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**A PRELIMINARY DESCRIPTIVE EPIDEMIOLOGICAL
STUDY ON ANGULAR LIMB DEFORMITIES IN A
SAMPLE OF COMMERCIAL NEW ZEALAND
THOROUGHBRED FOALS.**

A thesis submitted in
partial fulfillment of the
requirements for the
degree

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The work presented in this thesis is original and is the product of a study carried out across North Island Thoroughbred Stud Farms.

The work in this thesis does not incorporate any material previously submitted for another degree in any university. To the best of my knowledge this work is entirely my own and contains no material previously published or written by anyone else except where references are made.

Abstract

A prospective observational study was carried out to provide descriptive epidemiology of angular limb deformities (ALD) at several predetermined time-points in a sample of Thoroughbred foals born during the 2013/14 breeding season across five commercial North Island Thoroughbred stud farms. The stud farms selected were a convenience sample based on geographical location, annual foal crop and their willingness to partake in the study. Data were collected for foals scored at birth, foal heat (2 weeks), 6 weeks, and weaning age (approximately 5 months). Foals were examined for the presence of angular deviations at the carpal, tarsal and fetlock joints; these were graded on a scale ranging from 1-5 in severity between 0° and 20°, which was quantified using an ALD measuring limb protractor designed for the study. Foals were also examined for the presence of offset carpal joints and rotational deformities of the cannon and pastern regions. A total of 230 foals were scored for the presence of ALD at birth. Overall, 78% (180/230) were recorded to have one or more ALD at birth. This was significantly more than at foal heat (71%; 39/55), six weeks (29%; 18/55), and weaning age (12%; 30/257) ($p < 0.001$). A total of 363 ALD were recorded at birth, 66% (239/363) were recorded as severity score 2. Angular limb deformities with severity scores 3 and 4 were recorded less frequently (31%; 112/363); there were no ALD with severity score of 5 recorded throughout the trial. There was no significant association of overall occurrence of ALD to gestation length, mare age and foal gender.

Inter-observer agreement on the presence and severity of ALD was strong between study personnel and fair between study personnel and stud staff, ($k = 0.75$, 95% CI) and ($k = 0.27$, 95% CI) respectively. The greatest source of disagreement was in the scoring of mild ALD, and ALD at the carpal joint. Disagreement was attributed to a low number of simultaneous scorings between study personnel and stud staff, and the dynamic effect that changes in stance and maturation of foals during the first days post-partum have on the perception of ALD and severity.

Data for the management of ALD were recorded for 27% (71/265) of the foals scored with ALD over the course of the trial. Management of ALD across all stud farms involved a period of conservative management before any surgical interventions. Confinement (39%; 86/222) and hoof trimming (28%; 62/222) were the most frequently recorded methods of early intervention. Surgical interventions (5%; 12/222) were reserved for foals with severe ALD and those with ALD

that had not responded to a period of conservative intervention. Across all stud farms treatments were tailored to individual foals, highlighting the dynamic nature of foal development.

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