



WorldHorseWelfare



*The transport of equines: challenges and recommendations
for amending Council Regulation (EC) No 1/2005*



Contents

1. Executive summary	p3
2. Introduction	p7
Uniqueness of equines	p9
Ethical considerations	p9
About World Horse Welfare	p11
3. Deficiencies and welfare hazards of Council Regulation (EU) No 1/2005 and recommendations to improve equine welfare during transport	p13
a. Fitness for transport	p14
b. Transport practices	p17
c. Means of transport	p22
d. Journey times	p30
e. Watering and feeding intervals	p34
f. Areas where equines are loaded and unloaded	p36
g. Enforcement	p38
h. Air and sea transport of equines	p41
i. Further recommendations	p44
4. References	p46



1. Executive summary

Equines are transported for many different reasons and may be transported many times throughout their lives. Since the introduction of Council Regulation (EC) No 1/2005 and the various EU guidance on the transport of live animals, there have been some improvements in the care of equines being transported. However, significant welfare hazards and concerns still remain.

Transportation can be a stressful and tiring experience for any equine and it increases the risk of disease, injury, exhaustion and dehydration. Equine welfare during transport is impacted by many factors including the fitness and health of the equine, the preparation for the journey, the means of transport, the space allowance, the transport practices, the duration of the journey, the watering and feeding intervals and the feasibility of enforcing the rules established, among others.

In 2020, the European Commission launched the Farm to Fork Strategy, which aims to make food systems fair, healthy and environmentally friendly. This includes reviewing the whole EU Animal Welfare legislative framework – including Council Regulation (EC) No 1/2005. This is a once-in-a-generation opportunity to improve equine welfare during transport and reduce the negative outcomes of current rules.

World Horse Welfare promotes the equine-human partnership in all its guises through a combination of hands-on care, research, education and influence. Using a constructive approach and providing science-based evidence to support our views, we developed a list of key recommendations that should be taken into account when reviewing Council Regulation (EC) 1/2005 in order to ensure it is effective and fit for purpose:



General recommendations

- 🐾 The legislation should be extended to include all equines, irrespective of whether they are moved for economic gain, or not. Commercial movements and journeys over 4 hours in length should be held to higher standards.
- 🐾 The distinction between unregistered and registered equines should be removed for this piece of legislation.

Fitness for transport

- 🐾 The definition of ‘fitness for transport’ should go further to emphasise that the equine must be fit for the intended journey and arrive at their destination in a fit state. Specific criteria should be developed to allow fitness or lack of fitness to be easily identified.
- 🐾 A practical risk assessment should be performed before each journey to assess the fitness of the individual equine in relation to the specific challenges that may be encountered during the journey, taking into account the equine’s physical and mental state. Only healthy and non-stressed animals that are able to cope with the intended journey should be loaded.

Transport practices

Transporters

- 🐾 Individual journey specific contingency plans should be made for each journey, and these must prioritise animal welfare and the main equine health and welfare hazards that the journey may present. A summary of the elements of a contingency plan should be required in the event of emergencies for long journey transporter authorisations.

Handling and driving

- 🐾 All personnel, meaning anyone involved in the transportation and/or handling of equines such as drivers, handlers, riders, trainers, farriers, veterinarians, enforcement officers, control post personnel, and others likely to have contact with live equines during transport, should be trained on how to perform their tasks ensuring equine welfare is prioritised.
- 🐾 Legislation should include specific competencies to be obtained by those who are involved in equine transportation.
- 🐾 Competent Authorities should use strategies and technologies to monitor the welfare of equines during transport and its impact on equines post transport, as well as monitor driver’s behaviour and its impact on equines during transport.



Means of transport

Vehicle specification

- 🐾 All commercial movement of equines over 65km, and all other journeys over 4 hours (unless derogated), should be undertaken in Type 2 authorised vehicles with a journey log.
- 🐾 Industry approved standards are urgently required for vehicle design, particularly around safety and ventilation (including flooring, fans, temperature gauge and setting out a standard U-value for insulated roofs).

Space allowance and partitions

- 🐾 The space allowance for equines should be 1.9m² per equine (compared to the current 1.75m²) and 1.2m² for young equines (from 6 to 24 months).
- 🐾 The distance from flank to side/partition should be specified, with a minimum of 10 cm between each side of the animal and the partition or the side of the vehicle (i.e., 20 cm in total).
- 🐾 The space in front of the equine's nose and the space at their rear should be at least 15cm (i.e., 30cm in total, front and back). When a breast bar is used, there should be at least 30cm space between the breast bar and the chest of the equine.

Journey times

Equines destined for slaughter

- 🐾 For both practical and ethical reasons, a separate category for equines transported for slaughter should be retained.
- 🐾 A maximum, finite 12-hour journey limit should be established for equines intended for slaughter.
- 🐾 There should be no further onward journey as the final destination should be the slaughterhouse.
- 🐾 When equines intended for slaughter are located more than 12-hour journey from a licensed equine slaughterhouse, Competent Authorities may recommend a derogation to extend the 12-hour journey limit, after performing a case-by-case analysis.
- 🐾 It is essential to have a central database with all information on official registered abattoirs prepared to accept equines in case of emergency. This information should be made available to all operators.

All other equines

- 🐾 A 12-hour maximum journey time, in a 21-hour period, should be introduced for all equines (irrespective of whether they are transported for economic gain or not), inclusive of an appropriate short mid-journey rest period.
- 🐾 Up to 4 animals travelling for pleasure purposes and accompanied by their owners/keepers can travel for up to 8 hours in an 18-hour period without needing a Type 2 authorisation.



2. Introduction

In 2019, we estimate approximately 88,000¹ equines² were transported between EU Member States and from the EU to third countries. Unlike other livestock species, horses are often transported for reasons other than breeding, fattening and slaughter and may be transported many times throughout their lives (Waran et al., 2002). Horses are commonly transported for activities such as sport, leisure, racing, performing in horse shows, and veterinary appointments (Leadon et al., 2008). Around 42% of equines transported between the EU Member States were intended for slaughter; however, due to the scale and breadth of the equine sector, and its fragmented structure, these figures may be underestimated.

There are important welfare concerns related to the transport of equines as transportation can be a stressful and exhausting experience and it increases the risk of disease, injury (cutaneous, muscular, and skeletal), stress, exhaustion and dehydration for horses (Giovagnoli et al., 2002; Stull et al., 2000). It is not just long journeys that can increase risk; transportation of horses over both short (less than 3.5 hours) and medium (approx. 8 hours) distances can lead to elevated cortisol release and changes in heart rate indicating an increased stress response (Schmidt et al., 2010). The way the horse is handled and how it is transported can also increase stress with numerous horse blood cell components being altered as a direct result (Tateo et al., 2012). Increased stress levels in horses during transport can also precede related respiratory (Padalino et al., 2018; Oikawa et al., 1994) and gastrointestinal disease (Padalino et al., 2020), and transport can be also associated with injuries (Roy et al., 2015). Moreover, long journeys can lead to horses arriving at their destination dehydrated (Friend, 2000), immuno-compromised (Stull and Rodiel, 2002; Stull et al., 2004), stressed (Smidt et al., 2010) and exhausted (Marlin et al., 2011), posing serious risks to both animal health and welfare.

In order to ensure levels of stress and injuries are minimised and that welfare is protected, legislation around equine transport must change. Both practical experience and scientific evidence indicate that the stress of movement, microclimate and the withholding of water and feed during transport can lead to poor health and welfare. The overall impact of these factors on the equine's health and welfare is known as the allostatic load of the journey (McEwen and Wingfield, 2010; Korte et al., 2005; Korte et al., 2007).

Live equine transport is regulated under Council Regulation (EC) No 1/2005 on the protection of animals during transport and related operations. Since it came into force, the EFSA (2011)³, audit reports by DG SANTE⁴ and Member States⁵, the European Court of

¹ Figure estimated using a range of sources including Eurostat and TRACES

² Horses, asses, mules and hinnies

³ EFSA Panel on Animal Health and Welfare (AHAW) (2011) Scientific Opinion Concerning the Welfare of Animals During Transport (EFSA Journal 2011; 9(1):1966). Available online: <https://efsa.onlinelibrary.wiley.com/doi/epdf/10.2903/j.efsa.2011.1966>

⁴ These reports based on audits performed by the European Commission (DG SANTE) are available online https://ec.europa.eu/food/audits-analysis/audit_reports/index.cfm

⁵ Inspections made by the Member States based on article 27 of Council Regulation (EC) No 1/2005 on providing an analysis of the major deficiencies detected. All reports are available online: https://ec.europa.eu/food/animals/welfare/practice/transport/inspection-reports_en



Auditors 2018 Report⁶ and the review by Dalla Villa et al. 2019⁷ have provided abundant evidence demonstrating how certain aspects of this piece of legislation are insufficient to protect welfare and that animal welfare is being compromised. In addition, as DG SANTE audits have recorded, some aspects of Council Regulation (EC) 1/2005 are difficult to implement and enforce, which has undermined its effectiveness in protecting animal welfare during transport. These audits⁷ found that enforcement of this legislation by EU Member States remained weak particularly for rules concerning fitness of the animals for transport, the transport of unweaned animals, animal handling, transport during high temperatures, space requirements and journey times. Evidence collected by several non-governmental organisations (NGOs) during this period confirmed these findings.

The EU Animal Welfare Strategy 2012–2015 included measures directed towards improving compliance with existing rules. To illustrate, the European Commission (together with other bodies) developed best practice guidance for the transport of equines⁸ and, during the same period, Practical Guidelines on the Watering of Equine Animals Transported by Road⁹ and Practical Guidelines to Assess Fitness for Transport of equines¹⁰ were also developed by a group of stakeholders with the support of the European Commission. Despite these initiatives, according to the audits by DG SANTE (Directorate F) carried out in 2017, 2018 and 2019, the enforcement of this legislation by EU Member States remained low. As a result, many stakeholders have been calling for a revision of Council Regulation (EC) No 1/2005 to ensure it is fit for purpose to achieve its aim of protecting animal welfare during transport.

In May 2020, the European Commission launched the Farm to Fork Strategy, which aims to make food systems fair, healthy and environmentally friendly. The Strategy acknowledges that good animal welfare improves animal health and food quality. Therefore, through a Fitness Check, the whole EU Animal Welfare legislative framework – including Council Regulation (EC) No 1/2005 - will be reviewed. This review aims to ensure that high levels of animal welfare are achieved in the EU by aligning the legislation with the latest scientific evidence, broadening its scope and making the rules easier to enforce and comply with.

We believe this is a once-in-a-generation opportunity to ensure that equines are not left behind and that their needs and welfare are considered when drafting new rules for the transport of live animals. Therefore, the aim of this report is to highlight deficiencies in Council Regulation (EC) No 1/2005 that affect equine welfare during transport for slaughter. In addition, it provides a set of evidence-based recommendations that would improve equine welfare during transport and reduce or eliminate the negative outcomes of current rules.

⁶ European Court of Auditors 2018 Special report No 31/2018: *Animal welfare in the EU: closing the gap between ambitious goals and practical implementation*. Available at <https://www.ecca.europa.eu/en/Pages/DocItem.aspx?did=47537>

⁷ Dalla Villa et al 2019 *Project to develop Animal Welfare Risk Assessment Guidelines on Transport* Project developed on the proposal CFP/EFSA/AHAW/2008/02 available at: <https://efsa.onlinelibrary.wiley.com/doi/epdf/10.2903/sp.efsa.2009.EN-21>

⁸ DG Health and Food Safety 2018 *Guide to good practices for the transport of horses destined for slaughter*. Available at <http://animaltransportguides.eu/wp-content/uploads/2016/05/EN-Guides-Horses-final.pdf>

⁹ *Guides available at* <https://www.rhna.uk.net/getmedia/089e30f57ca4c1d-b4cc-338055d552ee/Watering-guidelines-low-res-Web-Upload.pdf.aspx>

¹⁰ *Guides available at* <http://animaltransportguides.eu/wp-content/uploads/2016/05/EN-Guides-Horses-final.pdf>



Uniqueness of equines

Equines have a unique position in society as they are one of the most versatile animals and play many different roles in society across Europe. They can be athletes, pets, farm animals, therapy animals, wild animals, working animals, a form of transport and a source of meat and milk, among many others (Minero and Canali, 2007). This diversity of roles, which is underpinned by their ability to adapt to different conditions and scenarios, has created problems when seeking legislative protection, as legislation can have unintended consequences when equines do not fit easily into any one category and may change roles throughout their lives. The categorisation of equines varies among EU Member States with some seeking to protect them under companion animal legislation, others classifying them as agricultural animals or applying laws depending on the equine's situation. This means that equines can easily fall between gaps in laws which can be detrimental to their welfare.

