

University of Minnesota Curriculum Vitae

ELIZABETH R. LUSCZEK

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Education

Postdoctoral Researcher, University of Minnesota	2014
PhD, University of Minnesota Major: Biophysical Sciences and Medical Physics Advisor: Russ Ritenour	2011
MS, University of Minnesota Major: Physics	2007
BS, Truman State University Major: Physics/Mathematics	2001

Academic Appointments

Associate Professor University of Minnesota Medical School, Surgery, Minneapolis, Minnesota, United States	June 2023 - Present
Assistant Professor University of Minnesota, Twin Cities Department of Surgery	2014 - 2023

Current Membership in Professional Organizations

American Thoracic Society (ATS)	2021 - Present
Treasurer, Society for Complex Acute Illness	2019 - Present
Member, Board of Directors, Society for Complex Acute Illness	2017 - Present
Society of Critical Care Medicine	2015 - Present
Shock Society	2013 - Present
Society for Complex Acute Illness	2012 - Present
American Pancreas Association	2011 - Present

Other Professional Positions

Graduate Research Assistant University of Minnesota Department of Surgery	2007 - 2011
Graduate Research Assistant University of Minnesota School of Physics and Astronomy	2004 - 2007

HONORS AND AWARDS FOR RESEARCH WORK, TEACHING, PUBLIC ENGAGEMENT, AND SERVICE

University of Minnesota

Second Place: Basic Science Poster, University of Minnesota Department of Surgery Research Day	2013
Winifred H Wetzel Summer Research Fellowship	2006
Outstanding TA, University of Minnesota School of Physics and Astronomy	2005

External Sources

Best Scientific Presentation for "Shock: Weathering the Storm", Midwest Regional Burn Conference	2018
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RESEARCH AND SCHOLARSHIP

Awards and Projects Routed through Sponsored Projects Administration (External Sources)

Current:

1. **Award: CD4 T cell dysfunction and reprogramming during sepsis**

Principal Investigator: Griffith, Thomas S.
Sponsoring Organization Reference ID: 1R35GM140881-01
Status: Accepted
Sponsoring Organization: NIH NIGMS NATL INST OF GENERAL
Award Dates: May 1, 2021 - April 30, 2026

Project: CD4 T cell dysfunction and reprogramming during sepsis

Project Team: Luszczyk, Elizabeth, R. (Co-Investigator), Khoruts, Alexander (Co-Investigator), Griffith, Thomas, S. (Principal), Staley, Christopher, M. (Co-Investigator)
Status: Approved
Project Dates: May 1, 2021 - April 30, 2026

Pending:

1. **Proposal: Investigation of association-causation in biosynthetic pathways to evaluate adaptations of the black bear to maintain blood chemistry and minimize muscle catabolism during hibernation**

Role: Co-Investigator
Status: Submitted
Sponsoring Organization: NATIONAL INSTITUTES OF HEALTH (NIH)
Date Submitted: June 1, 2023

2. **Proposal: Developing a Rapid Bedside Test for Succinate for Triage of Severe Injury**
Role: Principal
Status: Submitted
Sponsoring Organization: U.S. DEPARTMENT OF DEFENSE
Date Submitted: May 30, 2023
3. **Proposal: Development of a Rapid Bedside Test for Succinate for Triage of Severe Injury**
Role: Principal
Status: Submitted
Sponsoring Organization: THE HENRY M. JACKSON FOUNDATION
Date Submitted: September 1, 2022
4. **Proposal: Data-Driven, Biomimetic and Translational Approach to Inform Patient Specific Treatment Strategies for COVID Associated Coagulopathy**
Role: Co-Investigator
Status: Submitted
Sponsoring Organization: NATIONAL INSTITUTES OF HEALTH (NIH)
Date Submitted: June 2, 2022
5. **Proposal: Metabolomic analysis of diabetic rodents and non-human primates to improve the understanding of the basic mechanisms of neuropathic pain**
Role: Co-Investigator
Status: Submitted
Sponsoring Organization: U.S. DEPARTMENT OF DEFENSE
Date Submitted: May 26, 2022

Past:

1. **Award: COVID-19 Testing with Breath Sensor, an observational study**
Principal Investigator: Luszczek, Elizabeth R.
Sponsoring Organization Reference ID: Appendix 37
Status: Closed
Sponsoring Organization: BOSTON SCIENTIFIC CORPORATION
Award Dates: May 15, 2020 - July 15, 2020

Project: COVID-19 Testing with Breath Sensor, an observational study
Project Team: Luszczek, Elizabeth, R. (Principal)
Status: Approved
Project Dates: May 15, 2020 - July 15, 2020
2. **Award: Exploratory 1H-NMR-Based Metabolomic Signatures of ERCP-Induced Pancreatic Injury**
Project Investigators: Luszczek, Elizabeth R. (Principal, 0%)
Status: Funded
Sponsoring Organization: American College of Gastroenterology
Award Dates: 2012 - 2014
Percent Effort: 0%
Funded Amount for Entire Grant Period or Proposed Grant Period: \$10,000.00

Other Grants, Awards, Gifts, or Endowment Earnings (Internal Sources)

Current:

1. **Award: Investigating COVID-19 Phenotypes, Health Disparities, and Metabolic Biomarkers**
Project Investigators: Luszczek, Elizabeth R. (Principal, 0%)
Status: Funded
Sponsoring Organization: Department of Surgery: Diversity, Equity and Inclusion Pilot Program
Date Proposal Submitted: 2021
Percent Effort: 0%
Funded Amount for Entire Grant Period or Proposed Grant Period: \$25,000.00

Past:

1. **Award: Determining internal body time in ICU patients using the TimeSignature algorithm Project Dates: 2020-2022**
Project Investigators: Luszczek, Elizabeth R. (Principal, 0%)
Status: Funded
Sponsoring Organization: Department of Surgery Division of Basic and Translational Science
Institution: University of Minnesota
Date Proposal Submitted: 2020
Award Dates: 2020 - 2022
Percent Effort: 0%
Funded Amount for Entire Grant Period or Proposed Grant Period: \$30,000.00
2. **Award: Determining Inter-patient Variability in ICU patients with NMR-Based Metabolomics**
Project Investigators: Luszczek, Elizabeth R. (Principal, 0%)
Status: Funded
Sponsoring Organization: Department of Surgery UMF funds
Award Dates: 2018 - 2020
Percent Effort: 0%
Funded Amount for Entire Grant Period or Proposed Grant Period: \$52,706.00
Includes graduate student support
3. **Award: Metabolite identification in mass spectrometry-based metabolomics to characterize individual variation in the intensive care unit**
Project Investigators: Luszczek, Elizabeth R. (Principal, 0%)
Status: Funded
Sponsoring Organization: University of Minnesota Informatics Institute Grant
Award Dates: 2018
Percent Effort: 0%
Funded Amount for Entire Grant Period or Proposed Grant Period: \$5,000.00
4. **Award: Nitrogen Evaporator for High-Throughput Metabolomics with Applications in Chronic Pancreatitis and Critical Care**
Project Investigators: Luszczek, Elizabeth R. (Principal, 0%)
Status: Funded
Sponsoring Organization: MS/UMF Grant

Award Dates: 2016 - 2017
Percent Effort: 0%
Funded Amount for Entire Grant Period or Proposed Grant Period: \$1,682.00

5. **Award: Metabolic markers of COPD Exacerbation**
Project Investigators: Luszczyk, Elizabeth R. (Principal, 0%)
Status: Funded
Sponsoring Organization: University of Minnesota
Award Dates: 2015 - 2017
Percent Effort: 0%
Funded Amount for Entire Grant Period or Proposed Grant Period: \$25,000.00

6. **Award: Use of Metabolomics to Establish Disruption of Circadian Rhythms in Long-Term ICU Patients**
Project Investigators: Luszczyk, Elizabeth R. (Principal, 0%)
Status: Funded
Sponsoring Organization: University of Minnesota
Award Dates: 2015 - 2017
Percent Effort: 0%
Funded Amount for Entire Grant Period or Proposed Grant Period: \$35,000.00

Publications

Asterisk() - indicates co-first author*
Underline - indicates student author

Peer-Reviewed Publications

1. Yang, K., Kang, Z., Guan, W., Lotfi-Emran, S., Mayer, Z. J., Guerrero, C. R., Steffen, B. T., Puskarich, M. A., Tignanelli, C. J., Luszczyk, E. R. (Lead Author), Safo, S. E. (Lead Author) (2023). Developing A Baseline Metabolomic Signature Associated with COVID-19 Severity: Insights from Prospective Trials Encompassing 13 U.S. Centers. *Metabolites*. [doi: 10.3390/metabo13111107](https://doi.org/10.3390/metabo13111107)
Author Role: I was the study's senior author with Sandra Safo. I provided mentoring to the first author trainee throughout the data analysis, interpretation, and preparation of the manuscript.
Journal Impact Factor: 5.5
Time Cited: 0
co-Senior author with Sandra Safo

2. Knauert*, M. P., Ayas*, N. T., Bosma, K. J., Drouot, X., Heavner, M., Owens, R. L., Watson, P. L., Wilcox, M. E., Anderson, B. J., Cordoza, M. L., Devlin, J. W., Elliott, R., Gehlbach, B. K., Girard, T., Kamdar, B. B., Korwin, A. S., **Luszczyk, E. R.**, Parthasarathy, S., Spies, C., Sunderram, J., Telias, I., Weinhouse, G. L., Zee, P. C. (2023). Causes, consequences, and treatments of sleep and circadian disruption in the ICU. *American Journal of Respiratory and Critical Care Medicine*. PMID: 36999950 [doi: 10.1164/rccm.202301-0184ST](https://doi.org/10.1164/rccm.202301-0184ST)
This Workshop Project aims to assemble a multidisciplinary team of experts who will accomplish the following objectives: (Objective 1) Delineate a list of priority sub-topics that will include risk factors, prevalence, diagnostics, treatments, and outcomes of sleep and circadian disruption in the adult medical ICU for discussion at the proposed ATS 2021 Workshop; (Objective 2) Identify, discuss, and critically evaluate current knowledge and knowledge gaps within these sub-topics; (Objective 3) Set a prioritized research agenda that will be published as an American Thoracic Society Report.
Content expert on machine learning and big data approaches; social determinants of health

3. Bergman, Z. R., Robbins, A. J., Alwan, F. S., Bellin, M. D., Kirchner, V. A., Pruett, T. L., Mulier, K. E., Boucher, A. A., Luszczyk, E. R., Beilman, G. J. (2022). Perioperative Coagulation Changes in Total Pancreatectomy and Islet Autotransplantation. *Pancreas*, 51(6), 671-677. PMID: 36099513 [doi: 10.1097/MPA.0000000000002085](https://doi.org/10.1097/MPA.0000000000002085)

Author Role: In addition to performing key statistical analyses, I provided mentoring to the first author trainee throughout the data analysis, interpretation, and preparation of the manuscript.
Journal Impact Factor: 3.243
Time Cited: 0

4. Wothe, J. K., Bergman, Z. R., Lofrano, A. E., Doucette, M., Saavedra-Romero, R., Prekker, M. E., Lusczek, E. R., Brunsvold, M. E. (2022). Evaluation of Minnesota Score in the Allocation of Venovenous Extracorporeal Membrane Oxygenation During Resource Scarcity. *Critical care research and practice*, 2022, 2773980. PMID: 35402045 PMCID: PMC8985705 [doi: 10.1155/2022/2773980](https://doi.org/10.1155/2022/2773980)

