SEAN GALLAGHER, PhD, CPE
Associate Professor
Department of Industrial and Systems Engineering
Auburn University
Certified Professional Ergonomist

Curriculum Vitae

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BIRTH DATE: October 18, 1955

MARITAL STATUS: Married, two children (Andrew [24], Brendon [21])

EDUCATION: Ph.D., The Ohio State University (Industrial and Systems Engineering) 2003.
M.S., Physical Education (Exercise Physiology), The Pennsylvania State University, 1984.
B. A., Music, University of North Carolina, 1978.

EXPERIENCE:

1984 - 2011 Senior Research Scientist, Physiologist, NIOSH/US Bureau of Mines, Pittsburgh, PA. Current grade: GS-14

2012- present Associate Professor, Auburn University

PROFESSIONAL MEMBERSHIP:
American Industrial Hygiene Association (Fellow)
Human Factors and Ergonomics Society (Member)

PROFESSIONAL CERTIFICATIONS

Certified Professional Ergonomist (Certificate #257)

RESEARCH INTERESTS

Biomechanics and Physiology of Musculoskeletal Disorders; Fatigue Failure Modeling of Musculoskeletal Disorders, Ergonomic aspects of Occupational Safety and Health; Electromyography; Work Physiology; Static and Dynamic Muscular Strength Evaluation; Biomechanics and Physiology of Whole-Body Vibration; Thermal Stress; Psychophysics; Cardiovascular physiology, Respiratory Physiology; Anthropometry, Design of Illumination Systems, Seating Design, User-centered Design, Statistics, Experimental Design, Epidemiology.

RECENT AWARDS AND HONORS

Recipient – 2016 AIHA Ergonomics Committee Don B. Chaffin Award for Best Podium Presentation

Tenured – 2015 (Auburn University)

Recipient – 2013 International Ergonomics Association/Liberty Mutual Medal in Occupational Safety and Ergonomics for journal article entitled "Examining the interaction of force and repetition on musculoskeletal disorder risk: a systematic literature review" ($10,000 stipend)

Recipient – 2013 AIHA Ergonomics Committee Don B. Chaffin Award for Best Podium Presentation ("Force and Repetition Interact with Respect to Musculoskeletal Disorder Risk" [paper co-author Mary F. Barbe])

Recipient – 2013 AIHA Ergonomics Committee Don B. Chaffin Award for Best Roundtable Presentation ("Stretching and Musculoskeletal Injury Pathways").

National Institute for Occupational Safety and Health Nominee for the ***2013 Charles C. Shepard Science Award for Outstanding Scientific Paper in Prevention and Control*** (for paper entitled "A visual warning system to reduce struck-by or pinning accidents involving mobile mining equipment" published in *Applied Ergonomics*)

Recipient – 2011 HHS*Innovates* Award (Secretary's Pick) for The National Institute for Occupational Safety and Health (NIOSH) LED cap lamp.

Recipient – 2nd place IAS Society Prize Paper Award (2011) for paper entitled "Discomfort Glare Comparison for Various LED Cap Lamps".

Recipient - 2010 Excellence in Government Awards Program: Outstanding Team Award (Bronze) – MSD Prevention Team, National Institute for Occupational Safety and Health, Office of Mine Safety and Health Research.

Recipient – Third place IAS Society Prize Paper Award (2010) for paper entitled "Evaluation of Peripheral Visual Performance when using Incandescent and LED Miner Cap Lamp".

Recipient - 2009 Alice Hamilton Award for Excellence in Occupational Safety and Health – Educational Materials Category (Age Awareness Training for Miners. NIOSH Information Circular 9505)

PROFESSIONAL ACTIVITIES

Editorial Boards: *Human Factors, Theoretical Issues in Ergonomics Science*

Referee for the following journals: *BMC Musculoskeletal, Archives of Physical Medicine and Rehabilitation, Ergonomics, American Journal of Industrial Medicine, Human Factors, Institute of Industrial Engineers Transactions, International Journal of Industrial Ergonomics, Occupational Ergonomics, Applied Ergonomics, Applied Occupational and Environmental Hygiene.*

Member, *American Industrial Hygiene Association Technical Committee for Ergonomics,* (5/88 - present).

Chair, *American Industrial Hygiene Association Technical Committee for Ergonomics,* 1989-1990.

Member, *Industrial Ergonomics Technical Group* of the Human Factors Society (1987-present).

Chairperson, *Mining* Technical Session, Annual International Industrial Ergonomics and Safety Conference, Miami, FL, June 9-12, 1987.

Guest Lecturer, The Ohio State University, *Industrial Engineering Research Seminar,* Columbus, OH, April 27, 1987.

Guest Lecturer, The University of Michigan, *Seminar in Occupational Health and Safety,* Ann Arbor, MI, January 13, 1989.

Guest Lecturer, The University of Pittsburgh, Graduate Course in *Occupational Biomechanics* (IE261), Pittsburgh, PA, February 6, 1989, April 2, 1990, February 28,

1991, and March 24, 1992.

