

DISCUSSION PAPER

**PHYSICAL EFFECTS OF AN AGEING
WORKFORCE**

Mary O'Callaghan

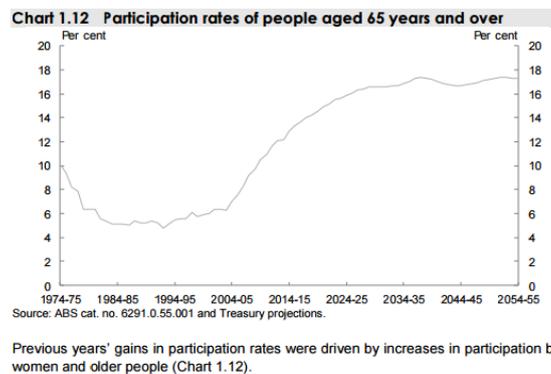
Mitchell Muscat

Chris North

Physiotherapists

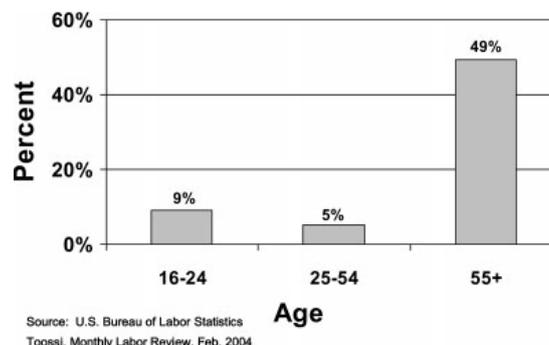
PHYSICAL EFFECTS OF AGEING – DISCUSSION PAPER

Traditional working ages range from 15-64 years, where 65 years of age is the most commonly accepted age of retirement (Commonwealth of Australia, 2015; Rogers et al., 2011). However, as the Australian population continues to grow and change so will its traditional workforce ages, where the proportion of workers over 65 years is projected to increase by 4.4% from 2014-14 to 2054-55 (Commonwealth of Australia, 2015). As part of the new Australian federal budget in lieu of an increase in the Australian life expectancy, the pension age is set to increase by 6 months every 2 years as of 2017 to achieve the desired pension age of 70 by year 2035 (Power, 2014). As a result, the average Australian retirement age will proportionally rise to 70 years. This coincides with the Australian labour force where there is already an increase in females working aged 65-67, 55-64 and 45-54 by 7%, 16% and 8% since 2001-02 to 2010-11, respectively (Australian Bureau of Statistics, 2012). In the same time frame, the Australian Bureau of Statistics (2012) reports an 11% and 9% increase in males working in the labour force aged 55-64 and 65-74 years, respectively.



(Commonwealth of Australia, 2015)

Older workers have lower non-fatal injury rates and less absenteeism and turnover compared to younger workers (Rogers et al., 2011; Kowalski-Trakofler et al., 2004; Rogers & Wiatrowski, 2005). However when injured, the older worker may require more time off work and the injury related costs may be more severe (Schwatka, Butler, & Rosecrance, 2011; Rogers et al., 2011). Additionally, the instance of chronic disease such as osteoarthritis and metabolic disorders such as diabetes, increases with age (Rogers et al., 2011; Munir et al., 2009).



(Silverstein, 2008)

Promoting active ageing can maximise potential opportunities and wellness for older employees and is vital to enhance the positive impact an ageing worker can have on productivity now and in the future as this working population grows. This can be achieved by adjusting the physical and psychosocial environment to suit the worker with assistive equipment, re-train and update relevant skills, and implementing a simple wellness program to promote healthy lifestyle changes, prevent individual effects of ageing, and enhance workplace culture (Schwatka, Butler, & Rosecrance, 2011). The value of an ageing worker's experience, expertise, problem solving, and mentoring skills in maximising productivity is essential to recognise. Therefore, it is important to understand the changes that occur with ageing to effectively implement strategies to maximise an ageing employee's wellness motivation, work potential, and reduce injury rates.

