



# University of Melbourne Equine Centre Werribee

NEWSLETTER OF THE UNIVERSITY OF MELBOURNE'S  
FACULTY OF VETERINARY SCIENCE



## Dear Colleagues,

WELL, WHAT A COUPLE OF MONTHS IT HAS BEEN WITH THE EQUINE INFLUENZA OUTBREAK AND KEN HINCHCLIFF STARTING AS DEAN AT THE UNIVERSITY OF MELBOURNE. I WOULD LIKE TO LET YOU KNOW ABOUT SOME OF THE EXCITING EVENTS AND ACTIVITIES THAT ARE HAPPENING AT THE EQUINE CENTRE, UNIVERSITY OF MELBOURNE, WERRIBEE.

As you know, Professor Ken Hinchcliff [BVSc(hons) – University of Melbourne; Master of Science, University of Wisconsin-Madison; PhD, Ohio State University and Diplomate American College of Veterinary Internal Medicine] is a world famous equine internal medicine specialist, which is especially delightful for the Equine Centre, but has been heralded as a great occurrence for the entire faculty of Veterinary Science. Charlie El Hage has returned to the University of Melbourne and is a lecturer in clinical studies – managing many practical sessions and tutorials, as well as commencing an important research project into equine influenza vaccination responses.

We feel very fortunate to have three great residents, Laura Fennell, Liz Walmsley and Gareth Trope working with us, as well as our terrific intern Grace Forbes. On Friday 23 November, 2007 Grace Forbes was offered a residency in Equine Medicine, which will start in 2008 for three years. These four veterinarians are dedicated and passionate about horses, equine medicine and equine surgery and furthering the education of our veterinary students who come through the “hard and labour- and brain-intensive” equine rotation.

There are a number of research projects that are currently underway:

- 1) Fetlock pathology: anatomical, scintigraphic and micro-computed tomographic findings in Thoroughbred racehorses – Gareth Trope and Chris Whitton
  - 2) Advances in Laryngeal reinnervation in horses – Liz Walmsley and Cate Steel and Ian Fulton
  - 3) Myocardial disease in horses: cardiac troponin concentration and arrhythmias assessed by electrocardiographic (ecg) telemetry at rest and during treadmill evaluation – Laura Fennell and Kate Savage
- These projects could not be done without

the help of Ken Hinchcliff, Sally Church, Grace Forbes and Tias Muurlink.

Laura Fennell and I are currently looking for horses, which have been diagnosed with an arrhythmia (believed to be pathological) and/or a murmur, whose performance requires assessment. We have funding for these horses to undergo a free consultation with auscultation, telemetric ecg (electrodes are stuck on rather than alligator clipped: this is designed for maximum comfort) at rest and on the treadmill, and they will have their troponin levels assessed as well. Please call Laura Fennell and/or Kate Savage on (03) 9731-2268 if you would like to discuss potential cases to undergo free assessment.

As many of you know Charlie El Hage, Ken Hinchcliff, James Gilkerson, Sally Church, Kate Savage as well as Grace Forbes and Laura Fennell are starting an investigation into the humoral and cell-mediated immunity following equine influenza vaccination. This is a really important and exciting project and we hope to be able to assist in working with Australian veterinarians in regard to the best ways to manage vaccination in the future. We have been fortunate to have the fantastic and selfless assistance of many key equine practitioners and their practices (Ian Church, Meredith Flash, Annette Kelleher, Amy Kelly, Mick McCluskey, Glenn Robertson-Smith, John Van Veenendaal and Johnnie Walker to name a few) in this study and extend our warmest thanks, as we know it has been an extra “slog” at a busy and anxious time.

I would also like to extend our sincere thanks to the practitioners who have supported us in the last 12 months – we really appreciate the cases and the opportunities to provide medical diagnostics, imaging and surgery as well as intensive care to the horse population in Australia and New Zealand, before the equine influenza outbreak. The cases as well as being able to receive premier veterinary and nursing care around the clock, provide us with



*Dr. Liz Walmsley  
– Equine Surgery  
resident – 2007-2009*



*Dr. Laura Fennell  
– Equine Medicine  
resident – 2007-2009*



*Dr. Gareth Trope  
– Equine Surgery  
resident – 2007-2009*



*Dr. Grace Forbes – our  
new Equine Medicine  
resident - 2008-2010*

fantastic material (anatomical, physiological, pathophysiological, pharmacological etc. etc.) with which to teach the students.

