

Aron K. Barbey

Andrew J. McKenna Family Professor of Psychology
Founding Director, Notre Dame Human Neuroimaging Center

University of Notre Dame
390 Corbett Family Hall
Notre Dame, IN 46556

Phone: 217-979-8002
Email: abarbey@nd.edu
Web: <https://DecisionNeuroscienceLab.org>

Education

1999 – 2007	Ph.D., Psychology, Emory University
1995 – 1999	B.A., Psychology, University of Texas at Dallas, <i>Cum laude</i>

Academic Employment

2025 – present	Andrew J. McKenna Family Professor, Department of Psychology University of Notre Dame
2025 – present	Founding Director, Notre Dame Human Neuroimaging Center University of Notre Dame
2025 – present	Director, Decision Neuroscience Laboratory University of Notre Dame
2023 – 2025	Mildred Francis Thompson Professor, Department of Psychology University of Nebraska-Lincoln
2023 – 2025	Director, Center for Brain, Biology, and Behavior University of Nebraska-Lincoln

2023 – 2025	Director, Decision Neuroscience Laboratory University of Nebraska-Lincoln
2020 – 2023	Co-chair, Intelligent Systems Major Research Theme University of Illinois at Urbana-Champaign
2020 – 2023	Director, Intelligence, Learning, and Plasticity Initiative University of Illinois at Urbana-Champaign
2019 – present	Professor (Affiliate), Beckman Institute University of Illinois at Urbana-Champaign
2019 – present	Professor (Affiliate), Department of Psychology University of Illinois at Urbana-Champaign
2019 – present	Professor (Affiliate), Department of Bioengineering University of Illinois at Urbana-Champaign
2019 – 2021	Professor (Affiliate), Department of Internal Medicine University of Illinois at Urbana-Champaign
2019 – 2023	Professor (Affiliate), Neuroscience Program University of Illinois at Urbana-Champaign
2019 – 2023	Professor (Affiliate), Carl R. Woese Institute for Genomic Biology University of Illinois at Urbana-Champaign
2016 – 2020	Founding Director, Center for Brain Plasticity University of Illinois at Urbana-Champaign
2016 – 2019	Associate Professor and Emanuel Donchin Professorial Scholar of Psychology University of Illinois at Urbana-Champaign
2016 – 2019	Associate Professor (Affiliate), Department of Bioengineering University of Illinois at Urbana-Champaign
2016 – 2019	Associate Professor (Affiliate), Department of Internal Medicine University of Illinois at Urbana-Champaign
2016 – 2019	Associate Professor (Affiliate), Neuroscience Program University of Illinois at Urbana-Champaign

2016 – 2019	Associate Professor (Affiliate), Carl R. Woese Institute for Genomic Biology University of Illinois at Urbana-Champaign
2011 – 2016	Assistant Professor (Affiliate), Beckman Institute University of Illinois at Urbana-Champaign
2011 – 2016	Assistant Professor, Department of Psychology University of Illinois at Urbana-Champaign
2011 – 2016	Assistant Professor (Affiliate), Department of Bioengineering University of Illinois at Urbana-Champaign
2011 – 2016	Assistant Professor (Affiliate), Department of Internal Medicine University of Illinois at Urbana-Champaign
2011 – 2016	Assistant Professor (Affiliate), Department of Speech and Hearing Science University of Illinois at Urbana-Champaign
2011 – 2016	Assistant Professor (Affiliate), Neuroscience Program University of Illinois at Urbana-Champaign
2011 – 2016	Assistant Professor (Affiliate), Carl R. Woese Institute for Genomic Biology University of Illinois at Urbana-Champaign
2011 – 2023	Director, Decision Neuroscience Laboratory University of Illinois at Urbana-Champaign
2007 – 2011	Adjunct Professor, Department of Psychology Georgetown University
2007 – 2011	Research Fellow, National Institute of Neurological Disorders and Stroke National Institutes of Health
2007	Visiting Research Scientist, Center for Adaptive Behavior and Cognition Max Planck Institute for Human Development

Honors and Awards

2025 – present	<i>Andrew J. McKenna Family Professorship</i> University of Notre Dame
2023 – present	<i>United States Defense Science Study Group</i> Institute for Defense Analyses
2023 – 2025	<i>Mildred Francis Thompson University Professorship</i> University of Nebraska-Lincoln
2019	<i>Mensa Foundation Prize</i> Mensa Foundation
2015	<i>Outstanding Associate Editor Award</i> Frontiers in Human Neuroscience, Frontiers Media, S.A.
2014	<i>Editor's Choice Award</i> <i>Brain</i> , Oxford University Press
2014	<i>Excellence in Clinical Research Award</i> Carle Foundation Hospital
2013	<i>Best Article by an Assistant Professor at the University of Illinois</i> Social and Behavioral Research Council
2010	<i>Editor's Choice Award</i> <i>Cerebral Cortex</i> , Oxford University Press
2009	<i>Early Career Scientific Achievement Award</i> University of Texas at Dallas
2007 – 2011	<i>Intramural Research Training Award</i> National Institute of Neurological Disorders and Stroke

Research Focus

Neural foundations of human intelligence and decision making, with particular interest in enhancing these functions through cognitive neuroscience, physical fitness, and nutritional intervention.

Research Support (+\$30M)

2026 – present	<i>Military Neuroscience for the Common Good</i> Philanthropic Gift Award: \$450,000.00 Role: Principal Investigator
2023 – present	<i>Investigating the Effects of a Balanced, Lean-Protein Diet on Brain Health</i> The National Cattlemen’s Beef Association Award: \$1,200,000.00 Role: Co-Principal Investigator (with D. Schultz)
2023 – present	<i>Investigating the Effects of Lean Pork Consumption on Brain Health</i> The National Pork Board Award: \$342,563.00 Role: Principal Investigator
2022 – 2023	<i>Investigating Novel Measures of Biological Age</i> Advanced Personalized Ideation (API) Center, PepsiCo Award: \$240,821.00 Role: Principal Investigator
2020 – 2023	<i>Bayesian Estimation of Restricted Latent Class Models</i> Methodology, Measurement, and Statistics Program, National Science Foundation Award: \$349,999.00 Role: Co-Principal Investigator (with S. Culpepper)
2020 – 2022	<i>Investigating the Network Architecture of Human Intelligence through AI</i> Google Brain Award: \$30,000.00 Role: Co-Principal Investigator (with L. Varshney)

- 2019 – 2025 *Cognitive and Neurobiological Phenotyping*
Measuring Biological Aptitude (MBA) Program, Defense Advanced Research
Projects Agency (DARPA)
Award: \$9,938,515.00
Role: Co-Principal Investigator (with C. Jaing)
- 2019 – 2022 *Intelligent Forecasting through Explanatory Reasoning and Contextual Learning*
Teaching AI to Leverage Overlooked Residuals (TAILOR) Program, Defense
Advanced Research Projects Agency (DARPA)
Award: \$1,000,000.00
Role: Principal Investigator
- 2018 – 2022 *Cognitive Enrichment and Aging: An Ecological Framework*
National Institute of Aging, R56, National Institutes of Health
Award: \$581,523.00
Role: Co-Investigator (Principal Investigator: E. A. L. Stine-Morrow)
- 2016 – 2019 *Everyday Reading, Personality, and Cognitive Health in Older Adults*
National Institute of Aging, R21, National Institutes of Health
Award: \$436,150.00
Role: Co-Investigator (Principal Investigator: E. A. L. Stine-Morrow)
- 2015 – 2018 *Invariants of Decision Making*
Decision, Risk, and Management Sciences Program, National Science Foundation
Award: \$299,868.00
Role: Co-Principal Investigator (with M. Regenwetter)
- 2015 – 2017 *Longitudinally Dynamic Nutrient Biomarkers of Healthy Brain Aging*
Abbott Nutrition
Award: \$732,819.00
Role: Principal Investigator
- 2015 – 2022 *Optimizing Tools for Nutritional Enhancement of Learning and Memory*
Abbott Nutrition
Award: \$325,000.00
Role: Co-Investigator (Principal Investigator: N. J. Cohen)

