

Briefing: Latest evidence from the Cochrane Review of e-cigarettes on long-term use, flavourings, and biomarkers of potential harm

This short briefing breaks down new findings from studies in the Cochrane Review of Electronic cigarettes for smoking cessation, looking at:

- how long people continue to use e-cigarettes after a quit attempt;
- the impact and role of e-cigarette flavourings in supporting people to quit; and
- whether levels of potentially harmful chemicals and toxicants vary between people who have quit smoking and switched completely to e-cigarettes, those who continue to smoke, those who use e-cigarettes and cigarettes and those who quit without e-cigarettes.

What are Cochrane Reviews?

Cochrane is a global, independent network of researchers, professionals, patients, carers, and people interested in health who gather all available high-quality evidence on specific health topics and summarise it in Cochrane Reviews. Cochrane's reach, rigour, and independence from any commercial or conflicted funding mean its reviews are widely regarded as the gold standard for authoritative, reliable health research.

This review on e-cigarettes for smoking cessation is a 'living review', meaning the research literature is searched and screened monthly and the review is updated as new, relevant studies emerge and are taken into account.

Summary of main review

The 2022 Cochrane review of e-cigarettes for quitting smoking includes 78 studies, and shows that nicotine e-cigarettes help more people quit smoking at six months or longer than nicotine replacement therapy. They probably work better than nicotine-free e-cigarettes.

They may work better than no support, or behavioural support alone, and they may not be associated with serious unwanted effects.

However, the review found more evidence is still needed to be confident about the effects of e-cigarettes, particularly the effects of newer types of e-cigarettes that have better nicotine delivery than older types of e-cigarettes.

In 2022, the authors of the Cochrane review undertook new analyses, which are summarised below.

How long do people continue to use e-cigarettes for?

Among people given an e-cigarette to help them stop smoking, just over half (54%) were still using an e-cigarette 6 months later. Among those who had successfully stopped smoking, the proportion still using e-cigarettes 6 months later was even greater at 70%.

While e-cigarettes are not risk free, the Cochrane Review found no evidence of serious harm from using e-cigarettes for stopping smoking. As e-cigarettes are a relatively new product, reliable evidence on their long-term safety is still lacking. However, concerns about the safety of long-term e-cigarette use must be weighed against the relative harm that would be caused by continuing to smoke.

What impact do e-cigarette flavours have on someone's likelihood of stopping smoking?

Strong evidence on the impact e-cigarette flavourings have on someone's likelihood of stopping smoking, and how long they use an e-cigarette for, is still lacking.

Available evidence showed no clear relationship between which e-cigarette flavours different people preferred when offered a choice.

Are people who stop smoking using an e-cigarette still exposed to potentially harmful chemicals and toxicants?

Levels of carbon monoxide (CO) were significantly lower among people who stopped smoking using an e-cigarette than among people who continued to solely smoke combustible cigarettes or in people using e-cigarettes while continuing to smoke.

Levels of other tobacco-associated toxicants were also significantly lower among people using e-cigarettes compared to people who continued smoking. Levels of most toxicants were lower among people solely using e-cigarettes than in people using both e-cigarettes and combustible cigarettes. These findings show the potential benefits of switching to e-cigarettes for reducing exposure to potentially harmful toxicants. The evidence did not show that people who were using e-cigarettes and smoking (dual use) were exposed to more harmful toxicants than those only smoking.

Key lessons

- E-cigarettes are an effective stop smoking tool and are less harmful than combustible cigarettes.
- We need longer-term data to see whether the 54% of people who use e-cigarettes for longer than 6 months continue to use them beyond this point. If on-going vaping prevents relapse, this would likely provide a benefit.
- More data is needed on any potential long-term effects of using e-cigarettes.
- We need more information on the role of e-cigarette flavours in helping people to quit combustible cigarettes and to stay quit.
- Levels of toxicants are lower among people who use e-cigarettes than in people who smoke combustible cigarettes.
- To reduce exposure to harmful toxicants, people should stop smoking altogether. There was no evidence that using an e-cigarette while smoking (dual use) increased people's exposure to harmful toxicants compared to only smoking.