

CORRIGENDUM

Effectiveness of acupuncture for equine laminitis: Systematic review and meta-analysis

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Original article

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CORRIGENDUM

Corrigendum to 'Effectiveness of acupuncture for equine laminitis: Systematic review and meta-analysis'

Description of the error and impact on results and conclusion

Following publication, a post-publication review identified errors in the study-selection process, risk-of-bias assessment, and forest plot presentation, which resulted in the inadvertent inclusion of four references that did not meet the predefined eligibility criteria.

The authors sincerely regret these errors and acknowledge that, although unintentional and not intended to misrepresent the findings, they required corrective action to maintain the accuracy and integrity of the scientific record. Accordingly, the four ineligible references—namely, “Famarzi et al., 2017, Hackett et al., 1997, Jeune and Jones, 2014, and Lee et al., 2019”—were removed. The eligibility and methodological quality of the included studies were re-evaluated, the meta-analyses were repeated using the revised dataset, and the corresponding forest plots were corrected. The recalculated results for both outcomes assessing acupuncture efficacy in equine laminitis—lameness scores and the number of horses that recovered—showed no change in the direction or statistical significance of the pooled effects. Nevertheless, the quantitative estimates and associated figures have been corrected to ensure numerical accuracy, consistency, and transparency. Although these revisions do not materially alter the overall interpretation or conclusions of the study, the corrections are necessary to ensure that the published results accurately reflect the revised analyses.

Corrections to the abstract

Materials and Methods: “A total of 7 studies out of 145 were selected in the PubMed, Scopus, Cochrane Library, and ProQuest databases using the keywords “equine laminitis,” “acupuncture,” “horses,” and “lameness score.” Articles were selected following the Preferred Reporting Items for Systematic Reviews and Meta-Analysis flow diagram, and the extracted data were analyzed using OpenMEE software to determine Hedges’ d effect size and Log Odds Ratio” **is corrected to** “A total of 3 studies out of 145 were selected in the PubMed, Scopus, Cochrane Library, and ProQuest databases using the keywords “equine laminitis,” “acupuncture,” “horses,” and “lameness score.” Articles were selected following the Preferred Reporting Items for Systematic Reviews and Meta-Analysis flow diagram. Data extracted from the eligible studies were subsequently analyzed using Review Manager (RevMan) version 5. Dichotomous outcomes were analyzed using the Mantel–Haenszel method, with risk ratio (RR) as the effect measure under a fixed-effect model. Continuous outcomes were analyzed using the inverse-variance method, with mean difference (MD) as the effect measure under a fixed-effect model”.

Results: “As a result, this meta-analysis study reported that acupuncture improves horses with laminitis (Odds Ratio = 2.254; 95% CI = 1.167–4.355) and has a favorable effect on lameness scores (mean difference = –5.008; 95% CI = –8.094––1.923)” **is corrected to** “As a result, this meta-analysis study reported that acupuncture improves horses with laminitis (RR = 4.58; 95% CI = 1.26–16.67) and has a favorable effect on lameness scores

(MD = -0.50; 95% CI = -0.79—-0.21)".

Conclusion: "These investigations have led to the implementation of dry needling, hemo-acupuncture, aqua-acupuncture, and electroacupuncture as alternate treatments for equine laminitis" is corrected to "These investigations have led to the implementation of dry needling and electroacupuncture as alternate treatments for equine laminitis".

Corrections to the main text

Statistical analysis: "Statistical analysis was performed using OpenMEE software [16]. The extracted data were then tabulated and entered with the "Continuous" category for the lameness scores and the "Count" category for the number of samples and recovered horses. A standard meta-analysis was used to evaluate the lameness scores of the recovered horses. Lameness scores are represented as mean difference $\pm$ standard deviation by reflecting Hedges' d effect size and variance. Meanwhile, the number of recovered horses was represented by the log odds ratio" is corrected to "Statistical analyses were performed using Review Manager (RevMan) version 5 [16]. Dichotomous outcomes were analyzed using the Mantel-Haenszel method, with risk ratios (RR) as the effect measure under a fixed-effect model, whereas continuous outcomes were analyzed using the inverse-variance method, with mean differences (MD) as the effect measure under a fixed-effect model. The risk of bias (RoB) in each included study was assessed across six domains: (i) bias arising from the randomization process; (ii) bias due to deviations from the intended interventions; (iii) bias due to missing outcome data; (iv) bias in the measurement of outcomes; (v) bias in the selection of the reported result; and (vi) overall risk of bias".