- 2014 – 2018 *An Integrative System for Enhancing Fluid Intelligence (Gf) Through Human Cognitive, Physical Fitness, HD-tDCS, and Nutritional Intervention*
Strengthening Human Adaptive Reasoning and Problem Solving (SHARP)
Program, Intelligence Advanced Research Projects Activity (IARPA)
Award: \$12,119,039.00
Role: Principal Investigator
- 2014 – 2019 *Nutritional Enhancement of Cognitive and Physical Performance in Active Duty Air Force Service Members: A Randomized Controlled Trial*
Abbott Nutrition and the Air Force Research Laboratory
Award: \$1,008,068.00
Role: Principal Investigator
- 2012 – 2017 *Nutrient and Brain Imaging Biomarkers of Healthy Cognitive Aging*
Abbott Nutrition
Award: \$1,315,148.00
Role: Principal Investigator

Professional Associations

American Association for the Advancement of Science
American Psychological Association
Cognitive Neuroscience Society
Cognitive Science Society
International Society for Intelligence Research
Organization for Human Brain Mapping
Psychonomic Society
Society for Neuroscience

Service

Editorial Board

2023 – present Trends in Neuroscience and Education, Elsevier
2023 – 2024 Cortex, Elsevier
2020 – present Collabra: Psychology, University of California Press

January 1, 2026

2016 – 2024	Intelligence, Elsevier
2016 – 2022	NeuroImage, Elsevier
2014 – present	Thinking & Reasoning, Taylor & Francis
2012 – 2019	Frontiers in Human Neuroscience, Frontiers Media, S.A.

Occasional Reviewer: Journals

Annals of Neurology
 Behavioral and Brain Sciences
 Biological Psychology
 Brain Structure and Function
 Cerebral Cortex
 Cognition
 Cognitive Computation
 Cognitive Science
 Cortex
 European Journal of Cognitive Psychology
 Experimental Brain Research
 Frontiers in Human Neuroscience
 Frontiers in Neurology
 Human Brain Mapping
 Intelligence
 Journal of Cognitive Neuroscience
 Journal of Experimental Psychology: General
 Journal of Neuroscience
 Journal of the International Neuropsychological Society
 Mind and Machines
 Nature
 Nature Communications
 Nature Neuroscience
 Nature Scientific Reports
 NeuroImage
 Neuropsychologia
 Neuroscience Letters
 Nutritional Neuroscience
 Patterns
 Proceedings of the National Academy of Sciences
 Psychological Review
 Psychological Science
 Psychology and Aging
 Psychonomic Bulletin and Review
 Quarterly Journal of Experimental Psychology

Social, Cognitive, and Affective Neuroscience
Thinking & Reasoning
Trends in Cognitive Sciences
Trends in Neuroscience and Education

Occasional Reviewer: Funding Agencies

Air Force Office of Scientific Research
Canadian Federal Agency: National Sciences and Engineering Research Council
Congressionally Directed Medical Research Programs: Traumatic Brain Injury and Psychological Health
Congressionally Directed Medical Research Programs: Military Operational Medicine
Irish Research Council
National Aeronautics and Space Administration: Human Exploration Research Opportunities
National Institutes of Health: BRAIN Initiative
National Institute of Health: F01B Study Section
National Sciences and Engineering Research Council of Canada
Swiss National Science Foundation

Occasional Reviewer: Publishers

Academic Press
Cambridge University Press
Lawrence Erlbaum Publishers
McGraw-Hill Publishers
Oxford University Press
Psychology Press
Springer Nature

University of Illinois: College Service

2019 – 2023	Appeals Committee
2019 – 2023	Policy and Development Committee
2016 – 2023	Carle-Illinois Research Steering Committee
2016 – 2023	Neuroscience Program Executive Committee
2015 – 2023	Center for Wounded Veterans Steering Committee
2015 – 2023	iHealth College Curriculum Committee
2014 – 2015	Chair, College of Applied Health Sciences Faculty Search Committee
2013 – 2014	College of Applied Health Sciences, Faculty Search Committee
2012 – 2023	Neuroscience Program Admissions Committee
2011 – 2023	Neuroscience Program Colloquia Committee

University of Illinois: Department Service

2021 – 2023	Cognitive Neuroscience Faculty Search Committee
2021 – 2023	Brain and Cognitive Sciences Implementation Committee
2021 – 2023	Chair, Faculty Promotion and Tenure Committee
2019 – 2023	Admissions Committee
2019 – 2023	External Relations Committee
2019 – 2023	Lanier Lecture Committee
2018 – 2019	Behavioral Neuroscience Faculty Search Committee
2018 – 2023	Information Technology Committee
2017 – 2018	Chair, Cognitive Neuroscience Program Colloquium
2013 – 2014	Graduate Programs Committee
2012 – 2013	Graduate Admissions Committee
2012 – 2013	Program Policy Committee

University of Illinois: University Service

2023 – 2023	Faculty Senate
2021 – 2022	Faculty Appeals Committee
2020 – 2023	Beckman Institute Executive Committee
2020 – 2023	Director, Intelligence, Learning, and Plasticity Initiative
2020 – 2023	Co-chair, Intelligence Systems Major Research Theme
2018 – 2019	Chair, University of Illinois Sesquicentennial Conference Symposium
2016 – 2020	Founding Director, Center for Brain Plasticity
2014 – 2023	Illinois Language and Literacy Initiative Committee
2013 – 2023	Illinois Learning Sciences Design Lab Steering Committee
2012 – 2023	Beckman Institute Program Advisory Committee

University of Nebraska-Lincoln: University Service

2023 – 2025	Director, Center for Brain, Biology, and Behavior
2025 – 2025	Member, External Review of the Nebraska Center for Virology

University of Notre Dame: College of Arts & Letters

2025 – present	Founding Director, Notre Dame Human Neuroimaging Center
----------------	---

University of Notre Dame: Departmental Service

2025	Chair, Cognitive Neuroscience Faculty Search Committee
2025	Chair, Developmental Neuroscience Faculty Search Committee

International Service

2018 – present Scientific Advisory Board, Institute of Inflammation and Ageing
University of Birmingham, England, UK

Scientific Consulting

2020 – 2021 Scientific Advisory Board
Google X, The Moonshot Factory, Mountain View, CA

Teaching

2025 – present The Extended Mind: From Individual Brains to Collective
Cognition (Undergraduate College Seminar)
University of Notre Dame

2018 – 2023 Capstone Undergraduate Research Methods (Undergraduate Course)
University of Illinois at Urbana-Champaign

2018 – 2023 Cognitive Neuroscience Departmental Symposium (Graduate Course)
University of Illinois at Urbana-Champaign

2016 – 2023 Cognitive Neuroscience of Causal Reasoning (Graduate Course)
University of Illinois at Urbana-Champaign

2016 – 2023 Cognitive Neuroscience of Human Intelligence (Undergraduate Course)
University of Illinois at Urbana-Champaign

2014 Introduction to Cognitive Neuroscience (Undergraduate Course)
University of Illinois at Urbana-Champaign

2013 Introduction to Neuroplasticity and Rehabilitation (Undergraduate Course)
University of Illinois at Urbana-Champaign

2012 Professional Issues Seminar (Graduate Course)
University of Illinois at Urbana-Champaign

2009 Introduction to Cognitive Neuroscience (Undergraduate Course)
Georgetown University

2009	Introduction to Psychology (Undergraduate Course) Georgetown University
2005	Probability and Statistics with Applications (Undergraduate Course) Emory University

Mentoring

Research Assistant Professors

2024 – 2025	Babak Hemmatian, Ph.D. Decision Neuroscience Laboratory University of Nebraska-Lincoln
2024 – present	Nathan Muncy, Ph.D. Decision Neuroscience Laboratory University of Notre Dame
2023 – 2025	Douglas Schultz, Ph.D. Decision Neuroscience Laboratory University of Nebraska-Lincoln

Research Scientists

2018 – 2020	Tanveer Talukdar, Ph.D. Decision Neuroscience Laboratory University of Illinois at Urbana-Champaign
2017 – 2019	Hillary Schwarb Rohrig, Ph.D. Decision Neuroscience Laboratory University of Illinois at Urbana-Champaign
2012 – 2017	Kevin Jackson, Ph.D. Decision Neuroscience Laboratory University of Illinois at Urbana-Champaign
2012 – 2023	Ryan Larsen, Ph.D. Decision Neuroscience Laboratory University of Illinois at Urbana-Champaign

