

# Understanding canine semen processing: optimizing centrifugation and concentration standards for cooled canine semen handling

## Purpose

This study will establish semen processing standards for obtaining the best semen quality for use in advanced reproductive techniques for canine patients.

## Background

When canine semen is collected for breeding purposes, it's important that the specimen is handled carefully to maximize the chances for a successful outcome. Prior to insemination or shipping, semen is typically processed by being spun in a centrifuge, a piece of laboratory equipment that separates the different components of the sample. Techniques for spinning canine semen or for dilution prior to shipping vary, and there are currently no widely-available best practice guidelines.

Our study will compare different centrifugation speeds and times in respect to sperm recovery rate and quality (motility, morphologic defects, and viability) to establish optimal parameters. Additionally, our study will evaluate semen quality after extended storage for cooled canine semen based on various sperm concentrations. By assessing various concentrations and re-centrifugation of the samples after cooling, our study will evaluate semen quality as an indirect assessment for fertility. The goal of our project is to establish semen processing standards to obtain the best semen quality for use in advanced reproductive techniques for canine patients.

## Eligibility

- Healthy, adult, intact male dogs
- Dogs must weigh over 15kg (over 33lbs) and be 2-6 years of age.
- Dogs must be able to provide an appropriate semen sample for use across the study categories.
- Dogs must not have been collected or bred naturally 7-10 days prior to the study.

## Exclusion Criteria

- Dogs with systemic illness
- Dogs with signs of testicular, epididymal, or prostatic disease
- Dogs with positive *Brucella canis* serology
- Any dogs with known poor fertility or sub fertility

## Study Design

We will perform a routine examination of the stud dog as well as a breeding soundness exam (BSE). The study has no influence on the ordinary course of treatment or classification for breeding. For the study, we will preserve the excess blood sample that is routinely collected as part of the *Brucella canis* screening protocol before semen handling in our andrology lab. For the study, a semen sample will be collected by manual stimulation in the presence of previously collected estrus swabs exposed to pheromones and vaginal secretions from a *Brucella canis* negative bitch. Each dog will be discharged after physical exam and collection of samples is complete. The semen sample collected will be exclusively used for analytical research purposes by the investigators and not for an insemination. All data obtained from the research study is confidential.

## Compensation

There are no costs to you for your pet to participate in the study. The study does not provide any compensation; however, we will provide you with the results of a complete BSE of your stud dog (physical and reproductive exam, full semen evaluation, *B. canis* test) performed according to best practices by a board-certified Theriogenologist and/or Theriogenology resident free of charge. The results of this study will also benefit future animals undergoing advanced reproductive techniques such as semen processing, preparation for shipment or freezing for breeding.

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