P E A K News Bulletin

Caring For Canines

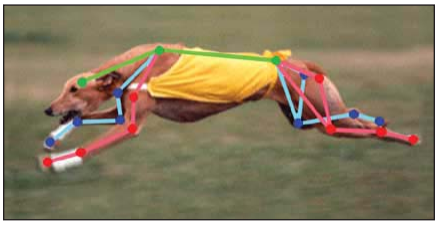
Helping working dogs and canine athletes has been the passion of Dr. Robert L. Gillette's veterinary career. As Director of the Richard G. and Dorothy A. Metcalf Sports Medicine Program at Auburn University's College of Veterinary Medicine, Dr. Gillette has used a Peak Performance Technologies, Inc. system for over twelve years as a diagnostic tool to analyze and treat canine movement. Although motion measurement can be used to evaluate common companion canines, working dogs that are trained to help people and canine athletes that participate in competitions require a more comprehensive analytical assessment.

Oftentimes, a champion competing dog is sent to the Auburn University clinic when other veterinarians are not able to solve a dog's condition. Having an in-depth, quantitative understanding of a dog's movements and locomotion can help in the assessment of performance enhancement, conditioning and training, and lameness and rehabilitation.

One such case was an English Mastiff that developed an unusual head nodding motion that was likely to end its show career. When the dog was videotaped with a Peak Motus® 2-D video system it was discovered that lameness in both its front and back legs was contributing to the head nod. The Peak Motus system revealed abnormalities that dictated the treatment needed for the dog to compete again.

Greyhound-racing dogs provided another dynamic study. When galloping, their legs are in the air twice as long as a typical running canine. The kinematic data from a Peak system enabled Dr. Gillette to discover that it was the longissimus muscles in the vertebrae, rather than the leg muscles, that became fatigued while galloping. Using these results, it was determined that the best way to condition the racing dogs was through an uphill running program.

Lure coursing, in which greyhounds and other sighthound breeds are judged on how accurately they follow the path of a plastic "bunny," often necessitates that the dogs wear carpal wraps to reduce impact on their carpal bones when turning and stopping. When a new neoprene wrap was introduced to the market it was assumed it would reduce carpal extension. However, by using the Peak Motus video and analog system, Dr. Gillette was able to prove that the carpal extension remained constant while the impact force changed with the new neoprene wrap. The product not only lessened impact on the canine's carpus, but additionally it was discovered that the wrap could be used to prevent carpal injuries prone to these competing dogs.



Incorporating motion measurement as a tool to uncover conditions that are undetectable by the human eye has been essential in canine rehabilitation, training, and performance enhancement. The Peak Motus systems have equipped veterinarians and other research scientists like Dr. Gillette with the flexibility to efficiently analyze, detect and treat curable conditions in canines in order to prolong their careers and improve their lives.

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Calendar of Events

IV World Congress of Biomechanics
Calgary, Canada ~ August 4-7, 2002

Human Factors and Ergonomics Society
Baltimore, Maryland, USA ~ September 30 - October 4, 2002

Society for Neuroscience
Orlando, Florida, USA ~ November 3-6, 2002

National Ergonomics Conference and Exposition
Las Vegas, Nevada, USA ~ December 10-12, 2002

Society for Integrative and Comparative Biology
Toronto, Canada ~ January 5-7, 2003

American Physical Therapy Association
Tampa, Florida, USA ~ February 13-15, 2003

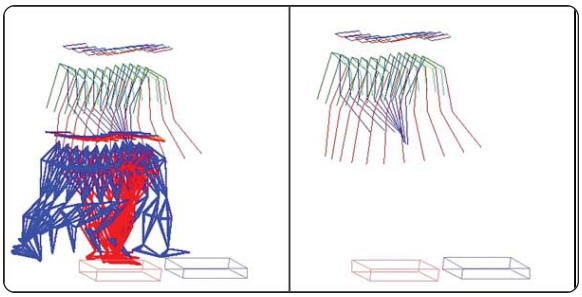
Tips & Tricks

Customize Stick Figure Graphics

Within the Peak Motus® Report component, you can modify how stick figure points and segments are displayed from the original Spatial Model Setup.

For example, if you want to view the motion of just the arms instead of the entire body, you can remove the segments you don't want to view via the Options selection tab.

If you have Peak Motus version 5 or higher, you can overlay these modified stick figures on the video to emphasize particular segments or movements.

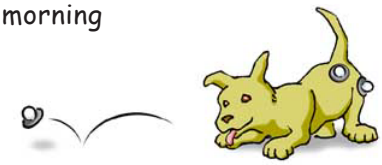


Animated Stick Figure With And Without Body Segments Displayed

Comedy Corner

How To Motion Capture A Puppy

1. Choose a suitable location for capture
2. Mount cameras on tripods and focus on calibration frame
3. Wave calibration wand with one hand and fend off puppy with other hand
4. Precisely place optical markers on puppy
5. Remove chewed up marker from puppy's mouth and throw in trash
6. Remove puppy from trash and brush coffee grounds from muzzle
7. Return to workstation and check calibration
8. Recalibrate
9. Find puppy and place in calibrated spot
10. Forget about spot and crawl after puppy on knees
11. Fix a drink
12. Sit back with drink and resolve to teach puppy "sit" and "stay" the first thing in the morning



Published Articles

Ahn, A.N., and R.J. Full. (2002) "A motor and a brake: two leg extensor muscles acting at the same joint manage energy differently in a running insect" In The Journal of Experimental Biology (pp.379-389)

Arampatzis, Adamantios, Peter Brüggemann, and M. Gasper Klapsing. (2001) "Leg Stiffness and Mechanical Energetic Processes During Jumping on a Sprung Surface." In Medicine & Science In Sports Exercise, Volume 33, No. 6 (pp.923-931)

Morley, Joanna B., Nick Stergiou, Tracy Dierks, Daniel Blanke, and Jeffrey A. French. (2001) "An Examination of Ground Reaction Forces in Runners with Various Degrees of Pronation." In 25th Annual Meeting of American Society of Biomechanics (pp.111-112)

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