In this cross-sectional study, Hart and colleagues aimed to compare cognitive impairment, depression, and their neuroimaging correlates in aging former professional football (National Football League [NFL]) players and in matched healthy control individuals. At a North Texas research center, 34 retired NFL players (mean age, 61.8 years) with and without a history of concussion underwent neurologic and neuropsychological testing. The investigators compared detailed neuroimaging data in 26 of these players and in 26 healthy control adults matched for age, education, and IQ.

Only 20 of the 34 players were cognitively normal. Eight had mild cognitive impairment, 8 were depressed, 4 had a fixed cognitive deficit, and 2 had dementia. Deficits in naming, word finding, and visual/verbal episodic memory were greatest in cognitively impaired participants.

Compared with their respective controls, cognitively impaired and depressed players had significant differences in white matter abnormalities. Total and deep white matter lesion volumes were significantly lower in NFL players with cognitive deficits (n = 10) than in age-matched controls (n = 20), but these 2 groups did not differ significantly in periventricular white matter lesion volume alone.

In cognitively impaired players, areas of abnormal regional blood flow (left temporal pole, inferior parietal lobule, and superior temporal gyrus) corresponded to regions implicated in specific neurocognitive deficits (impaired memory, naming, and word finding).

Limitations of this study include a small sample size and the cross-sectional design. Nevertheless, the findings suggest that cognitive deficits and depression appear to be more common in aging former NFL players than in healthy control individuals and that these impairments are correlated with white matter abnormalities and changes in regional cerebral blood flow.

These findings highlight the need to screen retired athletes for depression and cognitive dysfunction. To further elucidate the relationship between remote trauma and neurocognitive impairments, future research should include studies with larger samples, detailed histories, and multimodal neurobehavioral and neuroimaging studies.