Keynote Address 1

ADDICTION, DEVELOPMENT AND BEYOND: THE NEW BEHAVIOURAL NEUROSCIENCE OPPORTUNITIES

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Substance use and disorders affect those of all ages but emerge, progress and remit in concert with life span development. Modern medical technologies have allowed better articulation of the neurobiological risks and consequences of alcohol, tobacco and other drug involvement just as advanced behavioural technologies can now probe the social and environmental factors influencing substance use involvement and course. Through our longitudinal studies we have evaluated these domains among adolescents and adults. Since substance use most commonly begins in adolescence, while the brain is still developing, neurobiological impacts may be more profound than in adult years and efforts to change these behaviours may be influenced by neurocognitive status and development.

Through a series of National Institute of Health funded studies we have identified differences in brain characteristics between youth with heavy substance exposure and those without as well as changes in brain development in response to the onset of heavy drinking. We have also demonstrated neuro-behavioural resilience of youth via improvements in neurocognitive and affective functioning with abstinence following heavy drinking. These findings have been used to design developmentally tailored interventions for youth now being tested across the United States.