Drug/Alcohol Use and Adolescence: What we suspect from "bench" data
Adolescents show:

- Increased incentive wanting
- Greater sensitivity to natural/drug rewards
- Unusual proclivities to associate environmental cues with drug use
- Weaker “harm-avoidance” system
- Immature behavioural control systems

Alcohol and adolescents

- Exposure to large amount of alcohol potently inhibits the normally high levels of neurogenesis seen in the adolescent brain.
- Adolescent exposure to alcohol produces more pronounced brain damage (especially in frontal areas), than adult exposure.

Don’t drink (before you’re 15)

- Males drinking before 15 were 2x as likely to develop dependence than those who started after age 15
- Females 4x more likely

Scary Stats...

- 1 in 3 young people aged 12-16 engage in binge drinking and a similar fraction of young people aged 16-21 engage in hazardous drinking.


Adolescents and alcohol: all the benefits, none of the drawbacks – what’s not to like?

- Have more pronounced sociability
- Can drink more without adverse motor effects
- Less sedated by alcohol
- Don’t get hangovers as dramatically

These findings hold true for cannabis as well, suggesting a final common pathway to increased social behavior with and reduced adverse effects of drug use.
Adolescents “like” drugs more than adults

- During adolescence the PFC is still maturing, thus the ability to determine the significance of reward stimuli
- The percentage of PFC neurons which project to the NAc containing D1 receptors peaks in adolescence at 40% compared to 4-5% later in life
- D1 receptors play role in attributing reward value of drugs

Research Article

Is It Important to Prevent Early Exposure to Drugs and Alcohol Among Adolescents?
Answer: YES.

- Odgers et al 2008 study of children in Dunedin:
  - Reviewed 1052 children starting at age 3 and followed them until age 32
  - Corrected for conduct disorder in their findings
What did they find?

- Early substance use increases probability of
  - Early pregnancy
  - Substance dependence
  - Increased number of criminal convictions

- This did NOT reflect previous problems in the family or other mental health issues.

Scary Stats...

• 1 in 3 young people aged 12-16 engage in binge drinking and a similar fraction of young people aged 16-21 engage in hazardous drinking.

• by the age of 25 over 20% will have developed a significant alcohol related problem.


“Many of the challenges that young people face today are beyond the comprehension or coping ability of many parents. The increasing pace of technological change means that dealing with text bullying and internet pornography can be challenging.”

– Office of the Prime Minister’s Science Advisory Committee
What works: Prevention

• The implementation of programs in adolescence has shown success when taking a comprehensive approach through targeting a range of problems such as stress, depression, social skills and body image, in an effort to reduce mental health and substance abuse problems.

  — Office of the Prime Minister’s Science Advisory Committee

What works: Recovery based in People, Places and Things
Thank you

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- Dr. Francis Goodstadt
- Dr. Liam O’Connor
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- Dr. Robert Smith
- Mr. William Wilson


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