Identification and study selection: "Of these articles, 32 were deemed unsuitable for this analysis because of inappropriate study designs, irrelevant parameters, and insufficient data. Ultimately, 7 studies were deemed eligible for inclusion in the meta-analysis (Figure 1)" is corrected to "Of these articles, 36 were deemed unsuitable for this analysis because of inappropriate study designs, irrelevant parameters, and insufficient data. Ultimately, 3 studies were deemed eligible for inclusion in the meta-analysis (Figure 1)".

Characteristics of the studies included: "Of the seven studies that were considered, the references used included publications from 1997 to 2019, representing 5 studies conducted in the USA, 1 study conducted in Canada, and 1 study conducted in the UK, even though certain study periods were not clearly reported. Irish Sports (n = 3), Pony (n = 5), Trotter (n = 4), Arabian (n = 10), Thoroughbred (n = 25), Quarter horse (n = 18), Morgan (n = 2), Paint (n = 5), Welsh pony (n = 2), Draft horse (n = 1), Percheron (n = 1), and another breed (n = 26) were among the horse breeds investigated. In these studies, dry needling, hemo-acupuncture, aqua-acupuncture (Aqua-AP), and electroacupuncture (EAP) were implemented" is corrected to "Of the three studies that were considered, the references used included publications from 2001 to 2016, representing studies conducted in the USA, Canada, and England, even though certain study periods were not clearly reported. Irish Sports (n = 2), Pony (n = 2), Trotter (n = 4), Thoroughbred (n = 7), Quarter horse (n = 3), Paint (n = 4), and Paint cross (n = 1), were among the horse breeds investigated. In these studies, dry needling and electroacupuncture (EAP) were implemented". "In addition, acupuncture induction was also performed at the Qian-Ti-Men, Qian-Ti-Tou, and several meridian points representing the BL, SI, LI, triple heater (TH), HT, LU, gallbladder (GB), stomach (ST), PC, conception vessels (CVs), kidney (KID), and spleen (SP). The therapy period was implemented at least twice a week for 4 consecutive weeks (Table 2) [7–13]" is corrected to "In addition, acupuncture induction was also performed at the several meridian points representing the BL, SI, LI, triple heater (TH), HT, LU, gallbladder (GB), and PC [7, 12, 13]. The therapy period was implemented at least twice a week for 4 consecutive weeks (Table 2)".

Lameness and recovered horses: "According to the current meta-analysis, acupuncture therapy can significantly ameliorate lameness scores in horses with laminitis (mean difference = -5.008; 95% CI = -8.094—-1.923) with a high degree of heterogeneity ($I^2 = 95.81\%$; $p < 0.001$) (Figure 2). In the meantime, it was revealed that acupuncture therapy improved the laminitis-recovered horses (Odds Ratio = 2.254; 95% CI = 1.167–4.355), despite the low heterogeneity value ($I^2 = 19.39\%$; $p = 0.287$) (Figure 3). While the recovered horses displayed symmetric findings, the lameness score parameters were presented to be biasedly distributed based on the Funnel plot (Figure 4)" is corrected to "According to the current meta-analysis, acupuncture therapy can significantly ameliorate lameness scores in horses with laminitis (MD = -0.50; 95% CI = -0.79—-0.21) with a moderate degree of heterogeneity ($I^2 = 48\%$; $p = 0.14$) (Figure 2). The pooled effect estimate favored acupuncture, with the 95% confidence interval entirely below the null value, indicating a statistically significant reduction in lameness scores among treated animals. In the meantime, it was revealed that acupuncture therapy improved the laminitis-recovered horses (RR = 4.58; 95% CI = 1.26–16.67), while no statistical heterogeneity was detected between the two studies ($I^2 = 0\%$; $p = 0.41$) (Figure 3). Thus, animals receiving acupuncture had approximately 4.58 times higher likelihood of recovery

