

# Abstract

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## Zinc levels in seminal plasma are associated with sperm quality in fertile and infertile men

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**BACKGROUND:** Zinc has antioxidative properties and plays an important role in scavenging reactive oxygen species. We hypothesized that in the absence of Zn, the possibility of increased oxidative damage exists that would contribute to poor sperm quality. Therefore, measurement of seminal Zn in the seminal plasma of males with a history of subfertility or idiopathic infertility is necessary and can be helpful in fertility assessment.

**OBJECTIVE:** The primary objective of the present study was to assess the relationship between Zn levels in seminal plasma with sperm quality in fertile and infertile men.

**METHODS:** Semen samples were provided by fertile (smoker [n = 17], nonsmoker [n = 19]) and infertile men (smoker [n = 15], nonsmoker [n = 21]). After semen analysis, concentrations of Zn, Mg, Ca, Na, and K in the seminal plasma of all groups were determined by atomic absorption spectroscopy.

**RESULTS:** Element concentrations in seminal plasma of all groups were in the order Na > K > Ca > Zn > Mg. Fertile subjects, smoker or not, demonstrated significantly higher seminal Zn levels than any infertile group ( $P < .001$ ). A trend was observed for a lower Zn levels in seminal plasma of smokers compared with nonsmokers. Seminal Zn in fertile and infertile (smokers or nonsmokers) males correlated significantly with sperm count ( $P < .01$ ) and normal morphology of sperm ( $P < .001$ ). There was a significantly positive correlation between seminal Zn with Ca ( $P < .01$ ) and K ( $P < .01$ ) levels in all specimens.

**CONCLUSION:** In conclusion, poor Zn nutrition may be an important risk factor for low quality of sperm and idiopathic male infertility.