

# Abstract

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## Evaluation of antioxidant system in normal semen

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**BACKGROUND:** Reactive oxygen species (ROS) formation have the ability to alter reversibly or irreversibly the cellular function in humans. It has been proposed that the ROS alters the biochemistry and the physiology of the sperm. On the other hand, the antioxidative mechanisms could protect the sperms from the damage produced by free radicals.

**AIM:** To determine the normal values for superoxide dismutase (SOD), glutathione peroxidase (GPx), malondialdehyde (MDA) and nitric oxide (NOx) in the seminal liquid of healthy humans.

**PROCEDURES:** Semen samples from 45 healthy men (22 to 47 years of age) were studied. The samples were obtained by masturbation and were collected in conical sterile tubes. Once centrifuged at 4 degrees C they were divided in aliquots to measure the concentration of SOD, GPx, MDA, and NOx. The analysis of the samples was realized in conformity with biochemical widely accepted methods.

**RESULTS:** The concentrations of SOD and MDA both in the seminal liquid and in the spermatozooids were similar, SOD 0.43 +/- 0.09 U/mg prot. in the seminal liquid and 0.45 +/- 0.07 U/ mg prot. in spermatozooids, and MDA 0.33 +/- 0.07 nmoles/mg prot. and 0.37 +/- 0.10 nmoles/mg prot. in the seminal liquid and spermatozooids respectively. With regard to GPx it increased almost 13 times more in the spermatozooids (2547.77 +/- 48.59 U/mg prot.) than in the seminal liquid (197.54 +/-25.21 U/mg prot.). The NOx also increased lightly in the spermatozooids (4.45 +/- 0.43 Apmol) when compared with the seminal liquid (3.91 +/- 0.16 pumol).

**CONCLUSIONS:** The measurement of the antioxidative and oxidative agents could serve to evaluate human infertility in those cases where the result of the spematobioscopy appears normal.

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