

E-Cigarettes and Teen Health Podcast

Narrator: Electronic cigarettes, or e-cigarettes, are battery-operated devices used to inhale a vapor, typically containing nicotine, flavorings, and other chemicals. These devices have become very popular in the U.S., particularly among teens, where their use has increased dramatically in recent years. This growing trend has caused concern among public health and medical professionals, as well as parents.

Dr. Ilona Jaspers is a professor in the Department of Pediatrics and the Director of the Toxicology Program at the University of North Carolina at Chapel Hill who has been researching cigarettes and e-cigarettes for years.

In addition to her research, she has spent time talking with middle school and high school students to understand how they perceive e-cigarettes and why they are so popular.

Jaspers: By talking to teenagers directly, the biggest reason why teenagers seem to be more drawn to e-cigarettes is the choices of flavors. You know, you can now vape anything from strawberry daquiri to Cinnabon to, napalm, to anything you want, so the choices of flavors are endless. And then just the cool designs. It really has developed over the past ten years from being sort of boring-looking to these very sophisticated, very flashy-looking devices that are now very popular among teenagers and adolescents. You know, it's a gadget. It's like an iPhone, they love that kind of thing.

Narrator: These factors have increased the popularity of e-cigarettes among teens significantly. According to Jaspers, one reason this causes concern from a public health perspective is that even though cigarette smoking among teenagers is low due to social stigmas, e-cigarette use can lead to cigarette smoking later in life.

Jaspers: One of the myths that I hear over and over again is asking like what's the big deal, it's just water vapor. Well, it is not. It is not just water vapor. Nicotine is highly addictive, especially in adolescents and teenagers. It takes a lot less nicotine to get a teenager addicted than it would a middle-aged adult, and there's now emerging studies showing that this nicotine addiction is then leading to actually using cigarettes. So what people have found is that even though teenagers don't think highly of cigarettes, they think they're gross, once teenagers have been introduced to e-cigarettes, they're more likely to be drawn to cigarettes.

Narrator: Another reason e-cigarettes are a concern is the fact that their impacts on human health are largely unknown. Jaspers says that a common misconception is that e-cigarettes are safer than regular cigarettes.

Jaspers: That's a question I get all the time, and the way I actually like to answer that is -- I don't know, but I think that's the wrong question to ask. We know that cigarettes are incredibly toxic, cause tremendous health effects. That has been studied for decades now, so we know cigarettes are highly, highly toxic. So it would almost be difficult to find something that is more toxic than cigarettes. I think the question to ask is do e-cigarettes cause health effects that would not be seen in someone not using anything.

Narrator: Jaspers and her team have been conducting research to understand how tobacco products, including cigarettes and e-cigarettes may impact human health for the last 15 years. Specifically, they

have been investigating how inhalation of tobacco products changes immune response in the lungs, including the ability to fight infections.

Jaspers: We've taken what we've learned from our studies on cigarette smoke and looked at how e-cigarette users might be different or might be the same. And so we've compared markers of immune status in cigarette smokers and e-cig users and compared them to otherwise normal, nonsmoking, healthy adults, and what we're finding is that there are some similarities between cigarette smokers and e-cigarette users in terms of their modification of immune responses. But e-cigarette users have their own unique response patterns and modified immune health effects.

Narrator: Another unique feature of e-cigarettes is the flavorings. The wide variety of flavors come from many different chemicals. Jaspers says that the chemicals that produce these flavors, like vanilla and cinnamon, are used in every day food items, but they are only generally recognized as safe for oral consumption. She explains that when these compounds are inhaled they can have completely different impacts on our bodies then when they are consumed.

Jaspers: My lab has been looking into one particular flavoring compound, which is called cinnamaldehyde. It's basically the chemical that gives cinnamon its wonderful flavor. When inhaled at high concentrations, it has very different effects than if you sprinkle it on your applesauce, and we're finding that it basically shuts down some very essential molecular processes that are essential for the cell to function properly.

Narrator: While the long term health impacts of e-cigarette use are not fully known, Jaspers stresses the importance of looking at e-cigarettes as a stand-alone product, rather than as an alternative to traditional cigarettes. Because they have the potential to cause serious health problems, and because they can act as a gateway to other tobacco or illicit products, Jaspers stressed the importance for parents, health care providers, and schools to stay informed.

Jaspers: There's lots of information and resources available on the Internet.

The other thing we are trying to do is talk to people that would potentially directly interact with teenagers and adolescents, such as pediatricians, school nurses, healthcare providers, et cetera. to provide them with resources and talking points and facts. We're trying to put together a pamphlet summarizing information talking points, providing schematics, clarifying some of the myths and the misconceptions or the points that need clarification.

Narrator: Jaspers also stresses the importance of talking to teenagers and children directly, not only to learn more about their e-cigarette use and perceptions, but also to communicate clearly about the health risks.

Thanks to today's guest Dr. Ilona Jaspers for joining us.

To learn more about e-cigarettes and your health, visit our Environmental Health Chat web page where you can access related materials and publications.

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