



DOES OSTEOCHONDROSIS AFFECT THE TOE-HEEL AND MEDIO-LATERAL HOOF BALANCE IN GROWING WARBLOOD FOALS?

Introduction

Osteochondrosis (OC) is a very frequently observed developmental disease in young horses. It has been diagnosed in foals as young as several days of age and can result in a (subclinical) lameness.¹

Aim of the study

To investigate whether the presence of osteochondrosis at a young age affects the toe-heel and medio-lateral hoof balance, measured with the vertical force.

Materials and methods

Pressure plate measurements at walk and trot of eleven Dutch Warmblood foals during their first 24 weeks of life were used to determine toe-heel and medio-lateral hoof balance of the vertical force as described by Oosterlinck et al.² Radiographic evaluation for the presence of osteochondrosis of tarsocrural and femoropatellar joints was performed at 4–6 weeks and after 6 months.

Results

Foals with osteochondrosis showed distinctively different hoof balance curve patterns, at several points in the study period of 24 weeks. Both the toe-heel and medio-lateral balance curves of the positive group were different, in the forelimbs as well as in the hind limbs. Foals with osteochondrosis presented higher loading of the toe-zone during the entire stance phase. Moreover, these foals presented higher loading of the medial zone compared to foals without osteochondrosis, especially at the trot. The largest differences between groups were observed at 2–6 weeks of age and 12–16 weeks of age.

Conclusions

Gorissen et al³ found that foals with osteochondrosis show a lower peak vertical force in the hind limbs during week 4 and 6. This study demonstrates they also present differences in toe-heel and medio-lateral hoof balance compared with unaffected foals. This may affect their development and future soundness, and therefore early detection of subclinical lesions using pressure plate analysis may be extremely valuable.

References

- 1 Van Weeren PR, Olstad K, 2016. Pathogenesis of osteochondrosis dissecans: How does this translate to management of the clinical case? *Equine vet. Educ.* 28, 155-166.
- 2 Oosterlinck M, Hardeman LC, van der Meij BR, Veraa S, van der Kolk JH, Wijnberg ID, Pille F, Back W, 2013. Pressure plate analysis of toe-heel and medio-lateral hoof balance at the walk and trot in sound sport horses. *Vet. J.* 198 Suppl. 1, 9-13.
- 3 Gorissen BM, Wolschrijn CF, Serra Bragança FM, Geerts AA, Leenders WO, Back W, van Weeren PR, 2016. The development of locomotor kinetics in the foal and the effect of osteochondrosis. *Equine Vet. J.* 0 (2016) 1–8

Anouk L. Wiertz (BSc),
Merlijne den Heijer (BSc),
Sandra P. Kooij (BSc), Filipe
M. Serra Bragança (DVM),
Maarten Oosterlinck (DVM
PhD Dipl ECVS), Sandra
Nauwelaerts (PhD), Willem
Back (DVM PhD Dipl ECVS),
Ben M.C. Gorissen (DVM),
Claudia F. Wolschrijn (DVM
PhD), and René van Weeren
(DVM PhD Dipl ECVS)

Department of
Pathobiology and
Department of Equine
Sciences, Faculty of
Veterinary Medicine, Utrecht
University: Yalelaan 1,
3584 CL Utrecht
The Netherlands

a.l.wiertz@students.uu.nl