Post-Doctoral Fellows

2020 – 2024	Babak Hemmatian, Ph.D. Decision Neuroscience Laboratory University of Illinois at Urbana-Champaign
2020 – 2023	Rebecca Power, Ph.D. Decision Neuroscience Laboratory University of Illinois at Urbana-Champaign
2020 – 2023	Pablo Robles-Granda, Ph.D. Decision Neuroscience Laboratory University of Illinois at Urbana-Champaign
2018 – 2020	Kelsey Hassevoort, Ph.D. Decision Neuroscience Laboratory University of Illinois at Urbana-Champaign
2018 – 2021	Matthew Moore, Ph.D. Decision Neuroscience Laboratory University of Illinois at Urbana-Champaign
2017 – 2021	Valentina Di Pietro, Ph.D. Decision Neuroscience Laboratory University of Illinois at Urbana-Champaign BRIDGE Program
2016 – 2023	Chris Zwilling, Ph.D. Decision Neuroscience Laboratory University of Illinois at Urbana-Champaign
2014 – 2018	Ana Daugherty, Ph.D. Decision Neuroscience Laboratory University of Illinois at Urbana-Champaign
2014 – 2017	Reuven Hammer, Ph.D. Decision Neuroscience Laboratory University of Illinois at Urbana-Champaign
2014 – 2017	Javier Roman, Ph.D. Decision Neuroscience Laboratory University of Illinois at Urbana-Champaign

2013 – 2015	Gillian Cooke, Ph.D. Decision Neuroscience Laboratory University of Illinois at Urbana-Champaign
2013 – 2015	James Monti, Ph.D. Decision Neuroscience Laboratory University of Illinois at Urbana-Champaign
2013 – 2017	Hillary Schwarb Rohrig, Ph.D. Decision Neuroscience Laboratory University of Illinois at Urbana-Champaign
2013 – 2017	Rachael Rubin, Ph.D. Decision Neuroscience Laboratory University of Illinois at Urbana-Champaign
2013 – 2018	Tanveer Talukdar, Ph.D. Decision Neuroscience Laboratory University of Illinois at Urbana-Champaign
2013 – 2016	Nathan Ward, Ph.D. Decision Neuroscience Laboratory University of Illinois at Urbana-Champaign
2013 – 2016	Patrick Watson, Ph.D. Decision Neuroscience Laboratory University of Illinois at Urbana-Champaign
2012 – 2017	Erick J. Paul, Ph.D. Decision Neuroscience Laboratory University of Illinois at Urbana-Champaign

Graduate Students

2025 – present	Antonio Miesel Department of Psychology University of Notre Dame
2025 – present	Melissa Pax Department of Psychology University of Notre Dame

2023 – 2025	Heather Bouchard Department of Psychology University of Nebraska-Lincoln
2020 – present	Alexanndra Angebrandt Department of Psychology University of Notre Dame
2019 – 2021	Ilaria Amato Department of Psychology University of Illinois at Urbana-Champaign
2019 – present	Ramsey Wilcox Department of Psychology University of Notre Dame
2019 – present	Jisheng Wu Department of Psychology University of Notre Dame
2018 – 2021	Grace Goodwin Department of Psychology University of Illinois at Urbana-Champaign
2016 – 2022	Evan Anderson Neuroscience Program University of Illinois at Urbana-Champaign
2015 – 2019	Kelly Hewes Medical Scholars Program University of Illinois at Urbana-Champaign
2015 – 2022	Mickeal Key Neuroscience Program University of Illinois at Urbana-Champaign
2015 – 2019	Nikolai Sherepa Neuroscience Program University of Illinois at Urbana-Champaign

2014 – 2017	John Capozzo Neuroscience Program University of Illinois at Urbana-Champaign
2013 – 2017	Marta Zamroziewicz Medical Scholars Program University of Illinois at Urbana-Champaign
2012 – 2017	Michael Kruepke Department of Psychology University of Illinois at Urbana-Champaign
2012 – 2018	Joachim Operskalski Medical Scholars Program University of Illinois at Urbana-Champaign
2011 – 2015	Nicole Van Hoeck (Co-Advised with Professor Van Overwalle) Department of Clinical and Lifespan Psychology Vrije Universiteit Brussel

Invited Talks

2026	International Meeting of the Psychometric Society Psychometric Society, Seoul, ROK
2025	Defense Science Study Group Institute for Defense Analyses, Alexandria, VA, USA
2025	Performance Optimization in Collegiate Athletes University of Nebraska-Lincoln, Lincoln, NE, USA
2025	Brain and Ocular Nutrition Conference Endicott College, Beverly, MA, USA
2025	Institute of Inflammation and Ageing University of Birmingham, England, UK
2024	International Brain Imaging Symposium Institute for Advanced Studies, Delmenhorst, DE

2024	International Research Center for Neurointelligence University of Tokyo, Tokyo, Japan
2024	Department of Behavioral and Brain Sciences University of Texas at Dallas, Dallas, TX, USA
2023	“Measuring Biological Aptitude” Program Meeting DARPA, Arlington, VA, USA
2023	Center for Brain, Biology, and Behavior University of Nebraska-Lincoln, Lincoln, NE, USA
2023	School of Psychology Georgia Institute of Technology, Atlanta, GA, USA
2023	Western Institute for Neuroscience Western University, ON, CA
2022	Nutrition and Wellness Science Forum Washington, DC, USA
2022	Food and Nutrition Conference and Expo (FNCE) Orlando, FL, USA
2022	Department of Psychiatry and Behavioral Sciences Stanford University School of Medicine, Stanford, CA, USA
2021	Tech Talk at Google X Mountain View, CA, USA
2020	“Teaching AI to Leverage Overlooked Residuals” Program Meeting DARPA, Arlington, VA, USA
2020	MITRE Cognitive Neuroscience Workshop McLean, VA, USA
2019	American Society for Nutrition Baltimore, MD, USA
2019	Bayer Brain Health Summit Whippany, NJ, USA

2019	Center for BrainHealth University of Texas at Dallas, Dallas, TX, USA
2019	Cognitive Neuroscience Society San Francisco, CA, USA
2019	“Measuring Biological Aptitude” Program Meeting DARPA, Arlington, VA, USA
2019	“Teaching AI to Leverage Overlooked Residuals” Program Meeting DARPA, Arlington, VA, USA
2019	European Society for Cognitive Psychology Tenerife, Spain
2019	Nutritional Research Centre Waterford Institute of Technology, Waterford, Ireland
2019	Human Performance Summit University of Colorado Boulder, CO, USA
2019	Military Health Science Research Symposium Orlando, FL, USA
2019	Nestlé Institute of Health Sciences Lausanne, CH
2018	Brain and Ocular Nutrition Conference University of Cambridge, Cambridge, England, UK
2018	Institute of Inflammation and Ageing University of Birmingham, Birmingham, England, UK
2018	Neurobiology and Eating Behavior Conference University of Nebraska-Lincoln, Lincoln, NE, USA
2017	Air Force Research Laboratory Wright Patterson Air Force Base, Dayton, OH, USA
2017	Department of Psychology Rice University, Houston, TX, USA

2017	IEEE Brain Initiative Charles River Analytics, Boston, MA, USA
2017	Pioneers in Biomedical Research Symposium Virginia Tech Carilion Research Institute, Roanoke, VA, USA
2016	Clinical and Translational Neuroscience Carle Foundation Hospital, Urbana, IL, USA
2016	Department of Psychology Stockholm University, Stockholm, SWE
2016	Department of Psychology University of California Berkeley, Berkley, CA, USA
2016	Department of Psychology University of Michigan, Ann Arbor, MI, USA
2016	White House Brain Initiative National Institutes of Health, Bethesda, MD, USA
2015	Department of Psychology University of Birmingham, England, UK
2015	Global Issues Forum: Smart Cities, Healthy Cities National Taiwan University, Taipei, TW
2015	Serious Games Conference University of Trento, IT
2015	Wicking Dementia Research and Education Centre University of Tasmania, Tasmania, AU
2015	White House Brain Initiative National Institutes of Health, Bethesda, MD, USA
2014	Department of Psychology Vrije Universiteit Brussel, Brussels, BXL
2014	Learning and the Brain Symposium Dana Alliance for Brain Initiatives, New York, NY, USA

2013	Brain Injury Research Laboratory Rehabilitation Institute of Chicago, IL, USA
2012	Director's Seminar Series at the Beckman Institute University of Illinois at Urbana-Champaign, Urbana, IL, USA
2011	Bioimaging Research Center University of Georgia, Athens, GA, USA
2011	Center for the Neural Basis of Cognition University of Pittsburgh and Carnegie Mellon University, Pittsburgh, PA, USA
2011	Department of Neurosurgery Carle Foundation Hospital, Urbana, IL, USA
2011	School of Medicine and Research Institute Virginia Tech Carilion Research Institute, Roanoke, VA, USA
2010	Department of Psychology University of Maryland, College Park, MD, USA
2009	Department of Neuroscience Georgetown University, Washington, DC, USA
2008	Department of Psychology Georgetown University, Washington, DC, USA
2008	Clinical Center Grand Rounds National Institute of Neurological Disorders and Stroke, Bethesda, MD, USA
2007	Center for Adaptive Behavior and Cognition Max Planck Institute for Human Development, Berlin, DE

Publications

Books

1. **Barbey, A. K.** (Forthcoming). Redefining Intelligence: What Network Neuroscience Reveals about the Nature of Human Intelligence. *MIT Press*.