This uniqueness suggests that equine animals should be considered in a different category from other pets and farmed animals, and that legislation should be tailored to their particular needs, which differ from those of pets and farmed livestock.

Ethical considerations

Science plays an important role in providing sound evidence on how the welfare of animals can be impacted by various practices. However, the concept of animal welfare is inseparable from its ethical component. Indeed, it is an ethical decision made by the general community to determine minimum standards of welfare. For instance, societal concerns about animal welfare during transport and at slaughter and the environmental consequences are shared by many European citizens (European Commission, 2016). Hence, developing an ethical assessment is essential to gain an understanding of equine welfare (Sandøe, P. et al., 2012).

The equine-human relationship is unique and complex, as ethical approaches to our obligations towards equines differ markedly across diverse social spectrums (Rollin, B.E., 2000; Campbell, M. L. H., 2013; Heleski and Anthony, 2012). Equines are bred by humans specifically to serve this relationship for work, for meat, for sport and as companions. As sentient beings, equines have their own behavioural and physical needs that should be fulfilled in order to ensure they live a life in the highest level of welfare possible. The Five Domains of animal welfare¹¹, presented by Professor David Mellor and Dr Cam Reid in 1994, explore the mental state of an animal in detail. They identify that for every physical aspect affecting animal welfare, there can be an accompanying emotion or subjective experience that may also affect their welfare. All persons involved in the handling,

¹¹ Namely nutrition, environment, health, behavioural interactions and mental state



About World Horse Welfare

World Horse Welfare is an international NGO whose values are grounded in pragmatism and compassion, that promotes and protects welfare across the full spectrum of the equine world including leisure, sport, work and production. The charity supports the equine-human partnership in all of its guises through a combination of hands-on care, research, education and influence. Using a constructive approach, the charity works with governments, organisations, institutions, sport regulators and a wide range of stakeholders to improve welfare standards around the world. World Horse Welfare is a member of the European Horse Network and Eurogroup for Animals, and is an independent welfare advisor to the International Equestrian Federation and the International Horse Sport Confederation. The charity bases its work on scientific evidence and has influenced more than 50 pieces of legislation, including Council Regulation (EC) 1/2005.



Since its foundation in 1927 World Horse Welfare has campaigned for an end to needless long-distance journeys for slaughter in Europe and for improvements to welfare conditions on these journeys. The charity regularly undertakes field investigations to monitor changes and trends in the welfare of equines transported long distances across Europe for slaughter and supports research into the impacts of these journeys on equine health and welfare.

Our work includes not only supporting the development of legislation, but also supporting implementation of the rules. For instance, we contributed to the EC's good practice guide for the transport of equines and hosted two roadshows in the UK on equine transport to help disseminate the guides among transporters and local authorities. The charity also drove the development of two informal guides to improve compliance with Council Regulation EC 1/2005 on both watering and assessing fitness for transport, working with industry, veterinary medicine and other NGOs with support of the European Commission. Several of the charity's recommendations were accepted when EFSA developed its scientific opinion (EFSA, 2011). Furthermore, at the request of the EC, in 2015 World Horse Welfare and Eurogroup for Animals produced the report '*Removing the blinkers: the health and welfare of European Equidae in 2015*'¹⁴, a document which sets out the scope, scale and welfare challenges of the European equine sector with input from more than 120 stakeholders. The charity shares responsibility for the secretariat of the voluntary initiative on responsible ownership and care of Equidae at the EU Platform on Animal Welfare, a forum that involves various stakeholders and EU Member States and which produced guidelines for the care of horses, donkeys and their hybrids^{15,16}.

World Horse Welfare continues to undertake a range of field investigations to identify levels of compliance with the legislation and the main welfare hazards during transportation of equines. This experience has led the charity to advocate for a review of the Council Regulation (EC) No 1/2005 because, while it is an improvement on previous legislation, it has flaws, is largely unenforced and, in parts, is unenforceable, and therefore is not fulfilling its purpose of protecting equine welfare during transport.

¹⁴ The entire report is available online <https://www.worldhorsewelfare.org/about-us/our-organisation/our-positions/responsible-ownership>

¹⁵ The Guide to good animal welfare practice for the keeping, care, training and use of horses is available here https://ec.europa.eu/food/sites/food/files/animals/docs/aw_platform_plat-conc_guide_equidae_en.pdf

¹⁶ The Guide to good animal welfare practice for the keeping, care, training and use of donkeys and donkey hybrids is available here https://ec.europa.eu/food/sites/food/files/animals/docs/aw_platform_plat-conc_guide_donkeys_en.pdf



3. Deficiencies and welfare hazards of Council Regulation (EU) No 1/2005 and recommendations to improve equine welfare during transport

Main challenges to equine welfare during transport

Transportation is a stressful and exhausting experience for many horses, as they travel standing and need to constantly readjust themselves to the movement of the vehicle. This applies to all horses, irrespective of whether they are transported for economic gain or not. From anecdotal evidence, equines who are transported for leisure purposes (not for economic gain) can often endure worse transport conditions than those transported for economic gain. The person transporting the equine may believe they are taking all the correct measures to protect the horses in their care, however as they have often not had any relevant training, they often lack the expertise to ensure they are not inadvertently causing unnecessary harm to their animals. For example, they may not appreciate how slowly they should accelerate/deaccelerate to ensure their equines can more easily maintain their balance. They may also lack the knowledge to be able to identify whether an equine is fit for the intended journey. This is further supported by survey data looking at horse injury during transport which identified that increased risk of injuries could be attributed to handlers with less than 5 years' experience (Padalino et al. 2018).

Suboptimal equine welfare during transport is a multifactorial problem (Padalino, 2015). The conditions and events before, during and after transport can all contribute to the impact that transportation has on an equine. The physiological coping ability of the equine to these ongoing environmental challenges is known as allostasis, literally stability through change (Sterling and Eyer, 1988). Good animal welfare is guaranteed when regulatory range of allostatic mechanisms match the environmental demands. In practice animals can reduce or even stop becoming distressed using allostatic regulation, which achieves optimal and efficient operation of key body systems with minimal energy expenditure. The transport of animals results in additional physiological activities which incur an energy cost. The allostatic load of a journey is the total additional energy cost of the journey. A low allostatic load is key for good health and good animal welfare (Korte et al., 2007). These costs include the energy used to: make adjustments to maintain balance; handle social interactions between animals; maintain body temperature; cope with dehydration, lack of food or injury; perform increased behaviours such as vigilance and accommodate to a new environment.

To ensure all equines are protected during transportation, there should be a single categorisation of equines, except those being transported to slaughter. They all, including the experienced traveller, can find being transported a stressful experience. Research undertaken by Padalino et al. (2017) supports this as compared to Standardbreds, Arabians, Thoroughbreds and their crosses (who are often transported as registered



equines) were found to be more likely to experience respiratory disease. Therefore, we believe that they should also be subject to a maximum journey limit, which is defined as first hoof on to last hoof off the vehicle as is currently the case in legislation. Furthermore, we understand that enforcement agencies can find it challenging to determine whether an equine is registered or unregistered, and we have some evidence to show that currently unregistered equines are being transported as registered equines or in mixed loads. Removing this distinction will make it much easier for enforcement agencies to enforce the legislation.

The most significant welfare hazards affecting equines during transport are related to: the fitness of equines to travel; means of transport, including vehicle design and space allowance; transport practices including transporters' handling and driving skills; journey times; watering and feeding intervals and rest periods; assembly centre and control post provisions; and enforceability.

Please note that, given the breadth of the legislation, we have only made recommendations where we would like to see changes to the legislation. Where we have not made a recommendation then it is likely we are content with the existing requirements. In addition, unless otherwise stated our recommendations are in regard to road transportation.

1. The legislation should be extended to include all equines, irrespective of whether they are moved for economic gain, or not. Commercial movements and journeys over 4 hours in length should be held to higher standards.
2. The distinction between unregistered and registered equines should be removed for this piece of legislation, however we fully support a category of 'high health' equines to be included in any animal health legislation that would allow these animals to move more easily from a disease perspective.

a. Fitness for transport (fitness for the intended journey)

Equines that are not fit for the intended journey are at an increased risk of suffering pain and distress, and their welfare becoming compromised during the journey. There are many factors which may impact on whether an equine is fit for the intended journey. These include previous experience of handling and travelling; preparation of the animal prior to the journey, for instance by familiarising equines with a lorry and practicing loading before going on a journey with them (habituation); the animal's physical fitness, weight, behaviour and conformation; the presence or absence of pre-existing health conditions; and the tolerance of the equine's breed for extreme temperatures. An equine's state of health and preparation before the journey can have a huge impact on its



health status at the end of it.

Various investigations have shown that some horses destined for slaughter are in poor health before transport (World Horse Welfare, 2011). For instance, field investigations performed by World Horse Welfare between 2014 and 2019 found that in some consignments approximately 90% of the horses were overweight or obese¹⁷; approximately 15% of horses had deformities such as club feet; and approximately 25% of horses showed abnormal posture and/or behaviour at some point such as flexing/stretching hindlimbs, abnormal weight distribution, weight shifting, pointing, or hanging/non-weight bearing. It was also observed that many horses were unsteady on their legs at the time of unloading and that overgrown hooves were common. Approximately 5% of horses per consignment showed possible signs of disease (e.g., discharge from the eyes and nose, loose faeces/diarrhoea).

Research undertaken by Marlin et. al. (2011) found that 14% of horses destined for slaughter were deemed unfit for transport at the origin of a journey and that this percentage increased to 37% at the destination point. These findings were also confirmed by various field investigations of horses transported for slaughter in various EU Member States. Reports by Hafner and Rabitch 2016 summarising investigations by Animals Angels of animal transport in the EU (including of equines) indicated that both police and enforcement agencies found the enforcement of Regulation 1/2005 was difficult and often not successfully achieved in many cases due to the measures in the Regulation and also the lack of compliance by transporters, vehicles, drivers and control posts (Hafner and Rabitsch, 2016).

An important factor in ensuring that unfit animals are not loaded is the motivation and knowledge of the operator performing this task. According to EFSA's scientific opinion (2011), suboptimal inspection of horses prior to transport is one of the main transport hazards for horses intended for slaughter. This can result in the transport of animals which are diseased, injured or have other conditions that make them unfit for the intended journey. A lack of training and understanding in how to determine whether an equine is fit for the intended journey, and why it is important, may contribute to transporters being non-compliant with the rules. Furthermore, use of the term 'fit for transport' can be misleading since an equine might be fit to be transported for a short journey, whereas the same equine may be unfit to be transported on a longer journey. A practical risk assessment should be performed by transporters and/or operators to assess the fitness of the individual equine in relation to the specific challenges that may be encountered during the journey such as weather, route of travel and estimation of duration, road conditions (class/type of road, delays, traffic congestion and accidents, mechanical breakdown and plant shutdowns), vehicle (truck or trailer), driving quality

¹⁷ For clarification, this is based on a Body Condition Score of 0-5 described by Carroll CL, Huntington PJ. Body condition scoring and weight estimation of horses. *Equine Vet J*. 1988 20(1):41-5. doi: 10.1111/j.2042-3306.1988.tb01451.x. PMID: 3366105.



and availability of emergency unloading facilities. The risk assessment should include the equine's physical state (weight, physical fitness, state of hydration and satiety, etc.) and behavioural state. This should ensure that only healthy and non-stressed equines that are able to cope with the challenges of the intended journey are loaded and transported.

All personnel involved in the transport of equines must be trained on how to undertake a risk assessment and identify whether the equines they are transporting are fit for the intended journey. This training should focus on how to properly inspect the animals. This includes observing the animal's behaviour and looking for any abnormal behaviour that could indicate a health or welfare problem. Appropriate training will allow operators to consider all potential risks to equine welfare during the journey, to be confident in interpreting their observations and to understand when an equine is not fit for the intended journey.

