

# JUUL is not CUUL

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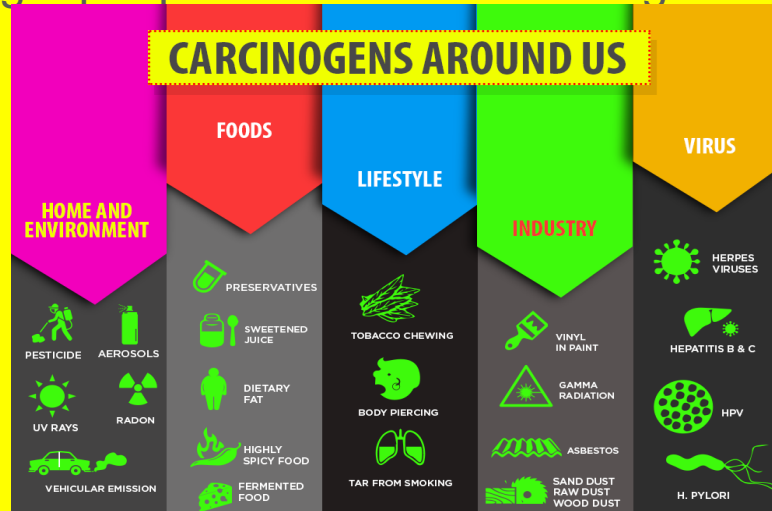
# Electronic Cigarettes VS Tobacco Cigarettes

- E-Cigs and Tobacco Cigs include nicotine
- One JUUL pod is equivalent to a pack of cigarettes
- Electronic Cigarettes are a new product on the market with less information on their harms



# Addiction

- Although JUULs are meant to be used as a smoking alternative, many adults and teens abuse JUULs
- JUULs have less carcinogens than cigarettes
- Just one pod can get people addicted to JUULing

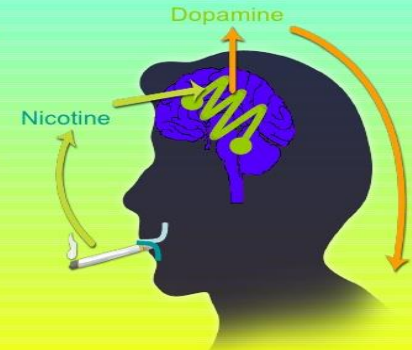


# Effects of juuling-addiction

- One puff disrupts normal brain activity, causing chemical changes in the brain
- Leading to addiction
- People are attracted to light headed feeling (headrush)

## The Cycle of Nicotine Addiction

- **Nicotine** binding causes an increase in release of **Dopamine**<sup>1,2</sup>
- **Dopamine** gives feelings of pleasure and calmness<sup>1</sup>
- The **Dopamine** decrease between cigarettes leads to withdrawal symptoms of irritability and stress<sup>1</sup>
- The smoker craves **Nicotine** to release more **Dopamine** to restore pleasure and calmness<sup>1</sup>
- Competitive binding of **Nicotine** to nicotinic acetylcholinergic receptors causes prolonged activation, desensitization, and upregulation<sup>2</sup>
- As **Nicotine** levels decrease, receptors revert to an open state causing hyperexcitability leading to cravings<sup>1,2</sup>



1. Jarvis MJ. BMJ. 2004; 328:277-279. 2. Picciotto MR, et al. *Nicotine and Tob Res.* 1999; Suppl 2:S121-S125.

# Ingredients in Vape Juice

## Diacetyl

- Liquid with intense buttery flavor
- By product of fermentation
- Not in juul pods



