Approved by the Regents
May 17, 2018

PROMOTION RECOMMENDATION
THE UNIVERSITY OF MICHIGAN
MEDICAL SCHOOL
DEPARTMENT OF PHYSICAL MEDICINE AND REHABILITATION

James T. Eckner, M.D., assistant professor of physical medicine and rehabilitation, Department of Physical Medicine and Rehabilitation, Medical School, is recommended for promotion to associate professor of physical medicine and rehabilitation, with tenure, Department of Physical Medicine and Rehabilitation, Medical School.

Academic Degrees:

M.S.	2009	University of Michigan
M.D.	2003	Case Western Reserve University
B.S.	1999	Pennsylvania State University

Professional Record:

2011-present	Assistant Professor in Physical Medicine and Rehabilitation, University of Michigan
2007-2011	Clinical Lecturer, Department of Physical Medicine and Rehabilitation, University of Michigan

Summary of Evaluation:

Teaching: Dr. Eckner is committed to teaching and his instruction includes departmental residents as well as instruction to students in other schools at the university. He provides direct clinical instruction to the residents of the Department of Physical Medicine and Rehabilitation as one of the core supervising attending physicians in the weekly continuity clinic as well as to the diverse groups of residents and medical students who rotate through the NeuroSport Clinic. He provides didactic instruction to residents and is the co-director of the PM&R Resident Research Program. Eighteen of his publications include co-authors who were trainees at the time of publication. He also provides support to master's and doctoral students in the College of Engineering and the School of Kinesiology, having served on two doctoral committees. He frequently lectures outside the university community regarding traumatic brain injury and sport-related concussion.

Research: Dr. Eckner's early research grew from work he began during his residency involving concussion. As a result of this work, he developed an inexpensive and clinically available concussion assessment tool for measuring simple reaction time. This tool is now part of the concussion assessment battery used by sports medicine programs across the country as well as a "Level B" concussion assessment tool in the multi-site NCAA/DOD-funded Concussion Assessment Research and Education (CARE) Consortium Study, the single largest sport concussion research study ever conducted. Dr. Eckner is currently working with his research mentor, Dr. James A. Ashton-Miller (UM Professor of Mechanical Engineering), to develop a more sophisticated device and method for measuring complex clinical reaction time and is a co-inventor on a US patent held by the university, which was issued in February 2014. More recently, Dr. Eckner's research has been focused on concussion diagnosis to address injury biomechanics and the clinical effects of concussion on neurological health. He has received biomechanics training through the K12-funded Rehabilitation Medicine Scientist

Training Program and an independent K23 award from the NIH. His recent R01 submission was favorably reviewed at the NIH and he is working on a resubmission to continue work targeting concussion prevention in youth athletes through development of optimized neck strengthening exercise programs. Dr. Eckner is currently the UM site-PI for the CARE Consortium Study and he oversees the participation of almost 1000 UM student-athletes in the CARE Consortium Study each year. He also serves as a member of the CARE Consortium Publications Committee, which oversees the use and publication of CARE Consortium data. Dr. Eckner has five current funded grants including an NIH K23 and the NCAA-DOD Grand Alliance Concussion Assessment Research and Education (CARE) grant.

Recent and Significant Publications:

Eckner JT, Sabin M, Kutcher JS, Broglio SP.: No evidence for a cumulative impact effect on concussion injury threshold. *J Neurotrauma* 28:2079-2090, 2011.

Eckner JT, Oh YK, Joshi MS, Richardson JK, Ashton-Miller JA.: Effect of neck muscle strength and anticipatory cervical muscle activation on the head's kinematic response to impulsive loads in each anatomical plane. *Am J Sports Med* 42:566-576, 2014.

Eckner JT, Kutcher JS, Broglio SP, Richardson JK.: Effect of sport related concussion on clinically measured simple reaction time. *Br J Sports Med* 48:112-118, 2014.