Thank-you for your support of the Equine Centre at the University of Melbourne, we appreciate your support and hope it continues for a very long time. If you would like to see our facilities at some time please feel free to contact Wendy Barsby or Kate Savage and we will try to facilitate this.

Sincerely,

C. J. (Kate) Savage BVSc(hons), MS, PhD,  
Diplomate ACVIM  
Specialist in Equine Medicine  
Head, Equine Clinical Services  
Equine Centre  
University of Melbourne

# Research

## Yearling radiograph:

**Melissa Jackson, Chris Whitton, Andrew Vizard and Garry Anderson**

The Racing Victoria Limited and RIRDC funded study on yearling radiographs is nearing completion. The study has examined radiographic quality, prevalence of lesions, repeatability of interpretation and the effect of identified lesions on future performance. Radiographs from the first year of repository use in Australia were examined and a number of problems with radiographic quality were identified. Poor positioning was the most common reason for radiographs being non-diagnostic and the flexed lateromedial view of the fore fetlock was most often affected. Aligning the lateromedial view of the fetlock appears to be problematic as the standing lateromedial view of the hind fetlock also featured in the non-diagnostic list. It is acknowledged that great improvements in radiographic quality have been made over the past few years but the study highlights positioning as an area that veterinarians need to concentrate on to improve the usefulness of the system.

There were only two lesions that were significantly associated with future racing performance. As found in previous studies modelling of the sesamoid bones was associated with future performance, demonstrating the importance of the suspensory apparatus in racing horses. Interestingly sagittal ridge OCD lesions in hind fetlocks were also associated with poorer outcomes. As this is a rare cause of lameness in racing Thoroughbreds, the lesion itself is unlikely to be the cause of problems but rather associated with other factors that affect performance. Again it highlights the need for care in positioning as the lateromedial view is critical for the identification of this lesion. This information is invaluable to veterinarians making recommendations on repository radiographs at Thoroughbred yearling sales.

**Figure 1:** Endoscopic view of the larynx of a 'roarer' during exercise. The left arytenoid cartilage and vocal cord are paralysed and collapse during exercise to obstruct the passage of air.

## Recurrent laryngeal neuropathy: Cate Steel, Liz Walmsley and Ian Fulton

Treatment of RLN or 'roarers' hasn't changed much for 30 years with the "tie-back" (prosthetic laryngoplasty), with or without ventriculectomy and vocal cordectomy, the most popular surgical procedure in athletic horses. Complications of this technique are not uncommon and can be serious. Laryngeal reinnervation using a first cervical nerve-omohyoideus pedicle graft technique can be just as effective in the restoration of racing performance as prosthetic laryngoplasty and there are very few complications. However, the technique has not gained wide acceptance due to the extended recovery time necessary in some cases.

We have recently studied the muscles of the equine larynx on a molecular level and now aim to apply this knowledge to further develop the nerve graft surgical technique. Our collaborators, a group of human laryngology researchers in the United Kingdom, have used specific neurotrophins (factors that support the survival, growth and regeneration of nerve cells) to significantly reduce the recovery time after laryngeal reinnervation surgery in another animal model and we aim utilize a similar technique in horses. This research, funded by RIRDC is due for completion in 2008. We are interested in recruiting suitable horses with 'laryngeal hemiplegia' for this project. For further information, please contact Dr Cate Steel at the Equine Centre (03 9731 2268).



**Figure 2:** Endoscopic view of a horse during exercise following successful laryngeal reinnervation surgery. The previously paralysed left arytenoid cartilage and vocal fold are now able to be pulled out of the airway, reversing the dramatic effect on exercise tolerance evident before surgery.

## New Trot-up and School: Chris Whitton

Lameness investigation has always been a strength of the Equine Centre and this is soon to be boosted with the completion of a purpose built trot-up and school for clinical examination of horses gaits. This will consolidate and improve on the existing lameness evaluation areas at the Centre. Both hard and soft surface trot-up areas and a hard surface lunging area as well as a school that will allow horses to be lunged and ridden on a soft surface will be included. This will allow detailed assessment of horses at a variety of gaits on different surfaces. The facility is designed to be used in conjunction with the Centre's High speed gait analysis system which utilises high speed cameras and motion analysis software. To date this has been used for clinical evaluation of shoeing and for detailed lameness assessment and the new facility will allow an expansion of its uses for challenging cases. The facility is due for completion early 2008.

