

- Smoking / Vaping



MARC BRUNELLE

Are vapes and e-cigarettes harmful?

“Why are vapes and e-cigarettes being banned when they are less harmful than burning actual cigarettes? What does the science say?”

EPIDEMIOLOGY E-cigarettes were introduced as a product to help smokers quit. Their vapours are less harmful than tobacco smoke. Yet we have seen a flurry of legislation here in Australia to ban or restrict sales of both e-cigarettes and vapes. Why so?

Behind the legislation here has been an effort to return e-cigarettes to their earlier role by limiting sales to pharmacies, and potentially through prescription. And the vape craze among young people clearly needs addressing; while they may be less harmful than cigarettes, they are by no means safe.

The vaporisation process does not result in carcinogenic combustion products, and the vapours are less harmful than tobacco smoke. But they are not as harmless as, say, steam in a sauna. The liquid in e-cigarettes and

vapes contains chemicals: nicotine, solvents and additives. When heated, some of these convert into harmful aerosols such as formaldehyde, acetaldehyde, and acrolein. These substances are associated with irritation and damage to lung tissue.

Your airways contain cilia, tiny hair-like structures which remove harmful particles and microbes. Warm and humid air has a positive effect, but the nicotine-containing vapours from vapes and e-cigarettes weaken their ability to escort particles and microbes out of the airways. Scans demonstrate that e-cigarette users have higher lung inflammation than either non-smokers or cigarette smokers. One problem is that vapes are such a recent phenomenon, researchers do not yet have a complete picture of their health effects.

VAPOURS DESTROY THE LUNGS

- **Harmful substances originate:** E-cigarettes and vapes produce harmful substances such as formaldehyde, acetaldehyde, and acrolein.
- **Cilia disappear:** Nicotine vapours weaken the cilia of the airways, so they lose their ability to remove harmful particles and microbes.

- **Clogged airways:** Nicotine vapours make the mucus of the airways thicker and more sticky, increasing the risk of infections.
- **Lung inflammation:** PET scans show e-cigarette users have more lung inflammation than cigarette smokers.