

CURRICULUM VITAE

March 5, 2019

James F. Sumowski, Ph.D.**APPOINTMENTS/EMPLOYMENT**

Associate Professor of Neurology (and of Psychiatry)
Icahn School of Medicine at Mount Sinai, New York, New York
May 9, 2016 – Present

Adjunct Associate Professor of Psychology and Education
Teachers College, Columbia University, New York, New York
April 2016 – Present

Adjunct Assistant Professor of Psychology and Education
Teachers College, Columbia University, New York, New York
September 2007 – April 2016

Senior Research Scientist of Neuropsychology and Neuroscience
Kessler Foundation, West Orange, New Jersey
January 2014 – October 2015

Assistant Professor of Physical Medicine and Rehabilitation
Rutgers, New Jersey Medical School, Newark, New Jersey
June 2010 – October 2015

Research Scientist of Neuropsychology and Neuroscience
Kessler Foundation, West Orange, New Jersey
June 2009 – December 2013

GAPS IN EMPLOYMENT

Not Applicable

EDUCATION

Ph.D., October 2007, Columbia University
New York, New York
School Psychology / Clinical Neuropsychology
Primary Mentor: Stephen T. Peverly, Ph.D.

Ed.M, May 2006, Teachers College, Columbia University
New York, New York
School Psychology
Primary Mentor: Stephen T. Peverly, Ph.D.

B.A., May 2002, Seton Hall University
South Orange, New Jersey
Majors: Psychology & Philosophy

Neuropsychology Specialty Training

Internship in Clinical Neuropsychology, September 2006 – August 2007
Long Island Jewish Medical Center / Zucker Hillside Hospital
Primary Mentors: Paul Mattis, Ph.D., Kenneth Perrine, Ph.D.

Postdoctoral Clinical Research Fellowship in Neuropsychology & Neuroscience
September 2007 – June 2009
Kessler Foundation, West Orange, New Jersey
Primary Mentor: John DeLuca, Ph.D.

CERTIFICATION

Not Applicable

LICENSURE

License to Practice Psychology (#018306; Issued 09/23/09), New York State

HONORS/AWARDS

Summa Cum Laude, Seton Hall University, 2002
Completion of University Honors Program, Seton Hall University, 2002
Cognitive Neuroscience Award, Annual Meeting of the American Psychological Association (APA), Division 40 (Clinical Neuropsychology), 2008
Rutgers, New Jersey Medical School Postdoctoral Fellowship Research Award for meritorious research, 2009
Best Poster Award, 2014 Annual Meeting of the European Committee for Treatment and Research in Multiple Sclerosis (ECTRIMS), Boston, MA
Education Award, 2014 Annual Meeting of ECTRIMS, Boston, MA
Education Award, 2015 Annual Meeting of ECTRIMS, Barcelona, Spain

PATENTS

Not Applicable

OTHER PROFESSIONAL ROLES

Clinical and Population Health Research Grants Review Committee
National Multiple Sclerosis Society
Scientific Reviewer: 2017 – Present

Clinical and Population Health Research Grants Review Committee
Multiple Sclerosis Society of Canada
Scientific Reviewer: 2013 – 2015
Chair: 2015-2018

Research Review Committee
Kessler Foundation Research Center
Scientific Reviewer: 2013-2015

RESEARCH PROFILE

I received my Ph.D. from Columbia University with training in clinical neuropsychology, and received an NIH K99/R00 award to study cognition and cognitive reserve in persons with multiple sclerosis (MS). I have since sought to improve understanding of cognitive deficits, develop evidence-based cognitive rehabilitation interventions, and, mostly, to identify risk and protective factors for cognitive decline. My work is particularly focused on modifiable lifestyle factors that may build reserve against decline in cognition, but also physical and emotional function. I am currently leading a longitudinal R01 project at Mount Sinai examining the impact of multiple factors which may protect against disease and disability progression among persons with early relapsing-remitting multiple sclerosis or clinically-isolated syndrome, including intellectual enrichment, diet, exercise, stress, sleep, psychological resilience, and social support. This work aims to extend the concept of reserve beyond traditional estimates of lifetime enrichment (e.g., education, intelligence) toward a more comprehensive and inclusive model of reserve against disability (cognitive, physical, emotional) and a wider range of modifiable protective factors. In separate lines of work, I am also exploring dissociable neural bases and behavioral phenotypes of memory, processing speed, and other functional deficits, and running randomized controlled trials of interventions to improve cognitive function.

