
BIOGRAPHICAL SKETCH

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NAME Thomas J. Armstrong	POSITION TITLE Professor Industrial and Operations Engineering Professor Biomedical Engineering		
eRA COMMONS USER NAME			
EDUCATION/TRAINING <i>(Begin with baccalaureate or other initial professional education, such as nursing, and include postdoctoral training.)</i>			
INSTITUTION AND LOCATION	DEGREE <i>(if applicable)</i>	YEAR(s)	FIELD OF STUDY
University of Michigan, Ann Arbor	BSE	1971	Aerospace Engineering
University of Michigan, Ann Arbor	MPH	1972	Industrial Health
University of Michigan, Ann Arbor	PhD	1976	Industrial Engineering, Health and Physiology

Please refer to the application instructions in order to complete sections A, B, and C of the Biographical Sketch.

A. Positions and Honors.

Positions and Employment

1978 – 83 Assistant Professor Industrial Health, University of Michigan
1978 – 83 Assistant Biomedical Engineering, University of Michigan
1983 – 90 Associate Professor Industrial Health, University of Michigan
1983 – 90 Associate Professor Biomedical Engineering, University of Michigan
1990 – 91 Associate Professor, Industrial and Operations Engineering, University of Michigan
1990 – 08 Professor Industrial Health, University of Michigan
9/91– present Professor, Industrial and Operations Engineering, University of Michigan
9/91– present Professor, Biomedical Engineering, U of Michigan
1998 - 2003 Director, University of Michigan Rehabilitation Engineering Research Center
1998 - present Director Center for Ergonomics, University of Michigan

Honors

Fellow, American Industrial Hygiene Association
Fellow, The American Institute for Medical and Biological Engineering
Fellow, Human Factors & Ergonomics Society

B. Selected peer-reviewed publications (in chronological order).

Armstrong, T. J. and D. B. Chaffin (1978). "An investigation of the relationship between displacements of the finger and wrist joints and the extrinsic finger flexor tendons." J Biomech **11**(3): 119-28.
Armstrong, T. J. and D. B. Chaffin (1979). "Some biomechanical aspects of the carpal tunnel." J Biomech **12**(7): 567-70.
Armstrong, T., R. Snyder (1981). " Human Factors Aspects of Emergency Egress From Business Jet." SAE Transactions.
Armstrong, T. J., J. A. Foulke, B. S. Joseph and S. A. Goldstein (1982). "Investigation of cumulative trauma disorders in a poultry processing plant." Am Ind Hyg Assoc J **43**(2): 103-16.
Armstrong, T. J., W. A. Castelli, F. G. Evans and R. Diaz-Perez (1984). "Some histological changes in carpal tunnel contents and their biomechanical implications." J Occup Med **26**(3): 197-201.
Armstrong, T. J. (1985). "Mechanical considerations of skin in work." Am J Ind Med **8**(4-5): 463-72.
Radwin, R. G. and T. J. Armstrong (1985). "Assessment of hand vibration exposure on an assembly line." Am Ind Hyg Assoc J **46**(4): 211-9.
Armstrong, T. J., L. J. Fine, S. A. Goldstein, Y. R. Lifshitz and B. A. Silverstein (1987). "Ergonomics considerations in hand and wrist tendinitis." J Hand Surg [Am] **12**(5 Pt 2): 830-7.

