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Special Issue Reprint

Equine Gait Analysis

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From ancient cave paintings to modern research labs, equine locomotion remains a source of fascination. Recent developments in computerization, artificial intelligence (AI), and wearable sensor technologies mean that researchers, veterinarians, and equestrians can now acquire high-quality data from horses in motion during clinical evaluations or athletic pursuits. This Special Issue is dedicated to showcasing these advancements in the field of equine biomechanics. The broad spectrum of topics covered in this reprint includes characterizations of gait type and quality of movement; the harnessing of artificial intelligence for lameness detection; the electromyographic evaluation of muscle function during canter; and the evaluation of limb–arena surface interactions during jumping, thresholds for upper body asymmetry parameters during straight and circular motion, axial and limb asymmetries of high-level dressage horses, and the effect of tack design on performance. Some of these studies contribute new knowledge using well-established techniques, such as videography, used with or without dedicated software to aid in data reduction. Other studies make use of novel, emerging techniques—made possible through the development of wearable sensors and apps—that utilize built-in smartphone cameras and AI to quantify gait asymmetries. Applications of AI and markerless motion capture are undoubtedly only the tip of an emerging iceberg in the transference of science into the hands of practitioners and equestrians via field-deployable and user-friendly applications for analyzing equine gait. The future in this arena of research is promising.

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