

---

## Supplementary Feeding of Colostrum to Thoroughbred Foals

Rochelle Kerr, Marks & Ewen, Matamata  
Deborah Prattley, Massey University

*Massey University, Palmerston North, New Zealand*

---

*Funding: (ET1) This grant was funded by the New Zealand Equine Trust \$5,866.67*

---

A leading cause of neonatal foal loss is septicaemia<sup>4,6</sup>. In the past the umbilicus was thought to be the main portal for bacterial infections in neonatal foals but the open gut is now considered the most likely mechanism for exposure of new born foals to pathogenic bacteria<sup>4</sup>.

It was demonstrated twenty years ago that cells that line the newborn gut non-specifically ingest large molecular weight compounds and once a number of these molecules had been processed the open gut became closed and could no longer absorb large molecules<sup>2</sup>. More recent research suggests that macromolecular uptake may not mediate gut closure and that factors present in colostrum may accelerate closure<sup>5</sup>?

Madigan has proposed that bacteria are presented and non selectively absorbed through the open gut when the foal is exploring the environment and udder-seeking after standing and prior to suckling, and that this is the principal route of infection<sup>4</sup>. He surmised that early administration of colostrum prior to standing is associated with reduced illness in foals largely because of early gut closure and prevention of absorption of bacteria across the gut wall<sup>4</sup>.

The records from a large thoroughbred stud in New Zealand were examined over several years to test the hypothesis that supplementing foals with colostrum prior to standing was a practical and beneficial management tool.

From late 2005 to 2008, 740 foals on the stud were supplemented with 150 to 200 ml colostrum, before standing, generally within 30 minutes of birth (supplemented group). These foals were compared to 648 born on the same stud during the 2002 to 2005 seasons, who did not receive any extra colostrum (control group). There was no statistically significant difference between the two groups in terms of the amount of time it took for the foals to stand in the supplemented group (mean 53 minutes; range 0-435 minutes) versus the control group (54; 0-158 minutes). However, regarding time to first suckle, supplemented foals took 19 minutes longer to first drink from the time of birth (142; 45-330 minutes) than control foals (123; 35-420 minutes). The average time interval between standing and feeding for supplemented foals (90; 10-300 minutes) was also significantly longer by 21 minutes than in control foals. These results could be expected as foals who have already received a meal may be less motivated to seek further sustenance. Although the treatment foals took longer to suckle than the non treated foals it was noted anecdotally by stud staff that the treated foals appeared more alert and spent less time erroneously teat-seeking.

There was no significant difference between the two groups for serum immunoglobulin [IgG] values measured 18 to 36 hours after birth. As a parallel observation, older mares  $\geq 15$  years were significantly more likely to have inferior colostrum (IgG) quality (24%) than younger mares  $< 15$  years (26%). This is consistent with other studies<sup>3</sup>.

Many other factors were documented and analysed in this study including the number of days foals were sick, the seriousness of the illness and the number of diseases diagnosed per foal as per the Baldwin study<sup>1</sup>. Unfortunately scientifically valid conclusions could not be drawn as the groups of

foals were being compared between years, rather than in the same year, which introduces numerous uncontrollable variables. A randomised, controlled trial needs to be carried out within one season in order to assess the effects of colostrum supplementation on foal health. The authors consider this to be an interesting and worthwhile trial.

The investigators are currently working on further analysing all data to produce a paper to submit for publication in an industry journal later this year.

#### References

1. Baldwin JL., Cooper WL., Vanderwall DK., Erb HN. 1991. Prevalence (treatment days) and severity of illness in hypogammaglobulinemic and normogammaglobulinemic foals. *J Am Vet Med Assoc.* 1991; 198: 423-428.
2. Jeffcott LB. Studies on passive immunity in the foal II: the absorption of 125-labelled PVP (polyvinyl pyrrolidone) by the neonatal intestine. *J Comp Pathol.* 1974; 84: 279-289.
3. Leblanc MM., Tran T., Baldwin JL., Pritchard EL. Factors that influence passive transfer of immunoglobulin's in foals. *J Am Vet Med Assoc.* 1992; 200:179-83.
4. Madigan JE. Method for preventing neonatal septicaemia, the leading cause of death in the neonatal foal. *Proc Ann Meet Am Assoc Eq Pract.* 1997; 43: 17-19.
5. Raidal SL., McTaggart C., Yovich JV., Penhale J. Effect of withholding macromolecules on the duration of intestinal permeability to colostral IgG in foals. *Proc Ann Meet Am Assoc Eq Pract.* 2000; 46: 260-263.
6. Wolfe AG., Johnstone AC., Mayhew IG. Causes of perinatal deaths in foals in New Zealand in the 2007 and 2008 seasons.. *NZ Vet J.* 2009; 57: 70-70. ABSTRACT.