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Fit To Work: Exercise as a Strategy for Productive Aging in The Modern Workplace

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Introduction

As the future of work continues to shift, one of the most pertinent concerns that has emerged over the past decade is the greying of the labor force. This demographic trend carries critical implications for both older workers and their employers. Aging is a complex process that impacts the various dimensions of work ability. The limitations associated with aging can be mitigated directly with exercise: an evidence-based form of intervention that has proven invaluable in optimizing safety and health outcomes for older workers both on and off the job.

Defining the aging worker

The massive increase of the median age of the workforce can be attributed primarily to population aging. The majority of older Americans are members of the "baby-boom" generation, one of the many terms used to reference the dramatic post-World War II surge in the birth rate between 1946 and 1964.

According to the Bureau of Labor Statistics, 40% of Americans over 55 are either employed or actively seeking employment, and as a group currently form 21.7% of the labor force [Toossi]. By 2024, 25% of U.S. workers (and 38% of the population) will be age 55 or older.

In addition to population aging, the past several decades have been marked by a major shift in job mobility. In 2017, 39% of employed adults said they planned to continue working past the age of 65, compared to just 14% in 1995. As for the reason more people are opting to remain in the labor force well past the age of retirement—increased life expectancy and employment laws that prohibit age discrimination are likely contributing factors. Another reason may be job-lock, a term that describes the inability to retire due to financial instability and the need for employer benefits [Wilkie].

The terms older worker and aging worker will be used in reference to adults between the ages of 45 and 65+ throughout this paper. This range is intentionally broad to reflect the assertion found in medical literature that the recommendations for intervention are equally—if not more—effective when applied before aging-related limitations begin to intensify.

Chronological aging and functional limitations

Functional ability describes "the physiological capacity to perform normal everyday activities safely and independently without undue fatigue" [Rikli]. The aging process is associated with a decline in multiple aspects of functional ability, all of which can impact both quality of life and work ability. However, the correlation between these two factors is not to be mistaken for causation; that is, the notion that these declines are a direct and inevitable result of chronological aging.

In fact, employers who attribute a worker's functional limitations to "natural aging" are less likely to provide or even consider creating workplace accommodations [McMullin].

But acknowledging these limitations is proven to increase retention of older employees, and research suggests that individuals who receive workplace accommodation for a functional limitation are "significantly less likely to apply for SSI benefits within three years" [Burkhauser].

Work-related injury

Statistically, duration tends to be a better predictor of performance—older workers are injured less often than their younger colleagues [Czaja]. This advantage is likely a result of the accumulated knowledge that only time can bring, particularly for those with years of experience in a specific occupation. Older workers not only display increased caution, but also report a heightened awareness of their own physical limitations.

However, while accident frequency tends to decrease with age, injury severity and fatality increase. The risk of injuries is partially dependent on work environment: jobs that require working in awkward positions, handling heavy materials, and repetitive movements may accelerate damage in joint tissue and increase the risk of injury [Chan]. Older people generally work closer to their physiological limits than younger workers, and their bodies take longer to recover from the effects of injuries and cumulative trauma [Silverstein]. In the return to work process, older workers experience significantly higher absenteeism, with longer recovery times and more lost work days incurred than younger workers [Czaja].

These risks are multidimensional, meaning that their combined effect is greater than the sum of separate effects. For example, postural instability generally increases with age; as a result, older workers are less capable of regaining their balance when tripped.

Aging manufacturing workers perform preventive, low-impact exercises designed to prepare and protect their body.

When combined with slower reaction times and decreased visual acuity, these individuals are placed at a heightened risk of slips, trips, and falls in the workplace. The additional challenge of prolonged recovery periods translates to more expensive claims and greater losses to a company's bottom line.

Health status

Health status and comorbidity is another variable that further complicates occupational health outcomes of an aging workforce. Arthritis, hypertension, and heart disease are currently the most common chronic conditions affecting workers over the age of 55, all of which are linked to higher health expenditures and the likelihood of claiming disability status. The Bureau of Labor Statistics reports that the incidence of disability doubles between the ages of 40 and 55.

When developing strategies to mitigate these challenges, it's important to keep in mind that work ability is dynamic. The dialogue surrounding the process of aging is often deterministic, and functional decline is often framed as both inevitable and irreversible. Instead of emphasizing decline and decay, employers must focus on the positive aspects of aging and the many opportunities for growth that are presented throughout the process.

How exercise mitigates functional limitations of aging

Low-intensity exercise is the most effective form of intervention that mitigates the four critical areas of work-related functional decline. Occupational injury risk is multifactorial. Any interventions must therefore be equivalently multifactorial in order to comprehensively mitigate these risks. It's also important to consider the role of comorbidity in occupational injury risk.

A review of the medical literature on aging and work named increased physical exercise and decreased repetitive movements as the two most significant modifiable variables proven to improve work ability of aging employees [Silverstein].

In fact, regular physical exercise "can keep physical capacity nearly unchanged" between the ages of 45 and 65 [Ilmarinen]. This principle illustrates the extraordinary potential of consistent exercise; although seemingly improbable, it is entirely possible for an active 65-year-old to be more fit than a 45-year-old colleague who leads a sedentary lifestyle. Below are each of the most significant ways in which exercise improves crucial elements of productive aging in the workplace:

- Improves cardiorespiratory function
- Improves cognitive function
- Improves musculoskeletal health
- Mitigates chronic health conditions

Cardiorespiratory function

Cardiorespiratory fitness (CRF) is a key indicator of functional ability and tends to decrease with age. An individual's CRF can be determined by measuring VO2max, the maximum rate at which the heart, lungs, and muscles can use oxygen during physical activity. The higher the VO2 max, the lower the cardiorespiratory strain in a given workload [Chan].

