

Zachary J. Cole, PhD *he/him*

Postdoctoral Researcher, Northeastern University



Education

- 2023 Ph.D. in Psychology, Concentration in Neuroscience & Behavior
University of Nebraska-Lincoln Lincoln, NE
 Dissertation: Out of sight, but not out of mind? A behavioral and electrophysiological investigation of food-related attentional bias in perception and working memory.
- 2016 M. A., Cognitive & Social Processes
Ball State University Muncie, IN
- 2016 Graduate Certificate in Institutional (Applied) Research
Ball State University Muncie, IN
- 2013 B. S. in Psychology
Washington State University Pullman, WA
- 2011 B. S. in Kinesiology
Washington State University Pullman, WA

Employment History

- Northeastern University** Boston, MA
Postdoctoral Researcher, Center for Cognitive and Brain Health September 2023 – Present
- Midland University** Fremont, NE
Adjunct Professor, Department of Psychology Spring 2021
- University of Richmond** Richmond, VA
Research Specialist (Lab Manager) July 2016 – August 2018
- Western State Mental Hospital Child Study and Treatment Center** Lakewood, WA
Psychiatric Childcare Counselor February 2014 – July 2014

Peer-Reviewed Publications

- Under Revision **Cole, Z. J.**, Lintz, E. N., & Johnson, M. R. Probability manipulations can modulate but not reverse reflective inhibition-of-return effects. <https://doi.org/10.31234/osf.io/cs5q3>
- Butler, D. L., **Cole, Z. J.**, & Ward, R. Concept maps, outlines, and lists: Three ways to study and take exams. *Scholarship of Teaching and Learning in Psychology*.
- 2023 Pitt, K. M. **Cole, Z. J.**, & Zosky, J., Promoting Simple and Engaging Brain-Computer Interface Designs for Children by Evaluating Contrasting Motion Techniques. *Journal of Speech, Language, and Hearing Research*.
- 2022 Pitt, K. M., **Cole, Z. J.**, & Zosky, J. Applying functional animation to pictorial symbols for supporting P300–brain–computer interface access to augmentative and alternative communication devices by children. *International Journal of Human-Computer Interaction*, DOI: <https://doi.org/10.1080/10447318.2022.2121566>
- 2021 **Cole, Z. J.**, Kuntzelman, K. M., Dodd, M. D., & Johnson, M. R. Convolutional neural networks can decode eye movement data: A black box approach to predicting task from eye movements. *Journal of Vision*, 21(7), 9. DOI: <https://doi.org/10.31234/osf.io/5a6jm>
- 2020 Botvinik-Nezer, R., Holzmeuster, F., Camerer, C. F., . . . , **Cole, Z. J.**, . . . , Nichols, T. E., Poldrack, R. A., & Schonberg, T. Variability in the analysis of a single neuroimaging dataset by many teams. *Nature*, 582, p. 84-88. DOI: <https://doi.org/10.1038/s41586-020-2314-9>
- Cole, Z. J.** & Butler, D. L. Disentangling the effects of study time and study strategy on undergraduate test performance. *Psi Chi Journal of Psychological Research*, 25(2), 110-120. DOI: <https://doi.org/10.24839/2325-7342.JN25.2.110>
- Cole, Z. J.** & Ritchey, K. A. Show me the meaning! The contextual relevance of images influences recall and understanding of multimedia RSVP paragraphs. *Journal Journal of Cognitive Psychology*. DOI: <https://doi.org/10.1080/20445911.2020.1711767>
- 2016 **Cole, Z. J.** *Effects of study time and levels of processing on test performance* (Master's thesis). Ball State University Libraries: Cardinal Scholar. Can be retrieved online at <http://cardinalscholar.bsu.edu/handle/123456789/200173>
- 2015 **Cole, Z. J.**, & Maeda, H. The effects of music preference and gender on endurance running speed. *Journal of Perceptual and Motor Skills*, 121(2), 1-9. DOI: <https://doi.org/10.2466/06.pms.121c20x9>

In Preparation

Poh, W. L., Lintz, E. N., Roberts, J., **Cole, Z. J.**, Johnson, M. R. Factors influencing the facilitative and inhibitory effects of refreshing.

