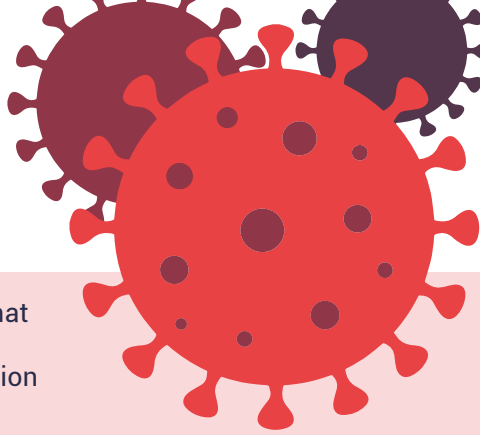
Vaping, Smoking, and COVID-19

According to the National Institute on Drug Abuse, smoking cigarettes, using e-cigarettes, or smoking or vaping marijuana can all increase risk of chronic respiratory conditions, making COVID-19 infection a grave concern for those who use such products.[1,2]



In a recent interview, US Surgeon General Jerome Adams stated that the high prevalence of vaping among young people may partially explain the higher rates of COVID-19 infection among this population in the US compared to other countries.[3]

COVID-19 affects those with respiratory conditions more severely as seen with the 6.3% case fatality rate (CFR) among those with chronic respiratory conditions compared to the 2.3% CFR for the overall population.[2]

6.3% VS. 2.3%

Case Fatality Rate

COVID-19 infections begin at the ACE2 receptor.

The ACE2 receptor is a protein nestled on the surface of cells throughout the body, including in the upper and lower respiratory tracts. Cigarette smokers have abnormally large numbers of ACE2 receptors, which may leave the lungs more vulnerable to damage inflicted by the coronavirus.[4]

Although no study to date has investigated how ACE2 receptor expression is affected by e-cigarette or marijuana use, it stands to reason that these may confer similar risks as cigarette smoking due to the comparable damage and inflammation they can produce in the lungs and airways.[5]

Marijuana smoke elicits a nearly identical inflammatory reaction in the lungs as cigarettes and also carries a much greater respiratory burden of carbon monoxide and tar.[5]

Understand the Risks

E-cigarettes release many chemicals that are poisonous to the lungs and damage multiple components of the respiratory system.[6] Prolonged use may cause airway and alveolar inflammation and damage indicating greater susceptibility to respiratory infections.[6]

E-cigarette users may be more prone to pneumonia due to decreased cough sensitivity and diminished ability to clear pathogens and move mucus in the airways. This may further increase risk of complications from COVID-19.[6]

Both marijuana smoke and e-cigarette vapor are associated with inflammation ofthe airways similar to that observed in patients with COPD and with the development of bronchitis and asthma, all of which are shown to increase risk of severe complications and mortality from COVID-19.[5,6]

Marijuana smoke and e-cigarette vapor may also have immunosuppressive properties that further increase risk of coronavirus infection.[5,6]

The act of smoking or vaping also means that fingers (and possibly contaminated cigarettes, vapes, pipes etc) are in contact with lips, which increases the possibility of transmission of virus from hand to mouth.

1. World Health Organization (2020) Q&A on Smoking and COVID-19. Retrieved from https://www.who.int/news-room/q-a-detail/q-a-on-smoking-and-covid-19. 2. National Institute on Drug Abuse, National Institute of Health. (2020). COVID-19: Potential implications for individuals with substance use disorders. Retrieved from https://www.drugabuse.gov/about-nida/noras-blog/2020/04/covid-19-potential-implications-i. 3. Campaign for Tobacco Free Kids. (2020). Smoking, vaping, & COVID-19: What are health organizations and experts saying? Retrieved from https://www.tobaccofreekids.org/assets/factsheets/0410.pdf 4. Leung JM, Yang CX, Tam A, Shaipanich T, Hackett TL, Singhera GK, Dorscheid DR, Sin DD. ACE-2 Expression in the Small Airway Epithelia of Smokers and COPD Patients: Implications for COVID-19. Eur Respir J. 2020. 5. Tashkin DP, Baldwin GC, Sarafian T, Dubinett S, Roth MD. Respiratory and immunologic consequences of marijuana smoking. J Clin Pharmacol. 2002 Nov;42(S1):71S-81S. 6. Gotts, J. E., Jordt, S. E., McConnell, R., &Tarran, R. (2019). What are the respiratory effects of e-cigarettes? BMJ, 366(l5275). doi: https://doi.org/10.1136/bmj.l5275http://dx.doi.org/10.1136/bmj.l5275.

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