

EQUINE ETHICS AND WELLBEING COMMISSION

Further supporting information related to Tack and Equipment Early Recommendations 2022

Review of relevant research (August – November 2022)



EQUINE ETHICS AND WELLBEING COMMISSION

Recommendation 1

Tack and Equipment – Double Bridles

Double Bridles should not be mandatory and should be made optional in FEI Grand Prix Dressage. Currently the use of double bridles is mandated by FEI regulations for dressage when horse and rider achieve a specific level of competition (FEI, 2022). The Commission recommends that double bridles should not be mandatory at any level of dressage, and the regulations changed so that use is optional for riders competing at Grand Prix level.

1.Supporting Information

- Although bits can be extremely effective and especially when used with great care, bits and especially more severe bits are a risk in that they can cause extensive damage to the tongue, bar and hard palate of a horse's mouth (Cook 1999, Mellor 2021)
- It is already the case that double bridles are optional for riders competing under a number of National Federation regulations at Grand Prix level
- Use of more severe bits designed with stronger deceleration pressures used in conjunction with accelerator devices such as spurs are a welfare risk (Hill et al., 2015; Condon et al., 2022)
 - Increased chance for misuse through overshadowing of “go” and “stop” responses (Condon et al., 2022)
 - Increased conflict behaviours (Condon et al., 2022)
 - The use of a double biting system for the horse has the potential to interfere with coherence of the cues/aids (Cross et al., 2017)
 - Repeated mouth opening (used as an indicator of discomfort or pain) was seen in more than 50% of horses competing in Grand Prix level Dressage (Dyson et al 2021)
 - Double bridle noseband design most commonly involves crank nosebands, which have been linked to additional welfare concerns due to the ease in which they can be overtightened (McGreevy et al., 2012)
 - Double bits including lever action increase the risk of a horse experiencing pain/fear and conflict. Addition of a curb bit which makes use of levers that amplify rein tension, with the shank magnifying the leverage through the bit, increases the potential for harm and risk to welfare (McLean and McGreevy 2010).
 - Aggressive riding and extreme overbending (Rolkur) is associated with use of Double Bridle (<https://www.facebook.com/groups/276428596113940/posts/359743131115819/>)
 - Type of bit has been shown to influence both the location and the severity of the lesions. The use of curb bits with a port was found to be a decisive risk factor for lesions on the bars of the mandible, most of which were regarded as severe. The results also raised questions about the head and neck carriage demanded for the competition horses.
 - With two bits in the horse's mouth – the bits are likely to be ‘on top of each other’. The bits come into constant contact with the various parts of the mouth and there isn't enough space in the mouth for horse to gain relief from pressure. A blue tongue' may result when the horse is unable to open its mouth to relieve the pressure (Nordic College of Equine Dentists).
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2.Research Publications

1. Björnsdóttir S, Frey R, Kristjansson T, Lundström T. Bit-related lesions in Icelandic competition horses. *Acta Vet Scand.* 2014 Aug 13;56(1):40. doi: 10.1186/s13028-014-0040-8. PMID: 25116656; PMCID: PMC4236600.

