

Patrick S. Ledwidge, Ph.D.
pledwidg@bw.edu (440) 826-3173
223 Malicky Center, 33 E. Bagley Rd. Berea, OH 44017
ledwidgelab.com

APPOINTMENTS

Assistant Professor 2017-
Department of Psychology
Department of Neuroscience
Baldwin Wallace University, Cleveland, OH

EDUCATION

Ph.D. **University of Nebraska-Lincoln**, *Psychology-Cognitive Neuroscience* 2017
Minor in *Communication Sciences & Disorders*
M.A. **University of Nebraska-Lincoln**, *Psychology-Cognitive Neuroscience* 2015
B.A. **DePauw University**, *Psychology, Spanish* 2013

RESEARCH INTERESTS

Neurophysiology of sports-related concussion and MSK injury; risk prediction for concussion and MSK injury; neurophysiological applications to sports injury evaluation, prevention, and rehabilitation; cognitive-motor neurophysiology; long-term cognitive and psychosocial functioning in retired athletes; pediatric brain development and skill acquisition

SKILLS & METHODS

High-density electroencephalography (EEG), ERP processing/analysis, EEGLAB/ERPLAB toolboxes, EEG time frequency analysis, Net Station 5.x, E-prime, SPSS, SAS, MPlus, neuropsychological testing (including virtual test administration), multivariate statistics, multilevel modeling

GRANTS, HONORS, & AWARDS

Under Review

- 2022 The Orthopaedic Research and Education Foundation. “Dual-Task Neurophysiology and Biomechanics Post-ACL Reconstruction.” Co-PI
- 2022 NIH National Institute of Arthritis, Musculoskeletal, and Skin Diseases. Academic Research Enhancement Award (R15). “Dual-task Neurophysiological and Biomechanical Risk Factors for a Second ACL injury.” Co-PI
Scored and passed to Advisory Council Review (11/10/22)

Funded

- 2022 *Edith C. Robinson Grant*, “Cognitive-Motor Interference after ACL Reconstruction and Return to Sport: An EEG Study.” \$1,000.
- 2022 *Gund Student-Faculty Research Grant*, Baldwin Wallace University. \$2,000
- 2020 *Faculty Summer Grant*, Baldwin Wallace University. \$4,000
- 2020 *Gund Student-Faculty Research Grant*, Baldwin Wallace University. “Funds to support the Cognitive Neuropsychology Laboratory.” \$1,000
- 2019 *Faculty Summer Grant*, Baldwin Wallace University. \$2,000
- 2019 *Scholarly Presentation for Domestic Travel Grant*, Baldwin Wallace University. \$1,261.81
- 2019 *Gund Student-Faculty Research Grant*, Baldwin Wallace University. “Funds to support undergraduate research in the Cognitive Neuropsychology Laboratory.” \$3,000
- 2018 *Human Participant Research Funds*, “Baldwin Wallace Concussion Project.” Baldwin Wallace University Department of Psychology. \$675.
- 2018 *Annual funds to support the Cognitive Neuropsychology Laboratory*. Provost’s Office, Baldwin Wallace University.
- 2018 *Women for BW*. “BW Concussion Education and Research Program.” Baldwin Wallace University. \$5,000
- 2018 *Baldwin Wallace University Faculty-Student Collaboration*. “How distracting is your iPhone? Neural mechanisms of divided attention during the presence of a cell-phone.”
- 2018 *Faculty Summer Grant*, Baldwin Wallace University. “The Concussion Athlete Project: changes in cognition and language during recovery from concussion.” \$4,000
- 2018 *Gund Student-Faculty Research Grant*, Baldwin Wallace University. “Neural mechanisms of contextual ambiguity resolution.” \$3,000
- 2017 *Human Participant Research Fund*, “Brain Responses during Contextual Ambiguity Resolution and Divided Attention via Cell Phone Use.” Baldwin Wallace University Department of Psychology. \$1,800.
- 2015 Research support funds for Center for Brain, Biology & Behavior, “Changes in Working Memory Across the Adult Lifespan.” State of Nebraska. \$9240.
- 2015 Graduate Research Mentor Award (Nominee), University of Nebraska-Lincoln, Department of Psychology
- 2017 *Warden Funds Research/Travel Grant*. University of Nebraska-Lincoln Department of Psychology. \$300
- 2016 *Warden Funds Research/Travel Grant*. University of Nebraska-Lincoln Department of Psychology. \$300
- 2015 *Warden Funds Research/Travel Grant*. University of Nebraska-Lincoln Department of Psychology. \$300
- 2012 DePauw University, J. William and Katherine C. Asher Research Fund, “Endowed Research Grant.” \$3,800.
- 2013 Madson Graduate Scholarship, The Sigma Chi Foundation
- 2013 Department of Psychology Senior Thesis Award, DePauw University
- 2013 Kenneth S. Wagoner Psychology Research Award, DePauw University
- 2011 General Academic Scholarship, Sigma Chi Foundation

