



ICEL 6

16 - 19 June 2008

Cabourg, Normandy, France

6th International Conference on Equine Locomotion



Scientific program



Tuesday 17 June 2008

8h30 Opening of the Conference

8h40-8h55 Tribute to Douglas Leach (by Hilary Clayton)

9h00-10h00 Oral session 1 - Horse-rider and horse-saddle interactions I *Chairs : C. Peham, M. Weishaupt*

9h00	THE EFFECT OF RISING AND SITTING TROT ON BACK MOVEMENTS AND HEAD NECK POSITION OF THE HORSE Patricia de Cocq, Heleen Prinsen, Nirja C.N. Springer, P. René van Weeren, Marion Schreuder, Mees Muller and Johan L. Van Leeuwen Experimental Zoology, Wageningen University, The Netherlands
9h15	INFLUENCE OF LEFT VERSUS RIGHT RISING TROT ON THE KINETICS AND KINEMATICS OF THE HORSE - Lars Roepstorff, Marie Rhodin, Anna Byström, Christopher Johnston, P. René van Weeren, Michael Weishaupt Swedish University of Agricultural Sciences, Sweden
9h30	BASIC KINEMATICS OF THE SADDLE AND RIDER IN HIGH LEVEL DRESSAGE HORSES, WALKING AND TROTGING ON A TREADMILL Anna Byström, Marie Rhodin, Katja von Peinen, Michael A. Weishaupt and Lars Roepstorff Swedish University of Agricultural Sciences, Sweden
9h45	3D-SCANNING OF MORPHOLOGY OF HORSE BACK SADDLE AREA Vaclav Gresak, Jitka Badurova, Petr Hlavacek Tomas Bata University in Zlin, Czech Republic

10h00-10h30 Coffee break (and visit exhibit)

10h30-11h00 Poster session 1 A - Methods and Techniques *Chairs : R. van Weeren, B. Colborne*

10h30	DECREASING VARIABILITY IN ASSESSMENT OF GAIT IN THE YOUNG HORSE Addis, P.R. and Lawson, S.E.M. Newcastle University, UK
10h35	MEASURING HOOF CONFORMATION USING PHOTOGRAMMETRY Colin R. Burvill, George Poropat, Brendan V. Kehoe, Wayne Rogers, Jonathan S. Merritt, Helen M. S. Davies The University of Melbourne, Australia
10h40	HERITABILITY AND GENETIC CORRELATIONS BETWEEN MORPHOLOGICAL TRAITS MEASURED BY A 3D MORPHOMETRIC METHOD Anne Ricard, Philippe Pourcelot, Delphine Erlinger, Claire Lagache, Jean-Marie Denoix and Nathalie Crevier-Denoix INRA Toulouse-Haras Nationaux, UMR INRA-ENVA Biomécanique et Pathologie Locomotrice du Cheval, Ecole Vétérinaire d'Alfort, France
10h45	COMPARISON OF STRIDE FREQUENCY MEASURED USING A LEG MOUNTED ACCELEROMETER AND OPTO-ELECTRONIC SYSTEM Kathryn J. Nankervis, David J. Marlin and Diana Hodgins Hartpury College, England
10h50	MEASURES OF METACARPOPHALANGEAL JOINT ANGLE IN THE EQUINE FORELIMB Greer I. Sheridan, Garry A. Anderson, Amy L. Jeffreys and Helen M. S. Davies University of Melbourne, Australia
10h55	CORRELATIONS BETWEEN SPEED OF SOUND IN LOADED EQUINE SUPERFICIAL DIGITAL FLEXOR TENDONS AND TENDON MECHANICAL PROPERTIES Béangère Ravary-Plumioën, Philippe Pourcelot, Delphine Evrard and Nathalie Crevier-Denoix UMR INRA-ENVA Biomécanique et Pathologie Locomotrice du Cheval, Ecole Vétérinaire d'Alfort, France

Poster session 1 B - Clinical applications (1/2)

