

## Designing an Age-Friendly Workplace

| Age-related change   | Safety and health implications  | Solutions  |
|--|---|--|
| <p><b>Strength</b></p> <ul style="list-style-type: none"> <li>▪ Decrease in number and size of muscle fibers</li> <li>▪ Large muscle groups, explosive physical efforts most affected</li> </ul>                                 | <p>For same tasks, %MVC will be higher.</p> <p>Physical demands of some tasks may be near maximum capacity.</p> <p>Weaker leg muscles may result in more use of the back muscles for lifting, etc.</p>  | <p>Reduce strength requirements for tasks through mechanization.</p> <p>Reduce the weight of loads lifted, store heavier items at waist level, or implement 'zero lift' policies.</p>  |
| <p><b>Endurance</b></p> <ul style="list-style-type: none"> <li>▪ Maximum aerobic power reduced 30% by 65 years-old</li> </ul>  | <p>Physical demands of some tasks may be near maximum capacity.</p> <p>Fatigue may result in more errors, accidents.</p> <p>Can be a factor in respirator use.</p>  | <p>Reduce physical demands of tasks through mechanization.</p> <p>Increase rest break frequency and duration.</p> <p>Frequently assess health status to see if additional medical evaluations are required, reduce physical demands of tasks where respirators are worn, or eliminate need to use a respirator through changes in methods and materials.</p> |
| <p><b>Flexibility and joint range of motion</b></p> <ul style="list-style-type: none"> <li>▪ Tendons stiffer and more vulnerable</li> <li>▪ Ligaments lose elasticity</li> <li>▪ Deterioration of cartilage in joints</li> </ul> | <p>Awkward postures and movements, bodily reaction, slips and trips more likely to result in injury.</p> <p>Flex and stretch programs may no longer be effective, might cause injury.</p> <p>Osteoarthritis may increase risk for other MSDs.</p> | <p>Position work and loads close to the body.</p> <p>Reduce reach distances by removing obstacles, reducing the size of loads, using "Lazy Susans", and so on.</p> <p>Use height and tilt adjustable worksurfaces or fixtures to reduce awkward postures.</p> <p>Redesign stretching programs.</p>   |

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| <p><b>Balance</b></p> <ul style="list-style-type: none"> <li>▪ Decrease in postural steadiness and sensation</li> <li>▪ Decrease in leg strength</li> </ul>                                       | <p>Slips, trips and falls more likely.</p> <p>More effort required when walking, can result in more fatigue.</p>  | <p>Practice good housekeeping; repair and maintain floors.</p> <p>Use slip resistant materials on floors.</p> <p>Provide good lighting on stairs, etc.</p> <p>Provide handrails.</p> <p>Use alternatives to ladders such as personnel lifts or platforms.</p> <p>Redesign to reduce walking distances or provide transportation.</p> |
| <p><b>Reaction time</b></p> <ul style="list-style-type: none"> <li>▪ 40-year old requires 25% more time to react</li> <li>▪ 60-year old requires 150% more time to react</li> </ul>               | <p>Responding to sudden events while driving, operating a forklift, etc., may be slowed.</p> <p>May not be able to prevent a slip or trip from becoming a fall.</p>         | <p>Assess driving skills, machine operation skills periodically and provide additional training as needed.</p> <p>Practice good housekeeping; repair and maintain floors.</p> <p>Use slip resistant materials on floors.</p> <p>Provide good lighting on stairs, etc.</p> <p>Provide handrails.</p>                                  |
| <p><b>Chronic health conditions</b></p> <ul style="list-style-type: none"> <li>▪ Heart disease</li> <li>▪ High blood pressure</li> <li>▪ Diabetes</li> <li>▪ Obesity</li> <li>▪ Cancer</li> </ul> | <p>May create fatigue issues.</p> <p>Some conditions, such as diabetes, can affect peripheral nerves.</p> <p>Obesity can change body mechanics, increase risk for MSDs.</p> | <p>Focus on health promotion to prevent disease, manage symptoms.</p> <p>Provide accommodations where appropriate.</p>   |

