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Sommario/riassunto	<p>The impact of training or experience is not the same at all points in development. Children who receive music lessons, or learn a second language before age 7-8 are more proficient as adults. Early exposure to drugs or trauma makes people more likely to become addicted or depressed later life. Rat pups exposed to specific frequencies from 9-13 days post-partum show expanded cortical representations of these frequencies. Young birds must hear and copy their native song within 1-2 months of birth or they may never learn it at all. These are examples of sensitive periods: developmental windows where maturation and specific experience interact to produce differential long-term effects on the brain and behavior. While still controversial, evidence for the existence of sensitive periods has grown, as has our understanding of the underlying mechanisms of brain plasticity. Behavioral evidence from studies of language, psychopathology or vision in humans has been complemented by evidence elucidating molecular, gene and hormonal mechanisms in animals. It has been proposed that sensitive periods can be both opened and closed by specific experience, and that there are multiple, overlapping sensitive periods that occur through-out development as functions come on line. It is also likely that experience-dependent behavioral or brain plasticity accrued during one sensitive period can serve as a scaffold on which later experience and plasticity can build. Based on current knowledge, there are a number of broad questions and challenges to be addressed</p>

in this domain, these include: generating new information about the neurobiological mediators of structural and functional changes; proposing models of brain development that will better predict when sensitive periods should occur and what functions are implicated; investigation of the interaction between experience during a sensitive period and pre-existing individual differences; and the relationship between experience during a sensitive period and on-going experience. The goal of this Research Topic is to bring together scientists in different fields whose work addresses these issues, including animal and human developmental neuroscience, language and cognitive development, education, developmental psychopathology and sensory neuroscience.
