

# Nathan B. Fethke

College of Public Health Curriculum Vitae  
Department of Occupational and Environmental Health  
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March 2026

## Educational and Professional History

### Degrees Earned

1996	BS in Biomedical Engineering, University of Iowa, Iowa City, Iowa
2000	MS in Biomedical Engineering, University of Iowa, Iowa City, Iowa
2006	PhD in Occupational and Environmental Health, University of Iowa, Iowa City, Iowa

### Certifications

2000	NIOSH Course #596: The Ergonomics of Hand-Arm and Whole Body Vibration, NIOSH
2008 - Present	Certified Professional Ergonomist CPE, #1053, Board of Certification in Professional Ergonomics

### Employment History

1996 - 1997	Engineering Intern, Fiskars, Inc., Middleton, Wisconsin
1998	Ergonomics Consultant, Fiskars UK Limited, Brigend, Wales, United Kingdom
1997 - 1999	Graduate Research Assistant, Biomedical Engineering, University of Iowa, Iowa City, Iowa
1999 - 2000	Ergonomics Engineer, Fiskars, Inc., Middleton, Wisconsin
2000 - 2002	Ergonomics Engineer, Fiskars Brands, Inc., Sauk City, Wisconsin
2002 - 2006	NIOSH Fellow, Heartland Center of Occupational Health and Safety, University of Iowa, Iowa City, Iowa
2002 - 2006	Graduate Research Assistant, Occupational and Environmental Health, University of Iowa, Iowa City, Iowa
2006 - 2007	Assistant Research Scientist, Occupational and Environmental Health, University of Iowa, Iowa City, Iowa
2007 - 2008	Assistant Professor, Environmental Health, East Tennessee State University, Johnson City, Tennessee
2009 - 2012	Faculty, Ergonomics Training Program, Heartland Center for Occupational Health and Safety, University of Iowa, Iowa City, Iowa
2009 - 2015	Assistant Professor (primary appointment), Occupational and Environmental Health, University of Iowa, Iowa City, Iowa
2011 - 2015	Assistant Professor (secondary appointment), Biomedical Engineering, University of Iowa, Iowa City, Iowa

2015 - 2023	Associate Professor (primary appointment), Occupational and Environmental Health, University of Iowa, Iowa City, Iowa
2015 - 2023	Associate Professor (secondary appointment), Biomedical Engineering, University of Iowa, Iowa City, Iowa
2018 - 2023	Associate Professor (secondary appointment), Industrial and Systems Engineering, University of Iowa, Iowa City, Iowa
2012 - Present	Director, Ergonomics Training Program, Heartland Center for Occupational Health and Safety, University of Iowa, Iowa City, Iowa
2023 - Present	Professor (primary appointment), Occupational and Environmental Health, University of Iowa, Iowa City, Iowa
2023 - Present	Professor (secondary appointment), Industrial and Systems Engineering, University of Iowa, Iowa City, Iowa
2023 - Present	Departmental Executive Officer, Occupational and Environmental Health, University of Iowa, Iowa City, Iowa

## Honors and Awards

2004	Jack Beno Award for Academic Achievement, Iowa Governor's Safety Council
2007	Member, Alpha Phi Chapter, Delta Omega Honorary Society in Public Health
2007	Milford E. Barnes Award for Occupational and Environmental Health, College of Public Health, University of Iowa
2012	Nominee: James N. Murray Faculty Award, Omicron Delta Kappa, University of Iowa
2018	Bullard-Sherwood Award for Research to Practice (Honorable Mention), NIOSH This award was presented in the "Intervention" category to all key contributors to the consortium of NIOSH-funded prospective studies of upper extremity musculoskeletal disorders.
2018	Faculty Teaching Award, College of Public Health, University of Iowa
2019	Inventor Award, The University of Iowa

## Teaching

### Course Teaching

#### University of Iowa

Fall 2005	Occupational Ergonomics I, OEH:4310
Fall 2006	Occupational Ergonomics I, OEH:4310
Spring 2009	Clinical Ergonomics, OEH:6310, Credit Hours: 3, Enr: 3, Percent of Course: 100.0%
Fall 2009	Occupational Ergonomics I, OEH:4310, Credit Hours: 3, Enr: 6, Percent of Course: 100.0%
Fall 2009	Occupational Health, OEH:5620
Spring 2010	Clinical Ergonomics, OEH:6310, Credit Hours: 3, Enr: 3, Percent of Course: 100.0%
Spring 2010	Environmental and Occupational Epidemiology

Spring 2010	Ergonomics of Occupational Injuries
Spring 2010	Independent Study in OEH, OEH:7020, Credit Hours: 3, Enr: 1, Percent of Course: 100.0%
Spring 2010	Work, Health and the Environment, OEH:3210
Fall 2010	Independent Study in OEH, OEH:7020, Credit Hours: 3, Enr: 1, Percent of Course: 100.0%
Fall 2010	Occupational Ergonomics I, OEH:4310, Credit Hours: 3, Enr: 12, Percent of Course: 100.0%
Fall 2010	Occupational Health, OEH:5620
Fall 2010	Preceptorship in OEH, OEH:7040, Credit Hours: 3, Enr: 2, Percent of Course: 100.0%
Spring 2011	Clinical Ergonomics, OEH:6310, Credit Hours: 3, Enr: 5, Percent of Course: 100.0%
Spring 2011	Work, Health and the Environment, OEH:3210
Summer 2011	Preceptorship in OEH, OEH:7040, Credit Hours: 3, Enr: 1, Percent of Course: 100.0%
Fall 2011	Occupational Ergonomics I, OEH:4310, Credit Hours: 3, Enr: 9, Percent of Course: 100.0%
Fall 2011	Occupational Health, OEH:5620
Spring 2012	Clinical Ergonomics, OEH:6310, Credit Hours: 3, Enr: 5, Percent of Course: 100.0%
Spring 2012	Ergonomics, IE:3450
Spring 2012	Ergonomics of Occupational Injuries
Spring 2012	Preceptorship in OEH, OEH:7040, Credit Hours: 3, Enr: 1, Percent of Course: 100.0%
Spring 2012	Work, Health and the Environment, OEH:3210
Fall 2012	Occupational Ergonomics I, OEH:4310, Credit Hours: 3, Enr: 10, Percent of Course: 100.0%
Fall 2012	Occupational Health, OEH:5620
Spring 2013	Clinical Ergonomics, OEH:6310, Credit Hours: 3, Enr: 3, Percent of Course: 100.0%
Spring 2013	Ergonomics, IE:3450
Spring 2013	Work, Health and the Environment, OEH:3210
Fall 2013	Occupational Ergonomics I, OEH:4310, Credit Hours: 3, Enr: 8, Percent of Course: 100.0%
Fall 2013	Occupational Health, OEH:5620
Spring 2014	Clinical Ergonomics, OEH:6310:0001, Credit Hours: 3, Enr: 3, Percent of Course: 100.0%
Spring 2014	Epidemiology of Occupational Injuries, OEH:6530
Spring 2014	Ergonomics, IE:3450
Spring 2014	Research in OEH, OEH:7030, Credit Hours: 3, Enr: 1, Percent of Course: 100.0%
Spring 2014	Rural Health and Agricultural Medicine, OEH:6110
Spring 2014	Work, Health and the Environment, OEH:3210

Fall 2014	Occupational Ergonomics I, OEH:4310:0001, Credit Hours: 3, Enr: 11, Percent of Course: 100.0%
Fall 2014	Occupational Health, OEH:5620
Spring 2015	Clinical Ergonomics, OEH:6310:0001, Credit Hours: 3, Enr: 1, Percent of Course: 100.0%
Spring 2015	Preceptorship in OEH, OEH:7040:0165, Percent of Course: 100.0%
Summer 2015	Problems in OEH (Ergonomics for Occupational Medicine Residents), OEH:7010:0001, Credit Hours: 3, Enr: 3, Percent of Course: 50%
Fall 2015	Occupational Ergonomics I, OEH:4310:0001, Credit Hours: 3, Enr: 13, Percent of Course: 100.0%
Fall 2015	Occupational Health, OEH:5620
Fall 2015	Problems in OEH, OEH:7010:0001, Credit Hours: 3, Enr: 2
Spring 2016	Occupational Ergonomics: Applications, OEH:6310:0001, Credit Hours: 3, Enr: 4, Percent of Course: 100.0%
Spring 2016	Preceptorship in OEH, OEH:7040:0165, Percent of Course: 100.0%
Spring 2016	Thesis/Dissertation, OEH:7000:0165, Percent of Course: 100.0%
Spring 2016	Biomedical Instrumentation and Measurement, PTRS:7812
Fall 2016	Occupational Ergonomics: Principles, OEH:4310:0001, Credit Hours: 3, Enr: 16, Percent of Course: 100.0%
Fall 2016	Occupational Health, OEH:5620
Fall 2016	Thesis/Dissertation, OEH:7000:3344, Percent of Course: 100.0%
2017	Principles of Scholarly Integrity, CPH:7270, Enr: 75
Spring 2017	Problems in OEH (Occupational Ergonomics: Applications), OEH:7010:0003, Credit Hours: 3, Enr: 3, Percent of Course: 100.0%
Spring 2017	Rural Health and Agricultural Medicine, OEH:6110
Spring 2017	Thesis/Dissertation, OEH:7000:4258, Percent of Course: 100.0%
Fall 2017	Occupational Ergonomics: Principles, OEH:4310:0001, Credit Hours: 3, Enr: 14, Percent of Course: 100.0%
Fall 2017	Occupational Health, OEH:5620
Fall 2017	Thesis/Dissertation, OEH:7000:6254, Percent of Course: 100.0%
Spring 2018	Occupational Ergonomics: Applications, OEH:6310:0001, Credit Hours: 3, Enr: 1, Percent of Course: 100.0%
Spring 2018	Rural Health and Agricultural Medicine, OEH:6110
Fall 2018	Occupational Ergonomics: Principles, OEH:4310:0001, Credit Hours: 3, Enr: 12, Percent of Course: 100.0%
Fall 2018	Occupational Health, OEH:5620
Spring 2019	Independent Study in OEH, OEH:7020:3904, Enr: 1, Percent of Course: 100.0%
Spring 2019	Research Biomedical Eng PhD Dissertation, BME:7999:4299, Enr: 1, Percent of Course: 100.0%

Spring 2019 Rural Health and Agricultural Medicine, OEH:6110

Fall 2019 Occupational Ergonomics: Principles, OEH:4310:0001, Credit Hours: 3, Enr: 8, Percent of Course: 100.0%

Fall 2019 Occupational Health, OEH:5620

Spring 2020 Problems in OEH (Occupational Ergonomics: Applications), OEH:7010:0003, Credit Hours: 3, Enr: 4, Percent of Course: 100.0%

Spring 2020 Rural Health and Agricultural Medicine, OEH:6110

Fall 2020 Occupational Ergonomics: Principles, OEH:4310:0001, Credit Hours: 3, Enr: 14, Percent of Course: 100.0%

Fall 2020 Occupational Health, OEH:5620

Fall 2020 Quant Exposure Assess: Study Dsgn & Eval, OEH:6460:0001, Credit Hours: 3, Enr: 5, Percent of Course: 10.0%

Spring 2021 Interpreting OEH Research, OEH:7070:0001, Credit Hours: 3, Enr: 6, Percent of Course: 100.0%