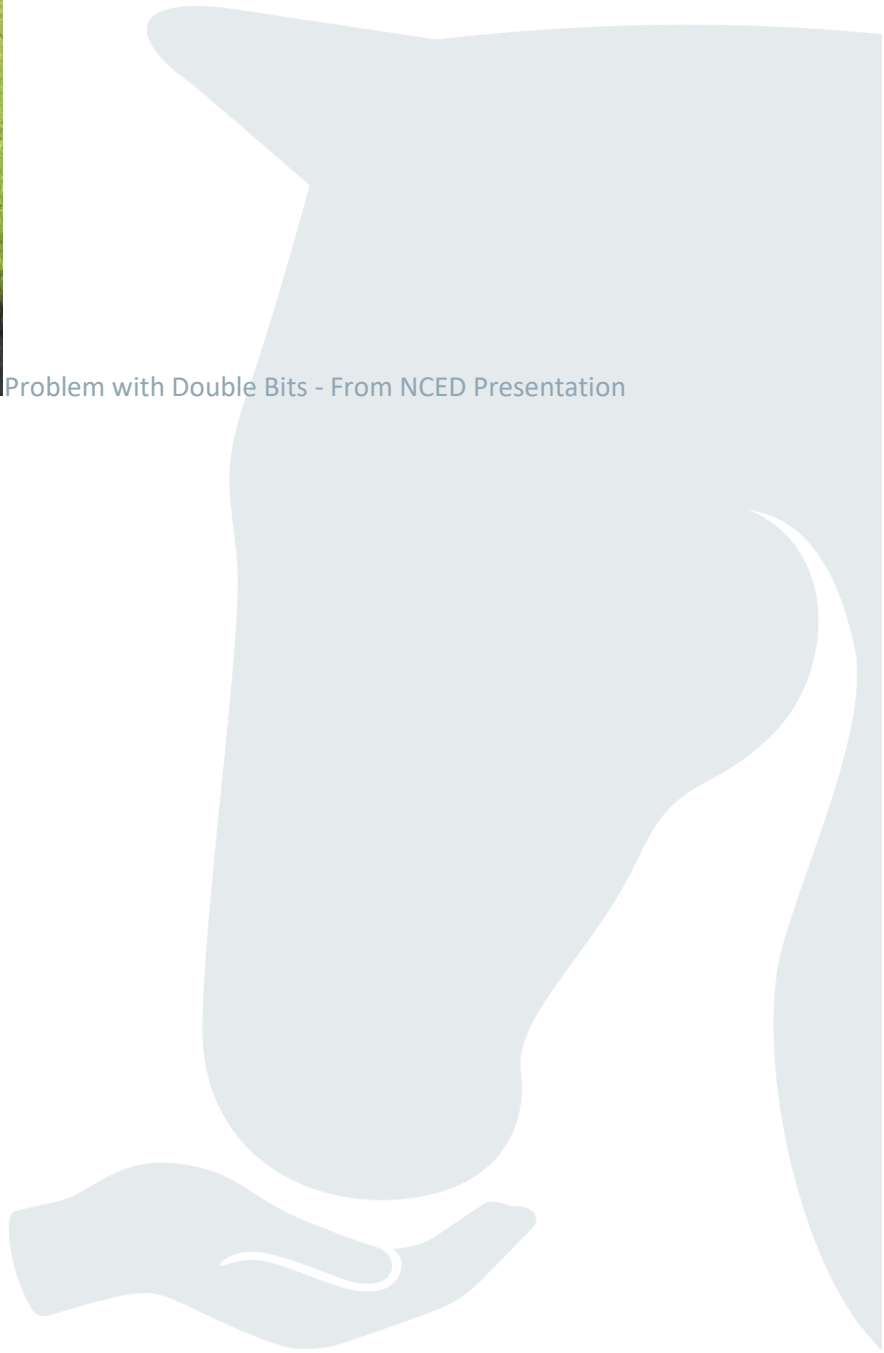
2. Christensen J., Beckmans M., Van Dalum M., Van Dierendonck M. Effects of hyperflexion on acute stress response in ridden dressage horses. *Physiol. Behav.* 2014;128:39–45.
3. Condon, V. M., McGreevy, P. D., McLean, A. N., Williams, J. M., & Randle, H. (2022). Associations between commonly used apparatus and conflict behaviors reported in the ridden horse in Australia. *Journal of Veterinary Behavior*, 49, 1-14.
4. Cook, W.R. (1999). Pathophysiology of bit control in the horse. *Journal of Equine Veterinary Science*, 19, 196-204.
5. Cross, G. H., Cheung, M. K., Honey, T. J., Pau, M. K., & Senior, K. J. (2017). Application of a dual force sensor system to characterize the intrinsic operation of horse bridles and bits. *Journal of Equine Veterinary Science*, 48, 129-135.
6. Doherty O, Casey V, McGreevy P, McLean A, Parker P, Arkins S. An analysis of visible patterns of horse bit wear. *J Vet Behav.* (2017) 18:84– 91. doi: 10.1016/j.jveb.2016.12.00
7. Dyson S, Pollard D. Application of the Ridden Horse Pain Ethogram to Elite Dressage Horses Competing in World Cup Grand Prix Competitions. *Animals (Basel)*. 2021 Apr 21;11(5):1187
8. Federation Equestre Internationale. 2022. Dressage Rules. 25th Edition. Switzerland. https://inside.fei.org/sites/default/files/FEI_Dressage_Rules_2022_Clean_Version_V2.pdf.
9. Hill, E., McGreevy, P. D., Caspar, G., White, P., & McLean, A. N. (2015). Apparatus use in popular equestrian disciplines in Australia. *Journal of Veterinary Behavior*, 10(2), 147-152.
10. Hockenull, J., & Creighton, E. (2012). The use of equipment and training practices and the prevalence of owner-reported ridden behaviour problems in UK leisure horses. *Equine Veterinary Journal*, 45(1), 15-19.
11. Kienapfel K., Link Y., König von Borstel U. Prevalence of different head-neck positions in horses shown at dressage competitions and their relation to conflict behaviour and performance marks. *PLoS ONE*. 2014;9:
12. Mellor D. Mouth pain in horses: Physiological foundations, behavioural indices, welfare implications, and a suggested solution. *Animals*. 2020;10:572
13. McGreevy, P., Warren-Smith, A., & Guisard, Y. (2012). The effect of double bridles and jaw-clamping crank nosebands on temperature of eyes and facial skin of horses. *Journal of veterinary behavior*, 7(3), 142-148.
14. McLean, A. N., & McGreevy, P. D. (2010). Horse-training techniques that may defy the principles of learning theory and compromise welfare. *Journal of Veterinary Behavior*, 5(4), 187-195.
15. Murray, R., Guire, R., Fisher, M., & Fairfax, V. (2015). A bridle designed to avoid peak pressure locations under the headpiece and noseband is associated with more uniform pressure and increased carpal and tarsal flexion, compared with the horse's usual bridle. *Journal of Equine Veterinary Science*, 35(11-12), 947-955.
16. Tuomola K, Mäki-Kihniä N, Valros A, Mykkänen A, Kujala-Wirth M. Risk factors for bit-related lesions in finnish trotting horses. *Equine Vet J.* (2021) 53:1132-40. doi: 10.1111/evj.13401 32.
17. Uldahl M, Bundgaard L, Dahl J, Clayton HM. Pre-Competition Oral Findings in Danish Sport Horses and Ponies Competing at High Level. *Animals*. 2022; 12(5):616. <https://doi.org/10.3390/ani12050616>
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Additional Information:

Presentations from the Nordic College of Equine Dentistry members (<https://www.nced.se/>)



Problem with Double Bits - From NCED Presentation



Equine Ethics and Wellbeing Commission

Recommendation 2 –

Tack and Equipment - Spurs

Spurs should not be mandatory for any equestrian discipline

1. Supporting Information

- Intended purpose is to enable more precise stimuli (leg aids) to be applied, leading to further refinement of basic aids (Lemon et al., 2020) but no evidence of that being the case
- Dummy spurs are allowed where spurs are mandatory, – so there appears to be no rationale for wearing spurs to be compulsory
- Use of spurs has led to welfare concerns by public, and elimination of professional riders at high profile events due to blood rules, impacting on industry SLO (Lemon et al., 2020)
- Increased prevalence of ridden behavioural problems reported with use of artificial aids (Hockenhull & Creighton, 2012)
- Physiological impacts correlated to length and type of spur (Uldahl & Clayton, 2019)
 - Shanks >1cm
 - Roller ball / hammer style knobs
- Incorrect use of spur correlated to level of competition (Uldahl & Clayton, 2019)
 - Lower levels (suggesting less experienced horses and/or riders) more likely to result in rub marks, loss of hair or blood
- Incorrect use of spur not correlated to discipline (Uldahl & Clayton, 2019)
 - Prevalence of lesions not more commonly seen in a particular sporting area
- Use of spurs has been correlated to increased tendencies to use stronger bits (Hill et al., 2015; Condon et al., 2021)
- The largest proportion of ‘Tail swishing’ – (used as an indicator of discomfort or pain) during grand prix dressage tests correlated with spur use by rider (Dyson et al 2021)
- Competition regulations are currently inconsistent as to whether or not spurs are considered optional, mandatory, or prohibited entirely

2. Research Publications

1. Condon, V. M., McGreevy, P. D., McLean, A. N., Williams, J. M., & Randle, H. (2022). Associations between commonly used apparatus and conflict behaviors reported in the ridden horse in Australia. *Journal of Veterinary Behavior*, 49, 1-14.
2. Dyson S, Pollard D. Application of the Ridden Horse Pain Ethogram to Elite Dressage Horses Competing in World Cup Grand Prix Competitions. *Animals (Basel)*. 2021 Apr 21;11(5):1187.
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5. Federation Equestre Internationale. 2022. Jumping Rules. 27th Edition. Switzerland. https://inside.fei.org/sites/default/files/Jumping_Rules_2022_final_clean.pdf.
28. Federation Equestre Internationale. 2022. Driving Rules. 12th Edition. Switzerland. https://inside.fei.org/sites/default/files/FEI%20Driving%20Rules%202022_Clean_v6.pdf.
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7. Hockenull, J., & Creighton, E. (2012). Equipment and training risk factors associated with ridden behaviour problems in UK leisure horses. *Applied Animal Behaviour Science*, 137(1-2), 36-42.
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9. Uldahl, M., & Clayton, H. M. (2019). Lesions associated with the use of bits, nosebands, spurs and whips in Danish competition horses. *Equine Veterinary Journal*, 51(2), 154-162.



