

## Managing Safety for an Aging Workforce: Hope, Tactics and Strategies

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## Objectives

Provide you with an opportunity to:

- Gain perspective on the realities of the aging workforce – replacing myths with facts.
- Learn about research on older worker injuries and disability.
- Receive practical ideas in the areas of Job Design, Controlling Fall Hazards, Early Return to Work for Injured Workers, Adaptations Geared to Older Workers, and Management Practices.



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## Who Are "Older" Workers?

- Scientists: > age 50-55
- Aging effects manual laborers > 40 y.o.
- Mining industry research 45+ y.o.
- Seniors 65 y.o. or older
- Age Discrimination in Employment Act (ADEA): Any worker over age 40
- Defined by AARP as 50+



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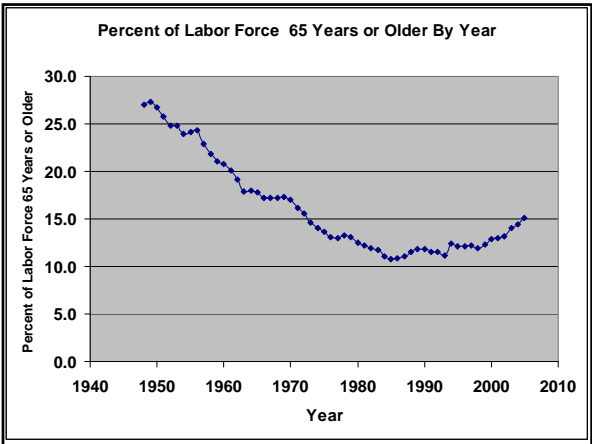
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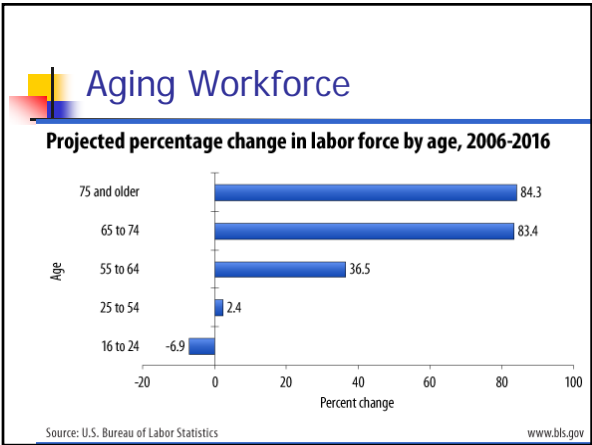
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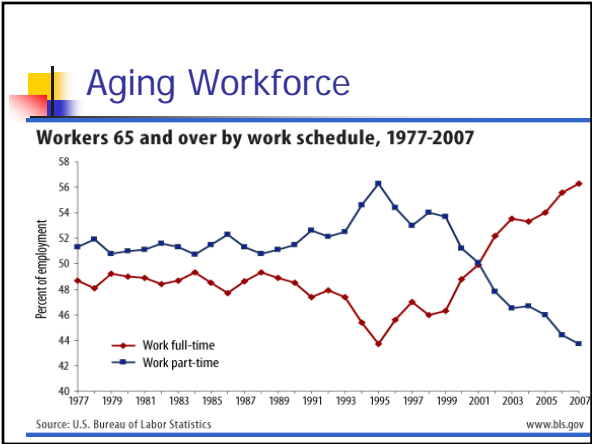
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### Why is the population of older workers increasing?

Source: Mort Gerberg, 2007, Last Laughs

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### Why is the population of older workers increasing?

- Baby boomers born 1946 - 1963
- Retirement age (66+ for SSA)
- Life expectancy: death – chronic disease
- ↓ health insurance availability
- ↓ savings
- Women: divorce → poverty
- Boredom? Social contacts? Contribution?