Spring 2021 Rural Health and Agricultural Medicine, OEH:6110

Fall 2021 Occupational Ergonomics: Principles, OEH:4310:0001, Credit Hours: 3, Enr: 15, Percent of Course: 100.0%

Fall 2021 Occupational Health, OEH:5620

Spring 2022 Rural Health and Agricultural Medicine, OEH:6110

Fall 2022 Occupational Ergonomics: Principles, OEH:4310:0001, Credit Hours: 3, Enr: 21, Percent of Course: 100.0%

Fall 2022 Occupational Health, OEH:5620

Fall 2022 Quant Exposure Assess: Study Dsgn & Eval, OEH:6460:0001, Credit Hours: 3, Enr: 8, Percent of Course: 10.0%

Spring 2023 Interpreting OEH Research, OEH:7070:0001, Credit Hours: 3, Enr: 9, Percent of Course: 100.0%

Spring 2023 Rural Health and Agricultural Medicine, OEH:6110

Fall 2023 Occupational Health, OEH:5620

Fall 2023 Quant Exposure Assess: Study Dsgn & Eval, OEH:6460:0001, Credit Hours: 3, Enr: 5, Percent of Course: 10.0%

Fall 2023 Occupational Ergonomics: Principles, OEH:4310:0001, Credit Hours: 3, Enr: 16, Percent of Course: 100.0%

Spring 2024 Ergonomics, ISE:3450

Spring 2024 Rural Health and Agricultural Medicine, OEH:6110

Fall 2024 Occupational Ergonomics: Principles, OEH:4310:0001, Credit Hours: 3, Enr: 12, Percent of Course: 100.0%

Spring 2025 Introduction to Orofacial Pain, DENT:8360

Spring 2025 Rural Health and Agricultural Medicine, OEH:6110

- Fall 2025 Occupational Ergonomics: Principles, OEH:4310:0001, Credit Hours: 3, Enr: 14, Percent of Course: 100.0%
- Fall 2025 Occupational Health, OEH:5620
- Fall 2025 Quantitative Exposure Assessment, OEH:6460

### Other Institutions

- Fall 2007 Occupational Health, ENVH:4340, East Tennessee State University, Credit Hours: 3, Enr: 10, Percent of Course: 50.0%
- Spring 2008 Ergonomics, ENVH:4357, East Tennessee State University, Credit Hours: 3, Enr: 3, Percent of Course: 100.0%
- Spring 2008 Industrial Hygiene & Safety, ENVH:5700, East Tennessee State University, Credit Hours: 3, Enr: 2, Percent of Course: 100.0%
- Fall 2008 Occupational Health, ENVH:4340, East Tennessee State University, Credit Hours: 3, Enr: 10, Percent of Course: 100.0%

## Scholarship/Professional Productivity

### Publications or creative works

#### Peer-reviewed papers and journal articles

1. Anton, D., Shibley, L. D., **Fethke, N. B.**, Hess, J., Cook, T. M. & Rosecrance, J. (2001). The effect of overhead drilling position on shoulder moment and electromyography. *Ergonomics* 44 (5) 489-501. [DOI: 10.1080/00140130120079](https://doi.org/10.1080/00140130120079). [PMID: 11345492](https://pubmed.ncbi.nlm.nih.gov/11345492/).  
ISSN: 0014-0139
2. **Fethke, N. B.**, Anton, D., Cavanaugh, J. E., Gerr, F. & Cook, T. M. (2007). Bootstrap exploration of the duration of surface electromyography sampling in relation to the precision of exposure estimation. *Scandinavian Journal of Work, Environment & Health* 33 (5) 358-67. [DOI: 10.5271/sjweh.1155](https://doi.org/10.5271/sjweh.1155). [PMID: 17973062](https://pubmed.ncbi.nlm.nih.gov/17973062/).  
ISSN: 0355-3140
3. Kraska, J. M., Ramsey, M. W., Haff, G. G., **Fethke, N.**, Sands, W. A., Stone, M. E. & Stone, M. H. (2009). Relationship between strength characteristics and unweighted and weighted vertical jump height. *International Journal of Sports Physiology and Performance* 4 (4) 461-73. [PMID: 20029097](https://pubmed.ncbi.nlm.nih.gov/20029097/).  
ISSN: 1555-0265
4. **Fethke, N. B.**, Gant, L. C. & Gerr, F. (2011). Comparison of biomechanical loading during use of conventional stud welding equipment and an alternate system. *Applied Ergonomics* 42 (5) 725-34. [DOI: 10.1016/j.apergo.2010.11.007](https://doi.org/10.1016/j.apergo.2010.11.007). [PMID: 21183155](https://pubmed.ncbi.nlm.nih.gov/21183155/).  
ISSN: 0003-6870
5. **Fethke, N. B.**, Gerr, F., Anton, D., Cavanaugh, J. E. & Quickel, M. T. (2012). Variability in muscle activity and wrist motion measurements among workers performing non-cyclic work. *Journal of Occupational and Environmental Hygiene* 9 (1) 25-35. [DOI: 10.1080/15459624.2012.634361](https://doi.org/10.1080/15459624.2012.634361). [PMID: 22150404](https://pubmed.ncbi.nlm.nih.gov/22150404/).  
ISSN: 1545-9624
6. Kitzmann, A. S., **Fethke, N. B.**, Baratz, K. H., Zimmerman, M. B., Hackbarth, D. J. & Gehrs, K. M. (2012). A survey study of musculoskeletal disorders among eye care physicians compared with family medicine physicians. *Ophthalmology* 119 (2) 213-20. [DOI: 10.1016/j.ophtha.2011.06.034](https://doi.org/10.1016/j.ophtha.2011.06.034). [PMID: 21925736](https://pubmed.ncbi.nlm.nih.gov/21925736/).  
ISSN: 0161-6420

7. Douphrate, D. I., **Fethke, N. B.**, Nonnenmann, M. W., Rosecrance, J. C. & Reynolds, S. J. (2012). Full shift arm inclinometry among dairy parlor workers: a feasibility study in a challenging work environment. *Applied Ergonomics* 43 (3) 604-13. [DOI: 10.1016/j.apergo.2011.09.007](https://doi.org/10.1016/j.apergo.2011.09.007). [PMID: 22019358](https://pubmed.ncbi.nlm.nih.gov/22019358/). ISSN: 0003-6870
8. Bruflat, A. K., Balter, J. E., McGuire, D., **Fethke, N. B.** & Maluf, K. S. (2012). Stress management as an adjunct to physical therapy for chronic neck pain. *Physical Therapy* 92 (10) 1348-59. [DOI: 10.2522/ptj.20110489](https://doi.org/10.2522/ptj.20110489). [PMID: 22700538](https://pubmed.ncbi.nlm.nih.gov/22700538/). [PMCID: PMC3461134](https://pubmed.ncbi.nlm.nih.gov/PMC3461134/). ISSN: 0031-9023
9. **Fethke, N. B.**, Merlino, L. & Gerr, F. (2013). Effect of ergonomics training on agreement between expert and nonexpert ratings of the potential for musculoskeletal harm in manufacturing tasks. *Journal of Occupational and Environmental Medicine* 55 (12 Suppl) S82-5. [DOI: 10.1097/JOM.0000000000000038](https://doi.org/10.1097/JOM.0000000000000038). [PMID: 24284748](https://pubmed.ncbi.nlm.nih.gov/24284748/). [PMCID: PMC7008929](https://pubmed.ncbi.nlm.nih.gov/PMC7008929/). ISSN: 1076-2752
10. Silver, K., Hoffman, K., Loury, S., **Fethke, N. B.**, Liebman, A., Manz, N., Manock, S., Andino, A., Bradfield, M., Morrissette, D. & Florence, J. (2014). A campus-community partnership for farmworkers' health: interventions for tomato workers in Tennessee. *Progress in Community Health Partnerships : Research, Education, and Action* 8 (4) 501-10. [DOI: 10.1353/cpr.2014.0056](https://doi.org/10.1353/cpr.2014.0056). [PMID: 25727983](https://pubmed.ncbi.nlm.nih.gov/25727983/). ISSN: 1557-0541
11. Meyers, A. R., Gerr, F. & **Fethke, N. B.** (2014). Evaluation of alternate category structures for the Strain Index: an empirical analysis. *Human Factors* 56 (1) 131-42. [DOI: 10.1177/0018720813492548](https://doi.org/10.1177/0018720813492548). [PMID: 24669548](https://pubmed.ncbi.nlm.nih.gov/24669548/). [PMCID: PMC4557699](https://pubmed.ncbi.nlm.nih.gov/PMC4557699/). ISSN: 0018-7208
12. Gerr, F., **Fethke, N. B.**, Anton, D., Merlino, L., Rosecrance, J., Marcus, M. & Jones, M. P. (2014). A prospective study of musculoskeletal outcomes among manufacturing workers: II. Effects of psychosocial stress and work organization factors. *Human Factors* 56 (1) 178-90. [DOI: 10.1177/0018720813487201](https://doi.org/10.1177/0018720813487201). [PMID: 24669552](https://pubmed.ncbi.nlm.nih.gov/24669552/). ISSN: 0018-7208
13. Gerr, F., **Fethke, N. B.**, Merlino, L., Anton, D., Rosecrance, J., Jones, M. P., Marcus, M. & Meyers, A. R. (2014). A prospective study of musculoskeletal outcomes among manufacturing workers: I. Effects of physical risk factors. *Human Factors* 56 (1) 112-30. [DOI: 10.1177/0018720813491114](https://doi.org/10.1177/0018720813491114). [PMID: 24669547](https://pubmed.ncbi.nlm.nih.gov/24669547/). ISSN: 0018-7208
14. Schall Jr., M. C., **Fethke, N. B.**, Chen, H. & Kitzmann, A. S. (2014). A Comparison of Examination Equipment Used During Common Clinical Ophthalmologic Tasks. *IIE Transactions on Occupational Ergonomics and Human Factors* 2 (2) 105-117. [DOI: https://doi.org/10.1080/21577323.2014.964812](https://doi.org/10.1080/21577323.2014.964812). [PMID: 37180554](https://pubmed.ncbi.nlm.nih.gov/37180554/). [PMCID: PMC10174276](https://pubmed.ncbi.nlm.nih.gov/PMC10174276/).
15. **Fethke, N. B.**, Merlino, L. A., Gerr, F., Schall, Jr, M. C. & Branch, C. A. (2015). Musculoskeletal pain among Midwest farmers and associations with agricultural activities. *American Journal of Industrial Medicine* 58 (3) 319-30. [DOI: 10.1002/ajim.22398](https://doi.org/10.1002/ajim.22398). [PMID: 25345841](https://pubmed.ncbi.nlm.nih.gov/25345841/). ISSN: 0271-3586
16. Schall, Jr, M. C., **Fethke, N. B.**, Chen, H. & Gerr, F. (2015). A comparison of instrumentation methods to estimate thoracolumbar motion in field-based occupational studies. *Applied Ergonomics* 48 224-31. [DOI: 10.1016/j.apergo.2014.12.005](https://doi.org/10.1016/j.apergo.2014.12.005). [PMID: 25683549](https://pubmed.ncbi.nlm.nih.gov/25683549/). [PMCID: PMC9676082](https://pubmed.ncbi.nlm.nih.gov/PMC9676082/). ISSN: 0003-6870
17. **Fethke, N. B.**, Schall Jr, M. C., Determan, E. M. & Kitzmann, A. C. (2015). Neck and shoulder muscle activity among ophthalmologists during routine clinical examinations. *International Journal of Industrial Ergonomics* 49 53-59. [DOI: https://doi.org/10.1016/j.ergon.2015.06.001](https://doi.org/10.1016/j.ergon.2015.06.001). ISSN: 0169-8141