Equine Ethics and Wellbeing Commission

Recommendation 3

Tack and Equipment - Nosebands

Develop and implement an evidence-based approach to measuring noseband tightness to identify and eliminate the use of overtight nosebands including the following;

1. Agree where noseband pressure is to be measured (the frontal nasal plane under the noseband where pressure is known to be greatest) and a consistent approach to what is acceptable regarding noseband tightness based on scientific evidence related to equine welfare needs (note this is suggested as equivalent to no less than 2 fingers),
2. Use an accepted evidence-based method of measurement regarding noseband tightness (there is a 'taper gauge' already in use but a FEI preferred technological solution is being tested),
3. Educate stewards and riders/grooms so that they are clear about how and where to measure noseband tightness,
4. Develop clear and consistent rules across all equestrian disciplines.
5. Communicate the changes to the equestrian stakeholders
6. Agree a timeline and penalties for ensuring enforcement of the noseband tightness rules

1. Potential impact on Equine Ethics and Wellbeing

- Measures of heart rate, eye temperature and behaviour show that stress is present even when the horse simply wears a noseband without working, despite many horses being accustomed to the noseband.
- Levels of stress increase concomitantly with noseband tightness.
- Heart rate response to an 'overtightened' noseband equalled a similar level of stress response that horses showed to unfamiliar objects.
- A state of deprivation related to the inability to perform natural behaviours while wearing an overtight noseband has also been identified
- Overtightened nosebands may result in physical damage such as lesions at the corners of the lips and ulceration inside the mouth.
- Excessively tightened nosebands have been shown to exert extremely high forces (of up to 95 N) and peak pressures of more than 1000 mmHg directly onto the tissues under the noseband.
- Pressures levels exceeding those that cause nerve and blood vessel damage in humans,
- Impaired blood flow to the muzzle and bone remodelling are other potential side effects.

2. Supporting Information

1. Noseband over-tightening is commonly cited as being a welfare concern by industry participants (Crago et al., 2019; Visser et al., 2019; Clayton & Williams, 2022)
2. Intended purpose of tightening nosebands relates to closure of the mouth to avoid penalisation (dressage) and to enhance control of the animal (Doherty et al., 2016; Doherty et al., 2017a; Weller et al., 2020)
 - a. Evidence indicates increased tightness of the noseband is related to increased sensitivity towards bit pressure (Manfredi et al., 2005; Randle & McGreevy, 2013; Pospisil, 2014)
 - b. Despite the noseband not being needed to serve a specific function, fit is often commented on by stewards, trainers, peers, and technical delegates for being "too loose" (Clayton & Williams, 2022)

3. Standard recommendations for noseband tightness suggest that two adult human fingers need to fit under the nosepiece of a bridle (FEI), despite the origin of this method of assessment being unknown (Ulhdahl & Clayton, 2019)
 - a. Research indicates that riders tend to agree that there should be at least 2-3 fingers beneath a noseband for it to be considered correctly adjusted (Clayton & Williams, 2022)
 - b. Execution of assessment by competition officials does not standardise size of fingers or location or method of assessment, leading to variable results (Kienapfel & Preuschoft, 2010; Doherty et al., 2017a; Weller et al., 2020)
 - c. True prevalence of over tightening in the industry is currently unknown, but current literature suggests more than 50% of horses are experiencing noseband tightness of less than “two fingers” (Doherty et al., 2017a) despite public agreement on a 2 finger “minimum”
4. Excessively tightened nosebands have been shown to exert extremely high forces (of up to 95 N) and peak pressures of more than 1000 mmHg directly onto the tissues under the noseband (Casey et al., 2013, Murray et al., 2015, Doherty et al., 2017).
5. Overtightening has been thought to be linked to negative impacts on the horse’s overall welfare
 - a. Physiological
 - i. Pain (Tell et al., 2008; Doherty et al., 2016)
 - ii. Discomfort (Christensen et al., 2011; McGreevy et al., 2012; Doherty et al., 2016; Weller et al., 2020)
 - iii. Tissue damage (Casey et al., 2013; Murray et al., 2015; Doherty et al., 2016; Weller et al., 2020)
 - iv. Vascular perfusion (McGreevy et al., 2012; Doherty et al., 2017b)
 - v. Microfractures and bone remodelling (McGreevy, 2015)
 - vi. Oral lesions and ulceration (Weller et al., 2020) .A 64% higher incidence of lesions was found to be associated with use of a tighter noseband in the study of approx. 3000 horses (Uldahl, 2018).
 - b. Psychological
 - i. Stress (Fenner et al., 2016)
 - c. Behavioural (Weller et al., 2020)
 - i. Prevention of common behaviours which may impact welfare (Casey et al., 2013; Weller et al., 2020)
 - ii. Post-inhibitory rebound following removal of noseband pressure (Fenner et al., 2016)
 1. Yawning
 2. Swallowing
 3. Licking
6. Particular issues have been linked to specific bridle designs
 - a. Crank noseband (McGreevy et al., 2012; Casey et al., 2013; Hill et al., 2015; Doherty et al., 2016; Weller et al., 2020; Dyson, 2022)
 - i. Potential to overtighten is increased due to developmental design relative to human effort exerted
 - b. Flash noseband (Doherty et al., 2017a)
7. The use of practices which cause physical or mental suffering in the horse is in direct opposition to the FEI Code of Conduct for the Welfare of the Horse (FEI, 2013).
8. Extremely tight nosebands were found to be prevalent in the disciplines of dressage and eventing (Doherty et al., 2017).

