

Age and Sex Differences in Working Memory after Mild Traumatic Brain Injury: Functional MR Imaging Studies

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A new study published in *Radiology* evaluated the age effect on working memory performance and functional activation after mild traumatic brain injury. [According to the abstract](#), researchers at Taipei Medical University-Shuang-Ho Hospital in Taiwan compared a group of thirteen individuals between the ages of 21-30 (with a mean age of 26.2 years) to a group of thirteen older patients who had an age range between 51-68 years (with a mean age of 57.8 years). Both groups had sustained mild traumatic brain injuries (MTBI). The researchers compared these twenty-six patients with twenty-six age- and sex-match control subjects. Functional MR images were obtained within one month after injury and six weeks after the initial study. Researchers performed group comparison and regression analysis among post concussion symptoms, neuropsychological testing and working memory activity in both groups.

The results showed different manifestations of post concussion symptoms at functional MR imaging between younger and older patients, which confirmed the important role of age in activation, modulation and allocation of working memory processing resources after mild traumatic brain injuries. The researchers concluded that these findings also supported the observation that younger patients have a better neural plasticity and clinical recovery than older patients.

David Yen-Ting Chen, the lead author of the study, stated in a press release, “old age has been recognized as an independent predictor of worse outcome from concussion, but most previous studies were performed on younger adults.” Dr. Chen went on to state, “taken together these findings provide evidence for differential neural plasticity across different ages, with potential prognostic and therapeutic implications. The results suggested MTBI might cause a more profound and lasting effect in older patients.”

The researchers also looked at the [differences between men and women](#). They found that female patients with MTBI had lower digit span scores than did female control subjects, and functional MR imaging depicted sex differences in working memory functional activation; hypoactivation with non recovery of activation change at follow-up studies may suggest a worse working memory outcome in female patients with MTBI.

Again, this is just another example that refutes defense allegations that mild TBI always goes on to

uneventful healing and recovery with 3-6 months. If you or your family was injured and sustained traumatic brain injuries, it is encouraged that you seek experienced legal counsel.

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