

CURRICULUM VITAE

NAME: David Rempel, M.D., M.P.H.

BIRTHDATE/PLACE: 1954, California

CITIZENSHIP: United States & Canada

ADDRESS: University of California, San Francisco
Ergonomics Program
Division of Occupational and Environmental Medicine
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EMPLOYMENT:

2014-present Professor of Medicine Emeritus, Department of Medicine, UCSF

2002-2014 Professor of Medicine, Department of Medicine, UCSF

1996-2002 Associate Professor of Medicine, Department of Medicine, UCSF

1992-1996 Assistant Professor of Medicine, Department of Medicine, UCSF

1990-1992 Assistant Clinical Professor of Medicine, Department of Medicine, UCSF

1985-1990 Public Health Medical Officer/Epidemiologist, California Occupational Health Program, California Department of Health Services, Berkeley

ACADEMIC:

2005-present Professor (in Residence), Department of Bioengineering, UC Berkeley

2014-present Professor Emeritus, Department of Medicine, UCSF

2015-present Adjunct Professor, Engineering, Simon Fraser U, British Columbia, Canada

2015 Visiting Professor, Tianjin University, China

2002-2014 Professor, Department of Medicine, UCSF

2013-2014 Visiting Professor, University of Bologna, Italy

2012-2013 Visiting Professor, Simon Fraser University, Vancouver, BC, Canada

2000-2005 Associate Professor, Department of Bioengineering, UC Berkeley

2004-2005 Visiting Professor, University of British Columbia, Canada

1997-2003 Associate Professor, Department of Mechanical Engineering, UC Berkeley

1997-1998 Visiting Associate Professor, Dept of Hand Surgery, Lund University, Sweden

1996-2002 Associate Professor, Department of Medicine, UCSF

1992-1996 Assistant Professor, Department of Medicine, UCSF

1988-1992 Assistant Clinical Professor, Department of Medicine, UCSF

1986-1988 Residency in Occupational Medicine, Department of Medicine, UCSF

1983-1985 Residency in Internal Medicine, Santa Clara Valley Medical Center, San Jose, CA

1982-1983 Internship in Internal Medicine, Kaiser Foundation Hospital, Oakland, CA

1980-1981 M.P.H., Epidemiology, University of California, Berkeley

1977-1982 M.D., University of California, San Francisco

1974-1977 B.A., Bioengineering, University of California, San Diego

ORGANIZATIONS: Fellow, American College of Occupational and Environmental Medicine
Fellow, American College of Physicians
Fellow, Human Factors and Ergonomics Society
International Congress of Occupational Health
American Conference of Governmental Industrial Hygienists

LICENSURE: California Medical License, 1982 - p

SPECIALTY BOARDS: Certified Diplomate by American Board of Internal Medicine, 1985.
Certified Diplomate by American Board of Preventive Medicine,
Occupational Medicine, 1989
Certified Professional Ergonomist by Board of Certification in
Professional Ergonomics, 1994

AWARDS: Special Emphasis Research Career Award, 1992
NIH/Fogarty Senior International Fellowship Award, 1997
Jean Spencer Felton Award for Scientific Writing, WOEMA, 2000
IEA/Liberty Mutual Prize in Occupational Safety and Ergonomics, 2006
HFES/User-Centered Product Design Award, 2007
UCSF Occupational Health Nursing Champion Award, 2014

PATENTS 02/22/00 Ergonomic Mouse Device (6509891; 09/510,725)
06/10/11 Virtual Pedals for Robotic Surgery (61/476,222) (US,Pending)
07/29/14 System and Method for Estimating Blood Volume (8,792,693)

EDITOR/REVIEWER: Human Factors (Member, Editorial Board)
Applied Ergonomics (Member, Editorial Board)
IIE Transactions on Occupational Ergonomics and Human Factors (Editorial Board)
American Journal of Industrial Medicine
American Journal of Public Health
Arthritis Care & Research
Ergonomics
European Journal of Applied Physiology
International Journal of Industrial Ergonomics
Journal of the American Medical Association
Journal of Biomechanics
Journal of Hand Surgery (Am)
Journal of Occupational and Environmental Hygiene
Journal of Occupational and Environmental Medicine
Journal of Orthopaedic Research
Journal of Safety Research
New England Journal of Medicine
Occupational and Environmental Medicine
Scandinavian Journal of Work and Environmental Health

