

PROMOTION RECOMMENDATION  
THE UNIVERSITY OF MICHIGAN  
MEDICAL SCHOOL  
DEPARTMENT OF ORTHOPAEDIC SURGERY

Bruce S. Miller, M.D., associate professor of orthopaedic surgery, Department of Orthopaedic Surgery, Medical School, is recommended for promotion to professor of orthopaedic surgery, with tenure, Department of Orthopaedic Surgery, Medical School.

Academic Degrees:

M.S.	2007	University of Michigan
M.D.	1995	Harvard University
A.B.	1990	Harvard University

Professional Record:

2011-present	Associate Professor of Orthopaedic Surgery, University of Michigan
2005-2011	Assistant Professor of Orthopaedic Surgery, University of Michigan
2002-2005	Clinical Lecturer of Orthopaedic Surgery, University of Michigan

Summary of Evaluation:

Teaching: In 2003, Dr. Miller was appointed as the director of the Sports Medicine ACGME accredited fellowship program in Orthopaedic Surgery. Since 2004, 21 fellows have graduated from this program under his dedicated guidance and are practicing sports medicine in a variety of settings including several in premier academic practices such as Washington University in St. Louis and the University of Michigan. Under Dr. Miller's leadership, the fellowship continues to attract the highest caliber of Sports Medicine physicians looking to further their clinical expertise under the tutelage of faculty and leadership here at Michigan Medicine, and the Department of Orthopaedic Surgery. Dr. Miller has served as the co-chair for the American Orthopaedic Society for Sports Medicine Review Course, which serves as the premier course to prepare for the certificate of added qualification in Sports Medicine Exam. On an institutional level, he lectures annually to first and second year medical students, actively supervises and educates third and fourth year medical students during their elective two-week clerkships in orthopaedic surgery and regularly supervises residents in both clinical and operating room settings. Dr. Miller delivers three monthly didactic sessions, hosts journal club, as well as case conferences. He serves on the department's Curriculum Committee and the Resident Evaluation Committee. He also works with Allied Health students providing clinical teaching in the athletic training room setting. Dr. Miller is actively involved with research mentoring and has worked with approximately 40 trainees. His national prominence in the field of statistical analysis and clinical research design has resulted in invitations to lecture on the topic at major conferences, review courses and at grand rounds.

Research: Dr. Miller is the internationally established leader in the treatment of shoulder rotator cuff pathology and he is the preeminent leader for team science for the rotator cuff pathology in the United States. Rotator cuff pathology is the leading cause of shoulder pain and dysfunction in this country contributing an estimated treatment cost of \$26,000 per patient with a rotator cuff tear. Operations in this shoulder area account for thirty percent of all orthopaedic operations and account

for nearly 300,000 operations in the United States in 2006 in the ambulatory care or outpatient setting. Rotator cuff tears are a common shoulder problem that leads to a great source of disability. Dr. Miller's assault on rotator cuff diseases is broad and multifaceted. He developed a shoulder rotator cuff database at the University of Michigan that allowed him to measure outcomes on his patients with rotator cuff tears. He is the principal investigator of a grant from the Patient-Centered Outcome Research Institute to study the best treatment for rotator cuff tears. He attacks failure of surgical rotator cuff repair with a team comprised with his colleagues in the Department of Radiology using ultrasound to track time to surgical failure. This paper won the prestigious O'Donohue Sports Injury Research Award from the American Orthopaedic Society for Sports Medicine attesting to his team science leadership. Dr. Miller and his rotator cuff team seek to optimize outcomes by implementing a treatment algorithm for his patients to determine whether or not to operate. He has published more than 100 peer-reviewed articles, and is highly sought after to present his research through seminars and presentations.

Recent and Significant Publications:

Gagnier JJ, Robbins C, Bedi A, Carpenter JE, Miller BS: Establishing Minimally Important Differences for the American Shoulder and Elbow Surgeons Score and the Western Ontario Rotator Cuff Index in Patients with Full-Thickness Rotator Cuff Tears. *J Shoulder Elbow Surg* 27(5): 160-166, 2018.

Miller BS, Downie BK, Kohen RB, Kijek T, Lesniak B, Jacobson JA, Hughes RE, Carpenter JE: When Do Rotator Cuff Repairs Fail? Serial Ultrasound Examination after Arthroscopic Repair of Large and Massive Rotator Cuff Tears. *Am J Sports Med* 39(10): 2064-2070, 2011.

Kweon C, Gagnier JJ, Robbins CB, Bedi A, Carpenter JE, Miller BS: Surgical versus Nonsurgical Management of Rotator Cuff Tears: Predictors of Treatment Allocation. *Am J Sports Med* 43(10): 2368- 2372, 2015.

Cowan JB, Bedi A, Carpenter JE, Robbins CB, Gagnier JJ, Miller BS: Evaluation of American Academy of Orthopaedic Surgeons Appropriate Use Criteria for the Management of Full-Thickness Rotator Cuff Tears. *J Shoulder Elbow Surg* 25(7): 1100-1106, 2016.

