

# Study Reveals Dogs Can Smell Cancer in Patients' Breath

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Freud, Lucian (1922- ). German-born British painter. Girl with a white dog 1951-52; Oil on canvas, Tate Gallery, London

A new study reported by the National Geographic has revealed that dogs can detect cancer by smelling a patient's breath. Domestic dogs can distinguish between infected lung and breast cancer patients and healthy subjects after just a few weeks training. The study was conducted by Pine Street Foundation, a California based cancer research organization.

Michael McCulloch, the lead researcher of the study team said, "Our study provides compelling evidence that cancers hidden beneath the skin can be detected simply by [dogs] examining the odors of a person's

breath," When diagnosed early, a cancer patient's survival chances can be greatly improved. The new study has increased hopes for cancer patients.

Dogs have the ability to detect chemical traces at a range of parts per million. Separate studies conducted by other researchers have found that trained dogs can detect skin-cancer melanomas by sniffing skin lesions. Further research is on the way to prove that trained dogs can also screen for prostate cancer by sniffing urine.

Nicholas Broffman, director of the Pine Street Foundation said, "Canine scent detection of cancer was anecdotally discussed for decades, but we felt it was appropriate to design a rigorous study that seriously investigated this topic to better evaluate its effectiveness,"

Lung and breast cancer patients exhale patterns of biochemical markers in their breath. "Cancer cells emit different metabolic waste products than normal cells," Broffman continued, "The differences between these metabolic products are so great that they can be detected by a dog's keen sense of smell, even in the early stages of disease."

The researchers trained five dogs. After inhaling breath samples from 83 people, the dogs identified 55 lung and 31 breast cancer patients. The dogs gave a positive reply by sitting or lying down in front of a test station. The research study was between 88 and 97 percent accurate. The results remained accurate even when considering whether the lung cancer patients were current smokers.

Canines' sense of smell is generally 10,000 to 100,000 times superior to that of humans. Although it is not clear what makes dogs good smellers, they have a greater convergence of neurons from the nose to the brain than humans do. Moreover, the dog brain is more devoted to the sense of smell than the human brain is.

Dogs may become an indispensable part of the early cancer screening process.

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