Chairperson, *Cumulative Trauma and Biomechanics* Technical Session, American Industrial Hygiene Conference, St. Louis, MO, May 24, 1989.

Guest Lecturer, The Ohio State University Institute for Ergonomics, Columbus, OH, February 20, 2004.

Chairperson, *Ergonomics of the Neck and Shoulder* Technical Session, Annual International Industrial Ergonomics and Safety Conference '91, Lake Tahoe, NV, June 14, 1991.

Editor for series *Ergonomics in Mining* appearing in 1991-92 *Occupational and Environmental Hygiene* (journal of the American Conference of Government Industrial Hygienists).

Chairman of subcommittee on physical strength assessment, AIHA Ergonomics Committee (1992-1997).

Panel Member, *Important Human Factors Lessons and Challenges,* Summary Session at the International Design for Extreme Environments Assembly One (IDEEA One) Conference, Houston, TX, November 15, 1991.

Co-chairperson, *Occupational Biomechanics* Technical Session, XIIIth International Congress on Biomechanics, Perth, Australia, December 10, 1991.

Chair, *Biomechanical Risk Factors* Technical Session, 37th Annual Meeting of the Human Factors and Ergonomics Society, Seattle, WA, October 13, 1993.

Chair, *Effects of Gloves on Strength* Technical Session, Annual International Industrial Ergonomics and Safety Conference '94, San Antonio, TX, June 10, 1994.

Consultant to Metaltech, Inc. - providing ergonomics training to Metaltech's ergonomics committee (with Dr. Mark S. Redfern).

Reviewer, Human Factors and Ergonomics Society publication *Prevention of Work-related Low Back Disorders*.

Co-chair, *Ergonomics Evaluations, Improvements, and Analytical Tools*, American Industrial Hygiene Conference and Exposition, Atlanta, GA, May 11, 1998.

Reviewer, Alice Hamilton Awards (National Institute for Occupational Safety and Health), 1998.

Reviewer, Tichauer Award (American Industrial Hygiene Conference), 1998.

Invited Speaker, International Society for Occupational Ergonomics and Safety, June 1998.

Reviewer, World Health Organization publication *Global Burden of Disease* chapter on Occupational Low Back Pain (February 2002)

Faculty member, Seventeenth Annual Occupational Safety and Health Institute Conference (*Stooped Postures in the Workplace),* Oakland, CA, July 29-30, 2004.

Program Chair, Industrial Ergonomics Technical Group, The Human Factors and Ergonomics Society, 2005-2006.

Guest lecturer, *NIOSH Mine Health Research Advisory Committee (MHRAC),* Knoxville, TN, February 4-5, 1988 and October 13, 1994.

Session Arranger, NIOSH/OSHA Conference entitled “Ergonomics: Effective Workplace Practices and Programs” (Mining Breakout Session), Chicago, IL, January 8-9, 1997. Coordinated editing of transcripts for this session.

Member, NIOSH National Occupational Research Agenda (NORA) Musculoskeletal Team (January 1997 to December 1999).

Member, National Institute for Occupational Safety and Health (NIOSH) Human Subjects Review Board (April 1997 – December 1999).

Internal Reviewer, NIOSH publication entitled “Musculoskeletal Disorders and Workplace Factors: A Critical Review of Epidemiologic Evidence for Work-Related Musculoskeletal Disorders of the Neck, Upper Extremity, and Low Back”, published July 1997.

Reviewer, 1997-1999, 2002-2004 CDC/ATSDR Statistical Science Awards.

Invited Speaker, Mine Safety and Health Administration (MSHA) Second Comprehensive Miners’ Health Conference (June 1997).

Consultant with Panama Canal Commission (November 1998) -- to analyze the risk factors for low back pain among line handlers and deck hands at the Panama Canal and to make recommendations on job design changes to reduce the risk of back injury.

Consultant to the Vietnamese National Institute of Occupational and Environmental

Health (NIOEH) -- Assisted with the development and presentation of Ergonomics Workshop for the NIOEH (Hanoi, Vietnam, December 15-19, 1998).

Adjunct Professor, University of Pittsburgh, 2005-present. Courses taught: *ENGR 0020: Probability and Statistics for Engineers (Fall 2005; Spring 2006, Fall 2006, Fall 2007, Fall 2008, Fall 2009).*

Presented research findings to National Academy of Sciences (NAS) review committee on the NIOSH Mining Research program (March 7, 2006).

Vice Chair and Executive Secretary for the NIOSH Pittsburgh Safety and Health Committee (2010-present)

Chair of Student Paper Awards for the Human Factors and Ergonomics Society Industrial Ergonomics Technical Group (2010-present)

Program Chair (2014-2015), Human Factors and Ergonomics Society Occupational Ergonomics Technical Group

Co-Chair (2015-), International Ergonomics Association Technical Committee for Musculoskeletal Disorders

BIBLIOGRAPHY

Peer-reviewed Journal Articles

Cao, L., Davis, G.A., **Gallagher, S.** Schall,Jr. M.C., Sesek, R.F. (2018). Characterizing posture and associated physiological demand during evacuation *Safety Science* 104: 1-9

Gallagher, S., Sesek, R. F., Schall, M. C., & Huangfu, R. (2017). Development and validation of an easy-to-use risk assessment tool for cumulative low back loading: The Lifting Fatigue Failure Tool (LiFFT). Applied Ergonomics, 63, 142-150.

