

# Dogs sniff out chemicals linked to prostate cancer

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Researchers in Italy have published a study suggesting that trained dogs can detect chemicals linked to prostate cancer from urine samples.

The new study, carried out by researchers in the Humanitas Clinical and Research Centre in Milan among others institutes, involved rigorously training two three-year old German Shepherd Explosion Detection Dogs to identify '[prostate cancer](#) specific volatile organic compounds' in [urine samples](#).

The dogs' identification skills were tested on samples from over 900 men

- 362 patients with prostate cancer as well as 540 healthy controls. Researchers worked with an Italian teaching hospital and the Italian Ministry of Defence Military Veterinary Center.

Medscape reports on the testing procedure: 'A [dog handler](#) walked a single dog in a circle around a series of mesh covered bowls. The dog went around the full circle once, and then on the second go-round, stopped at specific bowls if they contained urine with prostate cancer odours.'

The study, published in the *Journal of Urology*, shows that the dogs demonstrated diagnostic accuracy of over 97 % in terms of both the sensitivity and specificity. In fact, for 'dog one', sensitivity was 100 % and specificity was 98.7%. For 'dog two', sensitivity was 98.6 % and specificity was 97.6 %. Both dogs are also experts in detecting explosives.

The dogs were equally capable of detecting low-risk and more advanced prostate cancers, as lead researcher Dr. Gianluigi Taverna noted in Medscape: 'The dog has a quality, not quantity, response.'

The results led the study team to conclude that 'a trained canine olfactory system can detect prostate cancer specific [volatile organic compounds](#) in urine samples with high estimated sensitivity and specificity'. The researchers cautioned however that further studies are needed to investigate the potential predictive value of this procedure to identify prostate cancer.

Claire Guest from Medical Detection Dogs spoke to the Guardian, saying that the results from the new study were 'spectacular'. She added: 'They offer us further proof that dogs have the ability to detect human cancer. It is particularly exciting that we have such a high success rate in the detection of prostate cancer, for which the existing tests are woefully

inadequate.'

Dr. Taverna sees the results as a 'real clinical opportunity'. The hope is that the findings will lead to a scenario where specially trained dogs could provide a non-invasive method of cancer detection.

**More information:** "Olfactory System of Highly Trained Dogs Detects Prostate Cancer in Urine Samples." The *Journal of Urology*, 193(4), 1382–1387. [DOI: 10.1016/j.juro.2014.09.099](https://doi.org/10.1016/j.juro.2014.09.099)

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