

Breath Tests Could Be Used to Diagnose Lung Cancer

European Lung Foundation

Collecting samples of exhaled breath from people at a high risk of lung cancer could be a cheap and non-invasive method of diagnosing the disease, according to new research.

The findings will be presented today at the European Respiratory Society (ERS) Annual Congress in Barcelona.

Current tests for lung cancer include blood and urine tests, followed by CT scans and chest radiographs. This new method could see people at a high risk of lung cancer receiving an initial breath test to quickly assess their symptoms.

Previous research has shown that animals are capable of detecting diseases based on breath tests. Scientists have been trying to replicate this in 'electronic nose' technology, which works by detecting different profiles of volatile organic compounds (VOCs) in breath samples. This is the most extensive study using the electronic nose to show that the technique could be an accurate method for lung cancer screening.

Researchers have not yet clearly identified which VOCs are linked to different diseases, but this new study suggests it is possible for an electronic nose to differentiate lung cancer from different lung conditions and healthy people.

Researchers from the University of Latvia collected exhaled breath samples from 252 lung cancer patients, 223 patients with different lung diseases and healthy volunteers and 265 non-smokers and 210 smokers.

The researchers found that in non-smokers, the electronic nose correctly identified 128 as having lung cancer and only misdiagnosed 5 people who didn't have cancer. In the group of smokers, the electronic nose correctly identified 114 people as having lung cancer and misdiagnosing 5 people with lung cancer.

Lead author, Maris Bukovskis, from the University of Latvia, said: "We have shown that it is possible to use breath tests to correctly identify lung cancer with a high sensitivity rate. The results of our study take us one step further to understanding this important new technology.

"The major problem with electronic nose technology is that it is individual, and each piece of equipment must be trained to distinguish between odours. This causes a problem of standardising the practice between different centres. The next step will be to test the practice between different centres to help us think about how we can ensure consistency between all the results."

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In a second study from the same research group, scientists looked at how compounds of VOCs were changed by different diseases. The findings shed light on the mechanisms of lung diseases and how a disease develops and affects a person.

Lead author, Immanuels Taivans, from the University of Latvia, said: "Our research has shown us why research into VOCs is important and how we could use this to understand more about the way diseases develop and progress."

For more information, visit [European Lung Foundation](#) [1].

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