Effects of E-Cigarette Vapor on Drosophila melanogaster

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Many smokers believe the concept that e-cigarettes are a healthy alternative for the otherwise prejudicial cigarettes. Although they are not as harsh as traditional cigarettes, these perilous alternatives could be capable of damage themselves. Few studies have been conducted on the longer term effects of the devices. Our goal in this experiment was to get a clearer idea on the potentially hazardous effects of the e-cigarettes by studying the phenotypic expressions and number of progeny in fruit flies. We hypothesized that by adding vapor into flasks containing same-strain fruit flies, there would be mutations in the gene expression and less offspring. We sorted five male and five female Drosophila melanogaster (free of any visible mutations) into six different erlenmeyer flasks. Using a bulb, we simulated smoking an e-cigarette. The vapor was administered in the flasks in either five puffs or ten puffs repeated once everyday for three days. We then analyzed our F1 generations and F2 generations. Once we had studied our results, we found that our hypothesis was confirmed to be true. The data we evaluated showed a substantial number in both generations that contained phenotypic mutations. We also saw the number of progeny drop off sharply. After conducting this experiment we can confirm that there may be more to e-cigarette vapor than most people realize. In the future we hope to divulge more helpful information about the potentially negative effects of these devices.