There have been remarkable gains within the scientific literature over the last few decades contributing to our understanding of the sequelae, recovery, and treatment of mild traumatic brain injury (mTBI), yet our knowledge of relationships among symptoms remains elementary in comparison. Cognitive and balance deficits are two of the most prevalent consequence of mTBI. There is some indication that a challenge to one or both of these functions can result in cognitive detriments due to constraints on attentional capacity. However, the evidence remains both conflicting and sparse. This study examined the impact of increasing balance challenge on attention and working memory. Forty-three healthy young adults completed three balance tasks of varying difficulty levels while also engaging first in an auditory sustained attention test followed by a verbal working memory task. These were performed while participants stood on a force platform to obtain computerized posturography and calculations of center of pressure (COP) as a measure of postural sway. While no differences in cognitive performance were evident based on level of balance challenge, sustained attention was predicted by both postural sway as measured by the force platform and by errors on a modified Balance Error Scoring System (BESS). In conclusion, these findings reveal a significant relationship between balance performance and sustained attention but not between balance performance and working memory, suggesting that impairments in balance may contribute to attentional impairments, even among healthy individuals. This highlights the importance of considering balance impairment as a contributing factor in cognitive symptoms among individuals with mTBI and, more broadly, among patients with various other neurologic and complex medical conditions.