

Hector Arciniega, Ph.D.

Psychiatry Neuroimaging Lab

Department of Psychiatry

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EDUCATION

2015	University of Nevada, Reno	B.S., Neuroscience, Minor in Psychology, Minor/Certificate in Gerontology
2020	University of Nevada, Reno	Ph.D., Neuroscience Advisor: Dr. Marian E. Berryhill

POSTDOCTORAL TRAINING

2020-Present	Brigham and Women's Hospital/ Harvard Medical School	Postdoctoral Research Fellow Advisors: Prof. Martha Shenton and Dr. Sylvain Bouix
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GRANT SUPPORT: AWARDED

2016 – 2017	Graduate student Association Research Grant Program: Compensation Restoration: How does tDCS Enhance Visual Working Memory?
2019- 2020	NIH/NINDS Blueprint Diversity Specialized Predoctoral to Postdoctoral Advancement in Neuroscience (D-SPAN) Award (F99: Understanding the Cognitive and Neural Deficits Associated with mTBI: A Resting State Study. PI: Hector Arciniega , Sponsor: Dr. Marian E. Berryhill Co-Sponsor: Gideon Caplovitz
2020-Present	NIH/NINDS Blueprint Diversity Specialized Predoctoral to Postdoctoral Advancement in Neuroscience (D-SPAN) Award (K00: Understanding the Cognitive and Neural Consequences of Repetitive Head Impacts. PI: Hector Arciniega , Sponsors: Prof. Martha Shenton and Dr. Sylvain Bouix

PUBLICATIONS

Peterson, D.J., Gurariy, G., Dimotsantos, G., **Arciniega, H.**, Berryhill, M.E. & Caplovitz, G.P. (2014). Frequency tagging the items encoded into visual working memory. *Neuropsychologia*, 6C3, 145-153. DOI: 10.1016/j.neuropsychologia.2014.08.020. PMID: PMC4194158.

Peterson, D. J., Gözenman, F., **Arciniega, H.**, & Berryhill, M. E. (2015). Contralateral delay activity tracks the influence of Gestalt grouping principles on active visual working memory representations. *Attention, Perception, & Psychophysics*, 77(7), 2270-2283. doi:10.3758/s13414-015-0929-y

Arciniega H, Gözenman F, Jones K.T., Stephens J.A. and Berryhill M.E. (2018). Frontoparietal tDCS benefits visual working memory in older adults with low working memory capacity. *Frontiers in Aging Neuroscience*. 10:57. doi:10.3389/fnagi.2018.00057

Arciniega, H., Kilgore-Gomez, A., Harris, A., Peterson, D. J., McBride, J., Fox, E., & Berryhill, M. E. (2019). Visual working memory deficits in undergraduates with a history of mild traumatic brain injury. *Attention, Perception, & Psychophysics*. doi.org/10.3758/s13414-019-01774-9

Jones K.T., **Arciniega H.**, and Berryhill M.E. (2019). Replacing tDCS with theta tACS provides selective, but not general WM benefits. *Brain Research*. doi.org/10.1016/j.brainres.2019.146324

Kilgore-Gomez A, **Arciniega H** and Berryhill M (2020) The Effects of Concussion Can Be Long-Lasting. *Frontiers for Young Minds*. 8:57. doi: 10.3389/frym.2020.00057

Arciniega, H., Kilgore-Gomez, A., McNerney, W., Lane, S., Berryhill, M. (2020) Loss of consciousness, but not etiology, predicts better working memory performance years after concussion. *Journal of Clinical Translational Research*. doi: <http://dx.doi.org/10.18053/jctres.05.2020S4.003>

Arciniega, H., Shires, J., Furlong, S., Kilgore-Gomez, A., Cerreta, A., Murray, N. G., & Berryhill, M. E. (2021). Impaired visual working memory and reduced connectivity in undergraduates with a history of mild traumatic brain injury. *Scientific reports*, *11*(1), 2789. <https://doi.org/10.1038/s41598-021-80995-1>

Manuscripts in Preparation

Arciniega, H., Johnson, E.L., Jones, K.T., & Berryhill, M.E. tDCS improves visual working memory via theta in older adults. (In preparation)

Arciniega, H., Kilgore-Gomez, A., Harris, A., Berryhill, M.E., Visual working memory deficits following mild traumatic brain injury: an EEG examination. (In preparation)

Published Abstracts

Berryhill, M.E., **Arciniega, H.** (2017). Leveraging group differences to study the mechanism underlying the effects of transcranial direct current stimulation (tDCS). *Brain Stimulation*, *10*(2):363. DOI: 10.1016/j.brs.2017.01.070