Chairs: J.-M. Denoix, F. Buchner

10h30	CORRELATIONS OF IGF-1 AND COLLAGEN II DERIVED PEPTIDES IN ARDENNER HORSES WITH JUVENILE DIGITAL DEGENERATIVE OSTEO-ARTHROPATHY Jean-Philippe E. Lejeune, Thierry Y. Franck, Yves Henrotin, Ginette P. Deby-Dupont and Didier D. Serteyn Centre Européen du cheval, University of Liège, Belgium
10h35	EFFECT OF CHONDROPROTECTOR OR PLACEBO ON LAMENESS SCORE AND MATRIX METALLOPROTEINASE ACTIVITY IN SYNOVIAL FLUID OF PONIES Marie Daix, Jean-François Bastin, Martine Raes, Laetitia Wiggers and Nathalie Kirschvink Animal Physiology, Veterinary Department, University of Namur, Belgium
10h40	IMPACT OF MILD TO MODERATE LAMENESS ON PHYSIOLOGICAL VARIABLES MEASURED IN FRENCH TROTTERS Eric A. Richard, Emmanuelle Van Erck, Marie-Capucine Dupuis, Pierre Lekeux and Jean-Marie Denoix CIRALE, Ecole Nationale Vétérinaire d'Alfort, France
10h45	GPS ANALYSIS OF ACTIVITY OF DOMESTIC MARES AND NEW BORN FOALS Brian A. Hampson and Christopher C. Pollitt University of Queensland, School of Veterinary Science, Australia
10h50	A CASE STUDY OF CLINICAL FARRIERY TREATMENT FOR DROPPED FETLOCK Paul Woodall, Sarah J Hobbs, Carole Rolph University of Central Lancashire, UK
10h55	COMPARISON OF THE MASTICATORY CYCLES OF HORSES BEFORE AND AFTER DENTAL TREATMENT USING KINEMATIC ANALYSIS Hubert Simhofer, Claudine Anen, Melanie Niederl, Gabrielle Broeze, Jan Broeze, and Christian Peham University for Veterinary Medicine Vienna, Austria

11h15-12h30 Oral session 2 - Horse-rider and horse-saddle interactions II

Chairs: T. Licka, L. Roepstorff

11h15	RELATIONSHIP BETWEEN THE FORCES ACTING ON THE HORSE'S BACK AND THE MOVEMENTS OF HORSE AND RIDER AT WALK AND TROT Katja von Peinen, Thomas Wiestner, Sandra Bogisch, Lars Roepstorff, René van Weeren and Michael A. Weishaupt Equine Department, VetSuisse Faculty, Zurich, Switzerland
11h30	INFLUENCE OF SPEED ON THE HORSE-RIDER INTERACTION AND RESULTING SADDLE FORCES AT WALK AND TROT Sandra Bogisch, Katja von Peinen, Thomas Wiestner, Lars Roepstorff, René van Weeren and Michael A. Weishaupt Equine Department, VetSuisse Faculty, Zurich, Switzerland
11h45	COMPARISON OF THE FORCES ACTING ON THE HORSE'S BACK AND THE RIDER'S STABILITY IN DIFFERENT SEATING POSITIONS AT TROT Christian Peham, Anja Hofmann, Beatrice Borkenhagen, Sandra Kuhnke, Jill Molsner, Andrea Baltacis University of veterinary medicine, Austria
12h00	EVALUATION OF FORCES AND PRESSURE DISTRIBUTION UNDER A FITTING SADDLE BY USING DIFFERENT SADDLE PADS Andrea Baltacis, Anja Hofmann and Christian Peham Movement Science Group/University of Veterinary Medicine Vienna, Austria
12h15	THE INFLUENCE OF DIFFERENT SADDLE PADS ON FORCES AND PRESSURE DISTRIBUTION UNDER A TOO WIDE SADDLE Anja Hofmann, Andrea Baltacis and Christian Peham Movement Science Group/University of Veterinary Medicine Vienna, Austria

12h30-13h45 Lunch

13h45-15h00 Oral session 3 - Measurement techniques, limb and trunk mechanics and modelling