than those in the control group. The pooled effect estimate favored acupuncture, with the confidence interval entirely above the null value of 1. Risk-of-bias (RoB) assessment indicated a low risk of bias across all assessed domains for both included outcomes (Figures 2–3), supporting the methodological robustness of the pooled estimate. Despite the minimal number of included studies, recovered horses and lameness scores showed symmetrical findings indicating no study distribution bias based on the funnel plot (Figure 4)".

Conclusion: "Acupuncture procedures using dry needling techniques, hemo-acupuncture, aqua-AP, and EAP are focused on the Bai-Hui, Qian-Ti-Men, Qian-Ti-Tou points, and the meridian points of the BL, SI, LI, TH, HT, LU, GB, ST, PC, CVs, KID, and SP" **is corrected to** "Acupuncture procedures using dry needling techniques and EAP are focused on the Bai-Hui points and the meridian points of the BL, SI, LI, TH, HT, LU, GB, and PC".

Corrections to the acknowledgments

An acknowledgment statement is added to the correction document "The authors also express their sincere appreciation to Dr. Jérôme Chantreau, Editor and independent reviewer of Veterinary World, for his constructive comments and critical evaluation of the methodological and analytical concerns of the manuscript, which greatly contributed to its further correction".

Corrections to the references

"16. Wallace, B.C., Lajeunesse, M.J., Dietz, G., Dahabreh, I.J., Trikalinos, T.A., Schmid, C.H. and Gurevitch, J. (2017) Open MEE: Intuitive, open-source software for meta-analysis in ecology and evolutionary biology. *Methods Ecol. Evol.*, 8(8): 941–947" **is corrected to** "16. RevMan 2008 The Cochrane Collaboration. (2008) Review Manager (RevMan). 5.0. Copenhagen, The Nordic Cochrane Centre: The Cochrane Collaboration".

