



Newsletter of the  
International Society of Veterinary  
Ophthalmology  
Fall 2006

**ISVO EXECUTIVE COMMITTEE**

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## *Editorial*

Awareness of a privilege

There is a formal common way to recognize the relevant contributions to our profession made by selected outstanding colleagues: national or international awards, ceremonies, plates etc..

There is an informal way to recognize the essential contribution of many, many colleagues who set the good example for us, teaching us, spreading information and knowledge: being aware of the privilege we had knowing them. It is just a feeling, but human relationships are based on feelings.

This is the reason why we are dealing again with *The Globe* to maintain alive a flame that has been kindled in the 80s by people like Bill Magrane, to cite a name, and became a fire thanks to all of you, involved in those years in the field of Veterinary Ophthalmology, living in USA, Europe, Canada, South America, Japan, Australia, Africa, Asia, being scattered somewhere in the world.

We are aware of the privilege we had meeting you !

We already lost some friends, as years went by, to them we dedicate our Newsletter.

Why do we need The Globe ?

- To give a chance to all people interested in Veterinary Ophthalmology to be updated on the most relevant events being held somewhere in the world.
- To give everybody the opportunity to use it as a mean of communication on a worldwide basis.
- To apply the first objective of I.S.V.O. constitution that is to promote the

exchange of information and further scientific progress in veterinary ophthalmology on an international basis.

Which will be the strategy to edit the newsletter and who will be involved ?

Kristina Narfstrom will be Co-editor in charge of scientific content (such as highlights of topics covered at international congresses and discussion in regards to diagnostic methods and instrumentation).

Sten Wiechel (DVM but not an ophthalmologist), will be production coordinator in charge to make the Globe a web-based (e-mailed) publication with updated information concerning the events in the field of Veterinary Ophthalmology all over the world.

Which will be the target of The Globe ?

Of course all ISVO members but it will be possible to reach also more people thanks to the agreement with societies and web-based lists of discussion.

The goal is to link the more people we can.

What about expenses to do all the work ?

As usual we are working on a voluntary basis and there will be no cost for ISVO. A private company based in USA, RetVet Corp, will sponsor the initiative and take care of e.mailing The Globe.

Claudio Peruccio

## *Letter from the ISVO President*

As an ISVO President I would like to thank all people who are helping us in this so grateful challenge, especially Dr. Claudio Peruccio and Dr. Kristina Narfstrom who are keeping alive our newsletter, The Globe.

The ISVO Society is an International Society of Veterinary Ophthalmology that was organized in the late 1970's on the initiative of Rowan Blogg (Australia), Bill Magrane (USA), Claudio Peruccio (Italy) and Douglas Slatter (Australia). The first meeting was in Barcelona, Spain in the fall of 1980, at which time Bill Magrane was elected as first President. The most recent one was held last year in Mexico City joint with the Colegio Latinoamericano de Oftalmologos Veterinarios (CLOVE) meeting. That was the first time ISVO had the opportunity to share its meeting with the Latino American Ophthalmology College. The results were fantastic due to magnificent interaction between both societies. The next ISVO meeting will be held in Genova (Italy) joint with the European Society of Veterinary Ophthalmology (ESVO), the European College of Veterinary Ophthalmologists (ECVO) and the

Italian Society of Veterinary Ophthalmology (SOVI). In this occasion I will be glad to transfer the presidency to Dr Maurice Roze (France) elected in the last meeting. Dr Maurice Roze, as a new President, will take the responsibility of ISVO activities till the 2009 meeting that will be held in Sao Paulo City (Brazil) joint with the WSAVA Congress. Actually, we are trying to expand the divulgation of the Globe newsletter to a bigger number of readers. More information about the ISVO can be found at the web page. Finally, in the next meeting in Genova, the ISVO members will have a great opportunity to discuss the future goals of the Society.

Jose Luiz Laus

## Breaking News

The mutation for rdAc (retinal degeneration of Abyssinian cat) has been identified after many years of hard work at the Laboratory of Genomic Diversity, National Cancer Institute, Frederick, MD, at the Swedish University of Agricultural Sciences, Uppsala, Sweden, and finally, at the Laboratory of the Visual Science Group, University of Missouri-Columbia, MO, USA. A genome scan in the 122-member Narfstrom pedigree was used for the research, whereof 79 cats were genotyped. The ability to fine map a region of significant linkage was made possible by the availability of the 2X cat genome sequence from the highly inbred Abyssinian cat, *Cinnamon*. The discovery of the mutation for the slow progressive rod cone degeneration, a disease that has been shown to have many similarities with human Retinitis Pigmentosa (RP), is a tremendous break-through for retinal research, especially in the field of corrective gene therapy for primary photoreceptor disorders. Publications on these very exciting findings are in preparation.

