

Aging, Obesity, & Diversity – The Office of the Future

Jerome Congleton, PhD, PE, CPE
Professor of Ergonomics and Safety Engineering
Texas A&M University System HSC-SRPH
College Station, TX

Introduction

The design of workspaces that can accommodate the diverse workforce of today is critical. Many of the assumptions we make about anthropometry, obesity, and aging are poor estimates of the reality of today's workforce. This paper will discuss practical design solutions for workspaces serving a diverse workforce. Product design as well as office space design is dependent upon the makeup of a business and will be key for the future in helping users maximize their health and productivity while looking past current fads and politically-correct issues through ergonomic insights into the latest research and practical ergonomic solutions that can impact a diverse workforce, an aging workforce, and an obese workforce. Understanding the profile of various populations within a business organization as well as accommodations for each population is vital to the success of the organization. Learning ways in which to make these accommodations based on the knowledge of key characteristics within a population can increase the safety and protection of your company and your employees.

Aging

Profile of an Aging America

According to the U.S. Department of Health and Human Services Administration on Aging, about one in every eight, or 12.4 percent, of the population is an older American. In 2006, the older population, defined as those 65 years of age or older, was 37.3 million. It is projected that in 2010 the population will grow to 40 million and by 2030 the 65+ population could grow to some 72 million Americans.

The life expectancy of an individual who reaches the age of 65 will have an average life expectancy of an additional 18.7 years. The U.S. Census Bureau has found that “the proportion of Americans with at least a bachelor’s degree grew five-fold from 1950 to 2003, from 3.4 percent to 17.4 percent; and by 2030, more than one-fourth of the older population is expected to have an undergraduate degree.” Not only are older Americans living longer they are becoming more educated and diverse. It is estimated that the diversity of the older population will shift somewhat from a current make-up of 83 percent non-Hispanic whites, 8 percent black, 6 percent Hispanic and 3 percent Asian to an estimated 72 percent non-Hispanic white, 11 percent Hispanic, 10 percent black, and 5 percent Asian (U.S. Census Bureau 2006).

Accommodations for the Aging Workforce

So what do all of these statistics mean for employers? The population of those aged 65+ in the workforce is increasing and so are the risks with employing them in a business. Although older Americans are living a healthier life because of higher income, higher levels of education and greater standards of living they still face the natural aging process.

Older workers may experience age-related visual changes, hearing loss, loss of mobility and changes in muscle strength among other physiological limitations. In a workplace setting it is important to accommodate these physical changes as doing so may increase productivity and safety within a company.

To accommodate visual changes in an aging population, employers can ensure that the employees work area is well lit and task lighting is used in such a way to avoid glare. In the technological world of work today computers are an important tool used in common workplace tasks. It is important to adjust the computer monitor so that the print on the screen is easier to read. Increasing the font size on the screen can also allow for easier reading. Employers may also consider the possibility of purchasing larger monitors to facilitate a larger viewing surface. One might also consider office equipment with larger buttons such as a telephone. Not only is it easier to see, but it is easier to feel.

General loss of muscle strength, joint movement, mobility and flexibility also accompanies aging. Employers can combat some of the strength issues by modifying the job expectations in regards to lifting, pushing, and pulling. Older workers should have their work environment arranged so that they avoid unnecessary reaching, lifting, and carrying (Goldstein, 2005). It has been recommended by some that all objects necessary for the job be kept within 18 inches of the body to prevent injuries from overextending.

If lifting is required in the position it is important that the employee keep the object being lifted in their power zone. The power zone for lifting is close to the body, between mid-thigh and mid-chest height and is where arms and back can lift the most with the least amount of effort (OSHA 2007). In other words between your knees and shoulders while standing or slightly stooped. By ensuring proper lifting techniques both the worker and employer can ensure fewer injuries resulting in additional costs. Exhibit 1 illustrates the lifting within the power zone.



