

# OCCUPATIONAL HEALTH

## SPECIAL INTEREST GROUP

### GREETING OHSIG MEMBERS!

**APTA Combined Sections Meeting took place Feb 8-11, 2012 in Chicago IL.** More than 12,000 PTs/PTAs/students and others attended! It was a great opportunity for networking and learning.

**Occupational Health Special Interest Group (OHSIG) programming featured speakers included Dee Edington, PhD; Joannette Lima, CPE, PT; and Cory Blickenstaff, PT, OCS.**

### INTRODUCTION

**A culture of wellness at job sites—including every physical therapy practice setting—benefits individuals, society, and corporate health.** Starting with their own workplace, PTs have a unique opportunity to assist industry in the creation of a healthy and high-performing workforce. Conclusions from longitudinal studies encourage a change from the illness/injury model to one that promotes and gives incentives for wellness. This session examined the evidence-based, transformational approach to creating a healthy and high-performing workforce. The speakers addressed how individual health promotion, organizational environments, and workplace cultures impact health care cost containment, disability, productivity, and human resource development. The PT's role in this novel approach was explored by therapists currently working with industry.

Dee Edington's presentation focused on "Partnering with Business to create a healthy, high performing workforce... Changing the Conversation from Injury Management to Wellness Activities: Health Promotion in your Practice Setting and on the Job Site."

Edington is a pioneer in wellness and the director of the University of Michigan Health Management Research Center. His book "Zero Trends: Health as a Serious Economic Strategy" examines ways employers can head off health insurance cost increases by targeting risk factors and overall systems instead of individual defects.

In an enlightening presentation, Edington discussed how the business community is what is driving the change in how we view health care, because they have to. They are the only ones in this country that benefit from people being well and healthy. Everyone else benefits from people being sick! Our whole health care system is founded on waiting until people get sick and then treating them. We need to reverse this, to fix the systems that lead to the defects. That's what wellness is about, trying to avoid the defects. Edington goes on to say that employers are tired of paying for sickness. They want to pay for wellness—they understand that no company is going to be successful going forward in this competitive world without healthy, productive people.

The second part of the programming featured two physical therapists who work in industry toward keeping workers healthy and productive: "Changing the Conversation from Injury Management to Wellness and Health Promotion in your Practice Setting and at the Job Site." Joannette is the safety services manager for Disneyland. She discussed her role in ergonomics for Disneyland. Cory is a WorkWell Quality Provider who works with industry directly providing onsite services. Joannette and Cory presented a thought provoking discussion on partnering with business to create a healthy, high performing workforce.

We thank Dee, Joannette, and Cory for their insightful presentations!

Following the OHSIG Programming, the OHSIG Business Meeting took place. Current OHSIG officers include:

Margot Miller, President  
Lorena Pettet Payne, VP/Ed Chair  
Sandy Goldstein, Communications Chair  
Kevin Svoboda, Membership Chair  
Rick Wickstrom, Payment Policy Chair  
Kathy Rockefeller, Research Chair  
Jill Galper, Nominating Chair  
Nicole Matoushek, Nominating Committee (newly elected)  
John Lowe, Nominating Committee (newly elected)

The OHSIG BOD meeting took place at CSM as well. All members were present. Karen Jost, Associate Director Payment Policy & Advocacy at APTA, attended the meeting. She presented a draft agenda for workers' compensation payment policy advocacy. She asked for assistance from the OHSIG as she moves forward with the agenda as a benefit to members. Karen presented a preliminary review of work comp regulation across the United States. The APTA Payment Policy is joining in the conversation regarding "Place of Service" codes, which the OHSIG assisted with.

The strategic plan was revisited with a couple of revisions made.

The OHSIG Bulletin Board, which is not being used by members, was discussed. The Board's focus is to meet the needs of current and prospective OHSIG members by disseminating information and encouraging discussion among members. We will continue to explore a networking venue that is accessible, cost neutral, and serves the needs of the membership.

Rick Wickstrom discussed the power point that he developed including information on OHSIG developed FCE Guidelines, Defensible Documentation, and Advanced Work Rehab Guidelines. If you are interested in presenting this at a State Chapter level, contact Rick at rick@workability.us.

The office of OHSIG President is up for election later this fall. The term is 2013-2016. If you are interested in running, contact Jill Galper, Nominating Committee Chair at Jill.Galper@imxmed.com.

As always, your BOD members are listed on the Web site. We welcome your feedback!

