



COMPARISON OF THE ALIVECOR[®] ECG DEVICE FOR THE IPHONE[®] WITH A REFERENCE STANDARD ELECTROCARDIOGRAM.

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The AliveCor[®] ECG device incorporates electrodes into an Apple iPhone[®] case allowing wireless recordings of electrocardiograms. We hypothesized that the AliveCor[®] would permit accurate heart rate and rhythm identification in dogs, cats and horses with normal sinus rhythm and spontaneous arrhythmias when compared to a reference ECG. Standardized 6-lead ECGs and AliveCor[®] recordings were acquired simultaneously from 46 dogs and 23 cats; simultaneous base-apex ECGs and AliveCor[®] recordings were acquired from 18 horses. Instantaneous heart rates were obtained from identical QRS complexes where these were identified; 15-second average heart rates were obtained where identical QRS complexes were not identified. 3 observers independently evaluated the rhythm and the polarity of QRS depolarization for each recording. The results were compared within observer and between observers.

Instantaneous and average heart rates were identical in all cases where exact matches could be made for comparison between the iPhone[®] and reference ECG, and were within 1 beat where average heart rates were calculated. Intra-observer agreement for rhythm assessment was very high, with no disagreement for equine ECGs, maximal disagreement in 2/46 canine and 4/23 feline ECGs. The polarity of depolarization was occasionally different between the AliveCor[®] and reference ECG in horses and dogs, but frequently different in cats. Inter-observer agreement for AliveCor[®] ECGs was similar to that for reference ECGs, with all observers agreeing on the rhythm analysis and polarity most of the time.

Our data suggest that the AliveCor[®] accurately identifies cardiac rhythms in horses, dogs and slightly less accurately in cats.