CLINICAL PROFILE

Despite recent increased awareness of cognitive decline among MS patients, clinical attention to such deficits has lagged. Given that MS disease onset typically occurs early in adulthood, even subtle cognitive decline can negatively impact educational, vocational, and social pursuits, thereby diminishing quality of life. My clinical neuropsychological practice at Mount Sinai will provide baseline neuropsychological screenings to newly diagnosed patients, and more comprehensive neuropsychological evaluations to patients experiencing cognitive difficulties, with the goal of providing individualized recommendations to patients to improve cognitive health and enhance quality of life. Psychological distress (anxiety, depression) and adjustment difficulty are common among MS patients. In my experience, MS patients benefit greatly from engagement with other MS patients within a support group setting. In addition to evaluations, I plan to lead time-delimited support groups for persons struggling with their MS diagnosis and/or disease-related cognitive decline.

IMPACT

Through published work and presentations, my work has been the first to extend the theory of reserve against cognitive decline to multiple sclerosis (MS). This work has bolstered evidence that lifestyle choices within a person's control can modulate risk for cognitive decline. This work has received much attention, and several other groups nationally and internationally have subsequently investigated reserve in persons with MS. In addition to mentally-stimulating lifestyles, this concept of reserve has been applied to other modifiable lifestyle factors, such as aerobic experience. I am now working to extend the concept of reserve to physical disability, which will be impactful.

GRANTS, CONTRACTS, FOUNDATION SUPPORT

PAST GRANTS

<u>List Funding Source, Project Title & Number</u>	<u>Role in Project</u>	<u>Dates</u>	<u>Direct Costs</u>	<u>Supplemental Info</u>
NIH K99/R00: "Impact of cognitive reserve on memory functioning in multiple sclerosis" (HD060765)	PI	06/10/2009 – 05/31/2014		
New Jersey Commission on Brain Injury Research (NJCBIR): "Cognitive reserve in traumatic brain injury" (CBIR11PJT020)	Co-PI	06/01/2011 – 05/31/2014		
National MS Society (NMSS): "A randomized controlled trial of intellectual enrichment to increase cognitive reserve in MS" (Pilot Grant)	Co-I	11/01/2011 – 10/31/2012		
NJCMIR: "A randomized controlled trial of aerobic exercise to improve memory in traumatic brain injury" (CBIR12PIL013)	Co-PI	06/01/2013 – 05/31/2015		
NMSS: "Reserve against physical disability in primary progressive multiple sclerosis" (Pilot Grant)	Co-I	09/01/2014 – 08/31/2015		
NMSS: "Educational outcomes of cognitive dysfunction in pediatric MS" (Pilot Grant)	Co-I	04/01/2015 – 03/31/2016		
NMSS: "Brain temperature in multiple sclerosis: Advancing our understanding and treatment of fatigue" (Pilot Grant)	Co-I	10/01/2015 – 09/30/2016		
NMSS: "Pilot Randomized Controlled Trial of Atomoxetine to Treat Memory Impairment in MS Patients" (Pilot Grant)	PI	11/01/2016-04/30/2018		

CURRENT GRANTS

<u>List Funding Source, Project Title & Number</u>	<u>Role in Project</u>	<u>Dates</u>	<u>Direct Costs</u>	<u>Supplemental Info</u>
NIH R01: "Protection against cognitive decline in MS: Longitudinal investigation of reserve" (HD082176)	PI	04/01/2016 – 03/31/2021	Total Award: \$2,087,800	
NIH R01: "MRI predictors of disease and disability progression in African Americans with multiple sclerosis (NS100811)	Co-I	09/30/2017 – 07/31/2022		
NIH U24: "Mount Sinai Network of Excellence in Neuroscience Clinical Trials" (NS107201)	Co-I	07/15/2018 – 06/01/2023		