Exhibit 1. The images illustrate the proper technique for lifting using the power zone (NIOSH 2007) side by side with the neutral body posture.

The idea with appropriate lifting techniques is to utilize the power zone by pushing, pulling and sliding rather than lifting, lowering, and carrying. It is important to remember that using appropriate techniques either by push, pull or slide within the power zone; a worker is reducing the risks of injury and illness associated with improper techniques; but it also increases productivity. Keep things off the floor and below the shoulders.

Simple changes such as installing handles on doors instead of knobs, assistive devices such as handrails along walking paths within an office, and textured walking surfaces to prevent falls will all help in decreasing the number of injuries related the mobility.

Changes in the ability to hear or a decline in hearing can also be attributed to aging. There are two types of hearing loss: age-related and noise induced. Noise induced hearing loss occurs when individuals are exposed to noise at frequencies around 4000 hertz while age- related loss results from progressive hearing loss as the sound waves increase in frequency (Ergoboy.com). To accommodate such hearing loss employers can reduce the amount of noise in an office through workstation design, location of office equipment, a reduction in background noises and the utilization of office equipment that allows for amplification or visual cues.

Obesity

Profile of an Obese America

Obesity is defined as having a Body Mass Index (BMI) equal to or greater than 30. BMI is calculated by dividing an individual's weight by their height.

The World Health Organization's projections indicated that in 2005 approximately 1.6 billion adults were overweight and at least 400 million adults were obese around the world while 20 million children under the age of 5 were overweight globally. In 2006, 66% of Americans were overweight or obese. Approximately thirty-five percent of American adults can be called overweight and twenty-six percent are considered clinically obese. The number of morbidly obese adults in the U.S. exceeds four million and is continuing to grow more rapidly than any other weight category. Obesity became the number 2 killer of Americans with 400,000 deaths. It was second only to smoking at 450,000 deaths (Benden, 2008). Exhibit 2 shows the increase in obesity over time.

Percentage of Obesity in US Adults vs. Time

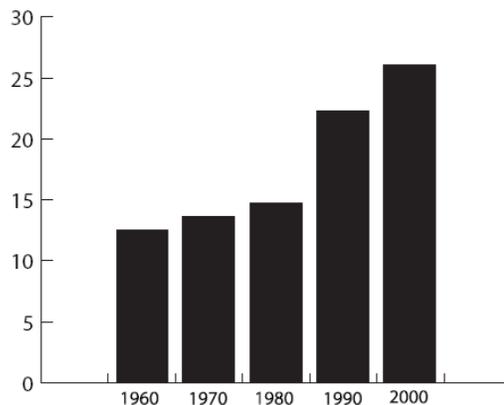


Exhibit 2. This chart shows the percentage of Obesity in U.S. Adults vs. Time (Benden 2008).

In a report by The Conference Board it was found that obese employees cost U.S. private employers approximately \$45 billion annually in medical expenditures and loss (Consumer Affairs, 2008). Obese worker will lose 13 times more days of work from work-related injury or illness than a non-obese worker; obese workers file twice the number of worker's compensation claims and have seven times higher medical costs from those claims (Benden, 2008).

Accommodations for the Obese Workforce

What accommodations are available for businesses and employers to assist their obese and/or overweight employees so that they are productive and healthy? One way to accommodate obese employees is through the design of their workstation. It is important that all workstations when designed take into consideration the neutral body posture, the position the human body assumes in the absence of gravity as shown in Exhibit 3, as a basis for design.