Author Role: In addition to performing key statistical analyses, I provided mentoring to the first author trainee throughout the data analysis, interpretation, and preparation of the manuscript.
Journal Impact Factor: 0.31
Time Cited: 0

5. Bergman, Z. R., Tignanelli, C. J., Gould, R., Pendleton, K. M., Chipman, J. G., Lusczek, E. R., Beilman, G. J. (2022). Factors Associated with Mortality in Patients with COVID-19 Receiving Prolonged Ventilatory Support. *Surgical Infections*. PMID: 36383156 [doi: 10.1089/sur.2022.195](https://doi.org/10.1089/sur.2022.195)

Author Role: In addition to performing key statistical analyses, I provided mentoring to the first author trainee throughout the data analysis, interpretation, and preparation of the manuscript.
Journal Impact Factor: 1.448
Time Cited: 0

6. Doyle, M. M., Murphy, T. E., Miner, B., Pisani, M. A., Lusczek, E. R., Knauert, M. P. (2022). Enhancing cosinor analysis of circadian phase markers using the gamma distribution. *Sleep medicine*, 92, 1-3. PMID: 35306404 [doi: 10.1016/j.sleep.2022.01.015](https://doi.org/10.1016/j.sleep.2022.01.015)

Author Role: I provided critical review of the analysis and performed key revisions of the manuscript during preparation for publication.
Journal Impact Factor: 3.492
Time Cited: 2

7. Wothe, J. K., Bergman, Z. R., Kalland, K. R., Peter, L. G., Lusczek, E. R., Brunsvold, M. E. (2022). Outcomes of Patients Undergoing Interfacility Extracorporeal Membrane Oxygenation Transfer Based on Cannulation Location and Mode of Transport. *Critical care explorations*, 4(4), e0664. PMID: 35372849 PMCID: PMC8963824 [doi: 10.1097/CCE.0000000000000664](https://doi.org/10.1097/CCE.0000000000000664)

Author Role: In addition to performing key statistical analyses, I mentored the trainee authors throughout the data analysis, interpretation, and preparation of the manuscript.
Journal Impact Factor: NA
Time Cited: 0

8. Braaten, J. A., Bergman, Z. R., Wothe, J. K., Lofrano, A. E., Matzek, L. J., Doucette, M., Saavedra-Romero, R., Bohman, J. K., Prekker, M. E., Lusczek, E. R., Brunsvold, M. E. (2022). Increasing Mortality in Venovenous Extracorporeal Membrane Oxygenation for COVID-19-Associated Acute Respiratory Distress Syndrome. *Critical care explorations*, 4(3), e0655. PMID: 35265853 PMCID: PMC8901198 [doi: 10.1097/CCE.0000000000000655](https://doi.org/10.1097/CCE.0000000000000655)

Author Role: In addition to performing statistical analyses, I provided key mentoring to the trainee authors throughout the data analysis, interpretation, and preparation of the manuscript.
Journal impact factor: NA
Times cited: 0

9. Bergman, Z. R., Usher, M., Olson, A., Chipman, J. G., Brunsvold, M. E., Beilman, G., Tignanelli, C., Luszczek, E. R. (2022). Comparison of Outcomes and Process of Care for Patients Treated at Hospitals Dedicated for COVID-19 Care vs Other Hospitals. *JAMA network open*, 5(3), e220873. PMID: 35238935 PMCID: PMC8895262 [doi: 10.1001/jamanetworkopen.2022.0873](https://doi.org/10.1001/jamanetworkopen.2022.0873)
Author Role: Senior author; main statistical analyses, interpretation and data visualization; mentored trainee first author in data analysis and manuscript preparation
Journal Impact Factor: 8.48
Time Cited: 0
10. Stolarski, A. E., Young, L., Weinberg, J., Kim, J., Luszczek, E., Remick, D. G., Bistran, B., Burke, P. (2022). Early metabolic support for critically ill trauma patients: A prospective randomized controlled trial. *The journal of trauma and acute care surgery*, 92(2), 255-265. PMID: 34739002 PMCID: PMC8792201 [doi: 10.1097/TA.0000000000003453](https://doi.org/10.1097/TA.0000000000003453)
Author Role: The senior author reached out to me to provide key expertise on analysis and interpretation of metabolomics data. I also assisted with manuscript preparation.
Journal Impact Factor: 3.313
Time Cited: 1
11. Robbins, A. J., **Luszczek, E.**, Bellin, M. D., Alwan, F. S., Hodges, J. S., Chapman, S. A., Beilman, G. J. (2021). Gastrointestinal Bleed After Total Pancreatectomy With Islet Autotransplant. *Pancreas*, 50(6), 841-846. [doi: 10.1097/MPA.0000000000001842](https://doi.org/10.1097/MPA.0000000000001842)
Author Role: In addition to performing key statistical analyses, I provided key mentoring to the first author trainee throughout the data analysis, interpretation, and preparation of the manuscript.
Journal Impact Factor: 3.327
Time Cited: 0
12. Robbins, A. J., **Luszczek, E.**, Bellin, M. D., Benner, A., Alwan, F. S., Beilman, G. J. (2021). Thromboembolic Complications in the First Year After Acute Pancreatitis Diagnosis. *Pancreas*, 50(5), 751-755. PMCID: PMC8192482 [doi: 10.1097/MPA.0000000000001827](https://doi.org/10.1097/MPA.0000000000001827)
Author Role: In addition to performing key statistical analyses, I mentored the first author trainee throughout the study conceptualization, data analysis, interpretation, and preparation of the manuscript.
Journal Impact Factor: 3.327
Time Cited: 1
13. Gisewhite, S., Stewart, I. J., Beilman, G., **Luszczek, E. R.** (2021). Urinary metabolites predict mortality or need for renal replacement therapy after combat injury. *Critical Care*(25(1)), 119. [doi: https://doi.org/10.1186/s13054-021-03544-2](https://doi.org/10.1186/s13054-021-03544-2)
Author Role: I performed data collection and designed the data analysis. I mentored the trainee first author in all aspects of the project (project background, data analysis, and interpretation). I provided significant input into the preparation of the manuscript as well as revisions as senior author.
Journal Impact Factor: 9.097
Time Cited: 8
14. Bergman, Z. R., Wothe, J. K., Alwan, F. S., Lofrano, A. E., Tointon, K. M., Doucette, M., Bohman, J. K., Saavedra-Romero, R., Prekker, M. E., **Luszczek, E. R.**, Beilman, G., Brunsvold, M. E. (2021). Risk Factors of Mortality for Patients Receiving Venovenous Extracorporeal Membrane Oxygenation for COVID-19 Acute Respiratory Distress Syndrome. *Surgical infections*, 22(10), 1086-1092. PMID: 34494893 [doi: 10.1089/sur.2021.114](https://doi.org/10.1089/sur.2021.114)

Author Role: I performed the main data analysis for this manuscript and mentored trainees in performing other analyses presented in the manuscript. I assisted with manuscript preparation and mentored the trainees who authored the manuscript.
Journal Impact Factor: 2.15
Time Cited: 3

15. Robbins, A. J., Beilman, G. J., Ditta, T., Benner, A., Rosielle, D., Chipman, J., **Luszczek, E.** (2021). Mortality After Elective Surgery: The Potential Role for Preoperative Palliative Care. *Journal of Surgical Research*, 266(October 2021), 44-53. [doi: https://doi.org/10.1016/j.jss.2021.04.003](https://doi.org/10.1016/j.jss.2021.04.003)

Author Role: I performed key statistical analyses and cleaning of the data. I mentored the first author in manuscript preparation, study conceptualization, and data analysis. Senior Author.
Journal Impact Factor: 2.192
Time Cited: 0

16. **Luszczek, E. R.**, Knauert, M. P. (2021). Light Levels in ICU Patient Rooms: Dimming of Daytime Light in Occupied Rooms. *Journal of patient experience*, 8, 23743735211033104. PMID: 34368424 PMCID: PMC8312159 [doi: 10.1177/23743735211033104](https://doi.org/10.1177/23743735211033104)

Author Role: I created key visualizations of the data, assisted with the data analysis, and prepared the manuscript with Dr. Knauert.
Journal Impact Factor: NA
Time Cited: 0

17. Bergman, Z. R., Wothe, J. K., Alwan, F. S., Dunn, A., **Luszczek, E. R.**, Lofrano, A. E., Tointon, K. M., Doucette, M., Bohman, J. K., Saavedra-Romero, R., Prekker, M. E., Brunsvold, M. E. (2021). The Use of Venovenous Extracorporeal Membrane Oxygenation in COVID-19 Infection: One Region's Comprehensive Experience. *ASAIO journal (American Society for Artificial Internal Organs : 1992)*, 67(5), 503-510. PMID: 33492851 PMCID: PMC8078021 [doi: 10.1097/MAT.0000000000001403](https://doi.org/10.1097/MAT.0000000000001403)

Author Role: I performed key statistical analyses and provided visualization of the results. I mentored trainee authors in data analysis and interpretation and manuscript preparation.
Journal Impact Factor: 2.872
Time Cited: 8

18. **Luszczek*, E. R.**, Ingraham*, N. E., Karam, B. S., Proper, J., Siegel, L., Helgeson, E. S., Lotfi-Emran, S., Zolfaghari, E. J., Jones, E., Usher, M. G., Chipman, J. G., Dudley, R. A., Benson, B., Melton, G. B., Charles, A., Lupei, M. I., Tignanelli, C. J. (2021). Characterizing COVID-19 clinical phenotypes and associated comorbidities and complication profiles. *PloS one*, 16(3), e0248956. PMID: 33788884 PMCID: PMC8011766 [doi: 10.1371/journal.pone.0248956](https://doi.org/10.1371/journal.pone.0248956)

Author Role: I conceptualized the project, cleaned the data, and designed and performed the formal analysis. I designed and provided visualization of the data. I performed preparation and revision of the manuscript as co-first author.
Journal Impact Factor: 3.24
Time Cited: 26

19. **Luszczek, E. R.**, Parsons, L. S., Elder, J., Harvey, S. B., Skube, M., Muratore, S., Beilman, G., Cornelissen-Guillaume, G. (2020). Metabolomics Pilot Study Identifies Desynchronization of 24-H Rhythms and Distinct Intra-patient Variability Patterns in Critical Illness: A Preliminary Report. *Frontiers in neurology*, 11, 533915. PMID: 33123071 PMCID: PMC7566909 [doi: 10.3389/fneur.2020.533915](https://doi.org/10.3389/fneur.2020.533915)

Author Role: I was study PI and conceptualized and executed the study. I designed and performed all data analysis and worked with co-authors to interpret results. I prepared the manuscript and subsequent revisions.