Cole, Z. J. & Johnson, M. R. Perceptual and reflective attentional competition: An fMRI study.

Cole, Z. J. & Harp, N. A meta-analytic inspection of the relationship between physical health and cognitive reappraisal.

Butler, D. L., **Cole, Z. J.**, & Montoye, A. H. Why people get physical activity trackers, what they think the effects of using them are, and why they quit using them.

Conference Papers Presented

*** — Indicates published conference proceedings

International Society for Augmentative and Alternative Communication (ISAAC) Conference July 2023

Poster Pitt, K., **Cole, Z. J.**, Spoor, A., Zosky, J., Boster, J., & Norby, N. Investigating bounce and functional motion for BCI-AAC access by healthy children and those with CVI.

American Speech-Language-Hearing Association Convention (ASHA) November 2022

Poster*** Pitt, K. M., **Cole, Z. J.**, Spoor, A., Zosky, J. Using functional pictorial symbol animation to provide children with Brain-Computer Interface access.

Rehabilitation Engineering and Assistive Technology Society of North America (RESNA) July 2022

Poster*** Pitt, K. M., **Cole, Z. J.**, Zosky, J., Spoor, S., & Mansouri, A. Comparing static and complex motion highlighting of picture symbols to inform P300-brain computer interface development for children.

University of Nebraska-Lincoln Student Research Days April 2022

Poster **Cole, Z. J.**, Pitt, K., Spoor, A., & Zosky, J. Neural responses to functional animation of pictorial symbols to provide P300-Brain-Computer Interface access to children.

Cognition and Biopsychology in Nebraska (CABiN) March 2021

Invited Speaker **Cole, Z. J.** Exercise and executive function in perceptual and reflective attention.

Vision Sciences Society Annual Meeting 2020 May 2020

Poster*** **Cole, Z. J.**, Lintz, E. N., & Johnson, M. R. Attentional competition in perceptual and reflective attention: An fMRI study. *Journal of Vision*, 20(11), p. 1730. DOI: <https://doi.org/10.1167/jov.20.11.1730>

Cognition and Biopsychology in Nebraska (CABiN) December 2019

Invited Speaker **Cole, Z. J.** Deep learning and eye tracking.

Psychonomic Society Annual Convention 2019 November 2019

Poster **Cole, Z. J.**, Kuntzelman, K. M., Dodd, M. D., Johnson, M. R. How you see is what you get: A deep learning look at how cognitive state is variably informed by key aspects of raw eye movement data.

- University of Delaware Core Outreach Workshop 2019 July 2019
 Invited Speaker Cole, Z. J. Deep learning and eye tracking.
- Vision Sciences Society Annual Meeting 2019 May 2019
 Poster*** Cole, Z. J., Kuntzelman, K. M., Dodd, M. D., & Johnson, M. R. I see what you did there: Deep learning algorithms can classify cognitive tasks from images of eye tracking data. *Journal of Vision*, 19(10), p. 306b.
 DOI: <https://doi.org/10.1167/19.10.306b>
- University of Nebraska-Lincoln Research Fair April 2019
 Poster Cole, Z. J., Kuntzelman, K. M., Dodd, M. D., Johnson, M. R. Deep learning classification of images of eye tracking data can delineate motivational state while viewing scene images.
- University of Nebraska-Lincoln Psychology Research Symposium April 2019
 Poster Cole, Z. J., Kuntzelman, K. M., Dodd, M. D., Johnson, M. R. Deep learning classification of images of eye tracking data can delineate motivational state while viewing scene images.
- Vision Sciences Society Annual Meeting 2017 May 2017
 Poster*** Olson, C., Luu, G., Cole, Z. J., Ding, J., Peissig, J. J., & Bukach, C. M. Background check: Perceptual grouping cues reduce novice holistic processing of birds. *Journal of Vision*, 17(10), p. 1252.
 DOI: <https://doi.org/10.1167/17.10.1252>
- University of Richmond Annual Arts and Sciences Symposium April 2017
 Poster Richard, S., Frost, T., Jackson, W., Rivera, C., & Cole, Z. J. The art of capping: An introduction to the procedural conventions of ERP data collection.
- 28th Annual Convention of the Association for Association for Psychological Science May 2016
 Poster Cole, Z. J. & Butler, D. L. Disentangling the effects of study time and levels of processing on test performance in undergraduate students.
 Poster Butler, D. L., Cole, Z. J., Ward, R. T., Dilorio, A. S., Samaan, L. M. Recall as a function of study and test format: Understanding the role of organization in memory.
- American Psychological Association Annual Convention August 2016
 Poster (Accepted) Cole, Z. J. Effects of study time and levels of processing on test performance.
 Poster (Accepted) Cole, Z. J., Butler, D. L., Ward, R., Diiorio, A., & Samaan, L. Comparing recall for sentences formatted in a concept map, outline, or list.
- 24th Ball State University Psychological Science Poster Session April 2016
 Poster Cole, Z. J. & Ritchey, K. A. Using pictures to build a schema for rapidly presented paragraphs.