*Professional Regards,  
Margot Miller, PT  
OHSIG President*

## THE IMPACT OF OUR AGING WORKFORCE: HOW PHYSICAL THERAPY PROFESSIONALS CAN IMPROVE THEIR OUTCOMES

By Nicole Matoushek MPH, PT, V.P. of Product Development at Align Networks, she has nearly 20 years of experience in the Physical Therapy/Workers' Compensation industry; she can be reached at nmatoushek@alignnetworks.com or www.alignnetworks.com

As physical therapy clinicians, it is always important for us to evaluate the demographics and characteristics of our patient population. This is a critical function in care and treatment planning, as well as in managing our outcomes metrics. In the Workers' Compensation industry, this becomes even more important as we facilitate the safe and appropriate return to work of aging injured workers.

We are all familiar with some of the general effects of the aging body. In fact, many of us groan as we see these changes in our own bodies. Yet, this is not all bad, as someone told me the other day: "quit complaining about getting older, it is a privilege many are denied." Just as at times we need to adjust our mental perspective, at times we need to adjust our therapy focus to better fit the aging population. As therapy professionals, we can absolutely make a positive impact on the health, the abilities, and general well-being of our older workforce. Let's first look at some of the important trends and changes in human physiology that affect the aging workforce, so that we can modify and optimize treatments and expectations to produce a win-win outcome for all.

### Aging Workforce & Injury Trends

The aging workforce is defined as those individuals aged 55 and higher. Currently, this part of our workforce consists of a higher proportion of the overall workforce, reflecting 19% of the workforce in 2009, up from only 12% of the overall workforce in 2003. Many of these folks continue to work past the traditional retirement age due to both financial and personal reasons. When we look at financial impacts, we see that the economic recession, the invention of 30-year mortgage, and higher overall living costs have all been linked to the growth of the aging workforce. Additionally, people are living longer and they desire a more active lifestyle, a lifestyle that continues to challenge them both physically and mentally. This fact is also shown to be correlated to the increase in the percentage of people foregoing retirement until later years.<sup>1</sup>

Next, when we examine work-related absences following a

work-related injury, we see two things; that longer durations of work absences steadily increase with age, and the median number of lost work days after injury increases with age.<sup>2</sup> When we examine various injury trends of this 55+ demographic of our workforce, we find some interesting facts that can help us develop more focused treatment and injury prevention plans. First, we find that the most frequently injured body parts are the following: ankles, wrists, arms, fingers, and hips. Second, when we evaluate the mechanism of injury causing or contributing to the injuries of our aging workforce, we find the most common means of injury is due to falls. After fall frequency, we find that overexertion and contact with an object are the next most common ways older workers are getting injured. When we examine the conditions and types of tissues that appear most susceptible, we see that most of the injuries are strains, sprains, or soft tissue injuries. However, we do see a higher incidence of fracture rates in this population, which may correlate to the higher fall risk noted above. We also tend to find more patients with multiple injuries and also more co-morbidities present. All of these factors may contribute to delayed healing, longer recovery times, and extended episodes or durations of therapy and may also explain the longer absences and time away from work.<sup>3-5</sup>

### What & How Injuries Happen in the Workplace

In your physical therapy practice, if you treat injured workers, young or old, it is important to gain an understanding of how and why these workplace injuries occur. This insight will advance your clinical skills and help you to provide more efficient, goal directed treatment plans that focus not only on functional improvement, but also on the prevention of additional injury and general well-being. Typically, workplace injuries occur due to two primary mechanisms—force-related and cumulative trauma and exposure to ergonomic risk hazards.

With direct force related injuries, we have to go back to our college physics course and recall our lessons on force. Forces have characteristics such as speed, size, and direction. When a force is directly applied to a body, the energy must be absorbed, deflected, or returned. Recall the physics Law, the Law of Motion & Energy: *Energy cannot be created or destroyed, but it can change in form or be absorbed.* This means in instances where we have force related injuries, such as a fall, getting struck by an object, a bodily reaction injury or even a deceleration injury, the mechanism of injury is all about that transfer of energy. In these types of motion injuries, the injury is caused by the body's absorption of potential or kinetic energy: falls (potential/gravity) and hit by object (kinetic energy). In fact, a deceleration injury, such as from a motor vehicle accident is also a result of the body absorbing energy. Generally, the severity of the injury depends on the size, speed, and direction of the force applied.