18. Douphrate, D. I., **Fethke, N. B.**, Nonnenmann, M. W., Rodriguez, A., Hagevoort, G. & Gimeno Ruiz de Porras, D. (2016). Effect of a novel teat preparation system on upper extremity muscle activity among U.S. large-herd parlor workers. *International Journal of Industrial Ergonomics* 56 161-169. [DOI: 10.1016/j.ergon.2016.10.003](https://doi.org/10.1016/j.ergon.2016.10.003). [PMID: 32103845](https://pubmed.ncbi.nlm.nih.gov/32103845/). [PMCID: PMC7043381](https://pubmed.ncbi.nlm.nih.gov/PMC7043381/).  
ISSN: 0169-8141
19. Carr, L. J., Leonhard, C., Tucker, S., **Fethke, N.**, Benzo, R. & Gerr, F. (2016). Total Worker Health Intervention Increases Activity of Sedentary Workers. *American Journal of Preventive Medicine* 50 (1) 9-17. [DOI: 10.1016/j.amepre.2015.06.022](https://doi.org/10.1016/j.amepre.2015.06.022). [PMID: 26260492](https://pubmed.ncbi.nlm.nih.gov/26260492/).  
ISSN: 0749-3797
20. Marker, R. J., Balter, J. E., Nofsinger, M. L., Anton, D., **Fethke, N. B.** & Maluf, K. S. (2016). Upper trapezius muscle activity in healthy office workers: reliability and sensitivity of occupational exposure measures to differences in sex and hand dominance. *Ergonomics* 59 (9) 1205-1214. [DOI: 10.1080/00140139.2015.1130860](https://doi.org/10.1080/00140139.2015.1130860). [PMID: 26924036](https://pubmed.ncbi.nlm.nih.gov/26924036/). [PMCID: PMC9333326](https://pubmed.ncbi.nlm.nih.gov/PMC9333326/).  
ISSN: 0014-0139
21. Schall, Jr, M. C., **Fethke, N. B.** & Chen, H. (2016). Evaluation of four sensor locations for physical activity assessment. *Applied Ergonomics* 53 Pt A 103-9. [DOI: 10.1016/j.apergo.2015.09.007](https://doi.org/10.1016/j.apergo.2015.09.007). [PMID: 26674410](https://pubmed.ncbi.nlm.nih.gov/26674410/). [PMCID: PMC9774999](https://pubmed.ncbi.nlm.nih.gov/PMC9774999/).  
ISSN: 0003-6870
22. **Fethke, N. B.**, Peters, T. M., Leonard, S., Metwali, M. & Mudunkotuwa, I. A. (2016). Reduction of Biomechanical and Welding Fume Exposures in Stud Welding. *The Annals of Occupational Hygiene* 60 (3) 387-401. [DOI: 10.1093/annhyg/mev080](https://doi.org/10.1093/annhyg/mev080). [PMID: 26602453](https://pubmed.ncbi.nlm.nih.gov/26602453/). [PMCID: PMC4861640](https://pubmed.ncbi.nlm.nih.gov/PMC4861640/).  
ISSN: 0003-4878
23. Schall, Jr, M. C., **Fethke, N. B.**, Chen, H., Oyama, S. & Douphrate, D. I. (2016). Accuracy and repeatability of an inertial measurement unit system for field-based occupational studies. *Ergonomics* 59 (4) 591-602. [DOI: 10.1080/00140139.2015.1079335](https://doi.org/10.1080/00140139.2015.1079335). [PMID: 26256753](https://pubmed.ncbi.nlm.nih.gov/26256753/). [PMCID: PMC9469634](https://pubmed.ncbi.nlm.nih.gov/PMC9469634/).  
ISSN: 0014-0139
24. Schall, Jr, M. C., **Fethke, N. B.** & Chen, H. (2016). Working postures and physical activity among registered nurses. *Applied Ergonomics* 54 243-50. [DOI: 10.1016/j.apergo.2016.01.008](https://doi.org/10.1016/j.apergo.2016.01.008). [PMID: 26851483](https://pubmed.ncbi.nlm.nih.gov/26851483/).  
ISSN: 0003-6870
25. Douphrate, D. I., **Fethke, N. B.**, Nonnenmann, M. W., Rodriguez, A., Hagevoort, R. & de Gimeno Ruiz Porras, D. (2016). Full-shift and task-specific upper extremity muscle activity among US large-herd dairy parlour workers. *Ergonomics* 60 (8) 1042-1054. [DOI: 10.1080/00140139.2016.1262464](https://doi.org/10.1080/00140139.2016.1262464). [PMID: 27854562](https://pubmed.ncbi.nlm.nih.gov/27854562/). [PMCID: PMC7020102](https://pubmed.ncbi.nlm.nih.gov/PMC7020102/).  
ISSN: 0014-0139
26. Douphrate, D. I., Gimeno Ruiz de Porras, D., Nonnenmann, M. W., Hagevoort, R., Reynolds, S. J., Rodriguez, A. & **Fethke, N. B.** (2017). Effects of milking unit design on upper extremity muscle activity during attachment among U.S. large-herd parlor workers. *Applied Ergonomics* 58 482-490. [DOI: 10.1016/j.apergo.2016.08.008](https://doi.org/10.1016/j.apergo.2016.08.008). [PMID: 27633245](https://pubmed.ncbi.nlm.nih.gov/27633245/). [PMCID: PMC7008452](https://pubmed.ncbi.nlm.nih.gov/PMC7008452/).  
ISSN: 0003-6870
27. Schall, Jr, M. C., **Fethke, N. B.** & Roemig, V. (2018). Digital Human Modeling in the Occupational Safety and Health Process: An Application in Manufacturing. *IIEE transactions on occupational ergonomics and human factors* 6 (2) 64-75. [DOI: 10.1080/24725838.2018.1491430](https://doi.org/10.1080/24725838.2018.1491430). [PMID: 30984907](https://pubmed.ncbi.nlm.nih.gov/30984907/). [PMCID: PMC6455952](https://pubmed.ncbi.nlm.nih.gov/PMC6455952/).  
ISSN: 2472-5838
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30. Chen, H., Schall, Jr, M. C. & **Fethke, N.** (2018). Accuracy of angular displacements and velocities from inertial-based inclinometers. *Applied ergonomics* 67 151-161. [DOI: 10.1016/j.apergo.2017.09.007](https://doi.org/10.1016/j.apergo.2017.09.007). [PMID: 29122186](https://pubmed.ncbi.nlm.nih.gov/29122186/). [PMCID: PMC9605618](https://pubmed.ncbi.nlm.nih.gov/PMC9605618/).  
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43. Osinuga, A., **Fethke, N. B.**, Story, W. T. & Baker, K. K. (2022). Assessing the relationship between domestic work experience and musculoskeletal health among rural Nigerian women. *PLoS One* 17 (12). [DOI: 10.1371/journal.pone.0276380](https://doi.org/10.1371/journal.pone.0276380). [PMID: 36512538](https://pubmed.ncbi.nlm.nih.gov/36512538/). [PMCID: PMC9747006](https://pubmed.ncbi.nlm.nih.gov/PMC9747006/).
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46. Aryal, A., Janssen, B., Casteel, C., **Fethke, N. B.**, Buikema, B., Cho, H. & Rohlman, D. S. (2023). Applying the worker well-being framework to identify factors that impact turnover among long-haul truck drivers. *Workplace Health & Safety* 71 (9) 419-428. [DOI: 10.1177/21650799231178636](https://doi.org/10.1177/21650799231178636). [PMID: 37387518](https://pubmed.ncbi.nlm.nih.gov/37387518/). ISSN: 2165-0799
47. Fiegel, B., Dhabi, Y.K., Thomas, G., Rahmatalla, S., Ritchie, E.M., Ramker, A., Stroh, O., Wilder, D.G., **Fethke, N.B.** A customized system for whole-body vibration measurement: system design and accuracy of low-cost accelerometers. *Journal of Occupational and Environmental Hygiene*.
48. Aryal, A., Casteel, C., Janssen, B., **Fethke, N.**, Buikema, B., Cho, H., TePoel, M., Rohlman, D. (2025). Conditions of work that impact the health behaviors of long-haul truck drivers. *Journal of Occupational and Environmental Medicine*. [DOI: 10.1097/JOM.0000000000003451](https://doi.org/10.1097/JOM.0000000000003451) [PMID: 40480812](https://pubmed.ncbi.nlm.nih.gov/40480812/) [PMCID: PMC12354055](https://pubmed.ncbi.nlm.nih.gov/PMC12354055/)
49. Maharani, C., Casteel, C., Rohlman, D., Afifi, R., Baker, K., & **Fethke, N.** (2024). "I am responsible": Perceptions of employees on health and safety program implementation in small and medium sized businesses in Indonesia. *WORK*, 80(3), 1181-1190. <https://doi.org/10.1177/10519815241290284>
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51. Guzowski, T., **Fethke N.B.**, Carr, L.J., Anthony, T.R., Rohlman, D., Davis, J. A comparison of musculoskeletal pain outcomes between single and multiple jobholders. *American Journal of Industrial Medicine*.
52. Wang, J., Baek, S., Guzowski, T., Ritchie, E.M., Barnett, A., **Fethke, N.B.** Assessment of computer vision-based posture analysis methods. *IISE Transactions on Occupational Ergonomics and Human Factors*.
53. Rahmatalla, S., Dhabi, Y.K., Fiegel, B., DeShaw, J., Ritchie, E.M., Guzowski, T., Thomas, G., Wilder, D.G., **Fethke, N.B.** Effect of non-neutral seated postures on whole-body vibration measurements. *Applied Ergonomics*.
54. Fiegel, B., Dhabi, Y.K., Rahmatalla, S., Thomas, G., Guzowski, T., Ritchie, E.M., Wilder, D.G., **Fethke, N.B.** Posture prediction of individuals under whole-body vibration in a lab environment. *Vibration*.