There must be acceptance amongst the equine sector that operators undertaking the risk assessment can refuse to load an equine. This may require behaviour change but will ensure they have no barriers when refusing to take an animal.

In terms of body type, there is limited scientific research on how different breeds and types of equine react to being transported; however, practical experience shows that there are substantial differences among both breeds and individuals in their physiological and psychological responses and their needs during transport. The age-related decreased thermoregulatory ability of equines should be considered during the assessment of fitness for the intended journey.

Recommendations:

- 3.** The definition of 'fitness for transport' should go further to emphasise that the equine must be fit for the intended journey and arrive at their destination in a fit state. Specific criteria should be developed to allow fitness or lack of fitness to be easily identified.
- 4.** A practical risk assessment should be performed before each journey to assess the fitness of the individual equine in relation to the specific challenges that may be encountered during the journey, taking in to account the equine's physical and mental state. Only healthy and non-stressed animals that are able to cope with the intended journey should be loaded.
- 5.** All personnel involved in the transport of equines must be trained on how to undertake a risk assessment and identify whether the equines they are transporting are fit for the intended journey. This applies to transport by sea, road and air.



b. Transport practices

Transporters

Commercial operators are required to plan a journey with respect to work, health and safety laws and social legislation on drivers' hours. To comply with these laws and respect journey times for animals, they may need to have additional drivers and transfer animals to a new vehicle and driving team which may incur additional expense. It will be important that any updated welfare in transport legislation take commercial operators' legal responsibilities into consideration when setting journey times to ensure it can be easily complied with and motivations such as saving costs, compliance with competing legislation or commercial incentives will not encourage short cuts to be taken on welfare.

People involved in planning a journey may not always be adequately trained in planning a journey for live animals which could lead to plans being unrealistic and not followed. When planning routes for the transport of equines, maximum allowed speed limits for the vehicles throughout the journey may not be adequately considered by drivers. This might be related to drivers' hours, but also (based on anecdotal evidence) to get ahead of poor weather or to make a ferry or border crossing. This may cause them to plan relatively cheap and easy routes that fit with drivers' hours, but that do not necessarily take animal welfare into account. In addition, pressure may be put on drivers in terms of time constraints that could lead them to drive at excessively high speeds to complete the journey, which can be of detriment to the animals' welfare. World Horse Welfare has anecdotal evidence that non-compliant transporters will seek alternative routes in order to avoid enforcement checks or passing through a control post. Multiple operators could be used to undertake parts of the same journey. Each of those operators may only consider the journey they are planning, without taking into account the preceding or subsequent journey. Anecdotal evidence found by World Horse Welfare suggests that some commercial transporters feel pressured to meet time commitments or 'sell' themselves on their ability to deliver the equines in a shorter time period than their competitors.

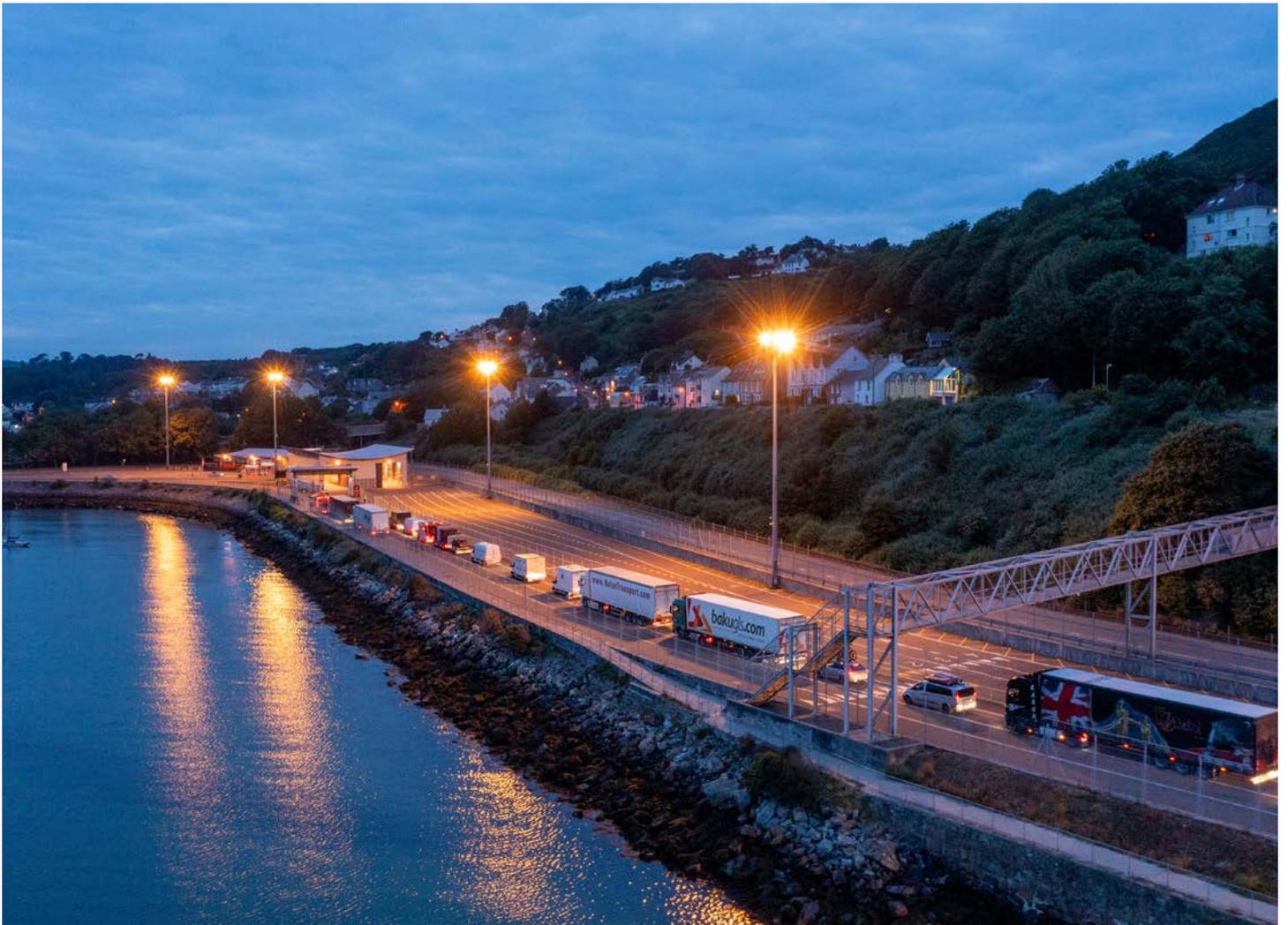
It is essential transporters have the necessary knowledge to understand how to best plan a journey to ensure it can be followed. Journey plans should be developed in a way that provides drivers with the necessary conditions for them to ensure equine welfare throughout the journey is good and ensured.

Unforeseen situations such as heavy traffic, roadworks or adverse weather conditions may cause the length of the journey to increase. If the contingency plan is not well established, this can poorly impact equine welfare during transport.



Recommendations:

- 6.** Individual journey specific contingency plans should be made for each journey, and these must prioritise animal welfare and the main equine health and welfare hazards that the journey may present. A summary of the elements of a contingency plan should be required in the event of emergencies for long journey transporter authorisations.
- 7.** Until full traceability of equines is in place, the following details should continue to be recorded for all journeys undertaken by Type 2 vehicles and for commercial movements under 65km: animal transport certificates; recording the UELN/chip number of all horses moved; departure and destination details.
- 8.** Journey logs should be required for all commercial journeys over 65km, and all other journeys over 4 hours (unless derogated). In the medium to longer term, journey logs should be fully digitised to allow for ease of compliance. Ideally, this should be integrated into digital systems tracking the movements of equines on/off premises.
- 9.** In the longer term, ideally over a period of 3-5 years after the journey log legislation comes into force, a digital solution should be identified and implemented, with input from the sector, that allows journeys to be logged onto a centralised system.





Many human factors are associated with increased risk of injury to an equine during transport. Padalino et al. (2018) concluded that the experience and knowledge in horse handling of people responsible for moving horses by road was the most important human factor associated with transport-related injuries in equines. Indeed, the same study concluded that this experience and knowledge¹⁸ was the most important human factor associated with transport-related injuries in horses.

Hall et al. (2020), reporting a volunteer survey in the UK, found that commercial drivers reported lower incidents than self-drivers. This is similar to findings in Australia (Padalino et al., 2017) and New Zealand (Riley et al., 2018). These findings indicate the need for improved driver training, especially for non-commercial drivers.

During field investigations carried out by World Horse Welfare, inappropriate handling of equines by transporters and other personnel was observed. This could be due to insufficient competence, training and knowledge to ensure good equine welfare when handling. All personnel, meaning anyone involved in the transportation and/or handling of equines such as drivers, handlers, riders, trainers, farriers, veterinarians, enforcement officers, control post personnel, and others likely to have contact with live equines during transport, should be trained on how to perform their tasks ensuring equine welfare. Training should also cover risk assessment to ensure that they are competent, trained and educated on the needs and behaviours of equines, as well as in their handling and loading and care during the journey and post transport. Drivers and attendants should be trained in the development and application of contingency plans so that they can take appropriate action in case of emergency.

¹⁸ Which includes the lack of knowledge on identifying whether a horse is fit for the intended journey or not.



When transporting equines, the average journey time is higher than when transporting other goods on the same route. This is due to multiple factors including road and traffic conditions and the need to break and corner slowly to protect the welfare of equines. This is especially relevant for routes that are not on major roads. During transport, equines stand and expend a significant amount of energy continuously as they seek to maintain their balance. Since an equine's centre of gravity is higher than that of other animal species (Waran and Cuddeford, 1995), it is more difficult for them to maintain their posture during sudden vehicle movements.

Studies have also shown that horses experiencing loss of balance or scrambling due to abrupt braking and cornering were more agitated and anxious during the journey, possibly due to fear of falling inside the vehicle (Clark et. al., 1993; Padalino et. al., 2020). Giovagnoli et al. (2002) showed that horses' efforts on maintaining balance during transport can be considered one of the main contributors to equine stress, and this can lead to injuries, transport-related diseases and behavioural problems.

EFSA (2011) found that equines “find it relatively difficult to maintain their posture during sudden vehicle movements because of their high centre of gravity [...] and that the driver's ability could affect the movement of the vehicle and consequent balance ability of the transported animals, in particular during accelerations, braking, cornering and any other difficult manoeuvres”. There is therefore a strong correlation between driver skills and the amount of stress on the horse (Giovagnoli et al., 2002). This same study reported that the vehicle condition, road quality and driver's professional ability are critical factors in determining the magnitude of transport stress.

Effective and humane handling of equines can have many positive impacts, including an increase in personnel safety and improved equine welfare. While certificates of competence will go some way to ensuring that drivers understand how best to transport equines – including appropriate speed and cornering - it does not guarantee that they will act upon this advice.

Studies have shown that if commercial drivers received a bonus for reducing fuel consumption they drove more slowly, accelerated less and hence animals were thrown about less in their vehicles and their welfare and meat quality was better (Guise, 1991). It is possible to measure driving events which affect the posture of animals such as excessive braking or acceleration, fast cornering, and excessive speed on rough road surfaces. This can be done using a variety of methods, including accessing the vehicle's management systems, adding accelerators and gyroscope systems to a vehicle or using the multiple sensors in mobile phones. Enforcement agencies should consider using accelerometer data to determine whether poor driving contributed to any injuries sustained by equines during transport. Accelerometers would also be useful during driver



training and would allow transport companies to review their drivers' performance and identify any additional training needs.

The black boxes or telematics systems used by insurance companies utilise GPS systems to send information on speed, acceleration, braking and cornering to produce a driver score which can be accessed by the driver to improve performance. Black boxes have the advantage of being fixed to the vehicle but may duplicate sensors in the car. In addition, there are, alternative options such as using a smart phone and an app. It should also be noted that insurance black boxes are placed behind the dashboard, so information on vibrations, even if collected, would not reflect those experienced in the animal compartment. However, these may still be useful for improving driving.

