

Aging with a Traumatic Brain Injury (TBI): Cognitive Changes and Management Strategies

Advances in medical technology have led to the survival of more than 125,000 individuals each year in the U.S. who will live with the long-term consequences of TBI. Separately, TBI and aging can affect many aspects of life: cognition, physical health, vision, hearing, and psycho-emotional health as well as community integration. This brief will focus on cognitive changes.

What cognitive changes are associated with *normal aging*?

Normal aging is associated with changes in cognitive abilities such as reaction time, processing speed, recalling the details of new information, and solving new types of problems. With age-related changes in other areas such as hearing and vision, everyday functioning may be affected. Long-term memory and language skills are generally maintained and can even improve with age.

What does current research tell us about cognitive changes while *aging with a TBI*?

The cognitive challenges associated with TBI in the first few years post-injury (e.g., attention, memory, executive-function challenges) are well documented. However, research on the long-term effects of TBI is in its early stages. Current evidence suggests that aging with a TBI does not affect all individuals in the same way. Risk factors that predict more challenges include: (a) injury later in life exacerbated by increasing years post-injury; (b) a more severe injury (longer loss of consciousness); (c) repeated injuries; (d) genetic markers (presence of the ApoE4 genotype); and (e) gender (male).

What cognitive changes are associated with *dementia/Alzheimer's Disease (AD)*?

Dementia/AD significantly changes everyday life and results in the progressive loss of function across several cognitive abilities, including but not limited to changes in new learning and recent memory, language (word finding), and controlling one's behavior. Long-term memory is often preserved far into the disease process. Although frequently associated with aging, dementia/AD is not an inevitable part of the aging process. Increased supports are needed as dementia/AD progresses.

Current research indicates that **TBI increases the risk of dementia/AD for some but not necessarily all individuals with TBI**. As with other challenges related to TBI, severe injury, repeated injuries, the presence of the ApoE4 genotype, and/or being male appear to increase the risk of dementia/AD in this population. However, more long-term research is needed to evaluate these and other contributing factors.

What are other health-related challenges to keep in mind as one ages with a TBI?

These challenges include but are not limited to: medication management issues, falls, deconditioning, fatigue, depression, headaches, seizures, sleep disturbance, metabolic (hormone) disturbances, sexual dysfunction, chronic pain, spasticity, visual-perceptual loss, hearing loss, and swallowing/gastro-intestinal issues.

What strategies promote graceful aging with a TBI?

- ❑ **Prevention:** Take steps to prevent another TBI (see CDC link below).
- ❑ **Current Medical Records:** Ensure that the TBI is documented in the current medical records. **Keep copies of all past medical records.**
- ❑ **Health Team:** Schedule regular check-ups with a team of health care providers trained in the complex issues of TBI, including a primary care physician, rehabilitation physician (physiatrist), and/or nurse practitioner as well as other specialized professionals (e.g., physical, occupational, speech-language therapists; vision specialists; psychologists; dentists; social workers).
- ❑ **Health Plan:** Ask this team for a comprehensive medical and rehabilitative health and well-being plan to minimize and prevent complications.
- ❑ **Health Advocate:** Ask a family member or other advocate to attend all health care-related appointments to record and track information.
- ❑ **Health Notebook:** Use a notebook to organize information such as medical records, medication lists, and treatment recommendations. Prepare questions ahead of time and ask professionals to record their answers in the notebook or use a voice recorder (on a smart phone, for example).
- ❑ **Planning:** Anticipate the need for extra supports later in life, including assistance with physically and/or cognitively demanding activities.
- ❑ **Staying Healthy:** Eat a nutritious diet and manage weight. Avoid alcohol, drugs, and smoking.
- ❑ **Staying Active:** Increase activity levels by engaging in a health-care-provider approved physical exercise program and cognitively stimulating, personally meaningful activities that promote safe community integration and a sense of purpose in life (e.g., volunteering, work, educational or recreational activities).

Where can I find more information?

- * Center on Brain Injury Research and Training (CBIRT) Ask a Librarian—www.cbirt.org/ask-librarian
- * www.cdc.gov/traumaticbraininjury/pdf/PreventingBrainInjury_Factsheet_508_080227.pdf
- * www.brainline.org/content/2009/06/aging-with-a-brain-injury.html
- * Selassie, A. W., Zaloshnja, E., Langlois, J. A., Miller, T., Jones, P., & Steiner, C. (2008). Incidence of long-term disability following traumatic brain injury hospitalization, United States, 2003. *The Journal Of Head Trauma Rehabilitation*, 23(2), 123–131.
- * Senathi-Raja, D., Ponsford, J., & Schönberger, M. (2010). Impact of age on long-term cognitive function after traumatic brain injury. *Neuropsychology*, 24(3), 336–44. doi:10.1037/a0018239.

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