Edited Handbooks and Journal Special Issues

1. **Barbey, A. K.** (In Press). The Oxford Handbook of Cognitive Enhancement and Brain Plasticity. *Oxford University Press*.
2. **Barbey, A. K., & Davis, T. A.** (2025). Nutrition and the Brain: Exploring Pathways for Optimal Brain Health through Nutrition. *The Journal of Nutrition*, The American Society for Nutrition.
3. **Barbey, A. K., & Schultz, D.** (Forthcoming). The Psychology of Performance Optimization in Collegiate Athletes. *Springer*.
4. **Barbey, A. K.** (2025). Environmental Influences on the Human Brain. Edited Section within The Encyclopedia of the Human Brain (Ed. J. Grafman). *Elsevier Press*.
5. **Barbey, A. K., & Koyejo, S.** (2024). Advances in Human and Machine Intelligence. *Patterns, Cell Press*.
6. Boyle, G. J., **Barbey, A. K.**, Northoff, G., Fregni, F., Sahakian, B. J., & Pascaul-Leone, A. (2023). The Sage Handbook of Cognitive and Systems Neuroscience (2 Volumes). *Sage Publishing*.
7. Tanprasertsuk, J., **Barbey, A. K.**, & Johnson, E. J. (2023). Age as an Effect Modifier of Nutrition and Health. *Frontiers in Aging, Nature Publishing Group*.
8. **Barbey, A. K.**, Karama, S., & Haier, R. J. (2021). The Cambridge Handbook of Intelligence and Cognitive Neuroscience. *Cambridge University Press*.
9. **Barbey, A. K., & Posner, M. I.** (2020). Cognitive Neuroscience of Human Intelligence. *Trends in Neuroscience and Education, Elsevier Press*.
10. **Barbey, A. K.**, Johnson, L., & Dauncey, M. J. (2017). Nutritional Cognitive Neuroscience: Research at the Crossroads of Nutrition, Psychology, and Neuroscience. *Frontiers in Aging Neuroscience, Nature Publishing Group*.
11. **Barbey, A. K., & Patterson, R.** (2015). Human Explanation: Psychology, Computation, and Neuroscience. *Frontiers in Human Neuroscience, Nature Publishing Group*.

Peer-Reviewed Journal Publications

1. **Barbey, A. K.** (In Press). Nutritional cognitive neuroscience: The science of mind, brain, and nutrition. *The Journal of Nutrition*.

2. Wilcox, R., Hemmatian, B., Varshney, L., & **Barbey, A. K.** (In Press). The network architecture of general intelligence in the human connectome. *Nature Communications*.
3. Wu, J., & **Barbey, A. K.** (In Press). Nutrition and mental health: Advances in nutritional cognitive neuroscience. *Annual Reviews of Food Science and Technology*.
4. Drocco, J. A., Halliday, K., Stewart, B. J., Sandholtz, S. H., Morrison, M. D., Thissen, J. B., Be., N. A., Zwilling, C. E., Wilcox, R., Culpepper, S. A., **Barbey, A. K.**, & Jaing, C. J. (2025). Efforts to enhance reproducibility in a human performance research project. *F1000Research*.
5. Zwilling, C. E., Wu, J., & **Barbey, A. K.** (2024). Investigating nutrient biomarkers of healthy brain aging: A multimodal brain imaging study. *Nature Aging*, 10, 27.
6. Anderson, E. D., Talukdar, T., Goodwin, G., Di Pietro, V., Zwilling, C. E., Yakoub, K., Davies, D., Belli, A., & **Barbey, A. K.** (2023). Assessing blood oxygen level-dependent signal variability as a biomarker of brain injury in sports-related concussion. *Brain Communications*, 5, fcad215.
7. Hemmatian, B., Varshney, L., Pi, F., & **Barbey, A. K.** (2023). The utilitarian brain: Moving beyond the free energy principle. *Cortex*, 170, 69-79.
8. Talukdar, T., Zwilling, C. E., & **Barbey, A. K.** (2023). Integrating nutrient biomarkers, cognitive function, and structural MRI data to build multivariate phenotypes of healthy aging. *The Journal of Nutrition*, 153, 1338-1346.
9. Wilcox, R., & **Barbey, A. K.** (2023). Connectome-based predictive modeling of fluid intelligence: Evidence for a global system of functionally integrated brain networks. *Cerebral Cortex*, 33, 10322-10331.
10. Anderson, E. D., & **Barbey, A. K.** (2022). Investigating cognitive neuroscience theories of human intelligence: A connectome-based predictive modeling approach. *Human Brain Mapping*, 1-19.
11. Stine-Morrow, E. A. L., McCall, G. S., Manavbasi, I., Ng, S., Llano, D. A., & **Barbey, A. K.** (2022). The effects of sustained literacy engagement on cognition and sentence processing among older adults. *Frontiers in Psychology*, 13, 923795.
12. Sloman, S. A., Patterson, R., & **Barbey, A. K.** (2021). Cognitive neuroscience meets the community of knowledge. *Frontiers in Systems Neuroscience*, 15, 675127.

13. Varshney, L., & **Barbey, A. K.** (2021). Beyond IQ: The importance of metacognition for global wellbeing. *Journal of Intelligence*, 9, 54.
14. Tanprasertsuk J., Scott, T. M., Johnson, M. A., Poon, L. W., Nelson, P. T., Davey, A., Woodard, J. L., Vishwanathan, R., **Barbey, A. K.**, Barger, K., Wang, X., & Johnson, E. J. (2021). Brain α -tocopherol concentration is inversely associated with neurofibrillary tangle counts in brain regions affected in early braak stages: A cross-sectional finding in the oldest old. *Journal of Aging Research and Lifestyle*, 10, 8-16.
15. Daugherty, A., Sutton, B., Hillman, C. H., Kramer, A. F., Cohen, N. J., & **Barbey, A. K.** (2020). Individual differences in the neurobiology of fluid intelligence predict responsiveness to training: Evidence from a comprehensive cognitive, mindfulness meditation, and aerobic fitness intervention. *Trends in Neuroscience and Education*, 18, 100123.
16. Di Pietro, V., Yakoub, K., Caruso, G., Amorini, A., Lazzarino G., Tavazzi, B., & **Barbey, A. K.**, Belli, A., Lazzarino, G. (2020). Antioxidant therapy in traumatic brain injury. *Antioxidants & Redox Signaling*, 9, 260.
17. Harshman, S., Pitsch, R., Schaeublin, N., Smith, Z., Strayer, K., Qualley, A., Cowan, D., Rose, S., O'Connor, M., Eckerle, J., Das, T., & **Barbey, A. K.**, Strang, A., Martin, J. (2020). Metabolic stability of exercise-induced sweat. *Journal of Chromatography B*, 121763, 1126-1127.
18. Hiscox, L. V., McGarry, M., Schwarb, H., Van Houten, E. E., Pohlig, R. T., Roberts, N., Huesmann, G. R., Burzynska, A. Z., Sutton, B. P., Hillman, C. H., Kramer, A. F., Cohen, N. J., **Barbey, A. K.**, Paulsen, K.D., & Johnson, C. L. (2020). Standard-space atlas of the viscoelastic properties of the human brain. *Human Brain Mapping*, 41, 5282-5300.
19. Larsen, R., Raine, L., Hillman, C. H., Kramer, A. F., Cohen, N. J., & **Barbey, A. K.** (2020). Body mass and cardiorespiratory fitness are associated with altered brain metabolism. *Metabolic Brain Disease*, 35, 999-1007.
20. Pindus, D. M., Zwilling, C., Jarret, J., Rohrig, H. S., Cohen, N. J., Kramer, A. F., **Barbey, A. K.**, Hillman, C. H. (2020). Opposing associations between sedentary time and decision-making competence in young adults revealed by functional connectivity in the dorsal attention network. *Nature Scientific Reports*, 10, 13993.
21. Posner, M. I., & **Barbey, A. K.** (2020). General intelligence in the age of neuroimaging. *Trends in Neuroscience and Education*, 18, 100126.