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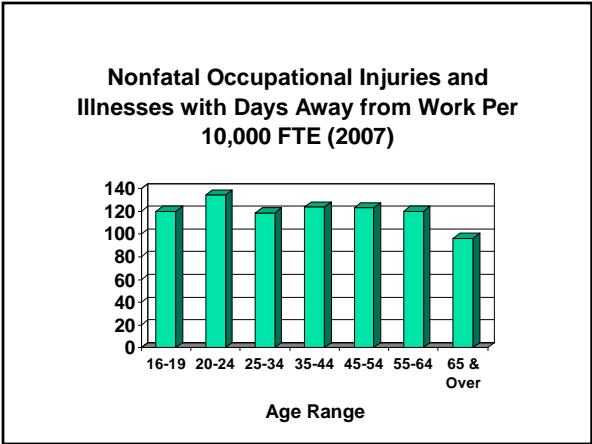
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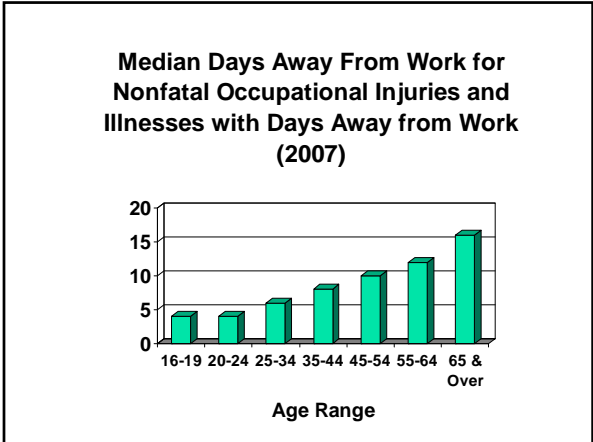
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### Are older workers forgetful?

**Declines in:**

- Episodic (What did I have for breakfast?)
- Source (Where did I learn about that new car?)
- Flashbulb (Where was I Sept 11, 2001?)

**Less Change in:**

- Semantic (words, facts and concepts)
- Procedural (riding a bicycle)
- Essentially NO change in implicit learning

Source: APA Online, *Memory Changes in Older Adults*, <http://www.psychologymatters.org/memchanges.html>, Accessed 11 Sept 2006.

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### Do older workers have a hard time learning?

- No.
- But older workers can require about 50% more training time to learn.
- Some of this is due to their increased knowledge and the context of established methods that result in more processing to integrate new information or procedures.
- Older workers are more likely to complete training programs than younger workers.

Source: Fisk, et al., 2004. Designing for Older Adults. Boca Raton, FL: CRC Press.



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### Are older workers as productive as younger workers?

- Difficult to measure.
- In many jobs the experience, quality and learned efficiencies of older workers make them MORE productive than younger workers.
- In jobs that max out an individual's physical capacity, older workers may have a more difficult time being as productive as younger workers.

*If in the last few years you haven't discarded a major opinion or acquired a new one, check your pulse. You may be dead. - Gelett Burgess*



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### Do older workers have decreased physical capabilities?

Yes:

- We lose an inch in height between the ages of 20 and 60
- We lose 25% of our maximum strength. More in lower extremities.
- We lose 50% of our reaction time.
- Also reduced:
  - Visual acuity, dark adaptation, contrast, color contrast.
  - Hearing acuity (higher frequencies, discrimination, "what?")
  - Maximum Heart Rate
  - Maximum oxygen consumption
  - Recovery from glare



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### Some Good News!

- Individual variability is **VERY** high.
- Some of the published differences of older people may be overstated, due to being erroneously based on **non-workers** and tests that are NOT applicable to **real-world work**.
- Sub-maximal endurance and continuous-work capacity relatively unchanged.
- Declines in physical strength are more closely related to **DISUSE** rather than chronological age!
  - Strength training in 60 to 70-year olds can compensate for much of the "age-related" declines in strength through muscle fiber recruitment and coordination.



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### Some MORE Good News!