Breeders and owners of Abyssinian cats will soon be invited to submit buccal swabs for DNA analysis for on-going research into the prevalence and distribution of the disease in the cat population.

October 5, 2006

Kristina Narfstrom  
Marilyn Menotti-Raymond



## Coming Events

### 2006 ACVO ANNUAL CONFERENCE

October 31-November 4, 2006  
San Antonio, TX, USA  
Hyatt Regency San Antonio  
(Information available at: [www.acvo.org](http://www.acvo.org))



### British Association of Veterinary Ophthalmologists (BrAVO)

November 17-19<sup>th</sup>, 2006 Bristol Marriott City Centre UK  
More information at <http://www.bravo.org.uk/>



### 30th Annual Midwest Veterinary Ophthalmic Society Meeting

February 3-4, 2007, Columbus, OH, USA  
The 30<sup>th</sup> annual MVOS meeting will be held on February 3 and 4, 2007 at the Marriott Columbus Airport Hotel in Columbus, Ohio. This meeting is a casual, exciting time where patient's ocular diseases are presented in a very informal manner. Good discussion is the rule and fun is the outcome. For more information contact: Milton Wyman, c/o MedVet Columbus, 300 East Wilson Bridge Rd., Worthington, OH 43085, Phone# (740) 881-5600, [mwyman1@columbus.rr.com](mailto:mwyman1@columbus.rr.com).



### 2007 ECVO-ESVO-ISVO-SOVI CONGRESS Genova (Italy) May 30<sup>th</sup> - June 3<sup>rd</sup>

The next meeting of the European Society of Veterinary Ophthalmology (ESVO) and the European College of Veterinary Ophthalmologists (ECVO), will be held May 30<sup>th</sup> - June 3<sup>rd</sup> 2007, in Genova, Italy, in association with the International Society of Veterinary Ophthalmology (ISVO) and the Italian Society of Veterinary Ophthalmology (SOVI). The Continuing Education day will start Wednesday afternoon (May 30<sup>th</sup>) to end Thursday (May 31<sup>st</sup>) at noon. The topics of this part of the program will be "Retina" and "Uvea" and the speakers will be Dr. **Kristina Narfstrom**, DVM, PhD, Dipl. ECVO, Professor at the Department of Veterinary Medicine and Surgery, University of Missouri-Columbia, and at the Mason Eye Institute, University of Missouri-Columbia, USA and Dr **Stefano Pizzirani**, DVM, PhD, Dipl. ECVS, Dipl. ACVO, Assistant Professor, Ophthalmology, Cummings School of Veterinary Medicine, TUFTS University, North Grafton, MA, USA.

On Thursday afternoon, just before an unforgettable get together at the Genova Aquarium, the main in Europe, we'll have the opportunity to focus on "Fish Ophthalmology" thanks to a special speaker, Dr. **Ellen Bjerkås** DVM PhD Dipl ECVO, Professor Norwegian School of Veterinary Science, Department of Companion Animal Clinical Sciences, Oslo, Norway.

On Sunday morning there will be possibility to attend a seminar on "Glaucoma" or one on "Hereditary Eye Diseases" and the speakers will be Dr. **Gillian J. McLellan**, BVMS PhD, DVOphthal, Dip. ECVO, Dip. ACVO, MRCVS, Assistant Professor, Department of Veterinary Clinical Sciences, Iowa State University, Visiting Professor, Department of Surgical Sciences, University of Wisconsin-Madison, and Dr. **Simon M. Petersen-Jones**, DVetMed PhD DVOphthal DipECVO MRCVS, Associate Professor, Comparative Ophthalmology, Department of Small Animal Clinical Sciences, Michigan State University, USA.

For further information concerning the scientific program contact Claudio Peruccio (peruccio@whiteready.com).

The main programme will start Thursday afternoon and will consist of short communications, a self assessment test on hereditary diseases and a poster session. There will be two state of the art lectures. One on Friday morning with **Kristina Narfstrom** concerning "An update on Spontaneous Animal Models of Human Retinal Diseases". One organized by the ISVO as the Magrane Memorial Lecture on Saturday morning with, as a speaker, Dr. **George Duncan**, BSc, MSc, PhD, Professor of Biomedicine, School of Biological Sciences, University of East Anglia, Norwich, UK, concerning "Molecular mechanisms for human cataract and posterior capsule opacification : lens cell signalling and calcium transport".

