

Vaping is More Dangerous Than You Think

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Research Question

In adolescents, is vaping more detrimental to gingival health than not vaping?

Abstract

It is predicted that cigarette smokers and users of electronic nicotine delivery systems (ENDS) have poor periodontal health and greater levels of the inflammatory cytokines IL-15 and IL-18 in their saliva, compared to non-users. Electronic cigarettes heat the liquid within the cartridge at a level that permits the individual to inhale. The inhalation within the lungs leads to tooth decay, gum disease and even oral cancer. The studies included in this review revealed that e-cigarette users had a higher risk of periodontal disease, tooth loss, and bone loss. This is due to vapor leaving a residue behind on teeth, known as biofilm. This biofilm causes the individual to become more susceptible to periodontal disease.

Introduction

The use of electronic cigarettes (vaping) has increased significantly within the past decade.¹

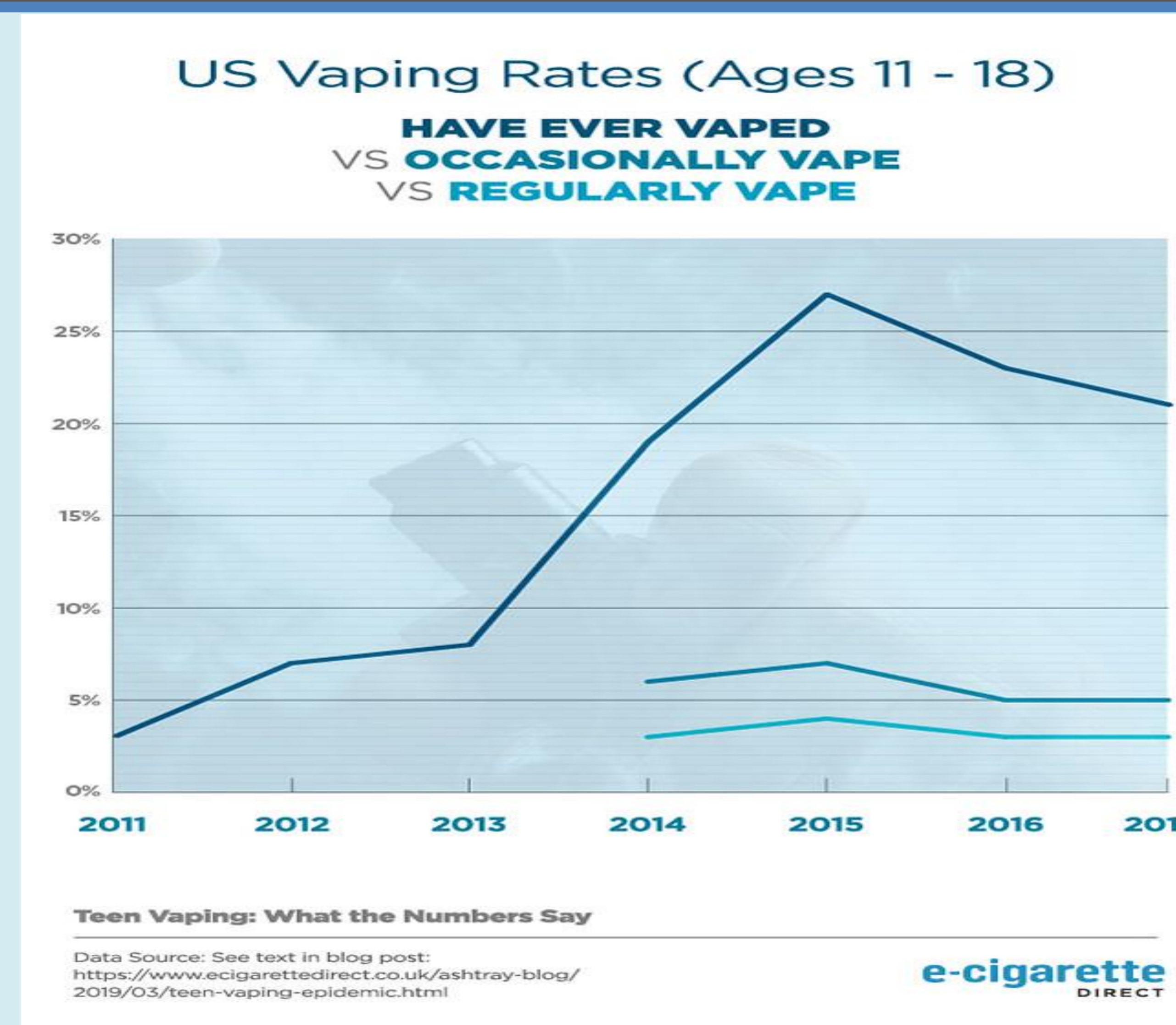
In 2022, the Center for Disease Control and Prevention (CDC) found that 14.1% of high school students reported current electronic cigarette use.¹

This statistic is alarming due to a lack of evidence on long term e-cigarette use, including its effects on the developing brain, the oral cavity, and systemic consequences.¹

Review of Literature

- A literature review conducted between 2011-2023 revealed that e-cigarette users had an increased risk of periodontal disease, tooth loss, and bone loss compared to nonusers.²
- A pilot study in 2023 found that e-cigarette users had a distinct oral microbiome characterized by a higher relative abundance of Veillonella, known to stimulate pathogenic organisms.³
- A systematic review in 2020 suggested an increased risk of periodontal disease due to vaping.⁴
- A pilot study in 2022 linked vaping to Veillonella-related bacterium beneath the gumline.⁵

Figure 1: U.S Vaping Rates (Ages 11-18)



Growing trends of vaping amongst adolescents⁶

Discussion

- There's a steady trend associated with vaping and the impact it has on periodontitis.²
- Vaping is the "second most commonly used tobacco product among adults."²
- Evidence shows that those who vape have increased destruction of the periodontium, which can lead to development of disease.²⁻⁵
- Studies also show that vaping is not the safe alternative that it has been advertised to be.²⁻⁵
- With the rapidly growing number of those who vape, the decrease of periodontal health is going to become a growing concern.
- Limitations: lack of long-term studies.

Conclusion

In the conclusion of this research there is evidence that points to increased destruction of the periodontal health of individuals who vape. Future studies would benefit from a longitudinal study. A study that could follow a group of vapers and non-vapers over a prolonged period of time and chart the periodontium of both groups throughout certain intervals. The current case-control study's objective was to compare the periodontal health and WS IL-15 and -18 levels among cigarette smokers, ENDS users, and controls (non-smokers).

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