

# The Future of Aging: Innovative Ways to Help Older Adults Age Well

Alan D. Castel, PhD

**M**any people believe negative stereotypes about aging (e.g., it is all downhill) (Lamont, Swift, & Abrams, 2015). There are challenges that can accompany later life, such as poorer hearing, depression, declines in memory, and greater risk of falls and hospitalizations. However, relative to younger college-age adults, older adults (often defined as those over the age of 65) who are healthy and active report higher levels of life satisfaction and happiness. More people are living longer, retiring later or not retiring at all, and thus there are many more years to live beyond the age of 65. While medicine may add more years to our lives, an important goal of psychology and gerontology is to add more life to those years. Thus, what are the secrets of successful aging? Will future generations of older adults enjoy some benefits in terms of how technology and psychology can improve the quality of later life? Here I provide some of my insights on what the future may hold for those who are growing older (all of us!).

## Memory and Aging

One of the most common concerns of older adults is about memory declines (Pew Research Center, 2009). But this isn't just for those over the age of 65. People begin to show changes in their memory after the age of 20 – so when you are 50 or 60, these changes may be more apparent and more concerning. However, a lot of information is readily accessible at our fingertips. Wikipedia, Google, our cell phone, and other information repositories may allow us to off-load more information, freeing up our brain to think creatively. Artificial intelligence may help a future generation in terms of remembering and making new memories (like the science-fiction movie *Total Recall*), but wisdom will be needed to know how and when to use these memories. Metamemory – the ability to know what we know, and what we don't know, will be relied on even more as we have access to large (and often excessive) amounts of information. Older adults often show good metamemory, and as we age, knowing what is important to remember is the key to using your memory effectively (Castel, 2008).

An exciting innovation is training the brain with interactive computer games, but as of yet, this form of brain training has yet to actually improve memory beyond what is being

### Alan D. Castel, PhD

(castel@ucla.edu) is a Professor of Psychology at the University of California, Los Angeles. He studies learning, memory, and aging, and is interested in how people can selectively remember important information. He lectures internationally to people of all ages, and has received several teaching awards. His work has been featured in the *New York Times* and *Time Magazine*. He is the author of the new book entitled *Better with age: The psychology of successful aging*.



tested in these games (Simons et al., 2016). While medical science has yet to deliver the magic pill or potion to prevent cognitive decline, the best forms of medicine that can actually improve memory are free and readily-available: physical exercise. Walking for one hour several times a week has been shown to actually enhance the size of the hippocampus, a key part of the brain involved in memory and that declines with age (Erickson et al., 2011). Exercise can have dramatic effects beyond just brain health. The challenge is to motivate people to walk, move, and stay active. Devices that monitor our steps and activity have proven to be very effective as people become motivated to meet goals. Messages that promote the benefits of walking (as opposed to the negative costs of being sedentary) are the most effective (Notthoff & Carstensen, 2014). New technology may promote physical exercise by also limiting screen time, and encouraging people to get outside, interact with others, and be active.

## Being Balanced

A balanced life is what many seek, but we may take our physical balance for granted. Most people do not know they have poor balance until they fall. Because we walk on flat smooth surfaces most of the time we don't get much balance training. Falls can happen as we age, ranging from falls in the



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bathroom, tripping on a rug or pet, or simply when getting up off the couch. These falls can be devastating as they can result in broken hips and bones, and lengthy hospital stays. Injuries from falls can be a major setback in life, as it then prevents people from staying active, which can lead to a cascade of physical and mental health challenges.

