

least square means and differences with $P < 0.05$ were considered significant.

Table 1

Effect of centrifugation on stallion seminal characteristics (expressed as least square means) over time during cool-storage incubation at 5 °C

Seminal characteristics	Time (h)	Non-centrifuged	Centrifuged
Motility	0	47.95	46.14
	24	48.46	52.50*
	48	41.71	50.37*
Viability	0	81.98	81.98
	24	65.86	73.35*
	48	62.19	70.04*
HOST	0	76.91	76.91
	24	42.42	49.66*
	48	34.40	41.45*

* $P < 0.05$.

It has been recently suggested that removal of seminal plasma is protective to sperm DNA integrity [Love, et al. *Theriogenology* 2005;63:1584–91]. In the present study, removal of seminal plasma by centrifugation resulted in better preservation of semen quality during short-term storage than non-centrifuged semen. Centrifugation of semen may be indicated for stallions with significant decrease in semen quality after overnight shipping.

Keywords: Horse semen; Seminal plasma; Cool storage; Centrifugation

Food Animal

EFFECT OF HUMAN CHORIONIC GONADOTROPIN (hCG) ADMINISTRATION ON OVARIAN ACTIVITY AND FERTILITY OF HOLSTEIN COWS

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The objectives of the study were to evaluate the effect of hCG administration 7 days after insemination on the induction of accessory corpora lutea, the level of plasma progesterone and the fertility of Holstein cows. Two hundred and four lactating Holstein cows were randomly distributed into two treatments: the cows in T1 ($n = 102$) received 1000 UI of hCG 7 days after insemination and the cows in T2 ($n = 102$) received 2 ml of

saline solution, in both cases by intramuscular injection. The cows were fed with a total mixed ratio containing fresh alfalfa, alfalfa hay, corn silage and a commercial concentrate with 16% CP and 2.7 MCal ME as well as water and a commercial mineral premix ad libitum. On days 7 and 14 after the service blood samples of the jugular vein were collected to determine the level of plasma progesterone and on day 14 the ovaries were scanned with an ultrasound (Sonovet 600, Medison, USA) equipped with a 7.5 MHz transducer to evaluate the incidence of accessory corpora lutea and its diameter, perimeter and area. Progesterone was determined using radioimmunoassay. The diagnosis of pregnancy was conducted on days 35 and 60 after the service by ultrasound in cows that did not return to estrous the following estrous cycle. The incidence of accessory corpora lutea and pregnancy rate were analyzed through logistic regression and the characteristics of the corpora lutea and the level of progesterone through mixed models procedures. The level of progesterone on days 7 and 14 after insemination were similar ($P > 0.05$) between T1 and T2. The incidence of accessory corpora lutea was higher ($P < 0.01$) in T1 (76.5%) compared with T2 (8.8%). There were no differences ($P > 0.05$) in the diameter, perimeter and area of the accessory corpora lutea between T1 and T2 (17.1 ± 0.3 versus 17.4 ± 0.8 ; 65.9 ± 1.3 versus 66.2 ± 3.4 ; 299.9 ± 10.9 versus 293.9 ± 29.7), respectively. Similarly there were no differences ($P > 0.05$) in pregnancy rate between T1 and T2 on day 35 (53.9% versus 43.1%) and 60 (43.1% versus 35.3%), respectively. In conclusion, the administration of hCG 7 days after insemination induces the formation of accessory corpora lutea, without affecting its morphologic characteristics, the level of progesterone in plasma and the fertility of lactating Holstein cows.

