Dog's Nose Beats Tech at ID'ing Prostate Cancer

A dog's sensitive nose is more accurate in diagnosing prostate cancer than an electronic nose designed for the task.

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Medical researchers recently followed civilian and military authorities in using a dog's highly developed sense of smell to assist in their work. Findings published in The Journal of Urology show that canines outperformed an electronic nose in correctly identifying the presence of prostate cancer in urine samples, reports the American Urological Association.

The electronic nose, aka the e-nose, is a sensory tool developed for use in various industries. Hospitals modified the device, which detects odors and flavors, to diagnose prostate cancer in patient urine.

Why urine? Prostate cancer cells often release volatile organic compounds (VOCs), which may be detectible in urine. Detection through VOCs may lead to diagnosis at an early stage, when prostate cancer may be more treatable.

For the investigation, researchers divided 126 participants into two groups and collected urine samples from each individual. One group included 66 men with prostate cancer; the other group consisted of 60 men and women some of whom had non-prostate cancers.

Scientists pitted two German shepherds trained to sniff out explosives against the e-nose to ascertain which was more effective at detecting the VOCs released by cancerous prostate cells.

While the e-nose identified prostate cancer with an accuracy rate of 84%, the two dogs had an accuracy rate of 98%.

"We all know the sense of smell is a superpower for dogs," said Stacy Loeb, MD, a urologic oncologist at NYU Langone who moderated the study's presentation during a virtual press session. "Seeing this superpower put to the test against advanced technology is fascinating. In a world full of technology, it appears dogs are better able to naturally screen for prostate cancer than our most advanced technology. Hopefully, science and technology can learn more from them in the near future and finally catch up."

But this doesn’t mean researchers have given up on the e-nose, which is more practical for use in clinical settings. They called for further studies to improve the device’s performance. One day, they hope, the e-nose will be almost as sharp an olfactory prostate cancer detective as a trained dog.

To learn more about prostate cancer, read “Prostate Cancer Awareness Month.”

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