There is much we can do to improve balance, ranging from simple exercises like balancing on one foot for several seconds and then trying to do this for longer periods of time. After a few days of these simple exercises, you will notice you are getting better at it, but the first few times can be a real chal-

lenge (and make you aware of poor balance before you break your hip!). The cerebellum, one of the most primitive parts of the brain, is getting a workout when you do balance training, and balance training can keep you out of the hospital, on your feet, and let you stay active. Ways to encourage balance training may involve sensors in shoes that show when people need more balance training, before a fall occurs. Life Alert (the emergency response device that will call when “I’ve fallen and I can’t get up”) was innovative 30 years ago as it has now helped millions of people get help once they had fallen. Being able to get help after a fall can save lives, but new technology may be able to predict where and when you might fall to actually prevent these falls before they happen. While we should mostly walk on flat surfaces in older age, creating challenging environments (like hiking) may be an effective way to keep people on their feet. Future assisted living and retirement communities may actually create obstacle courses and more challenging surfaces for people to navigate in order to train balance for those late-night trips (and hopefully not falls) when people go to the bathroom.

The future may keep older adults more independent for longer, as self-driving cars may help older adults get around but may still lead to some loss of autonomy as we are accustomed to driving with our own locus of control. Creating ways for older adults to trust and use this technology effectively will require more psychological insight (Charness & Boot, 2009).

## Brain Health and Being Connected

Baby boomers have become a booming business, and psychology will play a major role in helping many as they age to be happy, healthy, and productive people. Keeping our brain sharp also involves noticing when things start to go wrong. Sometimes it is a spouse, family member, or co-worker who notices signs of dementia. People often experience anxiety associated with having their memory tested in the context of impending dementia, which can lead to “stereotype-threat” and underperformance, or poor performance that is consistent with one’s negative expectations regarding aging (Barber, Mather, & Gatz, 2015). Currently there is no perfectly accurate test for dementia, as signs and symptoms can be related to a number of causes, although some psychological screening assessments may be helpful, as are neuroimaging techniques that may capture a snapshot of the early signs of a diseased brain. In the future, brain imaging technology might be more mobile and convenient, and we can test memory in natural environments by us-

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ing remote data-acquisition techniques. However, more subtle signs of dementia may show up 30 years before one experiences memory problems, and some people with the biological signs of dementia (genetic markers or plaques and tangles) can still show fairly good memory making diagnosis difficult (Riley, Snowden, & Markesbery, 2002). Incorporating psychological signs and biological markers effectively will require the development of sensitive tests of cognitive function in a real-world context (Hartley et al., 2016). Detecting these early signs could be useful for rehabilitation to reverse future brain pathology, before the disease is pronounced.

In the future, Google or Amazon may provide some remote tracking of our behaviors that can give insights about brain changes. If consumer tracking and analytics can allow a store like Target to know when a teenage girl is pregnant before her father knows, then wouldn't it be amazing and useful if Google or Amazon could know if you are developing signs of dementia before you know? These remote trackers may be able to notice slower speech, provide home-based tests to detect changes in smell or taste, attention, reaction times, or changes in preferences (and notice that you have Googled a term that you have forgotten many times). Interactive systems can then test your brain for things that matter the most, and help teach people new way to challenge the brain, while at home and without a screen in front of them. Interactive systems can then alter our environment accordingly, perhaps by playing music at certain hours, altering lighting and temperature, facilitating sleep and preventing sleep apnea, and doing things to encourage a healthy diet and prevent depression.

Remote tracking may also help caregivers become aware of what can be done to improve mood and memory, and also help to alleviate caregiver stress. However, while technology can provide extensive monitoring and tracking of behavior, personal interaction is critical to prevent loneliness. Younger adults may also benefit by having older adults as lifelong mentors, providing inspiration and motivation to age well. Ideally, interactive technology can ensure that as we age we have more time to connect with the people (and not just devices) that we love.

## Closing Comments

While we notice many of the health changes that accompany aging, from a psychological perspective, older age is dependent upon our attitude about aging, and what behaviors we can do to age well. In the future, culture will hopefully recognize, value, and empower older adults as people who can provide unique guidance, insight, and wisdom. Instead of thinking about aging as a growing concern or problem, older adults can be considered a blooming natural resource. Psychology will provide ways to make later life some of the best years of our lives. ■

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Complete references for this article can be found at [www.cpapsych.org](http://www.cpapsych.org) – select *The California Psychologist* from the **Professional Resources** menu.



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