



**TUESDAY, SEPTEMBER 16**

**8:00 – 9:30**

**OPEN AND CLOSED EYE ULTRASOUND TRAINING IN SEA LIONS**

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Ultrasound has become a very useful tool for the medical control of marine mammals in the last years. It was mainly used for the follow-up of gestation – but has nowadays become a classical mean to control organs such as lungs, liver, kidneys and the reproductive tract among others, or at least in dolphins. With the progress of medical training it is now also used in other marine mammal species, such as sea lions and seals and facilities have included it in the regular physical check-ups of their pinnipeds. This presentation will review the different animal positions to correctly scan the different systems, briefly present the organs references and physiological differences between some species, gestation follow up and fetal sex identification, show some pathologies already identified by this mean and present some on-going researches.

Among others a project was started at Amneville zoo in France to voluntarily scan the eyes of sea lions as thorough references on the sea lion eye anatomy through ultrasound were still lacking. At Amneville zoo in France, where the pinnipeds were already very well trained for ultrasound examination and upon further discussion about the scientific information gained from the procedure, it was decided to desensitize the animals to voluntary eye ultrasound. Several positions for the animals, the trainers and the veterinarian were tested such as to have the most comfortable access to scan the eyes. Both open and closed eye ultrasound were attempted. Several animals were trained to voluntary accept the probe on closed eye lids, directly on their cornea after utilization of topical anesthetic and also through an immersion method to record images and videos of the eye. Reference images of the internal eye structure were henceforth obtained. Ultrasound can help in the diagnose of retinal detachment, foreign bodies, swelling/inflammation, tumors and other disorders that are sometimes difficult to identify through the lack of pupillary dilatation by classical topical agents in these animals. Surgical removal of the lens has become more frequent in pinnipeds, generally through an intra or extra capsular approach upon full ripening of the lens. The animals were desensitized to eye flushing before the administration of the topical anesthesia drops. Teaching them to focus on a target to minimize eye globe movement during the examination proved to be a real challenge.

Habituation to close-up photography and flash for the continuous record of the behaviors was important. In and out of water scanning were considered. The training allowed for the follow-up of cataract development in an animal and is seen as a helpful diagnostic tool pre and post-surgery. SCIL France, distributor of the GE ultrasound machines in France, sponsored the project by providing the equipment. An earlier identification of cataractous changes though ultrasound may potentially allow to a surgery by phacoemulsification, less invasive and the most widely used cataract surgery nowadays, because performed at an earlier development of the disease