### Non-peer-reviewed journal articles

1. Gerr, F. & **Fethke, N.** (2012). Authors' response. *Occupational and Environmental Medicine* 69 (7) 525. DOI: [10.1136/oemed-2011-100646](https://doi.org/10.1136/oemed-2011-100646). PMID: [22383590](https://pubmed.ncbi.nlm.nih.gov/22383590/). ISSN: 1351-0711

### Conference Proceedings

1. Anton, D., Shibley, D. L., **Fethke, N. B.**, Hess, J. & Cook, T. M. (2000). Effect of step height on overhead drilling in construction. pp. 5-663-5-666. San Diego, CA: Proceedings of the 44th Annual Meeting of the Human Factors and Ergonomics Society.
2. Anton, D., Shibley, L., **Fethke, N. B.**, Hess, J. & Cook, T. M. (2000). Effect of step height on overhead drilling in construction. pp. 5-663 - 5-666. Proceedings of the 48th Annual Meeting of the Human Factors and Ergonomics Society, New Orleans, LA, September 20-24.
3. **Fethke, N. B.**, Anton, D., Fuller, H. & Cook, T. M. (2004). A versatile program for the analysis of electromyographic data. pp. 2099-2103. Proceedings of the 48th Annual Meeting of the Human Factors and Ergonomics Society, New Orleans, LA, September 20-24.
4. **Fethke, N. B.**, Anton, D. C., Cavanaugh, J. E., Gerr, F. E. & Cook, T. M. (2006). The effect of EMG sampling duration on forceful exertion exposure estimates. pp. On CDROM. Proceedings of the International Ergonomics Association XVI Triennial Congress, Maastricht, The Netherlands, July 10-14.
5. **Fethke, N. B.**, Anton, D. C., Cavanaugh, J. E., Gerr, F. E. & Cook, T. M. (2006). The effect of sampling duration on EMG-based estimates of exposure to forceful exertion. Proceedings of the 4th Annual National Occupational Research Agenda (NORA) Young/New Investigators Symposium, Salt Lake City, UT, April 21.
6. **Fethke, N. B.**, Gerr, F. E., Anton, D. C., Cavanaugh, J. E. & Cook, T. M. (2007). Cross-sectional study of upper trapezius muscle activity and self-reported neck/shoulder pain. pp. 962-966. Proceedings of the 51st Annual Meeting of the Human Factors and Ergonomics Society, Baltimore, MD, October 1-5.
7. Gant, L., **Fethke, N. B.** & Gerr, F. E. (2012). Spectral analysis of root-mean-square processed surface electromyography data as a measure of repetitive muscular exertion. pp. 1140-1144. Proceedings of the 56th Annual Meeting of the Human Factors and Ergonomics Society, Boston, MA, October 22-26.
8. Schall, Jr, M., **Fethke, N.** & Chen, H. (2015). Comparing fatigue, physical activity, and posture among nurses in two staffing models. pp. 1269-1273. Proceedings of the 59th Human Factors and Ergonomics Society Annual Meeting.
9. Chen, H., Schall Jr, M. C. & **Fethke, N.** (2017). Effects of movement speed and magnetic disturbance on the accuracy of inertial measurement units. (Vols. 61). (1), pp. 1046-1050. Proceedings of the 61st Human Factors and Ergonomics Society Annual Meeting. DOI: [10.1177/1541931213601745](https://doi.org/10.1177/1541931213601745). PMID: [36406258](https://pubmed.ncbi.nlm.nih.gov/36406258/). PMCID: [PMC9669994](https://pubmed.ncbi.nlm.nih.gov/PMC9669994/).
10. Metwali, M. & **Fethke, N.** (2018). Are worker perceptions of task ease and performance associated with within-subject motor variation during repetitive work?. Proceedings of the 62nd Human Factors and Ergonomics Society Annual Meeting.
11. Harris-Adamson, C., Meyers, A., Bonfiglioli, R., Kapellusch, J., Dale, A. M., Thiese, M., **Fethke, N.**, Eisen, E. A., Bao, S., Evanoff, B., Hegmann, K., Gerr, F., Violante, F. S. & Rempel, D. (2021). Differences in the association between the 2018 ACGIH TLV for Hand Activity and carpal tunnel syndrome by gender and age. pp. 708-709. Baltimore, MD: Proceedings of the 65th Human Factors and Ergonomics Society Annual Meeting.

### Other Publications

1. Gerr, F. & **Fethke, N.** (2011). Ascertain computer use in studies of musculoskeletal outcomes among computer workers: differences between self-report and computer registration software. (Vols. 68). (7), pp. 465-6. *Occupational and Environmental Medicine*. DOI: [10.1136/oemed-2011-100116](https://doi.org/10.1136/oemed-2011-100116). PMID: [21508426](https://pubmed.ncbi.nlm.nih.gov/21508426/). ISSN: 1351-0711

2. Schall, Jr, M. C., **Fethke, N. B.** & Chen, H. (2016). Corrigendum to "Working postures and physical activity among registered nurses" [Appl. Ergon. 54 (2016), 243-250]. (Vols. 56). pp. 75. Applied Ergonomics. [DOI: 10.1016/j.apergo.2016.03.012](https://doi.org/10.1016/j.apergo.2016.03.012). [PMID: 27184313](https://pubmed.ncbi.nlm.nih.gov/27184313/).  
ISSN: 0003-6870

## Research Interests/Current Projects

- Occupational exposure science, with emphasis on physical risk factors for musculoskeletal outcomes
- Epidemiology of musculoskeletal health outcomes among working people
- Ergonomics and musculoskeletal health among agricultural populations
- Quantitative evaluation of ergonomics interventions

## Grants and Contracts

### Active (Funded)

1. High Plains and Intermountain Center for Agricultural Health and Safety: Subproject: Dairy worker fatigue assessment and effects on health, safety and performance; CDC/NIOSH; Fethke (Co-I and Subcontract PI), Douphrate (Project PI)
  - U54OH008085
  - Sep 29, 2022 - Sep 28, 2027
  - Amount: \$193,879.00, 5% effort
  - Total Amount Requested: \$193,879.00 (UI subcontract only)
2. Great Plains Center for Agricultural Health: Evaluation and Planning Core; CDC/NIOSH; Fethke (Center Deputy Director), Anthony (Center Director)
  - U54OH007548
  - Sep 29, 2022 - Sep 28, 2027
  - Amount: \$2,317,500.00, 8% effort
  - Total Amount Requested: \$2,317,500.00
3. Great Plains Center for Agricultural Health: Pilot/Feasibility Projects Program; CDC/NIOSH; Fethke (Program PI), Anthony (Center Director)
  - U54OH007548
  - Sep 29, 2022 - Sep 28, 2027
  - Direct Cost: \$100,000.00, 5% effort
4. Great Plains Center for Agricultural Health: Research Project 1: Advancing whole-body vibration exposure control in agriculture; CDC/NIOSH; Fethke (Project PI), Anthony (Center Director)
  - U54OH007548
  - Sep 29, 2022 - Sep 28, 2027
  - Amount: \$1,433,928.00, 15% effort
  - Total Amount Requested: \$1,433,928.00
5. Heartland Center for Occupational Health and Safety: Ergonomics Training Program; CDC/NIOSH; Fethke (Program Director); O'Shaughnessy (Center Director)
  - T42OH009491
  - Jul 1, 2024 - Jun 30, 2029
  - Direct Cost: \$120,705.00, 14% effort
6. Heartland Center for Occupational Health and Safety: Occupational Injury Prevention Program; CDC/NIOSH; Fethke (Program Faculty), O'Shaughnessy (Center Director)
  - T42OH008491

- Jul 1, 2024 - Jun 30, 2029
- Direct Cost: \$120,705.00, 8% effort

## Completed

1. Heartland Center Pilot Project: A comparison of methods for directly assessing awkward postures of the wrist; CDC/NIOSH; Anton (PI), Fethke (Co-I)
  - T420H008491 (Sprince)
  - Jan 1, 2003 - Jun 30, 2003
  - Amount: \$15,000.00
  - Heartland Center for Occupational Health and Safety: Pilot Project
2. Effect of a drill bit extender on physical risk factors during overhead sheet metal drilling tasks; CDC/NIOSH; Fethke, Nathan B. (Co-Investigator), Anton, Dan (Principal Investigator)
  - Apr 7, 2003 - Mar 31, 2004
  - Amount: \$17,182.00
3. Heartland Center Pilot Project: The electromyographic sampling duration required to precisely estimate individual exposure to forceful exertions; CDC/NIOSH; Fethke, Nathan B. (Principal Investigator), Sprince, Nancy (Director)
  - T420H008491
  - Jul 1, 2005 - Jun 30, 2006
  - Amount: \$13,192.00
4. Deep South Center for Occupational Safety and Health Pilot Project: Exposure variability among workers performing non-cyclic work; CDC/NIOSH; Fethke, Nathan B. (Principal Investigator), Oestenstad, Kent (Director)
  - T420H008436
  - Apr 1, 2008 - Jun 30, 2009
  - Amount: \$20,000.00
5. High Plains Intermountain Center for Agricultural Health Pilot Project: Direct measurement of physical risk factors of awkward postures & repetition involving large herd dairy parlor workers; CDC/NIOSH; Fethke, Nathan B. (Consultant), Douphrate, David (Principal Investigator), Reynolds, Stephen (Director)
  - U540H008085
  - May 1, 2009 - Apr 30, 2010
  - Amount: \$11,873.00
6. Evaluation of an intervention to reduce trunk flexion among stud welders; National Center for Construction Safety & Health Reserach: Pilot Projects; Fethke, Nathan (Principal Investigator)
  - Apr 1, 2008 - Jun 30, 2010
  - Amount: \$26,050.00
  - Total Amount Requested: \$26,050.00
7. Healthier Workforce Center Pilot Project: Effect of participatory ergonomics training on non-ergonomist ratings of ergonomic exposures; CDC/NIOSH; Fethke, Nathan B., Merchant, James A. (Director)
  - U190H008868
  - Mar 15, 2010 - Dec 31, 2010
  - Amount: \$50,000.00, 23% effort
8. Heartland Center Pilot Project: Spectral analysis of root-mean-square processed EMG data as a measure of repetitive muscular exertion; CDC/NIOSH; Fethke, Nathan B. (Co-Investigator), Gant, Lauren (Principal Investigator), O'Shaughnessy, Patrick T (Director)
  - T420H008491

- Jul 1, 2011 - Jun 30, 2012
  - Amount: \$15,000.00
9. Southeast Center for Agricultural Health Pilot Project: Tomato worker ergonomics: REBA panel evaluation of video; CDC/NIOSH; Fethke, Nathan B. (Consultant), Silver, Ken (Principal Investigator), McKnight, Robert (Director)
    - U540H007547
    - Jan 1, 2012 - Dec 31, 2012
    - Amount: \$14,828.00
  10. Heartland Center Pilot Project: Assessment of a novel device for directly measuring trunk posture; CDC/NIOSH; Fethke, Nathan B. (Co-Investigator), Schall, Mark (Principal Investigator), O'Shaughnessy, Patrick T (Director)
    - T420H008491
    - Jul 1, 2012 - Jun 30, 2013
    - Amount: \$5,000.00
  11. Muscle Activity and Posture during Clinical Ophthalmologic Practice; Haag-Streit USA, Inc.; Fethke, Nathan B. (Co-Investigator), Kitzmann, Anna (Principal Investigator)
    - Nov 1, 2012 - Oct 31, 2013
    - Amount: \$15,056.00
  12. Healthier Workforce Center Pilot Project: Efficacy of a combined ergonomic health promotion intervention on employee health; CDC/NIOSH; Fethke, Nathan B. (Co-Investigator), Carr (Principal Investigator), Merchant (Director)
    - U190H008868
    - Jul 1, 2013 - May 30, 2014
    - Amount: \$30,000.00
  13. Heartland Center for Occupational Safety and Health; CDC/NIOSH; Fethke, Nathan B. (Supporting), O'Shaughnessy, Patrick T (Director)
    - T420H008491
    - Jul 1, 2008 - Jun 30, 2014
    - Amount: \$1,557,253.00, 10% effort
    - Note: I was appointed Director of the Ergonomics Training Program in July 2012.
  14. Ergonomic and fume exposures during stud welding; CDC/NIOSH - National Center for Construction Safety & Health; Fethke (PI)
    - U600H009762
    - Sep 1, 2011 - Aug 31, 2014
    - Amount: \$337,831.00, 13% effort
    - Sub-project
  15. Center for Construction Research and Training: Ergonomic and Welding Fume Exposures During Stud Welding; CDC/NIOSH; Fethke, Nathan B. (Principal Investigator), Stafford, Pete (Director)
    - U600H009762
    - Sep 1, 2011 - Aug 31, 2014
    - Amount: \$149,654.00, 13% effort
    - The primary objective of this project is to compare exposures to physical risk factors and welding fume during use of conventional stud welding equipment and during use of a new system.

