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Abstract for Oral Symposium Presentation

Project Title: The Effects of Vaping Coil Temperature on The Viability of *Veillonella parvula* and *Streptococcus mutans*

Vaping is popular among teenagers and young adults, but it has become a public health problem. Current research has concentrated on the chemical components of vaping liquids as a possible source of lung damage. There has been far less research on the potential role of the metal heating element within the vaping device. The heating components are responsible for converting vape liquid to inhaled vapor. The purpose of this study is to see if smoking frequency affects the temperature of an 80/20 nichrome heating element and if the temperature affects the survival of two bacterial species often present in the oral microbiome. *Veillonella parvula* is a commensal organism, and *Streptococcus mutans* is an opportunistic organism of dental caries. These species were exposed to e-cigarette vapors at different frequencies to simulate regular smoking (20 puffs/hr) and chain-smoking (40 puffs/hr) intervals. The nichrome heating coil submerged under medium-chain triglyceride (MCT) oil produced a higher temperature under chain-smoking conditions compared to regular smoking conditions. *V. parvula* showed decreased viability under both regular and chain-smoking conditions, but the viability of the opportunist S. mutans was unaffected by e-cigarette vapors at either frequency of exposure. These findings suggest that inhaling nichrome-heated vapors at higher vaping frequencies inhibits the growth of commensal strains like V. parvula while having no effect on the growth of opportunistic strains like S. mutans. These findings add to the evidence that high temperatures can be created by increased

vaping frequency and this contributes to the negative consequences previously affiliated with vaping.