Not Funded

- 2021 The Orthopaedic Research and Education Foundation. “Biomechanical, Cognitive, and Neural Predictors of Secondary ACL Injury.” PI

- 2016 NIH NINDS Ruth L. Kirschstein NRSA Individual Predoctoral Fellowship (Parent F31). “Concussion and Cognitive Communication in College Athletes: Neural Markers and Functional Deficits.”
- 2015 NIH NICHD Ruth L. Kirschstein NRSA Individual Predoctoral Fellowship (Parent F31). “Neural Biomarkers of Concussion in Adolescents.”
- 2013 NSF Graduate Research Fellowship. “Tracking Neural Network Changes in Working Memory Across the Adult Lifespan.”

PUBLICATIONS

	<i>H-index</i>	<i>Times cited</i>	<i>i10 index</i>
Web of Science	3	42	N/A
Google Scholar	4	99	3

In preparation

Ledwidge, P.S., Hartland, L., Huston, C., Jones, C., Neff, E., & Castro, E. Concussions impact ERP mechanisms of impulsivity.

Peer-Reviewed Publications

- Ledwidge, P.S.,** Jones, C., *Huston, C., *Trenkamp, M., *Bator, B., & Laeng, J. (2022). Electrophysiology reveals cognitive-linguistic impairments after concussion. *Brain & Language*, 223, 105116. PMID: 35970083. DOI: 10.1016/j.bandl.2022.105166. Times cited: 0
- Ledwidge, P.S.,** Patterson, J.N., Molfese, D.L., & Honaker, J.A. (2019). Clinical utility of oculomotor and electrophysiological measures in identifying concussion history. *Clinical Journal of Sport Medicine*, 29(4), 292-297. PMID: 31241531. DOI: 10.1097/JSM.0000000000000512. Times cited: 9
- Ledwidge, P.S.** (2018). The impact of sports-related concussions on the language system: A case for event-related brain potentials. *Annals of Behavioral Neuroscience*, 1, 36-46.
- Ledwidge, P.S.,** Foust, J.L.*, & Ramsey, A.T.* (2018). Recommendations for developing an EEG laboratory at a primarily undergraduate institution. *Journal of Undergraduate Neuroscience Education*, 17(1), A10-A19. PMID: 30618494. Times cited: 20
- Hudac, C.M., Cortesa, C.S., **Ledwidge, P.S.,** & Molfese, D.L. (2018). History of concussion impacts electrophysiological correlates of working memory. *International Journal of Psychophysiology*, 132, 135-144. PMID: 29024682. DOI:10.1016/j.ijpsycho.2017.09.020 Times cited: 19
- Ledwidge, P.S.,** & Molfese, D.L. (2016). Long-term effects of concussion on electrophysiological indices of attention in varsity college athletes: An event-related potential and standardized low-resolution brain electromagnetic tomography approach. *Journal of Neurotrauma*, 33, 2081-2090. PMID: 27025905. DOI: 10.1089/neu.2015.4251 Times cited: 46
- Ledwidge, P.S.** (2015). Review of the book *Understanding Traumatic Brain Injury: Current Research and Future Directions*, edited by H. S. Levin, D. H. K. Shum & R. C. K. Chan. *Developmental Neuropsychology*, 40(2), 98-100. Times cited: 0
- Ledwidge, P.S.** (2014). The importance of divergent thinking for research in graduate school and beyond. *APS Observer*, 27(5). Times cited: 3