Journal Impact Factor: 4.003

Time Cited: 3

20. Hendrickson, C., Linden, K., Kreyer, S., Beilman, G., Scaravilli, V., Wendorff, D., Necsoiu, C., Batchinsky, A. I., Cancio, L. C., Chung, K. K., **Luszczek, E. R.** (2019). 1H-NMR Metabolomics Identifies Significant Changes in Metabolism over Time in a Porcine Model of Severe Burn and Smoke Inhalation. *Metabolites*(9(7)), 142. PMID: PMC6680385 [doi: 10.3390/metabo9070142](https://doi.org/10.3390/metabo9070142)

Author Role: I mentored the trainee first author in all aspects of the project (project background, data collection, analysis, and interpretation). I provided significant input into the preparation of the manuscript as well as revisions.

Journal Impact Factor: 4.932

Time Cited: 5

21. Robbins, A. J., Skube, M. E., Bellin, M. D., Dunn, T. B., Chapman, S. A., Berry, K. L., **Luszczek, E. R.**, Beilman, G. J. (2019). Portal Vein Thrombosis After Total Pancreatectomy and Islet Autotransplant: Prophylaxis and Graft Impact. *Pancreas*(48(10)), 1329-1333. PMID: 31688597 [doi: 10.1097/MPA.0000000000001421](https://doi.org/10.1097/MPA.0000000000001421)

Author Role: I performed key statistical analyses and cleaning of the data. I mentored the first author and assisted her in manuscript preparation, study conceptualization, and data analysis.

Journal Impact Factor: 3.327

Time Cited: 8

22. Skube, M. E., Witthuhn, S., Mulier, K., Boucher, B., **Luszczek, E.**, Beilman, G. J. (2018). Assessment of prehospital hemorrhage and airway care using a simulation model. *JOURNAL OF TRAUMA AND ACUTE CARE SURGERY*, 85, S27-S32. PMID: 29334569 PMID: PMC6023776 [doi: 10.1097/TA.0000000000001800](https://doi.org/10.1097/TA.0000000000001800)

Author Role: I performed the data analysis and assisted with interpretation. I provided key mentoring to the trainee author regarding statistical analyses and manuscript preparation

Journal Impact Factor: 3.313

Time Cited: 6

23. Skube, M. E., Mallery, Q., **Luszczek, E.**, Elterman, M. J., Spott, M. A., Beilman, G. J. (2018). Characteristics of Combat-Associated Small Bowel Injuries. *MILITARY MEDICINE*, 183(9-10), E454-E459. [doi: 10.1093/milmed/usy009](https://doi.org/10.1093/milmed/usy009)

Author Role: I performed the data analysis and assisted with interpretation. I mentored trainee authors in manuscript preparation and provided key feedback and edits.

Journal Impact Factor: 1.437

Time Cited: 5

24. **Luszczek, E. R.**, Myers, C., Popovsky, K., Mulier, K., Beilman, G., Sawyer, R. (2018). Plasma metabolomics pilot study suggests age and sex-based differences in the metabolic response to traumatic injury. *Injury*, 49(12), 2178-2185. PMID: 30266291 [doi: 10.1016/j.injury.2018.09.033](https://doi.org/10.1016/j.injury.2018.09.033)

Author Role: I acquired all spectral data and performed all metabolite identification and quantification. I designed and performed all the data analysis and facilitated interpretation with clinical coauthors. I mentored the trainee co-author in data interpretation and manuscript preparation. I prepared the manuscript for publication.

Journal Impact Factor: 2.586

Time Cited: 7

25. Wolf, A., Lusczek, E. R., Beilman, G. J. (2018). Hibernation-Based Approaches in the Treatment of Hemorrhagic Shock. *Shock*, 50(1), 14-23. [doi: 10.1097/SHK.0000000000001094](https://doi.org/10.1097/SHK.0000000000001094)
Author Role: I mentored first author in manuscript preparation. I also made key edits to the content and presentation of the material presented in the review.
Journal Impact Factor: 3.454
Time Cited: 12
26. Ennis, K., Lusczek, E., Rao, R. (2017). Characterization of the concurrent metabolic changes in brain and plasma during insulin-induced moderate hypoglycemia using H-1 NMR spectroscopy in juvenile rats. *NEUROSCIENCE LETTERS*, 653, 370-375. PMID: 28627374
[doi: 10.1016/j.neulet.2017.06.016](https://doi.org/10.1016/j.neulet.2017.06.016)
Author Role: I consulted on data collection and designed and performed data analysis. I assisted with interpretation of results, manuscript preparation, and revisions.
Journal Impact Factor: 3.046
Time Cited: 4
27. Lusczek, E. R., Muratore, S. L., Dubick, M. A., Beilman, G. J. (2017). Assessment of key plasma metabolites in combat casualties. *Journal of Trauma and Acute Care Surgery*, 82(2), 309-316. PMID: 27787435 [doi: 10.1097/TA.0000000000001277](https://doi.org/10.1097/TA.0000000000001277)
Author Role: I acquired all spectral data and performed all metabolite identification and quantification. I designed and performed all the data analysis and facilitated interpretation with clinical coauthors. I prepared the manuscript for publication.
Journal Impact Factor: 3.313
Time Cited: 25
28. Fortis*, S., Lusczek*, E. R., Weinert, C. R., Beilman, G. J. (2017). Metabolomics in COPD Acute Respiratory Failure Requiring Noninvasive Positive Pressure Ventilation. *Canadian Respiratory Journal*, 2017. [doi: 10.1155/2017/9480346](https://doi.org/10.1155/2017/9480346)
Author Role: I was study co-PI and co-first author. In addition, I acquired all spectral data and performed all metabolite identification and quantification. I performed all the data analysis and facilitated interpretation with clinical coauthors. I prepared the manuscript for publication.
Journal Impact Factor: 2.409
Time Cited: 10
29. Gorham, P. W., Nam, J., Romero-Wolf, A., Hoover, S., Allison, P., Banerjee, O., Beatty, J. J., Belov, K., Besson, D. Z., Binns, W. R., Bugaev, V., Cao, P., Chen, C., Chen, P., Clem, J. M., Connolly, A., Dailey, B., Deaconu, C., Cremonesi, L., Dowkontt, P. F., Duvernois, M. A., Field, R. C., Fox, B. D., Goldstein, D., Gordon, J., Hast, C., Hebert, C. L., Hill, B., Hughes, K., Hupe, R., Israel, M. H., Javaid, A., Kowalski, J., Lam, J., Learned, J. G., Liewer, K. M., Liu, T. C., Link, J. T., Lusczek, E., Matsuno, S., Mercurio, B. C., Miki, C., Miočinović, P., Mottram, M., Mulrey, K., Naudet, C. J., Ng, J., Nichol, R. J., Palladino, K., Rauch, B. F., Reil, K., Roberts, J., Rosen, M., Rotter, B., Russell, J., Ruckman, L., Saltzberg, D., Seckel, D., Schoorlemmer, H., Stafford, S., Stockham, J., Stockham, M., Strutt, B., Tatem, K., Varner, G. S., Vieregg, A. G., Walz, D., Wissel, S. A., Wu, F. (2016). Characteristics of Four Upward-Pointing Cosmic-Ray-like Events Observed with ANITA. *Physical Review Letters*, 117(7). [doi: 10.1103/PhysRevLett.117.071101](https://doi.org/10.1103/PhysRevLett.117.071101)
Author Role: As a graduate research assistant, I worked on detector construction, data acquisition, and experiments at Stanford Linear Accelerator, University of Hawaii, NASA Columbia Scientific Balloon Facility, and University of California Irvine (2003-2007).
Journal Impact Factor: 9.161
Time Cited: 124

30. **Luszczek, E. R.**, Colling, K., Muratore, S., Conwell, D., Freeman, M., Beilman, G. (2016). Stereotypical Metabolic Response to Endoscopic Retrograde Cholangiopancreatography Show Alterations in Pancreatic Function Regardless of Post-Procedure Pancreatitis. *Clinical and Translational Gastroenterology*, 7. PMID: 27148850 PMCID: PMC4893679 [doi: 10.1038/ctg.2016.26](https://doi.org/10.1038/ctg.2016.26)
Author Role: I was study PI. In addition, I acquired all spectral data and performed all metabolite identification and quantification. I designed and performed all the data analysis and facilitated interpretation with clinical coauthors. I prepared the manuscript for publication.
Journal Impact Factor: 4.448
Time Cited: 2
31. Witowski, N. E., **Luszczek, E. R.**, Determan, C. E., Lexcen, D. R., Mulier, K. E., Wolf, A., Ostrowski, B. G., Beilman, G. J. (2016). Metabolomic analysis of survival in carbohydrate pre-fed pigs subjected to shock and polytrauma. *Molecular bioSystems*, 12(5), 1638-52. PMID: 26989839 PMCID: PMC5577932 [doi: 10.1039/c5mb00637f](https://doi.org/10.1039/c5mb00637f)
Author Role: I assisted with collection of metabolomics data and metabolite identification and quantification. I designed and performed data analysis and I assisted in data interpretation and manuscript preparation. Corresponding author.
Journal Impact Factor: 3.743
Time Cited: 4
32. Schoorlemmer, H., Belov, K., Romero-Wolf, A., García-Fernández, D., Bugaev, V., Wissel, S. A., Allison, P., Alvarez-Muñiz, J., Barwick, S. W., Beatty, J. J., Besson, D. Z., Binns, W. R., Carvalho, W. R., Chen, C., Chen, P., Clem, J. M., Connolly, A., Dowkontt, P. F., Duvernois, M. A., Field, R. C., Goldstein, D., Gorham, P. W., Hast, C., Huege, T., Heber, C. L., Hoover, S., Israel, M. H., Javaid, A., Kowalski, J., Lam, J., Learned, J. G., Link, J. T., **Luszczek, E.**, Matsuno, S., Mercurio, B. C., Miki, C., Miočinović, P., Mulrey, K., Nam, J., Naudet, C. J., Ng, J., Nichol, R. J., Palladino, K., Rauch, B. F., Roberts, J., Reil, K., Rotter, B., Rosen, M., Ruckman, L., Saltzberg, D., Seckel, D., Urdaneta, D., Varner, G. S., Viereg, A. G., Walz, D., Wu, F., Zas, E. (2016). Energy and flux measurements of ultra-high energy cosmic rays observed during the first ANITA flight. *Astroparticle Physics*, 77, 32-43. [doi: 10.1016/j.astropartphys.2016.01.001](https://doi.org/10.1016/j.astropartphys.2016.01.001)
Author Role: As a graduate research assistant, I worked on detector construction, data acquisition, and experiments at Stanford Linear Accelerator, University of Hawaii, NASA Columbia Scientific Balloon Facility, and University of California Irvine (2003-2007).
Journal Impact Factor: 2.724
Time Cited: 71
33. **Luszczek, E. R.**, Vincent, T., Lexcen, D., Kulkarni, V., Mulier, K., Beilman, G. (2015). Metabolic networks in a porcine model of trauma and hemorrhagic shock demonstrate different control mechanism with carbohydrate pre-feed. *BMC EMERGENCY MEDICINE*, 15. [doi: 10.1186/s12873-015-0038-1](https://doi.org/10.1186/s12873-015-0038-1)
Author Role: I acquired all metabolomics data. I also consulted in data analysis; performed interpretation of the results, and prepared the manuscript for publication.
Journal Impact Factor: 2.54
Time Cited: 4
34. Colling, K. P., Iyegha, U. P., Asghar, J. I., Lexcen, D. R., **Luszczek, E. R.**, Determan, C. E., Witowski, N. E., Mulier, K. E., Beilman, G. J. (2015). Preinjury fed state alters the physiologic response in a porcine model of Hemorrhagic Shock and Polytrauma. *Shock*, 44, 103-113. PMID: 25565641 [doi: 10.1097/SHK.0000000000000324](https://doi.org/10.1097/SHK.0000000000000324)

Author Role: I performed key statistical analyses and assisted in interpretation of the results as well as manuscript preparation and editing.