Gallagher, S., M. Schall (2017). Musculoskeletal disorders as a fatigue failure process: Evidence, implications, and research needs. *Ergonomics* 60(2): 255-269.

Abulhassan, Y., Davis, G.A., Sesek, R.F., Schall, Jr., M.C., **Gallagher, S.** (2017) Evacuating a rolled-over school bus: Considerations for young evacuees. *Safety Science* https://doi.org/10.1016/j.ssci.2017.07.017

Abulhassan*, Y., Davis, J., Sesek, R., **Gallagher, S.,** Schall Jr., M.C. (2016). Establishing School Bus Baseline Emergency Evacuation Times for Elementary School Students. Safety Science. 89, 249-255. doi:10.1016/j.ssci.2016.06.021

Tang, R., C. Gungor, R.F. Sesek, K. B. Foreman, **S. Gallagher,** G.A. Davis (2016). Morphometry of the lower lumbar intervertebral discs and endplates: comparative analyses of new MRI data with previous findings. *European Spine Journal*, 25 (12), 4116-4131.

Gungor, C. Tang, R. Sesek, R.F., Foreman, K., **Gallagher, S.,** Davis, G.A. (2015). Morphological investigation of low back erectors spinae muscle: Historical data populations. *International Journal of Industrial Ergonomics* 49:108-115.

Gallagher, S., Heberger, J.H., (2015). The effects of operator position, pallet orientation, and palletizing condition on low back loads in manual bag palletizing operations*. International Journal of Industrial Ergo.nomics* 47, 84-92.

Gungor, C., Tang, R., Sesek, R.F., Foreman, K., **Gallagher, S.,** Davis, G.A., (2015). Prediction models for the erector spinae muscle (ESM) cross-sectional area (CSA). *Journal of Biomedical Engineering*. 137(7): 8 pp.

Davis, G.A., Sims, L., Sesek, R.F., **Gallagher, S.** (2015) Developing Empirical Donning Times for Smoke Hoods. *Athens Journal of Technology & Engineering* 2(4):231-240.

GA Davis & **S Gallagher** (2014). Physiological Demand on Firefighters Crawling During a Search Exercise. International Journal of Industrial Ergonomics, 44:821-6.

Mayton, A.G., Jobes, C.C., **Gallagher, S.,** (2014). Assessment of whole-body vibration exposures and influencing factors for quarry haul truck drivers and loader operators. International Association for Vehicle Design International Journal of Heavy Vehicle Systems, 2014 October; 21(3): 241-261.

Reyes, M.A., Sammarco, J.J., **Gallagher, S.,** Srednicki, J.R. (2014). A comparative evaluation of light-emitting diode cap lamps with an emphasis on visual performance in mesopic conditions." IEEE Trans Ind Appl 50(1):127-133.

Gallagher, S. Heberger J.R. (2013). Examining the interaction of force and repetition on musculoskeletal disorder risk: a systematic literature review. *Human Factors* 55(1): 108–124. (Impact Factor: 1.187; 5-yr Impact Factor: 1.885) *Winner - 2013 International Ergonomics Association/Liberty Mutual Medal in Occupational Safety and Ergonomics*

Barbe, M.F., **Gallagher, S.,** Massicotte, V., Tytell, M, Barr-Gillespie, A. (2013), The interaction of force and repetition on sensorimotor function and biochemical musculoskeletal responses in a rat model of work-related musculoskeletal disorders. *BMC Musculoskeletal* 14:303. (Highly Accessed)

Barbe, M.F., **Gallagher, S.,** and Popoff, S., 2013. Serum Biomarkers as Predictors of Stage of Work-Related Musculoskeletal Disorders. *Journal of the American Academy of Orthopaedic Surgeons,* 21:644-646.

Lutz, T., Sammarco, J.J., **Gallagher, S.,** Srednicki, J.R. (2013). A Comparison of Cap Lamp and Laser Illumination for Detecting Visual Escape Cues in Smoke. Society for Mining, Metallurgy, and Exploration Transactions of the Society for Mining, Metallurgy, and Exploration 334: 401-409.

