)	1,094
4	29882	Meniscus Repair (Medial OR Lateral)	759
5	29877	Debridement/ Chondroplasty	556
6	29880	Meniscus Debridement/ Meniscectomy (Medial AND Lateral)	176
7	27446	Partial Knee Replacement (Medial OR Lateral)	171
8	29875	Limited Synovectomy	166
9	27427	Extra-articular Ligamentous Reconstruction	157
10	27487	Revision Total Knee Arthroplasty	103

SHOULDER

Rank	CPT Code	Brief Description	Surgical Cases Enrolled
1	23430	Open Biceps Tenodesis	1,550
2	29806	Labral Repair	1,448
3	29827	Rotator Cuff Repair	1,156
4	29826	Subacromial Decompression	1,032
5	29822	Limited Debridement	889
6	29828	Arthroscopic Biceps Tenodesis	766
7	29824	Arthroscopic Distal Clavicle Excision	548
8	29807	Superior Labral [SLAP] Repair	425
9	29823	Extensive Debridement	382
10	23120	Open Partial Claviculectomy	339

HIP

Rank	CPT Code	Brief Description	Surgical Cases Enrolled
1	27130	Total Hip Arthroplasty	1,080
2	29916	Labral Repair	769
3	29914	Femoroplasty	734
4	29915	Acetabuloplasty	161
5	29862	Debridement/ Chondroplasty	105

TOP PROCEDURES ENROLLED PER BODY REGION

SPINE

Rank	CPT Code	Brief Description	Surgical Cases Enrolled
1	22551	Anterior Cervical Discectomy and Fusion [ACDF]	162
2	63030	Lumbar Laminotomy w/ Decompression	113
3	22630	Posterior Lumbar Interbody Fusion [PLIF]	105
4	63047	Lumbar Laminectomy, Facetectomy, & Foraminotomy	102
5	22551	ACDF Add'l Vertebrae	98
6	22845	Anterior Instrumentation 2-3 Vertebral Segments	93
7	22840	Posterior Instrumentation	83
8	20936	Local Autograft Harvest	81
9	22612	Posterior Lumbar Fusion	70
10	20930	Morselized Allograft	56

HAND/WRIST/ELBOW

Rank	CPT Code	Brief Description	Surgical Cases Enrolled
1	64721	Carpal Tunnel Release	196
2	64718	Cubital Tunnel Release	184
3	24341	Repair, Tendon or Muscle in Upper Arm	86
4	25111	Primary Ganglion Cyst Excision	72
5	26055	Open Incision of Tendon Sheath	67
6	24342	Repair of Distal Biceps	45
7	29846	Excision/Repair of Triangular Fibrocartilage Complex [TFCC]	36
8	29848	Endoscopic Carpal Tunnel Release	34

FOOT/ANKLE

Rank	CPT Code	Brief Description	Surgical Cases Enrolled
1	27695	Primary Repair, Single Collateral Ligament	126
2	29897	Limited Debridement	102
3	27698	Secondary Repair, Collateral Ligament	81
4	29891	Excision Osteochondral Defect	59
5	27696	Primary Repair, Both Collateral Ligaments	58

HOW TO CONTRIBUTE

Activate A Clinic

To support the continued growth of MOTION data collection, more sites are needed for participation. The MOTION team can schedule a call to discuss options for data collection, customization, administrative support, and technical requirements. For inquiries, contact Matt Bradley (Matthew.W.Bradley4.ctr@health.mil).



Conduct MOTION Research

The MOTION team is eager for this powerful database to be utilized for additional protocol development. Please contact the MOTION team if you have ideas for a protocol that would utilize this data to improve patient-centric, value-oriented care.

Join A MOTION Sub-Committee

- Knee
- Hip
- Arthroplasty
- Lower Extremity
- Shoulder
- Spine
- Upper Extremity
- Non-Surgical Procedures

CAREPOINT CAMP

MOTION's data capture system is CarePoint's Clinical Assessment Management Portal (CAMP), which is a DHA owned and operated system. CAMP allows clinical providers to easily review patient responses, generate reports, and much more.

Current Capabilities

- QR codes to administer assessments with any device, anywhere
- Screener Survey
 - Automates case and survey creation
 - Reduces the need for dedicated personnel support
- Provider Outcome Reports
 - Track patient recovery over time
 - Compare patients' outcomes side-by-side
- Customizations and automations
 - Clinic and timepoint specific emails
 - Automated email notifications and reminders

A screenshot of the CarePoint CAMP interface for pain selection. It shows two human figures, one front-facing and one back-facing, with numbered circles (1-12) indicating pain points. Below the figures are dropdown menus labeled 'Select Front Pain Locations' and 'Select Back Pain Locations'. To the right is a list titled 'Selected Pain Points' with a 'DELETE SELECTED' button. The list includes items like 'Front Right Shoulder' (selected) and 'Front Left Knee' (not selected). There are also checkboxes for 'PRIMARY' and 'SECONDARY' status.

