

Experience implementing a program to screen fracture risk

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Preventing serious limb injuries in racehorses is challenging. Reasons for this include that the relative rarity of these events require large data sets over many years, the process of bone failure being complex with multiple pathways to injury, the narrow safety margin between peak performance of racehorses and skeletal overload, a limited ability to monitor the skeleton for damage, and difficulties in real-time prediction.

Because fractures develop over time and pre-existing pathology is commonly observed at postmortem examination, a lot of effort has been directed at developing screening methods for fracture risk. While screening is only part of a comprehensive preventative approach to injury, for horses coming from different jurisdictions to race it becomes the main method by necessity.

Along with a number of measures introduced in response to a cluster of deaths of international horses travelling to compete in high class races in Victoria, CT imaging of horses prior to competing in the Melbourne Cup was instituted. This was based on postmortem CT examination of nine international horses that showed that six of the nine may have been prevented if they had been imaged prior to competing.

Additional evidence on which risk level has been assessed was derived from a large dataset of postmortem CTs (n=157 horses). Findings associated with condylar fracture include focal lysis underlying the parasagittal groove in combination with surrounding sclerosis of trabecular bone. Findings associated with sesamoid fracture include focal subchondral bone lytic lesions and increased sesamoid density as measured with Hounsfield units.

In the last two years, 82 horses have been screened of which eight horses have been withdrawn based on CT scan findings. Measuring success of this screening system is challenging because it is one of multiple interventions and a larger number of horses need to be screened before a significant reduction in injury rate can be determined. Nonetheless, there have been no fractures since its introduction.