Journal Impact Factor: 3.454

Time Cited: 6

35. Witowski, N., **Luszczek, E. (Corresponding Author)**, Determan, C., Lexcen, D., Mulier, K., Ostrowski, B., Beilman, G. (2015). A four-compartment metabolomics analysis of the liver, muscle, serum, and urine response to polytrauma with hemorrhagic shock following carbohydrate prefeed. *PLoS ONE*, 10(4). PMID: 25875111 PMCID: PMC4396978 [doi: 10.1371/journal.pone.0124467](https://doi.org/10.1371/journal.pone.0124467)

Author Role: I assisted with collection of metabolomics data and metabolite identification and quantification. I designed and performed data analysis and I assisted in data interpretation and manuscript preparation and revisions. Corresponding author.

Journal Impact Factor: 3.24

Time Cited: 20

36. Ashikaga, H., Aguilar-Rodríguez, J., Gorsky, S., **Luszczek, E.**, Marquitti, F. M., Thompson, B., Wu, D., Garland, J. (2015). Modelling the heart as a communication system. *Journal of the Royal Society Interface*, 12(105). [doi: 10.1098/rsif.2014.1201](https://doi.org/10.1098/rsif.2014.1201)

Author Role: I assisted the group with interpretation of results and provided key feedback in the writing and preparation of the manuscript as well as revisions.

Journal Impact Factor: 4.118

Time Cited: 19

37. Hamerly, T., Heinemann, J., Tokmina-Lukaszewska, M., **Luszczek, E. R.**, Mulier, K. E., Beilman, G. J., Bothner, B. (2014). Bovine serum albumin as a molecular sensor for the discrimination of complex metabolite samples. *ANALYTICA CHIMICA ACTA*, 818, 61-66. PMID: 24626404 [doi: 10.1016/j.aca.2014.01.058](https://doi.org/10.1016/j.aca.2014.01.058)

Author Role: I performed data analysis and interpretation and I performed manuscript preparation, editing, and revisions.

Journal Impact Factor: 6.558

Time Cited: 10

38. Determan, C., **Luszczek, E.**, Witowski, N., Lexcen, D., Mulier, K., Beilman, G. (2014). Carbohydrate fed state alters the metabolomic response to hemorrhagic shock and resuscitation in liver. *Metabolomics*, 10(5), 950-957.

Author Role: I provided key data analyses and assisted with interpretation of results. I performed manuscript preparation, editing, and revisions.

Journal Impact Factor: 4.29

Time Cited: 11

39. Tokmina-Lukaszewska, M., Movahed, N., **Luszczek, E.**, Mulier, K., Beilman, G., Bothner, B. (2014). Transformation of UPLC-MS data overcomes extreme variability in urine concentration and metabolite fold change. *Current Metabolomics*, 2(2(2)), 78-87 (10).

Author Role: I performed data analysis and interpretation and I performed manuscript preparation, editing, and revision.

Journal Impact Factor:

Time Cited: 4

40. Determan, C., Anderson, R., Becker, A., Witowski, N., **Luszczek, E.**, Mulier, K., Beilman, G. J. (2014). Fed state prior to hemorrhagic shock and polytrauma in a porcine model results in altered liver transcriptomic response. *PLoS ONE*, 9(6). [doi: 10.1371/journal.pone.0100088](https://doi.org/10.1371/journal.pone.0100088)

Author Role: I provided key data analyses and assisted with interpretation of results. I performed manuscript preparation, editing, and revisions.

Journal Impact Factor: 3.24

Time Cited: 9

41. **Luszczek, E. R.**, Lexcen, D. R., Witowski, N. E., Determan, C., Mulier, K. E., Beilman, G. (2014). Prolonged induced hypothermia in hemorrhagic shock is associated with decreased muscle metabolism: A nuclear magnetic resonance-based metabolomics study. *Shock*, 41(1), 79-84. PMID: 24052038 [doi: 10.1097/SHK.0000000000000061](https://doi.org/10.1097/SHK.0000000000000061)

Author Role: I assisted with metabolite identification and quantification. I performed all the data analysis and interpretation with clinical coauthors. I prepared the manuscript for publication.

Journal Impact Factor: 3.454

Time Cited: 13

42. Yoseph, B. P., Breed, E., Overgaard, C. E., Ward, C. J., Liang, Z., Wagener, M. E., Lexcen, D. R., **Luszczek, E. R.**, Beilman, G. J., Burd, E. M., Farris, A. B., Guidot, D. M., Koval, M., Ford, M. L., Coopersmith, C. M. (2013). Chronic Alcohol Ingestion Increases Mortality and Organ Injury in a Murine Model of Septic Peritonitis. *PLoS ONE*, 8(5). PMID: 23717394 PMCID: PMC3661585 [doi: 10.1371/journal.pone.0062792](https://doi.org/10.1371/journal.pone.0062792)

Author Role: I acquired all spectral data and performed all metabolite identification and quantification. I performed the data analysis and interpretation of the metabolomics portion of the manuscript, and I performed manuscript preparation, editing, and revision.

Journal Impact Factor: 3.24

Time Cited: 50

43. **Luszczek, E. R.**, Paulo, J. A., Saltzman, J. R., Kadiyala, V., Banks, P. A., Beilman, G., Conwell, D. L. (2013). Urinary 1H-NMR metabolomics can distinguish pancreatitis patients from healthy controls. *Journal of the Pancreas*, 14(2), 161-170. PMID: 23474563 PMCID: PMC4500934 https://api.elsevier.com/content/abstract/scopus_id/84875043421

Author Role: I acquired all spectral data and performed all metabolite identification and quantification. I performed all the data analysis and facilitated interpretation with clinical coauthors. I prepared the manuscript for publication.

Journal Impact Factor:

Time Cited: 32

44. Hess, D. J., Henry-Stanley, M. J., **Luszczek, E. R.**, Beilman, G. J., Wells, C. L. (2013). Anoxia inhibits biofilm development and modulates antibiotic activity. *Journal of Surgical Research*, 184(1), 488-494. PMID: 23746961 [doi: 10.1016/j.jss.2013.04.049](https://doi.org/10.1016/j.jss.2013.04.049)

Author Role: I acquired all spectral data and performed all metabolite identification and quantification. I performed the data analysis and interpretation of the metabolomics portion of the manuscript, and I performed manuscript preparation, editing, and revision.

Journal Impact Factor: 2.192

Time Cited: 14

45. **Luszczek, E. R.**, Lexcen, D. R., Witowski, N. E., Mulier, K. E., Beilman, G. (2013). Urinary metabolic network analysis in trauma, hemorrhagic shock, and resuscitation. *Metabolomics*, 9(1), 223-235. [doi: 10.1007/s11306-012-0441-5](https://doi.org/10.1007/s11306-012-0441-5)

Author Role: I acquired all spectral data and performed all metabolite identification and quantification. I performed all the data analysis and interpretation with clinical coauthors. I prepared the manuscript for publication.

Journal Impact Factor: 4.29

Time Cited: 29

46. Iyegha, U. P., Witowski, N., Lexcen, D., Mulier, K., Asghar, J. I., **Luszczek, B.**, Beilman, G. J. (2012). Does the fed state impact outcome in polytrauma and hemorrhagic shock? *Journal of the American College of Surgeons*, 215(3), S52. doi: [10.1016/j.jamcollsurg.2012.06.152](https://doi.org/10.1016/j.jamcollsurg.2012.06.152)
Author Role: I performed key statistical analyses and assisted in interpretation of the results as well as manuscript preparation and editing
Journal Impact Factor: 6.113
Time Cited: 5
47. Lexcen, D. R., **Luszczek, E. R.**, Witowski, N. E., Mulier, K. E., Beilman, G. J. (2012). Metabolomics classifies phase of care and identifies risk for mortality in a porcine model of multiple injuries and hemorrhagic shock. *J. Trauma Acute Care Surgery*, 73(2 SUPPL. 1). PMID: 22847086 doi: [10.1097/TA.0b013e3182609821](https://doi.org/10.1097/TA.0b013e3182609821)
Author Role: I performed key data analyses and assisted with interpretation. I also I performed manuscript preparation, editing, and revision.
Journal Impact Factor: 3.313
Time Cited: 31
48. Hui, S. K., **Luszczek, E.**, DeFor, T., Dusenbery, K., Levitt, S. (2012). Three-dimensional patient setup errors at different treatment sites measured by the Tomotherapy megavoltage CT. *Strahlentherapie und Onkologie*, 188(4), 346-352. PMID: 22398931 PMCID: PMC5689463 doi: [10.1007/s00066-011-0066-z](https://doi.org/10.1007/s00066-011-0066-z)
Author Role: I performed all data analysis. I assisted in interpretation of the results as well as manuscript preparation, editing, and revision.
Journal Impact Factor: 3.621
Time Cited: 20
49. Mulier, K. E., Lexcen, D. R., **Luszczek, E.**, Greenberg, J. J., Beilman, G. J. (2011). Treatment with beta-hydroxybutyrate and melatonin is associated with improved survival in a porcine model of hemorrhagic shock. *Resuscitation*. PMID: 21864484 doi: [10.1016/j.resuscitation.2011.08.003](https://doi.org/10.1016/j.resuscitation.2011.08.003)
Author Role: I performed all data analysis and assisted with interpretation. I assisted with manuscript preparation, editing, and revision.
Journal Impact Factor: 5.262
Time Cited: 30
50. **Luszczek, E. R.**, Nelson, T., Lexcen, D., Witowski, N. E., Mulier, K. E., Beilman, G. (2011). Urine metabolomics in hemorrhagic shock: Normalization of urine in the face of changing intravascular fluid volume and perturbations in metabolism. *Journal of Bioanalysis and Biomedicine*, 3(2), 38-48. doi: [10.4172/1948-593X.1000041](https://doi.org/10.4172/1948-593X.1000041)
Author Role: I acquired all spectral data and performed all metabolite identification and quantification. I performed most of the data analysis and interpretation, and prepared the manuscript for publication.
Journal Impact Factor: 6.63
Time Cited: 17
51. Scribner, D. M., Witowski, N. E., Mulier, K. E., **Luszczek, E. R.**, Wasiluk, K. R., Beilman, G. J. (2010). Liver metabolomic changes identify biochemical pathways in hemorrhagic shock. *Journal of Surgical Research*, 164(1). PMID: 20855081 doi: [10.1016/j.jss.2010.07.046](https://doi.org/10.1016/j.jss.2010.07.046)
Author Role: I identified and quantified all metabolite data. Assisted with manuscript preparation and editing.
Journal Impact Factor: 2.192
Time Cited: 28