- Poster **Cole, Z. J.**, Butler, D. L., Ward, R., Dilorio, A., & Samaan, L. The effect of organization on recall using concept map tests.
- Poster **Cole, Z. J.** Disentangling the effects of study time and study method on test performance.
- Ball State University Research Symposium** 2016
- Poster **Cole, Z. J.** & Butler, D. L. Exploring the confounding effects of study time and study method on test performance in undergraduate students.
- 27th Annual Convention of the Association for Psychological Science** 2015
- Poster **Cole, Z. J.**, Mabrey, M., Pierce, J., & Butler, D. Comparing concept map and outline formats in memory recall using Easymap.
- 23rd Ball State University Psychological Science Poster Session**..... 2015
- Poster **Cole, Z. J.**, Mabrey, M., Butler, D. Comparing memory recall using lists, outlines, and concept maps.
- Ball State University Research Symposium** 2015
- Poster Mabrey, M., **Cole, Z. J.**, Pierce, J., & Butler, D. The effectiveness of concept map and outline strategies in memory recall tests using Easymap software.
- Inaugural Bruya-Wood Foundation Conference** 2014
- Keynote **Cole, Z. J.** Postgraduate education and Professionalism.
Address
- 56th Annual Western Society for Kinesiology & Wellness (WSKW) Conference** 2011
- Symposium Panel Burns, A., Comfort, G., Maeda, H., **Cole, Z. J.**, McCord, T., Clifton, T., Dotson, C., Kendall, G., Silvers, W. M., & Bruya, L. D. Kinesiology student performance and instruction in the classroom.
- Symposium Panel Burns, A., Maeda, H., Dotson, C., **Cole, Z. J.**, Catalano, L., Blehm, A., Sorensen, C., McGowan, J., Silvers, W. M., & Bruya, L. D. Student performance outside the classroom: Student conferencing used for idea exchange.
- Symposium Panel **Cole, Z. J.**, Maeda, H., Dotson, C., Arndt, S., Silvers, W. M., & Bruya, L. D. Student performance outside the classroom: Professional review teams and student journal in undergraduate school.
- Poster*** **Cole, Z. J.**, Maeda, H., & Knutson, D. Music selection and running performance. *Western Society for Kinesiology & Wellness R. D. Peavy Papers*, p. 55-56.
- Poster*** Maeda, H., **Cole, Z. J.**, Boice, J., Swihart, R., & Mendes, K. Music genre preference: Running v. studying. *Western Society for Kinesiology & Wellness R. D. Peavy Papers*, p. 75-76.
- Symposium Talk*** Maeda, H., **Cole, Z. J.**, & Brooks, J. Music and extraversion on free throw pace. *Western Society for Kinesiology & Wellness R. D. Peavy Papers*, p. 73-74.

Poster*** Maeda, H., **Cole, Z. J.**, & Brooks, J. Music, distraction, and free throw accuracy. *Western Society for Kinesiology & Wellness R. D. Peavy Papers*, p. 79-80.