CRF is considered an important indicator of not only cardiovascular fitness, but of total body health: the higher the CRF levels, the lower the risk of cardiovascular disease, chronic illness, and other adverse health outcomes. The American Heart Association has strongly advocated its inclusion among traditional risk factors for cardiovascular disease and all-cause mortality.

The aging process is only one out of several variables that determine cardiorespiratory fitness. Although low CRF is clearly associated with adverse health outcomes, the evidence suggests that this risk factor is also highly modifiable. Regular exercise has strong potential to improve cardiorespiratory fitness—and by extension, functional ability—at any age. In a 2016 statement, the American Heart Association strongly emphasized the interdependent influence of exercise and CRF on overall health status: “Physical activity interventions targeting the least fit individuals will likely have the largest health benefit”.

Cognitive function

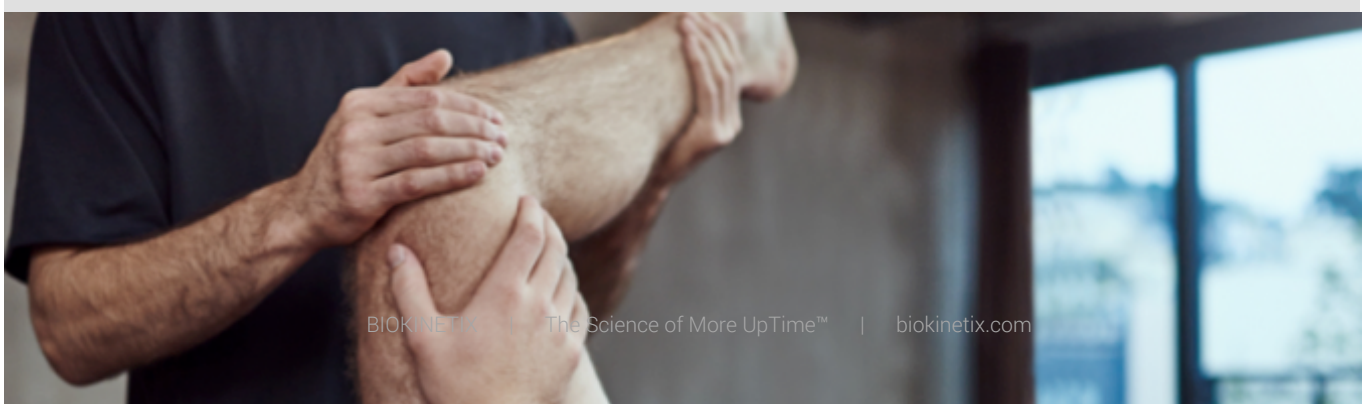
One of the symptoms associated with aging is a progressive decline in cognitive function, specifically the weakening of precision and perception. In the context of work performance, the skills impacted most by this decline include problem solving, spatial abilities, and processing complex stimuli. Consistent low-intensity exercise, however, is proven to increase brain plasticity and adaptiveness in an aging population. Physically active individuals demonstrate a heightened ability to retain memories, pay selective attention to tasks, and process information [Hogan].

Exercise is also proven to fight off dementia throughout the later end of the aging process [Hill]. In a 2012 longitudinal study on aging, over 600 participants in their seventies were asked to report their participation in exercise along with social or mentally engaging activities over a 3-year period. MRI scans showed that those who exercised the most had the least signs of aging in the brain: “People in their seventies who participated in more physical exercise, including walking several times a week, had less brain shrinkage and other signs of aging in the brain than those who were less physically active” [Gow].

Musculoskeletal health

Sports medicine research offers a strong body of evidence for the role of resistance-based exercise in conditioning against injuries and improving overall musculoskeletal health. Maximum physical strength begins to decline at a higher rate between ages 40-50, along with declines in:

- Exercise capacity
- Mobility
- Range-of-motion
- Postural instability
- Bone density



In the workplace setting, exercise programs can be easily tailored to address areas of musculoskeletal risk specific to an aging population, such as improving balance and coordination. When delivered by a licensed health professional, low-intensity exercises can be performed safely and easily by workers of all ages and individual limitations.

Chronic health conditions

The benefits of exercise even extend to the prevention of comorbid health conditions, which, in an occupational context, holds significant potential for mitigating the most problematic health risks facing aging workers. A meta-analysis of over 339,000 individuals found exercise interventions to be as effective as drug therapy for post-stroke rehabilitation, secondary prevention of coronary heart disease, and prevention of type II diabetes [Naci].

A BIOKINETIX Certified Athletic Trainer works with a manufacturing worker to mitigate and reduce chronic pain.

Conclusion

The value of exercise interventions and workplace accommodation for older workers are well established in the medical community, but recent employer surveys indicate that there is still much progress to be made. Although somewhere between 55-68% of employers acknowledge the value of programs that address the needs of aging workers, only 18-44% report having implemented such measures [Silverstein].

Occupational exercise interventions should ideally be accompanied with evidence-based health and lifestyle education that is designed to accommodate the limitations associated with the aging process. For example, age-related changes in cognitive ability can be accommodated by providing immediate feedback on at-risk or incorrect behavior, which reduces the demands on working memory.

The National Center for Productive Aging and Work, a branch of NIOSH, encourages employers to redefine their perception of aging workers and instead embrace “aging as a process of development and growth.” In order to best support this rapidly expanding segment of the workforce, employers must maximize strengths and protect against vulnerabilities of the aging process—and strategic exercise interventions are the most powerful tool at their disposal to achieve both individual well-being and organizational success.

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