- While older workers have more sickness absence days, they are **less** likely to miss work due to non-injury reasons (e.g., family obligations.)
- Older workers develop compensatory strategies (time-acquired skills?) that make them as effective as or **more effective** than younger workers for many kinds of tasks.
  - E.g., Experience compensates for error corrections, Accuracy traded for speed, context experience compensates for auditory processing decrements, etc.

*Old minds are like old horses; you must exercise them if you wish to keep them in working order.*  
– John Quincy Adams



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### Commercial Pilots 1993 FAA Study

- 3,306 Commuter Air Pilots
- Age → LESS Crashes, Errors, Risk!
- Sudden Health Events (e.g., heart attack) **RARE** and **NOT** predicted by medical screening; **WEAK** age-relatedness
- FAA Conclusion: Mandatory Age 60 retirement
- (Dec 13, 2007 – increased to 65!)

Captain C.B. Bully Bullenberger



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## Older Worker Study Pransky, et al., 2004

- All workers age > 55 with LT WC claim in 2001 in NH (n=1540)
- Matched (same gender / injury type) with younger workers



*The secret of staying young is to live honestly, eat slowly, and lie about your age. – Lucille Ball*



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## Multivariate Analysis

- Job tenure, job satisfaction, and treatment satisfaction account for more of variance in outcomes and problems in RTW
- Age + prior injury were **not** strong contributors to the model (except for financial impact of the injury, where age had a PROTECTIVE effect for older workers.)
- Importance of workplace attachment and response to injury equal to or greater than severity or medical issues



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## A Suggested Strategy for Improvement

1. **Evaluate your organization's perception of older workers and recognize the adverse consequences of unhelpful perceptions, if necessary.**
2. Analyze your Losses to Determine any Age-related trends.
3. Emphasize controls for leading loss areas.
4. Examine slips and falls controls in more detail.
5. Strengthen ERTW practices.
6. Educate yourself on age effects (and non-effects) and ways to adapt the workplace and manage the workforce through long-range planning and policy development.



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## Problems with Negative Perceptions

- Can include false perceptions that older workers are “the problem” which can focus attention away from hazard reduction, management responsibility and program development.
- Can lead to perceptions that older workers cannot be returned to modified work effectively, leading to prolonged disability.
- Can lead to self-perceptions by older workers that they are getting too old to do the job safely, and thus prolong disability.

*Growing older is not upsetting; being perceived as old is. – Kenny Rogers*



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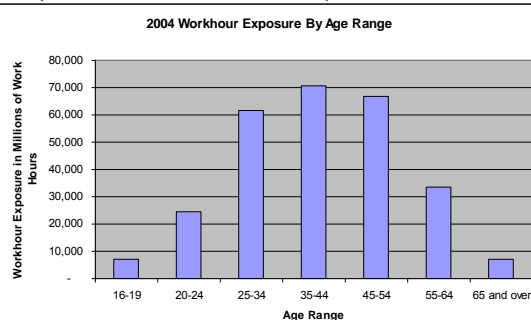
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## 2004 Age Demographics (In Millions of Hours Worked)



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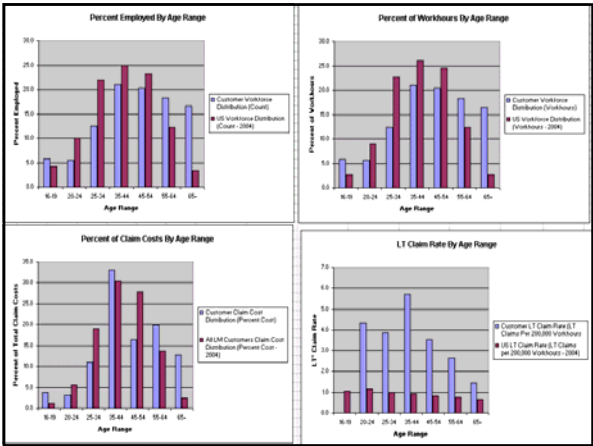
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### Emphasizing Controls for Loss Leaders

- Exposures leading to loss for all employees will be exposures for older workers too!
- Often MMH and Slips and Falls. Sometimes RMI.

