CPH News and Views

A semi-monthly column on emerging topics related to healthy workplaces

Issue #1: What is the scientific rationale for workplace programs that combine health promotion with occupational ergonomics?

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Occupational ergonomics seeks to improve the fit between the person and the job through optimizing job design or the work system more broadly. Desired goals include reduced risk of injury, better employee health (musculoskeletal, mental, cardiovascular, etc.) and higher job satisfaction. Ergonomics programs most often address physical job features - such as workstation dimensions, heavy lifting, awkward postures, and very repetitive tasks - with the goal of avoiding musculoskeletal disorders (MSDs) such as low back pain and tendonitis.

To be maximally effective, an ergonomics program should also address "work organization," meaning issues such as task design, incentive pay ("piece-rate"), and division of labor among workers and between people and machines. By optimizing these features of the workplace, as well, there is the opportunity to improve psychosocial work conditions such as decision latitude which are well-known risk factors for cardiovascular disease (CVD) and mental health problems and suspected to play a role in MSD outcomes.

Workplace health promotion (WHP) programs usually address individual health behaviors such as exercise, diet, and smoking, as well as their immediate consequences such as obesity. These are established risk factors for chronic health conditions such as CVD and diabetes, and they also likely affect musculoskeletal health. Limited empirical evidence suggests that there may be interactions between these individual health behaviors and ergonomic exposures at work in disease processes. Therefore, successful WHP programs might be expected to enhance the health benefits of ergonomic improvements at work.

Probably less widely recognized are the implications of working conditions for individual health behaviors. Work processes with good "psychosocial" conditions are those that offer employees the opportunity to participate in decisions about how and when tasks are done, allow for greater creativity in use of existing skills as well as opportunities to learn new ones, provide consistent and constructive feedback, and enhance interpersonal relationships at work. Such positive job qualities can improve mental and cardiovascular health directly. In addition, features of the work environment ranging from work scheduling to supervisor-employee relations can be either barriers to or facilitators of healthy behaviors. Improved work organization can provide time, space, and material and social supports for improvements in dietary choices, smoking cessation, participation in exercise classes, and improved work-family balance. High decision latitude has also been associated with lower rates of smoking and alcohol consumption and more aerobic exercise during leisure time. Thus we can see that individual health behaviors represent decisions made not only in relation to intrinsic factors (knowledge, beliefs, motivation) but also in relation to the physical and psychosocial environment.

For all the reasons listed above, WHP activities are likely to be much more effective if they take working conditions into account. Unfortunately, too often WHP programs focus only on individual behaviors, stress management, or coping skills but ignore the underlying causes of

stress. Occupational ergonomics provides a framework to address the workplace preconditions; thus there is a strong scientific justification for integrating workplace HP and ergonomics programs to improve employee health.

For a literature review on these topics, see "Conceptual issues in worksite health promotion," by Eberhard Wenzel, at: http://www.ldb.org/whpr.htm

Abbreviations used:
CVD (cardiovascular disease), WHP (workplace health promotion), MSD (musculoskeletal disorder)

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Recommended websites on related topics:

- The National Institute for Occupational Safety and Health (NIOSH), Program Portfolio "Work Organization and Stress-Related Disorders"
- Job Stress Network (home page of the Center for Social Epidemiology)
- Danish National Research Centre for the Work Environment, "Psychological working environment"

Recommended journal articles:

Anderzen I, Arnetz BB. (2005) The impact of a prospective survey-based workplace intervention program on employee health, biologic stress markers, and organizational productivity. *J Occupational Environmental Medicine* 47(7): 671-82.

Baker E, Israel BA, Schurman S. (1996) The integrated model: Implications for worksite health promotion and occupational health and safety practice. *Health Education Quarterly* 23(2):175-190.

Gunnarsd.ttir S, Bj rnsd.ttir K. (2003) Health promotion in the workplace: The perspective of unskilled workers in a hospital setting. *Scandinavian J Caring Sciences* 17: 66–73.

Koelen MA, Lindstr m B. (2005) Making healthy choices easy choices: the role of empowerment. *European J Clinical Nutrition* 2005; 59 (Suppl 1): S10–S16.

Lipscomb JA, Trinkoff AM, Geiger-Brown J, et al. (2002) Work-schedule characteristics and reported musculoskeletal disorders of registered nurses. *Scandinavian J Work Environment Health* 28:394-401.

Niedhammer I, Lert F, Marne M-J. (1996) Prevalence of overweight and weight gain in relation to night work in a nurses' cohort. *International J Obesity Related Metabolic Disorders* 20(7): 625-33.

Noblet A, LaMontagne AD. (2006) The role of workplace health promotion in addressing job stress. *Health Promotion* (on-line publication doi:10.1093/heapro/dal029).

Steenland K. (2000) Shift work, long hours, and cardiovascular disease: A review. *Occupational Medicine: State of the Art Reviews* 15(1): 7-17.

Tenkanen L, Sjöblom T, Härmä M. (1998) Joint effect of shift work and adverse life-style factors on the risk of coronary heart disease. *Scandinavian J Work Environment Health* 24(5): 351-357.

van der Hulst M, Geurts S. (2001) Associations between overtime and psychological health in high and low reward jobs. *Work and Stress* 15(3): 227-240.

Vezina M, Bourbonnais R, Brisson C, Trudel L. (2004) Workplace prevention and promotion strategies. *Healthcare Papers* 5(2): 32-44.

CPH-NEW
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CPH-NEW is a Center for Excellence to Promote a Healthier Workforce of the National Institute for Occupational Safety and Health. CPH-News & Views is a semi-monthly column written by Center researchers on emerging topics related to healthy workplaces. These comments reflect thoughts of the individual researchers and do not represent conclusive research summaries, nor do they necessarily reflect a consensus among all Center personnel.

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