22. Rajesh, A., Daugherty, A. M., Jain, S., Henry, D., **Barbey, A. K.**, Rubin, R. D. (2020). Comorbid conditions differentiate rehabilitation profiles in traumatic versus non-traumatic brain injury: A retrospective analysis using a medical database. *Journal of Head Trauma Rehabilitation*, 35, E524-E534.
23. Zwillling, C. E., Strang, A., Anderson, A., Jurcsisn, J., Johnson, E., Das, T., Kuchan, M. J., & **Barbey, A. K.** (2020). Enhanced physical and cognitive performance in active duty airmen: Evidence from a randomized multimodal physical fitness and nutritional intervention. *Nature Scientific Reports*, 10, 17826.
24. Hammer R., Paul E. J., Hillman, C. H., Kramer, A. F., Cohen, N. J., & **Barbey, A. K.** (2019). Individual differences in analogical reasoning revealed by multivariate task-based functional brain imaging. *NeuroImage*, 184, 993-1004.
25. Key, M., Zwillling, C. E., Talukdar, T., & **Barbey, A. K.** (2019). Essential amino acids, vitamins, and minerals moderate the relationship between the right frontal pole and measures of memory. *Molecular Nutrition and Food Research*, 63, 1801048.
26. Roman, J., Colom, R., Hillman, C. H., Kramer, A. F., Cohen, N. J., & **Barbey, A. K.** (2019). Cognitive and neural architecture of decision making competence. *NeuroImage*, 199, 172-183.
27. Talukdar, T., Zamroziewicz, M., Zwillling, C., & **Barbey, A. K.** (2019). Nutrient biomarkers shape individual differences in functional brain connectivity. *Human Brain Mapping*, 40, 1887-1897.
28. Tanprasertsuk, J., Johnson, E. J., Johnson, M. A., Poon, L. W., Nelson, P. T., Davey, A., Martin, P., & **Barbey, A. K.**, Barger, K., Wang, X., Scott, T. M. (2019). Clinico-neuropathological findings in the oldest old from the Georgia Centenarian Study. *Journal of Alzheimer's Disease*, 70, 35-49.
29. Turner, B. O., Paul, E. J., **Barbey, A. K.** & Miller, M. B. (2019). Reply to 'fMRI replicability depends upon sufficient individual-level data'. *Nature Communications Biology*, 2, 129.
30. Yakoub, K., Davies, D., Zhangie, S., Bentley, C., Toman, E., Hammond, D., Forcione, M., Watson, C., Bishop, J., Cooper, L., **Barbey, A. K.**, Sawlani, V., Di Pietri, V., Grey, & M., Belli, A., (2019). An investigation into Repetitive Concussion in Sport (RECOS): A study protocol of a prospective, observational cohort study. *BMJ Open*, 9, e029883.
31. Zwillling C. E., Daugherty, A., Hillman, C. H., Kramer, A. F., Cohen, N. J., & **Barbey. A. K.** (2019). Enhancing decision making through multi-modal training. *Nature Science of Learning*, 4, 11.

32. Zwillling, C. E., Talukdar, T., Zamroziewicz, M., & **Barbey, A. K.** (2019). Nutrient biomarker patterns, cognitive function, and fMRI measures of network efficiency in the aging brain. *NeuroImage*, 188, 239-251.
33. **Barbey, A. K.** (2018). Network neuroscience theory of human intelligence. *Trends in Cognitive Sciences*, 22, 8-20.
34. Daugherty, A. M., Zwillling, C., Paul, E. J., Sherepa, N., Allen, C., Kramer, A. F., Hillman, C. H., Cohen, N. J., & **Barbey, A. K.** (2018). Multimodal fitness and cognitive training to enhance fluid intelligence. *Intelligence*, 66, 32-43.
35. Di Pietro, V., Porto, E., Ragusa, M., Barbagallo, C., Davies, D., Forcione, M., Logan, A., Di Pietro, C., Purrello, M., Grey, M., Hammond, D., **Barbey, A. K.**, & Belli, A. (2018). Salivary microRNAs: Diagnostic markers of mild traumatic brain injury in contact-sport. *Frontiers in Molecular Neuroscience*, 11, 290.
36. Johnson, C. L., Schwarb, H., Horecka, K. M., McGarry, D. J., Hillman, C. H., Kramer, A. F., Cohen, N. J., & **Barbey, A. K.** (2018). Double dissociation of structure-function relationships in memory and fluid intelligence observed with magnetic resonance elastography. *NeuroImage*, 1, 99-106.
37. Sandroff, B., Motl, R., Reed, W., **Barbey, A. K.**, Benedict, R., & De Luca, J. (2018). Integrative CNS plasticity with exercise in MS: The PRIMERS (Processing, Integration of Multisensory Exercise-Related Stimuli) conceptual framework. *Neurorehabilitation and Neural Repair*, 32, 847-862.
38. Sharp, P. B., Sutton, B. P., Paul, E. J., Hillman, C. H., Cohen, N. J., Kramer, A. F., Heller, W., Telzer, E. H., & **Barbey, A. K.** (2018). Mindfulness training induces structural connectome changes in mechanisms of interoception. *Nature Scientific Reports*, 8, 7929.
39. Talukdar, T., Román, F. J., Zwillling, C. E., Operskalski, J. T., & **Barbey, A. K.** (2018). Individual differences in decision making competence revealed by multivariate fMRI. *Human Brain Mapping*, 39, 2664-2672.
40. Turner, B. O., Paul, E. J., Miller, M. B., & **Barbey, A. K.** (2018). Small sample sizes reduce the replicability of task-based fMRI studies. *Nature Communications Biology*, 1, 62.
41. Greenlee, T. A., Greene, D. R., Ward, N. J., Reeser, G. E., Allen, C. M., Baumgartner, N. W., Cohen, N. J., Kramer, A. F., Hillman, C. H., & **Barbey, A. K.** (2017). Effectiveness of a 16-week high-intensity cardio-resistance training program in adults. *Journal of Strength and Conditioning Research*, 31, 2528-2541.

42. Kruepke, M., Molloy, E. K., Bresin, K., **Barbey, A. K.**, & Verona, E. (2017). A brief assessment tool for investigating facets of moral judgment from realistic vignettes. *Behavior Research Methods*, 50, 922-936.
43. Talukdar, M. T., Nikolaidis, A., Zwillling, C. E., Paul, E. J., Hillman, C. H., Cohen, N. J., Kramer, A. F., & **Barbey, A. K.** (2017). Aerobic fitness explains individual differences in the functional brain connectome of healthy young adults. *Cerebral Cortex*, 14, 1-10.
44. Ward, N., Paul, E. J., Watson, P., Cooke, G., Hillman, C. H., Cohen, N. J., Kramer, A. F., & **Barbey, A. K.** (2017). Enhanced learning through multimodal training: Evidence from a comprehensive cognitive, physical fitness, and neuroscience intervention. *Nature Scientific Reports*, 7, 5808.
45. Zamroziewicz, M. K., Paul, E. J., Zwillling, C. E., & **Barbey, A. K.** (2017). Predictors of memory in healthy aging: Polyunsaturated fatty acid balance and fornix white matter integrity. *Aging and Disease*, 8, 372-383.
46. Zamroziewicz, M. K., Paul, E. J., Zwillling, C. E., & **Barbey, A. K.** (2017). Determinants of fluid intelligence in healthy aging: Omega-3 polyunsaturated fatty acid status and frontoparietal cortex structure. *Nutritional Neuroscience*, 11, 1-10.
47. Zamroziewicz, M. K., Talukdar, M. T., Zwillling, C. E., & **Barbey, A. K.** (2017). Nutritional status, brain network organization, and general intelligence. *NeuroImage*, 161, 241-250.
48. Schwarb, H., Johnson, C. L., Daugherty, A. M., Hillman, C. H., Kramer, A. F., Cohen, N. J., & **Barbey, A. K.** (2017). Aerobic fitness, hippocampal viscoelasticity, and relational memory performance. *NeuroImage*, 179-188.
49. Nikolaidis, A., Baniqued, P., Kranz, M., Newman, M., Scavuzzo, C., Paul, E. J., **Barbey, A. K.**, Kramer, A. F., & Larsen, R. (2016). Multivariate associations of fluid intelligence and NAA. *Cerebral Cortex*, 27, 2607-2616.
50. Operskalski, J. T., & **Barbey, A. K.** (2016). Risk literacy in medical decision-making: How can we better represent the statistical structure of risk? *Science*, 352, 413-414.
51. Operskalski, J. T., & **Barbey, A. K.** (2016). Methodological Considerations in Cognitive Training Research. *Frontiers in Psychology*, 7, 1481.
52. Paul, E. J., Larsen, R. J., Nikolaidis, A., Ward, N., Hillman, C. H., Cohen, N. J., Kramer, A. F., & **Barbey, A. K.** (2016). Dissociable brain biomarkers of fluid intelligence. *NeuroImage*, 137, 201-211.

