
Does the asymmetric modeling of the Central Tarsal Bone in racing greyhounds occur rapidly during training, or develop during the racing career?

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Funding: (NZRB 7) This project was funded by New Zealand Racing Board from 2007-2011 \$99,000

Background: In 2007, we established the suboptimal nature of greyhound training and feeding regimes nationally. We proposed that both inadequate nutrition and suboptimal training might predispose racing greyhounds to bone disease. In 2008, we clarified widely used feeding practices, and further supported the need for understanding nutrition and early training as risk factors for skeletal injury. In 2009, we conducted a survey of injuries to racing greyhounds over a 5-year period. We identified that hock injuries were the single most important cause of catastrophic failure and dog loss. The combination of training practices, questionable feeding practices, and the suspicion of stress-induced fractures was also a significant cause of dog loss. We determined that the most important avenue for focused research was the description of bone remodelling that occurs during early training and during the career of a racing dog, when nutrition and training regimes are constant.

Objective: To determine the effect of early training and career racing on bone remodelling in the hock joint of racing greyhounds.

Methods: We evaluated 12 dogs at various stages of their racing careers (Group C), and 9 dogs at 11 months of age prior to commencing track training (Group A), and again at 16 months following some training (Group B). All dogs were from a single trainer, and the dogs in Group A/B are all from the same litter, which minimises variation. Group C dogs were unrelated. Information on the training program and racing details were recorded. The hocks of each dog were CT scanned, and the dog's weight and tibial length were measured and recorded.

Results: An initial subjective assessment has revealed asymmetry between the bone density of the left/right central tarsal bones, as the result of track running, and increases in bone volume and density following training. Also, microfractures appear to result during training. Full analysis will include assessment of bone mineral density, cross-sectional area, cortical thickness, periosteal and endosteal circumference, and bone volume.

Implications: We are uncovering the early changes in bone that occur after the onset of training, and which may predispose it to catastrophic fracture later. Understanding these changes is imperative for optimising training, nutrition, racing, and general management and welfare of racing greyhounds in NZ.

References

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