Chairs: H.M. Clayton, S. Lawson

13h45	EX VIVO CALIBRATION AND VALIDATION OF IN VIVO BONE STRAIN MEASURES Helen M. S. Davies The University of Melbourne, Australia
14h00	IN VITRO EVALUATION OF METACARPOPHALANGEAL JOINT LOADING DURING SIMULATED WALK S. Marleen den Hartog, Willem Back, Harold Brommer, P. René van Weeren Dept. of Equine Sciences, Faculty of Veterinary Medicine, Utrecht University, The Netherlands
14h15	DEVELOPMENT OF FINITE ELEMENT MODELS OF EQUID DIGITS S. N. Collins, R. Murray, V. Apprich, J. Wernsperger, C. Stanek and C. Hinterhofer Orthopaedic Research Group, Centre for Equine Studies, Animal Health Trust, Newmarket, UK and Clinic for Orthopaedics in Ungulates, University of Veterinary Medicine, Vienna, Austria
14h30	CUSTOMISATION OF A NON-INVASIVE COMPUTATIONAL EQUINE DISTAL FORELIMB MODEL TO MEASURE CHANGES IN TENDON STRAIN Anita M.A. Chan and Sian E.M. Lawson Centre for Rehabilitation and Engineering Studies, Newcastle University, UK
14h45	TRUNK DEFORMATION IN THE TROTGING HORSE Sandra Nauwelaerts and Hilary M Clayton Michigan State University, United States

15h15 Departure to the Mont St Michel

Wednesday 18 June 2008

8h00-9h00 **Welcome coffee (and visit exhibit and posters)**

8h20-9h00 **Poster session 2 - Clinical applications (2/2), Imaging and Rehabilitation**

Chairs: J. De Guise, F. Audigié

- 8h20** CLINICAL MANIFESTATIONS OF DEVELOPMENTAL ORTHOPAEDIC DISEASE IN YEARLINGS
Céline Robert, Jean-Paul Valette, Sandrine Jacquet and Jean-Marie Denoix
UMR INRA-ENVA Biomécanique et Pathologie Locomotrice du Cheval, Ecole Vétérinaire d'Alfort, France
- 8h25** EFFECTS OF EXERCISE CONDITIONS ON DEVELOPMENTAL ORTHOPAEDIC DISEASE IN FRENCH FOALS
Johanna Lepeule, Céline Robert, Nathalie Bareille, Jean-Paul Valette, Sandrine Jacquet, Jean-Marie Denoix and Henri Seegers
UMR INRA-ENVA Biomécanique et Pathologie Locomotrice du Cheval, Ecole Vétérinaire d'Alfort, France
- 8h30** DETERMINATION OF THE STIFFNESS OF THE EQUINE CERVICAL SPINE
Heike Pagger, Ingrid Schmidburg, Christian Peham, and Theresia Franziska Licka
Veterinary University Vienna Austria, Movement Science Group, Austria
- 8h35** SPATIAL CAPACITY OF THE CERVICAL SPINAL CANAL DURING MOVEMENT
Ingrid Schmidburg, Heike Pagger, Christian Peham, Jörn Mehnen and Theresia Franziska Licka
Veterinary University Vienna, Austria
- 8h40** AUTOMATIC QUANTIFICATION OF THE NORMAL SCINTIGRAPHIC UPTAKE OF THE CERVICAL VERTEBRAE IN HORSES
David Didierlaurent, Fabrice Audigié, Vincent Contremoulin and Jean-Marie Denoix
CIRALE - IPC, UMR INRA-ENVA Biomécanique et Pathologie Locomotrice du Cheval, Ecole Vétérinaire d'Alfort, France
- 8h45** USE OF 3D RECONSTRUCTION SOFTWARE (ECHOQUANT 3D) TO EVALUATE HEALING OF SUPERFICIAL DIGITAL FLEXOR TENDON LESIONS IN HORSES
David Carnicer, Fabrice Audigié, Philippe Pourcelot and Jean-Marie Denoix
CIRALE-IPC, UMR INRA-ENVA Biomécanique et Pathologie Locomotrice du Cheval, Ecole Vétérinaire d'Alfort, France
- 8h50** THREE-DIMENSIONAL CHARACTERIZATION OF THE FASCICULAR ARCHITECTURE OF THE EQUINE SUPERFICIAL DIGITAL FLEXOR TENDON
Guillaume F. Leblond, Nathalie Crevier-Denoix, Sylvain Falala, Sophie Lerouge and Jacques A DeGuise
École de Technologie Supérieure, University of Québec, Montreal, Canada
- 8h55** INTERNAL STRUCTURE ASSESSMENT OF THE EQUINE SUPERFICIAL DIGITAL FLEXOR TENDONS FROM *IN VIVO* ULTRASOUND IMAGES
Ali Meghoul, Nathalie Crevier-Denoix, Guy Cloutier and Jacques A. DeGuise
École de Technologie Supérieure, University of Québec, Montreal, Canada

