

The impact of e-liquid propylene glycol and vegetable glycerin ratio on rating of subjective effects, reinforcements value, and use in current smokers

Smith, T., Heckman, B.W., Wahlquist, A, Cummings, K.M., & Carpenter, M.J.

Abstract

Introduction: Electronic nicotine delivery systems (ENDS) vary on a wide range of characteristics that may affect reinforcement value and use. One characteristic is the ratio of two solvents commonly used in most e-liquids: propylene glycol (PG) and vegetable glycerin (VG). The goal of this study was to understand how PG/VG ratio affects subjective effects, reinforcement value, and tobacco use patterns among current smokers who try using ENDS.

Aims and methods: Current smokers with minimal ENDS use history ($n = 30$) sampled, in a double-blind fashion, three different e-liquids that varied in PG/VG ratio (70/30, 50/50, 0/100) while holding constant other aspects of the e-liquid and ENDS. Participants tried each e-liquid before rating the subjective effects on a modified version of the Cigarette Evaluation Questionnaire. Reinforcement value was assessed using a preference task where participants chose between the three e-liquids. The impact of each e-liquid on cigarette reinforcement was assessed using a modified version of the Cigarette Purchase Task. Participants were randomly assigned to receive one e-liquid to take home for 1 week. Results: PG/VG ratio had minimal impact on most of the tested outcomes. Participants rated the highest PG concentration as having a stronger throat hit than the other two. There was no significant difference between the number of participants who preferred each of the PG/VG ratios in the preference assessment. PG/VG ratio did not affect cigarette or ENDS use during the sampling week.

Conclusions: These data suggest that PG/VG ratio has minimal impact on subjective effects and reinforcement value in ENDS naive current smokers. Implications: These data suggest that PG/VG ratio, within the range that is commonly used, has minimal impact on subjective effects, reinforcement value, or uptake in current smokers with minimal ENDS experience.

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