

ELECTRONIC CIGARETTES & SUDDEN DEATH

- Combustible tobacco cigarettes can lead to sudden death by making electrical changes to the heart. Small disturbances to this process can trigger arrhythmias that can result in death. Following a previous study,¹ a team led by UCLA's Holly Middlekauff studied whether e-cigarettes can cause this phenomenon as well.²
- The team hypothesized that smokers who switched to e-cigarettes would see fewer disturbances to the heart's normal electrical rhythm. That was not the case.

The study:

- People who had smoked combustible cigarette for more than a year participated, as well as e-cigarette users who did not use combustibles, and non-users.
- The scientists looked at heart waves on an EKG before and after participants smoked or puffed on 4 different items: a combustible tobacco cigarette, an e-cigarette with 5% nicotine, a research cigarette with no nicotine, and a straw control.
- EKG results were recorded before and after smokers abruptly stood up. This abrupt standing is not only known to increase the heart rate but also can unmask heart arrhythmias.

The results:

- Unusual heart arrhythmias were only found in male smokers who used an e-cigarette then abruptly stood, but not in smoking women, nor in e-cigarette users who did not smoke, or non-users.
- The study next tried to tease out what in the e-cigarettes caused these unusual cardiac arrhythmias.
 - However, they could not attribute this result to either nicotine or to the heart rate increase from standing.
 - The scientists theorize that aldehydes — chemicals generated from heating the e-cigarette solvent (propylene glycol or glycerin) — or a combination of chemicals in the e-cigarettes, are responsible.

E-cigarettes have not been FDA-approved as a smoking cessation tool.⁴

If you would like to know more about any of these topics or have questions about other commercial tobacco control topics, please contact trdrp@ucop.edu.



“The take home message is that electronic cigarettes are not harmless. If somebody who smokes tobacco cigarettes is thinking of using electronic cigarettes for smoking cessation, they should realize that there is potential risk in doing so, especially males...Use them for the shortest period possible.”

—Holly Middlekauff

REFERENCES

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