16. Healthier Workforce Center Pilot Project: Inertial measurement units as a tool for simultaneous worker health protection and promotion; CDC/NIOSH; Fethke, Nathan B. (Co-Investigator), Schall, Mark (Principal Investigator), Rohlman, Diane S (Director)
  - U19OH008868
  - Jun 1, 2014 - May 31, 2015
  - Amount: \$29,108.00
17. Heartland Center Pilot Project: Characterizing operable conditions for inertial measurement units; CDC/NIOSH; Fethke, Nathan B. (Co-Investigator), Chen, Howard (Principal Investigator), O'Shaughnessy, Patrick T (Director)
  - T42OH008491
  - Jul 1, 2015 - Jun 30, 2016
  - Amount: \$15,000.00
  - Chen was PI of the pilot project  
Fethke was the faculty advisor
18. Healthier Workforce Center for Excellence: Administrative Core; CDC/NIOSH; Fethke, Nathan B. (Co-Investigator), Rohlman, Diane S (Director)
  - U19OH008868
  - Sep 1, 2011 - Aug 31, 2016
  - Amount: \$762,825.00, 5% effort
19. Healthier Workforce Center for Excellence: TRP-4: Comprehensive Evaluation of an Integrated Health Protection and Health Promotion Program; CDC/NIOSH; Fethke, Nathan B (Principal Investigator), Rohlman, Diane S (Director)
  - U19OH008868
  - Sep 1, 2011 - Aug 31, 2016
  - Amount: \$762,825.00, 17% effort
  - The major goal of TRP4 is to evaluate the effectiveness of an integrated workplace health protection and health promotion program on musculoskeletal symptoms, occupational psychosocial stress, and indicators of modifiable health risks (e.g., blood pressure, cholesterol) among manufacturing workers.
20. Exposure assessment and intervention analysis in industrialized dairy parlors; High Plains Intermountain Center for Agricultural Health & Safety CDC/NIOSH; Fethke, Nathan (Consultant), Reynolds (Principal Investigator)
  - U54OH008085
  - Sep 30, 2011 - Sep 29, 2016
  - Direct Cost: \$126,000.00
  - Consultant on sub-project
21. Great Plains Center for Agricultural Health: Research Project B: Musculoskeletal Symptoms among Agricultural Workers; CDC/NIOSH; Fethke, Nathan B. (Principal Investigator), Anthony, T. Renee (Director)
  - U54OH007548
  - Sep 30, 2011 - Sep 29, 2016
  - Amount: \$896,925.00, 17% effort
  - A prospective epidemiological study of associations between physical risk factors and musculoskeletal outcomes among Midwest agricultural workers. The study will be the first of its kind to incorporate directly-measured estimates of exposure of physical risk factors

(including muscle activity with surface EMG, posture with inertial measurement units, and whole-body vibration) with prospective observation of musculoskeletal health outcomes.

22. High Plains Intermountain Center for Agricultural Health & Safety: Exposure Assessment and Intervention Analysis in Industrialized Dairy Parlors; CDC/NIOSH; Fethke, Nathan B. (Consultant), Douphrate, David (Principal Investigator), Reynolds, Stephen (Director)
- U540H008085
  - Sep 30, 2011 - Sep 29, 2016
  - Amount: \$126,155.00
  - The major goals of this project are 1) to characterize the magnitude and variability of exposure to physical risk factors among workers in large- and mega-herd dairy operations and 2) to evaluate interventions to mitigate exposures to physical risk factors during dairy work. In my role as a consultant to the project, I provide technical expertise in the instrumentation and signal processing used to estimate exposure to physical risk factors.
23. Great Plains Center Pilot Project: Identifying job demands and health outcomes among Iowa beginning farmers; CDC/NIOSH; Fethke, Nathan B. (Co-Investigator), Ramaswamy, Maya (Principal Investigator), O'Shaughnessy, Patrick T (Director)
- U450H007548
  - Sep 15, 2015 - Sep 29, 2016
  - Amount: \$19,998.00
  - Ramaswamy was PI of the pilot project  
Fethke was the faculty advisor
24. Heartland Center pilot project: Temporal relationships between trunk posture variation, task performance, and localized muscle fatigue during training of a simulated cyclic lifting task; CDC/NIOSH; Fethke, Nathan (Senior Personnel), Metwali, Mahmoud (Principal Investigator)
- T420H008491
  - Jul 1, 2017 - Jun 30, 2018
  - Amount: \$19,224.00
  - Total Amount Requested: \$19,224.00; Student pilot research grant (Mahmoud Metwali); Fethke is the faculty advisor named in the application.
25. Heartland Center for Occupational Safety and Health: Ergonomics Training Program; CDC/NIOSH; Fethke, Nathan B. (Director), O'Shaughnessy, Patrick T (Director)
- T420H008491
  - Jul 1, 2014 - Jun 30, 2019
  - Amount: \$1,728,454.00, 12% effort
  - O'Shaughnessy is the Center Director
- Fethke is the Director of the Center's Ergonomics Training Program
26. Integration of particulate matter sensor into a system to increase the frequency of personal hearing protective equipment use; Air Force Research Laboratory to UES, Inc. (UI activities via subcontract from UES, Inc., with Dr. Tom Peters as PI); Peters, Thomas (Principal Investigator), Fethke, Nathan (Co-Investigator)
- FA8650-18-C-6935
  - Nov 26, 2018 - Nov 25, 2019
  - Direct Cost: \$133,000.00, 8% effort
27. Quasi-Semi-Active Seats for heavy machinery, Phase I; NSF; Rahmatalla, Salam F
- Jun 15, 2018 - Feb 29, 2020

- Amount: \$225,000.00, 4% effort
  - Total Amount Requested: \$225,000.00
28. Great Plains Center Pilot Project: The impact of drought on occupational psychosocial stress among US farmers; CDC/NIOSH; Fethke, Nathan B. (Co-Investigator), Ramaswamy, Maya (Principal Investigator), O'Shaughnessy, Patrick T (Director)
- U540H007548
  - Sep 30, 2019 - Mar 31, 2021
  - Amount: \$30,000.00
  - Jesse Berman at U of MN was PI of the pilot project; Fethke was Co-I
29. Healthier Workforce Center of the Midwest: Pilot/Feasibility Program; CDC/NIOSH; Fethke, Nathan B (Co-Investigator), Rohlman, Diane S (Director)
- U190H008868
  - Sep 1, 2016 - Aug 31, 2021
  - Amount: \$867,771.00
  - Rohlman is the Center Director
- Fethke is PI of the Pilot/Feasibility Program
30. Healthier Workforce Center of the Midwest: Planning and Evaluation Core; CDC/NIOSH; Fethke, Nathan B (Co-Investigator), Rohlman, Diane S (Director)
- U190H008868
  - Sep 1, 2016 - Aug 31, 2021
  - Amount: \$867,771.00, 10% effort
  - Rohlman is the Center Director
- Fethke is the Associate Center Director
31. Southwest Center for Agricultural Health, Injury Prevention & Education: Physical exposures and musculoskeletal symptoms among logging machine operators; CDC/NIOSH; Fethke, Nathan B (Consultant), Douphrate, David (Principal Investigator)
- U540H007541
  - Sep 15, 2016 - Sep 14, 2022
  - Role: Consultant
32. Great Plains Center for Agricultural Health: Pilot/Feasibility Projects Program; CDC/NIOSH
- U540H007548
  - Sep 30, 2016 - Sep 29, 2022
  - Direct Cost: \$100,000.00, 3% effort
  - Role: PI
33. Great Plains Center for Agricultural Health: Planning and Evaluation Core; CDC/NIOSH
- U540H007548
  - Sep 30, 2016 - Sep 29, 2022
  - Direct Cost: \$296,852.00, 14% effort
  - Role: Center Deputy Director
34. DOJ Ergonomics Consultation; Department of Justice; Fethke, Nathan B (Consultant)
- 15JA5422P00000187
  - May 24, 2022 - May 23, 2023
  - Amount: \$44,250.00, 8% effort

- Total Amount Requested: \$44,250.00
35. Using computer vision and deep learning to measure worker kinematics; CDC/NIOSH; Gerr, Fred (Co-Investigator), Fethke, Nathan (Principal Investigator)
    - R21OH011911-01A1
    - Sep 30, 2021 - Sep 29, 2023
    - Amount: \$389,743.00, 21% effort
    - Total Amount Requested: \$389,743.00
  36. Heartland Center for Occupational Safety and Health: Ergonomics Training Program; CDC/NIOSH; Fethke (Program Director), O'Shaughnessy (Center Director)
    - T42OH008491
    - Jul 1, 2019 - Jun 30, 2024
    - Direct Cost: \$120,705.00, 14% effort
    - O'Shaughnessy is the Center Director  
Fethke is the Director of the Center's Ergonomics Training Program
  37. Heartland Center for Occupational Safety and Health: Occupational Injury Prevention Program; CDC/NIOSH; Fethke (Program Faculty), O'Shaughnessy (Director)
    - T42OH008491
    - Jul 1, 2019 - Jun 30, 2024
    - Direct Cost: \$120,705.00, 8% effort
  38. Healthier Workforce Center of the Midwest: Pilot/Feasibility Projects Program; CDC/NIOSH
    - U54OH008868
    - Sep 1, 2021 - Aug 31, 2026
    - Direct Cost: \$50,000.00
    - Role: PI  
Note: The PI role transitioned to J. Davis in 2022.
  39. Healthier Workforce Center of the Midwest: Planning and Evaluation Core; CDC/NIOSH
    - U54OH008868
    - Sep 1, 2021 - Aug 31, 2026
    - Direct Cost: \$236,755.00, 10% effort
    - Role: Associate Center Director  
Note: Transitioned out of Associate Center Director role in 2022

### Not Funded

1. Total Worker Health intervention to promote health and safety of sedentary employees; CDC/NIOSH; Carr, Lucas (Principal Investigator)
  - Amount: \$322,854.00
  - Total Amount Requested: \$322,854.00; I am a named mentor on this career development application (K award)
2. Establishing PRC-RH as Workplace Health and Research Network Collaborating Center; CDC; Fethke, Nathan B. (Co-Investigator), Carr, Lucas (Principal Investigator)
  - Amount: \$99,293.00, 5% effort
3. Effect of teat sanitation methods on worker demands and teat cleanliness; USDA (FOA: USDA-NIFA-AFRI-006609); Nonnenmann, Matt (Co-Investigator), Fethke, Nathan B (Co-Investigator), Douphrate, David (Principal Investigator)
  - Jul 2019 - Jun 2021
  - Amount: \$500,000.00, 15% effort

- Total Amount Requested: \$500,000.00; Submitted July 2018. PI is David Douphrate at the UT Health Sciences Center in Houston. Fethke is PI of subcontract to UI (sub total = \$213,000). Fethke effort: 15% in year 1, 20% in year 2.
4. Effect of teat sanitation methods on worker demands and teat cleanliness; USDA (FOA: USDA-NIFA-AFRI-006772); Nonnenmann, Matthew (Co-Investigator), Fethke, Nathan (Principal Investigator)
    - Feb 1, 2020 - Jan 31, 2022
    - Amount: \$213,774.00, 15% effort
    - Total Amount Requested: \$213,774.00; The "Total Amount Requested" is the amount of a subcontract from the University of Texas Health Science Center, who will be the prime awardee. Fethke will serve as PI of the subcontract.