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| <p><b>Vision</b></p> <ul style="list-style-type: none"> <li>▪ Ability to discern details - declines 26% by age 60</li> <li>▪ Restricted field of vision</li> <li>▪ Loss of depth perception</li> <li>▪ Decreased ability to discriminate contrast and color</li> <li>▪ Reduced night vision</li> </ul> | <p>Could cause errors, reduce quality and productivity in visually-intensive tasks.</p> <p>May make it harder to read safety warnings, instructions, training materials.</p> <p>Could impair driving, forklift operation, especially at night.</p>                            | <p>Provide light levels appropriate to the task.</p> <p>Provide magnification for detailed work.</p> <p>Use clear, large signage and written print; reduce visual clutter.</p> <p>Position gauges and displays well.</p> <p>Provide color contrast.</p> <p>Assess driving skills, machine operation skills periodically and provide additional training as needed.</p>                             |
| <p><b>Light sensitivity</b></p> <ul style="list-style-type: none"> <li>▪ Slower to adapt when moving between light and dark</li> <li>▪ Decreased tolerance for glare and bright light</li> <li>▪ Increased need for illumination for reading, precision tasks</li> </ul>                               | <p>May not see hazards when coming into relatively dim interior from bright exterior, &amp; vice versa.</p> <p>May be temporarily disabled by bright glare.</p> <p>Can result in more errors, reduced quality and productivity, particularly in over-bright or dim light.</p> | <p>Eliminate the need to adapt to bright light from dark and vice versa.</p> <p>Provide light levels appropriate to the task.</p> <p>Provide more individual control over lighting.</p> <p>Eliminate glare.</p>  |
| <p><b>Hearing loss</b></p> <ul style="list-style-type: none"> <li>▪ Age related impairment starts around age 40, increases sharply around 60</li> <li>▪ Losses in high frequency range (5000 Hz) occur early</li> <li>▪ Difficulty hearing with background noise</li> </ul>                            | <p>May have difficulty hearing warning sounds, such as back-up beepers.</p> <p>May have difficulty hearing warning shouts, safety instructions, in noisy environments.</p> <p>Could increase feelings of social isolation.</p>  | <p>Focus on hearing protection program to minimize hearing loss.</p> <p>Provide hearing protection such as ear muffs that can be used with hearing aids.</p> <p>Keep signals in a mid-frequency range, or alternating frequencies like a siren.</p> <p>Reduce background noise.</p> <p>Reduce echoing with good acoustics.</p> <p>Provide important information visually in addition to sound.</p> |

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| <p><b>Temperature sensitivity</b></p> <ul style="list-style-type: none"> <li>▪ Body less able to compensate for hot or cold temperatures</li> <li>▪ More of body's energy goes to maintaining core temperature</li> </ul>   | <p>Can add to fatigue issues.</p> <p>Could be a factor in heat stress, hypothermia.</p> <p>May impact comfort when wearing PPE.</p>   | <p>Provide drinking water, shade, cooling garments, fans, air conditioning for work in heat.</p> <p>Provide additional protective clothing for work in cold.</p> <p>Provide additional rest breaks.</p> <p>Reduce the physical demands of tasks.</p>  |
| <p><b>Sleep disorders</b></p> <ul style="list-style-type: none"> <li>▪ Increased "morningness"</li> <li>▪ Less able to sleep through the night</li> <li>▪ Less able to tolerate shift work, jet lag</li> </ul>  | <p>Could result in drowsiness and fatigue during long shifts, late shifts.</p> <p>May not be able to cope with rotating shift work.</p>   | <p>Monitor employees on long shifts and during shift work for fatigue and other symptoms.</p> <p>Use forward rotating shifts (day to swing to graveyard) and rotate shifts every few days rather than once per week.</p>  |
| <p><b>Memory and cognition</b></p> <p>Decline in:</p> <ul style="list-style-type: none"> <li>▪ Short term memory</li> <li>▪ Reasoning &amp; processing speed</li> <li>▪ Ability to multi-task</li> </ul> <p>Increase in:</p> <ul style="list-style-type: none"> <li>▪ Long term memory</li> <li>▪ Quantitative knowledge</li> <li>▪ Depth &amp; breadth of knowledge</li> </ul> | <p>May have trouble remembering order of steps in infrequently performed tasks.</p> <p>May not be able to attend to multiple tasks at one time.</p> <p>May not be able to learn new procedures as well if trained using the same pacing and methods as younger workers.</p> <p>May be able to focus more on safety with greater knowledge of job tasks, different situations.</p> | <p>Design similar equipment to operate in similar ways.</p> <p>Reduce tasks requiring short term memory.</p> <p>Provide job support aides ("cheat sheets").</p> <p>Allow longer response time.</p> <p>Allow longer decision making time.</p> <p>Slow the rate of information presented.</p> <p>Use simple, familiar language.</p> <p>Reduce multi-tasking work.</p> |