To submit abstracts for short communications or posters please find the abstract form on the ESVO homepage (www.esvo.org). Only submissions according to the requirements mentioned in the form can be accepted. The deadline for submission is February 1<sup>st</sup> 2007.

(Hotel reservation & travel information:  
[segreteria@bccongressi.it](mailto:segreteria@bccongressi.it))

(More information available at: [www.esvo.org](http://www.esvo.org))



## ECVO-ESVO-ISVO-SOVI 2007 CONGRESS

Genova (Italy) May 30<sup>th</sup> - June 3<sup>rd</sup>

### PRELIMINARY SCIENTIFIC PROGRAM

#### Continuing Education Day

Wednesday May 30<sup>th</sup>, 03:00 pm - 06:30 pm Uvea

**Stefano Pizzirani, (Italy)**, DVM, PhD, Dipl. ECVS, Dipl. ACVO, Assistant Professor, Ophthalmology, Cummings School of Veterinary Medicine, TUFTS University, North Grafton, MA, USA

Thursday May 31<sup>st</sup> - 09:00am - 12:30am Retina

**Kristina Narfstrom, (Sweden)**, DVM, PhD, Dipl. ECVO, Professor at the Department of Veterinary Medicine and Surgery, University of Missouri-Columbia, and at the Mason Eye Institute, University of Missouri-Columbia, USA

#### Main Conference Program

Thursday May 31<sup>st</sup>

03:00 pm - 06:00 pm **General Session (Basic and clinical research, retrospective studies, case reports)**

06:00 pm - 07:30 pm **Fish Ophthalmology -**

**Ellen Bjerkas, (Norway)**, DVM PhD Dipl ECVO, Professor Norwegian School of Veterinary Science, Dep. of Companion Animal Clinical Sciences, Oslo, Norway

Friday June 1<sup>st</sup>

09:00 am - 11:00 am **General Session (Basic and clinical research, retrospective studies, case reports)**

11:30 am - 12:30 am **State of the Art Lecture: An update on Spontaneous Animal Models of Human Retinal Diseases - Kristina Narfstrom (Sweden)**

02:00 pm - 03:30 pm **Hereditary eye diseases**

04:00 pm - 06:00 pm **Poster session**

Saturday June 2<sup>nd</sup>

09:30 am - 11:00 am **General Session (Basic and clinical research, retrospective studies, case reports)**

11:30 am - 12:30 am **ISVO Magrane Memorial Lecture : Molecular mechanisms for human cataract and posterior capsule opacification : lens cell signalling and calcium transport - George Duncan (UK)**, BSc, MSc, PhD, Professor of Biomedicine, School of Biological Sciences, University of East Anglia, Norwich, UK.

03:00 pm - 05:45 pm **General Session (Basic and clinical research, retrospective studies, case reports)**

05:45 pm - 06:30 pm **Announcement of the ECVO-ESVO awards 2006, election of the 2009 meeting location, invitation to the 2008 meeting in France and closure of the scientific meeting**

#### SEMINARS

Sunday June 3<sup>rd</sup>, 09:00 am - 12:00 am

**Seminar 1: Glaucoma Gill McLellan**, BVMS PhD, DVOphthal, Dip. ECVO, Dip. ACVO, MRCVS, Assistant Professor, Department of Veterinary Clinical Sciences, Iowa State University and Visiting Professor, Department of Surgical Sciences, University of Wisconsin-Madison, USA

**Seminar 2: Hereditary Eye Diseases Simon M. Petersen-Jones**, DVetMed PhD DVOphthal DipECVO MRCVS, Associate Professor, Comparative Ophthalmology, Department of Small Animal Clinical Sciences, Michigan State University, USA

ECVO-ESVO-ISVO-SOVI 2007 CONGRESS  
Genova (Italy) May 30<sup>th</sup> - June 3<sup>rd</sup>

SOCIAL PROGRAM

To better organize the Social program of the 2007 ECVO-ESVO-ISVO-SOVI Congress in Genova, Italy, May 30- June 3 we are planning a series of initiatives and we need your help and contribution. We would like to collect information, pictures, videos, slides etc.. concerning your non professional activities and interests, your personal hobbies, sports etc.. We would like to know if you play, are a great photographer, an expert fisherman, like to sing, cook, sail, ride, paint, carve, sculpture, etc.. If you have a personal production please send pictures. We would like to show everybody "the other side of the moon" to enhance human, not only professional relationships.