This is a resubmission.

5. Evaluation of Quasi-Semi-Active Seat, Phase II; NSF; Rahmatalla, Salam F
  - Sep 2020 - Aug 2022
  - Amount: \$211,909.04, 4% effort
  - Total Amount Requested: \$211,909.04; My effort will be in Year 2 of the project, if funded.
6. Effects of teat cleaning methods on physical demands and musculoskeletal symptoms among dairy parlor workers; CDC/NIOSH
  - Oct 1, 2022 - Sep 30, 2026
  - Amount: \$1,521,671.00, 20% effort
  - Total Amount Requested: \$1,521,671.00
7. Healthier Workforce Center of the Midwest: Research Project B; CDC/NIOSH; Dale, Ann Marie (Co-Principal), Fethke, Nathan B (Co-Principal), Rohlman, Diane S (Director)
  - U19OH008868
  - 2022 - 2026
  - Amount: \$325,000.00, 25% effort
  - Project not funded with the Center competing renewal application
8. Environmental and organizational factors in the modern office: effects on the health of sedentary workers; NIH (parent R01 PAR); Dale, Ann Marie (Co-Principal), Fethke, Nathan B (Co-Principal)
  - 2023 - 2026
  - Amount: \$2,659,433.00, 40% effort
  - Total Amount Requested: \$2,659,433.00; Revision of project not funded by NIOSH under Research Core within the Healthier Workforce Center of the Midwest.
9. Effect of teat cleaning methods on physical demand and musculoskeletal symptoms among dairy parlor workers; CDC/NIOSH, Occupational Safety and Health Research (R01); Douphrate, David (Co-Principal), Fethke, Nathan (Co-Principal)
  - 2023 - 2027
  - Amount: \$1,800,000.00, 25% effort
  - Total Amount Requested: \$1,800,000.00; MPI with David Douphrate of UTHSC and PI of subcontract of U of I

## Presentations

### Invited Lectures

- |      |   |
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| 2010 | Ergonomics in the College of Public Health. Presented at College of Public Health External Advisory Board Meeting, University of Iowa, Iowa City, Iowa. |
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- 2011 Healthier workplaces through ergonomic. Presented at Iowa Worklife Forum, Univeristy of Iowa, College of Public Health, Department of Iccupational and Environmental Health, Iowa City, Iowa.
- 2011 Office ergonomics: state of the science. Presented at Shive-Hattery, Inc., Iowa City, Iowa.
- 2014 Occupational ergonomics. Protecting Worker health and Safety. Presented at Labor Center, University of Iowa, Labor Center, University of Iowa, Iowa City, Iowa.
- 2014 Occupational Ergonomics. Presented at Protecting Worker Health and Safety, University of Iowa Labor Center.
- 2015 Occupational ergonomics. Protecting Worker health and Safety. Presented at Labor Center, University of Iowa, Labor Center, University of Iowa, Iowa City, Iowa.
- Jan 24, 2015 Fethke, N. B. & Ramaswamy, M. The right tool for the job... and you. Presented at Practical Farmers of Iowa Annual Conference, Ames, Iowa.
- 2018 Best-practices for measurement and evaluation of occupational exposure to whole-body and hand-arm vibration. Presented at Protecting Working Health and Safety, Labor Center, University of Iowa, Iowa City, Iowa.
- 2020 Whole body vibration during agricultural machine operation. Presented at Industrial and Systems Engineering Seminar, Auburn University, Auburn, Alabama.

Oral Presentations

- Sep 20, 2000 Anton, D., Shibley, L., Fethke, N. B., Hess, J. & Cook, T. M. Effect of step height on overhead drilling in construction. Presented at 44th Annual Meeting of the Human Factors and Ergonomics Society, San Diego, California.
- May 21, 2002 Anton, D., Cook, T. M., Rosecrance, J., Deter, S. & Fethke, N. B. Tool Design for the 21st Century. Presented at 12th Annual Construction Safety & Health Conference, Rosemont, Illinois.
- 2004 Fethke, N. B. & Anton, D. A comparison of methods for directly measuring awkward postures of the wrist. Presented at NIOSH Pilot Project Research Symposium, Iowa City, April 21, Iowa.
- 2004 Fethke, N. B., Anton, D., Gerr, F. E., Rosecrance, J. & Merlino, L. Exposure assessment in a longitudinal study of work-related musculoskeletal disorders: emphasis on EMG data collection and analysis. Presented at Lucien Brouha Work Physiology Symposium, Keystone, June 22, Colorado.
- Feb 10, 2004 Cook, T. M., Anton, D. & Fethke, N. B. Ergonomics in Construction. Presented at 14th Annual Construction Safety & Health Conference, Chicago, Illinois.
- Sep 20, 2004 Fethke, N. B., Anton, D., Fuller, H. & Cook, T. M. A versatile program for the analysis of electromyographic data. Presented at 48th Annual Meeting of the Human Factors and Ergonomics Society, New Orleans, Louisiana.
- Sep 25, 2005 Fethke, N. B. & Anton, D. How much is enough? The impact of sampling duration on the accuracy and precision of exposure estimates. Presented at Lucien Brouha Work Physiology Symposium, Waterloo, Iowa.
- 2006 Fethke, N. B., Anton, D., Cavanaugh, J. E., Gerr, F. E. & Cook, T. M. The effect of EMG sampling duration on forceful exertion exposure estimates. Presented at International Ergonomics Association XVI Triennial Congress, Maastricht, July 10-14, Netherlands.

- 2006 Fethke, N. B. & Anton, D. The effect of EMG sampling duration on the precision of forceful exertion exposure estimates. Presented at Bringing Research to Practice: A Colloquium of NIOSH Pilot Projects, Iowa City, March 21, Iowa.
- Apr 2, 2006 Fethke, N. B., Anton, D., Cavanaugh, J. E., Gerr, F. E. & Cook, T. M. The effect of sampling duration on EMG-based estimates of exposure to forceful exertion. Presented at 4th Annual NORA Young/New Investigators Symposium, Salt Lake City, Utah.
- 2007 Meyers, A., Fuller, H., Fethke, N. B., Herwig, K. & Anton, D. The effect of lift origin height on lumbar kinematics among masons. Presented at 6th International Scientific Conference on the Prevention of Work-related Musculoskeletal Disorders, Boston, August 27-30, Massachusetts.
- 2007 McGehee, D., Anton, D., Fethke, N. B., Meyers, A., Boer, E., Manser, M. & Ward, N. The use of EMG in immersive driving simulation for crash avoidance research: lessons learned. Presented at Driving Simulation Conference - North America, Iowa City, Iowa.
- Oct 1, 2007 Fethke, N. B., Gerr, F. E., Anton, D., Cavanaugh, J. E. & Cook, T. M. Cross-sectional study of upper trapezius muscle activity and self-reported neck/shoulder pain. Presented at 51st Annual Meeting of the Human Factors and Ergonomics Society, Baltimore, Maryland.
- Jun 6, 2008 Kraska, J., Ramsey, M., Haff, G., Fethke, N. B., Kinser, A., Sands, W., Painter, K., Stone, M. E. & Stone, M. H. Relationship between isometric force characteristics and the difference in un-weighted and weighted vertical jump height. Presented at UK Strength and Conditioning Association 4th Annual Conference, Belfast, United Kingdom.
- Mar 6, 2009 Fethke, N. EMG acquisition and processing for exposure assessment in occupational studies. Presented at 1st ERC Interdisciplinary Forum on Measurement Systems in Occupational Health and Safety, Heartland Research and Education Center, University of Iowa, College of Public Health, Iowa City, Iowa.
- Mar 6, 2009 Fethke, N. B. Surface electromyography in ergonomics exposure assessment. Presented at 1st ERC Interdisciplinary Forum on Measurement Systems in Occupational Health and Safety, Iowa City, Iowa.
- 2010 Dartt, A., Rosecrance, J., Douphrate, D. & Fethke, N. B. Ergonomic exposure assessment: reliability, exposure variability, and sampling strategy. Presented at 2nd ERC Interdisciplinary Forum on Measurement Systems in Occupational Health and Safety, Fort Collins, April 29 - May 1, Colorado.
- 2010 Douphrate, D., Rosecrance, J., Fethke, N. B. & Nonnenmann, M. Full-shift upper extremity direct exposure assessment of US dairy parlor workers. Presented at 7th International Conference on the Prevention of Work-related Musculoskeletal Disorders, Angers, August 29 - September 3, France.
- 2010 Gant, L. & Fethke, N. B. Spectral analysis of RMS-processed EMG. Presented at 2nd ERC Interdisciplinary Forum on Measurement Systems in Occupational Health and Safety, Fort Collins, April 29 - May 1, Colorado.
- 2010 Fethke, N. B. Variability of exposure to physical risk factors in non-cyclic work. Presented at H. Kenneth Dillon – Brian J. Carnahan Research Day, Deep South Center for Occupational Health and Safety, Tuscaloosa, March 5, Alabama.

