

ADOLESCENT BRAIN DEVELOPMENT &

SMOKING



Key Messages for Patients and the Public

Overview

Researchers are still trying to understand the links between smoking and the impact it has on adolescents. Studies have found that nicotine and tobacco may have a more serious and lasting impact on young people because their brains are still developing.

The Link between Smoking and Adolescent Brain Development

- Research done with animals found that adolescents who are exposed to nicotine develop problems with attention and controlling impulses that continue into adulthood.^{1,2} The toxic effect may be most harmful when smoking begins during early adolescence.³
- Research with human adolescents⁴ found that the cortical region of the brain may be harmed by heavy smoking. The cortex is the part of the brain that is used for problem-solving, complex thought and controlling behaviour.
- Adolescents may be more likely to begin or continue smoking if they use or abuse other substances or have trouble in school. Girls who have poor family relations may be more likely to experiment with smoking and be more likely to continue if they have little involvement in active pastimes.⁵
- Adolescents with parents who smoke have a higher risk for problems with substance use than those whose parents do not smoke.⁶ In one study, adolescents who smoked were 4.5 times more likely to have problems with alcohol use than those who had never smoked.⁷
- Adolescents who stop smoking experience increased cravings for tobacco, symptoms of nicotine withdrawal and depression. They also experience serious problems with verbal memory, working memory and cognitive performance. These problems are most severe among people who started smoking at an early age.^{8,9}
- Adolescents who stop smoking will greatly reduce their risk for nicotine dependence as adults.¹⁰

Helpful Resources

- Public Health Agency Canada. *Trends in the Health of Canadian Youth. Chapter 10: Tobacco, Alcohol and Drugs.* http://www.phac-aspc.gc.ca/hp-ps/dca-dea/publications/trends-tendances/hbsc_10-eng.php
- Public Health Agency Canada. *Young people in Canada: their health and well-being - Chapter 6: Youth Health Risk Behaviours.* http://www.phac-aspc.gc.ca/hp-ps/dca-dea/publications/hbsc-2004/chapter_6-eng.php
- Health Canada. *Quit 4 Life.* <http://www.hc-sc.gc.ca/hc-ps/tobac-tabac/youth-jeunes/life-vie/index-eng.php>
- Canadian Cancer Society. *Smokers Helpline.* Free telephone, web-based or text service offering tips, tools and support to help with quitting smoking. <http://www.smokershelpline.ca/>



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