Eckner JT, Rettmann A, Narisetty N, Greer J, Moore B, Brimacombe S, He X, Broglio SP.: Stability of an ERP-Based Measure of Brain Network Activation (BNA) in Athletes: A new electrophysiological assessment tool for concussion. *Brain Injury* 30:1075-1081, 2016.

Eckner JT, Seifert T, Pescovitz A, Zeiger M, Kutcher J.: Is migraine headache associated with concussion in athletes? A case-control study. *Clin J Sports Med* 27:266-270, 2017.

Service: Dr. Eckner's clinical work has focused on mild traumatic brain injury in athletes through the Michigan NeuroSport Clinic. He works closely with his colleagues from Neurology, Primary Care Sports Medicine, Neuropsychology, Physical Therapy and Athletic Training. He treats concussion and concussion-related conditions in athletes from youth to elite collegiate levels. He has provided sideline medical coverage for the Eastern Michigan University Football Program and continues to serve as a clinical consultant to the University of Michigan and Eastern Michigan University Sports Medicine Programs as well as the USA Hockey National Development Team Program. Dr. Eckner serves as the co-director of the PM&R Resident Research Program. He also serves as a member of the PM&R Research Advisory Council and sits on the Executive Committee of the Advanced Rehabilitation Research Training Program in Community Participation. Nationally, he serves as a member of the CARE Consortium Publications Committee. He is currently a member of the American Academy of Physical Medicine and Rehabilitation and the Association of Academic Physiatrists. He is an ad hoc grant reviewer for the Michigan Institute of Clinical Health Research and is a journal reviewer for eleven journals including the *Spine Journal, Archives of Physical Medicine and Rehabilitation,* and the *Journal of Neurological Sciences.*

External Reviewers:

Reviewer A: "He is studying concussion and mild traumatic brain injury in a manner that I believe is unique to anyone in the country. The reaction time concept with a 'bedside' or field tested tool makes

a lot of sense. I believe that this has potential to change the way concussions are evaluated and make a significant impact. In particular, the way and manner in which he and his colleagues are assessing reaction time is practical, novel and borders on genius. It has potential to be widely adopted within sports."

Reviewer B: "His manuscripts are well written and represent outstanding research being published in the leading journals addressing concussion and head impact injuries. Specifically, his manuscripts addressing a simple reaction time measure had a broad impact for not only sports medicine but other fields addressing neurologic injury and aging of the nervous system. His developing line of research is innovative and is setting the foundation for transformative research in sports medicine."

Reviewer C: "I have watched him progress through a line of research involving the measurement of reaction time started during his residency training to more complex analysis that have resulted in numerous publications. Few physician-researchers can boast of such success in developing a research project from conception to this level of fruition so early in their careers. This is a testament not only to Dr. Eckner's passion for research, but also to his intelligence, creativity, and work ethic."

Reviewer D: "Even at an early stage in his career, Dr. Eckner had a significant impact in Academic Physiatry. His work has been viewed as both innovative and clinically relevant....His research program is both timely and translational, having already impacted concussion care, being picked up by national media, and resulting in a device patent application for measurement of reaction time."

Reviewer E: "J.T. has also been active in teaching, both on the national level with multiple presentations at professional society meetings, and at the local level, with mentorship of medical and graduate students, and teaching of PM&R residents in his program. He is also active as a peer reviewer for a number of academic journals."

Summary of Recommendation:
Dr. Eckner has demonstrated superior performance in research, education, clinical care and publication. He has developed a nationally recognized assessment tool through his research and continues to establish himself as a leader in concussion related research. I am pleased to recommend James T. Eckner, M.D. for promotion to associate professor of physical medicine and rehabilitation, with tenure, Department of Physical Medicine and Rehabilitation, Medical School.

Marschall S. Runge

Marschall S. Runge, M.D., Ph.D.
Executive Vice President for Medical Affairs
Dean, Medical School

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