New Capabilities

- PRP Injection QR Code and Screener Survey
 - Designed to easily enroll patients receiving PRP injections

We have weekly calls with the CAMP developers. If you think of specific features or reports that would be helpful for you or others, please reach out to Matt Bradley and/or Dr. Brian Barlow.

RECENT/UPCOMING PUBLICATIONS & PRESENTATIONS

- Sheean AJ, Tenan MS, DeFoor MT, Cognetti DJ, Bedi A, Lin A, Dekker TJ, MOTION Collaborative, Dickens JF. (2024). Minimal Important Clinical Difference Values Are Not Uniformly Valid in the Active Duty Military Population Recovering from Shoulder Surgery. *Journal of Shoulder and Elbow Surgery*, 33(11), e596-e605. <https://doi.org/10.1016/j.jse.2024.02.044>
- Smith M, Prasso L. "Operational Readiness: The Impact of Peripheral Nerve Injuries in Military Personnel." American Physical Therapy Association Combined Sections Meeting. Anaheim, CA. February 2026.
- Sheean AJ, MOTION Collaborative. "Primary ACL Reconstruction Among Service Members: A MOTION Cohort Analysis." Society of Military Orthopaedic Surgeons Annual Meeting. Vail, CO. December 2025.
- Robins RJ, MOTION Collaborative. "Ultrasound-Guided Hip Platelet-Rich Plasma Injection in the Sports Medicine Clinic." Society of Military Orthopaedic Surgeons Annual Meeting. Vail, CO. December 2025.
- Robins RJ, MOTION Collaborative. "Knee Joint Platelet-Rich Plasma Injections in the Sports Medicine Clinic." Society of Military Orthopaedic Surgeons Annual Meeting. Vail, CO. December 2025.
- Robins RJ, MOTION Collaborative. "Glenohumeral Platelet-Rich Plasma Injections in the Sports Medicine Clinic." Society of Military Orthopaedic Surgeons Annual Meeting. Vail, CO. December 2025.
- Yuan X. "Orthobiologics in Physical Medicine and Rehabilitation: Monitoring Practice Patterns and Outcomes Using the Military Orthopaedics Tracking Injuries and Outcomes Network (MOTION). Military Health System Research Symposium. Kissimmee, FL. August 2024.
- Barlow BT, Zamani M, Bradley MW, Goldman A, MOTION Collaborative, Slaven SE. "Are Patient-Reported Outcomes of Primary Arthroplasty in Active Duty vs Non-Active Duty Patient Similar? A MOTION Registry Study." Society of Military Orthopaedic Surgeons Annual Meeting. Nashville, TN. December 2024.
- Barlow BT, Bradley MW, Zhao-Siegel D, Ngyuen P, Wirick M, MOTION Collaborative. "Arthroscopic Hip Surgery in a Military Population: Patient Reported Outcomes Improve Over the First Six Months." Society of Military Orthopaedic Surgeons Annual Meeting. Nashville, TN. December 2024.

LOOKING AHEAD

The MOTION Steering Committee is advocating for the incorporation of MOTION into either the annual physical/combat fitness tests (PFT/CFT) or the Periodic Health Assessment (PHA), which are the primary mechanisms for the US Military to assess medical readiness. They currently contain little-to-no subjective musculoskeletal health outcome measures. **The incorporation of MOTION into these annual assessments has the potential to provide 100% response rates annually and could provide both pre-injury and post-injury data.** Ultimately, this integration enhances strategic awareness for command leadership.

MOTION STEERING COMMITTEE

Active	Committee Section	Advisors
Brian Barlow, MD, CDR, MC, USN	Director	COL (Ret) Jon Dickens, MD
Matthew Bradley, MPH	Program Manager	RADM (Ret) Bruce Gillingham, MD
Travis Dekker, MD, Maj, USAF, MC	Shoulder	Robert McGill, MD, Lt Col, USAF, MC
Shawn Gee, MD, MAJ, MC, USA	Service Academy (USMA)	Lt Col (Ret) Andrew Sheean, MD
AJ Pisano, MD, MAJ, MC, USA	Spine	Kurt Spindler, MD
Andres Piscoya, MD, LCDR, MC, USN	Foot/Ankle	Maj (Ret) John Tokish, MD
Judd Robins, MD, Col, USAF, MC	Service Academy (USAFA)	
Sean Slaven, MD, MAJ, MC, USA	Arthroplasty	
David Tennent, MD, LTC, MC, USA	Knee	
Scott Tintle, MD, CAPT, MC, USN	Hand/Wrist	
Robert Waltz, MD, CAPT, MC, USN	Service Academy (USNA)	
Jenny Yuan, MD, PhD	Non-Surgical Procedures	