Corrections to Figure 1

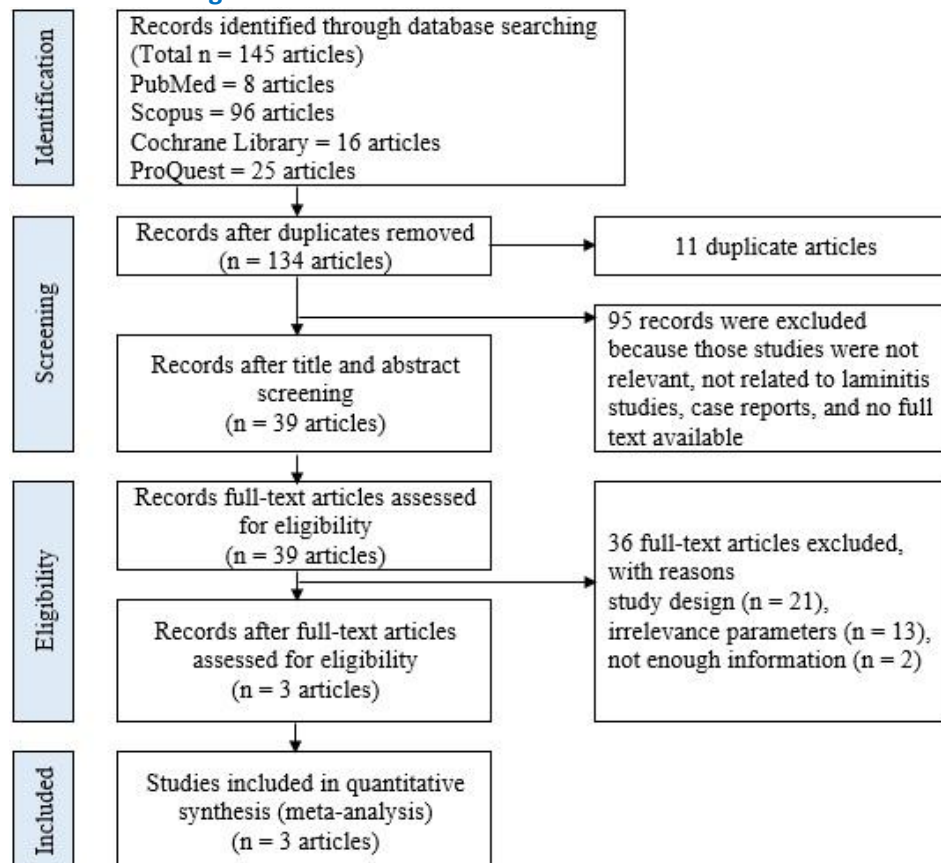


Figure 1: PRISMA flow diagram of the study selection process.

- "32 full-text articles excluded, with reasons study design (n = 19), irrelevance parameters (n = 11), not enough information (n = 2)" **is corrected to** "36 full-text articles excluded, with reasons study design (n = 21), irrelevance parameters (n = 13), not enough information (n = 2)"
- "Records after full-text articles assessed for eligibility (n = 7 articles)" **is corrected to** "Records after full-text articles assessed for eligibility (n = 3 articles)"

- “Studies included in quantitative synthesis (meta-analysis) (n = 7 articles)” is corrected to “Studies included in quantitative synthesis (meta-analysis) (n = 3 articles)”

Corrections to Figure 2

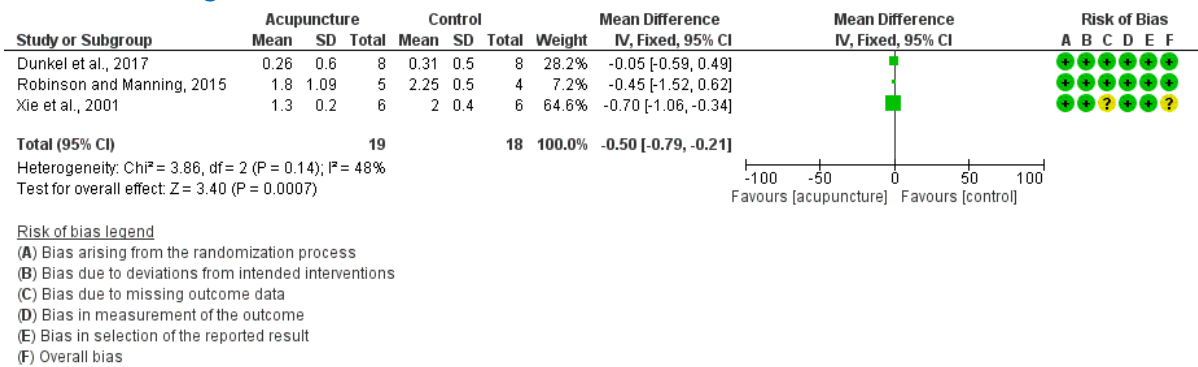


Figure 2: Forest plot of lameness scores across studies.

Number of studies is corrected from 6 to 3. Mean difference is corrected from -5.008 (95% CI = -8.094--1.923) to -0.50 (95% CI = -0.79--0.21). Degree of heterogeneity is corrected from $I^2 = 95.81\%$; $p < 0.001$ to $I^2 = 48\%$; $p = 0.14$. The risk-of-bias assessment is also reflected alongside the forest plot. The forest plot has been corrected from its OpenMEE display format to the RevMan version 5 format.

