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BACKGROUND

DOD affect young horses with recognisable radiographic findings (Hoppe 1984)
DOD ⇒ pain, lameness ⇒ performance limitation (Hoppe 1984, Kane et al. 2003)
⇒ ↓ commercial & breeding value

Major economic problem
in the horse breeding industry

OBJECTIVE

Assess the effects of growth, feeding and management practices on DOD at weaning

MATERIALS and METHODS

392 foals → 21 volunteer stud farms From Normandy, 3 cohorts of foals born in 2002, 2003, or 2004
3 breeds: Warmblood, Standardbred, Thoroughbred

Data

Feeding practices (for mare and foal)

- Mean daily amount of concentrates & duration of its distribution
- Ratios of
 - Calcium/Phosphorus
 - Zinc/Copper



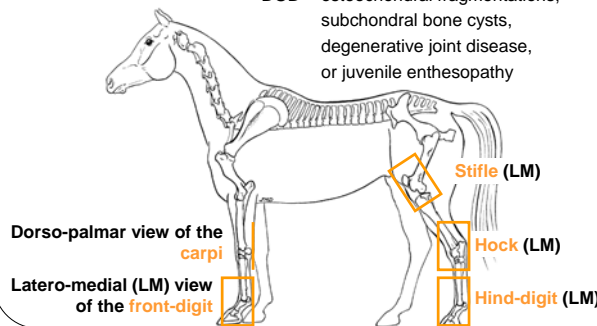
Management practices

- age at grazing
- batch size
- surface and slope of pastures,
- regularity and duration of exercise (access to pasture)
- frequency and regularity of handling



DOD detection by x-ray examination

DOD = osteochondral fragmentations, subchondral bone cysts, degenerative joint disease, or juvenile enthesopathy



Foal characteristics

- Breed
- Sex
- Birth month
- Birth year
- Exact age at x-ray examination
- Age of the mare
- Primiparous or not



Growth

- wither height & girth circumference
 - at 1 month in cm
 - slope of its increase [1-3] months



Risk factors analysis

- Logistic regression model to explain DOD (at least one radiographic finding) by growth, feeding and management practices
- Growth effects were standardised by breed
- Significant p-value = 10%

RESULTS

Study sample characteristics

- Breed distribution:
 - 25.0% of Warmbloods,
 - 41.1% of Standardbreds,
 - 33.9% of Thoroughbreds
- Sex distribution: 52.5% of fillies
- Mean age of foals at x-ray examination: 5.7 months (172 ± 38 days)
 - 170.4 ± 36.8 days for Warmbloods
 - 170.0 ± 40.6 for Standardbreds
 - 174.9 ± 34.6 for Thoroughbreds

P > 5%



DOD prevalence

- **66.3%** (CI95%= 61.6-71.0%) of foals were affected by DOD

Adjusted effects of growth, management practices, and individual characteristics on DOD

Risk factors	Odds Ratio	CI 95 %
Wither height at 1 month for a 3.5 cm increase	1.5	1.2-2.0
Slope of wither height [1-3] months for a 0.2 cm increase per month	1.6	1.2-2.1
Large surface of the pastures vs. limited surface		
> 1ha [0-15] days of age (at least 1 week) or > 6ha [15-60] days (at least 2 weeks)	4.8	1.8-12.9
Irregular exercise vs. daily exercise		
< 3 times / week (at least 2 weeks)	2.0	0.9-4.5
Age of the mare vs. [10-15] years		
<10 years	1.8	1.1-3.1
>15 years	2.7	1.2-6.0
Birth month vs. [March, April]		
< January, February	1.6	0.8-3.0
> May, June, July	1.8	1.0-3.3
Breed vs. Thoroughbred		
Warmblood	2.8	1.4-5.6
Standardbred	1.7	1.0-2.9

CONCLUSION

Early prevention of DOD can be done including:

- a daily access to pasture with a limited surface
- a regular monitoring of wither height followed by suitable changes in feeding practices if necessary



References

- Hoppe, F. (1984) *Equine Veterinary Journal* 16 (5), 425-429.
- Kane, A. J., et al. (2003) *Equine Veterinary Journal* 35 (4), 354-365.