CONFERENCE PRESENTATIONS – POSTERS

Arciniega, H., & Brady, E.A. Conducting an Environmental scan: Gaining a better understanding of the services available to individuals with Alzheimer's disease and their care partners in Nevada. Scholars in Aging, UNR 5/15

Arciniega, H., Peterson, D.P. & Berryhill, M.E. Echo's of concussion: Chronic effects on visual working memory. UNR 4/14, Psi Chi Annual Research Fair. UNR 5/14, GURA Presentation. UNR 11/15, Neuroscience Journal Club & Big Data. CNS 4/16

Arciniega, H., & Berryhill, M.E. Getting involved in the memory and Brain lab. UNR 3/16, Special Populations Database Recruitment Event.

Arciniega, H., & Berryhill, M.E. Enhancing Diversity in Research Through Engagement and Retention. UNR 4/16, The Northern Nevada Diversity Summit.

Carrasco, C., **Arciniega, H.**, & Berryhill, M.E. Attention suppression and its possible influence on working memory. UNR 5/16, Psi Chi Annual Research Fair. UNR 4/17, GURA.

Arciniega, H., Gözenman, F., & Berryhill, M.E., Frontoparietal tDCS benefits visual working memory in older adults with low working memory capacity. NISBRE 6/16, CNS 4/17

Arciniega, H., & Berryhill, M.E. Leveraging group differences to study the mechanism underlying the effects of tDCS. International Brain Stimulation Conference, Barcelona, 3/17

McBride, J., **Arciniega, H.**, & Berryhill, M.E. Feedback effect on visual working memory performance in concussed individuals. UNR 4/17, GURA

Arciniega, H., & Berryhill, M.E. Understanding the neural mechanism by which neurostimulation drives visual working memory: An inside view of neurostimulation decay. CNS

Jones, K.T., **Arciniega, H.**, Shepack, J., Carrasco, C., & Berryhill, M.E. tACS on, tACS off: entrainment of neural oscillations during WM. CNS 3/18

Kilgore-Gomez, A., **Arciniega, H.**, Fox, E., Harris, A., Berryhill, M.E. Visual working memory deficits following mild traumatic brain injury. UNR 4/18

Berryhill, M.E., **Arciniega, H.**, Jones, K., Stephens, J., & Gözenman, F. Who, what, where and how much: tDCS and training effects on working memory. BRST, Vancouver, BC 2/19

Arciniega, H. & Berryhill, M.E. Deficits in executive function persist years after mild traumatic brain injury. CNS 3/2019

Arciniega, H. & Berryhill, M.E. Cognitive and neural deficits associated with a history of mTBI. CNS 2020

Arciniega, H., Johnson, E.L., Jones, K.T., Kilgore-Gomez, A., & Berryhill, M.E. TDCS targeting frontoparietal networks modulates theta to (temporarily) improve visual working memory in older adults. CNS 3/21

TECHNICAL SKILLS and PROFICIENCIES

Matlab (Psychtoolbox)

E-Prime

SPSS

R

AFNI

FreeSurfer

CONN

Brainstorm (working knowledge)

FieldTrip

EEG Lab- Plugins (ERP LAB, ADJUST, MARA)

Microsoft Office

Training and experience conducting experiments in:

Geodesic EEG System (GES 300), HydroCel GSN 256 (Electrical Geodesics, Inc.)

BioSemi EEG system, 128 channel Active-headcap

Functional near infrared spectroscopy (fNIRS) Transcranial direct current stimulation techniques (tDCS)

High density-transcranial direct current stimulation (HD-tDCS)