COGNITIVE AND PHYSICAL AGEING CHANGES RELEVANT TO THE WORK ENVIRONMENT

1. COGNITIVE CHANGES

Cognitive and physical changes occur with ageing that can change the way an older worker (above 45 years) completes a job task (Rogers et al., 2011). The onset of cognitive changes differs greatly between individuals, but can include a decline in attention, ability to multi-task, decision-making skills, information processing speed, and working memory, which includes a person's ability to learn new tasks or remember uncommon practices. As such, learning new skills or completing tasks with multiple stimuli may take longer or require additional training. However, a worker's experience can assist in solving problems in the workplace and counterweigh any decline in cognition (Rogers et al., 2011). Active participation, instruction, preparation time, and practical training with familiar tasks is recommended to successfully assist an older worker in learning previously trained, or new skills (Rogers et al., 2011; Choi, 2009).

2. PHYSICAL CHANGES

Physical ageing can involve changes to vision, strength, balance, hearing, joint mobility, dexterity, and reaction time. Implementing strategies that maximise an older worker's potential to meet the needs of the job tasks and reduce physical fatigue is essential. This can include acquiring new equipment, implementing rotations in work tasks, promoting health and well-being by establishing a wellness and exercise program, and adapting the workplace environment.

VISUAL CHANGES

Visual changes that occur with ageing include declines in colour and contrast sensitivity, adaptation to light and visual accommodation (Silverstein, 2008). Ways to accommodate these changes include enlarging text or providing a magnifying glass, using fluorescent light for better visibility, and using clear markers such as coloured lines to mark steps and rises in floor levels to help prevent falls (Rogers et al., 2011; Silverstein, 2008).

JOINT MOBILITY AND DEXTERITY

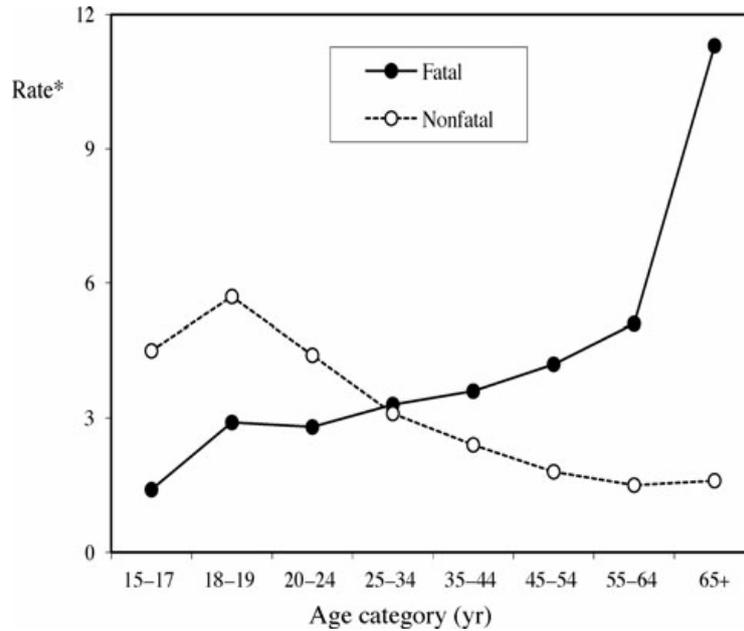
Joint mobility and dexterity declines with age, with an increase risk of arthritis from 45 years old (Kowalski-Trakofler et al., 2004). This can mainly affect fine motor skills such as gripping and turning, or writing. Age related decreases in joint range are more specifically shown in the neck and wrist joints and lower back joints (Chung & Wang, 2009; Schibye, Hansen, & Christensen, 2001). The above losses are relevant to those working in areas that include repetitive lifting, overhead tasks, or work that requires object manipulation.

MUSCULAR STRENGTH AND CARDIOVASCULAR FITNESS

Changes in muscular strength and cardiovascular capacity occur with age. Peak muscular strength occurs between 25-30 years old, and declines along with cardiovascular or aerobic capacity around 1-2% per year thereafter (Kowalski-Trakofler et al., 2004; Schwatka, Butler, & Rosecrance, 2011). More specifically, handgrip strength declines on average between 0.5-1% each year and shoulder muscle strength can decline on average 1.5-2.5% per year (Schibye et al., 2001). Cold and hot environments additionally make it more difficult for an older worker to regulate body temperature and together with declines in muscular strength and aerobic capacity can result in physical fatigue and higher work demands beyond an ageing worker's physical capacity (Silverstein, 2008).