Gallagher, S., Marras, W.S. (2012). Tolerance of the lumbar spine to shear: a review and recommended exposure limits. Clin Biomech (Bristol, Avon) 27(10):973-8. (Impact Factor: 2.071, 5-yr Impact Factor: 2.468)

Sammarco, J..; Mayton, A.; Lutz, T.; **Gallagher, S**. (2012). A visual warning system to reduce struck-by or pinning accidents involving mobile mining equipment Applied Ergonomics, 43(11): 1058-1065. (Impact Factor: 1.428; 5-yr Impact Factor: 1.586)

Sammarco, J..; Mayton, A.; Lutz, T.; **Gallagher, S.** (2011). Discomfort glare comparison for various LED Cap Lamps. *IEEE Transactions on Industry Applications 47*(3): 1168 - 1174. (Impact Factor: 1.657) (IEEE-IAS Prize Paper Award - 2nd place)

Gallagher S , Pollard J and Porter WL(2011). Electromyography of the thigh muscles during lifting tasks in kneeling and squatting postures, *Ergonomics*, 54: 1, 91 — 102. (Impact Factor 1.409)

Gallagher S, Pollard J, and Porter WL (2011). Locomotion in restricted space: Kinematic and electromyographic analysis of stoopwalking and crawling. *Gait and Posture*, 33: 71-76. (Impact Factor: 2.123; 5-yr Impact Factor: 2.693)

Sammarco J, **Gallagher S**, Reyes M, (2010). Visual performance for trip hazard detection when using incandescent and LED miner cap lamps, *Journal of Safety Research* 41: 85–91. (Impact Factor 1.295; 5yr Impact factor: 1.755)

Porter W, **Gallagher S**, Torma-Krajewski J (2010). Analysis of applied forces and electromyography of back and shoulders muscles when performing a simulated hand scaling task, *Applied Ergonomics* 41:411–416. (Impact Factor: 1.428; 5-yr Impact Factor: 1.586)

Gallagher S, Moore SM, Dempsey PG (2009). An analysis of injury claims in low-seam coal mines, *Journal of Safety Research* 40(3): 233-237. (Impact Factor 1.295; 5yr Impact factor: 1.755)

Gallagher S, Kotowski S, Davis K, Mark C, Compton C, Huston R, Connelly J (2009). External L5-S1 Joint Moments When Lifting Wire Mesh Screen Used to Prevent Rock Falls in Underground Mines. *International Journal of Industrial Ergonomics* 39(5): 828-834. (Impact Factor 1.260; 5yr Impact factor: 1.290)

Bartels JR, **Gallagher S,** Ambrose DH, (2009). Continuous Mining: A pilot study of the visual attention locations and work position in underground coal mines, *Professional Safety* 54(8):28-35.

Reyes, MA, **Gallagher, S.,** Sammarco J., 2009. Evaluation of visual performance when using incandescent, fluorescent, and LED machine lights in mesopic conditions. Paper accepted for presentation at IEEE IAS conference (possible IEEE Transactions)

Sammarco JJ, Mayton AG, Lutz TJ, **Gallagher S**, 2009. Evaluation of glare for incandescent and LED miner cap lamps in mesopic conditions, *Mining Engineering* 61(6): 99-106.

Sammarco-JJ; Reyes-MA; **Gallagher-S** (2009). Do Light-Emitting Diode Cap Lamps Enable Improvements in Miner Safety? *Mining Engineering* 61(10):43-49.

Sammarco JJ, Reyes MA, Bartels J. **Gallagher S,** (2009). Evaluation of peripheral visual performance when using incandescent and LED miner cap lamps. *IEEE Transactions on Industry Applications* 45(6): 1923-1929. (Impact Factor: 1.657)

Bartels JR, Ambrose DH, **Gallagher S** (2009). Analyzing Factors Influencing Struck-By Accidents of a Moving Mining Machine by using Motion Capture and DHM Simulations. *SAE International Journal of Passenger Cars - Electronic and Electrical Systems 1:*599-604.

Du L, Zhuang Z, Guan H, Xing J, Tang X, Wang L, Wang Z, Wang H, Liu Y, Su W, Benson S, **Gallagher S**, Viscusi D, Chen W, 2008. Head-and-Face Anthropometric Survey of Chinese Workers, *Annals of Occupational Hygiene* 52(8):773-782. (Impact Factor: 1.787)

Gallagher, S. and Mayton, A., 2007. Back Injury Control Measures for Manual Lifting and Seat Design. *Mining Engineering.* 59(12):41-49.

Gallagher, S., Marras, W.S., Litsky, A.S., Burr, D, Matkovic, V. and Landoll, J, 2007. A comparison of fatigue failure responses of young and old lumbar motion segments in

simulated flexed lifting. *Spine.* 32(17): 1832-1839. (Impact Factor: 2.078)

Gallagher, S., Marras, W.S., Litsky, A.S., and Burr, D., 2006. An exploratory study of loading and morphometric factors associated with specific failure modes in fatigue testing of lumbar motion segments, *Clinical Biomechanics,* 21(3): 228-234*.* (Impact Factor: 2.071, 5-yr Impact Factor: 2.468)

Gallagher, S., Marras, W.S., Litsky, A.S., and Burr, D., 2005. Torso flexion loads and fatigue failure of human lumbosacral motion segments, *Spine* 30(20): 2265-2273. (Impact Factor: 2.078)

Ambrose, DH, Bartels, JR, Kwitowski, A.J. **Gallagher S**, Battenhouse T., 2005. Computer simulations help NIOSH's injury prevention study of underground coal mine roof bolters, *Journal of Safety Research* 36(4): 387-397. (Impact Factor 1.295; 5yr Impact factor: 1.755)

Ambrose, DH, Cole, GP, and **Gallagher S**. 2005. Estimating Low Back Loads of Underground Mine Roof Bolter Operators Using Digital Human Simulations, *Journal of Materials and Manufacturing,* 113: 837-842.

