Traumatic brain injury (TBI) is associated with neurocognitive changes that can result in age-related cognitive impairment, elevating the risk of dementia. Little is known about the underlying relationship between TBI, age-related cognitive changes, and brain alterations. My work uses a comprehensive battery of brain and behavioral measures to assess the interactive effect of remote TBI on brain aging and how these brain changes affect behavior. I will present a series of studies demonstrating that remote TBI accelerates age-related brain processes leading to behavioral impairments. Together, these studies support the notion that remote TBI has long-term effects on brain and behavior.