Recommendations:

- 10.** All personnel, meaning anyone involved in the transportation and/or handling of equines such as drivers, handlers, riders, trainers, farriers, veterinarians, enforcement officers, control post personnel, and others likely to have contact with live equines during transport, should be trained on how to perform their tasks ensuring equine welfare is prioritised.
- 11.** Legislation should include specific competencies to be obtained by those who are involved in equine transportation. There should be an online course to gain a certificate of competence (CoC) for those that are involved operationally and in planning the journey.
- 12.** The content of the CoCs should be defined by government to ensure consistency (ideally aligned across the EU).
- 13.** The CoC for commercial transporters and those transporting their equines longer than 4 hours should complete the online course and have an additional course based on the current CoC for longer journeys, which should also include a strong practical element to the course as this currently can be lacking.
- 14.** Support should be given to developing accelerometer technology so that it can be used by both transporters and officials to monitor both compliance with the Regulation and the impact of driver behaviour on animal welfare.
- 15.** Competent Authorities should use strategies and technologies to monitor the welfare of equines during transport and its impact on equines post transport, as well as monitor driver's behaviour and its impact on equines during transport. In particular, this could include the use of smart phones and apps to send information on speed, acceleration, braking and cornering to produce a driver score, as well as the use of other advances in automotive SMART or PRECISION technologies to monitor and improve welfare during transport.
- 16.** Guidance from Competent Authorities must be reviewed at least every 5 years to ensure it is up-to-date and aligns with the latest evidence.



c. Means of transport

Vehicle specifications

Industry approved standards are urgently required for vehicle design, particularly around safety and ventilation (including flooring, fans, temperature gauge and setting out a standard U-value for insulated roofs). This should initially be aimed at Type 2 and converted vehicles to start encouraging changes in the industry, but minimum standards should also be set for all vehicles to improve welfare and safety for those transporting for recreational reasons. For example, these standards could set out where tack lockers should be located as currently equines are unable to lower their head to below the height of their wither in some vehicles and may even be able to stand on the tack lockers, which are not built to take their weight.

Many vehicles adapted for carrying equines do not have facilities on board to provide fodder and water to each of the animals. During the approval process, the vehicle including its capacity for carrying and making available fodder and water for each animal should be checked and noted on its approval certificate. Such details should also be added to a plate attached to the animal compartment, which should also specify the maximum size and number of equines the compartment can carry.

Council Regulation (EU) 1/2005 lays down standards for the construction and fittings of the animal compartment for vehicle approval and requires the driver to check the suitability before or during use. However, their construction is not covered by EU rules on vehicle safety (such as Regulation (EU) 2019/2144). They are also not required to be checked during the regular mandatory vehicle safety checks. By ensuring that all equines transported to slaughter are done so in a Type 2 authorised vehicle, as recognised in EU legislation, could be transported in higher standard vehicles, and so avoid associated risks.

A number of preventable accidents caused by structural failures (for example, floor collapsing) have occurred since the current welfare during transport legislation entered into force^{19,20}. In a survey carried out by World Horse Welfare in 2019²¹, 10% of the 604 people who responded had been involved in such an incident (ranging from minor with no injuries through to major, including equine fatalities). Although the survey was conducted primarily among the leisure sector, this type of incident is also a risk for equines being moved for slaughter.

¹⁹ <https://www.horseandhound.co.uk/news/is-your-horsebox-floor-safe-horse-survives-life-threatening-accident-warning-graphic-images-527589>

²⁰ <https://www.dailymail.co.uk/news/article-5982283/Family-prized-horse-killed-fell-floor-death-trap-lorry-wins-payout.html>

²¹ This survey was only promoted via World Horse Welfare channels (primarily social media) and results were not published.



Hall et al. (2020) found in their survey of transporters that incidents of horse injury and/or accidents were attributed most commonly to horse behaviour or vehicle malfunction. This highlights a need for better preparation of equines for transport and also to address risk factors associated with vehicle type, design and operation. Converted vehicles are particularly problematic, with horses often difficult to unload in the event of an accident. In many cases the converted vehicle will also not be insured to carry animals if the insurance company has not been advised of the alteration to the vehicle.

World Horse Welfare investigations found vehicles transporting equines long distances for slaughter that do not meet the standards required by legislation, including non-compliance related to space allowance and ventilation.

The installation of cameras in Type 2 vehicles would allow equines to be checked continuously during the journey. It should be recognised that there are limitations on how useful cameras can be, particularly with regard to driver and road safety if the transporter is expected to monitor the equines whilst driving. Furthermore, if it is a commercial journey the co-driver, if resting, cannot look at the monitor as that would constitute working time. Therefore, cameras should not replace the need for short mid-journey rests and checks.

The EFSA's findings (2011) show that the lack of appropriate individual penning within the vehicle as well as partitions being too close together can lead to an inability to balance or maintain posture. A lack of appropriate penning can also result in reduced ventilation, increasing the risk of heat stress, exhaustion and disease. In addition, World Horse Welfare field investigations found that vehicle design is a problem – if horses are travelled across the vehicle (i.e., at 90 degrees to the direction of travel) the space provided is frequently too short and the animals' tails are often rubbed, causing injury. The animal compartment of a vehicle should be designed, constructed and equipped to carry all sizes of equines to maintain their safety, health and welfare. If not, their approval should specify the maximum height and length of equines for which they may be used.

Currently, there is a lack of standardisation among EU Member States on the construction of horse compartments within vehicles. This can have safety implications for the driver, for equines and for other road users. It can also hinder the task of enforcement agencies.



Recommendations:

- 17.** All commercial movement of equines over 65km, and all other journeys over 4 hours (unless derogated), should be undertaken in Type 2 authorised vehicles with a journey log.
- 18.** The current requirement for forced ventilation and temperature monitoring systems should be extended to all commercial journeys longer than 65km.
- 19.** On vehicles that are more than three years old, additional inspections should be carried out every year by a competent person on the animal compartment to ensure they are safe for equine transport.
- 20.** The provisions on Point 1 Section 1 Chapter IV Annex I regarding the strength for pen rails and decks should apply to road transport vehicles as well as livestock vessels.
- 21.** Industry approved standards are urgently required for vehicle design, particularly around safety and ventilation (including flooring, fans, temperature gauge and setting out a standard U-value for insulated roofs). This should initially be aimed at Type 2 and converted vehicles to start encouraging changes in the industry, but minimum standards should also be set for all vehicles to improve welfare and safety for those transporting for recreational reasons.
- 22.** We recommend the installation of cameras in Type 2 vehicles to allow equines to be checked continuously during the journey. However, cameras should not replace the need for short mid-journey rests and checks.
- 23.** All new, and newly converted, Type 2 vehicles should have a satellite tracking system.
- 24.** The animal compartment should be designed, constructed and equipped to carry all sizes of equines to maintain their safety, health and welfare. If not, their approval should specify the maximum height and length of equines for which they may be used.



Space allowance and partitions

Many factors related to space allowance affect the welfare of equines during transport and the risk of transport-related injuries.

Insufficient space allowance increases collisions between the animal and the partitions or other parts of the vehicle. Field investigations performed by World Horse Welfare showed that these collisions, caused by small space allowances, could lead to bruising and other injuries to the legs, feet, body, brisket and poll (top of the head)²².

Evidence shows that horses travelling in wider bays make fewer balance-related adjustments since they lean less on the partitions and lose their balance less often (Padalino, 2020). This implies that lower levels of space allowance on the vehicle make it more difficult for equines to maintain balance during transport, impacting on their welfare. Several studies by Padalino²³ confirmed earlier research that a greater space allowance is to be recommended on vehicles to enable horses to balance and reduce collisions with vehicle partitions and other parts of the animal compartment.

Moreover, space above horses is required in order to allow for normal postural movements of their head (Whiting and Sauder, 2004) and to prevent injuries to head and withers and croup (Dai et al., 2021).

Equines that travel with other equines with incomplete or no partitions can experience aggressive behaviour that leads to fights. This can happen with unfamiliar groups of equines and is a particular problem among equines transported long distances for slaughter, as a substantial proportion of these animals are entire males (World Horse Welfare, 2008). During World Horse Welfare field investigations there were observed problems caused by mixing entire males with other horses such as attempted covering, fighting, aggression and stress.

However, there are also specific instances where equines are best transported in groups. According to Knowles et al. (2010), the optimum size for group transport is 4 equines with a minimum space of 200kg per m². This includes semi-feral equines being transported with their social group to slaughter or young untamed ponies. Young untamed ponies show separation anxiety when transported singly, so it is important to retain the ability for them to be transported in groups. As it can be difficult to identify whether individual equines within a group are handled or unhandled, shorter journey times are recommended to reduce the risk.

²² World Horse Welfare has visual material to illustrate these injuries affecting equines.

²³ See Barbara Padalino research 2015, 2018 and 2020.



This evidence indicates that equines need space to balance side to side, and forwards and backwards. Using a custom-built trailer with a floor fitted with multiple triaxial accelerometers, Colborne et al. (2021) measured the displacement of the centre of mass of two horses during a road journey. The majority of the lateral (side to side) excursions observed were within a range of 32 cm, whereas the craniocaudal (front to back) excursions observed were within a range of 30 cm. The guide to good practices for the transport of horses destined for slaughter (2018), using a Delphi survey method, determined that horses should be transported with between 10 and 20 cm of total space between animal and partitions. These findings were supported by Padalino and Raidal's (2020) study, which found that over a 12-hour journey, loss of balance occurs more frequently, and severity of gastric ulcerations and levels of muscle enzymes were higher in horses travelling in narrow bays and positioned for forward travel compared to those transported in wider bays and facing backwards.

Recommendation:

- 25.** Further research is needed on whether the space allowances for equines should be specified in kg/m² instead of m²/animal before this is included in legislation. This should initially be included in the 'best practices' guidance.
- 26.** The clearance above the highest point of the withers should be retained at 75cm.
- 27.** The distance from flank to side/partition should be specified, with a minimum of 10 cm between each side of the animal and the partition or the side of the vehicle (i.e., 20 cm in total).
- 28.** The space in front of the equine's nose and the space at their rear should be at least 15cm (i.e., 30cm in total, front and back). When a breast bar is used, there should be at least 30cm space between the breast bar and the chest of the equine. If the equine is tied they must be able to lower their head to just below the level of their withers.
- 29.** The space allowance requirements for equines should be the same regardless of journey length. However, we understand some of these recommendations may not be possible in all vehicles as currently designed. Thus, initially it should be proposed 'where possible' on current vehicles and become a requirement for all new vehicles.
- 30.** The distinction between handled and unhandled equines should be removed.
- 31.** All equines should be allowed to travel in groups if there are good welfare reasons for this, they are socialised and there is no evidence of aggression.
- 32.** It should be established that the maximum group size for equines to be transported in group is 4 animals with a minimum space of 200kg per m².



Ventilation and temperature

Temperature is one of many stressors affecting equine welfare during transport (National Research Council, 2006). In assessing the potential effects of thermal stress during transport it is necessary to consider the concepts of stress, homeostasis and allostasis.

Homeostasis refers to processes that maintain body systems (such as blood pH or body temperature) within narrow operating ranges. The expectation that animals should maintain stable physiological parameters is widely used by welfare scientists to claim that if the level is not within the normal range, then it is likely harmful.

Equines, along with other animals, change their sensitivity to stress temporarily by adjusting mediators of allostasis, which help maintain homeostasis. For instance, equines have a remarkable ability to vary their body weight in summer and store for the winter period, and also shed and grow their coat dependent on climatic conditions. The concept of allostasis, which was defined by McEwen and Wingfield in 2010, refers to maintaining stability through altering physiologic parameters to counteract challenges (McEwen and Wingfield, 2010). Superimposed on the predictable life cycle are unpredictable events, including many potential stressors that require immediate physiological and behavioural adjustments to cope. Since the ability of equines to cope with extremes of temperature varies, assessing the individual characteristics of each equine is crucial when determining whether it is fit for the intended journey.



The lower critical temperature of equines is variable as, with appropriate feeding, equines readily acclimatise to cold stress. Although EFSA (2004) defined the thermoneutral zone (5°C and 25°C for equines) as where metabolic heat production and energy expenditure are minimal, most productive processes are at their most efficient level and an animal is thermally comfortable without the need to change heat production. They noted the difficulties of applying this concept in practice because animals adapt their thermoregulatory mechanisms in response to their environment. Various studies (Mejdell et al 2020; Hoopes, 2018) have suggested that, for horses in good body condition, the lower critical temperature is 5°C with a summer coat and -7°C with a winter coat. Other studies show that for those accustomed to extreme cold, the lower critical temperature is around -15°C.

