

# Vaping

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## A brief review

It seems nowadays the trend wherever you go, is that you will be hit by a large whitish cloud in front of your face, no matter what you do to avoid it. You will see the heavy whitish-thick cloud is created and emitted by people who vape, and it seems that no one is not using it. Vaping is mostly the realm of youngsters and you will observe a halo of smoke billowing around them in the air. Additionally, as it is an open practice in many instances, you will see people smoke in normally forbidden places, like children's play grounds, big stores and on the buses without being confronted.

The vapour stinks and suffocates and you cannot pass or avoid it at certain times. Though, it is a common tool utilized by everyone on the assumption it is harmless, science is still wary and there is a long way to go to prove that. Sales for Juul, the company that created it, are going quite well.

In the USA, seven cases of sudden death have been reported with 530 cases experiencing severe unexplained lung injuries and on questioning those affected people, vaping was linked and connected to its use prior to the illness. Most of them were men of different age groups who attended with symptoms of breathlessness, cough, chest pain, shortness of breath, nausea, vomiting, diarrhea, fever, weight loss and fatigue, prior to their hospital admission. The undertaken investigations found that the vaping mixture contained the psychoactive ingredient in cannabis; tetrahydrocannabinol and cannabidiol oil (inhaling oils), with significant amounts of vitamin E, which caused the inflammation.

Some have used vitamin E acetate in the fluid which is extremely toxic to the lung. Furthermore, the vapour created contains fine aerosols with heavy metals such as lead, nickel and flavouring chemicals like diacetyl which can cause serious lung disease called popcorn lung, and cancer. The affected cases' X-ray displayed glass opacities bilaterally, with macrophages lipid laden in bronchiolar lavage.

Vaping is an epidemic and gaining much popularity among the younger age group, on the context of being harmless; it has attractive fruity flavours, ease of use, concealment and as a substitute to the traditional smoking of cigarettes. The assumption is that it avoids the most harmful combustion products of cigarette smoke and vaping is less risky. The idea of vaping to help quit smoking is debatable in the first place.

The reports of widespread outbreaks of acute toxic lung injury and disease linked to vaping would leave a considerable number of users to revert back to smoking. Most commercial vaping sales are water soluble liquids which contain propylene glycol, glycerol, nicotine and flavourings. The liquid is heated by the vaping device to generate the mist which is inhaled into the lung, however, other substances can be used in the vaping devices. In the USA it has been found that the amount the oils have been increased (dabbing) recently, and some have gone further to add the legalized recreational and medicinal cannabis, which is circulating among people. The cannabis vaping liquids are mostly oil based, unlike the nicotine vaping liquids, which are found on the black market, and could be contaminated with pesticides, fungi and heavy metals that constitute and pose serious risks to the lungs. Additionally, vitamin E oil is under question as it is highly toxic to the lungs, though the mechanism is not yet fully understood. It is not however, the first incidence with vaping, as in 2009, there were concerns on 18 brands of e-cigarettes in the USA, when diethylene glycol, an anti-freeze ingredient, was found in 1% in one cartridge. Furthermore, some cases developed irreversible lung diseases (bronchiolitis obliterans), a serious lung disease, due to diacetyl trace in the flavouring, which gives the buttery taste in some vaping liquids. The incurred disease was called popcorn lung, after a factory worker in microwave popcorn factory developed the condition as he was exposed to airborne diacetyl. However, cigarette smokers are more exposed to diacetyl compared to vaping. Other potential harmful chemicals that were found in vaping are metals, acrolein and formaldehyde, and yet again, they are in abundance in cigarette smoking, along with more than 5,000 carcinogenic products whereas, in the UK, a single case was linked to e-cigarette after ten years of use.

Second hand smoking and bystanders can suffer as well as the smokers themselves and it has been linked to many diseases as the Centre for Disease Control has declared. It can cause premature death, heart attacks, strokes and ultimately lung cancer and severe asthmatic attacks in children.

Australia has adopted the no smoking policy in the outdoors followed by Swede and Spain in some cities like Catalonia and Barcelona, whereas in the UK, it is only around some NHS premises. In this context, it has been found in 18 studies that smoking in the outdoors near indoor vicinities can cause a considerable concentration of smoke in both localities.

Yet the whole story is still bizarre and unknown as no vaping liquid was left in the vaping device to test in those affected cases in the USA, and in many instances people have used different substances in their vaping liquid and will not admit to such.

The vaping appliances have been created in different shapes, colours and sizes to appeal to the user; it has generated much profit consequently. The device can be recharged by a small battery to heat up the fluid, and refilled to the maximum capacity of 2 ml. The volume of liquid containing nicotine in one refill is 10 ml with nicotine strength of 20mg/ml. The fluid usually has nicotine, flavouring, chemicals and in some, marijuana products are included.

The investigation so far has looked at those affected cases and it was found that it could be associated with faulty devices or contaminates used in the USA vaping behaviour. However, in the UK, the system is quite strict about the fluid used and no cases have yet been reported, neither in Canada nor Australia. It also uses the yellow card scheme to report any bad experiences or unknown symptoms that may arise. On the other hand, the Indian government has issued a ban on e-cigarettes,

which covers all electronic nicotine delivery systems and prohibits manufacturing, importing, selling, advertising, and distributing any of those products.

The sales of vaping have greatly risen and the profit seems to be the prevailing consideration. It falls under the umbrella of smoking cessation, but in reality is creating revenue for something else; generating profitability. The acute lung injury remains yet a mystery, to date unexpectedly.

Although vaping is promoted to be a safe thing in comparison to smoking, certainly it is neither a benign activity, nor a harmless practice.

Additionally, for those who vape, it would make sense to avoid mixing, adding, modifying substances to the products purchased in stores and to avoid buying illicit substances from the streets.

In terms of the huge emitted whitish clouds, people should be wise about it and what it might cause to their health and to the health of those surrounding them.

Vaping is becoming a real public health crisis, and we are still far from learning about the health effects of vaping in the longterm.