Invited Book Chapters

- Ledwidge, P.S.**, Masterson, C., Meinders, A.*, & Molfese, D.L. Becoming Part of a Large and Successful Research Team. In F. Leong (Ed.), *The Psychology Research Handbook: A primer for graduate students and research assistants*. Newbury Park, CA: Sage Publishers. In press. Times cited: 0
- Ledwidge, P.S.** (2022). Psychosocial recovery issues and interventions following traumatic brain injury. In Hux, K. & Dinnes, C. *Assisting Survivors of Traumatic Brain Injury* (3rd edition). Times cited: 0

INVITED ORAL PRESENTATIONS

- 09/22/2022 **Ledwidge, P.S.**, Jones, C., *Huston, C., *Trenkamp, M., *Bator, B., & Laeng, J. Electrophysiology reveals cognitive-linguistic impairments after concussion. The 2022 Joint Conference on Brain Injury (New York, NY)
- 09/30/2021 **Ledwidge, P.S.** “The Neurophysiology of Sports Concussion.” *DePauw University*.
- 12/02/2020 **Ledwidge, P.S.** “Long-term impacts of sports-related concussions.” *Hillcrest Rotary*.
- 11/10/2020 **Ledwidge, P.S.** “Late-life impacts of traumatic brain injury.” *Kiwanis Club of Berea*.
- 10/06/2020 **Ledwidge, P.S.** “Pediatric Concussion: Outcomes, rehabilitation, & current research.” *Rotary Club of Berea*.
- 09/01/2020 **Ledwidge, P.S.** “Neurocognitive health and aging.” *Science of Health Series*. Baldwin Wallace University.
- 10/04/2019 **Ledwidge, P.S.** “Neurocognitive health and aging.” *Science of Health Series*. Baldwin Wallace University.
- 04/04/2019 **Ledwidge, P.S.** & Jones, C. “BW’s Concussion Research and Clinical Management Programs.” *Pizza with a Professor*. Baldwin Wallace University.
- 04/26/2018 Ramsey, A.T.*, Foust, J.L.*, & **Ledwidge, P.S.** “A late slow frontal positivity ERP reflects the resolution of contextual ambiguity during narrative discourse comprehension.” *Ovation*. Baldwin Wallace University.
- 03/24/2018 **Ledwidge, P.S.** “A late slow frontal positivity ERP reflects the resolution of contextual ambiguity during narrative discourse comprehension.” *Data Blitz*. Cognitive Neuroscience Society Annual Meeting.
- 11/1/2017 **Ledwidge, P.S.** “Effects of sports-related concussions on the brain: Questions, answers, future directions... and questions.” *Proseminar in Experimental Psychology*. Cleveland State University.
- 11/28/2016 **Ledwidge, P.S.** “Altered ERP correlates of attention and working memory associated with a history of sports-related concussion.” *Center for Brain, Biology, & Behavior*. University of Nebraska-Lincoln.
- 06/03/2014 Cortesa, C., & **Ledwidge, P.S.** “The Science of Athletics: How Concussions Change the Brain,” *Osher Lifelong Learning Institute*. University of Nebraska-Lincoln.

