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Iron and Brain and Cognitive Function across the Lifespan

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Message from the Guest Editor

The dependency of proper brain health and function on tightly regulated iron homeostasis has been well established in both human and animal studies. Iron plays a significant role in neurotransmitter synthesis and regulation, myelination, neurogenesis and synaptogenesis, oxygen transport and mitochondrial respiration, and (across the lifespan) oxidative stress. Both human and animal studies have demonstrated the effects of iron level variations on brain structure and function and related measures of perception, attention (including aspects of executive function) and memory, ranging from the effects of deficiency from gestation through midlife to the effects of iron accumulation from early to late adulthood. Moreover, the development and refinement of methods for non-invasive assessment of brain iron and changes in brain iron in humans have opened the possibilities for asking increasingly refined mechanistic questions and connecting human and animal literatures.



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Special Issue



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