

# Personalizing prostate specific antigen testing may improve specificity, reduce biopsies

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Genetic variants have been identified which can increase serum prostate specific antigen (PSA) concentrations and prostate cancer risk. A new study published in *The Journal of Urology* reports that correcting PSA levels for these genetic variants can have significant consequences, including avoiding unnecessary biopsies for some men and eliminating false complacency for others.

In this study of 964 healthy [Caucasian men](#), correcting individual [PSA levels](#) for these genetic variants led to an 18.3 percent reduction in the number of men who initially had a measured serum PSA above the biopsy criteria, but whose adjusted PSA fell below the cutoff value. The latter group would have likely undergone what would have been an unnecessary biopsy. Conversely, genetic correction led to PSA levels moving from below threshold to above threshold for 3.4 percent of the men, thus sending out an alert for further investigation.

"If our results are validated, adjustment for the four PSA single [nucleotide polymorphisms](#) (SNPs) could potentially prevent up to 15 percent to 20 percent of prostate biopsies. Since it has been estimated that more than 1 million biopsies are performed in the United States annually, this could translate into 150,000 to 200,000 potentially unnecessary biopsies every year," says William J. Catalona, MD, professor of urology at the Feinberg School of Medicine of Northwestern University. In addition to cost savings, fewer biopsies

mean fewer adverse outcomes, such as infection, sepsis, and hospitalization.

For 98 percent of the men, genetic adjustment of PSA levels did not change outcome. However, genetic correction was important for the 17 men who were reclassified as no longer meeting biopsy criteria of PSA 2.5 ng/ml or greater and the three whose condition was up classified. The results suggest that traditional single cutoff PSA screening levels of 2.5 ng/ml or greater or 4.0 ng/ml or greater should be personalized to reflect an individual's genetic make-up.

"If confirmed, this approach could potentially be used to tailor [PSA screening](#), possibly reducing unnecessary biopsies and avoiding delay in performing necessary biopsies," concludes Dr. Catalona and his co-investigators.

**More information:** "Personalized prostate specific antigen testing using genetic variants may reduce unnecessary prostate biopsies," by Brian T. Helfand, Stacy Loeb, Qiaoyan Hu, Phillip R. Cooper, Kimberly A. Roehl, Barry B. McGuire, Nikola A. Baumann and William J. Catalona. DOI: [dx.doi.org/10.1016/j.juro.2012.12.023](https://doi.org/10.1016/j.juro.2012.12.023). The Journal of Urology, Volume 189, Issue 5 (May 2013)

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