CLINICAL TRIALS PARTICIPATION

Project	Role in Project	Dates	Award	Other Info
N/A	N/A	N/A	N/A	N/A

TRAINEES

<u>Name</u>	<u>Level of Trainee</u>	<u>Role in Training & Inclusive Dates of Training</u>	<u>Training Venue</u>	<u>Trainees' Current Status/Employment</u>
Victoria Leavitt, Ph.D.	Postdoc Fellow	Secondary Research Mentor (2009-2011) and senior collaborator (2011 – 2014)	Kessler Foundation: Cogn Neurosci Lab	Assistant Prof of Neurology at Columbia University
Julia Coyne, Ph.D.	Postdoc Fellow	Secondary Mentor (2013-2015)	Kessler Foundation: Cogn Neurosci Lab	Assistant Director of Clinical and School Psych Training, Montclair State University
Michael Kern, Ph.D.	Ph.D. Student	Secondary Ph.D. Dissertation Mentor, (2013-2014)	Columbia University	Learning Specialist, Interlochen School for the Arts
Joshua Sandry, Ph.D.	Postdoc Fellow	Secondary Mentor (2014-2015)	Kessler Foundation: Cogn Neurosci Lab	Assistant Prof of Psychology at Montclair State University
Lindsay Plunkett, Ph.D.	Ph.D. Student	Primary Ph.D. Dissertation Mentor, (2013-2015)	Columbia University	Postdoctoral Fellow, Dept. of Neurology, Columbia University Medical Center
Asaff Harel, M.D.	Clinical MS Neurology Fellow	Research Mentor (2017)	CGD MS Center, Icahn School of Medicine at Mount Sinai (ISMMS)	Assistant Professor of Neurology, Hofstra Northwell School of Medicine
Rachel Brandstadter, M.D.	Clinical MS Neurology Fellow	Research Mentor (Current)	CGD MS Center, ISMMS	
Sheyi Ayeni, M.D.	Clinical MS Neurology Fellow	Research Mentor (Current)	CGD MS Center, ISMMS	
Ilena George, M.D.	Clinical MS Neurology Fellow	Research Mentor (Current)	CGD MS Center, ISMMS	
Daniel Kurz, M.D.	Clinical MS Neurology Fellow	Research Mentor (Current)	CGD MS Center, ISMMS	

TEACHING ACTIVITIES

<u>Teaching Activity/Topic</u>	<u>Level</u>	<u>Role</u>	<u>Indicate Level and Number of Learners Taught, and Venue</u>	<u>Number of hours week/month/yr</u>	<u>Evaluation Summary</u>	<u>Years Taught</u>
<i>Taught graduate course at Teachers College, Columbia University, entitled: "Neural bases of language and cognitive development"</i>	<i>Graduate Level: Dept. of Health & Behavior Studies</i>	<i>Adjunct Associate Professor</i>	<i>Ed.M. (~20) and Ph.D. (~5) School Psychology students (each year)</i>	<i>30 hours per year (2 hrs * 15 classes)</i>		<i>2007 – Current (10 years)</i>
<i>Taught Continuing Education Course at the Annual National Academy of</i>	<i>Professional</i>	<i>Instructor</i>	<i>Mixed Ph.D. neuropsychologists and graduate students (~100)</i>	<i>3 hours (One time)</i>		<i>2010</i>

