



SVENSKA RIDSPORT
FÖRBUNDET



SEMINAR – THE HORSE’S PERSPECTIVE

Clarion Hotel Post – Gothenburg Sweden – 22nd August 2017

Hosted by Swedish Equestrian Federation (SvRF), European Equestrian Federation (EEF), World Breeding Federation for Sport Horses (WBFSH) and Swedish University of Agricultural Sciences (SLU) and facilitated by Göran Dalin and Elisabeth Lundholm.

Purpose of the seminar is to ensure that Horse sport will remain relevant in our society and to build a platform for future cooperation between stakeholders of the equestrian world – i.e. in sport, breeding and science. It is important that public perception of the horse and its uses is not negative and that horse welfare is respected and safeguarded.

Next session of seminars in this series will take place at the European Championships 2019 in Rotterdam.

Welcome and opening by Hanfried Haring (President EEF), Helena Carlsson (Vice President Swedish Equestrian Federation) and Karl Henrik Heimdahl, DVM (Chairman of Swedish Equestrian Federation Committee for Animal Welfare)

Keynote Speakers:

Professor Lars Roepstorff, DVM, PhD

Evaluation of training and competition surfaces in equestrian sport, and the consequences for improved welfare and orthopaedic health of horses working on such surfaces –

Collaboration of the SLU with the FEI has led to the practice of standardising surfaces at FEI events and how to assess or measure the surfaces’ functional properties.

Prof Roepstorff described the horse’s phases of locomotion (Impact, Loading and Propulsion/Push-off) and how the principles of hoof-ground forces influence performance and the risk to injury. A surface’s properties therefore need to be balanced in order to optimise performance while minimising the risk of injury.

Five functional properties

1. Impact firmness (top layer)
2. Cushioning (middle layer)
3. Responsiveness (energy return from the surface to the horse's hoof/leg)
4. Grip (sheer resistance in the top layer)
5. Uniformity (throughout the surface – from top layer to base and across the surface area)

It is important to remember that surface properties depend as much on maintenance as on construction. There are no poor surfaces, only poor use or maintenance of them. Risk of injury is influenced as much by the surface properties as by previous training methods, fitness etc.

The SLU and FEI carried out a footing study in 2013. By means of a questionnaire, data was collected from riders at 10 selected events. The conclusion of the study showed that the subjective judgement of the riders matched the objective measurements for equestrian surfaces. As a result, it is now possible to recommend a range of measurements to satisfy rider expectations for competition surfaces.

Assoc. professor Marie Rhodin, DVM, PhD

Objective tools for lameness assessment in horses –

Due to a large variation in diagnosis based on visual assessment of lameness, there is a need for objective assessment tools. Often it is more difficult to visually diagnose a hindlimb lameness, due to the compensatory head movement that is commonly associated with front leg lameness.

In the past, it was difficult to do research on orthopaedics in horses (e.g. in order to evaluate how to train horses and what risk factors there are for injuries) because there were no objective methods for measurement of lameness.

Objective motion analysis can be done either with a sensor-based or an optic-based system. Several sensor-based systems are commercially available. For example, Lameness Locator™ (by Equinosis™) which functions with three sensors (on the poll of the horse, on its pelvis and the right forelimb). Other examples are Equigate or Q-Horse.

Combining a sensor-based system with an instrumented treadmill means that the loading of the limbs during movement can also be measured – is the horse disfavoured a leg?

When measuring movement of a horse the phases of movement need to be considered.

In the trot, when examining vertical motion, there are two minima and two maxima in a stride cycle (they occur on opposite diagonals). Graphical representation of this will be asymmetric if the horse is lame. Changes in the minima indicate an impact lameness, whereas changes in the maxima indicate a push-off lameness.

Some horses have a high degree of symmetry and highly asymmetric horses are considered lame.

But a large number of horses have a degree of biological asymmetry. At what point is an asymmetry an indication of lameness, due to the horse experiencing pain? Even in the absence of pain, more extreme biological asymmetries can increase risks for injuries and chronic orthopaedic problems.

There are several studies (some still in progress) that examine various aspects of motion asymmetry, carried out by SLU and partners in other countries, and funded by the Swedish-Norwegian Foundation for Equine Research and the Swedish Research Council Formas.

In a cross-over study of riding horses with small movement asymmetries, two groups of horses were treated with either an anti-inflammatory drug or a placebo to assess which horses were experiencing pain. Preliminary results showed that many horses did not show a response to the treatment, indicating that the asymmetries may not be related to acute inflammatory pain. However, other pain mechanisms and chronic pain cannot be ruled out yet. Therefore, a new study is looking into when these movement asymmetries are related to pain, as well as evaluating the relationship between pain behaviour and motion asymmetry. A further study is investigating the relationship between motion asymmetry and motor laterality (as in humans, who can be right- or left-sided, horses also have a side they favour), whether foals are born with it or whether it is acquired.