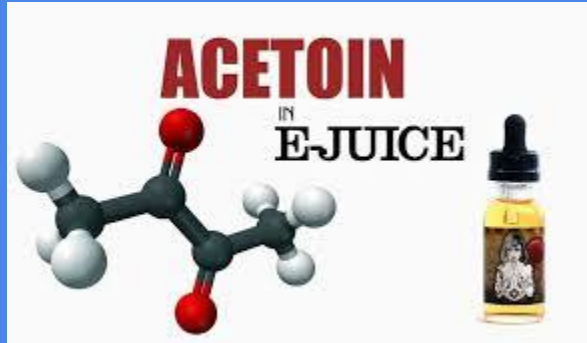
# Propylene Glycol

- Mixed with other liquids (acetone, chloroform), to make solvents
- Colorless



# Acetoin

- Colorless or light yellow liquid
- Pleasant buttery odor



# Juul Pod Ingredients

## Glycerol

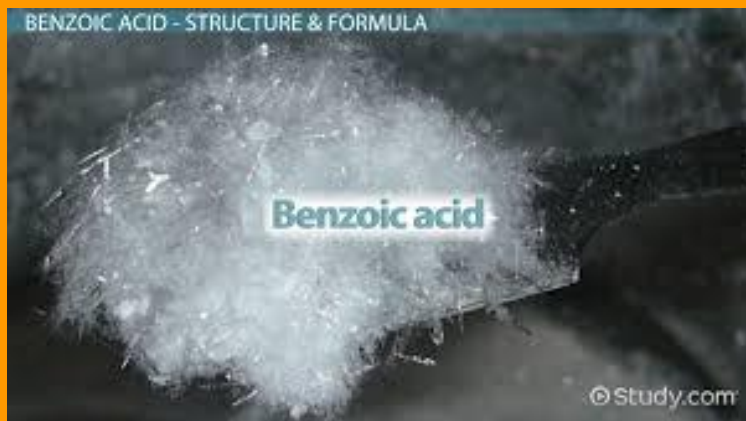
- Sweet tasting non-toxic liquid
- Used in food as a sweetener





# Benzoic Acid

- Non-toxic liquid found in plants
- Also found in horse and urine



# Acetylpropionyl ( 2,3-pentanedione )

- A solvent for paints, inks, and lacquers.
- Starting material for dyes, pesticides and drugs.
- Not in juul pods
- Flavors:
  - Buttery
  - Cheesy
  - Sweet
  - Nutty
  - Fruity
  - Creamy
  - Caramel



# Survey Data

- 74% said they knew someone who owns
- 91% said that they don't own
- 91% said they use regularly

# Effects of juuling-physical

- Dry mouth
- Dizziness
- Cough
- Dry skin
- Itchiness
- Dry eye
- Lung disease/cancer
- Highly addictive



# Effects of juuling-physical

- Cardiovascular stimulant
- Worsen heart disease
- Very unhealthy for undeveloped brain
- Releases toxic particles into the lungs
- Can cause a number of respiratory problems

# Effects of juuling-mental

- Can change emotional state
- Addictive
- Changes brain (especially in undeveloped brain)
- Can make one irritable
- Deemed “cool” trend



# Our solution

We found that the addictive element of juuls and e-cigs is nicotine.

We realized that the “cool” factor found in these products was often the exhale of smoke provided.

We counteracted this by creating a nicotine free pod.

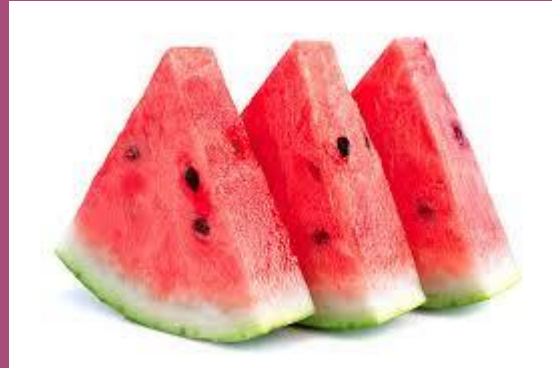
Non-addictive

# Our solution-ingredients

Pure glycerin

Empty pod

Any flavor if desired (extract)







# Next Steps

Conducting a Scientific study to find out the effects of inhalation of glycerin.



# Effects of glycerol use

Dry mouth

Lung irritation