PEER REVIEWED PUBLICATIONS:

1. Harrison R, Bellows J, Rempel D, Rudolph L, Kizer K, Jin A, Guglielmo J, Bernard B. Assessing Exposures of Health-Care Personnel to Aerosols of Ribavirin - California. *Morbidity and Mortality Weekly Report* 1987; 37:560-563.
2. Bush R, Schroeckenstein D, Meier-Davis S, Balmes J, and Rempel D. Soybean flour asthma: Detection of allergens by immunoblotting. *J Allergy Clin Immunol* 1988; 82:251-5.
3. Rempel D. The Lead-Exposed Worker. *JAMA* 1989; 262(4):532-534. (also translated for French issue of *JAMA*).
4. Klees J, Alexander M, Rempel D, Beckett W, Rubin R, Barnhart S, Balmes J. Validation Evaluation of a Proposed NIOSH Surveillance: Case Definition for Occupational Asthma. *Chest* 1989; 98: (Suppl):212-215.
5. Blanc PD, Rempel D, Maizlish N, Hiatt P, Olson K. Occupational Illness: Case Detection by Poison Control. *Ann Intern Med* 1989; 111:238-244.
6. Blanc PD, Rempel D, Maizlish N, Hiatt P, Olson K. Occupational Illness and the Poison Control Center: Referral Patterns and Service Needs. *Western Journal of Medicine* 1990; 152:181-184.
7. Rempel D. Medical Surveillance in the Workplace: Overview. *State of the Art Reviews: Occup Med* 1990; 5:435-438.
8. Rosenberg J, Rempel D. Biological Monitoring. *State of the Art Reviews: Occup Med* 1990; 5:491-498.
9. Eskenazi B, Wyrobek A, Fenster L, Katz D, Sadler M, Lee J, Hudes M, Rempel D. A Study of the Effect of Perchloroethylene Exposure on Semen Quality in Dry Cleaning Workers. *Am J Ind Med* 1991; 20:575-591.
10. Eskenazi B, Fenster L, Hudes M, Wyrobek A, Katz D, Gerson J, Rempel D. A Study of the Effect of Perchloroethylene Exposure on the Reproductive Outcome of Wives of Dry Cleaning Workers. *Am J Ind Med* 1991; 20:593-600
11. Rempel D, Jones J, Atterbury M, Balmes J. Respiratory Effects of Exposure to Shipyard Workers to Epoxy Paints. *Br J Ind Med* 1991; 48:783-787.
12. Rempel D, Harrison RJ, Barnhart, S. Work-related Cumulative Trauma Disorders of the Upper Extremity, *JAMA* 1992; 267(6):838-842.