Watson ST, Robbins CB, Bedi A, Carpenter JE, Gagnier JJ, Miller BS: Comparison of Outcomes 1 Year after Rotator Cuff Repair with and without Concomitant Biceps Surgery. *Arthroscopy* 33(11):1928-1936, 2017.

Service: Dr. Miller's clinical interests and specialty are focused on shoulder and knee reconstruction/ replacement/restoration and sports injuries of the shoulder and elbow. He is extremely active in his clinical activities in addition to having many other responsibilities including being appointed as the medical director for MedSport in 2015. This service includes physicians, physician assistants, nurses, a robust PT team, research staff, cast/brace technicians, along with support staff. Dr. Miller demonstrates consistently the highest standards of departmental and institutional professionalism and citizenship. He serves on the Academic Promotions and Tenure Committee for the Department of Orthopaedic Surgery, and represents Orthopaedic Surgery on the East Ann Arbor Surgery Center Executive Committee. Nationally, Dr. Miller serves in several appointed committee roles for AOSSM, and was the elected representative for Michigan on the

Council of Delegates. In 2017, Dr. Miller was elected as president of the Big Ten Orthopaedic Sports Medicine Fellowship Society and continues to hold national team physician roles for the United States Ski Team, and the United States of America Rugby Team and All-American Rugby Team. He has been the head orthopaedic team physician for the University of Michigan football team since 2008. Through this position, Dr. Miller has shown exemplary leadership that has gained him a national reputation as the orthopaedic team doctor at the Big House.

External Reviewers:

Reviewer A: “His research has been continued and consistent and has significantly contributed to the treatment of shoulder pathology. I think his research also reflects an overarching theme to educate clinicians about how we should hold ourselves accountable to objective outcomes and indications for non-operative and operative treatment. Another significant contribution is the development of his rotator cuff registry.... I believe that not only has he been productive with publications, but he also shows great focus with his research and is building upon past efforts and has great potential for continued future academic productivity. I think this sets him apart from some of his fellow colleagues at his level of career.”

Reviewer B: “[Dr. Miller] is first or senior author on 19 publications derived from work performed at the University of Michigan and a co-author on multiple publications which reflect group publications from the Department of Orthopaedic Surgery. He has received funding through a variety of grant mechanisms with 11 completed grants and two current grants... I sit on the Orthopaedic Promotions Committee at [my institution], which also has extremely high standards for promotion to Professor with Tenure. If Dr. Miller was reviewed by our promotions committee, I feel certain that he would be recommended for promotion based on his publication and research record, service to the Medical School, his national and international reputation, and his record of publication and presentations.”

Reviewer C: “Dr. Miller has amassed 66 peer-reviewed publications since...2010 - that does not include the additional invited manuscripts, book chapters, scientific presentations, courses he has moderated and participated in, and the like. The sheer quantity is impressive but even more so is the quality of his work and the impact on patient care as mentioned in #2 above. Dr. Miller has been awarded the prestigious O’Donoghue award from the American Orthopaedic Society of Sports Medicine (AOSSM) several times including most recently in 2014.”

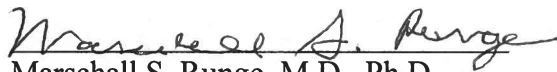
Reviewer D: “The first study on this list [When do rotator cuff repairs fail?] is one of the most memorable and most important. In this prospective study, Dr. Miller and his colleagues prospectively followed patients after rotator cuff repair with serial imaging to determine when the repairs fail, if they do fail. This study remains one of the foundational papers in the field, clearly establishing that the failures occur in the first 3-6 months after surgery. I quote this study very frequently whenever I lecture about rotator cuff repair.”

Reviewer E: “He does have 2 current grants for research, and he is an active member of the Shoulder Moon group – an important collaborative of elite shoulder surgeons trying to solve the mysteries of many of the current common shoulder problems including rotator cuff disease and shoulder instability... Bruce is a respected educator – not only has he won the residents teaching award at Michigan, but he also runs the University of Michigan Sports Medicine Fellowship and

he is the Medical Director of MedSport. The University of Michigan Sports Medicine Fellowship has become one of the most sought after fellowships in the country – becoming a first tier program.”

Summary of Recommendation:

Dr. Miller is the leader of a nationally funded multifaceted research team focusing on outcomes for rotator cuff pathology. He has a decade long history of medical leadership for the University of Michigan football team, and founded and shepherded the nationally established Orthopaedic Surgery Sports Medicine Fellowship. I am pleased to recommend Bruce S. Miller, M.D. for promotion to professor of orthopaedic surgery, with tenure, Department of Orthopaedic Surgery, Medical School.



Marschall S. Runge, M.D., Ph.D.

Executive Vice President for Medical Affairs  
Dean, Medical School

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