53. Ponsoda, V., Martínez, K., Pineda-Pardo, J. A., Abad, F. J., Olea, J., Román, F. J., **Barbey, A. K.**, & Colom, R. (2016). Structural brain connectivity and cognitive ability differences: A multivariate distance matrix regression analysis. *Human Brain Mapping*, 38, 803-816.
54. Watson, P. D., Paul, E. J., Cooke, G. E., Ward, N., Monti, J. M., Horecka, K. M., Allen, C. M., Hillman, C. H., Cohen, N. J., Kramer, A. F., & **Barbey, A. K.** (2016). Underlying sources of cognitive-anatomical variation in multi-modal neuroimaging and cognitive testing. *NeuroImage*, 129, 439-449.
55. Watson, P. D., Paul, E. J., Cooke, G. E., Ward, N., Monti, J. M., Horecka, K. M., Allen, C. M., Hillman, C. H., Cohen, N. J., Kramer, A. F., & **Barbey, A. K.** (2016). Cognitive and anatomical data in a healthy cohort of adults. *Data in Brief*, 7, 1221-1227.
56. Zamroziewicz, M. K., & **Barbey, A. K.** (2016). Nutritional cognitive neuroscience: Innovations for healthy brain aging. *Frontiers in Neuroscience*, 10, 240.
57. Zamroziewicz, M. K., Zwillling, C. E., & **Barbey, A. K.** (2016). Inferior prefrontal cortex mediates the relationship between phosphatidylcholine and executive functions in healthy, older adults. *Frontiers in Aging Neuroscience*, 8, 226.
58. Zamroziewicz, M. K., Paul, E. J., Zwillling, C. E., Johnson, E. J., Kuchan, M. J., Cohen, N. J., & **Barbey, A. K.** (2016). Parahippocampal cortex mediates the relationship between lutein and crystallized intelligence in healthy, older adults. *Frontiers in Aging Neuroscience*, 8, 297.
59. **Barbey, A. K.**, Belli, A., Logan, A., Rubin, R., Zamroziewicz, M., & Operskalski, J. T. (2015). Network topology and dynamics in traumatic brain injury. *Current Opinion in Behavioral Sciences*, 4, 92-102.
60. Lewis, J. D., Krueger, F., Raymont, V., Solomon, J., Knutson, K. M., **Barbey, A. K.**, Poore, J. C., Wassermann, E. M., & Grafman, J. (2015). Anhedonia in combat veterans with penetrating head injury. *Brain Imaging and Behavior*, 9, 456-460.
61. Operskalski, J. T., Paul, E. J., Colom, R., **Barbey, A. K.**, & Grafman, J. (2015). Lesion mapping the four-factor structure of emotional intelligence. *Frontiers in Human Neuroscience*, 9, 649.
62. Patterson, R., Operskalski, J. T., & **Barbey, A. K.** (2015). Motivated explanation. *Frontiers in Human Neuroscience*, 9, 559.
63. Paul, E. J., Smith, J. D., Valentin, V. V., Turner, B. O., **Barbey, A. K.**, & Ashby, F. G. (2015). Neural networks underlying the metacognitive uncertainty response. *Cortex*, 71, 306-322.

64. Van Hoeck, N., Watson, P. D., & **Barbey, A. K.** (2015). Cognitive neuroscience of human counterfactual reasoning. *Frontiers in Human Neuroscience*, 9, 420.
65. Wolff, P., & **Barbey, A. K.** (2015). Causal reasoning with forces. *Frontiers in Human Neuroscience*, 9, 1.
66. Zamroziewicz, M. K., Paul, E. J., Rubin, R. D., & **Barbey, A. K.** (2015). Anterior cingulate cortex mediates the relationship between O3PUFAs and executive functions in APOE e4 carriers. *Frontiers in Aging Neuroscience*, 7, 87.
67. **Barbey, A. K.**, Colom, R., & Grafman, J. (2014). Distributed neural system for emotional intelligence revealed by lesion mapping. *Social Cognitive and Affective Neuroscience*, 9, 265-272.
68. **Barbey, A. K.**, Colom, R., & Grafman, J. (2014). Neural mechanisms of discourse comprehension: A human lesion study. *Brain*, 137, 277-287.
69. **Barbey, A. K.**, Colom, R., Paul, E. J., Chau, A., Solomon, J., & Grafman, J. H. (2014). Lesion mapping of social problem solving. *Brain*, 137, 2823-2833.
70. **Barbey, A. K.**, Colom, R., Paul, E., Forbes, C., Krueger, F., Goldman, D., & Grafman, J. (2014). Preservation of general intelligence following traumatic brain injury: Contributions of the Met66 brain-derived neurotrophic factor. *PLoS One*, 9, e88733.
71. **Barbey, A. K.**, Colom, R., Paul, E. J., & Grafman, J. (2014). Architecture of fluid intelligence and working memory revealed by lesion mapping. *Brain Structure and Function*, 219, 485-494.
72. Forbes, C. E., Poore, J. C., Krueger, F., **Barbey, A. K.**, Solomon, J., & Grafman, J. (2014). The role of executive function and the dorsolateral prefrontal cortex in the expression of neuroticism and conscientiousness. *Social Neuroscience*, 9, 139-151.
73. Khemlani, S. S., **Barbey, A. K.**, & Johnson-Laird, P. N. (2014). Causal reasoning with mental models. *Frontiers in Human Neuroscience*, 8, 849.
74. **Barbey, A. K.**, Colom, R., & Grafman, J. (2013). Architecture of cognitive flexibility revealed by lesion mapping. *NeuroImage*, 82, 547-554.
75. **Barbey, A. K.**, Colom, R., & Grafman, J. (2013). Dorsolateral prefrontal contributions to human intelligence. *Neuropsychologia*, 51, 1361-1369.