Next, we have cumulative trauma or exposure injuries. We typically classify these as ergonomic-related injuries. Clinically, ergonomic work-related injuries occur when there is inadequate blood flow or tissue recovery time due to work cycles or exposure to ergonomic risk factors. In these injuries, tissue damage can lead to inflammation, degeneration, loss of function (ROM, strength), impairment, and even disability. The injury types are commonly called: overexertion injuries, repetitive strain injuries, or cumulative trauma disorders. The key is

that these injuries occur over time, with repeated exposure to specific ergonomic or safety risk factors. Traditional ergonomic risk factors are listed below:

- Forceful exertion
- High repetition
- Awkward postures/working outside of “optimal” or neutral joint postures
- Sustained postures
- Contact stress
- Personal protective equipment (PPE)/Gloves: *Increase grip needed by 10%*
- Shift work/schedules/over time requirements

### Physiological Changes on the Human Body Related to Aging

This section provides an outline of the specific physiological changes that occur to the human body as it ages. In regard to functional deficits a Physical Therapist can address, we will focus on these primary areas of concerns:

- 1) Bones & Joints
- 2) Eyes
- 3) Metabolic/Co-morbidity
- 4) Vascular Changes
- 5) Dehydration
- 6) Functional Abilities

For each physiological change, some key factors that may impact worker safety and/or performance will be included.<sup>6,7</sup>

### Age Related Changes: Bones & Joints

The weight bearing and movable joints have the highest risk for age-related degenerative changes. In fact, we see a much higher risk for osteoporosis and osteoarthritis in our older population; this risk increases significantly over the age of 40. We see less synovial fluid in the joints, less flexibility of contractile tissues, and more compression of joint surfaces. Clinically, we see losses of ROM, flexibility, and strength, accompanied by a higher fracture risk for the spine, hips, wrists, and ankles.

### Impact on Work:

In the workplace, for our aging workforce we observe these trends due to changes in the bones and joints:

- Poor/awkward postures
- Higher risk for cumulative trauma disorders
- Slower tissue recovery rates
- Painful, slower movement, lower productivity
- Higher fall risk, 1/3 of all 65+ population fall each year

### Eyes: Age Related Vision Problems

Almost everyone experiences changes in their eyesight as they age. Visual accommodation begins to weaken at around age 40, forcing many to use bifocals or increase their eyewear prescription. Additionally, macular degeneration and cataracts begin to appear at age 50. Below are some common visual impairments related to age-related vision changes:

- Loss of visual accommodation, acuity & contrast: age 40+
- Presbyopia: loss of ability to see close objects; corrective lenses, bifocals: age 60+
- Retinal damage, diabetics
- Loss of lateral visual field

### Impact on Work

These visual changes and impairments may affect the aging worker in performing his or her duties safely.

- Poor/awkward postures to accommodate, increased muscle strain, injuries, degenerative joint/disc diseases
- Increased eye strain/dryness
- Reduced ability to see safety warnings
- Higher injury risk due to limited vision

### Metabolic: Age Related Changes

The aging population also sees a higher incidence of metabolic related co-morbidities and their associated diseases. Clinically, we can see this manifest in our patient population as muscle weakness, fatigue, dizziness, or other side effects due to specific medications. Certain metabolic conditions come with a higher risk for type 2 diabetes, heart disease, stroke, and other vascular changes. In fact, 40% of adults ages 40 to 74 have pre-diabetes signs. Additionally, we are also seeing our population is getting heavier, with higher body fat/BMI and their associated adverse health effects.

### Impact on Work:

This can impact the aging worker with higher injuries rates and slower recovery times.

- Fatigue, weakness, higher musculoskeletal injury risk
- Higher fall risk
- Delayed healing postinjury
- More lost work days postinjury
- Age-related diseases/co-morbidity rates increase

### Vascular: Age Related Changes

Aging causes several changes to our vascular system that will ultimately affect our endurance and aerobic capacity. As stated above in the ‘how do work injuries happen section,’ cumulative trauma disorders are a result of inadequate blood flow based on work-recovery times. Based on the physiologic changes cited below, the older population and aging workforce may be working harder to accomplish less. As we age, arteries stiffen resulting in higher blood pressures. We see a diminished ability to regulate our heart rate, with resultant diminished peripheral blood flow. Specific deficits may include:

- Oxygen exchange – 40% lower at 65 years
- Respiratory system – 25% less at 65 years, 50% less at 70 years
- Cardiovascular system – 15% to 20% less at 65 years

### Impact on Work:

The impact on the aging worker relates to the diminished recovery time with workloads or postinjury.