9.

3.2 Further information regarding concerns about tight nosebands:

- Social Media –Various Commentary

Eg. <https://eurodressage.com/2018/08/22/ignorance-noseband-tightness-and-vague-fei-noseband-rules>

- Recent Surveys (results of FEI Equine Ethics and Wellbeing equestrian survey)
- Position statements from International Equestrian Scientists - ISES. In: Position statement and recommendations—see: <http://www.equitation-science.com/restrictive-nosebands>.
- Research findings from equestrian stakeholder surveys/forums (eg Visser et al.,2019)
- Written submission from Dr Orla Doherty to clarify research findings and discussion with Dr Doherty on her latest research



3.3 Research Publications

1. Ahern, T. (2019) 'Mouth Opening During Ridden Exercise in Sports Horses: An Evasive Behaviour, an Indication of Pain or Discomfort or a Physical Adjustment to Facilitate the Oral Passage of Air During Inspiratory Efforts', *World*, 7, pp. 10-13.
2. Casey, V., P. McGreevy, E. O' Muir & O. Doherty (2013) A preliminary report on estimating the pressures exerted by a crank noseband in the horse. *Journal of Veterinary Behaviour*, 8(6) 464-479
3. Christensen, J. W., Zharkikh, T. L., Antoine, A., & Malmkvist, J. (2011). Rein tension acceptance in young horses in a voluntary test situation. *Equine Veterinary Journal*, 43(2), 223-228.
4. Clayton, H. M. and Williams, J. M. (2022) 'Know your noseband: An exploration of factors that influence riders' choice of noseband', *Journal of Veterinary Behavior*, 47, pp. 1-11.
5. Condon, V.M.; McGreevy, P.D.; McLean, A.N.; Williams, J.M.; Randle, H. Associations between commonly used apparatus and conflict behaviors reported in the ridden horse in Australia. *J Vet Behav* 2022, 49 1 – 14. <https://doi.org/10.1016/j.jveb.2021.10.014> 683 *Animals* 2022, 12, x FOR PEER REVIEW 16 of 17
6. Crago, F., Shea, G., James, O., Schemann, K. and McGreevy, P. D. (2019) 'An opportunistic pilot study of radiographs of equine nasal bones at the usual site of nosebands', *Journal of Veterinary Behavior*, 29, pp. 70-76.
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11. Doherty, O., V. Casey, P. McGreevy & S. Arkins (2016) An investigation into noseband tightness levels on competition horses. *Journal of Veterinary Behavior: Clinical Applications and Research*, 15, 83.
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14. Dyce, K.M.; Sack, W.O.; Wensing, C.J.G. *Textbook of veterinary anatomy*, Fourth Edition; Saunders Elsevier: St. Louis, Missouri, USA. 2010 P 501-508.
15. Dyson, S. (2022). The ridden horse pain ethogram. *Equine Veterinary Education*, 34(7), 372-380.
16. Dyson, S., Bondi, A., Routh, J., Pollard, D., Preston, T., McConnell, C. and Kydd, J. H. (2022) 'An investigation of behaviour during tacking-up and mounting in ridden sports and leisure horses', *Equine Veterinary Education*, 34(6), pp. e245-e257.
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