The upper critical temperature varies depending on whether heat production, respiratory rate or rectal temperature are measured (Webster 1991), but values of between 20°C and 30°C are quoted in research studies (Morgan K, 1980). Research (Marlin, 2007) shows that horses dissipate heat by sweating and that the effect of higher temperatures during transport depends on whether forage and water are given. Padalino (2015), Schroter (1995) and Marlin (2007) advised that horses should have rest stops every 4 to 8 hours.

It is important to note that increased age decreases the thermoregulatory ability following exercise of an equid (McKeever et al. 2010) and therefore this needs to be considered when assessing fitness for the intended journey.

There is insufficient scientific evidence to set an appropriate external (outside) temperature range, so further research needs to be developed in this area.

An equines' ability to thermoregulate effectively also depends on many physical parameters (for example, air velocity) and operational procedures (such as stocking density).

Air quality is a major factor in preventing adverse consequences of transport on the respiratory tract of equines (Padalino, 2015). However, allowing the head to lower below the withers and avoiding dehydration are also important to enable equines to clear their respiratory tract (Raidal et al., 1996). Good air quality does not mitigate the need for horses to be able to lower their head below the withers during transport to clear their respiratory tract (Stull, 2002; Padalino, 1995; Katayama et al., 1995). Experimentally, high levels of ammonia have been shown to produce changes to the tracheal epithelium with loss of cilia (Katayama et al., 1995), which would reduce lung clearance and thereby increase risk of disease.



Recommendations

- 33.** Temperature, humidity and practical methods of cooling heat-stressed equines should be evaluated and included in transporters' contingency plans.
- 34.** Vehicle design and maintenance, including ventilation, should prevent heat accumulation, and also limit the accumulation of ammonia and carbon dioxide. Where mechanical ventilation is provided, this must ensure that the right temperature range is provided during all parts of the journey.
- 35.** Vehicle design and operation should also limit exposure to particulates, nitric oxide and carbon monoxide from exhaust fumes and dust, bacteria and fungi from equines, the bedding and dusty forage. Since we understand the complexity of modifying current vehicles, these modifications should be phased in over a three-year period.
- 36.** If an external temperature limit is to be set then we suggest that this should only be for an upper limit of 30°C for equines during transport, with no lower limit set. It should be clear that equines can be loaded and unloaded in temperatures that exceed this limit – if this is done in a suitable environment (including shade).
- 37.** The current requirement for forced ventilation system and temperature monitoring systems should be extended to all commercial journeys longer than 65km, and all other journeys over 4 hours (unless derogated), as required in Type 2 vehicle authorisation. This would require a minimum nominal capacity of airflow rate of fans is of 60m³/h per 100 kg live weight with a capability for operating for at least 4 hours when the vehicle engine is off. Approval of vehicles and trailers should ensure that engine exhaust fumes do not enter the area occupied by the animals. This should be phased in over a three-year period.



d. Journey times

Since transportation can be both stressful and exhausting for many horses, long journeys can increase the welfare risk for equines. The incidence of transport-related health problems in equines is influenced by both journey duration and the season of the year (Padalino et al., 2017). Research shows that journeys lasting more than 20 hours increase the risk of equines developing severe transport-related disease (Padalino et al., 2015), respiratory complications (Oikawa et al., 1995) and pneumonia. Austin et al. (1995) found that the risk of shipping fever on horses increased with journey duration, particularly when the duration exceeds 10 hours. This may be due partly to posture during transport as mucociliary clearance is compromised in horses when the head is held elevated (normal position for a horse travelling) versus head lowered to a position where the cranial trachea is lower than the caudal trachea (Raidal et al., 1996; Padalino et al., 2018). Moreover, there is an increased risk of dehydration for horses during transport when long-distance journeys were performed during warmer months (Roy et al., 2015).

It is estimated that every year, more than 20,000 horses are transported over long distances²⁴ across the EU for slaughter. We have referenced various studies throughout this report as they provide basic guidance on the psychological and physiological impact that journey duration and resting times may cause in equines. We must bear in mind that there are considerable differences globally in types of vehicles used, the climate, and cultural differences in handling and care of equines, transport related disease and injuries. However, those studies show that the risks of disease, injury, stress, exhaustion and dehydration increase as journey length increases.

World Horse Welfare (2008; 2011) has collated detailed dossiers of scientific and field evidence²⁵ on which to base a revision of journey times and conditions for slaughter equines. These dossiers show that, by their very nature, equines transported to slaughter may be at increased risk of injury on long journeys for a variety of reasons including inexperience of travelling, unfamiliarity with handling and lack of fitness for the intended journey. These findings are in line with the EFSA 2011 scientific opinion that “when untrained horses of uncertain health status are transported for slaughter, the journey time should not normally exceed 12 hours.” (EFSA, 2011)

²⁴ As per current legislation meaning more than 8 hours journey.

²⁵ See *Transportation Recommendations for amendments to EU Council Regulation (EC) No 1/2005 Dossier of Evidence November 2008* and *Recommendations for amendments to EU Council Regulation (EC) No. 1/2005 Dossier of Evidence October 2011*.



Given that equines can be transported for various purposes through their lives, some equines arriving at assembly centres may not be declared as being initially destined for slaughter yet end up leaving the premises destined to slaughter. This may have an impact since the length of the journey would vary among the individual equines depending on the transport purpose, when in fact equines transported for slaughter should have a finite journey.

However, if the legislation makes travel too difficult for equines going to slaughter this could have a detrimental impact on their welfare, as there may be no alternative cost-effective end of life option, and this could increase their likelihood of being neglected or abandoned. It could also encourage non-compliant movement, with the real reason for the journey not being declared. We recognise that not all equines are located within 12 hours of a slaughterhouse.

Currently, there is no accurate list of licensed slaughterhouses in the different EU Member States. The resulting lack of knowledge on the locations of slaughterhouses that are licensed for equines can lead to owners or operators to transport their equines longer distances than is necessary, thereby compromising equine welfare.

Foals and pregnant mares should be treated slightly differently. Any foal under 4 months old should not be transported for longer than 8 hours before it has a 9-hour rest (off the vehicle), even if accompanied by their dam, unless the journey has been approved by a vet, ideally with expertise on the impact of transport on equines. Research shows that recently weaned thoroughbreds were found to experience elevated levels of stress and show signs of dehydration when transported for 15 hours (Tadich et al. 2015). For pregnant mares we suggest that the current requirement that those in the last 10 percent of pregnancy should not travel remains, unless there is veterinary approval for exceptional circumstances. We also suggest including in best practice guidance that those in their last 20 percent of pregnancy should not undertake journeys over 4 hours.

While we anticipate that most equine owners rarely travel their equine(s) for more than 4 hours, we do recognise that requiring a Type 2 authorisation and a 9-hour rest, off the vehicle, after a 4-hour journey time would be unduly onerous for certain non-commercial movements. For example, those who compete at amateur level may travel longer distances to attend competitions and events. These horses will be unloaded and often give a rest from transport for a couple of hours at least, if not overnight. We do not want to make these movements prohibitively expensive, or to discourage riders from competing. We therefore suggest the following derogation is included in legislation: “that animals travelling for pleasure purposes and accompanied by their owners/keepers can travel for up to 8 hours in an 18-hour period without being Type 2 authorised, if



a mid-journey rest of at least 45 minutes is taken every 4-6 hours with the equine(s) offered forage and water and they also have a longer continuous rest of 9 hours off the vehicle without being exercised". The mid-journey rest should not be included in journey time in this circumstance. As with 12-hour journey times, this can be split over multiple journeys. We believe this would prevent commercial transporters from identifying themselves as non-commercial, while not being unduly onerous on leisure riders.

Recommendations:

- 38.** We would like to see the introduction of three types of journey:
- Journeys under 65km (as defined under current legislation)
 - Journeys between 65km and 4 hours (short journeys)
 - Journeys between 4 and 12 hours (longer journeys)

Horses destined for slaughter

39. For both practical and ethical reasons, a separate category for equines transported for slaughter should be retained.

40. A maximum, finite 12-hour journey limit should be established for equines intended for slaughter.

41. There should be no further onward journey as the final destination should be the slaughterhouse.

42. When equines intended for slaughter are located more than 12-hour journey from a licensed equine slaughterhouse, Competent Authorities may recommend a derogation to extend the 12-hour journey limit, after performing a case-by-case analysis. Transporters must provide justification for the extended journey time with approval gained from the relevant authority for each journey via the submission of a journey log.

43. In the situation of a derogation to extend the 12-hour journey limit, equines should be unloaded, rested, and given access to food and water for a minimum of 9 hours before travelling for a maximum of another 12 hours.

All other horses

44. A 12-hour maximum journey time in a 21-hour period should be introduced for all equines (irrespective of whether they are transported for economic gain or not), inclusive of an appropriate short mid-journey rest period.

45. Up to 4 animals travelling for pleasure purposes and accompanied by their owners/keepers can travel for up to 8 hours in an 18-hour period without needing a Type 2 authorisation.

46. The journey would start when the first equine steps onto the vehicle and end when the last equine steps off.

47. In the event of an unforeseen delay on a journey, exceeding the 12-hour maximum journey time, transporters should be allowed to continue to their destination if it



is within a 2-hour journey time, as covered in the contingency plan. However, they should flag the event to the relevant authority and provide a justification for the delay. If delays occur on a regular basis on the planned route, authorities should investigate whether it is genuinely unfortunate or whether these transporters are failing to adequately plan their journeys. In that case, authorities should either offer them additional training on risk assessment and journey planning or penalise them.

48. Transporters submitting a journey plan that only gives them half an hour's contingency time for unforeseen circumstances before they reach the 12-hour journey time should be flagged in a system to which all relevant authorities have access. If transporters repeatedly submit journey times close to the 12-hour journey limit then this should be reviewed, and they should be provided with further training, or an investigation must be initiated.

49. The requirement for unloading the animals when consignments transporting equines are stopped by Competent Authorities for more than 2 hours should be revised with equines being watered and fed on vehicles where possible.

50. It is essential to have a central database with all information on official registered abattoirs prepared to accept equines in case of emergency. This information should be made available to all operators.

51. No foal under 4 months old should be transported for longer than 8 hours before resting for 9 hours (off the vehicle), even if accompanied by their dam, unless the journey has been approved by a vet. In addition, any mare whose foal is under 4 months should not be transported without its foal, unless they have a veterinary certificate.

52. For pregnant mares, the current requirement that those in the last 10% of pregnancy should not travel should remain.



e. Watering and feeding intervals (including resting stops)

Inadequate water provision during transportation increases the risk of severe dehydration for horses (Friend, 2000) leading to stress, thirst, weight loss and respiratory disease. The EFSA's scientific opinion (2011) also noted that when horses are deprived of water or have not been adequately watered before the journey, they can lose weight and become severely dehydrated during the journey. The risk of dehydration is exacerbated by the fact that equines may not accept water during the journey. Friend et al. (2000), found that horses may lose 10-12% of their mass as a result of dehydration when being transported. Indeed, the risk of dehydration for horses increases with journey length, especially for journeys longer than 18 hours (Friend et al., 1998). Dehydration may also increase risk of colic in equines (Cohen and Peloso, 1996).

Horses are at increased risk of heat stroke when forage and water are restricted prior to transport (Padalino et al., 2016), as dehydration can impair equine thermoregulation. Providing water and forage to horses prior to the journey can ensure good electrolyte balance and avoid dehydration, enabling horses to better handle welfare hazards and stress during transport (Padalino, 2016). Gibbs and Friend 2000 found that a group of 4 to 6 horses transported to slaughter could be watered on the vehicle when provided with troughs on both sides of the pen and having 0.4 meter of length of trough per horse. Unlike some other transported livestock species, equines can be easily watered and fed forage without taking them off the vehicle.

World Horse Welfare field investigations observed that even where hay was available, some equines will not eat. This may be due to poor hay quality or reluctance of dehydrated equines to eat.

