TAKEAWAYS

Designing for Age-Related Changes Among

OLDER ADULTS

An Executive Summary on the Impact of Aging Populations on Healthcare Environments

INSIDE YOU WILL LEARN ABOUT:

Common age-related changes in physical abilities.

Frequently occurring age-related sensory changes.

Supportive adjustments to the physical environment that compensate for functional loss.

The Impact of Aging toolbox is made available through a partnership with

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Declines in strength, range of motion, dexterity, and mobility are common age-related changes among older adults. Providing chairs with high seats and strong arms, grab bars in bathrooms, lever faucet and door handles, and adequate space for maneuvering assistive devices are design strategies that can help compensate for age-related physical changes.

Designing for Age-Related Changes Among Older Adults

Development Through the Lifespan

In the field of developmental psychology, people are thought to pass through a series of life stages from infancy to old age. The abilities and needs of people at these different stages vary greatly. Childhood is a time of growth and development in sensory, cognitive, social, and physical abilities, while older adults can experience a decline in abilities and functions. These changes may be due to the aging process and/or limitations resulting from chronic disease.

In 2012, according to the U.S. Census Bureau, 36% of people aged 65 and over reported at least one type of disability (e.g., difficulty in hearing, vision, cognition, ambulation, self-care, or independent living) (He & Larsen, 2014). The most common disability was difficulty walking or climbing (reported by two-thirds of respondents).

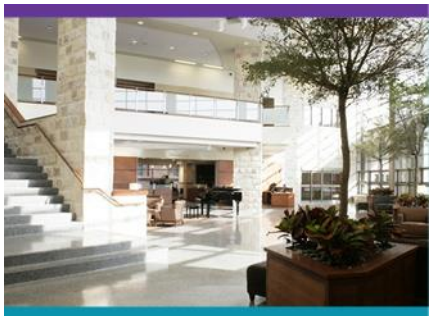
Environmental Stress

Environmental stress occurs when there is an imbalance between environmental demands and an individual's ability to respond. Older adults may be more easily overwhelmed by the environment as a result of sensory-motor and cognitive losses associated with aging.

Careful design of the physical environment can help compensate for many of the age-related changes older adults experience. The tables that follow summarize common changes that occur with aging and offer design strategies that can help older adults maximize independence.

Age-Related Changes in Physical Abilities	Potential Design Strategies
Strength	
○ Declines by 40–60% ○ Affects routine activities such as standing, walking, rising from chair, gripping, turning, pushing, carrying ○ Limits endurance and stamina	1) Areas to rest (bench, chair) in long corridors 2) Shower seats 3) Chairs with high seats (18–20") and strong, unpadded arms 4) Power door openers
Range of Motion	
○ Includes bending, stooping, kneeling, reaching ○ Becomes restricted with age due to stiff joints, reduced agility, and hip/knee problems ○ Determines how space is used	1) Counter surfaces at varying heights to accommodate seated users 2) Grab bars in shower, toilet, and sink areas 3) Raised toilet seats 4) More base cabinets and fewer wall cabinets to minimize reaching
Manual Dexterity	
○ Includes fine fingering movements such as turning, twisting, rotating ○ Also involves tasks that require fingers to be nimble and strong	1) Paddle or lever handles on faucets and doors 2) Push button or rocker switch light controls 3) Single-control faucets on sinks and showers
Mobility	
○ The major movements performed in the near environment include crossing short distances, standing in place, sitting and rising, lying down and getting up, going up and down stairs ○ May be performed independently or with assistive devices (e.g., walker, cane, wheelchair)	1) Allow space for maneuvering assistive devices in doorways and hallways 2) Eliminate stairs where possible 3) Curb-less showers 4) Handrails on both sides of stairs

Age-Related Changes in Sensory Abilities	Potential Design Strategies
Vision	
○ Retina receives less light ○ Decreasing ability to focus, adapt to changes in light levels, and resist glare ○ Yellowing of lens makes distinguishing blues and greens difficult	1) High, consistent light levels (general and task lighting) 2) Natural light where possible; reinforce circadian rhythm 3) Glare reduction strategies 4) Transitions between outdoor and indoor spaces 5) Colors in warm range; avoid blues and greens 6) Nightlights en route to bathroom 7) Illuminated light switch in bathroom
Hearing	
○ Sensorineural hearing loss most common among older adults ○ Difficulty hearing high-pitched sounds and discerning some consonants; highly sensitive to background noise ○ Hard to distinguish sources of sounds	1) Sound-absorbing materials (e.g., carpet, acoustic tile) 2) Private rooms 3) Control building noise (air handling, maintenance equipment, door closing) 4) Arrange seating to maximize visual access to lip-reading and facial expression (6 feet or less) 5) Provide redundant cueing (visual) for audible alarms (e.g., smoke detectors)
Balance/Coordination (Kinesthesia)	
Two groups of sensors: ○ Proprioceptive—indicates position of body in space. Decline in proprioceptive sensors causes older adults to move more slowly ○ Vestibular—part of the inner ear that gives input regarding head position and maintains equilibrium. Losses in vestibular sensors increase risk of falls	1) Smooth, uncluttered walking surfaces 2) Minimal level changes 3) Non-slip flooring 4) Handrails 5) Clear differentiation between floor and walls
Touch	
○ Receptors in the skin provide information about heat and cold, where an object is in relationship to the body, and how much of the body is in contact with an object ○ Steady decline in touch sensitivity increases risk of falls and burns	1) Safety water temperature controls 2) Rounded edges on furniture to reduce injury from bumps and falls
Body Temperature Control	
○ Third layer of skin (subcutis) controls loss of body heat. Much of subcutis lost with age ○ Density of skin's blood circulating system also lost ○ Older adults feel cold and often need temperatures 10–15 degrees higher to feel comfortable	1) Individual ambient temperature control 2) Blanket warmers 3) Heated floors



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Conclusion

Successful design depends on a good fit between the person and the environment. Understanding age-related changes in physical and sensory abilities is an essential step in designing appropriate spaces for older adults.

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