9h15-10h45 **Oral session 4 - Biomechanical effects of track surfaces**

Chairs: C. de la Garde, J.-M. Betsch

- 9h15** IN-SITU PROPERTIES OF RACING SURFACES
Michael Peterson and C.Wayne McIlwraith
University of Maine, United States
- 9h30** HOOF ACCELERATIONS AND GROUND REACTION FORCES OF THOROUGHBRED RACEHORSES MEASURED ON DIRT, SYNTHETIC, AND TURF TRACK SURFACES
Susan M. Stover, Jacob J. Setterbo, Tanya C. Garcia-Nolen, Ian P. Campbell, Jennifer L. Reese, Jessica M. Wade, Sun Y. Kim, and Mont Hubbard
University of California, Davis, United States
- 9h45** FORELIMB KINEMATICS OF GALLOPING THOROUGHBRED RACEHORSES MEASURED ON DIRT, SYNTHETIC, AND TURF TRACK SURFACES
J. J. Setterbo, T. Garcia-Nolen, S. Kim, I. Campbell, T. Johnson, M. Hubbard and S. Stover
University of California, Davis, United States
- 10h00** INFLUENCE OF RACE TRACK CHARACTERISTICS ON 3D ACCELEROMETRY OF THE FOOT IN THE HORSE TROTting AT HIGH SPEED: PRELIMINARY RESULTS
Henry Chateau, Damien Robin, Nathalie Vénard, Sylvain Falala, Philippe Pourcelot, Jean-Paul Valette, Bérange Ravary, Jean-Marie Denoix, Nathalie Crevier-Denoix
UMR INRA-ENVA Biomécanique et Pathologie Locomotrice du Cheval, Ecole Vétérinaire d'Alfort, France
- 10h15** USE OF A DYNAMOMETRIC HORSESHOE FOR ANALYSING RACE TRACK CHARACTERISTICS AT HIGH SPEED TROT
Damien Robin, Henry Chateau, Laurent Pacquet, Thomas Simonelli, Sylvain Falala, Jean-Paul Valette, Philippe Pourcelot, Bérange Ravary, Jean-Marie Denoix and Nathalie Crevier-Denoix
UMR INRA-ENVA Biomécanique et Pathologie Locomotrice du Cheval, Ecole Vétérinaire d'Alfort, France
- 10h30** INFLUENCE OF RACETRACK SURFACE ON THE EQUINE SUPERFICIAL DIGITAL FLEXOR TENDON LOADING AT HIGH SPEED TROT
Nathalie Crevier-Denoix, Philippe Pourcelot, Bérange Ravary, Damien Robin, Sylvain Falala, Jean-Paul Valette, Jean-Marie Denoix and Henry Chateau
UMR INRA-ENVA Biomécanique et Pathologie Locomotrice du Cheval, Ecole Vétérinaire d'Alfort, France

10h45-11h15 **Coffee break (and visit exhibit)**

11h15-12h00 **Invited lecture 1: Dr Martyn Shorten, USA. "Biomechanical aspects of sport surfaces for human athletes"**

12h00-13h15 **Lunch**

13h15-14h00 **Invited lecture 2: Pr Jean-Marie Denoix, France. "Functional anatomy and biomechanics: the link between clinical manifestations, diagnosis and management"**

