

PETCOUNT™, AN AT-HOME TEST KIT FOR MEASURING A DOG'S SPERM QUALITY

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BACKGROUND

PetCount™ is a qualitative at-home test kit for measuring a dog's sperm quality. A dog's sperm quality is measured by counting the number of Progressive Motile Sperm Cells (PMSCs) per mL in the sample. A fertile dog must have more than 210 M PMSCs/mL (Dr. Jane Barber, Canine semen collection and evaluation, April 1, 2010).

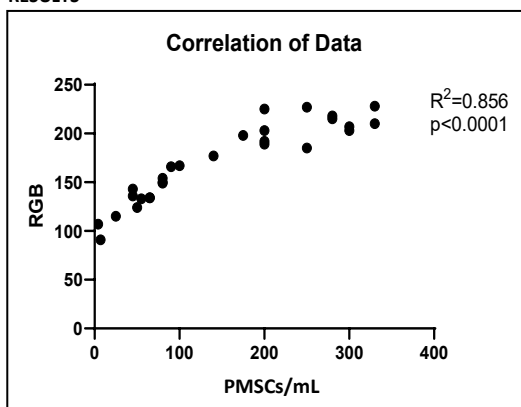
METHOD

Semen samples from 28 dogs were used. The spermatozoa concentration was quantified using the WHO criteria (WHO 5th edition 2010) and the concentration of the progressive motile spermatozoa in the semen samples were compared to the color reaction (read out result) obtained with the PetCount™ at-home test. The color intensities were measured using a lightbox equipped with a camera and Lab View v. 9.0 software (National Instruments, Hørsholm, Denmark).

BACKGROUND ASSAY PRINCIPLE

0.5 mL semen is applied to the semen sample compartment of the PetCount™ test device. The progressive motile spermatozoa swim through a filter with a defined pore size (10 µm) and into a compartment containing a buffer and a staining solution, which stains intact mitochondria. After 30 minutes, the progressive motile spermatozoa are harvested onto a filter and the concentration of the progressive motile spermatozoa is determined by comparing the intensity of the obtained color with a color-scale printed on the device. The darker the obtained color reaction the higher the concentration of progressive motile spermatozoa.

RESULTS



Color intensity compared to PMSCs/mL¹

Fig. 1 shows a correlation between the concentration of PMSCs/mL and the color intensity of the test result.

The number of progressive motile spermatozoa is compared to the digitalized read out of the device. A log linear relation between the number of progressive motile spermatozoa and the color intensities was obtained.

28 semen samples were applied to the PetCount™ test devices and the PMSCs/mL was plotted against the digitalized color intensities of each result obtained from the devices.

RESULTS

Pearson r	
r	0,9253
95% confidence interval	0,8433 to 0,9652
R squared	0,8561
P value	
P (two-tailed)	<0,0001
P value summary	****
Significant? (alpha = 0.05)	Yes
Number of XY Pairs	
	28

Table 1. A Pearson analysis were used to calculate the correlation coefficient and p value based on the 28 semen samples¹.

A highly significant correlation coefficient ($r = 0.8561$) between the digitalized color intensities and the progressive motile spermatozoa concentration per mL was obtained (Table 1).

CONCLUSION

The test results on the 28 dog semen samples have shown a very good correlation ($r= 0.8561$) between the digitalized read out of the PetCount™ at-home test device and manual semen analysis.

¹The collected data has been calculated and analyzed by:
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