Poster*** Maeda, H., **Cole, Z. J.**, & Knutson, D. Frequency of music listening. *Western Society for Kinesiology & Wellness R. D. Peavy Papers*, p. 77-78.

7th Annual Northwest Student Professional Network (NWSPN) Conference 2011

Abstract*** **Cole, Z. J.** Effects of Music on Exercise. *Northwest Student Professional Network: Publication of Works*, 6, p. 7.

Abstract*** **Cole, Z. J.** & Maeda, H. Effects of earphones on exercise. *Northwest Student Professional Network: Publication of Works*, 6, p. 24.

Poster*** **Cole, Z. J.**, Maeda, H. Music effects on exercise. *Northwest Student Professional Network: Publication of Works*, 6, p. 18.

Poster*** Maeda, H., **Cole, Z. J.**, & Brooks, J. Music and motor accuracy endurance. *Northwest Student Professional Network Journal: Publication of Works*, 6, p. 26.

Poster*** Maeda, H., **Cole, Z. J.**, Swihart, R., Boice, J., & Mendes, K. Running with fast energetic music. *Northwest Student Professional Network Journal: Publication of Works*, 6, p. 27.

Poster*** Maeda, H., **Cole, Z. J.**, Swihart, R., Boice, J., & Mendes, K. Slow relaxing music and runners. *Northwest Student Professional Network Journal: Publication of Works*, 6, p. 20.

Washington State University Annual Undergraduate Research Symposium 2011

Poster Maeda, H., **Cole, Z. J.**, Swihart, R., Boice, J., & Mendes, K. Slow relaxing music and runners.

Annual Northwest Student Professional Network InterPacific Research Symposium..... 2011

Symposium **Cole, Z. J.** Music effects on exercise performance.
Talk

55th Annual Western Society for Kinesiology & Wellness (WSKW) Conference 2010

Symposium Bruya, L. D., Silvers, W. M., **Cole, Z. J.**, McCullough, L., & Johnson, K. Does a
Panel re-write policy in professional coursework improve student professional writing.

Poster*** **Cole, Z. J.** Effects of music and exercise. *Western Society for Kinesiology & Wellness R. D. Peavy Papers*, p. 18.

Poster*** **Cole, Z. J.** Imagery in golf. *Western Society for Kinesiology & Wellness R. D. Peavy Papers*, p. 22-23.

Annual Northwest Student Professional Network InterPacific Research Symposium..... 2010

Symposium **Cole, Z. J.** Imagery use in golfers.
Talk

25th Bi-Annual G. S. Wood Foundation Conference 2009

Poster*** Cole, Z. J. The use and effects of imagery in golfers. *Northwest Student Professional Network Journal: Publication of Works*, 5, p. 122-124.

22nd Bi-Annual G. S. Wood Foundation Conference Spring 2008

Poster Cole, Z. J. Psychomotor slowing: A review of Salthouse, T. A. (1996).

Grants

2021 Ruth L. Kirschstein National Research Service Score: 38 [Not Funded]
Award (NRSA) Individual Predoctoral Fellowship
to Promote Diversity in Health-Related Research
(Parent F31-Diversity)
Interactions between health, exercise, and executive function.
PI: Cole, Z. J.
Sponsors: Dodd, M. D. & Savage, C.
Consultants: Johnson, M. J., Hillman, C., Ehlers, D., & Hubbard, N.
National Institute of Diabetes and Digestive and Kidney Diseases (NIDDK)

2011 Undergraduate Research Location Funding Match \$1,000
Maeda, H., Cole, Z. J., & Knutson, D. The effects of music on exercise.
University Recreation Scheduling Office, Washington State University

Undergraduate Research Location Funding Match \$625
Maeda, H., Cole, Z. J., Knutson, D. Music and extraversion on free throw
pace.
University Recreation Scheduling Office, Washington State University

Western Society for Kinesiology & Wellness Conference Travel Grant ... \$375
*Phi Epsilon Kappa (National Honorary Physical Education Fraternity),
Washington State University*

