

# Long-term cannabis use damages lungs, but in a different way than tobacco

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Smoking cannabis leads to lung damage, but in a different way from tobacco, new University of Otago research has found.

Study co-author Professor Bob Hancox says until recently, it was assumed that [cannabis](#) would have similar effects to tobacco, but this does not seem to be the case.

"Although the effects of cannabis were detrimental, the pattern of [lung](#) function changes was not the same. The research found that prolonged cannabis use led to over-inflated lungs and increased the resistance to airflow to a greater extent than tobacco," he says.

"It was also found that cannabis use may also impair the ability of the lungs to extract oxygen from the breath. This is a known consequence of smoking tobacco, but has not been demonstrated with cannabis until now."

The findings come from the long-running Dunedin Multidisciplinary Health and Development Study, which has documented cannabis use and measured lung function throughout [adult life](#) up to age 45 in more than 1,000 individuals born in Dunedin in 1972/73.

The Dunedin Study may have the world's most complete data on lifetime cannabis use and lung function in a large population sample, Professor Hancox says.

About 75 percent of the Dunedin study members had used cannabis at some time in their lives.

"Although cannabis is one of the world's most widely used drugs, there has been little research on the effects on the lungs. This is because it has been difficult to study a drug that remains illegal in most parts of the world."

Respiratory doctors recognize that some patients who smoke a lot of cannabis have a distinct form of lung damage—a very severe form of

emphysema that is sometimes called "bong lung"—but little is actually known about this condition.

The latest findings that heavy cannabis use leads to over-inflated lungs, increased airway resistance and impaired oxygen extraction may reflect the early signs of this disease, he says.

"The latest Dunedin study findings support observations from other research that cannabis has different effects to tobacco. The Dunedin results extend these findings with more complete measures of [cannabis use](#) and a full assessment of lung function using eleven different measures.

"Of course, people who smoke both cannabis and tobacco are likely to suffer lung damage from both substances."

Why cannabis harms the lungs in different ways to [tobacco](#) is not known. Given the widespread and increasing use of cannabis globally and the trend to decriminalization, understanding its respiratory effects is a priority, Professor Hancox says.

**More information:** Robert J Hancox et al, Differential Effects of Cannabis and Tobacco on Lung Function in Mid-Adult Life, *American Journal of Respiratory and Critical Care Medicine* (2022). [DOI: 10.1164/rccm.202109-2058OC](#)

Provided by University of Otago

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