If you plan to send information, digital pictures etc. e.mail it to <peruccio@whiteready.com> . CDs, papers, pictures or whatever else, can be sent to:

Claudio Peruccio  
Corso Laghi 81/97  
10090 Buttigliera Alta (TO)  
Italy

At the moment we are planning three main initiatives for the Genova Congress.

- 1) A short presentation of the story of our societies to give to old members recognition for what they have done and to new members an occasion to better know the roots of our professional organizations.
- 2) A booth where to display what you'll send us. Hopefully we'll elaborate some power point presentations, lists of groups of interest etc.. to favour relationships among colleagues shearing the same non professional interests.
- 3) A show for the social dinner. We invite your national group or you as a person to give a contribution by presenting a taste of your artistic attitude. Songs, dance, poems or any performing art are welcome. If you are interested, please e.mail us as soon as possible information concerning what you could do. We must plan in detail all events without interfering with the intense scientific program.

We hope to be able to open a little window to let all members, coming to the Congress, appreciate the non professional counterpart of our very busy lives.

Thank you for your help.

Claudio Peruccio

## From the Congresses

Meeting of ECVO and ESVO, Brugge - Belgium

May 10<sup>th</sup> - 14<sup>th</sup> 2006

*The annual ECVO-ESVO meeting in Brugge was very successful and well attended.*

*A few selected abstracts from the Proceedings Book have been included in this issue of The Globe.*

**Leishmania spp. affecting corneal keratocytes in a dog.**  
C Naranjo<sup>1</sup>, D Fondevila<sup>1</sup>, Carvalho A<sup>1</sup>, M Leiva<sup>1</sup>, RR Dubielzig<sup>2</sup> & MT Pena<sup>1</sup>.

<sup>1</sup> *Departament de Medicina i Cirurgia Animals, Universitat Autònoma de Barcelona, Spain;*

<sup>2</sup> *Department of Pathobiological Sciences, University of Madison-Wisconsin, Wisconsin, USA.*

**Purpose:** To describe a case of canine leishmaniasis in which parasites were found in corneal keratocytes.

**Methods:** A 1.5-year-old male English Cocker Spaniel was presented for evaluation of ocular redness and discharge. He had been diagnosed with leishmaniasis and was under treatment for it. A complete ophthalmic examination was performed. The dog was euthanized after 6 months due to poor response to treatment. Eyes were enucleated post mortem and histopathology, immunohistochemistry (IHC) and electron microscopy were performed.

**Results:** On the first examination the dog had bilateral (OU) keratoconjunctivitis and anterior uveitis. The dog was given treatment for leishmaniasis and a short-term therapy with systemic corticosteroids. Topical dexamethasone, antibiotics and tropicamide were also administered. He developed a central superficial corneal lipidic dystrophy and cellular infiltrate OU. On hematoxylin and eosin slides, diffuse granulomatous infiltrate in the superficial and deep stroma of the ventral cornea OU were seen. In the mid stroma of the ventral cornea OU, no infiltrate was observed but organisms resembling *Leishmania* were detected. IHC revealed *Leishmania* parasites in the area with inflammation and in the mid stroma where no inflammatory cells were seen. On electron microscopy, several parasites were found inside cytoplasm of what seemed to be corneal keratocytes, with no surrounding inflammation or vessels.

**Conclusions:** To the authors' knowledge this is the first report in which *Leishmania* parasites have been seen inside keratocytes. Other reports have demonstrated the presence of these parasites inside cells other than macrophages, such as skin fibroblasts.

**Support** Carolina Naranjo receives doctoral funding from an autonomous government grant.

## Ocular biometry, determination of corneal curvature, and prediction of intraocular lens power in the equine eye.

RJ McMullen<sup>1</sup>, J Salmon<sup>2</sup> & BC Gilger<sup>2</sup>.

<sup>1</sup>Feldkirchen-Westerham, Germany; <sup>2</sup>North Carolina State University, Raleigh, N/C, USA.

**Purpose:** To determine ocular dimension (A- and B-scan ultrasound) and corneal curvature (radius of corneal diameter determined in B-scan ultrasound) in the equine eye and to calculate the appropriate dioptric power for a posterior chamber intraocular lens (IOL) necessary to achieve emmetropia in the eyes of horses undergoing lens extraction.

