

For Active Dogs!

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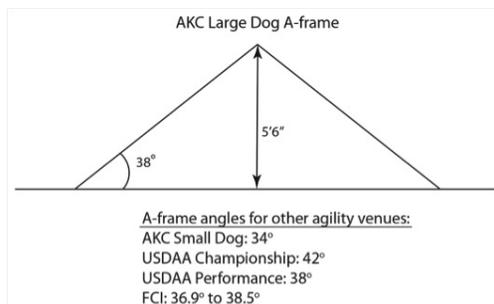
A-Frame-Induced Carpal Injuries

Greetings!

Studies of injuries in agility dogs have suggested that the A-frame might contribute to agility-related injuries (1,2). A **just-released study** examined the angle of the carpus (wrist joint) when dogs were ascending the A-frame (3). The goal of the study was **to determine whether lowering the height of the A-frame**, thus reducing the angle at which the A-frame meets the ground, **would reduce the amount of carpal extension** that dogs experience when ascending the obstacle.



This figure from the publication shows how the angle of each dog's carpus as it ascended the A-frame was measured. Superimposed lines have been added for clarity.



angles for the AKC small dog A-frame and the A-frames used in other agility venues.

The results showed that **regardless of whether the A-frame was positioned at angles of 30°, 35° and 40° to the ground, the dogs' carpi always extended to about 62°**. The authors compared this angle to studies showing that maximal carpal angles in dogs walking on flat surfaces were 26°, and in dogs traversing a jump were 44°. They concluded that the carpal angles they measured in dogs ascending the A-frame represented maximal carpal extension. They suggested, as others have, that **repetitive maximal carpal extension could damage soft tissue structures** that support the

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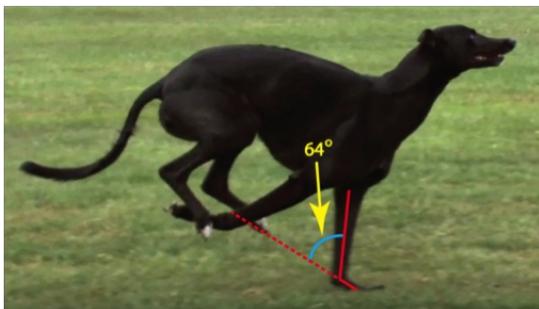
carpus.

This was very **well-designed study** using a large number of dogs (n = 40) of a wide variety of breeds, and it **asks a very important question about repetitive injuries**. Their data are very solid. However, my conclusions are slightly different than the authors'.

I think that while the dogs in the study were likely experiencing maximal carpal extension, that nonetheless, **that degree of carpal extension is not out of the ordinary for dogs**. Instead of comparing the carpal extension angles of dog ascending the A-frame to those of dogs walking or even jumping, it might be more relevant to compare the carpal angles of dogs ascending the A-frame to dogs using the same gait and speed on the ground.

The **dogs in the study** were running at an average of 6.7 m/s, indicating that they **were cantering or galloping**. An examination of the literature of more rapidly moving dogs revealed a study of trotting Beagles demonstrating maximal carpal angles of 49.2°(4), of Rottweilers 61.5° (5) and of Labradors 71.8° (5).

A search of the internet did not turn up studies of carpal angles of dogs cantering or galloping. However, slow motion, high resolution videos of dogs galloping permitted measurement of maximal carpal angles. **Dogs galloping on grass demonstrated carpal extension angles of about 64°** (see figure below), slightly greater than those measured in the agility dogs in the study.



Thus **the dogs ascending the A-frame were experiencing carpal extension that is normal for galloping dogs** and even within the range of normal for some breeds of dogs when trotting. This suggests that carpal extension during the ascent of the A-frame is an unlikely cause of carpal injuries in agility dogs.

In any case, **kudos to the authors of this study** for addressing questions that are important to the health of our active dogs!

References:

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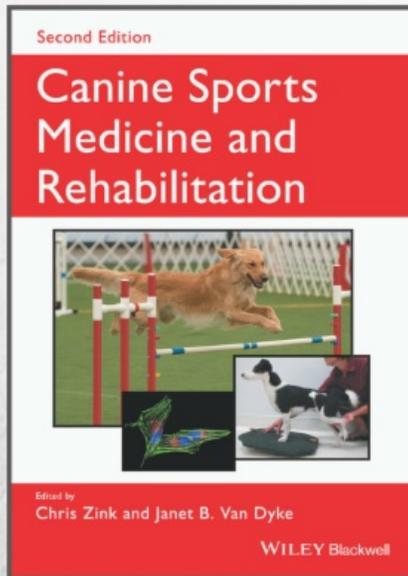
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