- Apr 29, 2010 Fethke, N. B. Data acquisition, analysis and signal conditioning. Presented at 2nd ERC Interdisciplinary Forum on Measurement Systems in Occupational Health and Safety, Fort Collins, Colorado.
- 2011 Meyers, A., Gerr, F. E. & Fethke, N. B. Associations between the Strain Index and incident hand-arm symptoms among manufacturing workers. Presented at NORA Manufacturing Sector Conference, Cincinnati, September 7-8, Ohio.
- Oct 22, 2011 Kitzmann, A., Fethke, N. B., Baratz, K., Zimmerman, M. B., Hackbarth, D. & Gehrs, K. A survey study of musculoskeletal disorders among eye care physicians compared to family medicine physicians. Presented at American Academy of Ophthalmology Annual Meeting, Orlando, Florida.
- 2012 Manz, N., Silver, K., Fethke, N. B., Hoffman, K., Loury, S. & Florence, J. Building a consensus for tomato worker ergonomics: a community-expert panel study. Presented at American Public Health Association 104th Annual Meeting and Exposition, San Francisco, October 27-31, California.
- 2012 Director, Ergonomics Training Program. Heartland Center for Occupational Health and Safety.
- 2012 Fethke, N. B., Gerr, F. E., Merlino, L., Branch, C. & Hanson, S. Effect of participatory ergonomics training on non-ergonomist ratings of ergonomics exposures. Presented at Total Worker Health Symposium: Safe, Healthy and Cost-Effective Solutions, Iowa City, November 29-30, Iowa.
- Jun 6, 2012 Fethke, N. B. Surface electromyography: quality, processing and exposure estimation. Presented at 3rd ERC Interdisciplinary Forum on Measurement Systems in Occupational Health and Safety, Fort Collins, Colorado.
- 2013 Fethke, N. B., Gerr, F. E., Merlino, L., Branch, C. & Schall, M. Musculoskeletal symptoms among Midwest farmers. Presented at Midwest Rural Agricultural Safety and Health Conference, Ames, November 21-22, Iowa.
- 2013 Fethke, N. B., Gerr, F. E., Merlino, L., Branch, C. & Schall, M. A prospective study of musculoskeletal symptoms among Midwest farmers. Presented at International Society of Agricultural Safety and Health Conference, Sandusky, June 23-27, Ohio.
- Jun 22, 2014 Fethke, N. B., Gerr, F. E., Merlino, L., Branch, C. & Schall, M. Exposure to physical risk factors for musculoskeletal health outcomes during common agricultural activities. Presented at International Society of Agricultural Safety and Health, Omaha, Nebraska.
- Oct 2, 2014 Branch, C., Fethke, N. B. & Merlino, L. A worksite wellness coaching component of a Total Worker Health intervention in a manufacturing setting. Presented at 1st International Symposium to Advance Total Worker Health, Bethesda, Maryland.
- Oct 2, 2014 Schall, M. & Fethke, N. B. Digital human modeling on non-occupational risk factors for manufacturing task work task design. Presented at 1st International Symposium to Advance Total Worker Health, Bethesda, Maryland.
- Oct 19, 2014 Schall, M., Chen, H., Merlino, L., Gerr, F. E. & Fethke, N. B. A prospective study of musculoskeletal symptoms among agricultural workers in the Midwest region of the United States. Presented at 7th International Symposium: Safety & Health in Rural & Agricultural Populations: Global Perspectives, Saskatoon, Canada.
- Oct 19, 2014 Douphrate, D., Fethke, N. B., Hagevort, R., Nonnenmann, M., Gimeno, D., Mixco, A. & Marshall, A. Task-specific and full-shift sampling of upper extremity muscle activity among US large-herd dairy parlor workers. Presented at 7th International Symposium:

Safety & Health in Rural & Agricultural Populations: Global Perspectives, Saskatoon, Canada.

- Oct 22, 2014 Gant, L., Fethke, N. B. & Gerr, F. E. Spectral analysis of root-mean-square processed surface electromyography data as a measure of repetitive muscular exertion. Presented at 56th Annual Meeting of the Human Factors and Ergonomics Society, Boston, Massachusetts.
- 2015 Total Worker Health: a new frontier in occupational safety and health reserach and education. Presented at Safety Conference & Expo: Industry & Construction, Southeastern Community College, Southeastern Community College, West Burlington, Iowa.
- 2015 Chen, H., Merlino, L., Branch, C., Schall, Jr, M. C., Gerr, F. & Fethke, N. B. Seasonal effects of common farm tasks on the experience of low back pain. Presented at International Society of Agricultural Safety and Health Annual Conference, Bloomington-Normal, Indiana.
- 2015 Schall, Jr, M. C., Fethke, N. B., Ramaswamy, M., Chen, H., Branch, C., Merlino, L., Watabe, J. & Gerr, F. Whole-body vibration among agricultural workers performing common agricultural activities. Presented at International Society of Agricultural Safety and Health Annual Conference, Bloomington-Normal, Indiana.
- Apr 16, 2015 Chen, H., Schall Jr, M. C., Fethke, N., Oyama, S. & Douphrate, D. Accuracy of inertial measurements units for wrist posture measurement. Presented at 13th Annual National Occupational Research Agenda (NORA) Young/New Investigators Symposium, Univeristy of Utah, Salt Lake City, Utah.
- Apr 16, 2015 Schall Jr, M. C. & Fethke, N. B. Characterizing the muscle activity of ophthalmologists performing routine patient examinations. Presented at 13th Annual National Occupational Research Agenda (NORA) Young/New Investigators Symposium, University of Utah, Salt Lake City, Utah.
- May 30, 2015 Fethke, N. B. Associations between exposure to physical risk factors and musculoskeletal pain among agricultural works. Presented at Occupational Hygiene in Agriculture-Roundtable Session 2015 AIHce, AIHce, Salt Lake City, Utah.
- May 30, 2015 Fethke, N. B. Presented at Occupational Hygiene in Agriculture – Roundtable Session, Salt Lake City, Utah.
- 2017 Branch, C., Fethke, N. B., Merlino, L. & Smith, K. A worksite wellness coaching component of a Total Worker Health(r) intervention in a manufacturing setting: coaching summary and effects on stress. Presented at Work, Stress, and Health Conference, NIOSH, among other agencies, Minneapolis.
- 2018 Fethke, N. B., Merlino, L. & Branch, C. Comparing employee goals set during health coaching to health risk appraisal responses. Presented at Total Worker Health(r) 2nd International Symposium, NIOSH, Bethesda.
- 2018 Huizinga, N. & Fethke, N. B. Occupational injury and employment duration: an analysis of newly hired manufacturing workers. Presented at Total Worker Health(r) 2nd International Symposium, NIOSH, Bethesda.
- Aug 26, 2018 Chen, H., Schall Jr, M. C. & Fethke, N. B. Identification of magnetically disturbed inertial measurement unit data segments. Presented at 20th Congress of the International Ergonomics Association, Florence, Italy.

- Feb 27, 2020 Fethke, N. B., Peters, T., Thomas, G., Roeder, S., Tatum, M., Brown, N. & Ellis, D. Multi-hazard exposure assessment and automatic task detection. Presented at NIOSH ERC Exposure Assessment Symposium, NIOSH, Auburn, Alabama.
- Feb 27, 2020 Shull, J., Fethke, N. B. & Baek, S. Posture estimation using computer vision algorithms. Presented at 2020 NIOSH ERC Exposure Assessment Symposium, NIOSH, Auburn, Alabama.
- Nov 1, 2020 Shull, J. R., Kim, H., Roshdibenam, V., Fethke, N. B. & Baek, S. Ergonomic assessment via deep convolutional neural networks. Presented at 2020 Institute of Industrial and Systems Engineers (IISE) Annual Conference, Institute of Industrial and Systems Engineers.
- Jun 13, 2021 Harris Adamson, C., Rempel, D., Eisen, E., Meyers, R., Bao, S., Gerr, F., Fethke, N., Evanoff, B., Dale, A. M., Hegmann, K., These, M., Kapellusch, J., Bonfigliolo, R. & Violante, F. Comparison of the 2001-2018 ACGIH TLV for Hand Activity and risk of carpal tunnel syndrome across pooled multi-national prospective studies. Presented at International Ergonomic Association 21st Triennial Congress, International Ergonomic Association, Vancouver, Canada.
- Aug 13, 2021 Berman, J. D., Ramirez, M. R., Bell, J. E., Bilotta, R., Gerr, F. & Fethke, N. B. The association between drought conditions and occupational psychosocial stress among Midwestern Us farmers: an occupational cohort study. Presented at International Society for Environmental Epidemiology Annual Meeting, New York City, New York.

### Posters

- May 18, 2013 Ramirez, J., Altmaier, R., Fethke, N. B. & O'Shaughnessy, P. T. Innovative breathing simulation developed to measure filtering face-piece respirator performance. Presented at AIHA Conference and Exposition, Montreal, Canada.
- Feb 3, 2014 Simpson, J., Browne, L., Coleman, B., Fethke, N. B. & Anton, D. Comparison of acceleration during thoracic spinal manipulation between students and physical therapists experienced in delivering high velocity low amplitude thrust. Presented at Combined Sections Meeting of the American Physical Therapy Association, Las Vegas6, Nevada.
- 2015 Anderson, D., Houser, R., Simpson, J., Browne, L., Coleman, B., Fethke, N. B. & Anton, D. Comparison of acceleration during thoracic spinal manipulation between students and physical therapists experienced in delivering high velocity low amplitude thrust. Presented at 4th Annual Celebration Conference, Eastern Washington University, Cheney, Washington.

### Continuing Education Talks

- 2009 Assessing Exposure to Physical Risk Factors. Presented at Heartland ERC Annual Occupational Health Symposium, 11th Annual Occupational Health Symposium, Iowa City, Iowa.
- 2009 Ergonomics in Agriculture. University of Iowa, Agricultural Occupational Health Training Program.
- 2010 Assessing Exposure to Physical Risk Factors. Presented at Heartland ERC Annual Occupational Health Symposium, 12th Annual Occupational Health Symposium, Iowa City, Iowa.
- 2010 Ergonomics in Agriculture. Presented at Building Capacity Core Course, University of Iowa, Agricultural Occupational Health Training Program.

- 2011 Ergonomics in Agriculture. University of Iowa, Agricultural Occupational Health Training Program.
- 2011 Ergonomics: Current Scientific Concepts and Knowledge for the Prevention of Work-Related MSDs. 13th Annual Occupational Health Symposium, Iowa City, Iowa.
- 2012 Ergonomics Interventions: Evaluate their Effectiveness. 14th Annual Occupational Health Symposium, Iowa City, Iowa.
- 2013 Ergonomics in Agriculture. University of Iowa, Agricultural Occupational Health Training Program.
- 2014 Ergonomics in Agriculture. University of Iowa, Agricultural Occupational Health Training Program.
- 2014 Occupational Ergonomics. University of Iowa Labor Center.
- 2014 Occupational Ergonomics: General Concepts and Recent Epidemiological Research. Presented at Heartland ERC Annual Occupational Health Symposium, 16th Annual Occupational Health Symposium, Cedar Rapids, Iowa.
- 2015 Musculoskeletal Health among Office Workers: Occupational Factors and Intervention Strategies. Presented at Heartland ERC Annual Occupational Health Symposium, Cedar Rapids, Iowa.
- 2015 Patient Handling and Musculoskeletal Health: The Evidence and Intervention Strategies. Presented at 22nd National Evidence-Based Practice Conference, Iowa City, Iowa.
- 2017 Ergonomics in Agriculture. Presented at The Building Capacity Core Course, Great Plains Center for Agricultural Health, Iowa City, California.
- 2019 Musculoskeletal Disorders and Ergonomics: Case Study. Presented at AgriSafe Nurse Scholar Program.
- 2021 Musculoskeletal Disorders and Ergonomics: Case Study. Presented at AgriSafe Nurse Scholar Program.
- 2022 Musculoskeletal Disorders and Ergonomics: Case Study. Presented at AgriSafe Nurse Scholar Program.

Seminars

- 2008 Surface Electromyography in Ergonomics Exposure Assessment: Implications and Applications in Construction. Virginia Tech, Center for Innovation in Construction Safety and Health.
- 2011 Ergonomics: Applying Engineering Principles to the Science and Practice of Occupational Health. Presented at Biomedical Engineering Graduate Seminar, University of Iowa, Biomedical Engineering Graduate Seminar, Iowa City, Iowa.
- 2012 Ergonomic and Welding Fume Exposures during Stud Welding: A Multidisciplinary Research Effort. University of Iowa, Occupational and Environmental Health Seminar.
- 2012 Ergonomics: Leveraging Engineering and Public Health Principles to Improve Worker Health. Presented at Industrial Engineering Graduate Seminar, University of Iowa, Industrial Engineering Graduate Seminar.
- 2013 Engineering a Safe, Healthy and Productive Workforce. Presented at Biomedical Engineering 1st-year Seminar, University of Iowa, Biomedical Engineering 1st-year Seminar, Iowa City, Iowa.