Gallagher, S., 2005. Physical limitations and musculoskeletal complaints associated with work in unusual or restricted postures: A literature review, *Journal of Safety Research,* 36(1): 51-61. (Impact Factor 1.295; 5yr Impact factor: 1.755)

Steiner, L.J., Bauer, E., Cook, A., Cornelius, K., **Gallagher, S**., Rethi, L., Rossi, E.W., Turin, F., and Wiehagen, W., 2004. Collaborative Ergonomics Field Research: An Assessment of Risk Factors at Four Mines. *Mining Engineering,* 56: 41-48.

Gallagher S, Unger RL, 2003. Strength demands of line handlers on the Panama Canal, *Occupational Ergonomics*; 3(3):173-184.

Ferguson, SA, **Gallagher S**, Marras WS, 2003. Validity and reliability of sincerity test for dynamic trunk motions, *Disability and Rehabilitation* 25(4-5): 236-241. (Impact Factor:1.498; 5-Year Impact Factor:1.992)

Gallagher S [2002]. Letter to the Editor. *Spine 27(12):1378-1379.* (Impact Factor: 2.078)

Gallagher S, Marras, WS, Davis KG, and Kovacs, K. [2002]. Effects of posture on dynamic back loading during a cable lifting task. *Ergonomics 45(5): 380-398.* (Impact Factor 1.409)

Gallagher S, Hamrick CA, Cornelius K, Redfern MS [2001] The effects of restricted workspace on lumbar spine loading, *Occupational Ergonomics* 2(4): 201-213.

Mayton AG, Merkel R, **Gallagher S** [1999]. Improved seat reduces jarring/jolting for low-coal shuttle car operators, *Mining Engineering, 51*(12):52-56.

Gallagher S [1997]. Trunk extension strength and trunk muscle activity in standing and kneeling postures, *Spine 22(16)*:1864-1872. (Impact Factor: 2.078)

Gallagher S, Mayton, AG, Unger, RL, Hamrick, CA, Sonier, P [1996]. Computer Design/Evaluation Tool for Illuminating Underground Coal Mining Equipment. *Journal of the Illuminating Engineering Society*, *25(1)*: 3-8.

Gallagher S, Mayton AG, Unger RL, Hamrick CA, Sonier P Computer design and evaluation tool for illuminating underground coal-mining equipment -- Response *Journal Of The Illuminating Engineering Society* 25: (1) 10-12 WIN 1996

Gallagher S, Hamrick CA, Love AC, Marras WS [1994]. Dynamic Biomechanical Modeling of Symmetric and Asymmetric Lifting Tasks in Restricted Postures, *Ergonomics 37(8)*: 1289-1310. (Impact Factor 1.409)

Gallagher S, Hamrick CA [1992]. Acceptable Workloads for Three Common Mining Materials. *Ergonomics 35(9)*:1013-1031. (Invited by Dr. W. Karwowski) (Impact Factor 1.409)

Gallagher S, Hamrick CA [1991]. The Kyphotic Lumbar Spine: Issues in the Analysis of Stresses in Stooped Lifting. *International Journal of Industrial Ergonomics 8(1*):33-47. (Impact Factor 1.260; 5yr Impact factor: 1.290)

Gallagher S [1991]. Acceptable Weights and Physiologic Costs of Performing Combined Manual Handling Tasks in Restricted Postures, *Ergonomics 34(7)*: 935-952. (Impact Factor 1.409)

Gallagher S, Unger RL [1990]. Lifting Under Four Restrictive Roof Heights: Psychophysical, Physiological, and Biomechanical Effects of Lifting in Stooped and Kneeling Postures, *Applied Ergonomics, 21(3)*: 237-245. (Impact Factor: 1.428; 5-yr Impact Factor: 1.586)

Gallagher S [1989]. Recommendations for Handling Materials in Low-seam Coal Mines. *Applied Industrial Hygiene,* 4(6): F8 - F12.

Gallagher S, Marras WS, Bobick TG [1988]. Lifting in Stooped and Kneeling Postures: Effects on Lifting Capacity, Metabolic Cost, and Electromyography of Eight Trunk

Muscles. *International Journal of Industrial Ergonomics 3(1)*: 65-76. (Impact Factor 1.260; 5yr Impact factor: 1.290)

Gallagher S, Vercruyssen M [1986]. Interaction of Temperature and Humidity of Inspired Air on Tissue Temperatures of the Tongue and Hard Palate. *Journal of the International Society of Respiratory Protection, 4(2)*: 20-44.

Gallagher S, Vercruyssen M, Deno NS [1985]. Hot Air Breathing: Effects of Elevated Wet Bulb Temperatures on Tissue Temperatures of the Mouth. *American Industrial Hygiene Association Journal, 46(6)*: 332-335. (Impact Factor: 1.189)

Dissertation

Gallagher, S., 2003. Effects of Torso Flexion on Fatigue Failure of the Human Lumbosacral Spine. PhD Dissertation, The Ohio State University, 238 pp.