Corrections to Figure 3

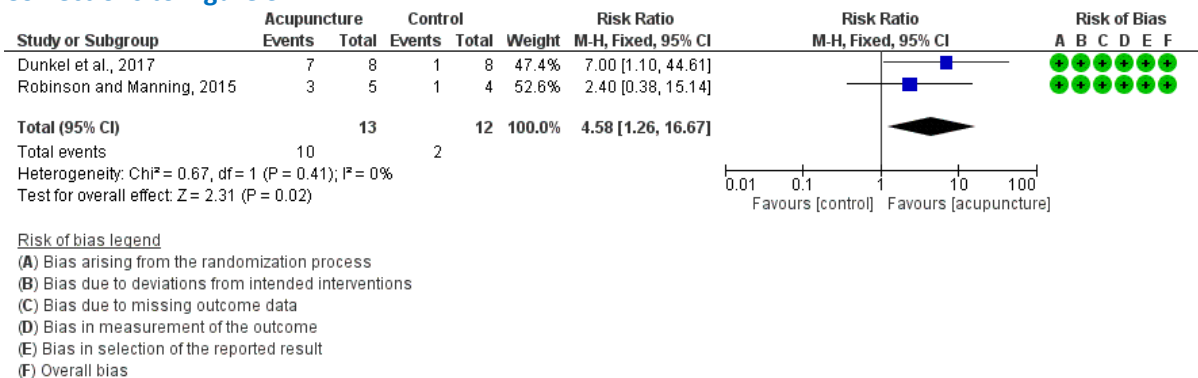


Figure 3: Forest plot of recovered horses across the studies.

Number of studies is corrected from 6 to 2. Risk ratio is corrected from 2.254 (95% CI = 1.167--4.355) to 4.58 (95% CI = 1.26--16.67). Degree of heterogeneity is corrected from $I^2 = 19.39\%$; $p = 0.287$ to $I^2 = 0\%$; $p = 0.41$. The risk-of-bias assessment is also reflected alongside the forest plot. The forest plot has been corrected from its OpenMEE display format to the RevMan version 5 format.

Corrections to Figure 4

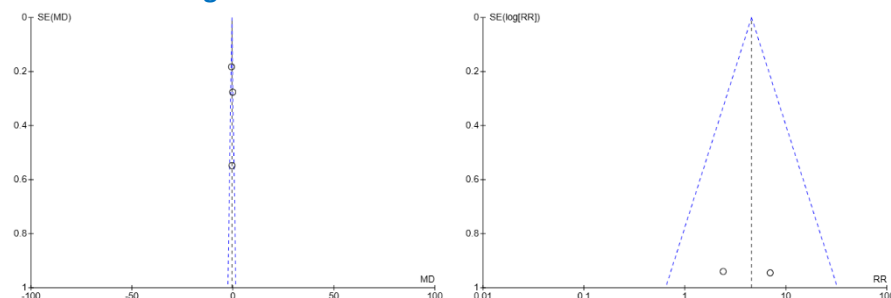


Figure 4: Funnel plot of (a) lameness scores and (b) recovered horses across studies.

The funnel plot has been corrected from its OpenMEE display format to the RevMan version 5 format.

Corrections to Table 2

Table 2: Characteristics of the studies.

Country	Study Period	Breed	Acupuncture method	Acupuncture point	Therapy period	References
England	2013	Irish Sports (n=2), Ponies (n=2), Trotters (n=4)	Dry needling	[BL-10, 13, 16, 20, 22, 23, 25, 40]; [LI-11, 15, 16]; [SI-9]; [TH-15, 16]; [GB-21]; Bai-Hui	Days 1, 3, 7	[7]
Canada	NA	Paint (n=4), Quarter (n=3), Thoroughbred cross (n=1), Paint cross (n=1)	Dry needling, electroacupuncture	Bai-Hui; [BL-11, 13]; [PC-1]; [HT-9]; [LU-1, 11]; [SI-9]; [LI-11]	Two times per week for four consecutive weeks	[12]
USA	NA	Thoroughbred (n=6)	Electroacupuncture	Bui-Hui; Duan-Xue; Qiang-Feng; San-Yang-Luo; Qian-Chan-Wan; Qian-Jiu	80-120 Hz for 45 min	[13]

BL=Bladder, LI=Large intestine, SI=Small intestine, TH=Triple heater, HT=Heart, GB=Gallbladder, PC=Pericardium, LU=Lung. N/A=Data not available.

References from Faramarzi et al., 2017 [8], Hackett et al., 1997 [9], Jeune and Jones, 2014 [10], and Lee et al., 2019 [11] have been removed from Table 2.

References

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