<i>Neuropsychology Conference</i>						
<i>Taught Continuing Education Course at the Annual International Neuropsychological Society Conference</i>	<i>Professional</i>	<i>Instructor</i>	<i>Mixed Ph.D. neuropsychologists and graduate students (~100)</i>	<i>1.5 hours (One time)</i>		<i>2011</i>
<i>Lecture as part of an educational conference for Italian MS Psychologists</i>	<i>Professional</i>	<i>Instructor</i>	<i>Ph.D. Neuropsychologists and graduate students (~80)</i>	<i>30 minutes (One time)</i>		<i>2012</i>
<i>Lecture and moderator as at the annual "Advanced Course on MR Techniques in MS" in Milan, Italy</i>	<i>Professional</i>	<i>Instructor and moderator</i>	<i>Ph.D. and M.D. scientists and clinicians specializing in MS (~75)</i>	<i>1 hour (One time)</i>		<i>2015</i>
<i>Organized and chaired symposia at the annual International Neuropsychological Society conference</i>	<i>Professional</i>	<i>Organizer, chair, and instructor</i>	<i>Ph.D. neuropsychology researchers and clinicians (~120)</i>	<i>1.5 hours (each year)</i>		<i>2010 & 2011</i>
<i>Invited speaker at the Cognitive Neuroscience Seminar at Columbia University Medical Center</i>	<i>Academic and Professional</i>	<i>Instructor</i>	<i>Ph.D. and M.D. researchers and clinicians (~25)</i>	<i>1.5 hours (each year)</i>		<i>2008, 2012, 2014, 2015, 2018</i>
<i>Speaker at Postdoctoral Fellow Didactics and Lab - Department Lectures at Kessler Foundation</i>	<i>Postdoctoral Training & Academic</i>	<i>Instructor</i>	<i>Ph.D. and M.D. postdoctoral research fellows (~8), Ph.D. scientists (~10)</i>	<i>1.5 hours (~3 times per year)</i>		<i>2007-2015</i>

ADMINISTRATIVE LEADERSHIP APPOINTMENTS

INTERNAL:

Research or Clinical: As PI of an R01, I will lead a research team consisting of myself, six co-investigators, and several other research staff (e.g., research assistants, statistician).

Teaching: I have taught a graduate level course at Columbia University for the past ten years, and I have mentored graduate students and postdoctoral fellows. I am currently assisting junior Neurology faculty members seeking training awards (e.g., NIH K awards), and I have taken on the role of clinical research mentor for the CGD Center MS Clinical Neurology Fellowship.

General Administration: Director of the Clinical Neuropsychology Fellowship Program in Neurology, and I manage the MSH Multiple Sclerosis Neuropsychology Service.

EXTERNAL: I was the Chair of the Clinical and Population Health Research Grants Review Committee for the Multiple Sclerosis Society of Canada from 2015-2018. We met twice per year to review investigator-initiated grant applications for MS research. My tenure began in 2015, and I have recommended improvements to the review process, which are being implemented, including clarifying feedback given to investigators. I am also a scientific reviewer member of the Clinical and Population Health Research Grants Review Committee of the National Multiple Sclerosis Society in the United States.