- 2013 Musculoskeletal Symptoms among Agricultural Workers: Design and Preliminary Findings of a Great Plains Center for Agricultural Health Research Study. University of Iowa, Occupational and Environmental Health Seminar.
- 2015 Engineering a safe, healthy, and productive workforce. Presented at Biomedical Engineering 2nd year Professional Seminar, Biomedical Engineering 2nd year Professional Seminar, University of Iowa, Iowa City, Iowa.
- 2015 Musculoskeletal pain among agricultural workers: lessons from an ongoing prospective study. Presented at Southwest Center for Occupational and Environmental health Seminar, University of Texas School of Public Health Houston/San Antonio, Houston, Texas.
- 2018 Whole-body vibration during agricultural machine operation. Presented at Occupational and Environmental Health Seminar, Occupational and Environmental Health Department, College of Public Health, Iowa City, Iowa.
- 2021 Ergonomics in agriculture: results from a study of Midwest agricultural workers. Presented at Industrial and Systems Engineering Graduate Seminar, University of Iowa, Iowa City, Iowa.

**Other Presentations**

- Jul 13, 2015 Safety and health implications of sedentary work interventions. Presented at NIOSH Total Worker health Webinar Series, NIOSH Webinar Series.
- Oct 19, 2016 Sedentary work and your health. Presented at Coverys Loss Prevention Service Webinar Series.
- Jun 19, 2019 Douphrate, D. & Fethke, N. Large herd dairy milking parlors: exposure characterization and intervention analysis. Presented at NIOSH Education and Research Centers Ergonomics Webinar Series.
- Dec 16, 2020 Douphrate, D. & Fethke, N. Fatigue in the workplace: measurement considerations and effects on health and performance. Presented at NIOSH Education and Research Centers Ergonomics Webinar Series, NIOSH.

**Service**

**Professional Service**

**Professional Organizations**

- 2007 - Present Occupational Ergonomics Technical Group, Human Factors and Ergonomics Society, Member

**Journal Reviews/Referee Manuscripts**

- 2007 - Present Applied Ergonomics, Reviewer, Publications
- 2007 - Present American Journal of Industrial Medicine, Reviewer, Publications
- 2007 - Present Ergonomics, Reviewer, Publications
- 2011 - Present IMA Journal of Management Mathematics, Reviewer, Publications
- 2011 - Present Journal of Occupational and Environmental Hygiene, Reviewer, Publications
- 2012 - Present International Journal of Human Factors and Ergonomics, Reviewer, Publications

2013 - Present	Journal of Occupational and Environmental Medicine, Reviewer, Publications
2014 - Present	IISE Transactions on Occupational Ergonomics and Human Factors, Reviewer, Publications
2014 - Present	Journal of Agricultural Safety and Health, Reviewer, Publications
2014 - Present	Journal of Agromedicine, Reviewer, Publications
2014 - Present	Journal of Rural Health, Reviewer, Publications
2015 - Present	Human Factors, Reviewer, Publications
2016 - Present	Annals of Work Exposures and Health (formerly Annals of Occupational Hygiene), Reviewer, Publications
2019 - Present	BMC Public Health, Reviewer, Publications

### Review Panels

2012	Saskatchewan Research Foundation, Reviewer, Grant Proposals
2012 - 2014	Occupational Ergonomics Technical Group, Human Factors and Ergonomics Society, Conference-Related
2016 - 2019	Safety and Occupational Health Study Section, CDC/NIOSH, Reviewer, Ad-hoc
2010 - Present	Construction Solutions Online Database, Center for Construction Research and Training, Reviewer
2013 - Present	High Plains Intermountain Center for Agricultural Health: Pilot Project Program, Reviewer, Grant Proposals
2014 - Present	High Plains Intermountain Center for Agricultural Health: Pilot Project Program, Reviewer, Grant Proposals
2017 - Present	Ely Award Review Panel, Human Factors and Ergonomics Society (HFES), Expert Panel The purpose of the Ely Award Review Panel is to make a recommendation to HFES regarding the most impactful paper published in the society's journal - Human Factors - during the previous year. Activities include careful review and scoring of up to 20 papers annually.
2019 - Present	Safety and Occupational Health Study Section, CDC/NIOSH, Member

### Organize Conferences, Sessions, etc.

2009	1st ERC Interdisciplinary Forum on Measurement Systems for Occupational Health and Safety Research, Conference Organizer
2010	2nd ERC Interdisciplinary Forum on Measurement Systems for Occupational Health and Safety Research, Conference Organizer
2010	3rd American Conference on Human Vibration, Conference Organizer
2012	3rd ERC Interdisciplinary Forum on Measurement Systems for Occupational Health and Safety Research, Conference Organizer

### Professional Consulting

2003	Cedar Rapids Fire Department, Cedar Rapids, IA, Consultant
2003	Sauer Danfoss, West Branch, IA, Consultant

2003 - 2004	Metzeler Automotive Profile Systems, Keokuk, IA, Consultant
2003 - 2004	Tones Brothers, Ankeny, IA, Consultant
2004	HNI Corporation, Muscatine, IA, Consultant
2007 - 2008	Portola Packaging, Kingsport, TN, Consultant
2008	Arborcraft Flooring, Johnson City, TN, Consultant
2009	ACP, Cedar Rapids, IA, Consultant
2009	Cambrex, Charles City, IA, Consultant
2010	East Tennessee State University, Johnson City, TN, Consultant
2011	Henings Automotive, Keokuk, IA, Consultant
2011	International Automotive Components, Iowa City, IA, Consultant
2012	New Rule Products, Inc., Consultant
2012	Whirlpool/Amana, Consultant
2013	ORBIS Corporation, Consultant
2014	West Liberty Foods, Consultant
2014	Whirlpool/Amana, Consultant
2015	Integrated DNA Technologies, Coralville, IA, Consultant
2009 - Present	Worksafe Iowa, Primary Ergonomics Consultant

Other

2013	University of Iowa, Provided professional opinion to the committee responsible for selecting patron seating options for the new Hancher Auditorium and Clapp Recital Hall at the University of Iowa
2015	Deep South Center for Occupational Health and Safety (NIOSH ERC at the University of Alabama-Birmingham), Reviewer, Ad-hoc
2018	Review of NIOSH internal NORA research grants, CDC/NIOSH, Reviewer, Ad-hoc
2019 - 2021	IISE Transactions on Occupational Ergonomics and Human Factors, Editor, Assistant/Co-Editor Editorial board 2019 to 2022 Associate Editor 2022-
2014 - Present	High Plains Intermountain Center for Agricultural Health and Safety, NIOSH Ag Center at Colorado State University, Reviewer, Grant Proposals
2014 - Present	7th International Symposium, Safety & Health in Agricultural & Rural Populations: Global Perspectives, Conference-Related
2015 - Present	Southwest Center for Occupational and Environmental Health(NIOSH ERC at the University of Texas), Reviewer, Ad-hoc
2015 - Present	Research and Artistry Awards, Northern Illinois University, Reviewer
2018 - Present	Research and Innovation Program, Workers' Compensation Board of Manitoba, Reviewer, Ad-hoc
2019 - Present	Safety and Occupational Health Study Section, NIOSH, Member

2019 - Present	Technical Committee 108; Subcommittee 4; Working Groups 3 (hand-transmitted vibration) and 13 (whole-body vibration), ISO, Member
2021 - Present	IJSE Transactions on Occupational Ergonomics and Human Factors, Associate Editor Editorial board 2019 -2022 Associate Editor 2022-2025 Editorial board 2025-
2021 - Present	Human Exposure to Mechanical Vibration and Shock, ANSI S2/WG39, Member
2022 - Present	Central States Center for Agricultural Safety and Health, External Advisor
2023 - Present	Healthier Workforce Center for the Midwest, External Advisor

## Public or Community Service

### Local

2017	STEM Career Day: Longfellow Elementary, Iowa City Community Schools District, Guest Speaker
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## University, College, Department Service

### University

2007 - 2008	CEPH Planning: Education Committee, East Tennessee State University, College of Public Health, Member
2007 - 2008	ETSU College of Public Health Education Committee, Member
2008	Appalachian Student Research Forum, East Tennessee State University, Oral Presentation Judge
2008	Appalachian Student Reserach Forum (ETSU), Oral Presentation Judge
2009 - 2010	OEH search committee for Assistant/Associate/ Full Professor ( Ergonomics Focus), Department of Occupational and Environmental Health, University of Iowa, Member
2010	OEH Strategic Planning Subcommittee (Infrastructure), Department of Occupational and Environmental Health, University of Iowa, Member
2010 - 2011	OEH search committee for Assistant/Associate/ Full Professor ( Ergonomics Focus), Department of Occupational and Environmental Health, University of Iowa, Chair
2012	OEH Strategic Planning Subcommittee (Alumni Relations), Department of Occupational and Environmental Health, University of Iowa, Member
2012 - 2013	OEH search committee for Assistant/Associate/ Full Professor ( Ergonomics Focus), Department of Occupational and Environmental Health, University of Iowa, Member
2013 - 2015	UI Faculty Senate, University of Iowa, Member
2015	OEH Internal Review Group for faculty tenure, Member
2012 - 2016	Healthier Workforce Center for Excellence: Pilot Project Program, Healthier Workforce Center for Excellence, Reviewer, Grant Proposals
2016	OEH Internal Review Group for faculty reappointment, Member
2017	OEH Internal Review Group for faculty promotion and tenure
2015 - 2018	UI Graduate Council, Member

2021	Internal Review Group of faculty promotion and tenure, Member
2016 - 2023	Healthier Workforce Center of the Midwest: Pilot Project Program, Healthier Workforce Center for Excellence, Reviewer, Grant Proposals
2009 - Present	Heartland Center for Occupational Safety and Health: Pilot Project Program, Heartland Center for Occupational Health and Safety, Reviewer, Grant Proposals
2010 - Present	Great Plains Center for Agricultural Health: Pilot/Feasibility Program, Great Plains Center for Agricultural Health, Reviewer, Grant Proposals
2015 - Present	UI Integrated Health Management Advisory Group, Member
2019 - Present	CPH Undergraduate Curriculum Committee, Member
2020 - Present	College of Public Health Awards Committee, Member
2020 - Present	OEH Search committee for research assistant professor, Member
2020 - Present	UI Future of Work Initiative; faculty subcommittee, Member

### College

2010 - 2013	CPH Faculty Council, Member
2017 - 2020	CPH Research Council, Member

### **Intellectual Property**

1. Fethke, N. B., Johnson, P., Konkler, A. & Marquart, E., Hand Tool, 7350839, Jan 1, 2004  
Patent No. 7350839, Industry, United States of America (assignee: Fiskars Brands, Inc.)
2. Fethke, N. B., Johnson, P., Konkler, A. & Marquart, E., Handle for a hand tool, D487010, Jan 1, 2004  
Patent Number: D487010, Industry, United States of America (assignee: Fiskars Brands, Inc.)
3. Fethke, N. B., Johnson, P., Konkler, A. & Marquart, E., Two-hand tool grip, D488046, Jan 1, 2004  
Patent Number: D488046, Industry, United States of America (assignee: Fiskars Brands, Inc.)
4. Baek, S., Buckwalter, J. A., Fethke, N. B., Robillard, J. & Villacorta, P., System and method to predict, prevent, and mitigate workplace injuries, US11328239 2, Jan 1, 2022