52. Hoover, S., Nam, J., Gorham, P. W., Grashorn, E., Allison, P., Barwick, S. W., Beatty, J. J., Belov, K., Besson, D. Z., Binns, W. R., Chen, C., Chen, P., Clem, J. M., Connolly, A., Dowkontt, P. F., Duvernois, M. A., Field, R. C., Goldstein, D., Viereg, A. G., Hast, C., Israel, M. H., Javaid, A., Kowalski, J., Learned, J. G., Liewer, K. M., Link, J. T., **Luszczek, E.**, Matsuno, S., Mercurio, B. C., Miki, C., Mioćinović, P., Naudet, C. J., Ng, J., Nichol, R. J., Palladino, K., Reil, K., Romero-Wolf, A., Rosen, M., Ruckman, L., Saltzberg, D., Seckel, D., Varner, G. S., Walz, D., Wu, F. (2010). Observation of ultrahigh-energy cosmic rays with the ANITA balloon-borne radio interferometer. *Physical Review Letters*, 105(15). [doi: 10.1103/PhysRevLett.105.151101](https://doi.org/10.1103/PhysRevLett.105.151101)
Author Role: As a graduate research assistant, I worked on detector construction, data acquisition, and experiments at Stanford Linear Accelerator, University of Hawaii, NASA Columbia Scientific Balloon Facility, and University of California Irvine (2003-2007).
Journal Impact Factor: 9.161
Time Cited: 163
53. Gorham, P. W., Allison, P., Barwick, S. W., Beatty, J. J., Besson, D. Z., Binns, W. R., Chen, C., Chen, P., Clem, J. M., Connolly, A., Dowkontt, P. F., DuVernois, M. A., Field, R. C., Goldstein, D., Goodhue, A., Hast, C., Hebert, C. L., Hoover, S., Israel, M. H., Kowalski, J., Learned, J. G., Liewer, K. M., Link, J. T., **Luszczek, E.**, Matsuno, S., Mercurio, B. C., Miki, C., Mioćinović, P., Nam, J., Naudet, C. J., Nichol, R. J., Palladino, K., Reil, K., Romero-Wolf, A., Rosen, M., Ruckman, L., Saltzberg, D., Seckel, D., Varner, G. S., Walz, D., Wang, Y., Williams, C., Wu, F. (2010). The Antarctic Impulsive Transient Antenna ultra-high energy neutrino detector: Design, performance, and sensitivity for the 2006-2007 balloon flight. *Astroparticle Physics*, 32(1), 10-41. [doi: 10.1016/j.astropartphys.2009.05.003](https://doi.org/10.1016/j.astropartphys.2009.05.003)
Author Role: As a graduate research assistant, I worked on detector construction, data acquisition, and experiments at Stanford Linear Accelerator, University of Hawaii, NASA Columbia Scientific Balloon Facility, and University of California Irvine (2003-2007).
Journal Impact Factor: 2.724
Time Cited: 217
54. Gorham, P. W., Allison, P., Barwick, S. W., Beatty, J. J., Besson, D. Z., Binns, W. R., Chen, C., Chen, P., Clem, J. M., Connolly, A., Dowkontt, P. F., Duvernois, M. A., Field, R. C., Goldstein, D., Goodhue, A., Hast, C., Hebert, C. L., Hoover, S., Israel, M. H., Kowalski, J., Learned, J. G., Liewer, K. M., Link, J. T., **Luszczek, E.**, Matsuno, S., Mercurio, B. C., Miki, C., Mioćinović, P., Nam, J., Naudet, C. J., Ng, J., Nichol, R. J., Palladino, K., Reil, K., Romero-Wolf, A., Rosen, M., Ruckman, L., Saltzberg, D., Seckel, D., Varner, G. S., Walz, D., Wang, Y., Wu, F. (2009). New limits on the ultrahigh energy cosmic neutrino flux from the ANITA experiment. *Physical Review Letters*, 103(5). [doi: 10.1103/PhysRevLett.103.051103](https://doi.org/10.1103/PhysRevLett.103.051103)
Author Role: As a graduate research assistant, I worked on detector construction, data acquisition, and experiments at Stanford Linear Accelerator, University of Hawaii, NASA Columbia Scientific Balloon Facility, and University of California Irvine (2003-2007).
Journal Impact Factor: 9.161
Time Cited: 178
55. Gorham, P. W., Allison, P., Barwick, S., , e. a. (2008). Initial Results from the ANITA 2006-2007 Balloon Flight. *Journal of Physics*, 2.
Author Role: As a graduate research assistant, I worked on detector construction, data acquisition, and experiments at Stanford Linear Accelerator, University of Hawaii, NASA Columbia Scientific Balloon Facility, and University of California Irvine (2003-2007).
Journal Impact Factor: 1.338
Time Cited: 6

56. Nam, J., Gorham, P. W., Barwick, S. W., Beatty, J. J., Besson, D. Z., Binns, W. R., Chen, C., Chen, P., Clem, J. M., Connolly, A., Dowkontt, P. F., DuVernois, M. A., Field, R. C., Goldstein, D. J., Goodhue, A., Hast, C., Hebert, C. L., Hoover, S., Israel, M. H., Javaid, A., Kowalski, J., Learned, J. G., Liewer, K. M., Link, J. T., **Luszczek, E.**, Matsuno, S., Mercurio, B. C., Miki, C., Miočinović, P., Naudet, C. J., Ng, J., Nichol, R. J., Palladino, K. J., Reil, K., Romero-Wolf, A., Rosen, M., Saltzberg, D., Seckel, D., Varner, G. S., Walz, D., Wu, F. (2008). Preliminary result from ANITA experiment. *23(17-20)*, 1419-1430. https://api.elsevier.com/content/abstract/scopus_id/47749133779
Author Role: As a graduate research assistant, I worked on detector construction, data acquisition, and experiments at Stanford Linear Accelerator, University of Hawaii, NASA Columbia Scientific Balloon Facility, and University of California Irvine (2003-2007).
Journal Impact Factor: 2.066
Time Cited: 2
57. Besson, D. Z., Jenkins, J., Matsuno, S., Nam, J., Smith, M., Barwick, S. W., Beatty, J. J., Binns, W. R., Chen, C., Chen, P., Clem, J. M., Connolly, A., Dowkontt, P. F., DuVernois, M. A., Field, R. C., Goldstein, D., Gorham, P. W., Goodhue, A., Hast, C., Hebert, C. L., Hoover, S., Israel, M. H., Kowalski, J., Learned, J. G., Liewer, K. M., Link, J. T., **Luszczek, E.**, Mercurio, B., Miki, C., Miočinović, P., Naudet, C. J., Ng, J., Nichol, R., Palladino, K., Reil, K., Romero-Wolf, A., Rosen, M., Ruckman, L., Saltzberg, D., Seckel, D., Varner, G. S., Walz, D., Wu, F. (2008). In situ radioglaciological measurements near Taylor Dome, Antarctica and implications for ultra-high energy (UHE) neutrino astronomy. *Astroparticle Physics*, *29(2)*, 130-157. [doi: 10.1016/j.astropartphys.2007.12.004](https://doi.org/10.1016/j.astropartphys.2007.12.004)
Author Role: As a graduate research assistant, I worked on detector construction, data acquisition, and experiments at Stanford Linear Accelerator, University of Hawaii, NASA Columbia Scientific Balloon Facility, and University of California Irvine (2003-2007).
Journal Impact Factor: 2.724
Time Cited: 45
58. Gorham, P. W., Barwick, S. W., Beatty, J. J., Besson, D. Z., Binns, W. R., Chen, C., Chen, P., Clem, J. M., Connolly, A., Dowkontt, P. F., Duvernois, M. A., Field, R. C., Goldstein, D., Goodhue, A., Hast, C., Hebert, C. L., Hoover, S., Israel, M. H., Kowalski, J., Learned, J. G., Liewer, K. M., Link, J. T., **Luszczek, E.**, Matsuno, S., Mercurio, B., Miki, C., Miočinović, P., Nam, J., Naudet, C. J., Ng, J., Nichol, R., Palladino, K., Reil, K., Romero-Wolf, A., Rosen, M., Ruckman, L., Saltzberg, D., Seckel, D., Varner, G. S., Walz, D., Wu, F. (2007). Observations of the Askaryan effect in ice. *Physical Review Letters*, *99(17)*. [doi: 10.1103/PhysRevLett.99.171101](https://doi.org/10.1103/PhysRevLett.99.171101)
Author Role: As a graduate research assistant, I worked on detector construction, data acquisition, and experiments at Stanford Linear Accelerator, University of Hawaii, NASA Columbia Scientific Balloon Facility, and University of California Irvine (2003-2007).
Journal Impact Factor: 9.161
Time Cited: 203

Book Chapter

1. **Luszczek, E.** (2019). Serum Metabolomics as a Powerful Tool in Distinguishing Trauma from Other Critical Illness Conditions. In *Metabolomics-New Insights into Biology and Medicine*. IntechOpen.

Patents

1. Systems and methods for assessing and treating hemorrhage and other conditions, US 16/860,529. Filing Date: October 29, 2020

Peterson GK, **Luszczek ER**, Beilman GJ, Mulier KE, PP Buhlmann; University of Minnesota, assignee.

Presentations

Invited Oral Presentations at International Professional Meetings, Conferences, etc.

Underline - indicates student presenter

1. **Luszczek, E. R.** "Urine Metabolomics in Traumatic Injury", 4th International Caparica Conference on Urine Omics and Translational Nephrology, Caparica, Portugal. (September 2019).
2. **Luszczek, E. R.** "Metabolomics shows significant disruptions to metabolism after porcine burn injury", 16th International Conference on Complex Acute Illness, Milan, Italy. (July 27, 2017).
3. **Luszczek, E. R.** "Modeling the Metabolic Response to Acute Illness", 16th International Conference on Complex Acute Illness, Milan, Italy. (July 27, 2017).

Invited Oral Presentations at Local and Regional Professional Meetings, Conferences, etc.

Underline - indicates student presenter

1. **Luszczek, E. R.** "Shock: Weathering the Storm", Midwest Regional Burn Conference, Bloomington, Minnesota. (October 11, 2018).
2. **Luszczek, E. R.** "Circadian Rhythm Desynchronization in ICU Patients", Halberg Mini-Symposium, Minneapolis, Minnesota. (May 19, 2017).

Peer-Reviewed Oral Presentations at International Professional Meetings, Conferences, etc

Underline - indicates student presenter

1. Swisher, S. L., (Author & Presenter), Beilman, G. J., Brandao, V., Buhlmann, P., Chipangura, Y., **Luszczek, E. R.**, Stein, A., (Author & Presenter), Wise, E. S., Zhi, X. "Towards "Smarter" Pre-hospital Care: Real-time, Continuous Monitoring of Biomarkers with Minimally-invasive Wearable Microneedle Patch Sensors", MHSRS: Military Health Services Research Symposium, Kissimmee, Florida, United States. (August 2023).
2. Sather, K., (Author & Presenter), Sherwood, G., Finc, R., Peterson, G., Beilman, G. J., **Luszczek, E. R.** "Breathomics and the Use of Exhaled Volatile Organic Compounds to Detect COVID-19", Surgical Infections Society, Surgical Infections Society, San Diego, California, United States. (April 2023).
3. Samordnitsky, S., (Author & Presenter), Castro-Pearson, S., (Author), Yang, K., (Author), Lotfi-Emran, S., (Author), Ingraham, N. E., (Author), Bramante, C., (Author), Geising, S., (Author), Jones, E., (Author), Wacker, D. A., (Author), Puskarich, M. A., (Author), **Luszczek, E. R.**, Safo, S., (Author), Tignanelli, C. J., (Author) "Proteomic pathways associated with developing severe disease for patients with COVID-19: A biologic analysis of data from two multicenter randomized controlled trials encompassing 13 US hospitals", International Conference on Complex Acute Illness, Society for Complex Acute Illness, Virtual. (September 8, 2022).
4. **Luszczek, E. R.** "Correlation and cluster analysis of clinical and metabolomics data in combat-related trauma", 14th International Conference on Complex Acute Illness, Cologne, Germany. (September 27, 2015).