Dr. Lena Ström, DVM, Resident in Ophthalmology

The horse's normal vision and methods of diagnosing visual disorders using advanced electronic equipment –

Anatomy of the horse's eye is structurally very similar to that of the human. Some noteworthy features of the horse's eye are:

- Has the largest eye of the terrestrial animals
- It is a "visual generalist" i.e. it has good day vision and very good night vision. The large pupil has a dynamic size range and a horizontal orientation. When it contracts during the day to protect it from sunlight, it becomes slit-like and still allows the horse to scan the horizon.
- As in all herbivores, it has a corpus nigra on the upper edges of the pupil (sometimes also on the lower edges) which may help to shade the eye in sunlight, whilst allowing the pupil to be large.
- Adaptation in the lens – yellow pigments that filter out blue wavelengths, therefore reducing glare.
- Fair visual acuity for day vision
 - In humans best visual acuity is 20/20. Studies in horses have shown an acuity of 20/30 up to 20/60, which means that they don't see details as well as humans can.
 - Tapetum lucidum – reflective layer in the bottom of the eye which is good for dim-light vision but results in a loss of detail during day vision
- Vast number of photoreceptors
 - Rod photopigment – increased ability to adapt to dark conditions
 - Two types of Cones for colour vision – blue & yellow/green, i.e. horses cannot differentiate the colour red.
- Visual field – characterised by a large monocular vision, only 65° binocular vision (allows for depth perception) and blind spots. But horses have developed an ability to perceive depth to an extent even with monocular vision. Studies have shown that the position of the head does not have as much influence on depth perception as one might think, due to the large number of ocular muscles that are responsible for movement of the eye and therefore the ability to maintain the slit-like pupil in a horizontal position.

Vision tests in horses are currently not an exact science, but available techniques are:

- Eye exam including biomicroscopy, ophthalmoscopy
- Traditional cotton-ball tests and obstacle courses
- Diagnostic imaging (ultrasound, CT, MRI)
- Electrophysiologic testing – such as Electroretinograms (ERGs) and Visual Evoked Potentials. These methods allow for objective evaluation of the function of the visual pathways. Therefore, differentiation as to whether there is a problem in the eye or in the visual pathways is possible. ERGs and VEPs can also be used to study development of visual function in the young horse.

Behavioural problems and poor performance can be signs of visual impairment, so should be considered when examining a horse. However, blind horses can function very well in all disciplines (e.g. dressage, racing, reining).

Assoc professor Gabriella Lindgren, MSc, PhD

New tools for breeding equine athletes –

Amongst other projects, Ass. Prof Lindgren is running an international project called “Horse Gene”, which is funded by the Swedish Norwegian Foundation of Equine Research, as well as by the EU Commission.

Her research is based on selecting a phenotype and finding out which genes regulate this phenotype and which mutations influence it. Genetic information can be used to select for a favourable trait such as performance or to select against a gene that causes disease.

In her research, she is also studying the effects of inbreeding on performance.

Traits can be:

Monogenic traits

- Determined by one gene and the environment has little or no effect
- e.g. coat colour, hydrocephalus in Friesian horses

Complex Traits

- Determined by a combination of many genes and the effect of the environment
- e.g. temperament, athletic performance

A study published in 2012 identified a monogenic C-to-A mutation in 4-gaited and 5-gaited horses (i.e. pacers and non-pacers).

The gene can be CC, CA, AA. Non-gaited horses are always CC (i.e. no mutant variant). Pacing is a recessive gene therefore almost all pacers have the genotype AA. The AA mutation allows horses to trot at high speeds without breaking into a gallop. There is a very high frequency of the AA genotype in Standardbreds (Trotters). Horses with CA have more difficulty sustaining the trot. In other disciplines such as dressage and show jumping the genotype is AA unfavourable, and in thoroughbred racehorses you don't see it at all – they have the genotype CC.

Breeding is Evolution in high speed – by selecting for favourable or de-selecting against unfavourable traits.

Linda Kjellberg, MSc

Horses in active open barn systems – behaviour and welfare

There is a growing interest in the management of group-housed horses, especially in terms of behaviour, feeding and social interaction.