2010 Western Society for Kinesiology & Wellness Conference Travel Grant... \$375
*Phi Epsilon Kappa (National Honorary Physical Education Fraternity),
Washington State University*

Undergraduate Research Fellowship \$1,000
Cole, Z. J. The effects of music on exercise.
Auvil Undergraduate Scholars Association, Washington State University

Fellowships

2022 Nebraska Governance and Technology Fellowship (NGTC)
School of Law..... University of Nebraska-Lincoln

2022 Dean's Fellowship
Graduate School..... University of Nebraska-Lincoln

- 2022 **RAC / Warden Research Fellowship**
Department of Psychology University of Nebraska-Lincoln
- 2021 **Preparing Future Faculty Fellowship**
Graduate School..... University of Nebraska-Lincoln
- 2010 **Undergraduate Research Fellowship Award**
Auvil Undergraduate Scholars Association..... Washington State University
Cole, Z. J. The effect of music on exercise.

Awards

- 2022 **Best Poster Award**
Graduate Research Symposium..... University of Nebraska-Lincoln
- 2018 **International Convention for Psychological Science Student Travel Award**
Association for Psychological Science..... Paris, France
- 2015 **Recognition of Outstanding Scholastic Achievement and Excellence**
Psi Chi: International Honor Society in Psychology..... Ball State University
- 2011 **R. D. Peavy Honor Award for Excellence in Writing**
Western Society for Kinesiology & Wellness Reno, NV
Maeda, H., Cole, Z. J., Brooks, J. Music extraversion and free throw pace.
- The Undergraduate Research Excellence Award (Honorable Mention)**
Undergraduate Research Symposium..... Washington State University
Maeda, H. Cole, Z. J., Swihart, R., Boice, J., & Mendes, K. Slow relaxing music and running.

Media

News Articles

- Movement studies student researchers win recognition** November 2010
College of Education, Washington State University
[Link to Article](#)

Video Interviews

- Research Roundup** March 2022
Special Education and Communication Disorders, University of Nebraska-Lincoln
[Twitter Post](#)

Radio Interviews

- Breakfast: Make you sweat- how can music motivate you?** February 2016
ABC Gold Coast Morning Show, Australia
[Interview Audio](#)

Teaching Experience

- 2023_{Spring} **Psychology 460: Memory**
Department of Psychology, University of Nebraska-Lincoln: Lincoln, NE
- 2022_{Fall} **Psychology 428: Health Psychology**
Department of Psychology, University of Nebraska-Lincoln: Lincoln, NE
- 2021_{Fall} **Psychology 428: Health Psychology**
Department of Psychology, University of Nebraska-Lincoln: Lincoln, NE
- 2021_{Spring} **Psychology 331: Physiological Psychology**
Department of Psychology, Midland University: Fremont, NE
- 2019_{Summer} **Psychology 463: Perception**
Department of Psychology, University of Nebraska-Lincoln: Lincoln, NE

Laboratory Instructor

- 2018_{Fall} **Psychology 350: Research and Data Analysis**
Department of Psychology, University of Nebraska-Lincoln: Lincoln, NE

Teaching Assistant

- 2011_{Spring} **Movement studies 313: Behavioral aspects of human movement**
Department of Counseling Psychology and Educational Leadership,
Washington State University: Pullman, WA
- 2010_{Fall} **Movement studies 313: Behavioral aspects of human movement**
Department of Counseling Psychology and Educational Leadership,
Washington State University: Pullman, WA

Guest Lecture

- 2017_{Spring} **Psychology 341: Cognitive Neuroscience**
EEG Data Collection and Analysis
Department of Psychology, University of Richmond: Richmond, VA
- 2010_{Fall} **Movement studies 313: Behavioral aspects of human movement**
Comprehensive Graphic Creation
Department of Counseling Psychology and Educational Leadership,
Washington State University: Pullman, WA

