

Cannabis use linked to gene mutation

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Cannabis indica. Credit: Wikipedia

Scientists from The University of Western Australia have identified how using cannabis can alter a person's DNA structure, causing mutations which can expose them to serious illnesses, and be passed on to their children and several future generations.

Although the association between [cannabis](#) use and severe illnesses such as cancer has previously been documented, how this occurs and the implications for [future generations](#) was not previously understood.

Associate Professor Stuart Reece and Professor Gary Hulse from UWA's School of Psychiatry and Clinical Sciences completed an extensive analysis of literary and research material to understand the likely causes and uncovered alarming information.

"Through our research we found that cancers and illnesses were likely caused by cell mutations resulting from cannabis properties having a chemical interaction with a person's DNA," Associate Professor Reece said.

"With cannabis use increasing globally in recent years, this has a concerning impact for the population."

Although a person may appear to be healthy and lead a normal life, the unseen damage to their DNA could also be passed on to their children and cause illnesses for several generations to come.

"Even if a mother has never used cannabis in her life, the mutations passed on by a father's sperm can cause serious and fatal illnesses in their children," he said.

"The parents may not realise that they are carrying these mutations, which can lie dormant and may only affect generations down the track, which is the most alarming aspect."

Associate Professor Reece said that when the chemicals in cannabis changed a person's DNA structure it could lead to slow cell growth and have serious implications for the foetal development of babies that may cause limbs or vital organs not to develop properly or cause cancers.

"The worst cancers are reported in the first few years of life in children exposed in utero to cannabis effects," he said.

Associate Professor Stuart Reece said that the finding was of major importance with cannabis use increasing in many nations around the world, and many countries legalising its use.

"Some people may say that previous data collected doesn't show there are serious effects from using cannabis, but many authorities acknowledge that there is now a much larger consumption of cannabis use compared to previous years," he said.

The study carries implications for researchers, medical health professionals and governments in regulating drug use and protecting those who are most vulnerable.

The research has been published in the journal *Mutation Research – Fundamental and Molecular Mechanisms of Mutagenesis*.

More information: Albert Stuart Reece et al. Chromothripsis and epigenomics complete causality criteria for cannabis- and addiction-connected carcinogenicity, congenital toxicity and heritable genotoxicity, *Mutation Research/Fundamental and Molecular Mechanisms of Mutagenesis* (2016). DOI: [10.1016/j.mrfmmm.2016.05.002](https://doi.org/10.1016/j.mrfmmm.2016.05.002)

Provided by University of Western Australia

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