Herbal medication for horses – especially competition horses

- History of using drugs and dopes in competition horses
- Scientific and regulatory background
- Doping problems with herbal substances
- And the future.
Workshop Phytotherapie in competition horses 19 11 2009

Rita Marusic-Bubenkofer
eidg. dipl. Apotheker

SMGP-vet
Doping is not a modern term

- use of strengthening substances among the Berserkers in Norwegian Mythology
- Bufotenin, which is known to enhance the physical performance and strength,
  - originates from skin of toads
  - as well as Amanita mushrooms and some herbage
“dop”

- A primitive alcoholic drink used in religious ceremonies as a stimulant in Kaffir tribes in Africa,
- For the Dutch colonists any stimulant beverage,
- than spread worldwide.

*Dutch courage for steeplechase riders*
Ancient “stories” greek

- dog and sheep testicles
- stone taken from the stomach of a cockerel that had won a cock fight – high levels of testosterone
- ginseng, hallucinogenic mushrooms, hemp, opioids, plant seeds and dried figs
Plato (427–347 BC),

- himself an Olympic athlete and double winner of Pancration
- was critical of the honours, benefits and rewards given to professional athletes which he said 

  \textit{led to corruption and bribery}

  \textit{created an unhealthy lifestyle and}

  \textit{was an obstacle to virtue}
The Ancient Romans

- mixtures of honey and water (hydromel) to increase the endurance of their horses

- manipulation of a chariot horse was punished by crucifixion

at least according to one writer
Little is known to 17century

- medieval knights;
  - secret remedies for their mounts?
- By 1533 a mixture of anise seed, honey and sandarach (red sulfide of arsenic) was given to racing horses as a stimulant
1666 Rules introduced in horse races

- prohibiting the use of ‘exciting substances and methods’ at Worksop in England.
- 1812 a stable lad hanged in England – for poisoning a horse with arsenic
- 1892 New Orleans man hanged

“After the race it was announced that the injection given the horse was not the usual one of cocaine, morphine,– brandy, perhaps – but was a harmless dose of water, and that it hurt instead of helped the horse.”
The word 'Doping' in horses may come from knowing before the race which horse had been drugged to influence performance. The first generally used stimulant, in his day, was not known as 'dope,' but was commonly described as the 'injection,'
Dope meant a mysterious nothing that made slow horses fast and cowardly horses brave
Something Yankee could may win any horses
Dr. Ring’s injection in New Jersey:
Nitroglycerine, **cocaine**, carbolic acid, **rosewater**
Later **strychnine**, capsicum, ginger, and other things
Horse doping last century

• In 1910, a polish pharmacist Burkowski demonstrated how to detect the presence of alkaloids in horse saliva

• By 1912, saliva tests introduced in all principal racing countries, looking for alkaloids, such as

   Theobromine, Caffeine, Strychnine, Cocaine, Morphine
• Anabolic steroids
• Phenylbutazone, Bute
• Later anti-inflammatories such as Phenylbutazone, Bute
• Sedatives like Acetylpromazine
• Local anaesthetics
• Sympathomimetic compounds

Routine dope testing in the UK
Doping crisis after 2000

• WADA 2000
  – World Anti Doping Agency
• Athens 2004 dirtiest games
  – 1 horse, Waterford Crystal, positive in antipsychotic substances.
• Peking/Hong Kong 2008
  – Capsaicin: 5 positive cases
  – never tested before in Show jumping
Fédération Equestre Internationale

is the world governing body of equestrian sports, founded in 1921, is the sole controlling authority for all international events

Not for Races and Polo
FEI 2010 Cleansport

‘...at all times the welfare of the horse must be paramount and must never be subordinated to competitive or commercial influences’. Will not tolerate doping abuse, penalties will have to be severe and career breaking
Herbal Products and Foodstuff

The FEI has always cautioned athletes, trainers, grooms and veterinarians against the use of

• herbal medications, tonics, oral pastes and products of any kind,

• the ingredients and quantitative analysis of which are not known in detail.

• Many of these products could actually contain one or more prohibited substances.

• A similar position is taken regarding foodstuffs
Herbs used in equine sports: Doping?

- Valerian root - Valeriana officinalis
  - Valerenic acid
- Chilli - Capsicum annum
  - Capsaicin
- Willow bark - salix alba
  - Salicic acid
- Green tea, Theobroma cacao
  - feed contamination?
  - Methylxanthines:
    - Caffeine, Theobromine, Theophylline
Herbs used in equine sports

Locomotion system

• Devils claw - Harpagophytum procumbens
  • harpagosid

• Gingerroot - zingiber officinalis
  • gingerol

• Arnica - Arnica montana
  • Homeopathic preparations

• Incense – Olibanum, Boswellia serrata
  • Boswelliac acids
Herbs used in equine sports

- Eucalyptus globulus
- Thymus vulgaris
- Menthae piperitae et al.
  - Etheric oils
- Java tea Orthosiphon aristatus
- Bush clover Lespedeza thunbergii

respiratory tract
diuretic effect
Equine drug testing

- Zero tolerance is outdated
- Threshold time, common today
  - the urine or blood concentration of a substance below which there is no pharmacological activity,
  - a so called "No Effect Threshold" or NET
- Withdrawal time for allowed substances
  - Generally 2-3 days before and after the competition esp. for not listed substances
    - Herbal products
  - FEI official detection time list 2011
German sport University 2010