# INDUCTION AND ASSISTED DELIVERY OF A LIVE FOAL FROM A MARE SUFFERING A VENTRAL BODY WALL RUPTURE: LAURA FENNELL, GRACE FORBES, SALLY CHURCH, DAYLE TERRELL AND CATE STEEL.

A 13 year old multiparous standardbred mare was referred to the Equine Centre at 335 days gestation after acute onset of abdominal distension and likely ventral body wall rupture. Upon presentation the mare was tachycardic (heart rate 60 beats per minute), although this is not unusual in a late term mare. All other vital signs were within the normal range. Blood was expressed from the cranial quarters of both teats. Abdominal ultrasonography revealed oedema of the muscles of the body wall of the right caudoventral and caudolateral abdominal wall. A viable foetus with heart rate 80 beats per minute was identified. Right ventral abdominal wall rupture was diagnosed (prepubic tendon rupture was unable to be confirmed). A sample of milk (devoid of blood) was taken from the caudal quarter and electrolytes measured. See Table 1.

An adapted scoring system<sup>1, 2</sup> has been devised to predict the likelihood of a positive outcome. See Table 2. Using this scoring system a value of 35 was obtained which was considered suggestive of imminent foaling and a safe induction.

### Induction and delivery:

The mare was provided with intranasal oxygen insufflation at 10L/min. A catheter was placed in the left jugular vein and the vulva, perineum and udder cleaned thoroughly. Induction commenced with intravenous administration of 15 IU oxytocin<sup>3</sup>. This was followed 15 minutes later with a further 15IU oxytocin. Manual dilation of the cervix was performed to assist presentation of the foal into the vagina. Rupture of the chorioallantois was followed by presentation of two front legs at the opening of the vulva. The amnion was torn manually and the foals' head directed ventrally with gentle traction on



the legs. The foal was delivered and was breathing spontaneously and sitting in sternal recumbency within minutes of birth.

### Ongoing management:

The appearance of the foal was consistent with normal gestation. It weighed 56 kg and demonstrated a normal haircoat and was without flexural deformities. Whilst the foal was considered healthy it was slow to stand (8 hours) and suckle (10 hours). The foal suffered failure of transfer of passive immunity (IgG 400-800 g/dL) and received antimicrobials (ceftiofur 6.6 mg/kg IM q12 hours) and 2L hyperimmune plasma. The foal also received supplementary isotonic fluids.

The mare retained foetal membranes for 18 hours after foaling and was treated with broad spectrum antimicrobials (procaine penicillin 22 mg/kg IM q12 hours and gentamicin 6.6 mg/kg IV q12 hours) in addition to non-steroidal anti-inflammatories (Phenylbutazone 2.2 mg/kg PO q24 hours). The mare's uterus was

laved daily for 3 days with 3L Hartmanns solution followed by infiltration of 4500 mg procaine penicillin and 750 mg of gentamicin.

### Outcome:

The mare and foal were discharged 4 days following presentation with the recommendation that the mare should not carry a foal this season but that embryo transfer may be considered for future reproductive performance.<sup>4</sup>

1. Ousey JC, Dudan F, Rossdale PD. Preliminary studies of mammary secretions in the mare to assess foetal readiness for birth. *Equine Veterinary Journal* 1984;16:259-263.
2. Leblanç MM. Induction of parturition in the mare: assessment of readiness for birth. In: Koterba AM, Drummond WH, Kosch PC, editors. *Equine clinical neonatology*. Williams and Wilkins, Baltimore, 1990:34-39.
3. Macpherson ML, Chaffin MK, Carroll GL, et al. Three methods of oxytocin-induced parturition and their effects on foals. *JAVMA* 1997;210:799-803.
4. Frazer GS, Embertson RM, Perkins NR. Complications of late gestation in the mare. *Reproduction - foaling Part 1: maternal aspects* 2002:16-21.

Acknowledgements: The Equine Centre would like to thank Dr. Anita Burke of Kilmore Equine Centre for referral of this case.

**Table 1. Milk electrolyte results.**

		Reference Values		
		Result	Pre-Foaling	Imminent Foaling
Sodium	mmol/L	25	125 – 135	< 30
Potassium	mmol/L	40.2	7 – 12	> 30
Calcium	mmol/L	23.8*	< 2.00	> 10.00

**Table 2. Scoring system for mammary secretion electrolyte concentrations<sup>1, 2</sup>**

Calcium (mg/dl)	Sodium (mEq/L)	Potassium (mEq/L)	Points for each electrolyte
≥40	≤30	≥35	15
≥28	≤50	≥30	10
≥20	≤80	≥20	5
Total score ≥ 35 suggests a probable safe induction.			