Keywords: Gonadotropins; Accessory corpora lutea; Pregnancy rate; Dairy cows

THE INDUCTION OF PARTURITION IN DAIRY GOATS AND THE OUTCOME OF KIDDING EVENTS

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The use of dexamethasone in combination with a prostaglandin $F_2\alpha$ analogue, dinoprost tromethamine (Lutalyse[®], Pfizer, USA) was considered as a management practice for the induction of parturition in dairy goats to concentrate kidding events during hours of

greatest personnel availability. Creating planned kidding periods has been previously recognized as advantageous to resource utilization within dairy operations. However, there have been concerns raised that this induction of parturition may possibly lead to increased complications in does such as abnormal cervical/vaginal dilation, insufficient ligament relaxation or general dystocias. Additionally, there were questions surrounding the potential production of underdeveloped or compromised kids. Therefore, a retrospective analysis was conducted to determine whether the induction of parturition in dairy goats was associated with increased complications in the doe or increased kid mortality at kidding. From 2004 to 2005, 362 dairy goats of varying breeds (predominantly Saanen/Alpine crosses) were treated intramuscularly with dexamethasone (10 mg) and Lutalyse® (5 mg) to induce parturition between days 145 and 149 of gestation. The outcomes of these kiddings were compared to 1595 natural kidding events that occurred from 2000 to 2005. Pregnancies in both groups were derived from multiple assisted reproductive technologies (ART) including standard pen breeding, artificial insemination, in vitro fertilization, microinjection, and somatic cell nuclear transfer. The complications identified at birth ranged from dystocias (including deliveries by caesarian section) to uterine tears, vaginal tears, vulvar tears, and vaginal/vulvar bruising. In some cases, these complications led ultimately to doe mortality. Kid mortalities included kids that presented either dead at birth with no discernible cause for death or kids that failed to thrive in the first 5 days after birth that were subsequently euthanized. Data was analyzed using Chi-square analysis. There was no difference in dam complications between natural kiddings and induced kiddings (13.1% versus 14.4%, respectively). However, there was a significant difference in mortality rates between 2700 kids born from natural kiddings compared with 652 kids born from induced kiddings with a higher loss of kids born through the natural birthing process (7.0% versus 2.6%, respectively). It was apparent from this retrospective analysis that management practices associated with induced kidding events can lead to increased kid survival which is beneficial to herd efficiencies without causing increased complications to the does. Additionally, induction of parturition creates defined kidding windows that allow for careful attendance of the kidding process while maximizing utilization of resources, and this practice leads to a beneficial earlier intervention in the event of any kidding complications. In summary, induction of parturition using dexamethasone and Lutalyse® is a beneficial tool to be considered when mana-

ging kidding events to maximize resource utilization while at the same time increasing kid survival.

Keywords: Caprine; Induced parturition; Birth complications

EFFECTS OF FSH AND PTU ON SERTOLI CELL PROLIFERATION IN PORCINE TESTICULAR TISSUE

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Regulation of the cell cycle involves a complex and orderly sequence of events that are critical in determining the fate of eukaryotic cells toward proliferation or differentiation. Very little is known regarding the factors involved in Sertoli cell cycle in mammals in general and pigs in particular. Follicle-stimulating hormone (FSH) is the major factor responsible for postnatal Sertoli cell proliferation in laboratory rodents and primates, although studies in the pig suggest that FSH is not as tightly correlated with the increase in number of Sertoli cells. Additionally, the goitrogen 6-*n*-propyl-2-thiouracil (PTU), when given to induce transient neonatal hypothyroidism, leads to a tremendous increase in testis size, number of Sertoli cells and sperm production in rodents. In pigs, however, Sertoli cell proliferation is diminished by the postnatal depletion of thyroid hormone. The objective of this study was to determine the effects of PTU and FSH hormones on Sertoli cell proliferation in the pig testes. Testes were collected from 14-day old piglets, and the tissue was dissected into 5 mm³ pieces for transplantation under the skin of castrated nude mice. Two days post-surgery mice were randomly assigned to one of four treatment groups: control, PTU (0.015%), FSH (5 IU rFSH), and PTU + FSH. Following 14 days of treatment testes pieces were harvested, fixed by immersion in neutral buffered formalin, embedded in paraffin, and sectioned. For immunohistochemistry paraffin was removed, sections rehydrated, endogenous peptidases blocked, and target antigens were unmasked by boiling in 0.01 M citrate buffer. The following antibodies were used to examine Sertoli cell proliferation: GATA-4 (1:200 dilution; transcription factor specific for developing and adult pig Sertoli cells) and Ki-67 (1:500 dilution; a