DNA testing techniques

Behavioral techniques in human and bee behavior

ACADEMIC AWARDS and HONORS

2010-2015	University of Nevada	Governor Guinn Millennium Scholar \$10,000
2013-2014	University of Nevada	General Undergraduate Research Award \$1,500
2013	University of Nevada	Undergraduate Research Fellowship \$4,000
2014	University of Nevada	Undergraduate Research Fellowship \$4,000
2014	University of Nevada	Psi Chi Poster Award- 3 rd Place
2015	Electrical Geodesics Inc.	HD-EEG Training (EGI)
2016	University of Nevada	Graduate Student Association Travel Award \$500
2016	UC Davis	ERP Boot Camp- PI: Dr. Steven Luck
2016-2017	University of Nevada	Albert, Henry & Edith Scholarship \$2,500
2017	University of Nevada	Graduate Student Association Travel Award \$500
2016	MGH/Harvard/MIT	Martinos Center fNIRS Course-PI: Dr. David Boas
2017	University of Nebraska	NSF EPSCoR- Core Outreach Workshop- PI: Dr. Matthew Johnson
2017-2018	University of Nevada	Sanford Center for Aging Scholarship \$2,500
2018	University of Nevada	Graduate Student Association Travel Award \$500
2018	University of Nevada	Solso Outstanding Achievement Scholarship \$500
2018	University of Nevada	NSF EPSCoR- Core Outreach Workshop- PI: Dr. Marian Berryhill & Dr. Gideon Caplovitz
2019	University of Nevada	Graduate Student Association Travel Award \$500
2019	University of Nevada	Regents' Scholar Award \$5,000
2019	University of Nevada	Milton Glick Memorial Scholarship \$1,000
2019	University of Nevada	1 st Place GSA Paper Competition-Science \$650
2019	University of Delaware	NSF EPSCoR- Core Outreach Workshop- PI: Dr. Timothy Vickery & Dr. Jared Medina

INVITED LECTURES

2016	Douglas County School District	Mindset Class
2016	Douglas County School District	Teaching with Poverty and Student Stress in Mind

2016	University of Nevada	Compensation or Restoration: How does tDCS Enhance Visual Working Memory?
2018	Douglas County School District	The Developing Brain
2018	University of Nevada	Working Memory Deficits in Chronic mTBI
2019	University of Nevada	Tips on applying for an NIH grant
2019	University of Pennsylvania	Working Memory Deficits in Chronic mTBI
2020	University of Nevada	Applying for a NIH Training Award

MEDIA COVERAGE

2014	Live Science	Concussions and Cognitive Skills: What's the impact?
2018	Nevada Today	Evidence Shows Electrical Stimulation Can Improve Low Working Memory

UNIVERSITY SERVICE

2013-2015	University of Nevada	Volunteer/Interpreter: University of Nevada, Reno Family Medicine Center
2011-2016	University of Nevada	Panel Speaker: Center for Student Cultural Diversity
2015	University of Nevada	Panel Speaker: First in the Pack Orientation
2015	University of Nevada	Academic Advisor: College of Liberal Arts
2015	University of Nevada	Panel Speaker: Psi Chi Honor Society
2015-2018	University of Nevada	Coordinator: Brain Awareness Week
2016-2016	University of Nevada	Reviewer: The Nevada State Undergraduate Journal
2016	Washoe County School District	Judge: Western Nevada Regional Science & Engineering
2016	University of Nevada	Panel Speaker: Grad Fit
2016	University of Nevada	Academic Advisor: College of Liberal Arts
2016-2018	University of Nevada	President: Graduate Students for the Advancement of Neuroscience
2019	University of Nevada	Panel Speaker: Grad Venture

Ad Hoc Reviewing

Frontiers Journals

Professional Affiliations

Society for Neuroscience
Cognitive Neuroscience Society

Teaching Experience

2016	University of Nevada	Teaching Assistant- Introduction to Psychology
2016	University of Nevada	Teaching Assistant - Human Memory
2017	University of Nevada	Instructor- Introduction to Psychology (Fall)
2018	University of Nevada	Instructor- Introduction to Psychology (Winter)
2018	University of Nevada	Teaching Assistant- Cognitive Psychology
2018	University of Nevada	Instructor- Introduction to Psychology (Summer)
2018	University of Nevada	Instructor- Human Memory (Fall)
2019	University of Nevada	Teaching Assistant - Human Memory
2019	University of Nevada	Instructor- Introduction to Psychology (Summer)
2019	University of Nevada	Instructor- Human Memory (Fall)
2020	University of Nevada	Instructor- Human Memory (Summer)
2020	University of Nevada	Instructor- Introduction to Psychology (Fall)
2021	University of Nevada	Instructor- Human Memory (Winter)

Mentoring

2016-2017	University of Nevada	Jaclyn McBride GURA Scholarship \$1500
2015-2018	University of Nevada	Carlos Carrasco GURA Scholarship \$1500 McNair Scholar NSF EPSCoR \$4000
2017-2018	University of Nevada	Emily Fox
2017-2020	University of Nevada	Alexandrea Kilgore-Gomez-Honor Student NURA Scholarship \$1500 NSF EPSCoR \$4000 HURA Scholarship \$1500
2018-2020	University of Nevada	Joseph Castellanos- Honor Student PREP Scholarship \$1500 NSF EPSCoR \$4000