**Methods:** 14 clinically normal adult horses of various breeds. Additionally, for comparison, 1 American Miniature colt foal, and one 2.5 year Shire gelding were examined. B-scan ultrasound was performed on one eye from each horse, as well as one eye from both the Shire and the American Miniature. Data from ultrasound (globe measurements and corneal curvature), and the estimated postoperative IOL position were entered into theoretical IOL formulas (Binkhorst and Retzlaff theoretical formulas) in order to calculate the predicted IOL strength required to achieve emmetropia after lens extraction in horses. Corneal curvature was calculated by manually determining the radius of the cornea from prints of the ultrasound images. At least five measurements were calculated from each plane (horizontal and vertical) and the averages for each were calculated. Corneal curvature was measured by manually plotting three independently placed points along the hyperechoic corneal ultrasound reflection. Lines were drawn between the three points and a perpendicular line was drawn through the center of each of the resulting two lines. The point of their bisection represented the corneal radius. Three measurements were obtained for horizontal (K1) and vertical corneal curvature (K2) values (corneal curvature in diopters [D]) and the mean corneal radius calculated. The mean corneal radius was then converted into the average corneal curvature (K) using the web based calculator (<http://augenklinik.uni-wuerzburg.de/scripts2/kindex2e.php>). The mean K was used in the theoretical formulas. Demonstration of the entire cornea (limbus to limbus) was possible using a stand-off and a 7.5 MHz probe. To ensure consistency, all measurements were obtained from images of the globe recorded at the maximal ocular diameter.

**Results:** Mean axial length of globes was 39.23 mm ± 1.26 mm. Mean preoperative anterior chamber depth (ACD) was 5.63 ± 0.86 mm; and mean lens thickness was 11.75 ± 0.80 mm. Predicted

postoperative ACD (PACD) was calculated as the ACD plus 50% of the lens thickness. Additionally, PACD's 2 mm anterior and 2 mm posterior to the center of the lens were calculated in order to evaluate the effect of IOL position on its required refractive power. Required IOL strength calculated, using the three values for the predicted postoperative ACD, was 29.91 D ± 2.50, 29.00D ± 2.52 (center of lens); 27.1 3D ± 2.27, 26.33D ± 2.20 (2mm anterior to center of lens); and 33.1 8D + 2.78; 32.24D ± 2.68 (2mm posterior to center of lens) with the Binkhorst and Retzlaff theoretical formulas, respectively.

**Conclusions:** An IOL of substantially lower diopter strength than that needed in either dogs or cats is required to achieve emmetropia after lens extraction in adult horses. IOL strength of approximately 30D, depending on where the IOL ultimately comes to rest, will likely be required.

**Support:** Equine Uveitis Research Fund, North Carolina State University, 4700 Hillsborough St., Raleigh, NC, USA



## Cataracts in falcons.

I Allgoewer<sup>1</sup>, M Lierz<sup>2</sup>, HM Hafez<sup>2</sup>, R Korbel<sup>3</sup> & E Schäffer<sup>4</sup>.<sup>1</sup> *Animal Eye Practise, Berlin, Germany;* <sup>2</sup>*Institute for Poultry Diseases, FU, Berlin, Germany;* <sup>3</sup>*Avian Clinic, LMU, München, Germany;* <sup>4</sup>*GSF, Oberschleibheim, Germany*

**Purpose:** Congenital ocular abnormalities in seven falcons are described. Results of their ophthalmic examination as well as results of further diagnostics are reviewed.

**Methods:** Seven falcons (Gyrfalcons (*Falco rusticolus*) and gyrfalcon hybrids) were presented because of obvious ocular changes and visual deficits failing to pick the food from their mothers beak. The birds were produced by an experienced falcon breeder using artificial insemination followed by artificial incubation of the eggs. They were produced from different parents. Age at presentation ranged between 70 and 90 days. 2 male and 5 female birds were affected. Diagnostics included ophthalmic, and general examination (n=7), radiography, ultrasonography and computer assisted tomography (n=5), endoscopy including liver and kidney biopsies (n=5), ocular sonography (n=1), haematology and serum biochemistry (n=5), autopsy and ocular histopathology (n=5).

**Results:** All falcons had bilateral cataracts which were predominantly nuclear but extended into the cortex. The lenses were small, flattened and misshaped with an equatorial indentation nasally. Along this equatorial notch the zonules were elongated and thickened. The corneal curvature

seemed slightly levelled. Histopathology of the retinas revealed retinal changes in one bird (unilateral atrophy and contra lateral subretinal fibrous infiltration). All other examinations and further diagnostics revealed normal findings. Conclusion: Ocular abnormalities including cataracts, microphakia and misshaped lenses leading to severely impaired vision are described in seven young falcons. The relevance of the histopathological retinal changes noticed in only one falcon remains undetermined. No other abnormalities were found on clinical and histopathological examinations. The aetiology of the congenital ocular abnormalities remains unclear. However an increase of the hatching temperature is postulated to be of causative importance. Ongoing studies are being undertaken.



