



Are E-Cigarettes Less Harmful?

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Original title: Comparative effects between electronic cigarette vapour and cigarette smoke on inflammation and wound healing in human gingival keratinocytes

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Summary

The regulation of tobacco products worldwide is becoming ever more stringent, leading tobacco companies to seek out alternatives. With e-cigarettes, they are taking a new approach that supposedly offers a healthier way to smoke.

Patrick Schmidlin and his team of researchers want to find out whether electronically produced smoke damages cells that heal wounds in the oral cavity. To that end, the researchers will expose in vitro (test tube) samples of wound healing and tissue repair cells to smoke.



Electronic cigarette vs conventional cigarette - is there a safer option for consume?

Background – Is All Smoke the Same?

The regulation of tobacco products worldwide is becoming ever more stringent. This has led the tobacco industry to seek out alternatives that are less harmful to people's health. One of the current approaches involves burning tobacco at lower temperatures than with traditional cigarettes. Tobacco companies claim that e-cigarette vapour presents a lower risk to consumers than traditional cigarette smoke.

By exposing cells to e-cigarette vapour, the researchers aim to investigate any potential negative effects on wound healing. To do this, they will use cell cultures that are responsible for wound healing and tissue repair in the oral cavity.

Objectives and Methods – How Damaging is E-Cigarette Smoke?

Patrick Schmidlin's research group intends to expose gingival keratinocytes (gum cells) taken from humans to smoke from e-cigarettes and traditional cigarettes. Additionally, a wound will be created and the subsequent proliferation of cells will be measured for the two types of exposure.

The researchers want to examine the effect of e-cigarettes and traditional cigarettes on wound healing and inflammation by measuring special proteins known as cytokines. Cytokines promote and modulate the growth, maturation and behaviour of surrounding tissue cells.

Significance – Proof of Harmfulness?

A number of studies have already shown that exposure to smoke from e-cigarettes and traditional cigarettes can cause pathological changes and wound healing disorders in the oral mucous membrane.

Wound healing after surgical interventions is often problematic. For patients who smoke cigarettes, the problem takes on an additional severity.

In terms of health policy, it is of fundamental importance, both ethically and financially, to investigate the healing process of cells using appropriate markers and laboratory tests so that the harmfulness of e-cigarettes can be evaluated. It is also important to prove whether e-cigarettes are actually less harmful, as the tobacco industry claims they are.

Length of the Project

This project will begin in August 2018 and is expected to last a year.

	Amount	
Total research budget	CHF	42'000
Grants promised/received by third parties	CHF	0
Grants pending from third parties	CHF	0
Grants being sought from the Swiss Lung Association	CHF	42'000
Amount to be acquired by researchers	CHF	0
Contribution from Research Fund of the Lung Association	CHF	14'000
Donations required from third parties	CHF	28'000