- Deconditioned, poor activity tolerance, slower recovery rate, fatigue
- Higher injury, slower recovery

### Dehydration: Getting Older, Getting Drier

As we get older, we lose a significant amount of water from our tissues. In fact, look at the changes of the percent body water composition during certain life stages:

- Newborn: 90%
- Young adult: 70%



- Elderly person: 50%-60%

As we get older, we truly do get dryer, which affects tissue elasticity and chemistry. Optimal function, even at a cellular level, requires sufficient water composition. Physical decline can be lessened and tissue healing can be enhanced with proper hydration. Clinically, we understand that dehydration can manifest into light-headedness, dizziness, muscle weakness, loss of attention, and fatigue. This can affect how a person performs in the clinic as well as at work.

#### Impact on Work:

The impact on the aging workforce relates to higher risk for injury due to slower recovery times.

- Slower musculoskeletal recovery times, higher injury risk
- Use of PPE or extreme heat can worsen
- Reduced productivity

#### **Functional Changes: Age Related**

Diminished muscle strength, flexibility, coordination, reflexes, balance, loss of range of motion, and general deconditioning are all clear signs of the body progressing in years. Below you will find significant deficits in these measures of function:

- Strength: 25%-30% lower at 65 years
- Flexibility: 18%-20% decrease at 65 years
- Reaction time & speed: decreases
- Manual dexterity & tactile feedback: motor skills deteriorate
- Grip Strength: decreases 40% by age 55

Clinically, we also tend to observe a higher incidence of co-morbidities with pathophysiological affects: diabetes, heart disease, circulatory problems, nervous system, and other conditions. These conditions may worsen levels of function even more due to direct assault on tissues by specific disease states. Lastly, the aging population also tends to take more medications than the younger population. Many of these medications have side effects that directly impact the level of function or impair the level of function, such as changes in heart rate, dizziness, nausea, blurred vision, etc.

#### Impact on Work:

The impact on the aging workforce may relate to their fall risk and the need to secure more sedentary positions:

- Safety & injury risk: falls!
- Less physically demanding jobs

#### **Prevention: Wellness & Education**

As physical therapy professionals, we have a strong presence and professional responsibility to assist in the general wellness, education, and injury prevention for the aging population. Points of focus may include educating and encouraging our older patients to participate in wellness programs. For example; encouraging them to get regular check-ups for dental, eye exams, and physician exams; participating in a regular exercise program; and the importance of proper diet and hydration. Another point of focus may be to include education on home safety in an effort to reduce the risk for falls. Examples of home safety tips may

include the following: educating on the need to have well lit walk-ways and hallways; to have slip resistant floor surfaces in their home; and to remove trip hazards such as electrical cords and area rugs.

When preventing injuries in the workplace for the aging population, reducing fall risk is a priority. Programs that include pre-screening and matching the abilities of the worker to the physical demands of the work tasks help to ensure safety and minimize injury risk. If an injury occurs, then a post-therapy, work conditioning program may be appropriate to help the aging worker safely transition physically back to performing full work duties. Lastly, ergonomics programs at the worksite can help ensure workplace safety by analyzing body mechanics and changes in posture due to the aging body. These programs can offer ergonomic adjustments to workstations, identify alternate equipment solutions that will reduce joint stress or modify work cycles for the aging population.

#### **PT Management of Injuries: Aging Patients**

As physical therapy professionals, we have a responsibility to provide medically necessary care and customize our treatment plans based on the needs of the individual patient. With an aging patient, we may need to recall how the aging process affects the human body, and that these affects can influence how our patients comprehend, see, or follow our exercise prescriptions. For example, an aging patient who may suffer from visual loss may require an exercise sheet with larger print and images, or additional written instructions. An older patient who has a loss of hearing may require more verbal cueing. As therapists, we should focus our treatment plans to address the bone and joint degenerative changes, the loss of muscle strength, and tissue atrophy. Finally, we should acknowledge the potentially slower tissue recovery times due to both metabolic and cardiovascular changes, and modify exercise prescriptions according to individual patient needs. We should then provide written documentation, and offer clinical rationale for any extensions of therapy that may be required beyond the recommended clinical guideline. It is important to address these slower tissue recovery times in treatment plans as well as in documentation.

#### **Key Summary Points from this Article**

(1) Understanding the trends of the aging population, including the aging workforce, and how workplace injuries occur is critical to effectively managing therapy plans and outcomes.

(2) It is important to recognize the changes in the human body as it ages. Additionally, it is important to understand how these changes in the human body can impact one's health, physical therapy clinical care, and ultimately on physical therapy outcomes.

(3) When treating patients in this older workforce, physical therapy treatments should focus on both prevention and injury management. Treatments should include directives towards functional gains, safety in the workplace and at home, and also emphasize return to work.

(4) Episodes of therapy care may be extended in the older population due to physiological changes, injury type, and/or co-morbidities. In these instances, the continuance of therapy care should always be supported with objective clinical documentation.