



## Changes in faecal bacteria and metabolic parameters in foals during the first six weeks of life

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### ABSTRACT

Many foals develop diarrhoea within the first two weeks of life which has been suggested to coincide with postpartum oestrus in their dams. To analyse the pathogenesis of this diarrhoea we have determined faecal bacteria in foals and their dams ( $n = 30$  each), and serum IGF-1 and  $\gamma$ -globulins for 6 weeks after birth. In addition, effects of  $\beta$ -carotene supplementation to mares (group 1: 1000 mg/day,  $n = 15$ , group 2: control,  $n = 15$ ) on diarrhoea in foals were studied. Diarrhoea occurred in 92 and 79% of foals in groups 1 and 2, respectively, but was not correlated with oestrus in mares. Beta-carotene supplementation was without effect on foal diarrhoea. In mares, bacterial flora remained stable. The percentage of foals with cultures positive for *E. coli* was low at birth but increased within one day, the percentage positive for *Enterococcus* sp. was low for 10 days and for *Streptococcus* sp. and *Staphylococcus* sp. was low for 2–4 weeks. By 4 weeks of age, bacterial flora in foals resembled an adult pattern. Concentration of serum IGF-1 was low at birth (group 1:  $149 \pm 11$ , group 2:  $166 \pm 17$  ng/ml), increased after day 1 (day 7 group 1:  $384 \pm 30$ , group 2:  $372 \pm 36$ ) but at no time differed between groups. Serum  $\gamma$ -globulin concentration in foals was low before colostrum intake and highest on day 1 ( $p < 0.001$  over time). In conclusion, neonatal diarrhoea in foals does not coincide with postpartum oestrus in their dams but with changes in intestinal bacteria and is not influenced by  $\beta$ -carotene supplementation given to mares.

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