76. **Barbey, A. K.**, Koenigs, M., & Grafman, J. (2013). Dorsolateral prefrontal contributions to human working memory. *Cortex*, *49*, 1195-1205.
77. Bowman, G. L., Dodge, H. H., Mattek, N., **Barbey, A. K.**, Silbert, L. C., Shinto, L., Howieson, D. B., Kaye, J. A., & Quinn, J. F. (2013). Plasma omega-3 PUFA and white matter mediated executive decline in older adults. *Frontiers in Aging Neuroscience*, *5*, 92.
78. Wang, H., Hasadsri, L., Wang, B. H., Lee, J. V., Erdman, J. W., Llano, D. A., **Barbey, A. K.**, Wszalek, T., Sharrock, M. F., & Wang, H. (2013). Omega-3 fatty acids as a putative treatment for traumatic brain injury. *Journal of Neurotrauma*, *30*, 897-906.
79. **Barbey, A. K.**, Colom, R., Solomon, J., Krueger, F., Forbes, C., & Grafman, J. (2012). An integrative architecture for general intelligence and executive function revealed by lesion mapping. *Brain*, *135*, 1154-1164.
80. Forbes, C. E., Cameron, K. A., Grafman, J., **Barbey, A. K.**, Solomon, J., Ritter, W., & Ruchkin, D. (2012). Identifying temporal and causal contributions of neural processes underlying the Implicit Association Test (IAT). *Frontiers in Human Neuroscience*, *6*, 320.
81. Forbes, C. E., Poore, J. C., **Barbey, A. K.**, Krueger, F., Solomon, J., Lipsky, R. H., Hodgkinson, C. A., Goldman, D., & Grafman, J. (2012). BDNF polymorphism-dependent OFC and DLPFC plasticity differentially moderates implicit and explicit bias. *Cerebral Cortex*, *22*, 2602-2609.
82. Hecht, E. E., Patterson, R., & **Barbey, A. K.** (2012). What can other animals tell us about human social cognition? An evolutionary perspective on reflective and reflexive processing. *Frontiers in Human Neuroscience*, *6*, 224.
83. Patterson, R., Rothstein, J., & **Barbey, A. K.** (2012). Reasoning, cognitive control, and moral intuition. *Frontiers in Integrative Neuroscience*, *6*, 114.
84. **Barbey, A. K.**, & Grafman, J. (2011). An integrative cognitive neuroscience theory of social reasoning and moral judgment. *Wiley Interdisciplinary Reviews: Cognitive Science*, *2*, 55-67.
85. **Barbey, A. K.**, Koenigs, M., & Grafman, J. (2011). Orbitofrontal contributions to human working memory. *Cerebral Cortex*, *21*, 789-795.
86. **Barbey, A. K.**, & Patterson, R. (2011). Architecture of explanatory inference in the human prefrontal cortex. *Frontiers in Psychology*, *2*, 162.
87. Koenigs, M., Acheson, D. J., **Barbey, A. K.**, Solomon, J., Postle, B. R., & Grafman, J. (2011). Areas of left perisylvian cortex mediate auditory-verbal short-term memory. *Neuropsychologia*, *49*, 3612-3619.

88. Wolff, P., **Barbey, A. K.**, & Hausknecht, M. (2010). For want of a nail: How absences cause events. *Journal of Experimental Psychology: General*, 139, 191-221.
89. **Barbey, A. K.**, Krueger, F., & Grafman, J. (2009). An evolutionarily adaptive neural architecture for social reasoning. *Trends in Neurosciences*, 32(12), 603-610.
90. **Barbey, A. K.**, Krueger, F., & Grafman, J. (2009). Structured event complexes in the medial prefrontal cortex support counterfactual representations for future planning. *Philosophical Transactions of the Royal Society B: Biological Sciences*, 364, 1291-1300.
91. Kapogiannis, D., **Barbey, A. K.**, Su, M., Krueger, F., & Grafman, J. (2009). Neuroanatomical variability of religiosity. *PLoS One*, 4, e7180.
92. Kapogiannis, D., **Barbey, A. K.**, Su, M., Zamboni, G., Krueger, F., & Grafman, J. (2009). Cognitive and neural foundations of religious belief. *Proceedings of the National Academy of Sciences of the United States of America*, 106, 4876-4881.
93. Koenigs, M., **Barbey, A. K.**, Postle, B. R., & Grafman, J. (2009). Superior parietal cortex is critical for the manipulation of information in working memory. *Journal of Neuroscience*, 29, 14980-14986.
94. Krueger, F., **Barbey, A. K.**, & Grafman, J. (2009). The medial prefrontal cortex mediates social event knowledge. *Trends in Cognitive Sciences*, 13, 103-109.
95. Krueger, F., **Barbey, A. K.**, McCabe, K., Strenziok, M., Zamboni, G., Solomon, J., Raymont, V., & Grafman, J. (2009). The neural bases of key competencies of emotional intelligence. *Proceedings of the National Academy of Sciences of the United States of America*, 106, 22486-22491.
96. Krueger, F., Spampinato, M., **Barbey, A. K.**, Huey, E., Morland, T., & Grafman J (2009). The frontopolar cortex mediates event knowledge complexity: A parametric functional MRI study. *NeuroReport*, 20, 1093-1097.
97. Sloman, S., **Barbey, A. K.**, & Hotaling, J. M. (2009). A causal model theory of the meaning of cause, enable, and prevent. *Cognitive Science*, 33, 21-50.
98. **Barbey, A. K.**, & Sloman, S. A. (2007). Base-rate respect: From statistical formats to cognitive structures. *Behavioral and Brain Sciences*, 30, 287-297.
99. **Barbey, A. K.**, & Sloman, S. A. (2007). Base-rate respect: From ecological rationality to dual processes. *Behavioral and Brain Sciences*, 30, 241-254.

100. Cornwell, D., **Barbey, A. K.**, & Simmons, W. K. (2005). The embodied bases of supernatural concepts. *Behavioral and Brain Sciences*, 27, 735-736.
101. Barsalou, L. W., Simmons, W. K., **Barbey, A. K.**, & Wilson, C. D. (2003). Grounding conceptual knowledge in modality-specific systems. *Trends in Cognitive Sciences*, 7, 84-91.

Book Chapters and Encyclopedia Entries

102. Camacho, P., Wilcox, R., **Barbey, A. K.**, & Sutton, B. P. (2025). Microstructural plasticity: Diffusion-weighted imaging and structural connectivity. In A. K. Barbey (Ed.), *The Oxford Handbook of Cognitive Enhancement and Brain Plasticity*, Oxford University Press.
103. Robles, P., **Barbey, A. K.**, & Koyejo, S. (2025). Statistical machine learning methods to model brain plasticity. In A. K. Barbey (Ed.), *The Oxford Handbook of Cognitive Enhancement and Brain Plasticity*, Oxford University Press.
104. **Barbey, A. K.** (2021). Human intelligence and network neuroscience. In A. K. Barbey, S. Karama, & R. Haier (Eds.), *The Cambridge Handbook of Intelligence and Cognitive Neuroscience*. New York, NY: Cambridge University Press.
105. Stine-Morrow, E. A. L., Worm, T. W., **Barbey, A. K.**, & Morrow, D. G. (2021). The potential for socially integrated and engaged lifestyles to support cognitive health with aging: Precursors and pathways. In G. Sedek, T. M. Hess, & D. R. Touron (Eds.), *Multiple pathways of cognitive aging: Motivational and contextual influences*. New York, NY: Oxford University Press.
106. Anderson, E., & **Barbey, A. K.** (2019). Moral reasoning: A network neuroscience perspective. In A. Abraham (Ed.), *The Cambridge Handbook of the Imagination*. (pp. 406-424). New York, NY: Cambridge University Press.
107. Nikolaidis, A., & **Barbey, A. K.** (2018). Network dynamics theory of human intelligence. In R. Jung & O. Vartanian (Eds.), *The Cambridge Handbook of the Neuroscience of Creativity*. (pp. 382-404). New York, NY: Cambridge University Press.
108. Kruepke, M., & **Barbey, A. K.** (2017). Effect of status on social reasoning. In T. Shackelford, and V. Weekes-Shackelford (Eds.). *Encyclopedia of Evolutionary Psychological Science*. (pp. 1-7). Cham, Switzerland: Springer International Publishing.
109. Kruepke, M., & **Barbey, A. K.** (2017). Rule violations checked if high status. In T. Shackelford, and V. Weekes-Shackelford (Eds.). *Encyclopedia of Evolutionary Psychological Science*. (pp. 1-4). Cham, Switzerland: Springer International Publishing.