13. Balmes J, Rempel D, Alexander M, Reiter R, Harrison R, Bernard B, Benner D, Cone J. Hospital Records as a Data Source for Occupational Disease Surveillance: A Feasibility Study. *Am J Ind Med* 1992; 21:341-351.
14. Rempel D. Ergonomics: Prevention of Work Related Musculoskeletal Disorders. *Western J Med* 1992; 156:409-410
15. Petreas MX, Rappaport SM, Materna BL, Rempel DM. Mixed-exhaled air measurements to assess exposure to tetrachloroethylene in dry cleaners. *J Exposure Analysis and Environ Epi* 1992, Suppl 1:25-39.
16. Armstrong TJ, Foulke JA, Martin BJ, Gerson J, Rempel DM. Investigation of Applied Forces in Alphanumeric Keyboard Work. *Am Ind Hygiene Assoc J* 1994, 55(1):30-35.
17. Rempel D, Manojlovic R, Levinsohn DG, Bloom T, Gordon L. The Effect of Wearing a Flexible Wrist Splint on Carpal Tunnel Pressure During Repetitive Hand Activity. *J of Hand Surgery* 1994, 19A(1):106-109.
18. Rempel D, Dennerlein J, Mote CD, Armstrong T. A Method of Measuring Fingertip Loading During Keyboard Use. *J Biomechanics* 1994, 27(8):1101-1104.
19. Osorio AM, Ames RG, Jones JR, Rempel D, Castorina J, Estrin W, Thompson D. Carpal tunnel syndrome among grocery store workers. *Am J Ind Med* 1994, 25:229-245.
20. Faucett J, Rempel D. VDT-related musculoskeletal symptoms: Interactions between work posture and psychosocial work factors. *Am J Ind Med* 1994, 26:597-612.
21. Smutz WP, Serina E, Bloom T, Rempel DM. A System for Evaluating the Effect of Keyboard Design on Force, Posture, Comfort, and Productivity. *Ergonomics* 1994, 37(10):1649-1660.
22. Weiss ND, Gordon L, Bloom T, So Y, Rempel DM. Wrist Position of Lowest Carpal Tunnel Pressure and Implications for Splint Design. *J Bone Joint Surgery* 1995, 77A:1695-1699.
23. Faucett J and Rempel D. Musculoskeletal Symptoms Related to Video Display Terminal Use: An Analysis of Objective and Subjective Exposure Estimates. *Am Assoc of Occup Health Nursing Journal* 1996, 44:33-39.
24. Klinenberg E, So Y, Rempel D. Temperature Effects on Vibrotactile Sensitivity Threshold Measurements: Implications for Carpal Tunnel Screening Tests. *J of Hand Surgery* 1996, 21A(1):132-137.

