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Contemporary methods of physical restraint in horses: clinical efficacy, safety and implications for animal welfare – a narrative review

Diana Hoffman [1,*], Răzvan Cojocaru [1], Roxana Dascălu [1], Cristian Zaha [1], and Marius Stelian Ilie [1]

[1]*University of Life Sciences „King Michael I” from Timișoara, Faculty of Veterinary Medicine, 300645, Calea Aradului No. 119, Timișoara, Romania*
**Correspondence: diana.hoffman@usvt.ro*

***Abstract**: Physical restraint is an essential component of equine veterinary practice, facilitating clinical examinations, diagnostic procedures and therapeutic interventions while ensuring the safety of both horses and veterinary personnel. However, different restraint methods may induce behavioural and physiological stress responses, raising concerns about their appropriate application and potential implications for equine welfare. This narrative review aims to synthesise and critically evaluate the scientific literature on physical restraint techniques used in contemporary equine veterinary practice, with particular emphasis on clinical applicability, personnel safety and animal welfare. Traditional methods, including manual restraint, the use of a twitch, limb restraint and immobilisation in purpose-built stocks, are discussed alongside contemporary handling approaches designed to minimise fear, stress and defensive behaviours. Particular attention is given to the importance of balancing procedural effectiveness and personnel safety with the physical and psychological welfare of horses. The integration of evidence-based restraint techniques, an understanding of equine behaviour and individualised handling strategies may contribute to reducing handling-related risks, improving clinical outcomes and promoting higher standards of equine welfare in veterinary practice.*

***Keywords:** horses; physical restraint; handling techniques; animal welfare; veterinary personnel safety; stress response*

1. Introduction



- Physical restraint is essential in equine veterinary practice, enabling safe and effective clinical procedures.
- Inadequate restraint may increase the risk of injury to both the horse and veterinary personnel and can induce stress.
- An appropriate choice and application of restraint techniques should balance clinical efficacy, personnel safety and animal welfare.
- **Aim:** to review contemporary restraint methods in horses, focusing on clinical efficacy, personnel safety and animal welfare.

2. Review Methodology



- **Type of review:** Narrative review
- **Evidence sources:** Published research articles, reviews and relevant veterinary guidance
- **Scope:** Equine physical restraint, handling approaches, clinical safety and animal welfare
- **Synthesis:** Narrative discussion of published evidence, limitations and clinical considerations

3. Methods of Physical Restraint in Horses

Traditional techniques

	**Manual restraint** (halter and lead)	Commonly used for routine handling; requires calm, skilled application.
	**Nose/lip twitch**	May provide brief restraint; use cautiously and monitor welfare.
	**Limb restraint** (holding up a forelimb)	Useful for selected procedures when safely performed.
	**Restraint stocks**	Restrict movement during selected procedures; appropriate design and monitoring are essential.

Contemporary approaches

	**Low-stress handling** (habituation, desensitisation)	Aims to reduce fear and facilitate cooperation.
	**Positive reinforcement** (target training, cooperative care)	Encourages voluntary participation in veterinary procedures.
	**Behavioural management** (environmental modification)	Reduces avoidable stressors and supports calmer handling.

Key message: Restraint should be individualised to the procedure, the horse's behaviour and the level of risk. Welfare-focused training can complement physical restraint while supporting personnel safety.

4. Conclusions



- A range of restraint techniques is available, from traditional methods to modern, welfare-oriented approaches.
- The choice of method should be individualised, based on the procedure, the horse's behaviour and the level of risk.
- Proper training, knowledge of equine behaviour and careful risk assessment are essential for personnel safety.
- **Integrating evidence-based and low-stress handling** strategies can improve clinical outcomes and promote higher standards of equine **welfare.**