CONFERENCE PRESENTATIONS

- Guggenheim, R.*, Costlow, H.*, Blankenburg, J.*, Petrus, J.*, Johnson, A.*, Kadlowec, J., Morgan, A., & **Ledwidge, P.S.** (2022). A novel study examining cognitive-motor interference after anterior cruciate ligament reconstruction: Feasibility of a combined event-related potential (ERP) and 3D motion capture study. *Midwest/Great Lakes Undergraduate Research Symposium in Neuroscience*.
- Gentilin, A.*, & **Ledwidge, P.S.** (2022). The association between childhood brain injury and internalizing behaviors in young adults: Examining the role of verbal function and its neural correlates. *Midwest/Great Lakes Undergraduate Research Symposium in Neuroscience*.
- Guggenheim, R.*, Costlow, H.*, Blankenburg, J.*, Petrus, J.*, Johnson, A.*, Kadlowec, J., Morgan, A., & **Ledwidge, P.S.** (2022). A novel study examining cognitive-motor interference after anterior cruciate ligament reconstruction: Feasibility of a combined event-related potential (ERP) and 3D motion capture study. *Society for Neuroscience Annual Meeting: Undergraduate Floor*.
- Ledwidge, P.S.**, Jones, C., Huston, C.*, Trenkamp, M.*, Bator, B.*, Laeng, J., Neff, E.*, & Castro, E.* Electrophysiology reveals cognitive-linguistic impairments after concussion. (2022). The 2022 Joint Conference on Brain Injury (New York, NY).
- Ledwidge, P.S.**, Jones, C., Huston, C.*, Trenkamp, M.*, Bator, B.*, & Laeng, J. Electrophysiology reveals cognitive-linguistic impairments after concussion. (2021). *Baldwin Wallace Faculty Showcase*.
- Guddamanugu, S.*, Kuszajewski, E.*, Neff, E.*, Blake, K.*, Galaida, N.*, **Ledwidge, P.S.** (2019). The effects of concussion on neural correlates of lexical-semantic retrieval: Event-related potential evidence. *Northeast Ohio Concussion Summit*. Baldwin Wallace University. Berea, OH.
- Huston C.*, **Ledwidge, P.S.** (2019). The impact of concussions on the N200 ERP during a cognitive inhibition task: Preliminary results. *Northeast Ohio Concussion Summit*. Baldwin Wallace University. Berea, OH.
- Huston, C.*, **Ledwidge, P.S.** (2019). The impact of concussions on the N200 ERP during a cognitive inhibition task: Preliminary results. *Midwest/Great Lakes Undergraduate Research Symposium in Neuroscience*. College of Wooster. Wooster, OH.
- Ledwidge, P.S.**, Trenkamp, M.*, Huston, C.*, Ramsey, A., & Mizerowski, A.* (2019). The possibility of receiving a text message on a cell phone delays P300 latencies recorded during an auditory oddball. *Association for Psychological Science Annual Convention*. Washington, D.C.
- Ledwidge, P.S.**, Trenkamp, M.*, Huston, C.*, Ramsey, A., & Mizerowski, A.* (2019). The possibility of receiving a text message on a cell phone delays P300 latencies recorded during an auditory oddball. *Baldwin Wallace University Ovation*. Berea, OH.
- Ledwidge, P.S.**, Ramsey, A.*, & Huston, C.* (2019). The frontal post-N400 positivity is elicited to unexpected-plausible words in low, but not weak, constraining contexts. *Baldwin Wallace University Ovation*. Berea, OH.
- Ledwidge, P.S.**, Ramsey, A.T.*, & Huston, C.* (2019). The frontal post-N400 positivity is elicited to unexpected-plausible words in low, but not weak, constraining contexts. *Cognitive Neuroscience Annual Meeting*. San Francisco, CA.
- Ramsey, A.T.*, Mizerowski, A.*, & **Ledwidge, P.S.*** (2018). Cell phones have our attention:

- Effects of cell phone distraction on the P300 response in an auditory oddball paradigm. Poster presented at the *Midwest/Great Lakes Undergraduate Research Symposium in Neuroscience*. Ohio Wesleyan University. Delaware, OH.
- Ramsey, A.T.*, & Foust, J.L.*, & **Ledwidge, P.S.**, (2018). A late slow frontal positivity ERP reflects the resolution of contextual ambiguity during narrative discourse comprehension. *Baldwin Wallace University Ovation*. Berea, OH.
- Ledwidge, P.S.**, Ramsey, A.T.*, & Foust, J.L.* (2018). A late slow frontal positivity ERP reflects the resolution of contextual ambiguity during narrative discourse comprehension. *Cognitive Neuroscience Society Annual Meeting*. Boston, MA.
- Molfese, P.J., **Ledwidge, P.**, Zosky, J., Masterson, C., Shattuck, J., Burnfield, J.M., & Molfese, D.L. (2016). Cortical thickness differences in retired athletes with a history of concussion. Poster presented at *The Organization for Human Brain Mapping*. Geneva, Switzerland.
- Ledwidge, P.S.**, & Molfese, D.L. (2015). Effects of concussion on selective attention in college varsity football athletes: A standardized low-resolution ERP tomography (sLORETA) study. Poster presented at the *Big Ten/CIC-Ivy League TBI Research Collaboration Summit*. Chicago, IL.
- O'Doherty, J.G.*, **Ledwidge, P.S.**, & Molfese, D.L. (2015). Comparison of neurocognitive tests used in the assessment of concussion. Poster presented at the *University of Nebraska-Lincoln Undergraduate and Creative Experiences Conference*. Lincoln, NE.
- Meinders, A.M.*, **Ledwidge, P.S.**, Maerlender, A.C., & Molfese, D.L. (2015). Sex differences in working memory of college athletes: An electrophysiological study. Poster presented at the *University of Nebraska-Lincoln Undergraduate and Creative Experiences Conference*. Lincoln, NE.
- Real, K.*, **Ledwidge, P.S.**, & Molfese, D.L. (2014). The search for a biomarker of concussion. Poster presented at the *University of Nebraska-Lincoln Undergraduate and Creative Experiences Conference*. Lincoln, NE.
- Fangmeier, A.L.*, Cortesa, C. S., **Ledwidge, P.S.**, & Molfese, D.L. (2014). Working memory in athletes diagnosed with traumatic brain injury. Poster presented at the *University of Nebraska-Lincoln Undergraduate and Creative Experiences Conference*. Lincoln, NE.
- Meinders, A.M.*, **Ledwidge, P.S.**, & Cortesa, C.S. (2014). Effects of concussion on selective attention and executive function in athletes. Poster presented at the *University of Nebraska Lincoln Undergraduate and Creative Experiences Conference*. Lincoln, NE.
- Ledwidge, P.S.**, Cortesa, C.S., & Molfese, D.L. (2014). Neuropsychological performance moderates P3b amplitude elicited during an oddball task: An ERP study with college-athletes. Poster presented at the *4th Annual Traumatic Brain Injury Conference*. Washington, DC.
- Bonebright, T.L., Muñoz, A. E.*, & **Ledwidge, P.S.** (2014). Cueing of visual attention using auditory stimuli. Poster presented at the *Association for Psychological Science Convention*. San Francisco, CA.
- Ledwidge, P.S.**, Lear, M., Roberts, M.E., & Evans, J.* (2014). Interactions between personality, cognitive resources, and reward processing in successful emotional regulation. Poster presented at the *Association for Psychological Science Convention*. San Francisco, CA.
- Ledwidge, P.S.***, Lear, M.*, & Hall, C.* (2013). Development and validation of a Flow Scale using the International Personality Item Pool (IPIP). Poster presented at the *Association for Psychological Science Convention*. Washington, DC.

- Lear, M.*, **Ledwidge, P.S.***, & Roberts, M.E. (2013). The effects of ego depletion and personality on emotion regulation. Poster presented at the *Midwestern Psychological Association Conference*. Chicago, IL.
- Lear, M.*, **Ledwidge, P.S.***, & Roberts, M.E. (2013). The effects of ego depletion and personality on emotion regulation. Poster presented at the *DePauw University Senior Showcase*. Greencastle, IN.

MENTORING & TRAINING

Master's Students

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| 2022-Present | Dennison, Emily, Baldwin Wallace University, Speech & Language Pathology |
| 2021-2022 | Thadeus, Kailee, Baldwin Wallace University, Speech & Language Pathology |
| 2020-2021 | Semanik, Alexis, Baldwin Wallace University, Speech & Language Pathology |