PUBLICATIONS

Peer Reviewed Original Contributions

1. **Sumowski JF**, Benedict R, Enzinger C, Filippi M, Geurts JJ, Hamalainen P, Hulst H, Inglese M, Leavitt VM, Rocca MA, Rosti-Otajarvi EM, Rao S. Cognition in multiple sclerosis: State of the field and priorities for the future. *Neurology* 2018; 90: 278-288.
2. **Sumowski JF**, Leavitt VM, Rocca MA, Inglese M, Riccitelli G, Buyukturkoglu K, Meani A, Filippi M. Mesial temporal lobe and subcortical grey matter volumes differentially predict memory across states of multiple sclerosis. *Mult Scler.* 2018; 24: 675-678.
3. **Sumowski JF**. Brain reserve and cognitive reserve should always be taken into account when studying neurodegeneration. *Mult Scler* 2018; 24: 574-575.
4. Petracca M, **Sumowski JF**, Fabian M, Miller A, Lublin F, Inglese M. Looking into cognitive impairment in primary-progressive multiple sclerosis. *Eur J Neurol* 2018; 25: 192-195.
5. Leavitt VM, Blanchard AR, Guo CY, Gelernt E, **Sumowski JF**, Stein J. Aspirin is an effective pretreatment for exercise in multiple sclerosis: A double-blind randomized controlled pilot trial. *Mult Scler* 2018; 24: 1511-1513.
6. Leavitt VM, Buyukturkoglu K, Inglese M, **Sumowski JF**. Protective personality traits: High openness and low neuroticism linked to better memory in multiple sclerosis. *Mult Scler* 2017;23:1786-1790.
7. **Sumowski JF**, Rocca MA, Leavitt VM, Meani A, Mesaros S, Drulovic J, Preziosa P, Habeck CG, Filippi M. Brain reserve against physical disability progression over five years in multiple sclerosis. *Neurology* 2016; 86: 2006-2009. PMID: 27164681.
8. **Sumowski JF**, Rocca MA, Leavitt VM, Riccitelli G, Meani A, Comi G, Filippi M. Reading, writing, and reserve: Literacy activities are linked to hippocampal volume and memory in multiple sclerosis. *Mult Scler* 2016; 22: 1621-1625. PMID: 26920377.
9. Sandry J, Paxton J, **Sumowski JF**. General mathematical ability predicts PASAT performance in MS patients: Implications for clinical interpretation and cognitive reserve. *J Int Neuropsychol Soc.* 2016; 22: 375-378.
10. **Sumowski JF**, Rocca MA, Leavitt VM, Riccitelli G, Sandry J, DeLuca J, Comi G, Filippi M. Searching for the neural basis of reserve against memory decline: Intellectual enrichment linked to larger hippocampal volume in MS. *Eur J Neurol.* 2016;23:39-44. PMID: 25648966.
11. Leavitt VM, DeMeo, Riccitelli G, Rocca MA, Comi G, Filippi M, **Sumowski JF**. Elevated body temperature is linked to fatigue in an Italian sample of relapsing-remitting multiple sclerosis patients. *J Neurol.* 2015;262:2440-2.
12. Rocca MA, Amato MP, DeStefano N, Enzinger C, Geurts JJ, Penner IK, Rovira A, **Sumowski JF**, Valsasina P, Filippi M, MAGNIMS Study Group. Clinical and imaging assessment of cognitive dysfunction in multiple sclerosis. *Lancet Neurol.* 2015;14:302-17. PMID: 25662900.
13. Coyne JH, Borg JM, DeLuca J, Glass L, **Sumowski JF**. Retrieval practice as an effective memory strategy in children and adolescents with traumatic brain injury. *Arch Phys Med Rehabil.* 2015;96: 742-5. PMID: 25312580.

