



Evidence-based recommendations for the enhancement of sports horse welfare in breeding.

Report for the World Breeding Federation of Sports Horses.

Executive Summary

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Background

The welfare of breeding horses, including if traditional breeding and management practices are ethical and necessary, is a prominent issue of interest to both industry stakeholders and the public. This project, conducted in collaboration with the World Breeding Federation for Sport Horses (WBFSH), aimed to provide evidence-informed guidance on key welfare considerations to ensure ethical breeding practices that enhance the health and welfare of sport horses to help address these welfare concerns.

Method

A three-part methodology was devised:

Stage 1) Online interviews with WBFSH members with key themes identified.

Stage 2) A systematic review, with extraction and analysis of data associated with key themes.

Stage 3) Industry and welfare expert focus groups to review welfare documentation produced.

Initial semi-structured interviews were conducted with WBFSH members to establish key welfare considerations from industry. Subsequently, a systematic review of the scientific literature was performed based on the key themes that emerged from the interviews. This review investigated the scientific evidence on breeding practices, conditions, and interventions that impact horse wellbeing and quality of life. Management recommendations were then proposed, focusing on the characteristics of breeding sports horse populations, using Mellor's Five Domains Model as a framework. These results were collated and underpinned the preparation of a WBFSH Welfare Charter and a series of draft Welfare Codes of Conduct, alongside recommendations for areas requiring future research to enhance the welfare of sport horses within breeding. Finally, focus groups were held with key industry stakeholders and academics recognised as thought leaders in equine welfare to provide a sanity check on the content and language of documentation produced before the results were presented to WBFSH members at the 2024 General Assembly.

Results

Stage 1: Online Interviews with 17 WBFSH members highlighted three key welfare areas based on the breeding cycle:

- 1) *Selection:* three main themes emerged, genetic considerations, assessments and end of life.
- 2) *Breeding stock management:* three main themes emerged, conception including artificial reproductive techniques (ARTs) and mare and stallion welfare.

- 3) *Foal and youngstock management*: two main themes emerged, management considerations and foal and youngstock socialisation and training.

Stage 2: Systematic review of literature related to these welfare themes found 634 quantitative studies that met the eligibility criteria from article title and abstract screening. Further scrutiny resulted in 105 studies and 15 welfare guidelines being selected for in-depth review.

- 1) *Selection*: A systematic review of these welfare themes identified 405 eligible quantitative studies. This resulted in 38 studies and four welfare guidelines being selected for in-depth review.

Key findings:

- Reproductive fertility reduces as inbreeding coefficients increase across breeds.
- Embryo transfer (ET) can lead to reduced genetic diversity and increased inbreeding coefficients.
- Relative breeding values are considered in some studbooks, but their use could be expanded.
- Mating strategies and young horse grading focus predominantly on performance traits; scope exists to integrate behaviour, health and longevity traits.
- Expanded models and better-quality data capture are needed to fully evaluate breeding strategies.
- Limited evidence exists to assess the welfare impact of shuttling stallions, but this practice does not seem to adversely affect fertility.
- There appears to be a strong familiar link between musculoskeletal disease and sire in Thoroughbreds.
- Health and heritability of musculoskeletal disease/disorders can be associated with stallion selection.
- Mares' reproductive history (especially long gestation lengths) and increasing age are associated with reduced gestation success and increased disease risk in offspring.

- 2) *Breeding stock management*: A systematic review of these welfare themes identified 127 eligible quantitative studies, which were scrutinized. This resulted in 34 studies and seven welfare guidelines being selected for in-depth review.

Key findings:

- Current welfare guidelines report the use of artificial insemination (AI) as a positive welfare consideration.
- Limited evidence was found on welfare impacts using ARTs or natural cover conception, although current guidelines advocate for handlers to allow horses to exhibit natural behaviours as much as possible to reduce negative experiences.
- Studies confirmed that intracytoplasmic sperm injection (ICSI) can be painful but transient and that age impacts pregnancy success.

- Research determined that social structure, movement and foraging opportunities are important for pregnant mares and breeding stallions and current guidelines should include provision for these.
- 3) *Foal and youngstock management*: A systematic review of these welfare themes identified 102 eligible studies and following scrutiny, 33 studies and four welfare guidelines were selected for in-depth review.

Key findings:

- Current welfare guidelines incorporate consideration of the process of weaning and the importance of nutrition during weaning
- The relationship between appropriate weaning practices and productivity is recently suggested in the literature as an area for investigation to promote good welfare standards, both at weaning and for the longer-term.
- Some evidence was found on the long-term impact of early handling and training practices, although welfare guidelines promote careful consideration of the methods applied.
- Research suggested that good management practices in foal and youngstock management were imperative for not only the welfare and productivity of youngstock, but also for the health and safety of staff working with horses in this age group.
- Initial management and training are receiving increased research attention, particularly with regards to welfare considerations.