*Old people shouldn't eat health foods. They need all the preservatives they can get. – Robert Orben*

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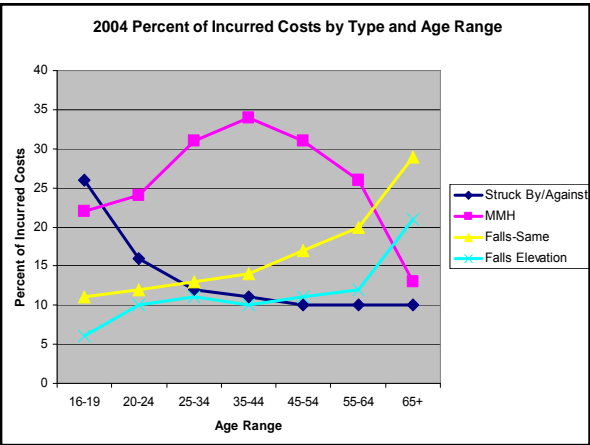
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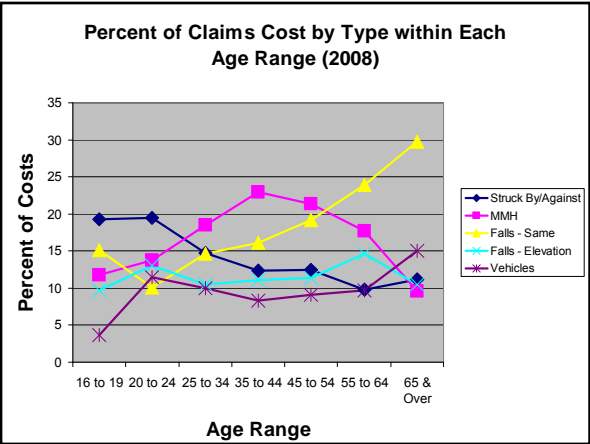
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## Causes of Slips, Trips and Falls

- Tribology
- Ergonomics
  - Aging population
    - Vision
    - Reaction time, strength
- Biomechanics
- Psychology
  - Distractions
  - Transitions
  - Perceptions of slipperiness
- Others



Gary Larson's The Farside®



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## Aging and Slips & Falls

- Vision, strength and reaction time reduced.
- We slip just as much when we get old, but are not as able to recover from the slip, leading to more falls.
- Over age 65 most likely injury is a fracture.
- Facility design for falls prevention is very much about ergonomics.



Gary Larson's The Farside®



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## Age and Vision

- Range of visual accommodation; visual detection of hazards
- Loss of **contrast sensitivity** (diabetes, other illnesses)
- Poor dark adaptation (slow/incomplete)
- Less **color sensitivity**
- **Glare sensitivity** (cataracts, reduced glare recovery >age 50)



Glare & dark adaptation

High contrast



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### The 10 Aspects of Same-Level Falls Prevention:

- Floor Materials / "Treatments"
- Contaminants
- Floor Cleaning Protocols
- Tripping Hazards
- Footwear

- Lighting
- Stairs and Ramps
- Mats
- Incident Reporting
- Training and Signage



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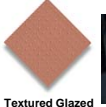







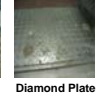


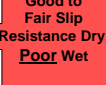
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### Performance

 Unsealed Brushed Concrete	 Quarry Tile with Embedded Grit	 Textured Glazed Ceramic Tile with Raised Points	 Carpeting	 <div>Excellent to Good Slip Resistance, BOTH Wet and Dry</div>
 Textured Porcelain Pavers	 Quarry Tile withOUT Embedded Grit	 Textured Rubber Tiles or Sheets	 <div>Good Slip Resistance Dry, Fair Wet</div>	
 Terrazzo	 Diamond Plate	 Hardwood Floors	 Vinyl Composition Tile (also Glazed ceramic or porcelain)	 <div>Good to Fair Slip Resistance Dry, <u>Poor</u> Wet</div>

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### Color and Visual Contrast

- ADA specifies that detectable warnings "shall contrast visually with adjoining surfaces, either light-on-dark, or dark-on-light." (70% contrast in light reflectance value LRV)
- **Safety Yellow** (ISO 3864, ANSI Z535.1) "most visually detectable" (US Access Board Research).

