

# Abstract

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## Zinc and prostatic cancer.

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**PURPOSE OF REVIEW:** To summarize the recent findings related to the functions of zinc in prostate cancer prevention.

**RECENT FINDINGS:** The prostate contains the highest concentration of zinc of all the soft tissues, but concentrations decrease significantly during prostate cancer. A growing body of experimental evidence supports the notion that high zinc levels are essential for prostate health and may limit prostate cancer development. The possible mechanisms include the effects of zinc on the inhibition of terminal oxidation, induction of mitochondrial apoptosis and suppression of NF-kappaB activity. Zinc may also play an important role in the maintenance of DNA integrity in normal prostate epithelial cells by modulating DNA repair and damage response proteins, especially p53. In addition, recent findings support the role of zinc transporters as tumor suppressors in the prostate.

**SUMMARY:** Although epidemiological studies have shown mixed results, the experimental data strongly suggest a protective role of zinc in the prostate. More in-vivo studies on the effects of zinc on prostate functions are necessary to more clearly delineate the interaction between zinc and prostate function. In humans, sensitive and specific zinc biomarkers significantly impair the ability to design and interpret clinical studies and should be a priority area of research.

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