For longer journeys, after 12 hours of travel we would propose that equines be rested for a minimum of 9 hours, off the vehicle, before they can travel for a maximum of another 12 hours. This would improve compliance and better meet the needs of the driver and the equines. This would usually be an “overnight” stop or in hot weather could be taken during the day to allow for animals to be transported during the coolest hours (i.e., could drive through the night) and would also enable drivers to avoid delays due to known ‘pinch points’ on journeys.

Studies reveal that increasing the total resting time on a long journey reduces transportation-related stress and the risk of respiratory disease in horses (Giovagnoli et al., 2002). Potential adverse effects caused by sleep deprivation during transport may be avoided if horses are able to rest in recumbency during resting periods off the vehicle (Fuchs et al., 2016). In addition, dehydration can slow the clearance of debris and mucus



from the lungs, increasing the risk of respiratory disease in horses post-transport (Marlin, 2004). Currently, it is difficult to determine how long an equine has been at a premises and therefore prove whether they have had the required resting period.

Recommendations

53. Prior to the start of the journey, equines should have access to adequate forage and to an unrestricted and constant supply of clean drinking water for at least 6 hours before the start of the journey.

54. Post-arrival, equines should have immediate access to water, forage, and a place to rest, and there should be an obligation to report any serious injuries or illness which, in the opinion of a veterinarian, are associated with transport. The system used for this should be similar to that used for reporting adverse reactions to medicines.

55. Transporters should ensure that rest stops are taken in appropriate environments and that animals are handled by certified persons – in accordance with the legislation - to ensure these intervals do not cause unnecessary stress or increase the risk of injury. During these longer rest periods, equines should have constant free access to forage and water.

56. On a 12-hour journey, short mid-journey rests should be given every 4 to 6 hours. Equines should be given access to water and forage for at least 45 minutes during these mid-journey rests. Best practice should require short mid-journey rests where equines are checked and offered water and forage every 2 hours.

57. Short mid-journey rests should align with drivers' hours. The legislation should therefore mandate that, when drivers stop for their rest stops, they must inspect and provide food and water for the equines.

58. If any animals are no longer fit to travel, then the contingency plan (which anyone transporting an equine should have) should be activated.

59. During short mid-journey rests, where equines are not unloaded from the vehicle, the ventilation system should be kept running to maintain the internal temperature.

All other equines (excluding slaughter)

60. In any 21-hour period, following a maximum 12 hour journey, equines should be rested off the vehicle for a minimum of a 9 hour block before they can travel again.



f. Areas where equines are loaded and unloaded

We are aware that assembly centre and control post requirements are specified in other pieces of EU legislation (namely the Animal Health Law and the Official Control Regulation). However, because staying at these facilities can affect equine welfare, we include our main concerns below.

Although there are facilities that meet high welfare standards, not all do and animal welfare may be compromised in lower standard facilities. For instance, we have anecdotal evidence from our own field investigations that in some premises, equines are tied up and unable to lie down.

Feeding and watering facilities and procedures at control posts and assembly centres can be poorly designed and badly managed. Field investigations performed by World Horse Welfare between 2014 and 2019 showed that feeding and watering facilities and procedures may not be optimal, and that equines are not always provided easy access to water and forage when arriving at premises with some equines having to wait for several hours before having access to water. Some control posts do not give animals access to water during their stay at all. Not providing water and forage at the time of arriving may be of detriment of equine welfare as, during those field investigations, it was observed that equines that had a free access to water immediately after unloading become calm more quickly. A self-filling trough, which is thoroughly cleaned between consignments, is the best option to ensure constant access to clean water in those facilities to avoid harbouring disease between batches of equines.

Mixing of equines from different locations on vehicles or at control posts can lead to an increased risk of infectious disease.

Moreover, as no full traceability or tracking system is in place currently, it is difficult to show how long an equine has been at a premises and therefore to prove whether it has had the required rest period.

Recommendations:

- 61.** Equines should be given constant and free access to forage and clean water on arrival and for the duration of their stay.
- 62.** Equines arriving at assembly centres and control posts should be able to rest. Space allowances should be sufficient to enable all equines to lie down to meet their needs for rest.
- 63.** Equines should either be kept in individual stables or in groups of known consignments.



64. Assembly centres and control posts should always have someone present with competency in equine handling/tethering, and they should be the only person(s) to handle the equines.

65. There should be regular inspections at the premises to assess progress against the journey plan and the fitness for the intended onward journey.

66. A record of movements on and off control posts and assembly centres should continue to be kept (as required under the EU Animal Health Law). In the longer term, we would strongly advocate for a digitised system with records kept on a centralised database and tied into the technology that allows for digital traceability of individual equines.



g. Enforcement

Lack of enforcement of Council Regulation (EC) 1/2005 continues to be a major factor in why poor welfare practices continue across the EU, highlighting the different priorities that Member States' place on its enforcement and how their interpretations of the requirements differ. Member States also vary on how they apply penalties for any breach of the rules and the severity and type of sanction someone may receive²⁶.

As equines can move many times during their lives for a variety of reasons and there is no traceability system in place, it is challenging to determine whether they are being transported to slaughter. This makes it more difficult to enforce the relevant legislation.

World Horse Welfare has evidence that transporters are not complying with the current requirements, either through lack of knowledge or deliberately. There are a range of ways in which operators can be non-compliant with the legislation, including vehicle faults (which should be rectified as soon as possible) or those directly affecting equine safety and therefore welfare. However, it is difficult to identify whether non-compliance is addressed once identified, especially if the transport spans across different countries.

Although the EU requires Member States to perform a pre-determined number of checks per year, these checks may be performed in an ineffective way. For instance, when a check is made which discovers non-compliance, there is rarely a follow-up to determine whether the non-compliance has been addressed. For example, operators who fail to register their movements on TRACES are not subsequently followed up with to ensure they are now compliant. Another example is when a lack of compliance with vehicle specifications is found, but there is no enforcement of the rules on that particular transporter to ensure they will comply with the rules in future movements. This may be due to a lack of cooperation and communication between enforcement agencies.

We have anecdotal evidence that in some Member States transporters transporting horses for commercial gain do not identify themselves as such, which allows unscrupulous transporters to undercut commercial transporters who meet all the higher standards. As all equines in the EU should be microchipped and accompanied by their passport, enforcement agencies should quickly check the paper passport or central database to determine whether the transporter is indeed the owner/keeper. If the equine has just been sold, then the new owners should carry the bill of sale.

²⁴ European Parliamentary Research Service; Protection of animals during transport Sanctions for infringements; June 2021; [https://www.europarl.europa.eu/RegData/etudes/BRIE/2021/690701/EPRS_BRI\(2021\)690701_EN.pdf](https://www.europarl.europa.eu/RegData/etudes/BRIE/2021/690701/EPRS_BRI(2021)690701_EN.pdf)



The legislation is not being consistently enforced across the EU. In some Member States there are no effective traffic checks on the transport and trade of livestock. However, other Member States, such as Poland and Italy, have transport police or an authority system. For instance, in Italy, there is a national system which monitors traffic, including livestock transport, once per month. Consistency of how the rules are enforced and non-compliance is sanctioned is essential across Member States to ensure there are no 'weak links' or preferred routes that non-compliant transporters may favour to avoid penalties as this could increase the risk of animals experiencing poor welfare during transport. We have anecdotal evidence that suggests that penalties are not sufficient to deter non-compliant behaviour.

Currently, information-sharing between enforcement agencies is patchy, at best, and we have anecdotal evidence to show that this is an impediment to ensuring that non-compliant transporters are identified, and action is taken.

We also believe that journey logs are not fit for purpose. They are difficult to comply with as they are extremely complicated to complete. Journey logs should establish the planned routes and determine contingency plans but due to their complexity they are currently failing in this capacity. As currently written they do not have adequate space for all relevant comments. For example, there is not enough room for a veterinary officer to write comments/recommendations after an inspection, and while there is a place for a stamp for a control post, there is no equivalent space for a veterinary officer stamp. Enforceability is hindered by the lack of a full traceability system for the entire journey. Ideally, this would allow tracking the vehicle in order to analyse whether the chosen route was the best option and to ensure the journey time and rest period requirements, as established on the legislation, had been met. Traceability would also bring a host of other benefits including the ability to track equines quickly in the event of a disease outbreak and help ensure the integrity of the food chain.

Recommendations:

- 67.** The EU needs to continue its move towards full digitisation and centralisation of equine ID and equine movements from premises of origin to assembly centres and control posts, to final destination to help facilitate the work of the enforcement agencies and provide improved traceability of equines.
- 68.** All parties involved in the enforcement of the legislation should operate in a well-aligned, collaborative and unified way with access to real time information and integrated systems as far as possible. This will enable information to be shared immediately and allow ease of information sharing between agencies within country and between Member States.
- 69.** Effective and consistent training is a key component of the training rolled



out to everyone involved in enforcing welfare during transport and handling and transporting animals. This should involve a practical element, with a regular refreshment which could be conducted virtually.

70. The number of checks performed by competent authorities should be increased to ensure a better understanding of rules by those involved in transporting animals, and greater enforcement of the legal requirements established by EU legislation.

71. Follow up of non-compliant transporters and vehicles should be mandatory. Journey logs could be used to support this.

72. Audits should be performed and published by the EU and Member States to ensure that rules are being enforced.

73. Penalties need to be reviewed/extended to include payment that would cover the cost of non-compliance. It should not be left to the lairage operator to recover the cost, because this may make them reluctant to take the animals.

74. For serious welfare offences, transporters should have their licences suspended, or even revoked, with significant financial repercussions if they ignore their suspension. This would only be achievable if there was good collaboration and data sharing between enforcement agencies.

75. Relevant enforcement agencies should have access to transporters' tracking systems (GPS and tachographs), and, in the future, to accelerometer-based and other systems aimed at improving driving quality and fuel efficiency. This would facilitate the assessment of compliance with journey length requirements and driving standards. We would also suggest there is a need for these agencies to be able to access the vehicle positioning devices which are now installed on most commercial vehicles. These can provide information on position, fuel usage, engine parameters, suspension, temperature in the cab and animal compartments, etc.

76. Suitable lairage/holding facilities should be identified to which animals can be taken if there is non-compliance with the transport legislation and better use should be made of existing facilities (e.g., market facilities).



h. Air and sea transport of equines

There is not sufficient research to determine whether equine welfare is compromised during journeys by air and by sea on specialised livestock vessels (where animals are unloaded) and if these should therefore be included in journey times. However, we strongly believe owing to ethical considerations that equines should not be transported via air for slaughter.

During air transportation, horses are confined for long periods of time in a relatively small space with limited ability to lower their heads (Thornton, 2000). Whenever horses' heads are retained in an elevated position, they are put at risk of developing respiratory complications which can lead to a potentially fatal condition known as 'shipping fever' (Leadon et al., 2008; Stull et al., 2002). A study carried out by Stewart et al. (2003) identified that during air travel loading, unloading, take-off and landing produced a stress response in horses, however during flight heart rates were close to resting values and journey time did not appear to be stressful. Similar results were observed by Munsters et al. (2013), who also identified turbulence as a stress-inducing factor for horses during air transport.

In addition, we have become aware of livestock remaining at sea for several months, in livestock vessels, due to concerns over infectious disease. We also have evidence that some sea journeys performed by roll-on-roll-off vessels could last more than 36 hours (such as the journey from the Canary Islands to mainland Europe), posing risks to the welfare of equines transported. In addition, we are aware of increased Ireland to Cherbourg (France) movements of equines involving a sea journey of 18+ hours. We have anecdotal evidence that some of these equines are being transported in over-crowded vehicles.

For longer journeys on roll-on-roll-off vessels we would recommend that a cassette system be used. The cassette system is a transport system that is widely used for loading cargo onto roll-on-roll-off vessels. It was designed to protect the welfare of animals in sea crossing from offshore islands. Once onboard, each cassette is securely lashed to the deck in accordance with International Standard ISO9367, ensuring that the container does not move at all while the ship is in transit. While in transit, animals are regularly monitored by members of crew, who are fully trained in animal welfare and handling. The livestock containers have several key design features to support high standards of animal welfare which include a 'hospital' pen capability, solar powered inspection lights, and an integral ladder that allows inspection of the upper deck. Water is provided constantly through connection to the vessel supply, feed is also provided through integral feed racks and there is an innovative effluent storage system. This means that animals are transported



in optimal welfare conditions while onboard the vessel.