  
Safety Yellow



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### Transitions and Visibility



A step here somewhere?

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### Lighting/Illumination

- ANSI/IES, *Lighting Handbook* recommends 200 to 500 lux (20 to 50 foot candles) for VDT work or, preferably, 30 to 40 foot candles with documents.
- Stairwell lighting preferably 20 foot candles
- *"What might be bright enough for a healthy thirty-year old is not close to being adequate for an aged individual with impaired vision" \**

\*IES *Lighting Handbook*, 8th Ed., Illuminating Engineering Society of North America (IESNA), 1993



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## Strengthen ERTW Practices

- Flexibility in job descriptions for temporary "ERTW Status."
- Pre-injury education.
- Job demands communication to and from treating physicians.
- Increase positive supervisor communication with injured workers.
  - See: Shaw, et al., 2006 and Pransky and Shaw, 2002: Injury Response: Optimizing the Role of Supervisors

*If you take all the experience and judgment of men over fifty out of the world, there wouldn't be enough left to run it. – Henry Ford*



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## Supervisor Training to Optimize Response to Worker Injuries

Shaw, et al., 2006

- Food Processing Plant
- 11 supervisors trained, 12 in control group (delayed training).
- 4 hours of Content:
  - Communication skills
  - Respect of Injured worker
  - Ergonomic Accommodations for Injured Workers
- Claims 7 months before and after workshop
- 47% reduction in new LT Claims, 18% reduction in existing claims VERSUS 27% and 7% for Control Group.



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## ADAPTATIONS to the Workplace



- Evaluate individuals, avoid generalizations!!
- Training – no different unless age-specific problems arise
- Training Problems? Consider several strategies
  - Allow more time for instruction and PRACTICE time.
  - Peer trainers,
  - Case – and real-life based,
  - Practice in an “error-friendly” environment,
  - Ensure good training room lighting and large fonts,
  - Instructional lists instead of paragraphs,
  - Minimize procedural steps (Process Analysis/Redesign),
  - Consider computer based training



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## More Adaptations

- Consider pre-placement medical evaluations for jobs where many are transitioning from sedentary to physically-demanding employment (must cover ALL employees!)
- Computer problems in older workers? Same as for ALL workers! (Set-up, glare, font sizes, pointing devices and adjustments, etc.)
- Promote fitness/wellness. (smoking, diet, exercise – w/med. eval.)
  - Combination programs may work best.
  - Health insurance coverage for prevention (e.g., vision, hearing)
  - Adequate incentive for change?
- Chronic illness – programs to address problems in workers regardless of age



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## Even More Adaptations

- Ensure work schedules are designed to minimize risk and provide for adequate flexibility for all workers.
- Evaluate lighting needs throughout the operations.
- Ensure walking paths are free of slip and trip hazards and stairs and ramps are designed to accommodate the safety and needs of all workers.
- Ensure adequate supervision on all shifts, in all departments.



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## MANAGE the Workforce

- Is adequate career progression available and supported by available training / education/mentoring?
- Do heavy physical jobs have an open career path to less strenuous supervisory/management/training jobs?
- Hire new workers far in advance to be mentored by retiring workers.
- Evaluate early retirement plans. Strengthen them to make the choice voluntary and positive.
- Be creative with reduced hours per week while retaining health benefits to attract high-skill older workers.

*Retirement at sixty-five is ridiculous. When I was sixty-five I still had pimples.*  
– George Burns



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*"We have no mandatory retirement age, Dave, but under certain conditions we tend to encourage people to die."*

Source: Mort Gerberg, 2007, Last Laughs

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## Acknowledgements

George E. Brogmus, MS, CPE, Liberty Mutual Group, Burbank, CA.

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QUESTIONS?



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