Repeated Use May Increase E-cigarette Toxicity

Description

A study led by the University of California, Riverside, has discovered that high-use electronic cigarettes, or e-cigarettes, can contain more harmful chemicals than new ones. This raises health concerns for users.

E-cigarettes, also known as vapes, have a specified puff count, indicating how many inhalations they provide before the e-liquid is used up. High-puff e-cigarettes are designed for a large number of puffs, often in the thousands, allowing prolonged use over days or weeks.

The researchers examined discarded popular vape devices from Southern California and compared the chemical makeup of used and new versions of these devices. The focus was on aldehydes, harmful chemicals that form when the e-liquid is heated to create vapour.

As the liquid is heated, chemicals can break down, producing aldehydes like formaldehyde, which is a carcinogen, as well as methylglyoxal (MGO) and glyoxal (GO). The study observed that these aldehydes increased significantly in used devices, posing potential health risks.

Lead author Esther Omaiye highlighted that these aldehydes were found in substantial amounts and caused damage when tested on human lung cells. The concern is that users near the end of a device's life might inhale more harmful compounds.

Prue Talbot, a professor involved in the study, noted that the fluid in used devices is chemically different and more toxic than fresh e-liquid. The study emphasizes the need for caution with high-puff devices as they age.

The researchers stressed the importance of including puff count in safety assessments and advised users to be wary of the chemical exposure from prolonged use.

The study involved researchers from both the University of California, Riverside, and Portland State University, supported by grants from several health organisations.

Vocabulary List:

1. **aldehydes** //ˈældɪˌhaɪdz// (noun): harmful chemicals made when liquids break down
2. **carcinogen** //kɑrˈsɪnədʒən// (noun): a substance that can cause cancer
3. **vapour** //ˈveɪpər// (noun): tiny drops of liquid in the air
4. **prolonged** //prəˈlɔŋd// (adjective): lasting for a long time or longer than usual
5. **exposure** //ɪkˈspoʊʒər// (noun): being near or in contact with something harmful
6. **discarded** //dɪsˈkɑrdɪd// (adjective): thrown away after being used or broken

Comprehension Questions

Multiple Choice

1. What did the study led by the University of California, Riverside, discover about high-use e-cigarettes?
   Option: They contain fewer harmful chemicals
   Option: They contain more harmful chemicals than new ones
   Option: They have no harmful chemicals
   Option: They are safe for prolonged use

2. What chemical is mentioned as a carcinogen found in heated e-liquids?
   Option: Methylglyoxal
   Option: Glyoxal
   Option: Formaldehyde
   Option: Ethanol

3. What was the main focus of the researchers examining used vape devices?
   Option: Cost of devices
   Option: Popularity of e-cigarettes
   Option: Chemical makeup comparison
   Option: Puff count analysis

4. Who is the lead author of the study?
   Option: Prue Talbot
   Option: Esther Omaiye
   Option: Jane Smith
   Option: Michael Johnson

5. What did the study suggest about the fluid in used e-cigarettes compared to fresh e-liquid?
   Option: It is the same
   Option: It is more toxic
   Option: It is less toxic
   Option: It is safer

6. What is a key recommendation from the study regarding high-puff devices?
   Option: Use them regularly

Option: Do not use them at all
Option: Include puff count in safety assessments
Option: Only use fresh e-liquids

True-False

7. The study found that discarded vape devices contained fewer harmful chemicals than new ones.

8. High-puff e-cigarettes allow for prolonged use over days or weeks.

9. The researchers involved in the study were only from the University of California, Riverside.

10. Aldehydes can break down when e-liquid is heated to produce vapor.

11. The study highlighted the safety of high-puff devices.

12. Esther Omaiye is a professor at Portland State University.

Gap-Fill

13. High-use e-cigarettes can contain more harmful chemicals than _____.

14. The specified puff count indicates how many inhalations e-cigarettes provide before the e-liquid is _____.

15. Used devices were found to have significant amounts of _____, causing damage to human lung cells.

16. The fluid in used devices is more _____ than fresh e-liquid.

17. The researchers stressed the importance of including puff count in _____ assessments.

18. Users near the end of a device's life might inhale more _____ compounds.

Answer

Multiple Choice: 1. They contain more harmful chemicals than new ones 2. Formaldehyde 3. Chemical makeup comparison 4. Esther Omaiye 5. It is more toxic 6. Include puff count in safety assessments
True-False: 7. False 8. True 9. False 10. True 11. False 12. False
Gap-Fill: 13. new ones 14. used up 15. aldehydes 16. toxic 17. safety 18. harmful

CATEGORY

1. Health - LEVEL4

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1. B2
2. E-cigarettes
3. ESL learning
4. esl news
5. Level 4
6. toxic

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