14h15-16h00 **Oral session 5 - Clinical applications and rehabilitation**

Chairs: J.-M. Denoix, R. van Weeren

- 14h15** THREE-DIMENSIONAL PELVIC DEFORMATION IN HORSES
Kevin K. Haussler, Kirk McGilvray, Ugur Ayturk, Christian Puttlitz, Ashley E. Hill and C. Wayne McIlwraith
Colorado State University, USA
- 14h30** GAIT PATTERN OF LIMB RAISES IN HORSES WITH STRINGHALT
Verena Kaufmann, Hafsa Zaneb, Christian Peham, and Theresia Franziska Licka
Veterinary University Vienna, Austria
- 14h45** QUANTIFICATION OF SURFACE EMG SIGNALS IN HEALTHY PONIES AND IN TWO WARMBLOODS WITH STRINGHALT TREATED WITH BOTOX®
Inge D. Wijnberg, Sabine E.A. Schrama, Anna Elgersma, Jacques T.M. Maree, Patricia de Cocq and Willem Back
Dept. of Equine Sciences, Faculty of Veterinary Medicine, Utrecht University, The Netherlands
- 15h00** KINEMATIC AND SURFACE ELECTROMYOGRAPHIC (sEMG) STUDY OF EQUINE BACK AND HINDLIMBS IN CLINICALLY SOUND AND LAME HORSES
Hafsa Zaneb, Christian Stanek, Christian Peham, Verena Kaufmann, and Theresia Licka
Clinic for Orthopaedics, Veterinary Medicine University, Austria
- 15h15** THE USE OF FORCE PLATE MEASUREMENTS TO TITRATE THE DOSAGE OF A NEW COXIB IN LAME HORSES
W. Back, C.G. MacAllister, Meike C.V. van Heel, M. Pollmeier and P.D. Hanson
Dept. of Equine Sciences, Faculty of Veterinary Medicine, Utrecht University, The Netherlands
- 15h30** EFFECTS OF TACTILE STIMULATION OF THE PASTERNS AND CORONETS ON LIMB KINEMATICS DURING TROTting
Hilary M. Clayton, Arlene White, Niell G. Elvin, LeeAnn J. Kaiser and Narelle C. Stubbs
Michigan State University, USA
- 15h45** COMPUTERIZED ULTRASONOGRAPHY AS A TOOL TO ASSESS THE BIOMECHANICAL PROPERTIES OF INJURED SDF TENDONS IN THE HORSE
Hans T.M. van Schie, Nathalie Crevier-Denoix, Erwin M. Bakker, Yannick Ruel, Philippe Pourcelot, Marianne L.J. van Schie, Claire Laugier, and P.René van Weeren
Department Equine Sciences, Faculty Veterinary Medicine, Utrecht University, the Netherlands

16h15 **Departure to the Haras du Pin**

Thursday 19 June 2008

8h30-10h15

Oral session 6 - Performance evaluation - Hoof and motion

Chairs : H. Davies, F. Buchner

- 8h30** BIOMECHANICAL FACTORS INFLUENCING SALE PRICE IN THE SHOWJUMPER
Siân E. M. Lawson
Newcastle University, UK
- 8h45** AN INVESTIGATION IN TO THE RELATIONSHIP BETWEEN FLUCTUATING ASYMMETRY AND PERFORMANCE IN EVENT HORSES
Kirsty G. McDonald and Lucy Dumbell,
Hartpury College, University of the West of England, UK
- 9h00** SKELETAL FORELIMB MEASUREMENTS AND HOOF SPREAD IN RELATION TO ASYMMETRY IN THE BILATERAL FORELIMB
Gail H. Wilson and Kirsty McDonald
Hartpury College (University of the West of England), UK
- 9h15** HOOF CONFORMATION AND PERFORMANCE IN THOROUGHBREDS IN MACAU
Andrew R. E. Cust, Garry A. Anderson, R. Chris Whitton and Helen M. S. Davies
The University of Melbourne, Australia
- 9h30** ASSOCIATION BETWEEN EXERCISE AND PROXIMAL HOOF CIRCUMFERENCE IN YOUNG THOROUGHBREDS DURING THEIR PREPARATION FOR RACING
Virginie Decurnex, Garry A. Anderson and Helen M.S. Davies
Cabinet vétérinaire de la Grange-Neuve, Switzerland
- 9h45** RELATIONSHIPS OF *IN VITRO* RADIAL HOOF STRAIN TO LOAD AND JOINT ANGLES
Sarah J Hobbs, John Mather, Carole Rolph, Jim Richards
University of Central Lancashire, UK
- 10h00** HORIZONTAL MOMENT AROUND THE HOOF CENTRE OF PRESSURE DURING WALKING IN A STRAIGHT LINE AND ON RIGHT AND LEFT CIRCLES
G. Robert Colborne, Laura A. Heaps and Samantha H. Franklin
University of Bristol, UK

10h15-10h45

Coffee break (and visit exhibit)