Book Chapters/Monographs

Gallagher S [2006] *Work in Unusual or Restricted Postures.* Chapter 43 In: Marras WS Karwowski W, eds. Handbook of Occupational Ergonomics (2nd ed). Boca Raton, FL: CRC Press (Taylor and Francis), pp. 43-1 to 43-16.

Gallagher S, Moore JS, Stobbe TJ [2004]. Isometric, Isoinertial, and Psychophysical Strength Testing: Devices and Protocols. Chapter in Kumar, S (ed.) Muscle Strength. Boca Raton, FL: CRC Press, pp. 129-156.

Gallagher S [2001]. *Strength Testing in Ergonomics*, In: International Encyclopedia of Ergonomics and Human Factors (W. Karwowski, ed.), New York, NY: Taylor and Francis, pp. 330-333. (Invited)

Gallagher S [1999]. *Ergonomics Issues in Mining*. Chapter In: Karwowski W, Marras WS eds. Handbook of Occupational Ergonomics. Boca Raton, FL: CRC Press, pp. 1889-1911. (Peer-reviewed book chapter) (Invited)

Gallagher S, Moore JS [1999]. *Worker Strength Evaluation: Job Design and Worker Selection*. In: Karwowski W, Marras WS eds. Handbook of Occupational Ergonomics. Boca Raton, FL: CRC Press, pp. 369 -384. (Peer-reviewed book chapter) (Invited)

Gallagher S, Moore JS, Stobbe TJ [1998]. *Physical Strength Assessment in Ergonomics.* An American Industrial Hygiene Association Ergonomics Guide, Fairfax,VA: AIHA Press, 61 pp. (Peer-reviewed monograph)

Compton CS, **Gallagher S**, Molinda GM, Mark C, Wilson G [2008]. Roof screening for underground coal mines: recent developments. Coal Age 113(6):34–36.

U.S. Government Publications

Moore, SM, Pollard, Jonisha P; Porter, William; **Gallagher, Sean;** Mayton, Alan G; [2011]. Demands on the Knee during Kneeling and Crawling Activities Common to Low-seam Mining. NIOSH Report of Investigations 9681, DHHS(NIOSH) Publication No. 2011-176, 47 pp.

Gallagher S [2008]. Control of Low Back Pain and Disability in Mining. NIOSH Information Circular 9507.

Porter WL, Mallett LG, Schwerha DJ, **Gallagher S**, Torma-Krajewski J, Steiner LJ [2008]. Age Awareness Training for Miners. NIOSH Information Circular 9505. **(Winner - 2009 Alice Hamilton Award for Excellence in Occupational Safety and Health – Educational Materials Category)**

Gallagher, S [2008]. Reducing Musculoskeletal Injuries in Rail Operations, Holmes Safety Association Bulletin, January-February 2008, pp. 17-23.

Ambrose, D. Bartels, J., Kwitowski, A., Helinski, R., **Gallagher, S**., McWilliams L., Battenhouse, T., 2005 . Mining Roof Bolting Machine Safety: A Study of the Drill Boom Vertical Velocity. NIOSH Publication No. 2005-128 (IC 9477), 26 pp.

Mayton, AG, **Gallagher S** [1997]. Ergonomic Seat Reduces Shock for Low-seam Shuttle Car Operators, NIOSH Tech News, July 1997.

Gallagher S, Hamrick CA [1994]. The Nature and Cost of Low Back Pain, In: Improving Safety at Small Underground Mines, Bureau of Mines Special Publication 18-94, pp. 37-43.

Gallagher S, Hamrick CA [1994]. A Scientific Look at Back Belts, In: Improving Safety at Small Underground Mines, Bureau of Mines Special Publication 18-94, pp. 44-47.

Hamrick CA, **Gallagher S** [1994]. Job Design: An Effective Strategy for Reducing Back Injuries, in *Improving Safety at Small Underground Mines,* Bureau of Mines Special Publication 18-94,pp. 48-54.

Gallagher S. [1992] Recommendations for Handling Materials in Low-Seam Mines. Bureau of Mines Technology News No. 399, June 1992.

Gallagher S, Bobick TG, Unger RL [1990]. Reducing Back Injuries in Low-Seam Coal Mines: Redesign of Materials-Handling Tasks. Bureau of Mines Information Circular 9235, 33 pp.

Gallagher S [1987]. Back Strength and Lifting Capacity of Underground Miners. In: Bureau of Mines Information Circular 9145, pp. 21-32.

Conference Proceedings Papers

Gallagher, S. (2015) Evidence of a causal fatigue failure process in musculoskeletal tissues. Proceedings 19th Triennial Congress of the IEA (Melbourne, Australia; August 9-14, 2015) v. 9, 969-982.

