References Ergonomics for Laboratory Animal Care

Cole, William C *Physical Hazards in Research Animal Facilities*Proceedings of the 4th National Symposium on Biosafety Atlanta 1996
http://www.cdc.gov/od/ohs/sympsium/symp81.htm Working Safely with Research Animals January 27-31, 1996 Westin Peachtree Plaza, Atlanta, GA

Cunningham JJ, McSweeney KP and Congleton JJ (1998) *Development of a System for Improved Transportation and Handling of Full-Sized Pregnant Sows at a Metropolitan Research Facility* Contemporary Topics (American Association for Laboratory Animal Science) Vol. 37, No5. Sept. p 82-85

Graveling RA (1991) *The prevention of back pain from manual handling* Ann. Occup. Hyg. Vol. 35, No 4 pp 427-432

Kurst, Joshua (2003) *An Ergonomics Process for the Care and Use of Research Animals* ILAR Journal Vol. 44, No. 1 Pg 3-12

Kai H.O. Penkonen, Ph.D. (1993) Ergonomy in the Laboratory Animal Unit <u>Lab Animal April 1993</u>, pages 37-41

Lowery T, Dinterman S, Weigand K, Brown B and Walker L (2001) *A Cart Cage for Transferring Meagues, Capuchins and Small Dogs* Lab Animal Vol. 30, No. 1 pg 45-46

Lu, Chihwei and Goggins, William B (1999) *An Ergonomic Analysis of Premixing and Compounding Processes in an Animal Health Plant* Amer. Ind. Hyg. Assoc. J. 60: 390-395

Peterson T and Farley J (2001) *Unique Design for Fixed Changing Station* Lab Animal Vol. 30, No. 4 pages 43-46

Walker-Bone K and Palmer KT (2002) Musculoskeletal disorders in farmers and farm workers Occup. Med. Vol. 52 No. 8 pp 441-450

Occupational Medicine: State of the Art Reviews, Volume 14, No. 2 April-June 1999

Langley, Ricky (1999) *Physical Hazards of Animal Handlers* Occupational Medicine: State of the Art Reviews, Volume 14, No. 2 April-June pp 181-193

Von Essen, Susanna, MD and Kelley Donham, DVM, MPH (1999) *Illness and Injury in Animal Confinement Workers* Occupational Medicine: State of the Art Reviews, Volume 14, No. 2 April-June 1999 pp 337-350

ILAR Institute for Laboratory Animal Journal (1997) Occupational Health and Safety in the Care of Research Animals (special issue)

ILAR Institute for Laboratory Animal Journal 2003 Volume 44 Number 1 Special Issue on Occupational Health and Safety in Animal Care

Regulatory and Accreditation Requirements

DeLong D, Gerrity LW, Bayne K (2001) Elements of an occupational health and safety program: Deficiencies identified by AAALAC international Lab Animal (NY) Apr 30 (4) 23-6

Institute of Laboratory Animal Resources, National Research Council. (1996) *Guide for the Care and Use of Laboratory Animals* National Academy Press, Washington, DC (pages 14-18 as referenced in Delong et al 2001)

An occupational health and safety program must be part of the overall animal care and use program

Brody, Marcia D. (1993) *Safety in the Veterinary Medical Workplace Environment-common issues and concerns* Veterinary Clinics of North American Vol. 23, No. 5 September, pages 1071-1084 Special issue: Legal issues affecting veterinary practice

Websites:

The American Association for Laboratory Animal Science, (AALAS), 9190 Crestwyn Hills Drive, Memphis, TN 38125-8538 http://www.aalas.org/

Bureau of labor statistics http://stats.bls.gov/oco/cg/cgs001.htm

NIH Safety and Health Department – Website on laboratory worksite ergonomics, including animal care http://odp.od.nih.gov/whpp/ergonomics/laboratory.html

The WHPAC funded an ergonomics study, which evaluated work practices of employees in NIH laboratories for potential risk of repetitive motion injuries (RMIs) due to poor ergonomics. Workplace Dynamics performed ergonomics task analysis of six tasks associated with an increased occurrence of RMIs and recommended steps employees could take to make their work environment better meet their needs. These included manual pipetting, working at a microscope, working in a biological safety cabinet or anaerobic chamber, using a cryostat, and changing cages or feeding research animals. The risks factors most commonly seen included cluttered, unorganized work areas, poor postures due to equipment placement and/or poorly designed workstations, and sustained awkward postures. Click on the task below to learn specific recommendations.

Animal Care

Lab Animal News

http://www.animallabnews.com/articles/ergonomics.asp?pid=35&articleText=ergonomics

Product literature (provided for information without endorsement)

JT Baker Company http://www.bakerco.com

Edstrom industries, Inc. www.edstrom.com/products.cfm?doc_id=54
Automated watering systems https://www.edstrom.com/products.cfm?doc_id=54

General References:

Grandjean, Etienne *Fitting the Task to the Man- A textbook of Occupational Ergonomics* 4th Ed 1988 Taylor and Francis, London, New York, Philadelphia

Houser JW Ergonomics: the investment of the '90s Coll Rev 1992 Fall 10 (2): 48-58

Jones JR, Cockroft, A, Richardson, B (1999) The ability of non-ergonomists in the health care setting to make manual handling risk assessments and implement changes Applied Ergonomics 30 page 159-166

NIOSH 1997 Elements of ergonomic programs: A primer based on workplace evaluations of musculoskelatal disorders (NIOSH Pub 97-117) Washington DC DHHS, NIOSH p 16-24

References to obtain:

Gabel, Christine and Gerberich, Susan G. (2002) Risk Factors for Injury among Veterinarians Epidemiology 13 (1) 80-86, January

Kerst, J. 2001 Ergonomic factors in laboratory design. In: Handbook of Chemical Health and Safety. American Chemical Society. New York: Oxford University Press. P 521-528

Keyserling WM, Stetson DS, Silverstein BA, Brouwer MS 1993 A checklist for evaluating ergonomic risk factors associated with upper extremity cumulative trauma disorder. Ergonomics 36: 807-831

Landerscaper J. Cogvill TH, Strutt PJ. Et al. (1988) Trauma and the veterinarian. J. Trauma 28: 1255-1259

Nelson A, Lloyd JD, Menzel N, Gross C. (2003) Preventing nursing back injuries: redesigning patient handling tasks AAOHN J. Mar 51 (3) 126-34

Snook S, Cirell V 1991. The design of manual handling tasks: Revised tables of maximum acceptable weights and forces. Ergonomics 34 (9)

Rahija, R (1999) Animal Facility Design Occup Med Apr-Jun 14 (2) 407-22