14. Leavitt VM, Paxton J, **Sumowski JF**. Default network connectivity is linked to memory status in multiple sclerosis. *J Int Neuropsychol Soc*. 2014; 20: 937-944. PMID: 25248054.
15. Leavitt VM, Wylie G, Krch D, Chiaravalloti N, DeLuca J, **Sumowski JF**. Does slowed processing speed account for executive deficits in MS? Evidence from neuropsychological performance and structural neuroimaging. *Rehabil Psychol*. 2014;59:422-8. PMID: 25133903.
16. **Sumowski JF**, Rocca MA, Leavitt VM, Dackovic J, Mesaros S, Drulovic J, DeLuca J, Filippi M. Brain reserve and cognitive reserve protect against cognitive decline over 4.5 years in MS. *Neurology*. 2014;82:1776-83. PMID: 24748670.
17. Sandry J, **Sumowski JF**. Working memory mediates the relationship between intellectual enrichment and long-term memory in multiple sclerosis: An exploratory analysis of cognitive reserve. *J Int Neuropsychol Soc*. 2014;20:868-72. PMID: 25017699.
18. **Sumowski JF**, Leavitt VM. Body temperature is elevated and linked to fatigue in relapsing-remitting multiple sclerosis, even without heat exposure. *Arch Phys Med Rehabil*. 2014;95:1298-1302. PMID: 24561056.
19. Wylie GR, Genova H, DeLuca J, Chiaravalloti N, **Sumowski JF**. Functional magnetic resonance imaging movers and shakers: Does subject-movement cause sampling bias? *Hum Brain Mapp*. 2014; 35:1-13. PMID: 22847906.
20. **Sumowski JF**, Rocca MA, Leavitt VM, Riccitelli G, Comi G, DeLuca J, Filippi M. Brain reserve and cognitive reserve in multiple sclerosis: What you've got and how you use it. *Neurology*. 2013;80: 2184-93. PMID: 23667062.
21. Pinter D, **Sumowski JF**, DeLuca J, Fazekas F, Pichler A, Khalil M, Langkammer C, Fuchs S, Enzinger C. Higher education moderates the effect of T2 lesion load and third ventricle width on cognition in multiple sclerosis. *PLoS ONE*. 2014;9:e87567. PMID: 24475309.
22. **Sumowski JF**, Coyne J, Cohen A, DeLuca J. Retrieval practice improves memory in survivors of severe traumatic brain injury. *Arch Phys Med Rehabil*. 2014;95:397-400. PMID: 24231401.
23. Leavitt VM, Cirnigliaro C, Cohen A, Farag A, Brooks M, Wecht J, Wylie G, Chiaravalloti N, DeLuca J, **Sumowski JF**. Aerobic exercise increased hippocampal volume and improves memory in multiple sclerosis: preliminary findings. *Neurocase*. 2014;20: 695-7. PMID: 24090098.
24. Leavitt VM, Wylie G, Chiaravalloti N, DeLuca J, **Sumowski JF**. Warmer outdoor temperature is associated with task-related increased BOLD activation in patients with multiple sclerosis. *Brain Imaging Behav*. 2014;8:128-32. PMID: 24146082
25. Dobryakova E, Staffaroni A, DeLuca J, **Sumowski JF**, Chiaravalloti N, Wylie GR. CapMan: independent investigation of capacity and manipulation with a new working memory paradigm. *Brain Imaging Behav*. 2014;8:475-9. PMID: 24370894.
26. **Sumowski JF**, Chiaravalloti N, Krch D, Paxton J, DeLuca J. Education attenuates the negative impact of traumatic brain injury on cognitive status. *Arch Phys Med Rehabil*. 2013;94:2562-4. PMID: 23932968.
27. **Sumowski JF**, Wylie GR, Leavitt VM, Chiaravalloti ND, DeLuca J. Default network activity is a sensitive and specific biomarker of memory in MS. *Mult Scler*. 2013;19:199-208. PMID: 22685065.

28. **Sumowski JF**, Leavitt VM, Cohen A, Paxton J, Chiaravalloti N, DeLuca J. Retrieval practice is a robust memory aid for memory-impaired patients with MS. *Mult Scler.* 2013;19:1943-6. PMID: 23674564.
29. Peverly ST, Vekaria PC, Reddington LA, **Sumowski JF**, Johnson KR, Ramsay CM. The relationship of handwriting speed, working memory, language comprehension and outlines to lecture note-taking and test-taking among college students. *Appl Cognitive Psych.* 2013;27:115-26.
30. **Sumowski JF**, Chiaravalloti N, Leavitt VM, DeLuca J. Cognitive reserve in secondary progressive multiple sclerosis. *Mult Scler.* 2012;18:1454-8. PMID: 22389412.
31. Leavitt VM, **Sumowski JF**, Chiaravalloti N, DeLuca J. Warmer outdoor temperature is associated with worse cognitive status in multiple sclerosis. *Neurology.* 2012;78:964-8. PMID: 22402861.
32. Wylie GR, **Sumowski JF**, Murray M. Are there control processes, and (if so) can they be studied? *Psychol Res.* 2011;75:535-43. PMID: 21713443.
33. **Sumowski JF**, Chiaravalloti ND, Erlanger DM, Kaushik T, Benedict R, DeLuca J. L-amphetamine improves memory in MS patients with objective memory impairment. *Mult Scler.* 2011;17:1141-5. PMID: 21561956.
34. Peverly ST, **Sumowski JF**. What variables predict quality of text notes and are test notes related to performance on different types of tests? *Appl Cognitive Psych.* 2011;26:104-17.
35. Krch D, **Sumowski JF**, DeLuca J, Chiaravalloti N. Subjective memory in multiple sclerosis is associated with initial-trial learning performance. *J Int Neuropsychol Soc.* 2011;17:1-5. PMID: 21411038.
36. **Sumowski JF**, Chiaravalloti N, DeLuca J. Retrieval practice improves memory in multiple sclerosis: Clinical application of the testing effect. *Neuropsychology.* 2010;24:267-72. PMID: 20230121.
37. **Sumowski JF**, Wylie GR, Gonnella A, Chiaravalloti N, DeLuca J. Premorbid cognitive leisure independently contributes to cognitive reserve in multiple sclerosis. *Neurology.* 2010;75:1428-31. PMID: 20956787.
38. **Sumowski JF**, Wylie GR, Chiaravalloti N, DeLuca J. Intellectual enrichment lessens the effect of brain atrophy on learning and memory in multiple sclerosis. *Neurology.* 2010;74:1942-5. PMID: 20548040.
39. **Sumowski JF**, Wylie GR, DeLuca J, Chiaravalloti N. Intellectual enrichment is linked to cerebral efficiency in multiple sclerosis: functional magnetic imaging evidence for cognitive reserve. *Brain.* 2010;133:362-74. PMID: 202822636.
40. **Sumowski JF**, Wood HG, Chiaravalloti N, Wylie GR, Lengenfelder J, DeLuca J. Retrieval practice: A simple strategy for improving memory after traumatic brain injury. *J Int Neuropsychol Soc.* 2010;16:1147-50. PMID: 20946709.
41. **Sumowski JF**, Chiaravalloti N, DeLuca J. Cognitive reserve protects against cognitive dysfunction in multiple sclerosis. *J Clin Exp Neuropsychol.* 2009;31:913-26. PMID: 19330566.