Peer-Reviewed Oral Presentations at National Professional Meetings, Conferences, etc

Underline - indicates student presenter

1. Wothe, J., Bergman, Z., Lofrano, A., Doucette, M., Saavedra-Romero, R., Prekker, M., **Luszczek, E. R.**, Brunsvold, M. "Evaluation of Scarcity Allocation Scores for Venovenous Extracorporeal Membrane Oxygenation", ACS Clinical Congress of the American College of Surgeons (Virtual Event), American College of Surgeons. (October 2021).
2. Bergman, Z., Wothe, J., Kalland, K., Peter, L., **Luszczek, E.** "Outcomes and Complications of Patients Undergoing Interfacility ECMO Transfer Based on Cannulation Location and Mode of Transport", 32nd Annual ELSO Conference (Virtual Event), Extracorporeal Life Support Organization. (September 2021).
3. Stolarski, A. R., Young, L., Weinberg, J., Jiyou, K., **Luszczek, E.**, Remick, D., Bistran, B., Burke, P. "Early Metabolic Support for Critically Ill Trauma Patients - A Prospective Randomized Controlled Trial", 80th Annual Meeting of the American Association for the Surgery of Trauma, American Association for the Surgery of Trauma, Atlanta, Georgia. (September 2021).
4. Bergman, Z., Wothe, J., Alwan, F., Lofrano, A., Tointon, K., Doucette, M., Bohman, J., Saavedra-Romero, R., Prekker, M., **Luszczek, E.**, Beilman, G., Brunsvold, M. "Signs of Ongoing Infection Predict Mortality in V-V ECMO for COVID-19 ARDS", Surgical Infection Society Annual Meeting (Virtual Event), Surgical Infection Society. (July 2021).
5. Robbins, A., Diita, T., **Luszczek, E.**, Rosielle, D., Chipman, J., Beilman, G. "Mortality After Elective Surgery: The Potential Role for Palliative Care.", American College of Surgeons, San Francisco, California. (October 2019).

Poster Abstract Presentations at Professional Meetings, Conferences, etc.

Underline - indicates student presenter

1. Hill, R., (Author & Presenter), Mosely, H., (Author), Flight, R., (Author), Beilman, G. J., **Luszczek, E. R.**, Conwell, D., (Author) "Pilot Investigation of Urine Metabolomic Signatures in the PROCEED Study", American Pancreatic Association Annual Scientific Meeting, American Pancreatic Association, Loews Coronado Bay, California, United States. (November 15, 2023).
2. Stein, A., (Author & Presenter), Chipangura, Y., Brandao, V., Zhi, X., Swisher, S. L., Buhlmann, P., **Luszczek, E. R.**, Wise, E. S., Beilman, G. J. "Continuous Monitoring of Biomarkers with Minimally-invasive Wearable Microneedle Patch Sensors", MS&T23: Materials Science & Technology, Columbus, Ohio, United States. (October 2023).
There is a need in emergency medicine for low-cost diagnostic equipment that can continuously monitor biomarkers without requiring trained personnel. We will discuss our approach toward minimally-invasive microneedle sensor arrays that only penetrate the skin deep enough to sample molecular analytes in interstitial fluid (ISF). We have converted acupuncture needles 160 μm in diameter into functioning potassium-ion-selective sensors. This high degree of miniaturization required optimizing the synthesis of mesoporous carbon nanoparticles as solid contacts to ensure stable measurement signals, and developing methods of coating the needles with robust films of these particles and with ionophore-containing polymer membranes. Our microneedle sensors have the same selectivity and sensitivity as bulky, standard laboratory potentiometric sensors in response to electrolyte solutions. The microneedles are assembled into a flexible patch-like device patterned with inkjet-printed thin-film conductive materials, which provides mechanical flexibility and allows rapid design changes.
3. Robbins, A., **Luszczek, E. R.**, Bellin, M., Alwan, F., Hodges, J., Chapman, S., Beilman, G. "Gastrointestinal Bleed After Total Pancreatectomy and Islet Auto Transplant", 50th Annual American Pancreatic Association, Maui, Hawaii. (November 2019).
4. Robbins, A., **Luszczek, E. R.**, Benner, A., Bellin, M., Alwan, F., Beilman, G. "Thromboembolic Complications in Acute Pancreatitis", 50th Annual American Pancreatic Association, Maui, Hawaii. (November 2019).

5. Gisewhite, S., (Author & Presenter), **Luszczek, E. R.**, (Author), Beilman, G., (Author) "Assessment of Urinary Metabolites in Risk Prediction of Acute Kidney Injury", Metabolomics Association of North America Conference, Atlanta, Georgia. (November 2019).
6. **Luszczek, E. R.**, Cornelissen, G., Goswami, U., Beilman, G. "Circadian Rhythms are Blunted in Critically Ill Patients", 40th Annual Conference on Shock. (June 2017).
7. **Luszczek, E. R.**, Myers, C., Popovsky, K., Beilman, G., Sawyer, R. "Aging and the Metabolic Response to Trauma", Symposium on Stress, Metabolism, and Aging. (May 2017).
8. Fortis, S., **Luszczek, E. R.**, Weinert, C., Beilman, G. "Metabolomics in COPD Acute Respiratory Failure Requiring Noninvasive Positive Pressure Ventilation", CHEST. (October 2016).
9. **Luszczek, E. R.**, Popovsky, K., Beilman, G., Sawyer, R. "The Elderly Metabolic Response to Trauma Differs from that of Adults", 39th Annual Conference on Shock. (June 2016).
10. Ennis, K., **Luszczek, E. R.**, Rao, R. "Concurrent Metabolomic Changes in Plasma and the Brain During Acute Hypoglycemia in Young Rats", Midwest Society for Pediatric Research. (October 2015).
11. **Luszczek, E. R.**, Dubick, M., Beilman, G. "Metabolic Markers of Injury and Mortality in Combat-Related Trauma", 38th Annual Conference on Shock, Denver, Colorado. (June 2015).
12. Wolf, A., Witowski, N., **Luszczek, E. R.**, Determan, C., Ostrowski, B., Beilman, G. "Pre-Injury Metabolic State Predicts Mortality in Porcine Hemorrhagic Shock and Polytrauma", 38th Annual Conference on Shock, Denver, Colorado. (June 2015).
13. **Luszczek, E. R.**, Colling, K., Glover, J., Conwell, D., Freeman, M., Beilman, G. "NMR-Based Serum and Urine Metabolomics of ERCP-Induced Pancreatitis", American Pancreatic Association, Kona, Hawaii. (November 2014).
14. Pokorney, K. M., Lexcen, D., **Luszczek, E. R.**, e. a. "Sensitive dependence on initial conditions: metabolism in porcine hemorrhagic shock", *Journal of the American College of Surgeons* [217.3 (2013): S55-S56]. (2013).
15. **Luszczek, E. R.**, Vincent, T., Kulkarni, V., Mulier, K., Beilman, G. "Carbohydrate Pre-feeding Affects the Metabolic Response to Polytrauma, Hemorrhagic Shock, and Resuscitation In Serum Metabolic Networks", International Conference on Complex Acute Illness, Budapest, Hungary. (August 2013).
16. **Luszczek, E. R.**, Witowski, N., Determan Jr, C., Pokorney, K., Mulier, K., Beilman, G. "Two-Compartment Metabolic Networks in Porcine Hemorrhagic Shock and Injury Demonstrate BCAA Metabolism and Utilization", 36th Annual Conference on Shock, San Diego, California. (June 2013).
17. Determan Jr, C., **Luszczek, E. R.**, Witowski, N., Pokorney, K., Mulier, K., Beilman, G. "Fed State changes Metabolic Response to Hemorrhagic Shock in Liver", 36th Annual Conference on Shock, San Diego, California. (June 4, 2013).
18. Iyegha, U., Witowski, N., Lexcen, D., Mulier, K., Asghar, J., **Luszczek, E. R.**, Beilman, G. "Does the fed state impact outcome in polytrauma and hemorrhagic shock?", The 67th Annual Sessions of the Owen H. Wangenstein Forum on Fundamental Surgical Problems, The American College of Surgeons 98th Annual Clinical Congress, Chicago, Illinois.

(October 4, 2012).

19. **Luszczek, E. R.**, Lexcen, D., Witowski, N., Mulier, K., Beilman, G. "Behavior of scale-invariant metabolic networks during hemorrhagic shock", 71st Annual Meeting of The American Association for the Surgery of Trauma, Kauai, Hawaii. (September 2012).
20. **Luszczek, E. R.**, Lexcen, D., Witowski, N., Mulier, K., Beilman, G. "Scale-free metabolic networks in a porcine model of trauma and hemorrhagic shock", International Conference on Complexity in Acute Illness, Ottawa, Ontario. (August 2012).
21. **Luszczek, E. R.**, Lexcen, D., Witowski, N., Mulier, K., Beilman, G. "Behavior of muscle scale-invariant metabolic networks during trauma and hemorrhagic shock", Military Health System Research Symposium, Fort Lauderdale, Florida. (August 2012).
22. Witowski, N., Lexcen, D., **Luszczek, E. R.**, Mulier, K., Iyegha, P., Asghar, J., Beilman, G. "Fed Status Alters the Muscle Metabolomic Response to Hemorrhagic Shock and Polytrauma", Military Health System Research Symposium, Miami, Florida. (August 2012).
23. Lexcen, D., **Luszczek, E. R.**, Witowski, N., Asghar, J., Iyegha, P., Determan, C., Mulier, K., Beilman, G. "Liver and Muscle Metabolomics Identifies Biomarkers of Mortality in a Porcine Model of Polytrauma and Hemorrhagic Shock", Military Health System Research Symposium, Miami, Florida. (August 2012).
24. **Luszczek, E. R.**, Lexcen, D., Witowski, N., Mulier, K., Beilman, G. "Scale-free urinary metabolic network analysis in trauma, hemorrhagic shock, and resuscitation", 35th Annual Conference on Shock, Miami Beach, Florida. (June 9, 2012).
25. Lexcen, D., **Luszczek, E. R.**, Witsowski, N., Ashgar, J., Iyegha, P., Mulier, K., Beilman, G. "Serum metabolomic Analysis of the Effects of glucose Pre-feed on Metabolism in a Porcine Model of Polytrauma and Hemorrhagic Shock", 35th Annual Conference on Shock, Miami Beach, Florida. (June 9, 2012).
26. **Luszczek, E. R.**, Paulo, J., Saltzman, J., Banks, P., Conwell, D., Beilman, G. "Urinary 1H-NMR Metabolics Discriminates Patients with Acute and Chronic Pancreatitis from Healthy Controls", American Pancreatic Association, Chicago, Illinois. (November 2011).
27. Iyegha, U., Mulier, K., Asghar, J., Witowski, N., **Luszczek, E. R.**, Lexcen, D., Beilman, G. "Does the fed state impact outcome in hemorrhagic shock?", Region V Trauma Resident Paper Competition, Chicago, Illinois. (November 9, 2011).
28. Iyegha, U., Mulier, K., Asghar, J., Witowski, N., **Luszczek, E. R.**, Lexcen, D., Beilman, G. "Does the fed state impact outcome in hemorrhagic shock?", Minnesota Trauma Resident Paper Competition (Winner, Basic Science Category), Minnesota Surgical Society Meeting, St. Paul, Minnesota. (September 30, 2011).
29. **Luszczek, E. R.**, Lexcen, D., Witowski, N., Mulier, K., Beilman, G. "Differential Metabolic Response to Hemorrhagic Shock with Polytrauma Based on Fed State", Advanced Technology Applications for Combat Casualty Care, Fort Lauderdale, Florida. (August 2011).
30. **Luszczek, E. R.**, Nelson, T., Lexcen, D., Witowski, N., Mulier, K., Chipman, J., Beilman, G. "Urine metabolomics identify energy alterations in porcine hemorrhagic shock", 34th Annual Conference on Shock, Norfolk, Virginia. (June 2011).
31. **Luszczek, E. R.**, Lexcen, D., Witowski, N., Greenberg, J., Mulier, K., Chipman, J., Beilman, G. "Biofluid analysis of hemorrhagic shock using metabolomics", Advanced Technology Applications for Combat Casualty Care (ATACCC) 2010 Conference, St. Pete Beach, Florida. (August 15, 2010).