### **Feline iridociliary epithelial tumors: Description of gross, histopathology findings and follow up Information of 19 cases.**

RFSanchez<sup>1</sup>, J. Mould<sup>1</sup>, C. Nixon<sup>2</sup>, G. Innocent<sup>3</sup>.

<sup>1</sup>*Small Animal Clinical Studies*, <sup>2</sup>*Department of Veterinary Pathology and* <sup>3</sup>*Comparative Epidemiology and Informatics, Institute of Comparative Medicine, Faculty of Veterinary Medicine, University of Glasgow, UK.*

Purpose: To describe the gross and histopathologic findings and follow-up information of a series of 19 feline iridociliary epithelial tumors.

Methods: Study of eyes enucleated for suspected intraocular neoplasia between 1993 and 2004. The eyes were examined externally and then opened in the plane of the tumor. The surface was photographed and the central section processed into paraffin wax. 5 microns sections were prepared to pass through the pupil, tumor and optic nerve. Sections were stained with Hematoxylin and Eosin (H&E). The tumors were later grouped as a series and restained with H&E, Reticulin, Alcian Blue and Periodic Acid Schiff (PAS). Referring veterinarians were contacted and a questionnaire regarding follow up information was distributed. The information received was analyzed along with the results obtained from the study of the fresh sections and stains.

Results: Grossly, in cut surface, the tumors measured a mean of 10mm in the anterior-posterior axis and 4.3 mm in width. They were all non-pigmented and 13/19 (68.4%) were cystic. 14/19 (73.7%) of the tumors had a solid cell organization with no cases forming acinar structures. Histologically, the tumors were composed mainly of uniform small round cells with an eosinophilic cytoplasm and were grouped together in PAS positive membranes in 15/18 (83%) of the cases and

in reticulin positive membranes in 9/19 (47.4%) of the cases. The cells contained prominent nuclei and nucleoli, and at least part of each tumor closely resembled inner ciliary epithelium. The tumors were locally invasive with 12/19 (63.1%) of the cases invading the sclera and 3/19 (15.7%) of the cases invading the sclera! and/or choroidal vasculature. Follow up times were available for 15/19 (78.95%) cases. 12/15 (80%) had disease free intervals of at least 12 months and 10/15 (66.67%) cases were in excess of 24 months. One case had unconfirmed local tumor recurrence.

Conclusions: Results in this study support the diagnosis of these tumors as being of iridociliary epithelial origin and suggest that although some may be locally invasive they appear to have a low potential to cause metastatic disease.

Support: This study was carried out in part during a Pet Savers sponsored Residency in Veterinary Ophthalmology at the Faculty of Veterinary Medicine of the University of Glasgow and at the Eye Veterinary Clinic in Leominster, England.

## **Case Report**

### **ERG by Kristina Narfstrom**

An 18-month-old English Springer Spaniel dog was examined by ERG because of its close relationship with an older PRA affected dog. No visual problem was noted by the owner. The dog had normal pupillary light responses. Upon ophthalmoscopy some questionable grayish discoloration was observed in the peripheral tapetal fundi. The dog was sedated with medetomidine (0.05 mg/kg IM), topical anesthesia was applied to the right eye as well as short-acting mydriatics. Thereafter the dog was placed on a table with a cushion to stabilize the head. An eyelid speculum was inserted and the electrodes applied in a routine manner. A HMsERG unit was positioned approximately 1 cm in front of the dog's right eye, mounted on a camera tripod, in order to automatically run the ERG dog protocol. **Fig. 1** illustrates the placement of the dog's head in relation to the ERG unit. Room light was turned off and the 'dog protocol' initiated immediately. **Fig. 2**, EFGH, illustrates the recordings obtained on two similar ERG sessions performed on the same dog. Recordings in blue were the initial ERGs obtained on the first occasion, and those in red were performed 3 months later. Recordings seen in **Fig 2**, ABCD, were obtained from another 19-month-old English Springer Spaniel, believed to be normal, under similar conditions at the same two occasions.



