

# Prostate Health Index

Prostate specific antigen (PSA) is used to screen for prostate cancer. PSA is an organ-specific marker that increases in a number of conditions where the barrier between the prostate epithelium and blood capillaries is damaged.

 For more information see *Prostate specific antigen*.

Prostate cancer screening becomes more specific with the use of other parameters. In addition to *total PSA*, its *fraction of free form* and one of the precursors [-2] *proPSA* (aka. *p2PSA*), are measured in the blood sample. The so-called *prostate health index* (PHI) is calculated using these parameters:

$$PHI = \frac{p2PSA}{fPSA} \cdot \sqrt{PSA} \quad [1]$$

## Interpretation

The higher the prostate health index (PHI), the higher the risk of the prostate cancer. The sensitivity reaches 90% at a cut-off point of 28.<sup>[2]</sup> In other words, less than 10% of men with prostate cancer have a PHI of less than 28.

PHI is particularly suitable as a screening method. The specificity of the examination is especially low when the PHI increases only slightly. Thus, it is necessary to supplement it with other examinations (e.g., prostate biopsy). For cut-off of 28, which corresponds to the sensitivity of 90%, the specificity is only around 35%.<sup>[2]</sup> Therefore, two limits are usually used when interpreting an individual result (e.g., 28 and 40):

PHI interpretation (example)

PHI		Sensitivity	Specificity
< 28	<b>Lower</b> risk of prostate cancer	<b>90%</b>	35%
28-40	Gray zone		
> 40	<b>Higher</b> risk of prostate cancer	~ 75%	~ <b>50%</b>

## References

### Related articles

- Prostate specific antigen

### Used Literature

- KOPECKÝ, Josef – POVOVÁ, Jana – JANOUT, Vladimír. Přínos (-2)proPSA a PHI pro diagnostiku karcinomu prostaty. *Urologie pro praxi* [online]. 2015, vol. 16, no. 3, p. 106-108, Available from <<https://www.urologiepropraxi.cz/pdfs/uro/2015/03/04.pdf>>. ISSN 1803-5299.

### Citations

1. LOEB, Stacy – CATALONA, William J.. The Prostate Health Index: a new test for the detection of prostate cancer. *Therapeutic Advances in Urology*. 2013, y. 2, vol. 6, p. 74-77, ISSN 1756-2872. DOI: 10.1177/1756287213513488 (<http://dx.doi.org/10.1177%2F1756287213513488>).
2. LOEB, Stacy – SANDA, Martin G. – BROYLES, Dennis L.. The Prostate Health Index Selectively Identifies Clinically Significant Prostate Cancer. *The Journal of Urology*. 2015, y. 4, vol. 193, p. 1163-1169, ISSN 0022-5347. DOI: 10.1016/j.juro.2014.10.121 (<http://dx.doi.org/10.1016%2Fj.juro.2014.10.121>).