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## *In vitro* assessment of sperm quality in mammals: A review

Conception is a complex phenomenon consisting of sperm transport, capacitation and acrosome reaction, oocyte maturation, ovulation, female endocrine status, normalcy of fertilization and embryo development. Understanding the physiology of spermatozoa in their passage towards fertilization enhances our abilities to maximize results with assisted reproductive technologies. An analysis of semen characteristics can provide a reasonable basis upon which to develop a strategy for maximizing fertilization success. Since standard semen evaluation tests are not sufficient to predict animal fertility accurately, researchers have sought laboratory assays and/ molecular tests that would accurately predict the fertilizing potential of a semen sample. Several different fluorescent stains have been developed as markers for the integrity of various cellular organelles within spermatozoa (e.g. plasma membrane, capacitation

and acrosome status, mitochondria, DNA). , The results of such analyses can be measured microscopically; however this method only measures a small number of spermatozoa within a population, is time-consuming, can be subjective and generally measures sperm attributes individually. On the other hand flow cytometry uses fluorescent markers too accurately and rapidly measure sperm attributes on a large scale. Other tests have been developed to measure the reactive oxidative status of sperm which is important for successful sperm handling and preservation. Sophisticated techniques have also been developed to study the interactions between gametes; these include the sperm-oocyte binding test, in vitro fertilization and embryo production, and ICSI. The current review addresses the different techniques used for semen analysis as well as describes its clinical value in reproductive biology.

## Biography

Clara Malo obtained her degree in Veterinary Science from University of Zaragoza (Spain) in 2005 and her Masters degree in 2006 which focused on Animal Reproduction. She was awarded her PhD entitled "Designing freezing boar semen extenders" in 2009 after which, she was appointed as a faculty fellow in the Department of Reproduction and Obstetrics at Zaragoza University. She joined the Camel Reproduction Center in 2013 as Head of Andrology where her research interests are in developing extenders for fresh and frozen sperm, sperm freezing, in -vitro sperm-oocyte interactions and embryology.

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