The active open barn system used at Strömsholm/Sweden for an ongoing study is configured as follows for 24 horses:

- Total paddock area is 3600m² (150m²/horse)
- 6 automatic forage feeders, 1 concentrate feeder (was not used in first week of study)
- 1 hayrack with hay ad lib
- 4 lying halls, 23 m²/horse

Observations:

- Time to learn how the feeding stations work was defined as the horses consuming 90% of their daily forage intake. The horses were first shown by hand. 50% of horses learnt within 4 days, 70% of horses within 8 days and 95% within 16 days.
- Having the forage & concentrate feeding stations is important to encourage flow within the open-barn system, otherwise some horses stay in the forage station and occupy it, therefore preventing other horses from entering it.
- Eating time per horse must be measured (standardised for 1kg hay-silage at a time). To get a true representation of eating time, horses should be measured 5 times a day. This allows for adjustment of quantities fed per horse, so that weight can be maintained (otherwise some horses tends to get fat, and others may be underweight)
- Differences between welfare and performance were studied for horses kept in individual boxes and horses kept in the open-barn system. Nine inspections were carried out over 18 months. Results showed very little difference between the two types of housing horses. Performance, muscle build and hoof condition were equal or almost equal. The body score for horses housed in the open barn was slightly higher. Coat condition and housing scores were slightly higher for the individually boxed horses.
- Comparison between behaviour on summer pasture and in the open barn showed that the herd in the pasture is synchronised with low aggression and there was more aggression in the open barn. This contributes to welfare issues. The reason for this increased aggression can be attributed towards behaviour around the forage stations.

Mark Wentein, Chairman of the European Horse Network (EHN)

Responsible Equine Ownership – A motion for a European Parliament Resolution – by Julie Girling

There are about 7 million equidae in Europe, used for a variety of purposes. The Equine Industry provides employment for at least 896,000 people across the EU and it has a turnover of over €100 billion per annum. At least 2.6 million hectares of land across the EU are used for the industry.

Background to the European Horse Network (EHN):

It was founded at the 2009 Equus Conference in Sweden. It is a non-profit network of stakeholders acting at world, European, national or regional level within the horse sector, to share knowledge and work on various issues such as animal health, welfare, responsible ownership, transport, identification, education, research and development. To maintain the importance of the horse in society, it is important to ensure that the horse is a topic on the European political agenda. A very current issue is the future of the Common Agricultural Policy (CAP 2020). Collaboration of the EHN and the EAAP (European Federation of Animal Science) aims to bridge the gap between science and practice.

In October 2015 the first EU level conference on the welfare of horses, donkeys and mules took place, hosted by MEP Julie Girling (GBR). She was also the driving force behind the report “Removing the blinkers: The Health and Welfare of European Equidae in 2015”, which was prepared by the World Horse Welfare Organisation (WHW) and Eurogroup for Animals.

Transportation and transport conditions for slaughter horses is an issue that requires attention in terms of horse welfare (stress, dehydration, risk of injury etc). Practical guidelines are needed for those that carry out transportation of horses. e.g.

- In terms of dehydration: “Watering Guidelines” – Do’s and Don’ts.
 - State of health and fitness to travel: “Fitness to Travel Guidelines”
- The EC is helping to translate these guidelines into various languages.

A very important and still controversial topic is the lifetime exclusion of a horse from the food chain. Any owner can decide to exclude their horse from the food chain, for emotional reasons, or for reasons of medication use that exclude a horse from the food chain. Once this decision is made it is for life. What happens 15 or 20 years down the line, when this horse has perhaps changed ownership several times? Whilst sending a horse to slaughter may not be the preferred choice for most horse owners, World Horse Welfare still believes it is essential this remains a viable option, as other methods of ending a horse’s life can prove to be prohibitively expensive for some owners and the consequences of leaving a horse to deteriorate present a much more inhumane alternative. The statistics in Belgium were used to put this issue into perspective. About 22,000 horses are registered in Belgium every year, and 50% of these have lifetime exclusion from the food chain. By implication of interpreting the numbers, about 10,000 horses a year need to be euthanised and cremated. At a cost of about €800 per horse, the cumulative cost is huge, especially if extrapolated across Europe.

The Responsible Equine Ownership report was adopted by the EP Committee in January 2017 and by plenary vote with a great majority on 14th March 2017.

The purpose is not to call on more legislation in Europe, as there are enough good laws concerning horses. But there should be better control and implementation of this legislation, to tackle ignorance and facilitate and encourage best practices and good guidance both in commercial and recreational environments.

Good guidance (for breeding, handling, slaughter, transportation etc.) should be based on scientific research and should make compliance and consistent enforcement more achievable. It safeguards not only the health and welfare of the animal but also its long term economic output.

Dr. Hanfried Haring, President European Equestrian Federation (EEF)

The Role of Europe in Global Equestrian Governance

Dr Haring made a very powerful and thought-provoking speech in conclusion to the seminars.