32. Lexcen, D., Greenberg, J., **Luszczek, E. R.**, Witowski, N., Mulier, K., Beilman, G. "Physiologic parameters correlate to metabolomic markers in a porcine model of hemorrhagic shock", Advanced Technology Applications for Combat Casualty Care (ATACCC) 2010 Conference, St. Pete Beach, Florida. (August 15, 2010).
33. **Luszczek, E. R.**, Lexcen, D., Witowski, N., Mulier, K., Beilman, G. "Biofluid correlations in hemorrhagic shock", 33rd Annual Conference on Shock, Portland, Oregon. (June 2010).
34. Lexcen, D., Greenberg, J., **Luszczek, E. R.**, Witowski, N., Mulier, K., Beilman, G. "Physiologic parameters correlate to metabolomic markers in a porcine model of hemorrhagic shock", 33rd Annual Conference on Shock, Portland, Oregon. (June 2010).
35. **Luszczek, E. R.**, Nelson, T., Lexcen, D., Witowski, N., Mulier, K., Beilman, G. "Urine normalization to account for dilution in a hemorrhagic shock model", 6th Annual Metabolomics Society Meeting, Amsterdam, Netherlands. (June 2010).
36. Lexcen, D., Chipman, J., Witowski, N., **Luszczek, E. R.**, Mulier, K., Beilman, G. "Serum Metabolomic Biomarkers in Hypothermic and Normothermic Models of Hemorrhagic Shock Associated with Increased Mortality", LifeScience Alley Conference, Minneapolis, Minnesota. (December 2009).
37. **Luszczek, E. R.**, Witowski, N., Mulier, K., Ostrowski, B., Chipman, J., Beilman, G. "Urine metabolomic analysis identifies biomarkers in a porcine model of hemorrhagic shock and resuscitation", 68th Annual Meeting of The American Association for the Surgery of Trauma, Pittsburgh, Pennsylvania. (October 2009).
38. **Luszczek, E. R.**, Witowski, N., Mulier, K., Ostrowski, B., Chipman, J., Beilman, G. "Analysis of the urine metabolome identifies biomarkers in a porcine model of hemorrhagic shock", Advanced Technology Applications for Combat Casualty Care, St. Petersburg, Florida. (August 2009).
39. **Luszczek, E. R.**, Witowski, N., Lexcen, D., Mulier, K., Ostrowski, B., Chipman, J., Beilman, G. "Urinary niacinamide and 1-methylnicotinamide levels are elevated in injury: A metabolomic analysis", 5th Annual Metabolomics Society Meeting, Edmonton, Alberta. (August 30, 2009).
40. Scribner, D., **Luszczek, E. R.**, Witowski, N., Beilman, G. "Liver metabolic changes identify active biochemical pathways in a porcine model of hemorrhagic shock", ATACCC, St. Petersburg Beach, Florida. (August 2008).
41. Witowski, N., **Luszczek, E. R.**, Ostrowski, B., Blondet, J., Beilman, G. "Urine metabolic analysis identifies biomarkers in a porcine model of hemorrhagic shock and resuscitation", ATACCC, St. Petersburg Beach, Florida. (August 2008).
42. **Luszczek, E. R.** "Radio Emission in Air Showers and Dense Media", 29th International Cosmic Ray Conference, Pune, India. (August 2005).
43. DuVernois, M., Barwick, S., Beatty, J.J., Besson, D.W., Binns, W.R., Cai, B., Clem, J.M., Connolly, A., Dowkontt, P.F., Evanson, P.A., Goldstein, D., Gorham, P.W., Herbert, C.L., Israel, M.H., Learned, J.G., Liewer, K.M., Link, J.T., **Luszczek, E.**, Matsuno, S., Miocinovic, P., Nam, J., Naudet, C.J., Nichol, R., Palladino, K., Rosen, M., Saltzberg, D., Seckel, D., Silverstri, A., Stokes, B., Varner, G.S., Williams, D., Wu, F. "Radio Detection of UHE Neutrinos with the Antarctic Impulsive Transient Antenna (ANITA) Experiment: Data and Analysis", International Cosmic Ray Conference, Pune, India. (August 2005).

Other Presentations

Underline - indicates student presenter

1. **Luszczek, E. R.** "Investigating COVID-19 Phenotypes, Health Disparities, and Metabolic Biomarkers", Department of Surgery Grand Rounds, UMN. (March 29, 2022). Presentation/Talk.
2. **Luszczek, E. R.** "Biomarkers of Physical and Psychological Trauma", Dept of Surgery Weekly Forums, University of Minnesota. (May 26, 2021). Presentation/Talk.
3. **Luszczek, E. R.** "University of Minnesota Department of Surgery's Response to COVID-19: Research", Department of Surgery Grand Rounds, UMN. (November 17, 2020). Presentation/Talk.
4. **Luszczek, E. R.** "Application of a Point of Care Breath Sensor for Diagnosis of SARS-CoV-2 Infection", Department of Surgery Grand Rounds, UMN. (July 28, 2020). Presentation/Talk.
5. **Luszczek, E. R.** "Characterizing Critical Illness with Mass Spectrometry-based Metabolomics", MSI Bioinformatics group weekly seminar. (November 7, 2018). Didactic Seminar.
6. **Luszczek, E. R.** "Metabolic Markers of Injury and Mortality in Combat-Related Trauma", 2015 University of Minnesota Department of Surgery Research Day, Minneapolis, Minnesota. (June 16, 2015). Presentation/Talk.

Media Contributions

1. Medscape, "Minnesota Patients Fared Better at Dedicated COVID-19 Hospitals", <https://www.medscape.com/viewarticle/969755>. (March 8, 2022)
Media interview related to the article "Comparison of Outcomes and Process of Care for Patients Treated at Hospitals Dedicated for COVID-19 Care vs Other Hospitals" published in JAMA Open.
2. Medscape, "Study IDs 3 COVID-19 Phenotypes, Could Help Guide Care", <https://www.medscape.com/viewarticle/948742>. (April 5, 2021)
Media interview related to the PLOS One article "Characterizing COVID-19 clinical phenotypes and associated comorbidities and complication profiles"

Collaboration and Research in Progress

1. Luszczek, E. R., Beilman, G. J., Conwell, D. On-Going, "Urinary Metabolomic Biomarkers in Chronic Pancreatitis Study – A Discovery Phase Investigation of the PROCEED Study". August 2022 - Present
As a new principal investigator in the Consortium for the Study of Chronic Pancreatitis, Diabetes and Pancreatic Cancer (CPDPC), I will validate my previous work profiling urinary metabolites in pancreatitis patients, which suggests that the metabolite adenosine may function as an early biomarker of chronic pancreatitis. I will use patient biospecimens collected by the consortium to validate adenosine and discover other diagnostic or prognostic biomarkers of chronic pancreatitis in urine samples from four groups representing the progression from no chronic pancreatitis to advanced disease: 1) no pancreas disease, 2) chronic upper abdominal pain, 3) recurrent acute pancreatitis, and 4) definite chronic pancreatitis. The study will utilize 40 patients in each group for a total of 160 samples.

Other Key Accomplishments

1. Mentorship, NHLBI PRIDE Scholar
The Programs to Increase Diversity among Individuals Engaged in Health-Related Research (PRIDE) is an all-expense-paid Summer Institute, research education and mentoring initiative sponsored by the National Heart, Lung, and Blood Institute (NHLBI). This Summer Institute initiative addresses the difficulties experienced by junior investigators and transitioning postdoctoral scientists in establishing independent academic research careers and negotiating through the academic ranks. The primary outcome of this program is to increase the number of

scientists and research-oriented faculty who are from backgrounds currently under-represented in the biomedical sciences and those with disabilities, by preparing them to successfully compete for external funding for scientific research in heart, lung, blood, and sleep (HLBS) disorders. I am a member of the Behavioral and Sleep Medicine (BSM) cohort 7 out of NYU.

2. **University Teaching/Learning Program, Institute for Advanced Study 5x5 Program**
Proposed creating a working group to explore using circadian rhythms to improve human health. IAS facilitated the group formation, which includes Chih-Lin Chi of the School of Nursing, Lucy Dunne of the College of Design, Jole Shackelford of History of Medicine, Germaine Cornelissen of Integrated Biology and Physiology, and Ruifeng Cao of the Department of Biomedical Sciences. I have been leading group meetings, which are meant to be open-ended in nature, highly collaborative, and with no special commitment or outcome identified. Even so, the group identified the goal of creating a strong chronobiology program at the University of Minnesota, with goals related to research, education, and outreach.
3. **Training, Santa Fe Institute's Short Course on Exploring Complexity in Health Medicine**
Topics covered include healthcare as a complex system, complexity in medicine and disease, and machine learning and computationally-aided diagnostics. I led an interest group discussion on grantsmanship and strategies to obtain research funding for complexity-based research in medicine.
4. **University Teaching/Learning Program, AHC NIH Proposal Preparation Program**
Participated in the Academic Health Center's Proposal Preparation Program in the spring semester of 2016. Prepared a full grant proposal for submission to a K01 RFA. Participated in weekly peer review of others' proposals as well as a final review by a mentor. The program resulted in a full proposal, submitted in October 2017 after preliminary data analysis was completed and incorporated into the proposal.
5. **Training, Santa Fe Institute's Complex Systems Summer School**
A highly competitive, intensive summer program in complex systems offered by the Santa Fe Institute. Program goals include providing participants with a deep understanding of the range, significance, and current directions of complex systems science. Topics included biological, social, financial, computational, and physical systems and their behavior. The completion of multidisciplinary group projects were expected of all participants. Alumnus/ae are encouraged to form transdisciplinary research networks for future collaboration.