Salar, M. Abulhassan, Y., Capanoglu, M.F., Webb, J. (2015). A fatigue failure-based ergonomics assessment tool for low back disorders: The Low Back Cumulative Trauma Index (LBCTI). Proceedings 19th Triennial Congress of the IEA (Melbourne, Australia; August 9-14, 2015) v. 9, 1363-1364.

Smith, T., Gallagher, S. (2015). Impact of Loading and Rest Intervals on Muscle Microtrauma. Proceedings of the Human Factors and Ergonomics Society Annual Meeting, 59(1):1217-1221.

Abulhassan,Y. Salar, M. Capanoglu, M. Webb, J., Gallagher, S. (2015). Utilizing Fatigue Failure Theory to Relate Low Back Loading to Predicted Spinal Strength Update on the Low Back Cumulative Trauma Index. Proceedings of the Human Factors and Ergonomics Society Annual Meeting, 59(1):1222-1226.

Gallagher, S., Sesek, R.F. (2014) The Low Back Cumulative Trauma Index Development of a Low Back Disorder Exposure Assessment Tool Based on Fatigue Failure Theory Proceedings of the Human Factors and Ergonomics Society Annual Meeting 58(1):1605-1607.

Gallagher, S. (2014). Impact of Loading and Rest Intervals on Muscle Inflammation, Proceedings of the Human Factors and Ergonomics Society Annual Meeting 58(1): 1089-1093.

Davis, J. Tang, R.; Sesek, R.; Gallagher, S. (2014). Evaluating Firefighter Crawling Performance in a Controlled Environment. Advances in Safety Management and Human Factors10 AHFE Conference

Gallagher, S., Barbe, M.F., Massicotte, V., Barr-Gillespie, A. (2013). The interaction of force and repetition on systemic inflammatory cytokine response in a rat model. Published in Proceedings of the Human Factors and Ergonomics Society 57th Annual Meeting (San Diego, CA; September/October 2013), 57:

Gallagher, S. (2012). Weibull Analyses of the Fatigue Life of Human Tissues, Published in Proceedings of the Human Factors and Ergonomics Society 56th Annual Meeting (October 22-26, 2012, Boston, MA), 56: 1130-1134.

Gallagher S.(2011). The relationship of force and repetition in the development of musculoskeletal disorders. Published in proceedings of the Human Factors and Ergonomics Society 55th Annual Meeting.

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Presentations (International)

International Conference Presentations

"Force and Repetition Interact with Respect to Musculoskeletal Disorder Risk" [paper co-author Mary F. Barbe]), Podium Presentation, Presented at 2013 American Industrial Hygiene Conference and Exposition, Montreal, Canada, May 2013. (Recipient – 2013 AIHA Ergonomics Committee Don B. Chaffin Award for Best Podium Presentation).

"Stretching and Musculoskeletal Injury Pathways" Roundtable Presentation at 2013 American Industrial Hygiene Conference and Exposition, Montreal, Canada, May 2013, (Recipient -2013 AIHA Ergonomics Committee Don B. Chaffin Award for Best Roundtable Presentation).

"Trunk extension strength and muscle activity in standing and kneeling postures" presented at PREMUS (Prevention of Musculoskeletal Disorders) 98 Helsinki, Finland, September 1998.

"Recommendations for Controlling Back Injuries in the U.S. Mining Industry" (Co-author) Poster presented at the 12th Congress of the International Ergonomics Association, Toronto, Canada, August 18, 1994.

"Physical Limitations of Handling Materials in Restricted Postures", Poster presented at the 12th Congress of the International Ergonomics Association, Toronto, Canada, August 19, 1994.

"Torque production and low back forces in standing and kneeling back exertions", presented at the XIIIth International Congress on Biomechanics, Perth, Australia, December 12, 1991.

"Issues relevant to biomechanical analysis of loading on the lumbar spine in stooped lifting", presented at the XIIIth International Congress on Biomechanics, Perth, Australia, December 9, 1991.

"Biomechanical Modeling of Symmetric Lifting Tasks in Constrained Lifting Postures", presented at the Annual International Industrial Ergonomics and Safety Conference '90, Montreal, Quebec, Canada, June 12, 1990.

A biomechanical analysis of underground miners performing manual materials handling tasks in restricted work postures@ presented at the 1987 American Industrial Hygiene Association Conference, Montreal, Canada, June 1-5, 1987.

The Effects of Absenteeism on Mine Safety and Productivity" presented at the 1987 American Industrial Hygiene Association Conference, Montreal, Canada, June 1-5, 1987.

International Workshops/Seminars

Ergonomics Seminar for the Vietnamese National Institute for Occupational and Environmental Health -- Mr. Gallagher helped organize and plan an ergonomics seminar and gave several presentation to a team of professionals at the Vietnamese NIOEH in Hanoi, Vietnam, December 1998). (Invited)

Panama Canal Workshops - Mr. Gallagher (along with Mr. Richard Unger) conducted two ergonomics awareness seminars for Line Handlers and Deck Hands working on the Panama Canal. These workshops were requested by the Coast Guard Liaison to Panama Canal Commission (November 1998) (Invited)

Grants and Contracts

Research Proposals – FUNDED (Total $ $1,832,896; Gallagher portion of total: $632,139)

Gallagher S. PI (60%), R. Sesek Co-PI (40%). NIOSH ERC Training Grant T42/OH00843436-07; "Occupational Injury Prevention Research Training."