25. Fraga C, Motchnik P, Wyrobek A, Rempel D, Ames B. Smoking and low antioxidant levels increase oxidative damage to sperm DNA. *Mut Research* 1996, 351:199-203.
26. Gilad I, Lenger R, Rempel D. Upper limb postures during diamond polishing. *Int J Occup and Environ Health* 1996, 2:177-184.
27. Martin BJ, Armstrong TJ, Foulke JA, Natarajan S, Klinenberg E, Serina E, Rempel D. Keyboard Reaction Force and Finger Flexor Electromyograms during Computer Keyboard Work. *Human Factors* 1996, 38(4):654-664.
28. Dennerlein J, Miller J, Mote CD, Rempel D. A low profile human tendon force transducer: The influence of tendon thickness on calibration. *J Biomechanics* 1997, 30(4):395-397.
29. Rempel D, Keir P, Smutz WP, Hargens A. Effects of static fingertip loading on carpal tunnel pressure. *J Orthop Res* 1997, 15:422-426. PMID:9246089.
30. Rempel D, Serina E, Klinenberg E, Martin BJ, Armstrong TJ, Foulke JA, Natarajan S. The effect of keyboard keyswitch make force on applied force and finger flexor muscle activity. *Ergonomics* 1997, 40(8):800-808.
31. Serina ER, Mote CD, Rempel DM. Force response of the fingertip pulp to repeated compression: effects of loading rate, loading angle, and anthropometry. *J Biomechanics* 1997, 30(10):1035-1040.
32. Murthy G, Kahan NJ, Hargens AR, Rempel DM. Forearm muscle oxygenation decreases with low levels of voluntary contraction. *J Orthop Res* 1997, 15(4):507-511.
33. Fenster L, Katz DF, Wyrobek AJ, Pieper C, Rempel DM, Oman D, Swan SH. Effects of psychological stress on human semen quality. *J Androl* 1997, 18(2):194-202.
34. Rempel DM, Bach J, Gordon L, Tal R. Effects of forearm pronation/supination on carpal tunnel pressure. *J Hand Surgery* 1998, 23(1):38-42.
35. Keir PJ, Bach JM, Rempel DM. Fingertip loading and carpal tunnel pressure: Differences between a pinching and a pressing task. *J Orthop Res* 1998, 16(1):112-115. PMID:9565082.
36. Dennerlein JT, Mote Jr CD, Rempel D. Control strategies for finger movement during touch typing: The role of the extrinsic muscles during a keystroke. *Experimental Brain Research* 1998, 121:1-6.
37. Dennerlein JT, Diao E, Mote CD Jr., Rempel DM. Tensions of the flexor digitorum superficialis are higher than a current model predicts. *J Biomechanics* 1998, 31(4):295-301.
38. Rempel D, Evanoff B, Amadio PC, de Krom M, Franklin G, Franzblau A, Gray R, Gerr F, Hagberg M, Hales T, Katz JN, Pransky G. Consensus criteria for the classification of carpal tunnel syndrome in epidemiologic studies. *Am J Public Health* 1998, 88:1447-1451
39. Serina ER, Mockensturm E, Mote CD Jr, Rempel D. A structural model of the forced compression of the fingertip pulp. *J Biomechanics* 1998, 31:639-646.
40. Keir PJ, Bach JM, Rempel DM. Effects of finger posture on carpal tunnel pressure during wrist motion. *J Hand Surgery* 1998, 23A:1004-1009. PMID:9848550.
41. Rempel D, Tittiranonda P, Burastero S, Hudes M, So Y. Effect of keyboard keyswitch design on hand pain. *J Occup and Environ Med* 1999, 41(2):111-119.
42. Tittiranonda P, Burastero S, Rempel D. Risk factors for musculoskeletal disorders among computer users. *Occupational Medicine: State of the Art Reviews* 1999, 14(1):17-38.
43. Dennerlein JT, Diao E, Mote CD, Rempel DM. In vivo finger flexor tendon force while tapping on a keyswitch. *J Orthop Res*, 1999, 17:178-184.
44. Tittiranonda P, Rempel D, Armstrong T, Burastero S. Effect of four computer keyboards in computer users with upper extremity musculoskeletal disorders. *Am J Ind Med* 1999, 35(6):647-661.
45. Serina E, Tal R, Rempel D. Wrist and forearm postures and motion during typing. *Ergonomics* 1999, 42(7):938-951.
46. Keir PJ, Bach J, Rempel D. Effects of computer mouse design and task on carpal tunnel pressure. *Ergonomics* 1999, 42(10):1350-1360. PMID:10582504.
47. Tittiranonda P, Burastero S, Armstrong T, Rempel D. Workplace use of an adjustable keyboard: Adjustment preferences and effect on wrist posture. *Am Ind Hyg Assoc J* 1999, 60:340-348.
48. Rempel D, Lundborg G, Dahlin L. Pathophysiology of nerve compression syndrome: response of peripheral nerves to loading. *J Bone Joint Surgery* 1999, 81-A(11):1600-1610.
49. Gerard M, Rempel D, Martin B, Armstrong T. The effects of keyswitch stiffness on typing force, finger electromyography, and subject discomfort. *Am Ind Hyg Assoc J* 1999, 60:762-769.