Project papers:

- "How Artificial Intelligence Can Inform Neuroscience: A Recipe for Complex Machines?"

- "Modeling the Heart as a Communication System"

PDF files of the manuscripts are available here:

<http://santafe.edu/education/schools/complex-systems-summer-schools/csss-2014-proceedings/>

TEACHING AND CURRICULUM DEVELOPMENT

Course/Lecture List

Cell, Molecular, Develop Biol: IBS 8102 Fall 2020

University of Minnesota

Guest Lecture, Minnesota NMR Center NMR Summer July 22, 2020

Workshop, Speaker, 15 participants

I gave a 1 hour lecture describing NMR-based metabolomics spectral analysis, data analysis, and example research projects. Canceled due to pandemic.

Guest Lecture, Minnesota NMR Center NMR Summer July 10, 2019

Workshop, Speaker, 15 participants

I gave a 1 hour lecture describing NMR-based metabolomics spectral analysis, data analysis, and example research projects.

Guest Lecture, Minnesota NMR Center NMR Summer June 28, 2018

Workshop, Speaker, 15 participants

I prepared a 1 hour lecture describing NMR-based metabolomics spectral analysis, data analysis, and example research projects.

Curriculum Development Activities

University of Minnesota

Proposed a History of Chronobiology Honors Seminar, to be collaboratively taught with Jole Shackelford, Ph.D. of the Department of History of Science, Technology, and Medicine. The course is to include a lab section using current software to analyze chronobiology data and a final project in chronobiology. Dr. Shackelford would lecture on topics germane to the history of science and I would oversee the laboratory component.

November 2018

ADVISING AND MENTORING

Undergraduate Students Activities

Other Advising Activities

University of Minnesota

Undergraduate Senior Project/Thesis Advisor:

2017 - 2018

Cole Myers

2 hours weekly during the 2017 and 2018 academic years. Trained on NMR spectroscopy so he could obtain and analyze spectral data from serum samples (UVA aging and blunt trauma). Trained to use R software to analyze data with principal component analysis and partial least squares discriminant analysis. Worked with Cole on manuscript preparation for the study.

Graduate Student Activities

Advisees

Anderson Myana

2022 - Present

Translational, Biomimetic Research on the physiological adaptations of the American Black Bear to Promote Homeostasis during immobility in Humans

Advised Myana on her research project from conception through data analysis and interpretation. I served as co-advisor on her IDF Fellowship with Dr. Tinen Iles.

Sarah Faison, Integrated Biosciences M S

2018 - 2020

Thesis: Assessment of Urinary Metabolites in Risk Prediction of Acute Kidney Injury

4-6 hours weekly during the 2018-2020 academic years. Advised on combat injury-related research, acute kidney injury, and metabolomics, including collection and processing of NMR spectral data, metabolite identification, statistical analyses and data visualization with R software, academic writing.

Other Advising Activities

Student Mentorship:

2019 - 2020

Jameson Moore

2-3 hours weekly. Advised on trauma and sepsis-related research including study design, formulating testable hypotheses, and data analysis.

Student Mentorship: 2015 - 2018

Andrea Wolf

1 hour weekly. Advised on content and formatting of doctoral dissertation, review and heavy editing of manuscripts, advised on statistical analyses

Student Mentorship:

February 2016 - May 2018

Cole Hendrickson

4-6 hours weekly during the 2016-2018 academic years. Advised on burn injury-related research and metabolomics, including the biochemistry of burn pathophysiology, collection and processing of NMR spectral data, metabolite identification, statistical analyses and data visualization with R software, academic writing.

Committee Advising

Master's Thesis/Research Committee: Committee Chair

Sarah Faison, Integrated Biosciences M S

2019 - 2020

Thesis: Assessment of Urinary Metabolites in Risk Prediction of Acute Kidney Injury

Master's Thesis/Research Committee: Committee Member

Jameson Moore, Biological Sciences M B S

2020

Thesis: Nitric Oxide as a Diagnostic Tool for Sepsis

Cole Hendrickson, Integrated Biosciences M S

2016 - 2018

Thesis: ¹H-NMR METABOLOMICS CHARACTERIZES TRANSITION FROM EBB TO FLOW IN A PORCINE MODEL OF SMOKE INHALATION AND SEVERE BURN INJURY

Post Doc, Resident, and Trainee Supervision/Mentorship

Medical Student

Jillian Wothe

2020 - Present

Oversaw multiple database-driven research projects and assisted with data analysis.

Fatima Alwan

2018 - Present

1-3 hours weekly. Oversaw several writing and data analysis projects.

Stephen Ritter

2018

2 hours weekly. Oversaw filtering of urine samples for a metabolomics project; gave reading material on critical care laboratory research

Mark Stice

January 2018 - June 2018

1 hour weekly. Advised on statistical analysis for a project on palliative care consultations

Resident

Kristiana Sather, Surgery

2022 - Present

2-6 hours weekly. Advised on statistical analyses and data visualization for multiple projects.

Zachary Bergman, Surgery

2020 - 2022

2-6 hours weekly. Advised on statistical analyses and data visualization for multiple projects.

Alexa Robbins, Surgery

2018 - 2020

1-4 hours weekly. Advised on statistical analyses for multiple projects; performed significant data cleaning for multiple projects; provided feedback and editing on multiple manuscripts

Mariya Skube, Surgery

2016 - 2018

1-4 hours weekly. Advised on statistical analyses for multiple projects; provided feedback and editing on multiple manuscripts

SERVICE AND PUBLIC ENGAGEMENT

Service to the Discipline/Profession/Interdisciplinary Area(s)

Editorial Board Member

Frontiers in Molecular Biosciences - Metabolomics Review Editor	2021 - Present
Journal of Critical Care Section Editor: Data Science	October 2021 - October 2023

Manuscript Reviewer

British Journal of Anaesthesiology	2021 - Present
CHEST	2021 - Present
Frontiers in Medicine	2021 - Present
Journal of Critical Care	2021 - Present
Journal of Proteome Research	2021 - Present
Mathematical Biosciences and Engineering	2021 - Present
Medicina	2020 - Present
Journal of Proteomics	2018 - Present
Libertas Academia	2016 - Present
PLOS One	2014 - Present
Metabolites	2013 - Present
Metabolomics	2013 - Present
Molecular Biosystems	2013 - Present
Biology	2020
BMC Pulmonary Medicine	2020
Molecules	2019 - 2020
International Journal of Molecular Sciences	2018 - 2020
Endocrine, Metabolic & Immune Disorders - Drug Targets	2019
Shock	2018
<i>Reviewer</i>	
NIH Early Career: Surgery, Anesthesiology and Trauma (SAT) Study Section	2020

Scientific Program Committee

International Conference on Complex Acute Illness 2019 - 2022

Session Chair

International Conference on Complex Acute Illness 2022

Manuscript production: SCAI at 20

International Conference on Complex Acute Illness 2020

Does more data imply more clinical value?

Service to the University/College/Department

Department

University of Minnesota

Internal Education and Training Co-Captain, DEI Council 2020 - Present

Compensation Subcommittee, DEI Council 2022

Invited Speaker, Resident Research Enrichment Program May 12, 2020

Informal discussion with Department of Surgery Research Residents preparing them to be early stage investigators. Topics include setting up a lab, applying for grants, forming research partnerships with others, and how PhD/MD research relationships can be extremely productive.

RREP Panel Discussion on Research Ethics and Authorship December 12, 2019

I participated in a panel discussion for current Department of Surgery Residents on research ethics with a primary focus on determining authorship and roles on research projects.

Department of Surgery Resident Research Day Judge June 4, 2019

Speaker, MSI Bioinformatics group weekly seminar November 7, 2018

“Characterizing Critical Illness with Mass Spectrometry-based Metabolomics”

Speaker, RREP Resident Research Seminar October 25, 2018

Metabolomics and Statistical Methods for Large Datasets

Presenter, Surgical Critical Care Fellowship Conference September 21, 2017

"Circadian Rhythms in the ICU"

Presenter, Surgical Critical Care Fellowship Conference July 19, 2017

"Circadian Rhythms in the ICU"

Speaker, Weekly SICU Conference May 20, 2015

“Oscillators in the ICU”

Public and External Service

Causes, consequences, and treatments of sleep and circadian disruption in the ICU, American Thoracic Society Workshop May 2021 - May 2022

This Workshop Project aims to assemble a multidisciplinary team of experts who will accomplish the following objectives: (Objective 1) Delineate a list of priority sub-topics that will include risk factors, prevalence, diagnostics, treatments, and outcomes of sleep and circadian disruption in the adult medical ICU for discussion at the proposed ATS 2021 Workshop; (Objective 2) Identify, discuss, and critically evaluate current knowledge and knowledge gaps within these sub-topics; (Objective 3) Set a prioritized research agenda that will be published as an American Thoracic Society Report.

International Footprint Activities

**Summary of activities flagged as international (items also included by type in report above).*

Presentations

Luszczek, E. R. "Urine Metabolomics in Traumatic Injury", 4th International Caparica Conference on Urine Omics and Translational Nephrology, Caparica, Portugal. (September 2019).

Luszczek, E. R. "Metabolomics shows significant disruptions to metabolism after porcine burn injury", 16th International Conference on Complex Acute Illness, Milan, Italy. (July 27, 2017).

Luszczek, E. R. "Modeling the Metabolic Response to Acute Illness", 16th International Conference on Complex Acute Illness, Milan, Italy. (July 27, 2017).

Luszczek, E. R. "Correlation and cluster analysis of clinical and metabolomics data in combat-related trauma", 14th International Conference on Complex Acute Illness, Cologne, Germany. (September 27, 2015).

Luszczek, E. R., Vincent, T., Kulkarni, V., Mulier, K., Beilman, G. "Carbohydrate Pre-feeding Affects the Metabolic Response to Polytrauma, Hemorrhagic Shock, and Resuscitation In Serum Metabolic Networks", International Conference on Complex Acute Illness, Budapest, Hungary. (August 2013).

Luszczek, E. R., Nelson, T., Lexcen, D., Witowski, N., Mulier, K., Beilman, G. "Urine normalization to account for dilution in a hemorrhagic shock model", 6th Annual Metabolomics Society Meeting, Amsterdam, Netherlands. (June 2010).

Luszczek, E. R. "Radio Emission in Air Showers and Dense Media", 29th International Cosmic Ray Conference, Pune, India. (August 2005).

DuVernois, M., Barwick, S., Beatty, J.J., Besson, D.W., Binns, W.R., Cai, B., Clem, J.M., Connolly, A., Dowkontt, P.F., Evanson, P.A., Goldstein, D., Gorham, P.W., Herbert, C.L., Israel, M.H., Learned, J.G., Liewer, K.M., Link, J.T., **Luszczek, E.**, Matsuno, S., Miocinovic, P., Nam, J., Naudet, C.J., Nichol, R., Palladino, K., Rosen, M., Saltzberg, D., Seckel, D., Silverstri, A., Stokes, B., Varner, G.S., Williams, D., Wu, F. "Radio Detection of UHE Neutrinos with the Antarctic Impulsive Transient Antenna (ANITA) Experiment: Data and Analysis", International Cosmic Ray Conference, Pune, India. (August 2005).