- 60 positive samples,
- 9 contaminated with natural materials,
  - without the highly sensitive screening
- a food source with Valerian extract.
- No thymol, menthol founded
- German riders - FN,
  - new rules are confusing
- National rules more severe than International

Dr. Marc Machnik German Sport University Institute of Biochemistry
50933 Cologne Germany
Valerian root stolons and rhizom of Valeriana officinalis

Uses supported by clinical data:
• As a mild sedative and
• sleep-promoting agent

FEI: Valerian is prohibited in competitions because the FEI takes the view that it has a pharmacological effect and could have a positive modifying influence on performance
• taking the edge’ off a spirited horse before a competition to make it more tractable and compliant
In horse treatment
James Hart, New Zealand

- Valerian is one of my most favourite and useful herbs I use on horses:
- used it extensively with astounding results as an antispasmodic for various types of colic
  - Colic due to meconium retention in foals, impaction colic in mature horses,
  - travel colic and
  - stress colic in competition horses. It is particularly useful for all types of anxiety.
- use it on a horse that is already upset,
- unlike available OTC veterinary drugs.
In horse treatment
James Hart, New Zealand

- We have also found Valerian has a cumulative effect, so when prescribing Valerian long term I would recommend a higher dose initially:
  - 20ml of a 1:2 dry plant extract given twice daily
  - then reduce the dose to have the desired effect.
  - horses occasionally become more excited rather than less excited if given Valerian
  - human patients: the incidence of excitement at about 10%
Study to Establish a withholding period for Valerian in horses James Hart

• The quick clearance of detectable compounds by horse and the lack of any positives on the second day after application led us to conclude that a safe withholding period for an ethanolic Valerian root extract is 24 hours

• Neither valerenic acid, hydroxyvalerenic acid or acetoxyvalerenic acid was detected in any blood samples
Capsicum annuum and frutescens

Capsicum

Ph Eur

Dried ripe fruits of Capsicum annuum and small-fruited varieties of Capsicum frutescens L.

Content Minimum 0.4 % of total capsaicinoids, Saponins, eth. oils, flavons, carotinoide

CHARACTERS

Extremely pungent taste.

Tincture 1: 5
Capsaicin;  
The villain of Hong Kong

- 2008 First time tested in Show jumping
- "Capsaicin is classified as a 'doping' prohibited substance given its
  - **hypersensitising properties**,  
  - and as a 'medication class A' prohibited substance for its pain relieving properties by the FEI
The use of hypersensitizing agents

- has longed plagued the horse world.
- to hypersensitize a horse is to put sharp objects inside the horse’s tendon boots – (which makes it hurt more if they hit a pole),
- or to soak the horse’s leg in irritants such as vinegar, diesel fuel or mentholated spirits.
- These methods are all illegal, but some are still practiced behind the scenes
- And Capsaicin, where was it spread out?
Capsaicin; effect on horses

- there is no affect on the original cause of the horse's pain.
- is very similar to using a local anaesthetic block on a lame horse,
  - and could result in damage to the horse from using an unsound limb
- but is very useful in the treatment of acute muscle damage and spasm
Which substances are allowed during competition?

- Preventative or restorative joint therapies.
- Many of these products in the oral form (chondroitine, glucosamine, etc) have always been allowed orally.

Ginger – Incense

Devils claw, allowed?
Devils claw

• cut and dried, tuberous, secondary roots of *Harpagophytum procumbens* DC (Pedaliaceae)

• Contents minimum 1.2 % of harpagoside, the related iridoid glycosides,

• Devils claw is bitter tasting
Devils claw

- Treatment of loss of appetite and dyspeptic complaints;
- Devils Claw has a stimulant effect on the stomach and gall bladder which contributes to its use as an anti-arthritic remedy
- Supportive treatment of degenerative rheumatism, painful arthrosis and tendonitis
Why the research was needed: detecting time

- anti-inflammatory properties
- without prescription at tack shops etc.
- Evidence for its anti-inflammatory activity as purported is conflicting
- a prohibited substance
- potentially compromising racehorses' welfare
Prescription

Rp

radix harpagophytum (pieces)
Equisetum arv. (pieces) aa
m. f. species
S. Horses 5-10 g a day
in feed

Pony smaller amount
Regulation of herbal medicinal products

- varies from State to State and from continent to continent
- many herbal products are available without a product authorisation or as food supplements
- Botanicals - Nutraceuticals
- Europe HMPC
  - Committee for Herbal Medicinal Products. (traditional use)
- In animals no traditional use is documented
Fourage Plant

• Nutritive value
• maintain or improve health
• supplies deficits
• No healing advice

Medicinal Plant

• pharmacological quality
• Heals, soothes and ameliorate ailments
• Indication
• Side effects
• Contraindication
• Interaction

Regulated as Herbal Medicinal Product (EU)
the future

• In collaboration with an international expert committee and supported by research,
• we must work towards creating a list of herbs and herbal preparation allowed during competition,
• which do not affect the horse's performance in an energising or calming way
Thank you for your attention
grazie
danke merci
dhanyavad