Critical appraisal – Randomised controlled trial questions

Effect of an Oral Joint Supplement When Compared to Carprofen in the Management of Hip Osteoarthritis in Working Dogs

Introduction	
Are the aims clearly stated?	Yes, to evaluate the effectiveness of an oral joint supplement in working dogs with hip osteoarthritis with a positive control.
Methods	
Is the study design suitable for the aims?	Yes, though the number of dogs included was very small.
Which population was studied?	Portugese working police dogs with a history, clinical examination and radiological evidence of hip DJD. Dogs with DJD in other joints were excluded. Age, breed and sex of dogs included not reported and it is unclear whether they were kenneled or lived indoors.
Were the treatments randomly allocated? If yes, how was the randomisation done?	Yes but no description of how randomization was performed.
Were the groups comparable prior to intervention?	Not described other than that pain scores at baseline were not significantly different.
Was the person who administered the interventions blinded?	The tablets given in both groups were identical but it is unclear whether this constitutes true blinding.
Is it clear what measurements were carried out in the study?	Yes
Were the correct measurements chosen? Do they reflect (or are they strongly related to) the	Yes Yes, the CBPI is well validated in dogs with

outcome of interest?	osteoarthritis.
Were previously established validated methods used to make the measurements? (e.g. Glasgow pain score, International Units etc)	Yes, CBPI is well validated. The HVAS has undergone some validation.
What outcomes were measured?	Canine Brief Pain Inventory (CBPI; split into pain severity score [PSS] and pain interference score [PIS]), Hudson Visual Analog Scale (HVAS) and a novel descriptive quality of life scale were completed by trainers at baseline, then 15 days, and 1, 2, 3, 4, 5 and 6 months. Biochemistry, haematology and urinalysis also performed on days 30 and 70.
Are the outcomes clinically relevant?	Yes
Were the outcomes assessed blind?	Yes, by trainers
Are the statistical methods described?	Yes
Was the statistical significance level stated?	Yes, $p<0.05$
Was the sample size justified?	No
Was ethical approval obtained?	Yes
Are the methods described in enough detail that you could repeat them?	Yes, the dosing and outcome measures are well described, and the CBPI and HVAS are available elsewhere.

Results	
Were the basic data adequately described?	No, the breed, sex, age and living conditions of the dogs are not described, neither are individual patient data points
Do the numbers add up? Are all subjects accounted for?	Only summary data are presented without the number of dogs included being discussed. One of the 10 dogs receiving the joint supplement is stated to have been withdrawn at 4 months due to deterioration, but it is unclear whether that dog's data is included up to this point.
Was the statistical significance (p value) stated in the results? Is this consistent with the methods? (It should be stated in the sample size or power calculation)	No, the text states at several points that differences were not significant, but no numerical data are presented to support this.
Were any side effects of the intervention reported if applicable?	Yes, in the discussion it states that no significant haematological or biochemical changes were noted. One dog in the Carprofen group was excluded because of a deterioration in its condition.
What were the main findings/key results?	No significant changes from baseline were identified in the CBPI, HVAS or quality of life score with either the supplement or the positive Carprofen control groups. However, individual treatment successes were reported for individual dogs receiving Carprofen, but no individual treatment success was seen in dogs receiving the nutraceutical.
Discussion and conclusion	
What do the main findings/key results mean?	No significant change in composite outcome measure data was identified in either group of dogs. The range of scores in the CBPI and HVAS at baseline and the very small sample size may go some way to explaining this. Individual dogs variably responded to Carprofen, which reflects other research suggesting different dogs appear to respond to different treatments. No individual

	dogs responded to the nutraceutical, suggesting that the product trialled was not effective.
Are the negative findings discussed? How are the negative findings interpreted?	Yes In relation to the relatively low severity of clinical signs of the dogs included and the small sample size.
Does the discussion reflect the results?	Yes, though a lot of time is spent discussing the measurement methods rather than the results.
Interpretation	
What are the clinical implications of this study? Are the subjects in the study similar to those in the BET/your own?	Very difficult to draw due to the very small sample size and the lack of apparent response to either Carprofen or supplement. No, these are working dogs and it is not clear whether they were housed in kennels or a home.
General	
Who funded this study?	Not stated.