42. **Sumowski JF**, Chiaravalloti N, Wylie G, DeLuca J. Cognitive reserve moderates the negative effect of brain atrophy on cognitive efficiency in multiple sclerosis. *J Int Neuropsychol Soc.* 2009;15:606-12. PMID: 19573279.
43. Peverly ST, Ramaswamy V, Brown C, **Sumowski JF**, Alidoost M, Garner J. What predicts skill in lecture note taking? *J Educ Psychol* 2007;99:167-80.

Other Peer Reviewed Publications

44. Krieger SC, **Sumowski JF**. New insights into multiple sclerosis clinical course from the topographical model and functional reserve. *Neurol Clin* 2018; 36: 13-25. (Review)
45. **Sumowski JF**. Cognitive reserve as a useful concept for early intervention research in multiple sclerosis. *Front Neurol.* 2015;6:176. PMID: 26347706. (Opinion)
46. **Sumowski JF**, Leavitt VM. Cognitive reserve in multiple sclerosis. *Mult Scler.* 2013;19:1122-7. PMID: 23897894. (Review)
47. Genova HM, **Sumowski JF**, Chiaravalloti N, Voelbel GT, DeLuca J. Cognition in multiple sclerosis: A review of neuropsychological and fMRI research. *Front Biosci.* 2009;14:1730-44. (Review)

Invited Contributions

48. Feinstein A, Brochet B, **Sumowski JF**. The cognitive effects of anxiety and depression in immune-mediated inflammatory diseases. *Neurology Epub ahead of print.* (Editorial)
49. **Sumowski JF**, McDonnell GV, Bourdette D. Diet in multiple sclerosis: Science takes a seat at the table. *Neurology.* (Editorial)
50. **Sumowski JF**. Educational attainment and cognitive status in MS: Reading, Writing, and Economics. *Mult Scler.* 2015;21:1221-2. PMID: 26014601 (Editorial)
51. Leavitt VM, **Sumowski JF**. Anti-Inflammatory Intervention for Depression. *JAMA Psychiatry* 2015;72:511-2. PMID: 25945486. (Comment)
52. Leavitt VM, **Sumowski JF**. Characterizing cognitive impairment in MS: An essential step towards prediction and prevention. *Eur J Neurol.* 2015;23:225-6. PMID: 25981761. (Editorial)

Books and Book Chapters

Not Applicable.

Non-Peer Reviewed Publications

Not Applicable.