# Meniscal Injuries in Horses

A NEW APPROACH TO THE CAUDAL POUCH OF THE MEDIAL FEMOROTIBIAL JOINT: TIAS MUURLINK, CHRIS WHITTON AND CATE STEEL

The diagnosis of injuries of the soft tissue structures of the stifle of the horse remains a challenge in horses. Arthroscopy is commonly used to fully evaluate soft tissue injuries in stifles in horses. It allows direct visualisation of the cruciate and collateral ligaments, menisci and their ligamentous attachments as well as evaluating the condition of the articular cartilage. Arthroscopy is well established in both the cranial and caudal pouches of the femorotibial joint pouches however, access to the more axial structures in the caudal pouch of the medial femorotibial (CMFT) joint has been difficult.

A current research project undertaken by the Equine Centre at Werribee has been to develop a new technique to access the CMFT joint using a cranial intercondylar approach (Figure 3). Previously, access to this joint has been via a medial arthroscope portal and access to the axial structures has been limited. The new approach has allowed improved assessment of the axial structures including an ability to assess the caudal ligament of the medial meniscus, a structure which previously could not be evaluated either by ultrasound or current arthroscopic techniques. The project has evaluated the feasibility, safety, usefulness and practicality of the technique.

**CASE REPORT:** Recently a 5yo Quarter Horse Cross gelding was referred with a history of right hind limb lameness after a suspected paddock accident 6

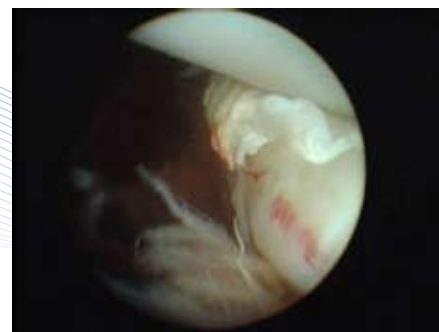
weeks previously. Initial examination revealed moderate medial femorotibial and femoropatellar joint distension and “toe-wearing” of his hoof on the affected side. He was 3/5 lame on the right hind limb.

Intra-articular anaesthesia of the right stifle resulted in significant improvement of the lameness. Ultrasonographic examination of the joint demonstrated moderate effusion of the medial femorotibial joint. A heterogeneous appearance of the medial meniscus with a more rounded margin was observed. Radiographic examination revealed some periosteal new bone formation on the medial intercondylar eminence of the tibia.

Findings suggested a severe soft tissue traumatic lesion of the stifle, so arthroscopy was performed to further evaluate the joint. At surgery, severe synovitis of the medial femorotibial joint was noted with extensive fibrillation of the articular cartilage. A significant full thickness cartilage defect was observed. Assessment of the caudal compartment was via the new intercondylar approach and a tear of the caudal medial meniscus was visualised and debrided. The new technique allowed improved assessment and triangulation for debridement compared with the standard caudomedial approach. At surgery collateral ligament laxity could be appreciated. The joint was lavaged and closed and the horse recovered uneventfully. These findings are consistent

with a meniscal injury possibly secondary to collateral ligament instability and as such carry a guarded to poor prognosis for long term soundness. In a study by Walmsley et al (2003), 47 % of horses with meniscal injuries returned to full use however, a poorer prognosis was associated with increased severity of the meniscal injury, concurrent articular cartilage lesions and radiographic abnormalities of the joint.

Our recommendations for this horse were a prolonged period of confinement (4 weeks box; 12 weeks small yard and then paddock rest) with the use of phenylbutazone to control pain and inflammation in the initial healing period.



**Figure 3:** Arthroscopic view of a caudal medial meniscal tear view using the new intercondylar approach.

**References:**

- 1 Walmsley JP, Phillips TJ, Townsend HGG (2003) Meniscal tears in horses: an evaluation of clinical signs and arthroscopic treatment of 80 cases. *Equine vet J* 35: 402-406.

**Contact Us**

Equine Centre Clinic hours  
9.00am -5.00pm Monday to Friday  
Consultation by appointment

**EMERGENCIES SEEN AT ALL TIMES**

To make an appointment or to obtain further information -  
Tel: 03 9731 2268  
Fax: 03 9731 2246  
After hours emergency number: 03 9731 2268 – this will connect you to our emergency answering service.