10h45-11h15

Poster session 3 - Gait and Locomotion

Chairs : H.M. Clayton, W. Back

- 10h45** FORELIMB KINEMATICS OF THE WALK AND PASO LLANO OF THE PERUVIAN PASO
Molly C. Nicodemus and Kristen A. Slater
Mississippi State University, USA
- 10h50** COMPARISON OF TEMPORAL VARIABLES OF THE ARABIAN HUNTER AND COUNTRY ENGLISH PLEASURE CANTERS
Kristen A. Slater and Molly C. Nicodemus
Mississippi State University, USA
- 10h55** CHANGES IN KINEMATICS IN RELATION TO PRECONDITIONING AND RACE TRAINING IN A COHORT OF 2 YEAR OLD THOROUGHBRED RACEHORSES
Chris W. Rogers and Elwyn C. Firth
Massey Equine, IVABS, Massey University, New Zealand
- 11h00** THE RELATIONSHIP BETWEEN LUMBOSACRAL FLEXION-EXTENSION MOVEMENT AND CANTER SPEED ON A TREADMILL
Jenni-Louise Johnson, Kathryn Nankervis, and Meriel Moore-Colyer
Hartpury Equine Veterinary and Therapy Centre, Hartpury College, UK
- 11h05** EFFECT OF HEAD AND NECK POSITION ON LIMB AND BACK KINEMATICS IN THE RIDDEN HORSE AT WALK AND TROT
Marie Rhodin, Constanza B. Gómez Álvarez, Christopher Johnston, P. René van Weeren, Michael Weishaupt and Lars Roepstorff
Swedish University of Agricultural Sciences, Sweden
- 11h10** INFLUENCE OF A CORRECTIVE TRIMMING ON THE POSITION OF THE CENTRE OF FORCES UNDER THE HOOF DURING LANDING, MID STANCE AND BREAKOVER
Isabelle Caudron, Jean-Philippe Lejeune, Laurent Vander Heyden and Didier Serteyn
Centre Européen du Cheval/Université de Liège, Belgium

11h15-12h15

Visit exhibit

12h15-13h15

Lunch

13h15-14h30

Oral session 7 - Gait and locomotion

Chairs : B. Colborne, T. Pfau

- 13h15** TIMING AND LOADING OF THE LIMBS AT THE PASSAGE
Michael A. Weishaupt, Katja von Peinen, Thomas Wiestner, Nina Waldern, Christopher Johnston, René van Weeren, Heinz Meyer and Lars Roepstorff
Equine Department, Vetsuisse Faculty, University of Zurich, Switzerland
- 13h30** INFLUENCE OF DIFFERENT HEAD-NECK POSITIONS ON FORCE AND TIME PARAMETERS AT WALK AND TROT IN THE UNRIDEN HORSE
Nina M. Waldern, Katja von Peinen, Constanza G. Gómez Álvarez, Thomas Wiestner, Christopher Johnston and Michael A. Weishaupt
Equine Hospital, Vetsuisse Faculty, University of Zurich, Switzerland
- 13h45** BACK KINEMATICS OF HEALTHY HORSES TROTGING ON A TREADMILL VS OVERGROUND
Constanza B. Gómez Álvarez, Marie Rhodin, Wim Back and P. René van Weeren
Católica de Temuco University, Chile
- 14h00** THE INFLUENCE OF CHANGE IN HORSE'S WALK SPEED ON THE BACK MOVEMENT MECHANISM IN RELATION TO HIPPOThERAPY
Miroslav Janura, Tereza Dvorakova, Christian Peham, Zdenek Svoboda
Palacky University, Faculty of Physical Culture, Czech Republic
- 14h15** SYMMETRY OF DORSOVENTRAL HIND LIMB MOVEMENT DURING OVER GROUND LOCOMOTION IN THE HORSE
Elizabeth E. Church, Anna M. Walker, Alan M. Wilson and Thilo Pfau
The Royal Veterinary College, London, UK

14h35-15h20

Schamhardt Memorial Lecture:

Pr Ingvar Fredricson, Sweden. "History of equine gait analysis in Sweden"

15h20-15h40

Coffee break

15h40

Departure to the CIRALE and the racetrack...

19h30

Cocktail

Grand Hotel

20h30

Gala dinner