110. Kruepke, M., & **Barbey, A. K.** (2017). Rule violations not checked if low status. In T. Shackelford, and V. Weekes-Shackelford (Eds.), *Encyclopedia of Evolutionary Psychological Science*. (pp. 1-4). Cham, Switzerland: Springer International Publishing.
111. Operskalski, J. T., & **Barbey, A. K.** (2017). Cognitive neuroscience of causal reasoning. In M. Waldmann (Ed.), *The Oxford Handbook of Causal Reasoning* (pp. 217-242). New York, NY: Oxford University Press.
112. Zamroziewicz, M. K., & **Barbey, A. K.** (2017). The Mediterranean diet and healthy brain aging: Innovations from nutritional cognitive neuroscience. In T. Farooqui & A. A. Farooqui (Eds.), *Role of the Mediterranean Diet in the Brain and Neurodegenerative Diseases*. (pp. 17-33). New York, NY: Elsevier Publishing Company.
113. Sloman, S. A., & **Barbey, A. K.** (2016). The Basic Assumptions of Intuitive Belief: Laws, Determinism, and Free Will. In L. Macchi, M. Bagassi, & R. Viale (Eds.), *Cognitive Unconscious and Human Rationality* (pp. 167-180). Cambridge, MA: MIT Press.
114. **Barbey, A. K.**, & Grafman, J. (2012). The prefrontal cortex and goal-directed social behavior. In J. Decety & J. Cacioppo (Eds.) *The Oxford Handbook of Social Neuroscience* (pp. 348-359). New York, NY: Oxford University Press.
115. Patterson, R., & **Barbey, A. K.** (2012). A multiple systems approach to causal reasoning. In F. Krueger & J. Grafman (Eds.), *The Neural Basis of Human Belief Systems* (pp. 43-69). New York, NY: Psychological Press.
116. **Barbey, A. K.**, Krueger, F., & Grafman, J. (2011). Architecture of counterfactual thought in the prefrontal cortex. In M. Bar (Ed.), *Predictions in the Brain: Using Our Past to Generate a Future* (pp. 40-57). New York, NY: Oxford University Press.
117. **Barbey, A. K.**, & Barsalou, L. W. (2010). Reasoning and Problem Solving: Models. In L. R. Squire (Ed.), *Encyclopedia of Neuroscience* (Vol. 8, pp. 35-43). New York, NY: Elsevier Ltd.
118. Brase, G. L., & **Barbey, A. K.** (2006). Mental representations of statistical information. In A. Columbus (Ed.), *Advances in psychological research* (Vol. 41, pp. 91-113). Hauppauge, New York: Nova Science Publishers.
119. Barsalou, L. W., Niedenthal, P. M., **Barbey, A. K.**, & Ruppert, J. A. (2003). Social Embodiment. In B. Ross (Ed.), *Psychology of Learning and Motivation - Advances in Research and Theory* (Vol. 43, pp. 43-92). New York, NY: Elsevier Ltd.

120. Dowling, W. J., **Barbey, A. K.**, & Adams, L. (1999). Melodic and rhythmic contour in perception and memory. In S. W. Yi (Ed.), *Music, Mind, and Science*. (pp. 166-188). Seoul: Seoul National University Press.

Conference Presentations (Abbreviated)

1. Angebrandt, A., Wilcox, R., & **Barbey, A. K.** (2025). The capacity to engage difficult-to-reach, energetically costly brain states predicts learning in complex cognitive tasks. *Cognitive Neuroscience Society*, Boston, MA. USA.
2. Bouchard, H. C., Wilcox, R., Schultz, D., & **Barbey, A. K.** (2025). Structural network efficiency and self-reported cognitive symptoms after sports-related concussion. *Cognitive Neuroscience Society*, Boston, MA. USA.
3. Muncy, N., & **Barbey, A. K.** (2025). Longitudinal study of concussion-related diffusion MRI changes in college athletes: Modeling tracts via hierarchical generalized additive models. *Cognitive Neuroscience Society*, Boston, MA. USA.
4. Schultz, D., Barnwell, B., Bouchard, H., & **Barbey, A. K.** (2025). Blood oxygen level-dependent signal variability as a biomarker of concussion in Division I college athletes. *Cognitive Neuroscience Society*, Boston, MA. USA.
5. Wilcox, R., Hemmatian, B., Varshney, L., & **Barbey, A. K.** (2025). Dynamic functional connectivity underlies general intelligence. *Cognitive Neuroscience Society*, Boston, MA. USA.
6. **Barbey, A. K.** (2019). Network neuroscience theory of human intelligence. *Cognitive Neuroscience Society*, San Francisco, CA. USA.
7. **Barbey, A. K.** (2019). Cognitive neuroscience of human intelligence. *Mensa Society Annual Gathering*, Phoenix, AZ. USA
8. Zwilling, C. E., Strang, A., Anderson, E., Johnson, E., Das, T., Kuchan, M. J., & **Barbey, A. K.** (2019). A multi-modal intervention to enhance cognitive performance and physical fitness in active-duty Air Force service members. *Military Health Science Research Symposium*. Orlando, FL. USA

9. Hewes, K., & **Barbey, A. K.** (2018). Zeaxanthin moderates the relationship between right hemisphere precuneus volume and immediate memory in healthy older adults. *Brain and Ocular Nutrition Conference*, Cambridge, England, UK.
10. Sharp, P., Sutton, B., Paul, E. J., Sherepa, N., Hillman, C. H., Cohen, N. J., Kramer, A. F., Prakash, R. S., Heller, W., Telzer, E., **Barbey, A. K.** (2018). Mindfulness training is associated with structural connectome changes in mechanisms of interoception. *Flux Satellite Conference*, North Carolina, USA.
11. Zwilling, C. E., & **Barbey, A. K.** (2018). Nutrient biomarker patterns of healthy brain aging. *Brain and Ocular Nutrition Conference*, Cambridge, England, UK.
12. Scott, T. M., Wang, X., **Barbey, A. K.**, Barger, K., Johnson, M. A., Poon, L. W., & Johnson, E. J. (2018). Brain fat-soluble nutrient pattern is related to pre-mortem cognition among non-demented centenarians. *American Society for Nutrition*. Boston, MA. USA
13. Talukdar, M. T., Nikolaidis, A., Zwilling, C. E., Paul, E. J., Hillman, C. H., Cohen, N. J., Kramer, A. F., & **Barbey, A. K.** (2017). The effects of aerobic fitness on the functional brain connectome. *The White House Brain Initiative PI Meeting*. Arlington, VA. USA
14. Zamroziewicz, M. K., Paul, E. J., Zwilling, C. E., Das, T., Pereira, S., & **Barbey, A. K.** (2017). Nutritional cognitive neuroscience for healthy aging: A role for stearidonic acid. *American Society for Nutrition*. Chicago, IL. USA
15. **Barbey, A. K.** (2016). Scientific innovations for cognitive enhancement. *Winter Conference on Brain Research*. Big Sky, MT. USA
16. **Barbey, A. K.** (2016). Nutritional cognitive neuroscience: Innovations for healthy brain aging. *Abbott Annual Science and Technology Conference*. Columbus, OH. USA
17. **Barbey, A. K.** (2016). Nutritional cognitive neuroscience. *American Society for Nutrition*. San Diego, CA. USA
18. Baumgartner, N. W., Covello, A. R., Reeser, G. E., Cohen, N. J., Kramer, A. F., **Barbey, A. K.**, Hillman, C. H., & Khan, N. A. (2016). Moderate-to-vigorous physical activity influences aerobic capacity independent of body composition. *American College of Sports Medicine*. Boston, MA. USA

19. Greenlee, T. A., Greene, D. R., Ward, N. J., Reeser, G. E., Allen, C. M., Baumgartner, N. W., Cohen, N. J., Kramer, A. F., **Barbey, A. K.**, & Hillman, C. H. (2016). Effectiveness of a 16-week high intensity cardio-resistance training (HICRT) program in young and middle aged adults. *American College of Sports Medicine*. Boston, MA. USA
20. Schwarb, H. Johnson, C. L., Daugherty, A. M., Hillman, C. H., Kramer, A. F., Cohen, N. J., & **Barbey, A. K.** (2016). Hippocampal viscoelasticity mediates the benefits of aerobic fitness on memory in healthy young adults. *Society for Neuroscience*. San Diego, CA. USA
21. Talukdar, T., Capozzo, J., Paul, E. J., Zwillling, C., Watson, P., Hillman, C. H., Cohen, N. J., Kramer, A. F., & **Barbey, A. K.** (2016). Reshaping the function brain connectome to enhance human intelligence. *The White House Brain Initiative PI Meeting*. Arlington, VA. USA
22. Paul, E. J., Larsen, R., & **Barbey, A. K.** (2015). Enhancing and understanding learning and memory through multimodal training. *Illinois Learning Sciences Design Laboratory Symposium*. Urbana, IL. USA
23. **Barbey, A. K.** (2014). Neurobiology of human intelligence. *Dana Foundation Learning and the Brain Conference*. New York, NY. USA
24. Zamroziewicz, M., Polavarapu, M., Paul, E. J., Rubin, R., Keck, A., Bowman, G. L., & **Barbey, A. K.** (2014). Nutritional intake and cognitive function in older adults: Omega-3 fatty acids and prefrontal executive function. *International Academy on Nutrition & Aging*. Albuquerque, NM. USA