INVITED LECTURES/KEYNOTE PRESENTATIONS

October 2012	"Review of cognitive reserve and brain reserve in MS" Italian MS Society's Annual Conference on MS for Italian Psychologists, Genoa, Italy.
November 2012	"Brain reserve and cognitive reserve: Where are we going?" Magnetic Resonance Imaging in MS (MAGNIMS), Milan, Italy.
April 2013	"Brain reserve and cognitive reserve in multiple sclerosis: Independent and differential contributions of maximal lifetime brain growth and cognitively active lifestyles of cognitive status." University of Toronto, Toronto, Canada.
April 2014	"Longitudinal evidence for brain reserve and cognitive reserve in multiple sclerosis: Larger maximal lifetime brain growth and greater intellectual enrichment attenuate cognitive decline over 4.5 years." Annual meeting of the American Academy of Neurology, Philadelphia, PA.
June 2014	"Cognitive Reserve." Annual meeting of the International Multiple Sclerosis Cognition Society (IMSCOGS), Barcelona, Spain.
September 2014	"Maximal lifetime brain growth (estimated with intracranial volume) predicts disability progression measured with the expanded disability status scale" Annual meeting of ACTRIMS and ECTRIMS, Boston, MA.
November 2014	"Behavioral and cognitive rehabilitation" Annual meeting of the Austrian Neurorehabilitation Society, Graz, Austria.
May 2017	"Cognitive Reserve in Multiple Sclerosis" Annual meeting of Rehabilitation Multiple Sclerosis (RIMS), Barcelona, Spain.
November 2017	"How to Involve the Patient in Managing their Own Disease" Annual meeting of MS Xchange, Montreal, Canada.
November 2017	"Cognition in Multiple Sclerosis" Annual meeting of the Multiple Sclerosis Multidisciplinary Symposium (MSMS), Utrecht, Netherlands.
May 2019	"Priorities for Key Areas Impacting Translational Strategies in Progressive MS: Cognition" Scientific Congress of the International Progressive MS Alliance. = Toronto, Canada. May 22-24, 2018.
October 2018	"Fresh Look at Old Assumptions" International MS Cognition Society (IMSCOGS). Berlin, Germany. October 13, 2018.
October 2018	"Improving Sensitivity of Clinical Balance and Gait Assessment in Early Multiple Sclerosis" ISMMS Department of Rehabilitation and Human Performance. Grand Rounds. October 30, 2018.

In addition, symposia at conferences are listed above within the "Teaching Activities" section.

VOLUNTARY PRESENTATIONS

The following recent abstracts presented at AAN 2018 are 10 of about 140 total abstracts presented at conferences over the past ten years.

Katz Sand I ... **Sumowski JF**. Link between vascular risk factors and grey matter cortical thickness in early MS and the moderating influence of sex. *Platform*.

Brandstadter R ... **Sumowski JF**. Word finding deficits in early multiple sclerosis: A behavioral and neuroimaging investigation. *Platform*.

Kurz D ... **Sumowski JF**. Multitasking is the cognitive ability most linked to depression in multiple sclerosis. *Poster-Talk*.

Fabian M ... **Sumowski JF**. Longer sleep duration is linked to preserved cortical gray matter volume in early MS. *Poster*.

George I ... **Sumowski JF**. Neuroanatomical correlates of latent variables of speed and memory in early multiple sclerosis. *Poster*.

Lewis C ... **Sumowski JF**. Multitasking in early multiple sclerosis. *Poster*.

Yeshokumar A ... **Sumowski JF**. Effects of childhood socioeconomic status on neuroimaging and functional outcomes in patients with MS. *Poster*.

Ayeni O ... **Sumowski JF**. Improved clinical detection of cerebellar lesions in multiple sclerosis patients. *Poster*.

Klineova A ... **Sumowski JF**. Psychological resilience is linked to lower disability in early multiple sclerosis. *Poster*.

Ntrnaos A ... **Sumowski JF**. Fatigue in early multiple sclerosis and the role of the caudate nucleus. *Poster*.

MEDIA RESOURCE EDUCATIONAL MATERIALS

Not Applicable.