

CPH News and Views

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

Issue # 16 Working Older: Health Challenges and the Shifting Demographics of Employment?

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How do shifting demographics affect the current and future workforce?

The United States is in the midst of an age shift in its working population unparalleled since the end of the World War II. By the year 2020, 24% of the workforce will be over 55, a 50% increase from 2005 (1). By 2020, 41% of all men and 32% of all women between the ages of 65-69 will be working, a 22% proportional increase in men and 35% proportional increase in women compared with average participation rates from the last decade (Table 1).

Table 1. Actual and Predicted Workforce Participation Rates – 2000-2020

Age Group (years)	2000		2010		2020		% change: 2000 to 2020	
	♂	♀	♂	♀	♂	♀	♂	♀
45-54	88.6%	78.6%	86.5%	77.1%	85.2%	80.1%	-3.8%	1.9%
55-64	67.3%	51.9%	68.7%	59.7%	69.1%	65.0%	2.7%	25.2%
65-74	24.6%	14.9%	29.7%	21.0%	32.8%	25.0%	33.3%	67.8%

Compared to younger workers, older workers have a different risk profile, with more co-existing chronic disease and changes in physical and emotional capacities. Greater workforce participation of older people requires that healthcare institutions develop programs featuring prevention and health promotion, and that employers provide appropriate workplace design and accommodation policies.

Age and Health

Chronic diseases affecting the cardiovascular and musculoskeletal systems inevitably rise as the workforce ages. In landmark longitudinal studies of the Finnish municipal workforce, the cumulative incidence of chronic medical conditions doubled between the 4th and 5th decades, a geometric increase that continues through the subsequent decade (3). Among construction workers, those in the late 5th decade were 5 times more likely to have shoulder problems and 10 times more likely to have hip problems than workers in their twenties; the relationship between aging and increasing musculoskeletal symptom prevalence was persistent across all trades (4). Distinguishing between work-related and intrinsic degenerative diseases of the hip, knee, neck and shoulder is often complicated. However, work modification and redesign have been effective interventions regardless of the predominating etiology (5).

Age-related changes in musculoskeletal function do not necessarily translate into disability. The incidence of lost work time injuries is proportionate for 30-year-olds and 60-year-olds (2). What do change with age are the types of injury and illness and the duration of morbidity. An employee 35-44 years old will average twice the lost work time per event as someone under 24 years, but will be out of work only half as long as a worker who is over 65 (2). The injury pattern that emerges in the oldest segment of the workforce – falls and fractures, and symptomatic conditions of the hip, knee, shoulder and neck – parallels the overall trends in geriatric biomechanical injuries, regardless of employment status. Twenty percent of lost time injuries in workers aged 65-74 were the result of fractures, which was twice as high as in 55-64 year-olds (2).

Does work add to or interact with the physiologic changes of ‘normal aging?’

Both age and type of work are important predictors of musculoskeletal disorders. A Swedish construction worker 55-59 years old was more than twice as likely to have shoulder problems as a similarly aged office worker, but 25% less likely to be symptomatic when both were 25-29 years old (4). Stated a different way, older construction workers were over 10 times more likely to have shoulder problems than the youngest working group, even though they began their work lives in better physical condition. In general the age effect is larger, but for some conditions, for example knee disease in plumbers, work is the dominant risk factor.

An interaction among muscle function, physical demand, and cardiovascular stress has been observed (6), meaning that physical fitness is important but does not explain away the effect of working conditions. Age-related decreases in physical capacity, particularly in peak performance, vary greatly. In the Finnish studies, a clearly identifiable middle-aged subgroup declined rapidly in subsequent years, whereas a group maintaining high function through the sixth decade was also recognizable (7). Both were identifiable from a simple ‘work ability’ scale at baseline, underlining the feasibility and importance of early intervention.

Reducing the number of chronic conditions and delaying their onset are critical paths to successful aging (8). This underscores the importance of successful interventions in late middle life, when function is still maintained. The combination of balanced work and leisure exercise, sustained general health, and a favorable work environment in early and mid-life are all predictors of high function in later working life.

In summary, the greater participation of older adults in the American workforce is certain. The amount of chronic disease and the risk of more severe injury at work will rise as the workforce ages. Medical care in the older working population demands attention to the changing distribution of injury and disease patterns. Similarly, workplace flexibility and health-promoting working conditions are important. The combination of good individual health and workplace health is a powerful predictor of long-term survival and function.

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Recommended references:

- Toosi M. A new look at long-term labor force projections to 2050. Monthly Labor Review Online. Nov 2006, Vol 129, no. 11.
- Rogers E, Wiatrowski WJ. Injuries, illnesses, and fatalities among older workers. Monthly Labor Review Online. Oct 2005, Vol 128, no. 10.
- Seitsamo, J. Klockars, M. Aging and changes in health. Scand J Work Environ Health 1997; 23S:27-35.
- Holmstrom E, Engholm G. Musculoskeletal disorders in relation to age and occupation in Swedish construction workers. Amer J Industrial Med 2003; 44:377-384.
- Savinainen M, Nygard CH, Ilmarinen J. A 16-year follow-up study of physical capacity in relation to perceived workload among ageing employees. Ergonomics 2004; 47(10):1087-1102.
- Nygard CH, Luopajarvi T, Ilmarinen J. Musculoskeletal capacity and its changes among aging employees in different work categories. Scand J Work Environ Health 1991; 17S:110-117.
- Ilmarinen J. Aging Workers. Occup Environ Med 2001; 58:546-55.
- Freedman VA, Martin LG, Schoeni RF, Cornman JC. Declines in late-life disability: The role of early- and mid-life factors. Soc Sci Med 2008; 66:1588-602.



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