Undergraduate Senior Theses Supervised: *Neuroscience*

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| 2022-Present | Guggenheim, Ryan. "Impact of Anterior Cruciate Ligament (ACL) injury and reconstruction on ERP indices of cognitive motor control" |
| 2022 | Laughner, Alyssa. "Implications of Undiagnosed Depression on Attention & Memory" |
| 2022 | Castro, Elizabeth. "The Association Between a History of mTBI and The Default Mode Network in College-Aged Contact Sport Athletes" |
| 2021 | Neff, Erin. "Neural correlates of emotional processing in children: Implications for concussion management" |
| 2021 | Kuszajewski, Ellen. "Neural correlates of emotional processing in children: Implications for concussion management" |
| 2019 | Trenkamp, Madison. "Development of a Stimulus Set to be used in a Sentence Verification Task to Examine the Effects of Sports-Related Concussions on the N400 ERP." Baldwin Wallace University. |

Undergraduate Senior Theses Supervised: *Psychology*

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| 2018 | Ramsey, A. "Smartphones have our attention: Effects of cell phone distraction on the P300 ERP elicited in an auditory oddball paradigm." Baldwin Wallace University. |
| 2014 | Meinders, A. "Sex Differences in Working Memory of College Athletes: An Electrophysiological Study. University of Nebraska-Lincoln. |
| 2014 | Mason, S. "Effects of Executive Control and Emotion Regulation on Anxiety. University of Nebraska-Lincoln. |

SYMPOSIA ORGANIZED

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| 10/20/19 | <i>Northeast Ohio Concussion Summit (NOCS)</i>
Baldwin Wallace University, Berea, OH |
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PROFESSIONAL MEMBERSHIPS

North American Brain Injury Association, Pediatric Research in Sports Medicine (PRiSM), Society for Neuroscience, Society for Psychophysiological Research, Brain Injury Association of Ohio, International Neuropsychological Society, Cognitive Neuroscience Society, Association for Psychological Science, American Psychological Association, Faculty for Undergraduate Neuroscience

PROFESSIONAL SERVICE

Ad hoc Reviewer

Psychology of Sport and Exercise, Brain Injury, Clinical Journal of Sport Medicine, International Journal of Psychophysiology, Developmental Neuropsychology

Editorial Board, Member

2017-2019 *Annals of Behavioral Neuroscience*
 2015 *Developmental Neuropsychology*, Associate Guest Editor, 2015, 40(1-2), Special Issue: “The Effects of Concussion in Youth Sports on the Brain”

Institutional- Baldwin Wallace University

2022-Present Chair, Sports-Research Advisory Committee
 2021-Present Coordinator, Kathryn Grover Harrington & Robert A. Harrington Visiting Distinguished Professorship
 2021-Present Member, Research Advisory Council
 2020-Present Member, Graduate Affairs Committee
 2020-Present Assessment Coordinator, Department of Psychology
 2020 Search Committee for Director of Office of Sponsored Programs & Research
 2020 Search Committee for Dean of Graduate Studies & Research
 2018-Present Member, Concussion Management Team
 2018-2020 Supervisor, Psychology Student Research Coordinator

COURSES TAUGHT

2022-Present ^Laboratory in Cognitive Neuroscience (NRO 340), Baldwin Wallace University
 2021-Present Thesis in Psychology (PSY 381), Baldwin Wallace University
 2021-Present Research Methods in Psychology (PSY 380), Baldwin Wallace University
 2020-Present ^Introduction to Brain & Behavior (NRO 110), Baldwin Wallace University
 2019-Present Lab in Statistical Methods (PSY 279), Baldwin Wallace University
 2019-Present ^Neurocognitive Disorders (PSY 463), Baldwin Wallace University
 2019-Present ^iThink: How “smart” technology is shaping the mind (FYE 100), BWU
 2018-Present Neuroscience Senior Thesis (NRO 491-493), Baldwin Wallace University
 2018-Present Psychology Senior Thesis (PSY 492), Baldwin Wallace University
 2018-Present ^Faculty-Student Collaboration (PSY 459), Baldwin Wallace University
 2018-Present ^Cognitive Neuroscience (PSY 363), Baldwin Wallace University

2018-Present Physiological Psychology (PSY 303), Baldwin Wallace University

2017-Present Elements of Statistics (PSY 278), Baldwin Wallace University

2017-Present Principles of Psychological Science (PSY 100), Baldwin Wallace University

2014 Behavioral Neuroscience (PSY 465/BIOS 419), University of Nebraska-Lincoln

^ new courses developed