- Goldstein, S. A., T. J. Armstrong, D. B. Chaffin and L. S. Matthews (1987). "Analysis of cumulative strain in tendons and tendon sheaths." J Biomech **20**(1): 1-6.
- Silverstein, B. A., L. J. Fine and T. J. Armstrong (1987). "Occupational factors and carpal tunnel syndrome." Am J Ind Med **11**(3): 343-58.
- Buchholz, B., L. J. Frederick and T. J. Armstrong (1988). "An investigation of human palmar skin friction and the effects of materials, pinch force and moisture." Ergonomics **31**(3): 317-25.
- Buchholz, B. and T. J. Armstrong (1992). "A kinematic model of the human hand to evaluate its prehensile capabilities." J Biomech **25**(2): 149-62.
- Armstrong, T. J., P. Buckle, L. J. Fine, M. Hagberg, B. Jonsson, A. Kilbom, I. A. Kuorinka, B. A. Silverstein, G. Sjogaard and E. R. Viikari-Juntura (1993). "A conceptual model for work-related neck and upper-limb musculoskeletal disorders." Scand J Work Environ Health **19**(2): 73-84.
- Armstrong, T. J., J. A. Foulke, B. J. Martin, J. Gerson and D. M. Rempel (1994). "Investigation of applied forces in alphanumeric keyboard work." Am Ind Hyg Assoc J **55**(1): 30-5.
- Gerard, M. J., T. J. Armstrong, J. A. Foulke and B. J. Martin (1996). "Effects of key stiffness on force and the development of fatigue while typing." Am Ind Hyg Assoc J **57**(9): 849-54.
- Kilbom, s., T. Armstrong, P. Buckle, L. Fine, M. Hagberg, M. Haring-Sweeney, B. Martin, L. Punnett, B. Silverstein, G. Sjogaard, T. Theorell and E. Viikari-Juntura (1996). "Musculoskeletal Disorders: Work-related Risk Factors and Prevention." Int J Occup Environ Health **2**(3): 239-246.
- Latko, W. A., T. J. Armstrong, J. A. Foulke, G. D. Herrin, R. A. Rabourn and S. S. Ulin (1997). "Development and evaluation of an observational method for assessing repetition in hand tasks." Am Ind Hyg Assoc J **58**(4): 278-85.
- Werner, R. A., A. Franzblau, J. W. Albers and T. J. Armstrong (1997). "Influence of body mass index and work activity on the prevalence of median mononeuropathy at the wrist." Occup Environ Med **54**(4): 268-71.
- Homan, M. M., A. Franzblau, R. A. Werner, J. W. Albers, T. J. Armstrong and M. B. Bromberg (1999). "Agreement between symptom surveys, physical examination procedures and electrodiagnostic findings for the carpal tunnel syndrome." Scand J Work Environ Health **25**(2): 115-24.
- Latko, W. A., T. J. Armstrong, A. Franzblau, S. S. Ulin, R. A. Werner and J. W. Albers (1999). "Cross-sectional study of the relationship between repetitive work and the prevalence of upper limb musculoskeletal disorders." Am J Ind Med **36**(2): 248-59.
- Tittiranonda, P., D. Rempel, T. Armstrong and S. Burastero (1999). "Effect of four computer keyboards in computer users with upper extremity musculoskeletal disorders." Am J Ind Med **35**(6): 647-61.
- Armstrong, T. J., A. Franzblau, A. Haig, W. M. Keyserling, S. Levine, K. Streilein, S. Ulin, R. Werner (2001). "Developing ergonomic solutions for prevention of musculoskeletal disorder disability." Assist Technol **13**(2): 78-87.
- Homan, M. and T. Armstrong (2003). "Evaluation of Three Methodologies For Assessing Work Activity During Computer Use." American Industrial Hygiene Association Journal **64**(1): 48-55.
- Grieshaber, D. C. and T. J. Armstrong (2007). "Insertion loads and forearm muscle activity during flexible hose insertion tasks." Hum Factors **49**(5): 786-96.
- Seo, N. J., T. J. Armstrong, J. A. Ashton-Miller and D. B. Chaffin (2007). "The effect of torque direction and cylindrical handle diameter on the coupling between the hand and a cylindrical handle." J Biomech **40**(14): 3236-43.
- Violante, F. S., T. J. Armstrong, C. Fiorentini, F. Graziosi, A. Risi, S. Venturi, S. Curti, F. Zanardi, R. M. Cooke, R. Bonfiglioli and S. Mattioli (2007). "Carpal tunnel syndrome and manual work: a longitudinal study." J Occup Environ Med **49**(11): 1189-96.
- Drinkaus, P., T. J. Armstrong and J. Foulke (2008). "Investigation of Flexible Hose Insertion Forces and Selected Factors." Applied Ergonomics **in press**.
- Gillespie, B., J. Xiao, N. Perkins, T. Armstrong, S. Hamstra, S. Kasten and R. Minter (2008). The Instrumented Instrument: Characterization and Training of Manual Skill in Open Suturing. Studies in Health Technology and Informatics. Proceedings of Medicine Meets Virtual Reality Long Beach, CA, Aligned Management Associates, Inc.
- Grieshaber, D. C. and T. J. Armstrong (2008). "The effect of insertion method and required force on hand clearance envelopes during simulated rubber hose insertion tasks." Hum Factors **under revision (12/07)**.
- Seo, N., T. Armstrong and P. Drinkaus (2008). "A comparison of two methods for measuring static coefficient of friction at low normal forces: a pilot study." Ergonomics **(in press)**.

C. Research Support

Development of Design Interventions for Preventing Falls, CPWR (NIH), 3/1/07-12/31/07 \$29,233
 Analysis Tools for Rehabilitation of Injured Soldiers Army, 7/11/07-7/10/08, \$120,000
 Biomechanical Hand Model Development, Human Motion Simulation Research Consortium, 1/08-12/08, \$82,455
 Ergonomics Training for Small Michigan Employers, CET grant, State of Michigan, 10/1/06-9/30/07, \$95,000
 Characterization and Training of Manual Skill in Technical Procedures, UM Graduate Medical Education Fund, 7/08-6/09, \$195,889