As mentioned, total physical strength declines after 30, and more significantly after the age of 40 (Silverstein, 2008). Specifically, it has been reported that by the age of 50, an individual can decrease their static trunk strength by 30% due to age-related changes (Davis et al., 2003). This figure can continue to decline, reaching a 40% reduction by the age of 65 (Davis et al., 2003). A reduction in postural stability will cause an individual to increase their physical demand to maintain ideal posture and balance. This may force employees to work at a higher physical rate due to these age-related changes.

Physically demanding jobs such as repetitive work, heavy lifting, or working in awkward postures can result in a higher musculoskeletal injury profile when the work demand exceeds the worker's capacity. Additionally as a worker ages, balance, reaction time, and bone density can decline and leave the individual susceptible to accidents and falls (Silverstein, 2008; Schwatka et al., 2011). Often for ageing workers, the most common injuries that occur are sprains, strains, and tears (Rogers & Wiatrowski, 2005). For those aged 65 years and above more severe injuries such as fractures are common (Rogers & Wiatrowski, 2005).



“Rate of fatal and nonfatal occupational injuries and illnesses as a function of age. *Fatal injuries: rate per 100,000 full-time equivalent workers; Nonfatal injuries: rate per 1000 full-time equivalent workers. Fatal data: National Electronic Injury Surveillance System (NEISS-Work), United States, 2004. Nonfatal data: Bureau of Labor Statistics Census of Fatal Occupational Injuries, United States, 2005. Reprinted with permission from Grosch and Pransky.¹¹”

(Loeppeke et al., 2013)

PHYSIOTHERAPY AND THE AGEING WORKFORCE

Physiotherapists can positively impact the wellness of an ageing workforce by working with individual ageing workers and employers to establish strategies to help improve workplace culture, productivity and reduce injury risks through:

- Risk assessment and management
- Assessment and management of work or non-work related injuries and disease, including chronic diseases such as diabetes and osteoarthritis
- Education opportunities for the management of an ageing workforce
- Injury prevention strategies and management of age-related physical changes
- Identifying and managing work environment, job task, or individual risk factors for an ageing workforce
- Ergonomic and workplace design advise
- Developing a wellness program that supplies education, exercise, and coaching for individual ageing changes and health promotion to maintain physical work capacity and productivity

- Develop strategies and recommend equipment and work design corrections specific to the workplace to reduce injury risk and maintain the work capacity of an individual or ageing workforce group

There is significant evidence to show the positive influence a workplace wellness program has on worker physical activity and wellbeing (Dugdill, Brettle, Hulme, McCluskey, & Long, 2008; To, Chen, Magnussen, & To, 2013). Physiotherapists play an important role in developing exercise programs, self-management habits, and providing education in maximising physical activity in and out of the workplace. A wellness program that provides coaching, education, and exercise may help assist in managing and improving physical ageing changes in the long term.

Wellness programs including exercise classes have been shown to reduce health care expenses and injury risks by improving flexibility, muscular strength, cardiovascular fitness, bone density, and balance (Choi, 2009; Sheppard, 2000; Kowalski-Trakofler et al., 2004). Exercise classes can also increase an employee's work ability and has psychological benefits of assisting in quality of life, well-being and reducing stress (Choi, 2009; Fraser, McKenna, Turpin, Allen, & Liddle 2009; Crawford, 2005).

Wellness programs can also include education classes about diet, alcohol and smoking cessation, and information regarding over 50's health checks like mammograms and prostate and bowel cancer checks. The program can flag and guide pathways for individuals that may require referral or education regarding vision, hearing and spirometry testing.

CONCLUSION

Australia's population is ageing and the proportion of older workers seeking and participating in active work will continue to grow. An older worker's experience plays an important role in workplace performance where they "are the most skilled and most productive employees, but in others they are the most vulnerable" (Silverstein, 2008), tending to have more severe work-related injuries that require more time off work and related health costs. While these age-related changes occur, it is important to recognise the positive behaviour and experience an older worker can bring to their job by enhancing and changing workplace culture, decreasing workplace stress, and reducing staff turnover by mentoring and training younger workers. Strategies to enhance the work environment and promote active ageing in the workplace are vital to reduce injury risks, lost workdays, and relative injury management costs.

Physiotherapists offer a wide range of services and are educated in identifying workplace and individual risks and implementing strategies aimed to maintain an ageing employee's work capacity and wellness to enhance workplace culture and productivity now and in the future.

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