The decisions of the master piloting the vessel will also affect welfare during the sea journey. Masters therefore need to understand the impacts on equines of being transported by sea and how they can best mitigate any negative consequences.

Recommendations:

- 77.** Equines destined for slaughter should not be transported via air.
- 78.** Space allowances for air transport should be reviewed and they should be in line with road transport so that animals are given appropriate space to rest so that they can stand in a natural position and lower their heads below the level of the withers.
- 79.** A specific certificate for pilots of aircraft is recommended. This should include the potential welfare impacts of air travel and turbulence on equines and what actions they can take to ensure equine welfare is not compromised. We suggest that this could initially be put into best practice before being moved into legislation when there is further evidence.
- 80.** We would recommend for the comments made by the Council of Europe Committee of Ministers (recommendation No. R (87) 17 of the Committee of Ministers to Member States on the transport of horses) should be included in legislation, regardless of their inclusion in the European Convention for the Protection of Animals during International Transport.
- 81.** Vehicles should be placed on roll-on-roll-off vessels so that they are adequately ventilated.
- 82.** Contingency plans must be put in place on all journeys on livestock vessels.
- 83.** The EU should ensure that contingency measures have been agreed in the event of a disease outbreak on board a vessel travelling to/from a country in the EU, including identification of quarantine facilities at point of departure, destination and, if needed, along the journey route.
- 84.** Pre-approval inspections should include roll-on-roll-off vessels, and aircraft. Inspections of vessels/aircrafts must be undertaken by a suitably qualified person.
- 85.** The relevant staff should receive appropriate training to ensure they understand the correct placement of vehicles on the vessel and that they are competent to check that the vessel's ventilation systems are working at the appropriate level.
- 86.** Masters of vessels transporting equines should be required to undertake a certificate of competence.
- 87.** It is important that effective control of ventilation and temperature is provided. Where mechanical ventilation is provided, this must ensure that the right temperature range is provided during all parts of the journey.
- 88.** The time spent on roll-on-roll-off vessels and air journeys should not count as rest time and should be included in the overall journey time (max 12 hours). In case



of remote islands transport of equines via sea journeys exceeding 12 hours should be made by a livestock vessel or a roll-on-roll-off vessel, using specialised livestock cassette systems, which provide space, ventilation, feeding and water arrangements equivalent to a stable.

89. Livestock vessels and cassette systems, used on roll-on-roll-off vessels, should provide equines with comparable conditions to on-farm, which allow equines to lie down and rest in lateral recumbency.

90. Animals should not be transported by sea during severe weather or sea conditions. However, the ship's master is the best person to decide whether the conditions are suitable for their vessel and its cargo.



i. Further recommendations

Currently, there is not full traceability or a tracking system in place, making it difficult to determine how long an equine has been at a premises and, therefore, prove whether it has had the required rest period. The lack of a full traceability system for an entire journey hinders the enforceability of the rules on live equine transport. World Horse Welfare's evidence from field investigations shows that paperwork is frequently incorrect, creating difficulties in matching consignments to TRACES details. Anecdotally, we know that not all EU countries use TRACES properly to record movements, meaning there is no genuine traceability of equine movements.

Ideally, a full traceability system would allow tracking of the vehicle in order to analyse whether the chosen route was the best option and to ensure the journey times and resting periods, as established in legislation, had been complied with. Traceability would also bring a host of other benefits, including the ability to track equines quickly in the event of a disease outbreak, and create greater integrity in the food chain. There is already a precedent for this: in Equine ID legislation there has been an allowance for smart cards for years, despite technology only recently being able to allow for this in practice. This is particularly important for ensuring the legislation allows for processes to be simplified and digitalised. For example, if in the future key movements on/off premises are recorded digitally then consideration should be given to ensuring that these tie into journey logs, which could also be submitted digitally. This would allow enforcement agencies to check in real time whether journey times match those that have been submitted and would also simplify the process for transporters, removing one potential barrier to compliance.

Recommendations:

- 91.** The legislation should be reviewed via committee procedure every 5 years.
- 92.** In the long term, the best way to ensure effective full equine traceability is by integrating a digitalised system that permits rapid and efficient identification of the equines throughout their lives and by keeping records on a centralised database that could be accessed by enforcement agencies. This is particularly important to ensure the legislation allows for processes to be simplified. For example, if in the future key movements on/off premises are recorded digitally then consideration should be given to ensuring that these tie into journey logs - which could also be submitted digitally. This would allow enforcement agencies to check in real time whether journey times match those that have been submitted and would also simplify the process for transporters, removing one potential barrier to compliance.
- 93.** There should be an assessment of the overall welfare impact on equines of the journey(s) and related activities in relation to the multiple movements which the EU



health rules allow.

94. There should be a requirement to report to the Competent Authorities in the places of origin and destination the occurrence of disease in equines for 15/ 30 days post arrival.

95. There should be a wider and clearer picture of the numbers of equines transported both within the EU and between the EU and third countries (both to and from).

96. The recently launched EU Reference Centre for ruminants and equines should be used as a tool to improve equine welfare during transport. This is key to improve the enforcement of rules on the transport of equines, as well as providing technical support on the management and keeping of equines to all people involved in their transport. As there are currently gaps in guidance relating to equine welfare, this Reference Centre should address these by carrying out studies and developing methods of improvement.

97. Legislation should be written in such a way that it allows for advances in technology. Following proposals by private parties including EU welfare Reference Centers and Member States, the Commission should facilitate the introduction of new technologies, using Committee procedure and EU Reference Centres as a source of advice.

98. Finally, further research is required in a number of key areas, which have been identified throughout this document, including:

- 🐾 How to more effectively identify whether an individual animal is fit for the intended journey, including using qualitative behaviour analysis
- 🐾 Determining appropriate rest periods for equines after a 12-hour journey time
- 🐾 Understanding where the best airflow is inside a ferry for livestock vehicles
- 🐾 Determining optimal vehicle design with reference to equine safety and welfare
- 🐾 Determining the impact of transporting a group of equines, the optimal way of travelling them as a group and understanding how to determine they are fit to be transported as a group
- 🐾 Determining space allowances during road, air and sea transport
- 🐾 Monitoring the effectiveness of assessments to measure risk and contingency planning
- 🐾 Given the multifactorial drivers of welfare problems during transport, there are still gaps in knowledge regarding how to maintain equine welfare during transport. Some of the most concerning areas are the lack of evidence relating to maximum journey times, the effects of sea transportation on animal welfare and the establishment of species-specific and within-species requirements. Governments should consider supporting research in these key areas.



4. References

- Austin, S. M., Foreman, J. H., & Hungerford, L. L. (1995). Case-control study of risk factors for development of pleuropneumonia in horses. *Journal of the American Veterinary Medical Association*, 207(3), 325-328.
- Baltussen, W. H. M., Spoolder, H. A. M., Lambooi, E., & Backus, G. B. C. (2009). Sustainable production: transporting animals or meat?
- Hafner C and Rabitsch A 2016 *The Myth of Enforcement of Regulation (EC) No 1/2005 on the protection of animals during transport*. Animal Angels Press ISBN: 978-3-9816696-4-0 available at: https://www.animals-angels.de/fileadmin/user_upload/03_Publikationen/Dokumentationen/Animals_Angels_Myth_of_Enforcement.pdf
- Campbell, M. L. H. (2013). Ethical analysis of the use of animals in sport. In *Veterinary & Animal Ethics: Proceedings of the First International Conference on Veterinary and Animal Ethics* (pp. 201-215).
- Clark, D. K., Friend, T. H., & Dellmeier, G. (1993). The effect of orientation during trailer transport on heart rate, cortisol and balance in horses. *Applied Animal Behaviour Science*, 38(3-4), 179-189.
- Cohen, N. D., & Peloso, J. G. (1996). Risk factors for history of previous colic and for chronic, intermittent colic in a population of horses. *Journal of the American Veterinary Medical Association*, 208(5), 697-703.
- Colborne, G. R., Tang, L., Adams, B. R., Gordon, B. I., McCabe, B. E., & Riley, C. B. (2021). A Novel Load Cell-Supported Research Platform to Measure Vertical and Horizontal Motion of a Horse's Centre of Mass During Trailer Transport. *Journal of Equine Veterinary Science*, 99, 103408.
- Council Regulation (EC) No 1/2005 of 22 December 2004 on the protection of animals during transport and related operations and amending Directives 64/432/EEC and 93/119/EC and Regulation (EC) No 1255/97 OJ L 3, 5.1.2005, p. 1–44
- Dai, F., Zappaterra, M., Minero, M., Bocchini, F., Riley, C. B., & Padalino, B. (2021). Equine Transport-Related Problem Behaviors and Injuries: A Survey of Italian Horse Industry Members. *Animals*, 11(1), 223.
- European Commission (2018). *Guide to good practices for the transport of horses destined for slaughter*. Available at <http://animaltransportguides.eu/wp-content/uploads/2016/05/EN-Guides-Horses-final.pdf> (2018)
- European Food Safety Authority (2004). *Opinion of the Scientific Panel on Animal Health and Welfare on a request from the Commission related to the welfare of animals during transport*. EFSA journal. Available at <https://efsa.onlinelibrary.wiley.com/doi/epdf/10.2903/j.efsa.2004.44>
- European Food Safety Authority (2011). *Scientific Opinion Concerning the Welfare of Animals during Transport* EFSA Panel on Animal Health and Welfare (AHAW). EFSA journal. Available at: <https://www.efsa.europa.eu/en/efsajournal/pub/1966>
- Friend, T. H. (2000). Dehydration, stress, and water consumption of horses during long-distance commercial transport. *Journal of animal science*, 78(10), 2568-2580.
- Friend, T. H., Martin, M. T., Householder, D. D., & Bushong, D. M. (1998). Stress responses of horses during a long period of transport in a commercial truck. *Journal of the American Veterinary Medical Association*, 212(6), 838-844.
- Fuchs, C., Kiefner, C., Reese, S., Erhard, M., & Wöhr, A. C. (2016). Narcolepsy: do adult horses really suffer from a neurological disorder or rather from a recumbent sleep deprivation/rapid eye movement (REM)-sleep deficiency. *Equine Vet. J.*, 48(50), 9.
- Gibbs, A. E., & Friend, T. H. (2000). Effect of animal density and trough placement on drinking behavior and dehydration in slaughter horses. *Journal of Equine Veterinary Science*, 20(10), 643-650.
- Giovagnoli, G., Marinucci, M. T., Bolla, A., & Borghese, A. (2002). Transport stress in horses: an electromyographic study on balance preservation. *Livestock Production Science*, 73(2-3), 247-254.
- Guise, J. (1991). *Humane animal management-the benefits of improved systems for pig production, transport and slaughter*. CAS Paper-Centre for Agricultural Strategy, University of Reading (United Kingdom).
- Hafner C and Rabitsch A 2016 *The Myth of Enforcement of Regulation (EC) No 1/2005 on the protection of animals during transport*. Animal Angels Press ISBN: 978-3-9816696-4-0 available at: https://www.animals-angels.de/fileadmin/user_upload/03_Publikationen/Dokumentationen/Animals_Angels_Myth_of_Enforcement.pdf
- Hall, C., Kay, R., & Green, J. (2020). A retrospective survey of factors affecting the risk of incidents and equine injury during non-commercial transportation by road in the United Kingdom. *Animals*, 10(2), 288.



Heleski, C. R., & Anthony, R. (2012). Science alone is not always enough: The importance of ethical assessment for a more comprehensive view of equine welfare. *Journal of Veterinary Behavior*, 7(3), 169-178.

Hoopes, K. (2018). *Caring for Horses in Cold Weather*. All Current Publications. Paper 1828. https://digitalcommons.usu.edu/extension_curall/1828

Katayama, Y., Oikawa, M. A., Yoshihara, T., Kuwano, A., & Hobo, S. (1995). Clinico-pathological effects of atmospheric ammonia exposure on horses. *Journal of Equine Science*, 6(3), 99-104.

Knowles, T. G., Brown, S. N., Pope, S. J., Nicol, C. J., Warriss, P. D., & Weeks, C. A. (2010). The response of untamed (unbroken) ponies to conditions of road transport. *Animal Welfare*, 19(1), 1-15.