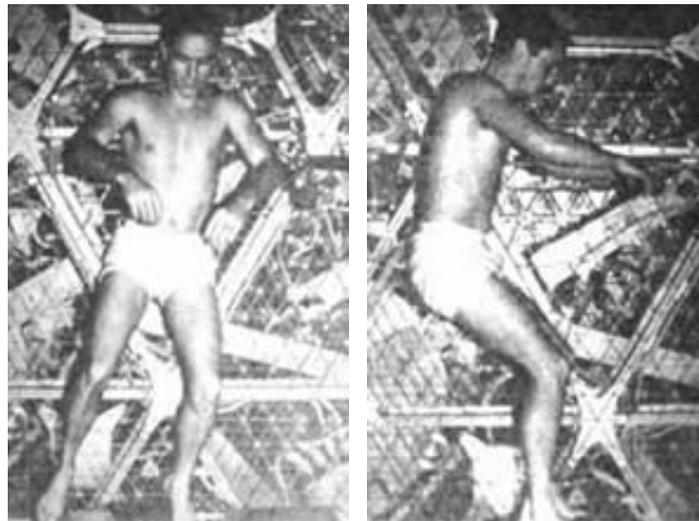


Exhibit 3. The pictures show the neutral posture in the absence of gravity.

According to Dr. Mark E. Benden in *Could You Stand to Lose*, office work evolved from dynamic work involving interaction with numerous people with work carried out at multiple locations within an office to static work at one desk from one chair. Sedentary work has now become the norm in everyday office culture. What this means is that the need for an individual to move throughout the day had diminished or become non-existent. For an obese or overweight individual there is no incentive to change the postures of their body during their workday. For the current office culture to shift it is necessary for employers to embrace changes in regards to the design of the workstation.

A combination of sitting and standing is an ideal working format for the human body has been slow to catch on in the world of office ergonomics. Standing offers many benefits over sitting when evaluated against the preferred physiological position and condition of humans (Benden 2008). If a workstation is designed to encourage both sitting and standing through adjustability then workers are more inclined to move throughout the day. The use of sit/stand workstations has been found to increase productivity up to 17 percent, which reflects employee comfort or lack of discomfort and employee awareness of their own control over their own wellness. Employees appreciate the ability to adjust their workstation to their particular needs because it allows them

an opportunity to stand. Research has shown that standing burns 40 percent more calories than sitting and if an individual stands for just 2.5 hours a day they would expend an additional 350 calories a day.

An integrated stand/sit workstation system designed for the office should not be a seated workstation with standing capability, but a standing workstation with seated options. The system should include adjustable desks and a chair or stool as appropriate at a minimum as shown in Exhibit 4. The system should be one designed for the user not modified to fit the user. As a part of the system it is important to evaluate the current seating within a business to ensure it is appropriate. Each chair should be tailored to meet the needs of the worker. Seating companies now offer seating for workers that accommodate heavier employees up to 500 pounds. Offering seating with adjustable components will also ensure employees are comfortable, thus potentially increasing productivity and decreasing costs associated with injuries.



Exhibit 4. The N-tune workstation is one option to businesses who are looking to provide their employees the opportunity to stand with a seated option (Neutral Posture 2007).

If space allows, businesses can move or locate office equipment within their office so as to encourage workers to get out of their chair and away from their desk to use the equipment. For example, move the printer out of an office down the hall so that when a document is printed the worker must leave their office to retrieve it. Not only is it the responsibility of the business to accommodate workers it is the responsibility of the worker to make adjustments within their everyday routine. Workers can take actions themselves while at work to reduce the possibilities of injuries. Just standing while answering and talking on the phone would be an improvement in the daily work environment over sitting while performing the same duties.

The ergonomic benefits of an integrated stand/sit workstation and of adjustable workstations include increased blood flow, better respiration and alertness, improved communication, and greater employee interaction.

Some businesses have taken it upon themselves to start to fight against obesity of course with cost savings being the bottom line. Businesses have incorporated health programs and even gyms within their facility to encourage employees to live healthier lives. Businesses with cafeterias have modified their menus to include healthier selections. A few employers have also implemented weight loss incentives where cash is given for every pound of weight loss while other companies have cash penalties on medical premiums per pound over an established weight limit. Businesses across America have evaluated whether or not to hire high risk workers such as smokers, but now high risk includes workers who are obese.