Figure 1. The dog is sedated and positioned on the table and the head is stabilized. A Jet contact lens electrode, cushioned by methylcellulose, is used on the anesthetized cornea. A ground subdermal electrode is placed at the occipital process and a similar reference electrode at the base of the ear, approximately 1.5 cm from the lateral canthus of the right, tested eye. A camera tripod is used to keep the HMsERG unit in a good position, with the photo-stimulator part 1-2 cm in front of the tested eye.

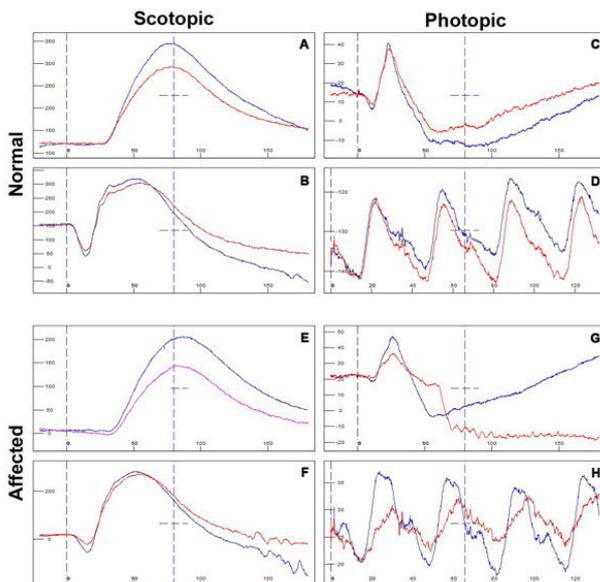


Figure 2. Some of the ERGs obtained from a normal 19-month-old (A-D) and an affected 18-month-old English Springer Spaniel (E-H) at a 3-month interval (1<sup>st</sup> session= blue, 2<sup>nd</sup> session=red). The scotopic recordings shown were performed after 20 min. of dark adaptation using 0.01 cd.s/m<sup>2</sup> and 3 cd.s/m<sup>2</sup> of white LED light stimulation, respectively, (A, B, E, F). Stimulation with 10 cd.s/m<sup>2</sup> was also performed but not included in the figure. Photopic recordings after 10 min. of background light adaptation (30 cd/m<sup>2</sup>) were obtained using single flashes and 30 Hz flicker recordings, both stimuli at 3 cd.s/m<sup>2</sup>, respectively (C, D, G, H). For calibration of the recordings see ordinate for amplitudes in microvolts and abscissa for implicit time in milliseconds.

Note the reduced scotopic responses mainly for the a-wave in the affected dog, especially at the second (red) ERG session (clearly seen in F). Note also the reduction in photopic responses observed at the second session: not only single flash cone recordings but also flicker recordings were severely reduced. There is, further, a slight delay in timing (implicit time) noted on the 30Hz flicker recordings. The ERG results point toward an early case of PRA with photoreceptors as well as inner retina affected by the disease process (1).

**Comment:** It is important to not only evaluate the b-wave but also carefully evaluate the a-wave in suspected photoreceptors disorders. Recently this parameter has been found to be important in the diagnostics of generalized retinal degenerations, since it reflects photoreceptor cell activity specifically (2, 3). In order to evaluate the a-wave more thoroughly it may be important to also use bright light stimuli (up to 10 cd.s/m<sup>2</sup>) in the dark-adapted state, as recommended in the 2004 update of the human standard for clinical electroretinography (4).

References:

1. Bush RA, Sieving PA: Inner retinal contributions to the primate photopic fast flicker electroretinogram. *J Opt Soc Am A* 13: (3) 557-565, 1996.
2. Breton ME, Schueller AW, Lamb TD, Pugh EN: Analysis of ERG a-wave amplification and kinetics in terms of the G-protein cascade of phototransduction. *Invest Ophthalmol Vis Sci.* 35: 295-309, 1994.
3. Kang Derwent JJ, Padnick-Silver L, McRipley M, Giuliano E, Linsenmeier RA, Narfstrom, K: The electroretinogram components in Abyssinian cats with hereditary retinal degeneration. *Invest Ophthalmol Vis Sci* 47:3673-3682, 2006.
4. Marmor MF, Holder GE, Seeliger MW, Yamamoto S: Standard for clinical electroretinography (2004 update). *Doc Ophthalmol* 108: 107-114, 2004.