Korte, S. M., Koolhaas, J. M., Wingfield, J. C., & McEwen, B. S. (2005). The Darwinian concept of stress: benefits of allostasis and costs of allostatic load and the trade-offs in health and disease. *Neuroscience & Biobehavioral Reviews*, 29(1), 3-38.

Korte, S. M., Olivier, B., & Koolhaas, J. M. (2007). A new animal welfare concept based on allostasis. *Physiology & behavior*, 92(3), 422-428.

Leadon, D., Waran, N., Herholz, C., & Klay, M. (2008). Veterinary management of horse transport. *Veterinaria Italiana*, 44(1), 149-63.

Marlin, D. J. (2004). *Transport of horses*. Equine Sports Medicine and Surgery. St. Louis.

Marlin, D. J. (2007). *The effect of thermal environmental conditions on the health and performance of horses*.

Marlin, D., Kettlewell, P., Parkin, T., Kennedy, M., Broom, D., & Wood, J. (2011). Welfare and health of horses transported for slaughter within the European Union Part 1: Methodology and descriptive data. *Equine veterinary journal*, 43(1), 78-87.

McEwen, B. S., & Wingfield, J. C. (2010). What's in a name? Integrating homeostasis, allostasis and stress. *Hormones and behavior*, 57(2), 105.

McEwen, B. S., & Wingfield, J. C. (2010). What's in a name? Integrating homeostasis, allostasis and stress. *Hormones and behavior*, 57(2), 105.

McKeever, K. H., Eaton, T. L., Geiser, S., Kearns, C. F., & Lehnhard, R. A. (2010). Age related decreases in thermoregulation and cardiovascular function in horses. *Equine Veterinary Journal*, 42, 220-227.

McLean, A. N., & McGreevy, P. D. (2010). Ethical equitation: Capping the price horses pay for human glory. *Journal of Veterinary Behavior*, 5(4), 203-209.

Mejdell, C. M., Bøe, K. E., & Jørgensen, G. H. (2020). Caring for the horse in a cold climate—Reviewing principles for thermoregulation and horse preferences. *Applied Animal Behaviour Science*, 231, 105071.

Mellor, D. J., & Burns, M. (2020). Using the Five Domains Model to develop welfare assessment guidelines for Thoroughbred horses in New Zealand. *New Zealand veterinary journal*, 68(3), 150-156.

Mellor, D. J., Beausoleil, N. J., Littlewood, K. E., McLean, A. N., McGreevy, P. D., Jones, B., & Wilkins, C. (2020). The 2020 Five Domains Model: Including Human–Animal Interactions in Assessments of Animal Welfare. *Animals*, 10(10), 1870.

Minero, M., & Canali, E. (2009). Welfare issues of horses: an overview and practical recommendations. *Italian Journal of Animal Science*, 8(sup1), 219-230.

Morgan, K. (1998). Thermoneutral zone and critical temperatures of horses. *Journal of Thermal Biology*, 23(1), 59-61.

Munsters, C. C., de Gooijer, J. W., van den Broek, J., & van Oldruitenborgh & Oosterbaan, M. S. (2013). Heart rate, heart rate variability and behaviour of horses during air transport. *Veterinary Record*, 172(1), 15-15.

National Research Council, & Committee on Guidelines for the Humane Transportation of Laboratory Animals. (2006). *Guidelines for the Humane Transportation of Research Animals*. National Academies Press.

Nyman, S., Jansson, A., Lindholm, A., & Dahlborn, K. (2002). Water intake and fluid shifts in horses: effects of hydration status during two exercise tests. *Equine veterinary journal*, 34(2), 133-142.

Oikawa, M., Kamada, M., Yoshikawa, Y., & Yoshikawa, T. (1994). Pathology of equine pneumonia associated with transport and isolation of *Streptococcus equi* subsp. *zoepidemicus*. *Journal of comparative pathology*, 111(2), 205-212.

Oikawa, M., Takagi, S., Anzai, R., Yoshikawa, H., & Yoshikawa, T. (1995). Pathology of equine respiratory disease occurring in association with transport. *Journal of comparative pathology*, 113(1), 29-43.

Padalino B, Raidal SL, Hall E, Knight P, Celi P, Jeffcott L, et al. (2016). A Survey on Transport Management Practices Associated with Injuries and Health Problems in Horses. *PLoS ONE* 11(9): e0162371.



- Padalino, B. (2015). *Effects of the different transport phases on equine health status, behavior, and welfare: A review*. *Journal of Veterinary Behavior*, 10(3), 272-282.
- Padalino, B. (2017). *Transportation of horses and the implications for health and welfare*. A thesis submitted in fulfilment of the requirements for the degree of Doctor of Philosophy. Faculty of Veterinary Science University of Sydney 2017 available at: https://ses.library.usyd.edu.au/bitstream/handle/2123/16906/padalino_b_thesis.pdf?isAllowed=y&sequence=1
- Padalino, B., & Raidal, S. L. (2020). *Effects of transport conditions on behavioural and physiological responses of horses*. *Animals*, 10(1), 160.
- Padalino, B., & Riley, C. B. (2020). *The Implications of Transport Practices for Horse Health and Welfare*. *Frontiers in veterinary science*, 7, 202.
- Padalino, B., Hall, E., Raidal, S., Celi, P., Knight, P., Jeffcott, L., & Muscatello, G. (2015). *Health problems and risk factors associated with long haul transport of horses in Australia*. *Animals*, 5(4), 1296-1310.
- Padalino, B., Raidal, S. L., Hall, E., Knight, P., Celi, P., Jeffcott, L., & Muscatello, G. (2016). *A survey on transport management practices associated with injuries and health problems in horses*. *PloS one*, 11(9), e0162371.
- Padalino, B., Raidal, S. L., Hall, E., Knight, P., Celi, P., Jeffcott, L., & Muscatello, G. (2017). *Risk factors in equine transport&related health problems: A survey of the Australian equine industry*. *Equine Veterinary Journal*, 49(4), 507-511.
- Padalino, B., Raidal, S. L., Knight, P., Celi, P., Jeffcott, L., & Muscatello, G. (2018). *Behaviour during transportation predicts stress response and lower airway contamination in horses*. *PloS one*, 13(3), e0194272.
- Padalino, B., Rogers, C. W., Guiver, D., Thompson, K. R., & Riley, C. B. (2018). *A Survey-based investigation of human factors associated with transport related injuries in horses*. *Frontiers in veterinary science*, 5, 294.
- Raidal, S. L., Love, D. N., & Bailey, G. D. (1996). *Effects of posture and accumulated airway secretions on tracheal mucociliary transport in the horse*. *Australian veterinary journal*, 73(2), 45-49.
- Riley, C. B., Rogers, C. W., & Padalino, B. (2018). *Effects of vehicle type, driver experience and transport management during loading and in-transit on the welfare of road transported horses in New Zealand*. *New Zealand Journal of Animal Science and Production*, 78, 92-95.
- Rollin, B. E. (2000). *Equine welfare and emerging social ethics*. *Journal-American Veterinary Medical Association*, 216(8), 1234-1237.
- Roy, R. C., & Cockram, M. S. (2015). *Patterns and durations of journeys by horses transported from the USA to Canada for slaughter*. *The Canadian Veterinary Journal*, 56(6), 581.
- Roy, R. C., Cockram, M. S., & Dohoo, I. R. (2015). *Welfare of horses transported to slaughter in Canada: Assessment of welfare and journey risk factors affecting welfare*. *Canadian Journal of Animal Science*, 95(4), 509-522.
- Roy, R. C., Cockram, M. S., Dohoo, I. R., & Riley, C. B. (2015). *Injuries in horses transported to slaughter in Canada*. *Canadian Journal of Animal Science*, 95(4), 523-531.
- Sandøe, P., Christiansen, S.B. (2008). *Ethics of Animal Use*. Wiley-Blackwell, West Sussex, UK, pp. 15-32 and 49-66.
- Schmidt, A., Möstl, E., Wehnert, C., Aurich, J., Müller, J., & Aurich, C. (2010). *Cortisol release and heart rate variability in horses during road transport*. *Hormones and behavior*, 57(2), 209-215.
- Schroter, R. C., & Marlin, D. J. (1995). *An index of the environmental thermal load imposed on exercising horses and riders by hot weather conditions*. *Equine Veterinary Journal*, 27(S20), 16-22.
- Silanikove, N. (1994). *The struggle to maintain hydration and osmoregulation in animals experiencing severe dehydration and rapid rehydration: the story of ruminants*. *Experimental Physiology: Translation and Integration*, 79(3), 281-300.
- Sterling, P., Eyer, J., Fisher, S., & Reason, J. (1988). *Handbook of life stress, cognition and health*. Allostasis; A new paradigm to explain arousal pathology. New York: Wiley, 629-649.
- Stewart, M., Foster, T. M., & Waas, J. R. (2003). *The effects of air transport on the behaviour and heart rate of horses*. *Applied Animal Behaviour Science*, 80(2), 143-160.
- Stull, C. L., & Rodiek, A. V. (2000). *Physiological responses of horses to 24 hours of transportation using a commercial van during summer conditions*. *Journal of animal science*, 78(6), 1458-1466.



Stull, C. L., & Rodiek, A. V. (2002). *Effects of cross-tying horses during 24 h of road transport*. *Equine veterinary journal*, 34(6), 550-555.

Tadich, T., Leal, F. and Gallo, C., 2015. *Preliminary study on the effects of long-distance road transport on some blood constituents in recently weaned thoroughbred foals*. *Journal of Equine Veterinary Science*, 35(8), pp.697-699.

Tateo, A., Padalino, B., Boccaccio, M., Maggiolino, A., & Centoducati, P. (2012). *Transport stress in horses: Effects of two different distances*. *Journal of Veterinary Behavior*, 7(1), 33-42.

Thornton, J. (2000). *Effect of the microclimate on horses during international air transportation in an enclosed container*. *Australian veterinary journal*, 78(7), 472-477.

Villa, P. D., Marahrens, M., Calvo, A. V., Di Nardo, A., Kleinschmidt, N., Alvarez, C. F., Müller & Graf, C. (2009). *Project to develop animal welfare risk assessment guidelines on transport*. *EFSA Supporting Publications*, 6(9), 21E.

Waran, N. K., & Cuddeford, D. (1995). *Effects of loading and transport on the heart rate and behaviour of horses*. *Applied Animal Behaviour Science*, 43(2), 71-81.

Waran, N., Leadon, D., & Friend, T. (2007). *The effects of transportation on the welfare of horses*. In *The welfare of horses* (pp. 125-150). Springer, Dordrecht.

Webster, A. J. F. (1991). *Metabolic responses of farm animals to high temperature*. *EAAP Publication*, 55, 15-22.

Whiting, T. L., & Sauder, R. A. (2000). *Headroom requirements for horses in transit*. *The Canadian Veterinary Journal*, 41(2), 132.

Wöhr, A. C., Kalus, M., Reese, S., Fuchs, C., & Erhard, M. (2016). *Equine sleep behavior and physiology based on polysomnographic examinations*. *Equine Veterinary Journal*, 48(9).

World Horse Welfare (2008). *Recommendations for amendments to EU Council Regulation (EC) No 1/2005 Dossier of Evidence*. November 2008. Available online at <https://storage.googleapis.com/stateless-whwwp-screenbeetle-c/2019/09/e216fe81-world-horse-welfare-2008-dossier-1.pdf>

World Horse Welfare (2011). *Recommendations for amendments to EU Council Regulation (EC) No. 1/2005 Dossier of Evidence*. Available online at <https://storage.googleapis.com/stateless-whwwp-screenbeetle-c/2019/09/fac4aef5-world-horse-welfare-2011-dossier.pdf><https://storage.googleapis.com/stateless-whwwp-screenbeetle-c/2019/09/fac4aef5-world-horse-welfare-2011-dossier.pdf>

World Horse Welfare, Eurogroup for Animals (2015). *Removing the blinkers: the health and welfare of European Equidae in 2015*. Report available at <https://storage.googleapis.com/stateless-whwwp-screenbeetle-c/2019/09/b0d4fbeb-removing-the-blinkers-report.pdf>





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