

# EQUIPMENT AND INSTRUMENTS

In this section I describe the equipment and instruments that are necessary for the various treatments and procedures that I perform. I also describe how I keep everything clean and sanitized.

## ATTIRE

I always wear a clean surgical scrub shirt. I wear a face mask at all times so I'm not inhaling excess feather dander and beak dust. I wear an optivisor (optical binocular magnifier) for close-up work. I use ear protectors around large, noisy birds to help prevent hearing loss. I wear a modified farrier's leather apron around my legs and waist to prevent injury from a bird's beak and claws and as an aid in catching birds.



Dr McDonald in bird clinic attire

## LIGHTING

The room I work in will always have some type of overhead lighting present. I use an “under the cabinet” fluorescent hood light that is positioned on top of my exhaust box. In addition, I have a small LED spot light that is attached to the fluorescent light fixture. Lastly, I also use a full spectrum floor lamp.



Florescent lighting on hood with LED spot light. Full spectrum floor lamp.

## EQUIPMENT FOR GROOMING PROCEDURES

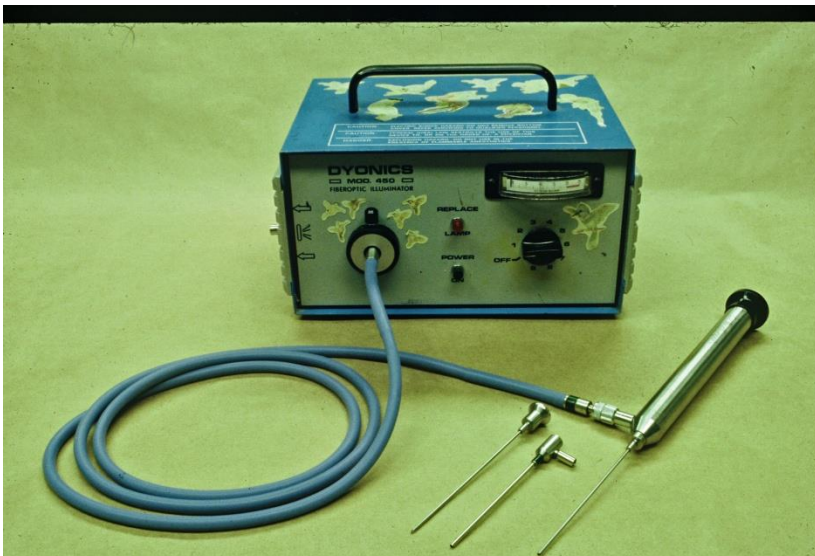
Beak trimming in most birds is accomplished using an electric, variable speed hobby tool (Dremel). A coarse conical grinding stone (Dremel #952) is the bit of choice, regardless the size of the patient. Nail trims are performed using a “White” canine toenail trimmer (Sontec) in large parrots and a human toenail trimmers in small birds (<100g) The Dremel grinding stone can be used to smooth the cut surface and edges. Ferric subsulfate powder (Kwik Stop) is applied for hemostasis, if needed. Wing trims are done using a good pair of

sharp/blunt scissors in small birds and the White nail trimmer in large birds. Leg bands are removed using a precision leg band cutter (Kras by Veterinary Specialty Products).



Trimming nails and smoothing out the edges with a Dremel tool.

## EQUIPMENT FOR SURGICAL SEXING



Dyonics Arthroscope and accessories

I use a Dyonics 1.7mm, 100mm length, 0 degrees angle, human arthroscope. I carry four sets of trocar-cannula devices. I always carry a duplicate Dyonics scope in case of breakage. In addition, I carry a larger Richard Wolf, 2.7mm arthroscope and accessories in case I am scoping larger birds (i.e. swans, cranes, or other large zoo birds). The arthroscope is attached to a halogen light source through a fiber optic light cable.

## TABLE SETUP

I use a smooth, plastic, portable table (Lifetime) purchased from an office supply store. It is 4 x 2 feet, which just fits in my car. The tabletop is impervious and easy to disinfect. I also bring my own swivel chair with extra padding. All procedures are done while seated.



Table setup showing exhaust hood, lighting, vaporizer, sterile drape, and instruments

I work under an exhaust hood to prevent exposure to waste anesthetic gas. The hood is positioned at one end of the table. The front and one side of the box are open on the bottom half to allow placement of the bird and hands under the hood. The box itself is made of lexan plastic but the working surface beneath the hood is safety glass which can be easily disinfected between patients. A sterile drape with sterile gauze sponges is placed next to the hood for placement of endoscopic instruments when in use. All the other instruments or equipment that I use (or may need quickly) are placed in strategic locations around this drape or on top of my exhaust box.

## **CHEMICAL STERILIZATION AND DISINFECTANTS**

The sterilizing solution I use is called glutaraldehyde (Metricide). Four sets of trocar- cannula devices are soaked continuously in this solution between patients. When ready for use, a trocar-cannula set is removed from the glutaraldehyde solution and placed into a solution of quaternary ammonium (KennelSol) disinfectant. This acts as a rinse to remove the glutaraldehyde solution, which can be caustic to tissues. The working end of the arthroscope is disinfected with these solutions as well.

All other instruments and equipment that are in constant use are disinfected by placing them or their working ends in various trays or plastic cups filled with the quaternary ammonium solution. This includes needle holders with suture, hemostats, forceps, scissors, nail trimmers, dental instruments, endotracheal tubes, and syringe and needle with tattoo ink.

I also carry additional surgical instruments with me. These can be chemically sterilized in the glutaraldehyde solution if needed for an emergency surgery or some minor antiseptic procedure.

In addition, the working surface of my hood is disinfected with the quaternary ammonium solution between each bird. This agent or Germ-X (ethyl alcohol) is

also used as a hand sanitizer by me and my assistant between each bird. Latex gloves are worn and changed between birds.

When sexing birds, the surgical site is soaked using 70% alcohol and then the feathers are plucked. This is an area about 1 square inch. Povidone-iodine (Betadine Surgical Scrub) is used to clean the site and alcohol is used as a rinse.

## **SURGICAL DRAPES, GAUZE PACKS**

At my home office I have a steam autoclave. I prepare gauze packs containing one barrier drape (2' x 1.5') and twenty 3 x 3 gauze sponges. I bring dozens of these sterilized gauze packs with me. The drape is used to place my arthroscope on and the gauze sponges are used to clean and dry the scope and trocar-cannula device between birds as well as for disinfecting and blotting the surgical site.

## **ANESTHETIC EQUIPMENT, OXYGEN, AND OTHER DRUGS**

### **Oxygen Concentrator**



Isoflurane inhalation anesthesia is used on all birds being surgically sexed and most of the birds being groomed and micro-chipped. Oxygen-rich gas, from an oxygen concentrator, mixes with isoflurane vapor in a precision vaporizer, as part of a portable, one way delivery system. Final delivery of the anesthetic is through an appropriate sized face mask. Endotracheal tubes are always on hand for emergency use. A stethoscope is available to monitor heart rate. I do not carry any drugs that require refrigeration. I do carry several types of antibiotics, steroids, hormones, respiratory stimulants, minerals, and vitamins with me, for use as needed.