50. Hansson G-A, Nordander C, Asterland P, Ohlsson K, Stromberg U, Skerfving S, Rempel D. Sensitivity of trapezius electromyography to differences between work tasks—influence of gap definition and normalisation methods. *J Electromyography and Kinesiology* 2000, 10:103-115.
51. Katz JN, Stock SR, Evanoff BA, Rempel D, Moore JS, Franzblau A, Gray RH. Classification criteria and severity Assessment in work-associated upper extremity disorders: methods matter. *Am J Ind Med* 2000, 38(4):369-372
52. Johnson PW, Hagberg M, Hjelm EW, Rempel D. Measuring and characterizing force exposures during computer mouse use. *Scand J Work Environ Health* 2000, 26(5):398-405.
53. Rempel D, Abrahamsson S-O. The effects of reduced oxygen tension on cell proliferation and matrix synthesis in synovium and tendon explants from the rabbit carpal tunnel: An experimental study *in vitro*. *J Orthop Res* 2001, 19(1):143-148.
54. Murthy G, Hargens AR, Lehman S, Rempel DM. Ischemia Causes Muscle Fatigue. *J Orthop Res* 2001, 19(3):436-440.
55. Wahlström J, Hagberg M, Johnson PW, Svensson J, Rempel D. Influence of time pressure and verbal provocation on physical load, physiological and psychological reactions during work with computer mouse. *Eu J Appl Phys* 2002, 87:257-263.
56. Gerard MJ, Armstrong TJ, Rempel D, Woolley C. Short term and long term effects of enhanced auditory feedback on typing force, EMG, and comfort while typing. *Applied Ergonomics* 2002, 33(2): 129-138.
57. Gerard MJ, Armstrong TJ, Martin BJ, Rempel D. The effects of work place on within-participant and between-participant keying force, electromyography, and fatigue. *Human Factors* 2002, 44:51-61.
58. Rempel D and Diao E. Entrapment neuropathies: pathophysiology and pathogenesis. *J Electromyography and Kinesiology* 2004, 14(1): 71-75.
59. Schlossberg E, Morrow S, Llosa A, Mamary E, Dietrich P, Rempel D. Upper Extremity Pain and Computer Use among Engineering Graduate Students. *Am J Ind Med* 2004, 46(3):297-303.
60. Dong H, Barr A, Loomer P, Rempel D. The effects of finger rest positions on hand muscle load and pinch force in simulated dental hygiene work. *J Dent Educ* 2005, 69(4):453-460. PMID: 15800259.
61. Diao E, Shao F, Liebenberg E, Rempel D, Lotz J. Carpal tunnel pressure alters median nerve morphology and function in a dose-dependent manner: A rabbit model for carpal tunnel syndrome. *J Orthop Res* 2005, 23(1):218-223.
62. Asundi K, Bach J, Rempel D. Thumb force and muscle load are influenced by pipetting tasks and pipette design. *Human Factors* 2005, 47:67-77. PMID: 15960087.
63. Keir PJ and Rempel DM. Pathomechanics of Peripheral Nerve Loading: Evidence in Carpal Tunnel Syndrome. *J Hand Therapy* 2005, 18(2):259-69. PMID:15891983.
64. Kursa K, Diao E, Latanza L, Rempel D. In vivo forces generated by finger flexor muscles do not depend on the rate of fingertip loading during an isometric task. *J Biomechanics* 2005, 38(11):2288-2293. PMID:16154416.
65. Nakama L, King K, Abrahamsson SO, Rempel D. Evidence of tendon microtears due to cyclical loading in an in vivo tendinopathy model. *J Orthop Res* 2005, 23(5):1199-1205. PMID:16140201.
66. Conlon CF and Rempel DM. Upper Extremity Mononeuropathy Among Engineers. *J Occup Environ Med* 2005, 47:1276-1284. PMID:16340709.
67. King K, Opel C, Rempel D. Cyclical articular joint loading leads to cartilage thinning and osteopontin production in a novel in vivo rabbit model of repetitive finger flexion. *Osteoarthritis and Cartilage* 2005, 13(11):971-978. PMID:16169257.
68. Nakama L, King KB, Abrahamsson SO, Rempel DM. VEGF, VEGFR-1 and CTGF cell densities in tendon are increased with cyclical loading: An *in vivo* tendinopathy model. *J Orthop Res* 2006, 24(3):393-400. PMID:16479573.
69. Rempel D, Krause N, Goldberg R, Benner D, Hudes M, Goldner GU. A Randomized Controlled Trial Evaluating the Effects of Two Workstation Interventions on Upper Body Pain and Incident Musculoskeletal Disorders among Computer Operators. *Occup Environ Med* 2006, 63(5):300-306. PMID:16621849
70. Kursa K, Latanza L, Diao E, Rempel D. In vivo forces increase with finger and wrist flexion during active finger flexion and extension. *J Orthop Res* 2006, 24(4):763-9. PMID:16514639.
71. Janowitz I, Gillen M, Ryan G, Rempel D, Trupin L, Swig L, Mullen K, Rugulies R, Blanc PD. Measuring the physical demands of work in hospital settings: Design and implementation of an ergonomic assessment. *Appl Ergonomics* 2006, 37(5):641-58. PMID:16226213.

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