Across all three management areas reviewed, consideration of horse welfare needs was limited within research study designs. with published papers tending to focus on the execution or efficacy of specific techniques and practices, or on health and disease outcomes rather than applying a more holistic evaluation of how the welfare of horses was impacted. In general, current welfare guidelines recommended best practice within a broader welfare context but lacked specific detail or described options to implement these measures. Future research and industry guidance in areas associated with breeding should aim to integrate specific consideration of horse welfare and recommend best practice approaches to provide horses involved with an overall good life.

Stage 3: Focus groups

Six global experts in equine welfare participated in two online focus groups to review the results of the systematic reviews and advise how to translate these to the production of guidelines for the welfare of breeding sports horses and uptake by the breeding industry. They recommended implementing a contextualised welfare definition for the WBFSH and to keep messaging simple and focused around the Five Domain's Model by generating core welfare principles and values to provide a contextualised welfare framework for WBFSH members. Once these were established, they fed back it would be important to move the work forward via a translation strategy to provide examples and scenarios for WBFSH members to showcase how the principles can be achieved practically.

Welfare Guidelines

The project has produced a proposed welfare definition, a values statement, foundation welfare principles for the WBFSH to implement and recommendations for future research priorities and education initiatives based on the outcomes of the systematic reviews and feedback received from focus group experts.

Welfare Definition:

The WBFSH is committed to ensuring the welfare of horses involved in breeding, as well as those produced through breeding by adhering to ethical, evidence-informed and responsible breeding practices, management and care that provide horses with a good life.

WBFSH Values



Foundation welfare principles

1. In all circumstances consider and prioritise the welfare of individual horses.
2. Promote indicators of health, welfare and longevity as well as performance into breeding strategies, breeding stock selection and grading.
3. Prepare horses for breeding practices through ethical, evidence informed and age-appropriate training.
4. Engage in responsible and ethical breeding practices that generate a sustainable breeding industry.
5. Engage in effective and informed health and welfare assessment of individual horses to support robust decision making across breeding practices and management of breeding stock.

6. Meet individual horses' needs: Provide horses with friends, forage, and freedom to facilitate function without force by providing mares, stallions and young horses with choice.
7. Provide appropriate nutritional plans for individual horses' life stage and management to optimise welfare and that do not solely prioritise production outputs.
8. Promote progressive weaning approaches to optimise the welfare of foals and mares.
9. Provide horses with a foundation for a good life through evidence based early handling and training of youngstock / young horses.
10. Commit to ethical and informed lifelong care of breeding stock including effective retirement and end of life planning.

Four enablers are proposed to underpin and support the welfare principles:

- **Education:** Develop knowledge and practical skills in interpreting horse behaviour indicators, welfare assessment, and ethical training methods.
- **Evidence:** Generate through targeted and funded research that can inform practice and human behaviour change.
- **Ethics:** Adopt ethical approaches across breeding practice and stock management using first principles (do no harm) to arrive at logical and defensible decisions.
- **Execution:** Pragmatic, economical and sustainable approach.

Recommendations for the WBFSH

1. To integrate welfare into the WBFSH statutes.
2. To influence policy and practice as a thought leader to prioritise equine welfare as a key consideration across all aspects of the breeding industry.
3. To support (commission / fund) targeted research to generate evidence that can inform and advance equine welfare in the breeding sector to promote responsible breeding.
4. Empower breeding professionals through evidence informed education and CPD that promotes a good life for horses.
5. Translate research into best practice guides / case studies to inform welfare friendly management of horses and breeding practices.
6. Support the inclusion of behavioural, health and longevity related attributes within breed strategies to promote responsible and sustainable breeding.
7. Evaluate the impact of assisted reproductive techniques (especially ET, ICSI and OPU) and natural covering on equine welfare.
8. Monitor the impact of assisted reproductive techniques (especially ET, ICSI and OPU) on genetic diversity and fertility across and within breeds / studbooks.
9. Evaluate the impact of horse human interaction on youngstock and the impact across horses' lives.

Welfare focused research and education priority areas

Research priority areas	Education / CPD / best practice priority areas
<ul style="list-style-type: none"> • Evaluating horse welfare – across breeding contexts including within research • Impact of natural covering on equine welfare (teaser stallions / stallions / mares) • Pre/peri/post-natal influences including mare breeding history) on offspring health (especially musculoskeletal health) and longevity • Impact of implementation of ARTs on equine welfare: short- and long-term outcomes • Impact of ARTs on genetic diversity / fertility / fecundity within / across breeds • Impact of horse-human interaction on youngstock 	<ul style="list-style-type: none"> • Welfare assessment / effective welfare management → good life ‘guides’ for horses involved in breeding / young stock • Interpretation of equine behaviour including evaluation of emotional state and pain and effective pain management • Ethical training – learning theory (ISES First Principles) across different contexts including handling and ARTs • Evidence informed decision making • Preparing horses for new environments / procedures (training / habituation / welfare assessment) • Management to promote a good life for horses • Young horse management • Retirement / end of life planning

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