There are 2 main reasons why Europe plays such a vital role in global equestrian governance:

1. The enormous concentration of international equestrian sport within Europe (refer to quoted statistics below)
2. The economic importance of the horse

Some European Statistics:

- 1.5 million competitors participating in national events
- 2 million registered horses (about 500,000 in equestrian sport, 1.1 million for recreational sport or riding)
- Between 6-9 million horses in Europe.
 - Worldwide about 60 million horses, 43 million donkeys and 11 million mules
- 4200 International events take place worldwide (60% in Europe)
- European Equestrian sport has a turnover €50 billion (excluding racing)
- 1 million full time jobs in Europe

Historically the relationship between man and horse has always been special. It has been used for centuries for work and as a companion. In the past no questions were raised regarding how the horse is used, what methods are applied. But this has changed drastically especially within Europe in the last 3 or 4 decades. On the one hand this is welcome, as animal welfare is paramount. But trends are leaning increasingly towards the right that man has to “use” the horse.

These perceptions about all animals, not just horses, has a major impact on society. In some countries vegetarianism is increasing by 10%/year. Vegan cook books are becoming best-sellers. Zoos are closing down, and in most circuses these days there are no longer any animals.

In 2015 in Buenos Aires Sandra, a 31-year-old orangutan, was the first animal on earth to be declared by a court as a non-human person with justiciable rights. This illustrates the importance that is being placed on animal welfare in this day and age.

For generations, the horse world has been caught up in old traditions and ways of thinking. But it is no longer just us, the horse people, who decide what is right and what is wrong. The pressure from society on the treatment of animals and also of horses is increasing. Up to a certain extent this is very necessary and useful.

However, it sometimes seems that the motivation for stricter rules & regulations does not stem from the love of our animals, but results in making the keeping of horses so complicated and expensive that people are losing interest and giving up horses.

Much pressure from society, media and public relations and many arguments are based on an emotional relationship to the horse, that almost humanise the horse. But in Dr Haring’s words, “We do not serve our partner, the horse, if we look at him or to him as a human. The Horse is an animal – a very special animal – and it deserves to be treated like this, ... like an animal.” One of our most important tasks is to act responsibly on these perceptions.

There are 2 main reasons for offences against horse welfare, which pose a large problem to the sport and the horse in terms of public relations.

1. Lack of knowledge

We no longer live in a world where the knowledge about the needs of a horse is passed down from generation to generation. The majority of people who are interested in or own horses do not come from a horse-background. It is the experience of many federations that this group of people wants to learn and has the will to spend time and money in order to do the best for their horse. It is the duty of the leaders in the equestrian world to support this, by providing scientifically proven knowledge through education and training.

On the basis of proven knowledge, with training methods for instance, the experience from generations can be used in combination with adaptations to our modern world.

Considering the infamous issue of Rollkur and how to handle it, it is important to invest in the expertise of ethologists, veterinarians and scientific knowledge of anatomy & physiology.

All of us should be investing to gain and improve our knowledge: Riders, equestrian federations, breed societies, the list goes on. Also, Farmers’ Associations – “horses are an agricultural product”. But further to that, horses are a rural and a green product. It is important that this is maintained in the Common Agricultural Policy which the EU is currently revising (as also mentioned during Mark Wentein’s presentation).

To reclassify the horse from an agricultural product to a pet will have a detrimental consequence. All sectors in the equine industry need to be active to defend the role of the horse, as a knock to one sector will influence other sectors too (racing, showing, equestrian sport, leisure, production etc.) One of the best examples where different stakeholders (equestrian federations, riders, animal welfare organisations, etc.) in the industry stood together was in the 1990’s regarding the cruel

transportation circumstances of slaughter horses from Eastern Europe to Italy and France. Yet in the end, the riders and equestrian federations were in the spotlight for treating their horses badly.

2. Wilful disregard:

Since most horses in Europe are kept for sports purposes, the issue of wilful disregard and “not caring” is one of the biggest challenges for the European equestrian sports organisations.

In principle, the organisations have all the necessary tools and are well structured from regional and national level to EU (EEF) and international level (FEI). Each level has good rules in place and there is consensus that the rules need regular review and modification if necessary, in order to maintain horse welfare and for the sport not to lose its social license. Yet between the rules and reality is the human, with all his strength and weaknesses. So, the strict enforcement of the rules is necessary, and where the rules are broken, there is a very good & effective judicial system in place, that will wake up even the “not-most-intelligent” rider when he is suddenly banned for 2 years.

Doping or Anti-Doping – some time ago there were intense discussions between Europe and USA regarding which medications are permitted in sport. Europe won this debate and the decision was that no medication is permitted in competition. The anti-doping system is expensive but worth its price.

In conclusion:

- We should follow the motto of the FEI which is printed in all schedules “The Welfare of the Horse is paramount”
- Europe has a special situation and responsibility
- We have to accept the changing relationship of society with the animal
- We have to hinder humanisation of the horse
- We have to create facts regarding utilisation of the horse based on experience and proven by scientific research and knowledge. These agreed facts have to be followed without compromise, using all existing instruments to educate and if needed to punish wilful disregard or criminal intent.

The common thread throughout these seminars is that in order to be the most effective, we have to bundle our resources and work together.

Gothenburg, 22nd August 2017