AN INVESTIGATION INTO THE INFLUENCE OF TRAINED TURNING DIRECTION ON PASSIVE RANGE OF MOTION, AND STATIC WEIGHT DISTRIBUTION IN THE FORELIMBS OF DOGS THAT COMPETE IN FLYBALL

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Background

Participating in flyball is thought to pose higher risk of injury to the forelimbs, especially during high velocity turns performed in the same direction (either left or right), but very little quantitative research exists to investigate the impact of the sport or support the claims. This study investigated whether turning direction on the flyball box influences passive range of motion (PROM) of the carpus, elbow and shoulder, and forelimb static weight distribution (SWD) symmetry in flyball dogs. This study aims to identify if asymmetries in joint PROM and SWD exist within a small population of competitive flyball dogs.

Materials and Methods

16 flyball dogs in a competitive team (current fastest team time of 17.06 seconds) (males n=8, females n=8), of different ages (4.25 ±2.08 years) and breeds (Border Collies n=2, Labrador n=1, Brittany Spaniel n=1, Cocker Spaniels n=6, Crossbreeds n=6) were recruited. PROM of the carpus, elbow and shoulder was measured using goniometry. SWD was measured using a Companion Animal Health stance analyser. Paired sample t-tests ($p<0.05$) were used to identify similarity between PROM measurements for all dogs and split into groups: left turners (n=9) and right turners (n=7). Paired sample t-tests were used to identify similarity between forelimb SWD for all dogs. Symmetry Indices (SI) were calculated for SWD with dogs split into turn direction groups. Pearson's correlation coefficient investigated correlation between joint PROM and SWD ($p<0.05$).

Results

There was no significant difference in PROM of the carpus ($p=0.06$), elbow ($p=0.11$) or shoulder ($p=0.83$) between limbs for all dogs. There was no significant difference in PROM between groups. There was a significant difference in SWD for all dogs ($p=0.01$), for left turners ($p=0.02$) but not right turners ($p=0.2$). SI for left turners was 31.0%, indicating more SWD through the left forelimb. SI for right turners was 12.9%, indicating more SWD through the left forelimb, but to a lesser degree. No significant correlations were identified between joint PROM and SWD.

Conclusions

This study provides insight into the musculoskeletal health of flyball dogs and takes steps towards understanding the impact of the sport. Further research into the presence of misalignments related to PROM and SWD asymmetries is indicated.

Application to Industry

Such knowledge may inform the assessment process of McTimoney Practitioners, since chiropractic care is popular amongst sporting dogs for performance enhancement. Methods such as goniometry and stance analysis as part of the normal assessment process may allow for subtle changes in function to be identified early before they are clinically significant, alongside monitoring treatment goals.

Declarations

Ethical declarations: Legal and ethical requirements have been met and informed consent obtained from all participants, this was reviewed by the College of Health Research Ethics Committee (CoHREC) before commencement of the study.

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