Research Positions

- 2020 - 2022 **Graduate Research Assistant (Volunteer)**
 Augmentative and Alternative Communication (AAC) Translation (Pitt) Lab
 Department of Special Education and Communication Disorders, University of
 Nebraska-Lincoln: Lincoln, NE
- 2020 - 2021 **Graduate Research Assistant**
 Rural Drug Abuse Research Project
 Reflection, Attention, Perception (RAP; Johnson) Lab
 Department of Psychology, University of Nebraska-Lincoln: Lincoln, NE
- 2018 - 2020 **Graduate Research Assistant**
 Reflection, Attention, Perception (RAP; Johnson) Lab
 Department of Psychology, University of Nebraska-Lincoln: Lincoln, NE
- 2016 - 2018 **Research Specialist (Lab Manager)**
 Beyond Categories (Bukach) Lab
 University of Richmond: Richmond, VA
- 2015 - 2016 **Institutional Research Intern**
 Office of Institutional Effectiveness, Ball State University: Muncie, IN

Service

Editor

- 2010 - 2011 **Northwest Student Professional Network: Publication of Works**
 Phi Epsilon Kappa (National Honorary Physical Education Fraternity)
 Washington State University: Pullman, WA

Reviewer

- 2022_{Fall} Journal of Neuroscience
- 2022_{Spring} Journal for Advancing Sport Psychology in Research (JASPR)
- 2021_{Fall} Journal for Advancing Sport Psychology in Research (JASPR)
- 2021_{Spring} Royal Society Open Science
- 2014_{Fall} Research Quarterly for Exercise and Sport (RQES)
- 2014_{Summer} Research Quarterly for Exercise and Sport (RQES)
- 2013_{Winter} Journal for Sport Psychology in Action
- 2013_{Fall} Journal for Sport Psychology in Action
- 2010_{Spring} Journal for Sport Psychology in Action
- 2009_{Fall} Northwest Student Professional Network: Publication of Works

Northwest Student Professional Network: Publication of Works

Institutional Review Board Member

- 2015 - 2016 **Full Board Committee Member**
Ball State University Institutional Review Board
- 2015 - Spring **Full Board Committee Member**
Ball State University Student Research Review Board

Judge

- 2022 **Undergraduate Creative Activities and Research Experiences at Nebraska**
University of Nebraska-Lincoln: Lincoln, NE
- 2021 **Undergraduate Creative Activities and Research Experiences at Nebraska**
University of Nebraska-Lincoln: Lincoln, NE
- 2020 **Undergraduate Creative Activities and Research Experiences at Nebraska**
University of Nebraska-Lincoln: Lincoln, NE
- 2019 **Undergraduate Research Fair Poster Competition**
University of Nebraska-Lincoln: Lincoln, NE

Graduate Mentor

- 2014 - 2015 **Undergraduate Mentor Program**
Association for Psychological Science Student Caucus

Training

- 2023 **Actigraph Use and Data Processing Training**
Ehlers Lab, Mayo Clinic: Phoenix, AZ
- 2022 **Conflict Resolution Training**
Department of Psychology, University of Nebraska-Lincoln: Lincoln, NE
- 2021 - 2022 **fMRI Data Processing and Analysis**
Reflection, Attention, Perception Lab (Dr. Matthew Johnson), University of Nebraska-Lincoln: Lincoln: NE
- 2021 **Preparing Future Faculty**
Graduate Studies, University of Nebraska-Lincoln: Lincoln, NE
- 2018 **UC-Davis/SDSU ERP Bootcamp Mini Satellite Training**
Beyond Categories Lab (Dr. Cindy Bukach), University of Richmond: Richmond, VA
- 2015 **Symposium Series: Conducting Research Using Event-Related Potentials**
Dr. Stephanie Simon-Dack, Ball State University: Muncie, IN

Certifications

2017 - Present	Social and Behavioral Research Collaborative Institutional Training Initiative (CITI)
2015	Institutional Review Members Collaborative Institutional Training Initiative (CITI)
2014	Nonviolent Crisis Prevention and Intervention (CPI) Washington State Department of Social and Health Services
2011	Health Information and Security (HIPS) for Students and Instructors Collaborative Institutional Training Initiative (CITI)