

## Cannabis Exposure and Lung Health

### **Cannabis smoke and tobacco smoke are not equally carcinogenic**

“It is increasingly clear that cannabis has different effects on lung function to tobacco and the effects of widespread cannabis use will not necessarily mirror the harms caused by tobacco smoking.”

[Differential effects of cannabis and tobacco on lung function in mid-life, American Journal of Respiratory and Critical Care Medicine, 2022](#)

“Adult daily cigarette smokers and/or weekly cannabis smokers completed two laboratory visits. ... Co-users and ET [exclusive tobacco cigarette] smokers demonstrated comparable levels of biomarkers of exposure to harmful constituents despite smoking similar amounts of tobacco. ECa [exclusively cannabis] smokers demonstrated lower levels of toxicant exposure for most biomarkers.”

[Cigarette smokers versus cannabis smokers versus co-users of cigarettes and cannabis: A pilot study examining exposure to toxicants, Nicotine & Tobacco Research, 2021](#)

“The long-term respiratory effects of cannabis differ from traditional smoking. ... [C]annabis smoking does not appear to be carcinogenic.”

[Marijuana and the lung: hysteria or cause for concern? Breathe, 2018](#)

### **Unlike tobacco smoke exposure, cannabis smoke exposure – even long-term – is not positively associated with cancers of the lung or upper aerodigestive tract**

“Despite the presence of carcinogens in marijuana smoke in concentrations comparable with those that are found in tobacco smoke, the weight of evidence from well-designed epidemiologic studies does not support the concept that habitual marijuana use in the manner and quantity in which it is customarily smoked, when adjusted for tobacco, is a significant risk factor for the development of lung cancer.”

[Marijuana and Lung Disease, Chest, 2018](#)

“There is moderate evidence of no statistical association between cannabis use and incidence of lung cancer [or] incidence of head and neck cancer.”

[National Academy of Sciences, The Health Effects of Cannabis and Cannabinoids, 2017](#)

### **Cannabis smoke exposure, even long-term, is not associated with the sort of significant adverse pulmonary effects associated with tobacco – such as COPD.**

“[I]t has been pragmatic to assume that cannabis and tobacco would have similar respiratory effects. ... The research that has been done, however, offers a different story. The most common serious respiratory consequences from smoking tobacco are Chronic Obstructive Pulmonary Disease (COPD) and lung cancer. Epidemiological evidence that smoking cannabis causes either of these is scant.”

[Cannabis use disorder and the lungs, Addiction, 2020](#)

“Although regular smoking of marijuana is associated with an increased risk of symptoms of chronic bronchitis and evidence of inflammation and injury involving the larger airways, lung function findings, although mixed, do not provide compelling evidence that habitual marijuana smoking in the manner and amount that it is generally smoked increases the risk of COPD, at least at the population level.”

[Marijuana and Lung Disease, Chest, 2018](#)

“Neither current nor former marijuana use was associated with increased risk of cough, wheeze, or chronic bronchitis when compared to never marijuana users. ... Current and former marijuana smokers had significantly higher FEV1 (forced expiratory volume) ... when compared to never users. ... Both current and former marijuana use was associated with significantly less quantitative emphysema ... when compared to never users, even after adjusting for age, ... current tobacco smoking pack years, and BMI. ... In agreement with other published studies, we also did not find that marijuana use was associated with more obstructive lung disease. ... Among older adults with a history of tobacco use, marijuana use does not appear to increase risk for adverse lung function. ... There may be no to little increased risk of marijuana use for a further increase in respiratory symptoms or adverse effects ... among those with a history of concomitant tobacco use.”

[Marijuana use associations with pulmonary symptoms and function in tobacco smokers enrolled in the subpopulations and intermediate outcome measures in COPD Study \(SPIROMICS\), Chronic Obstructive Pulmonary Diseases, 2018](#)

**Vaporization — which heats marijuana to a point where cannabinoid vapors form – mitigates consumers exposure to potential respiratory hazards, such as the inhalation of combustive smoke or exposure to unwanted particulate matter**

“[T]he four electrically-driven and temperature-controlled vaporizers investigated in this study efficiently decarboxylate acidic cannabinoids and release reliably the corresponding neutral cannabinoids into the vapor. Therefore, they can be considered as a promising application mode for the safe and efficient administration of medicinal cannabis and cannabinoids.”

[In vitro validation of vaporizers for the smoke-free inhalation of cannabis, PLOS ONE, 2016](#)

“The vapourizer runs heated air across the plant without igniting it, releasing the cannabinoids in a vapour free from the byproducts of combustion. ... Laboratory work shows that cannabis vapour is composed almost exclusively of cannabinoids with virtually no pyrolytic compounds. The vapourizer raises cannabinoid levels in humans but does not raise exhaled CO levels. In short, vapourizers show promise for cannabis users who want to avoid pulmonary problems and prefer a more rapid onset than edibles provide.”

[No smoke, no fire: What the initial literature suggests regarding vapourized cannabis and respiratory risk, Canadian Journal of Respiratory Therapy, 2015](#)