- $577,959 (1/1/12-6/30/17) Funded based on last competing proposal (Gallagher portion of total: $192,653)

R. Sesek, PI (60%), S. Gallagher Co-PI (40%). NIOSH ERC Training Grant T42/OH008434-07; "Occupational Safety and Ergonomics Program." Funded for:

- Total $1,172,668 (1/1/12-6/30/17) Funded based on last competing proposal (Gallagher portion of total: $390,889)

John L. Evans (Principal) (20%), S. Gallagher (Co-Principal) (20%), Fadel M. Megahed (Co-Principal) (20%), Andres L. Carrano (Co-Principal) (20%), Virginia A. Davis (Co-Principal) (20%). Planning Grant: I/UCRC for Advanced Vehicle Manufacturing. National Science Foundation, Funded, Federal.

- $14,500 (4/14-3/15) (Gallagher portion of total: $2,900)

Gallagher S., PI (100%), "Quantification of edema, force, and muscle soreness after eccentric exercise", NIOSH, Federal. (Note: project allowed OSE students Michael Porter, Patrick Almas, Yousif Abulhassan, and Mradul Sangal to become familiar with operation of the MRI 3-Tesla machine at the new MRI center, and data analysis using MRI imagery).

- $19,961 (7/2012- 6/2014) (Gallagher portion of total: $19,961)

Gallagher S., PI (100%) “Impact of Loading and Rest on Muscle Inflammation”. NIOSH, Federal. (Note: OSE student Tenchi Gao wrote this proposal under the guidance of Dr. Gallagher)

- $12,000 (7/2014-6/2015) (Gallagher portion of total: $12,000)

Davis, GA(70%) (PI), Gallagher S (Co-PI) (30%) “Impact of Crawling Postures on Speed and Physiological Demands in Evacuation”, NIOSH, Federal. (Note: OSE student Li Cao wrote this proposal under the guidance of Drs. Davis and Gallagher).

- $10,800 (7/2013-6/2014) (Gallagher portion of total: $5,400)

Contracts (Funded) -- (total $ 104,068)

Gallagher, S. (PI) (25%), Davis, J., (25%), Sesek, R. (25%), Schall, M. (25%). Motion Capture of Critical Populations for Vehicle Ingress/Egress, Hyundai America Technical Center, $79,060

R. Sesek (PI) (40%), S. Gallagher (Co-PI) (30%) & G.A. Davis (Co-PI) (30%), “Hand Truck Investigation Study,” Coca-Cola Refreshment, $25,008 (pending final approval). (Gallagher portion of total: $8,336)

Research Proposals currently In Review (total $336,515)

S. Gallagher PI (80%), R. Sesek Co-PI (20%). The Low Back Cumulative Trauma Index: Development of an Exposure Assessment Tool Based on Fatigue Failure Theory, National Institute for Occupational Safety and Health (NIOSH), $336,515 (pending).

Research Proposals – Unfunded ($2,279,863)

1. Gallagher PI (100%). “Impact of Static Stretching on Fatigue Failure of Skeletal Muscle Tissue”, National Institute for Occupational Safety and Health (NIOSH), $12,000.

2. Davis GA PI(60%), Gallagher PI (40%), “The Impact of Posture on Evacuation Speed”, National Institute for Occupational Safety and Health (NIOSH), $12,000.

3. Gallagher PI (60%), Sesek (20%) & Davis (20%) Co-PI’s. “Development of a cumulative exposure assessment tool for low back disorders in the mining industry”, Alpha Foundation, $274,212;

4. FEMA, Assistance to Firefighters, “Impact of Firefighting Ensembles on Crawling Performance” $150,000; Davis PI (60%), Gallagher Co-PI (40%).

5. Megahed, F., (PI) (33%), Sesek, R., (Co-PI) (33%), Gallagher S., (Supporting) (33%), "REU Site: Automotive Manufacturing Systems - From Data to Decisions Through Analytics, Statistical Learning & Process Modeling", National Science Foundation, Federal. $345,647.

6. Imsand, E., Principal (75%), Hamilton, J., Co-Principal (10%), Gallagher S., Co-Principal (15%), "User Process Fingerprint", Sentar, Inc., Private $202,431.

7. Umphress, D., Co-Principal (10%), Imsand, E., Principal (70%), Hamilton, J., Co-Principal (10%), Gallagher S., Co-Principal (10%), "Active Authentication through GUIIP", DARPA, Federal. $198,788.

8. Megahed, Fadel, Principal (30%), Smith, A. (30%), Gallagher S. (30%), Farmer, L.A. (10%) BIGDATA: Mid-Scale: DA: DCM: Collaborative Research: A Platform for Occupational Safety Modeling, Surveillance and Improvement. Federal, NSF, $1,108,785.