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Active Voice: Walking at the Desk — Workplace Innovation Fosters Better Health

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Active Voice is a column by ACSM experts in science, medicine and allied health. The viewpoints expressed do not necessarily reflect positions or policies of ACSM.

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Up until the last century, a high level of physical activity was an integral part of life for most humans. Due to advances in modern technology, 'essential' physical activity has been dramatically reduced in the workplace, resulting in an overall decrease in energy expenditure during the workday. A large segment of the labor force is now engaged in sedentary occupations that involve long hours of continuous sitting – in fact, U.S. Census Bureau statistics suggest that up to 75% of American workers are sitting in front of a computer at work!

In the early 1700s, the work of an Italian physician named Bernardo Ramazzini led to the field of occupational medicine. He studied the health of workers in over a hundred different kinds of jobs and concluded that "those who sit at their work and are therefore called 'chair workers,' such as cobblers and tailors, suffer from their own particular diseases ... [T]hese workers ... suffer from general ill-health and an excessive accumulation of unwholesome humors caused by their sedentary life." Confirming Ramazzini's observations, current research has shown that prolonged sitting is associated with obesity, cardiovascular disorders, and an impaired metabolic profile. Thus, reducing sitting in the workplace may potentially improve the health status of sedentary office workers.

An innovative way to reduce sitting time and increase activity levels in the workplace is the treadmill workstation, which was first conceptualized by Nathan Edelson in the 1980s and more recently popularized by James Levine. The treadmill workstation consists of a height-adjustable, sit-stand desk and a treadmill. This allows office workers to change the height of the sit-stand desk to alternate between sitting, standing, and walking at slow speeds while working. Unlike traditional worksite wellness programs that focus on purposeful, moderate-to-vigorous activity performed at a designated exercise facility, the treadmill workstation allows the user to engage in light-intensity activity without having to leave the desk or even change into workout clothes. In addition to allowing office workers to self-select their walking speed, the treadmill workstation may enhance adherence rates (as compared to other physical activity interventions) because it allows users to expend calories without 'breaking a sweat'.

Research conducted at the University of Tennessee has shown that simply installing treadmill

workstations in the workplace causes overweight and obese office workers to greatly increase their standing and walking time during the working hours. The increased caloric cost amounted to 159 kcal/day, which is greater than the energy expenditure (100 kcal/day) purported to be needed to prevent weight gain in most Americans. The increased energy expenditure from walking at work at a treadmill workstation decreased abdominal fat, lowered systolic blood pressure, improved metabolic profile, and also lowered cholesterol levels over nine months.

In addition to benefiting the employees, an active work environment may also appeal to employers. Employers may accrue financial benefits through lowered employee health insurance premiums and less sick time. However, a legitimate concern of employers could be whether using the treadmill workstation negatively affects employee performance and productivity. Recent research has shown that treadmill workstation users had little or no effect on simulated work tasks, suggesting it would not impact work performance and productivity.

Ironically, in this day and age when computer monitors are getting slimmer, the girth of office workers using these monitors has increased alarmingly. Preventing and reversing obesity among office workers may require innovative interventions like the treadmill workstation. Providing users with recommendations on how to use treadmill workstation such as the duration and pattern of use throughout the day could maximize the benefits of using treadmill workstations. An active work environment is an innovative proposition that holds promise for reducing sedentary time in overweight and obese office workers, but it remains to be seen whether this strategy will improve obesity rates in the long run.