## News in Short

A new portable ERG unit has recently been introduced into the veterinary market, the handheld multi-species ERG (HMsERG). The need for modern ERG equipment that is chargeable and flexible for use both in the research environment and in the clinical setting was recognized by Kristina Narfstrom. A private company, RetVet Corp was established to develop

the ERG unit, together with an engineering company, Linscan Ultrasound Inc., in Rolla, MO, USA. Development took approximately 2.5 years. After meticulous testing of the instrument in the Linscan laboratories and clinical recordings mainly in dogs, cats, horses and other mammals at different clinics and animal hospitals, the equipment was ready to be introduced to the veterinary market. This was done for the first time at the ACVO meeting in Nashville, TN, 2005. In order to give a scientific background for use of the instrument, two posters were thereafter presented as a result of ongoing research using the HM<sub>s</sub>ERG. The first one at the Association for Research in Vision and Ophthalmology (ARVO), Fort Lauderdale, USA, May, 2006, where a comparative study was presented, in which the results of HM<sub>s</sub>ERG recordings were compared to those from a conventional large table top Ganzfeld ERG system (1). The second presentation was at the International Society for Electrophysiology of Vision, (ISCEV), Fontevraud, France, June, 2006. At the latter meeting a study was presented using the HM<sub>s</sub>ERG in the early diagnosis of PRA in the English Springer Spaniel dog (2). A standardized dog ERG protocol was used for specific evaluation of rod and cone function, previously published in Documenta Ophthalmologica, 2002 (3), a task that was initiated by the ECVO several years ago (4). The HM<sub>s</sub>ERG has the possibility to run single or multiple specific tests (ERGs and/or VEPs) or preprogrammed protocols, the latter automatically, performed in the aforementioned two scientific studies. This allows for electrophysiologic evaluation of retinal function in animals at various clinics, and the results can then be compared on a world-wide basis. For example, in the second ERG study described above, suspected cases of PRA in English Springer Spaniel dogs were diagnosed at an animal hospital in Stockholm, Sweden, and other cases in the same breed were diagnosed in Columbia, MO, USA. Similar recording conditions and the recommended, standardized dog protocol (3) were used in both countries, even with the same HM<sub>s</sub>ERG unit.

For further information regarding the HM<sub>s</sub>ERG, see [www.retvetcorp.com](http://www.retvetcorp.com)

#### References:

1. Jeong, M.B., Seeliger, M., Galle, L., Vaegan, Seo, K.M., Narfström, K.: The efficacy for functional evaluation of feline hereditary rod-cone degeneration using a portable mini-Ganzfeld electroretinography unit.

- Association for Research in Vision and Ophthalmology, Vol. 47: Abstract #1048, 2006.
2. Narfström, K., Galle, L., Dubielzig, R., Katz, M.L.: Screening for late onset progressive retinal atrophy in the English Springer Spaniel dog using a portable ERG unit and an automated protocol. International Society for Clinical Electrophysiology of Vision (ISCEV) 44<sup>th</sup> Annual Symposium, Fontevraud Abbey, France, Abstract S2-20, June, 2006.
3. Narfstrom K, Ekesten B, Rosolen SG, Spiess BM, Percicot CL, Ofri R: Guidelines for clinical electroretinography in the dog. Doc Ophthalmol 105: 83-92, 2002
4. Ofri, R: Clinical electrophysiology in veterinary phthalmology- the past, present and future. Doc Ophthalmol 104: 5-16, 2002.

## Useful Addresses

American College of Veterinary Ophthalmologists (ACVO): [www.acvo.org](http://www.acvo.org)

American Society of Veterinary Ophthalmology (ASVO): [www.asvo.org](http://www.asvo.org)

European College of Veterinary Ophthalmologists (ECVO): [www.ecvo.org](http://www.ecvo.org)

European Society of Veterinary Ophthalmology (ESVO): [www.esvo.org](http://www.esvo.org)

British Association of Veterinary Ophthalmologists (BrAVO): [www.bravo.org.uk](http://www.bravo.org.uk)

European School for Advanced Veterinary Studies: [www.esavs.net](http://www.esavs.net)

Continuing Education Courses in the United Kingdom: [www.bsava.com](http://www.bsava.com)

International Veterinary Information Service (IVIS): [www.ivis.org](http://www.ivis.org)

LatinoAmerican College of Veterinary Ophthalmologists: [www.clov.org](http://www.clov.org)

Nice home page in German: [www.augentierarzt.at](http://www.augentierarzt.at)



**ISVO will continue to e.mail TheGlobe for free twice - three times a year. If you don't want to receive it, if you like to change e.mail address or add more addresses, please e.mail a note to [info@retvetcorp.com](mailto:info@retvetcorp.com)**

