

Trained dogs can sniff out prostate cancer

*By Charlie Schmidt
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With their ability to smell tiny amounts of chemicals, trained dogs can easily find explosives or illegal drugs hidden in a suitcase. But mounting evidence points to another helpful job for man's best friend: finding cancers before they cause any symptoms. A study presented at the **annual meeting of the American Urological Association in Orlando** showed that dogs can almost unerringly detect prostate cancer in urine samples.

Doctors currently check for hidden prostate cancer by measuring levels of a protein called prostate-specific antigen (PSA) in blood. Men without prostate cancer have little or no PSA in their blood. An above-normal PSA can be an early warning sign of prostate cancer. Yet a spike in PSA can also result from other illnesses, such as prostatitis. The only way to confirm the presence of prostate cancer is with a biopsy.

That shortcoming reflects a need for better screening tools, according to the study's lead author, Dr. Gianluigi Taverna, a urologist at the Humintat Research Center in Milan, Italy. It's possible that dogs could fit the bill although "more studies are needed to determine how they could be introduced into healthcare systems," Taverna says.

Dog handlers from the Italian Ministry of Defense trained a pair of German Shepherds to detect the smell of prostate cancer by sniffing urine samples from men with prostate cancer. Taverna and his colleagues then presented the animals with 677 urine samples—320 of them collected from men with prostate cancer and 357 from men without cancer. The dogs undoubtedly earned their rewards: **they correctly identified the urine samples with prostate cancer 99%** of the time and those without cancer 97% of the time.

"If true, these accuracy figures are far better than any tests currently available short of a prostate biopsy in detecting the presence of prostate cancer," comments prostate cancer specialist Dr. Marc B. Garnick, the Gorman Brothers Professor of Medicine at Harvard Medical School and Beth Israel Deaconess Medical Center. "But while provocative, they must also be viewed cautiously."

Taverna's study wasn't the first to show that dogs can detect prostate

cancer. Researchers from Tenon Hospital in Paris, France, **reported in 2011** that a single trained dog detected prostate cancer with better than 90% accuracy in 66 urine samples split evenly from men with and without prostate cancer. Taverna and his colleagues wanted to confirm those findings with two dogs instead of one, and with a much bigger sample size. Evidence dating back more than two decades reveals dogs' abilities to sniff out other malignancies, including melanoma, and cancers of the lung and breast. In the first reported case, **published in *The Lancet* in 1989**, a Border Collie/Doberman Pinscher mix relentlessly sniffed and nipped at a single mole on her owner's leg (but not other moles). The one that attracted the dog's attention turned out to be malignant.

Taverna speculates that cancers emit chemical odors with tumor-specific "signatures." That means the odor emitted by prostate tumors differs from that given off by other types of cancer. Determining the specific compounds given off by prostate cancer that dogs detect is the next phase in his research.

"This study shows that canine smell capabilities have profound research and health delivery implications," Garnick says. "They should be viewed cautiously, but I look forward to the maturing of these data and hopefully confirmation of the findings by other researchers."