

The following is a synopsis of a CBC documentary discussing a link between THC and Schizophrenia. It originally aired Sunday April 11, 2010 as part of a documentary series entitled, "The Nature of Things with David Suzuki".

The Downside of High

Sunday April 11, 2010 at 7 pm on CBC-TV

Teenagers who start smoking marijuana before the age of sixteen are four times more likely to become schizophrenic. That's the startling conclusion of some of the world's top schizophrenia experts, whose research is featured in the new documentary *The Downside of High*.

The scientists' groundbreaking work on the connection between marijuana and mental illness also reveals that, for all young adults, smoking marijuana nearly doubles the risk of developing recurring psychosis, paranoia and hallucinations - the hallmarks of schizophrenia.



Ben was first introduced to marijuana while at a high school in BC. His increasingly psychotic behaviour led to a year-long hospitalization.

The Downside of High, directed and written by Bruce Mohun, tells the stories of three young people from British Columbia who believe - along with their doctors - that their mental illness was triggered by marijuana use. All three spent months in hospital psychiatric wards, and still wage a battle with their illness. Today's super-potent pot may be a big part of the problem. Modern growing techniques have dramatically increased the amount of THC, the psychoactive ingredient in marijuana - ramping up the threat to the developing teenage brain.

But there's an intriguing twist to the story: in the process of cultivating more potent strains of pot, growers have also been breeding out a little-known ingredient called cannabidiol that seems to buffer the effects of THC. So today's high-octane pot actually contains a double-whammy - more psychosis-producing THC, and less of the protective CBD or cannabidiol.



Tyler was 14 years old when he first started experiencing psychotic episodes.

For many people, smoking marijuana is not a big deal - it is, after all, the most widely-used illegal drug in the world. *The Downside of High* provides a scientific perspective on some of the little-known and little discussed risks of marijuana, particularly for teenagers.

The Downside of High is directed and written by Bruce Mohun, story-produced by Maureen Palmer, and produced by Sue Ridout for [Dreamfilm Productions](#) of Vancouver

Information & Facts About Marijuana Use and Mental Illness

Information from the Film

Marijuana gives most people a pleasant "buzz" or high, while others develop paranoia and sometimes psychosis, involving a frightening break from reality, heightened anxiety and hallucinations - symptoms of schizophrenia.

THC triggers an increase in a brain chemical called dopamine, which controls mood. An increase in dopamine makes us more aware, and that heightened awareness can lead to the hallucinations associated with schizophrenia.

Marijuana cannot cause mental illness on its own. It is one of a number of risk factors, which include: 1) a family history of mental illness, 2) a "psychosis-prone" personality, 3) a history of childhood trauma, 4) where you live, since urban dwellers have a higher rate of schizophrenia.

Scientists liken a teen's brain to his or her messy bedroom. It's a tangled jumble of circuits and it needs to go through a streamlining process to work more efficiently - a process called 'neural pruning'. Scientists believe any substance, like marijuana, that interferes with that untangling of the brain can produce long-lasting and potentially devastating psychological effects.

One question facing researchers is the 'chicken & egg' scenario: is it possible that marijuana use could be an attempt to ease the earliest or 'prodromal' symptoms of mental illness? The weight of evidence suggests that marijuana use precedes the illness, but self-medication for pre-existing mental instability is part of the research considerations.

What if there was a simple genetic test that could tell us exactly which kids are at risk for marijuana-induced psychosis? There may be one soon. A gene called COMT, discovered in 2002, regulates dopamine levels. There are two variants of COMT, and your susceptibility to marijuana-induced psychosis depends on which combination of variants you have.

Another, little-known ingredient in marijuana could actually reduce pot's psychotic tendencies. In the 1960s, marijuana not only had less THC but more of a chemical known to actually buffer

psychotic effects. That ingredient, cannabidiol (or CBD), has been effectively bred out of today's high-octane pot. In creating strains of marijuana with higher THC levels, pot growers have engineered a drug that delivers a double whammy - more psychotic-producing THC and less protective CBD.

Cannabidiol was first discovered in the 1930s, but it wasn't until the 1970s that studies showed it could reduce convulsions in rats. Recent research suggests that cannabidiol could eventually be used to treat schizophrenia. So the "pot paradox" is that the plant contains both a substance that can trigger psychosis, and another substance that could treat it.

A final thought from Dr. Robin Murray: "The problem with cannabis is that you have those on the one hand that say it's a sacred herb, and on the other extreme you have people that say cannabis is the work of the devil. But neither of these extremes is practical. What we need is a situation where people know that if you smoke cannabis heavily, particularly if you smoke the potent brands of cannabis, then you're more likely to go psychotic."

Facts about Marijuana

Marijuana is the most widely used illegal drug in the world.
- UN Drug Report, 2009

More than 31 million North Americans use marijuana at least once a year. That's about 10% of the population between the ages of 15 and 64. The comparable figure for Europe is only 5.2%.
-UN Drug Report, 2009

The highest level of marijuana use in Canada is in British Columbia, at 16.8% of the population over the age of 15. That compares with a Canadian average of 14.1%.
-UN Drug Report, 2009

The psychoactive ingredient in the cannabis plant is Tetrahydrocannabinol, or THC. Health Canada found an average THC level of 4.8% in marijuana confiscated in 1988, and an average level of 11.1% in 2008.
-RCMP

If you use marijuana regularly, your chances of becoming schizophrenic are twice as great as someone who does not smoke marijuana. If you use marijuana before the age of 16, you are four times as likely to become schizophrenic.
- Dr. Jim Van Os

One in a hundred people will become schizophrenic in their lifetime. There are over 230,000 people in Canada with schizophrenia.
- Schizophrenia in Canada: a National Report (Schizophrenia Society of Canada)

More at:

<http://www.cbc.ca/documentaries/natureofthings/2010/downsideofhigh/index.html>