

Health

Causes genetic changes

Chemicals in 'e-cig' flavors may harm respiratory tract

NEW YORK, Feb 23, (RTRS): Two chemicals commonly used as e-cigarette flavors might harm users' airway passages, a small experiment suggests.

The results point to the need to further study how the highly popular cigarette alternatives affect human bodies, researchers say.

In test tube experiments, the researchers exposed cells from the lining of human airways to two flavoring compounds: diacetyl – a chemical with a butter-like smell – and its "chemical cousin" 2,3-pentanedione.

In the body, these so-called bronchial epithelial cells work with mucous to clear inhaled germs and particles.

Induced

Researchers found that both chemicals induced hundreds of genetic changes in the cells. The chemicals also impaired the ability of the cells to function properly.

"These flavoring chemicals are what we call Generally Regarded As Safe (GRAS) chemicals. That designation, though, only refers to the ingestion pathway," said study coauthor Joseph Allen, from the Harvard T.H. Chan School of Public Health in Boston.

"They are food grade flavoring chemicals. They have not been tested for inhalation safety. And what we do know about users who inhale these flavoring chemicals is that they can cause severe lung disease," Allen told Reuters Health by phone.

In food, diacetyl is generally considered safe by experts. But older research going back a decade describes how workers at popcorn factory developed a serious respiratory condition called bronchiolitis obliterans, or "popcorn lung," after inhaling the butter-flavored compound.

"It's a good study and it's a beginning," said Irfan Rahman, a professor of Environmental Medicine at University of Rochester Medical Center in New York, who was not associated with the study.

"The flavor is causing some changes in the genes, which is a really key point in human lung epithelial cells," said Rahman, who studies the effects of cigarette smoke on lung inflammation.

"Lungs are not made for flavors to inhale. Our body is not yet ready," Rahman said.

Test tube experiments may not reflect real human exposure to e-cigarettes, the researchers acknowledge.

Also, they point out, they chose these two flavor chemicals to study based on preliminary investigations conducted in 2016. Today, e-cig manufacturers may have changed formulations.

Indeed, Juul Labs Inc, a popular maker of e-cigarette devices, states on its website that it does not add either of these chemicals to its manufacturing process and lists other ingredients such as natural oils, extracts and flavors as its ingredients.

"Some of the newer e-cigarette companies like Juul are starting to advertise that their products do not contain (these chemicals)," Allen said.

"What is important to ask is: what flavors are they using?" he added.

E-cigarette and "vape" makers have come under fire from health regulators and governments as youth e-cigarette use increases, and worries arise about a burgeoning young population of e-cigarette users who may move on to smoking cigarettes.

Also:

NEW YORK: When medical marijuana becomes legal in a state, teenagers there may be slightly less likely to use the drug, a US study suggests.

Even though medical and recreational marijuana laws restrict use to adults, access for adults may influence how easily teens can get the drug and whether they use it, researchers write in the American Journal of Drug and Alcohol Abuse.

To see how teen marijuana use compares in states with and without such laws, researchers examined survey data on substance use collected from 861,082 adolescents in 45 states, aged 14 to 18 years between 1999 and 2015.

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High fiber diets make for healthier lives

Exercise, short walking breaks lower BP

NEW YORK, Feb 23, (RTRS): Combining 30 minutes of morning exercise with short walking breaks throughout the day may help control blood pressure, an Australian study suggests.

Disrupt three-minute walking breaks to disrupt prolonged periods of sitting benefited older, overweight or obese women in particular, the study authors report in the journal Hypertension.

"Prolonged sitting is a common behavior in modern society with commuting, work and domestic settings that prompt us to sit," said lead study author Michael Wheeler of Baker Heart and Diabetes Institute in Melbourne, Australia.

Recent studies have shown that extended sitting during the day can increase blood pressure, which is a key risk factor for heart disease.

"Older adults, in particular, can accumulate lots of sitting throughout the day, with upwards of two-thirds of their day devoted to sedentary behaviors," he told Reuters Health by email.

Although both exercise and breaks in sitting can reduce high blood pressure, or hypertension, Wheeler and colleagues analyzed whether a combination of exercise and short breaks would offer further benefits.

They recruited 67 men and women who were between 60 and 74 years old

and overweight or obese. About 4 in 10 participants also had high blood pressure. Every participant completed three different day-long tests in random order, each separated by a minimum of six days. Researchers measured heart rate, blood pressure, blood sugar and other blood markers during each test condition.

In one condition, participants sat uninterrupted for eight hours. In another, they sat for an hour, then walked at moderate intensity for 30 minutes on a treadmill, and sat for the next 6.5 hours. In the third condition, they sat for an hour, did 30 minutes on the treadmill, then returned to sitting, but also did 3-minute walking breaks on the treadmill every 30 minutes for the rest of the day. The treadmill was set at two miles per hour during the exercise bouts, with an incline for the 30-minute morning walking program and no incline for the 3-minute walking breaks.

Benefit

During the sitting periods in the study, participants were instructed to read or work quietly on a laptop and avoid activities that may raise blood pressure, such as watching television and making nonessential phone calls.

Overall, the research team found that participants, as a group, had lower aver-

age blood pressure, by about 1 mm/Hg, across the day when they were in a test condition that included exercise. The biggest reduction was seen when people did the 30-minute treadmill exercise in the morning and took 3-minute walking breaks throughout the day – although the additional benefit of the walking breaks was seen only among women.

Women also had lower blood levels of epinephrine, a hormone that raises blood pressure, when they were in either test condition that included exercise.

"We were surprised by the fact that only women demonstrated an additional reduction in blood pressure when exercise was followed by breaks in sitting," Wheeler said.

Future studies may add another condition that looks at sex differences in blood pressure response alone, he said.

"Sex differences seem to be an emerging line of study when it comes to blood pressure changes and cardiometabolic risk factors," said Dharini Bhammer of the University of Nevada, Las Vegas, who wasn't involved in the study.

Upcoming research will look at specific vascular function and glucose regulation for men and women aiming to reduce their blood pressure, she said, as well as the ideal timing and duration of sitting breaks and exercise that will

help the most.

"We recognize that exercise is good, and we now have the awareness that prolonged sitting can increase blood pressure," Bhammer told Reuters Health in a phone interview. "Now we need to build breaks into our routines as a default so we're not sitting for four hours at a time."

Also:

NEW YORK: People who eat lots of high-fiber and whole grain foods have lower risk of heart disease, stroke, diabetes and other chronic diseases than people whose diets are low in fiber, a study commissioned by the World Health Organization (WHO) says.

For every 8 gram increase in fiber eaten a day, total deaths and incidences of heart disease, type 2 diabetes and bowel cancer fell by 5 to 27 percent, the study said. Protection against stroke and breast cancer also rose.

A good target for those wanting to reap health gains would be to eat 25g to 29g of dietary fiber a day, the analysis found. But the data, published in a series of systematic reviews and meta-analyses in The Lancet medical journal, also suggested higher dietary fiber intakes could give even greater protection.

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