Diversity

Profile of American Workforce

The face of the American workforce has changed over time and is becoming more and more diverse. The civilian labor force is projected to increase by 12.8 million, or 8.5 percent, to 164.2 million over the 2006-2016 period. According to the Bureau of Labor Statistics, white, non-Hispanic persons in the labor force will fall from 69.1 percent in 2006 to 64.6 percent in 2016, while white non-Hispanics will remain the overwhelming majority of the labor force. Hispanics are expected to grow by 29.9 percent from 13.7 percent to 16.4 percent, Asians are projected to grow from 4.4 to 5.3 percent and Blacks in the labor force will show an increase 11.4 percent to 12.3 percent.

With the growth of the population will come the growth of the number of men and women in the labor force. The numbers of women in the labor force has increased over time and is expected to continue to do at a slightly faster rate than men. The male labor force is projected to grow by 8 percent from 2006 to 2016, compared with 8.9 percent for women thus; men's share of the labor force is expected to decrease from 53.7 to 53.4 percent, while women's share is expected to increase from 46.3 to 46.6 percent (BLS 2007).

The youth labor force, aged 16 to 24, is expected to decrease its share of the labor force to 12.7 percent by 2016. The primary working age group, between 25 and 54 years old, is projected to decline from 68.4 percent of the labor force in 2006 to 64.6 percent by 2016. Workers 55 and older, on the other hand, are projected to leap from 16.8 percent to 22.7 percent of the labor force between 2006 and 2016. The aging of the baby boom generation will cause not only an increase in the percentage of workers in the oldest age category, but a decrease in the percentage of younger workers (BLS 2007).

Accommodating a Diverse Workforce

Currently there are four generations of workers in the workforce. This generational workforce includes:

- Veterans were born between 1922 and 1945
- Baby Boomers were born from 1946 to 1964
- Generation Xers were born from 1965 to 1980
- Generation Yers were born between 1981 and 2000

As one might imagine, there are differences between the generations that sometimes causes issues and/or disagreements within a business environment. The differences between generations include communication styles, expectations, work styles, attitudes and expectations about work/life balance, an understanding and comfort of use with technology and the acceptance of change.

It is key that one, especially those in management positions, understands the characteristics each generation possesses. Understanding these characteristics will allow for a better understanding of the workplace dynamics and its affects on the business. For example, when looking at work ethics and values Veterans are characterized by hard work, respect for authority, and tend to adhere to the rules. Baby Boomers tend to be workaholics seeking personal fulfillment, but who question authority and crusade for causes while Generation Xers are skeptical workers who desire structure while relying on themselves. Generation Yers are entrepreneurial who have the ability to multi-task, are tolerant, and are goal oriented (FDU 2005).

Understanding such attributes of each generation can assist a manager in the daily operations of a business by allowing them to adjust job tasks, possibly even work hours to better accommodate a certain generational employee.

Some general considerations that can be made to facilitate and accommodate the multi-generational workforce within an office are keeping the lines of communication open, avoid stereotypes, encourage collaboration and remain flexible. The attitudes and actions of management within an organization influence the staff; so if you seem uncomfortable with age differences others within the organization will notice (IW 2006).

Summary

By understanding the dynamics and characteristics of a business' workforce, accommodations can be made to protect both the employees and the company without jeopardizing quality, efficiency, and productivity. If nothing else by making accommodations for the aging, obese and diverse workforce a business can increase their quality and productivity. The aging population in the workforce is expected to increase in the future with the Baby Boomers. Obesity is expected to continue to rise, thus affecting the business' bottom line when looking at healthcare costs and the generational composition within a workforce will hold four generations of workers. These populations in the workforce are increasing making it critical that businesses not turn their heads, but look for solutions to accommodate and assist their employees. Some of these accommodations are ergonomic while others are directed more towards attitudes and shifts in thought processes, but either way the accommodations can be beneficial to the company and its workforce.

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