

# **SUCCESS IN VOLUNTARY BLOOD DRAW TRAINING WITH ORANGUTANS USING A PROACTIVE PROGRAM**

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## **Abstract**

When caring for apes in captivity, the most useful tool in terms of their health care is a strong training program. The list of behaviors and voluntary procedures that are possible are limitless. The Cameron Park Zoo in Waco, Texas houses 2.1 orangutans, 1.1 Bornean (*Pongo pygmaeus*) and 1.0 Hybrid (*Pongo pygmaeus x abelii*). A successful training program has been implemented using only positive reinforcement techniques. Body presentations, urine collection, ultrasound, intramuscular injection, as well as desensitization to various medical items like thermometers or stethoscopes are all components of the maintenance behaviors performed with the orangutans. Moving forward to advance proactive health care of these apes, a blood sleeve was installed for voluntary blood draw training in May 2013. In a relatively short period of time, a sufficient amount of blood was successfully collected to perform a complete blood count and serum chemistry panel on both of the adult male orangutans. The blood draw on “Kerajaan” was successful at exactly three months and on “Mukah” at four and a half months. The set up and training process for this behavior are what led to these quick and productive accomplishments with the males along with continued progress with “Mei,” the female.

## **Blood Sleeve Set Up**

One sleeve is used for all of the orangutans, male and female. The sleeve itself is made of two inch by two inch mesh. It is thirty-eight inches in length and a square of seven and a half inches in height and width. It connects onto the stall mesh through a port that is a twelve and a half inch square with the actual opening inside the frame being a ten inch square (Picture 1).

There are a number of benefits in using this type of full mesh sleeve over the more common PVC type sleeve. It allows for more flexibility in training of the behavior and can be adapted for different modifications for individual orangutans. Finding the vein versus the position of the orangutan’s arm is found to be easier since various parts of the arm are accessible from any angle. The openness of the mesh permits the orangutans to see what is being done at all times and this seemed to make them more comfortable in moving forward through shaping steps which ultimately accelerated the training. It also provides an increased amount of safety aspects while performing this procedure.

A modification to the sleeve was used to aid our hybrid male orangutan, “Mukah,” in holding his arm position for the blood draw. His arm placement is slightly different while in the sleeve and therefore a section of halved PVC pipe was added via nuts and bolts. This moved his arm closer to the mesh for the vein to be reached (Picture 1). It was also easily removed or readjusted from the bottom or either side.

## **Training Steps**

### Stage 1

The first step consisted of giving the orangutans their diets and treats in the sleeve until they were comfortable reaching in and out to different lengths desensitizing them to the sleeve itself. Their “fingers” behavior was then utilized, getting the orangutan to put their fingers in various positions throughout the sleeve. “Grab It” was then shaped where the orangutan would have a good hold on the mesh at the end of the sleeve, working the holding time period longer preventing them from just grabbing and letting go. The trainer would keep one hand on the top/outside of the orangutan’s grasped hand so that any movement could be detected as soon as possible. Once they consistently held their grasp, “Inside” was shaped. This behavior consists of the orangutan pressing their forearm up against the mesh in the area of the vein (Picture 2).

### Stage 2

Once this position was established, a secondary safety person was brought in. This person is responsible for assuring the orangutan continues to have a firm hold in the desired position so that the trainer can focus on the orangutan while also making sure that nothing comes within the orangutan’s reach. At this point in the training, all the cues and communication with the orangutan came from the primary trainer to lessen confusion on the orangutan’s side of the training. Once the primary trainer had the orangutan in the desired position, he/she would tell the safety person a verbal “ready”. After this was communicated, the safety person would replace the trainer’s hand with their own on top of the orangutan’s grasped fingers (Picture 3). Then the trainer could focus on desensitizing the orangutan to gauze, alcohol, blunted needles, sharp needle sticks, etc. (Picture 4). If the orangutan started to lessen their grip or hold, the safety person would tell the trainer “they’re moving” to indicate they were wiggling the fingers or starting to ungrasp. If the orangutan let go the safety person would simply say “break” allowing all personnel to remove themselves from possible harm’s way. If this was communicated, the trainer would re-cue and position the orangutan and then pass them back off to the safety person. The safety person would hold the previous mentioned responsibilities until the orangutan had been bridged and then they were free to release their physical contact.

### Stage 3

The last step in the training was bringing in a veterinarian or veterinary assistant to work on doing the actual desensitization to the gauze, butterfly needles, and drawing blood. The orangutan was usually given a continuous reward from the primary trainer while the veterinarian or veterinary assistant was working on their arm. It was discovered however, that the orangutans held better and appeared less nervous when they could actually just hold and watch the procedure on their arm and then get a large reward at the end. An overall hold of about five to seven minutes was worked up to for each repetition. Most sessions were not more than two or three repetitions. Over the three month training period, one to two sessions were done per week. Sessions varied between all three stages so that the orangutans did not associate working in the sleeve with attempted venipuncture every time and no more than one venipuncture was performed per week to prevent the formation of scar tissue.

### **Success!**

Using these training steps, Cameron Park Zoo has been successful to different degrees with all of the orangutans. In exactly three months to the day, five milliliters of blood was collected to run a complete blood count and serum chemistry panel on the adult male Bornean orangutan, “Kerajaan” (Picture 5). In four and a half months, six milliliters of blood was collected to run a complete blood count and serum chemistry panel on the adult male hybrid orangutan, “Mukah.” A dry stick has been worked up to with the Bornean female orangutan, “Mei” (who has a severe needle phobia). It is believed that the sleeve, set up, and training plan along with Cameron Park Zoo’s supportive staff is what led to the great accomplishments within the voluntary blood draw training.

### **Moving Forward**

Having blood draw training in place is a huge asset as it can be a tool in monitoring health of aging apes in captive care due to the fact that cardiac related disease is a serious concern in the ape population. This training will continue with all of the orangutans, as a maintenance behavior with the males and shaping will continue with the female. There are hopes that in the near future a blood sample will be collected on “Mei.” The sleeve is also being used to start training for voluntary blood pressure readings. Cameron Park Zoo is on the next order for a Tuff Cuff through the Great Ape Heart Project based out of Zoo Atlanta. It is exciting to continue to push the training envelope and be proactive with a successful program to better the care of the three orangutans housed at Cameron Park Zoo!

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Picture 1 – Blood Sleeve Set Up with Mukah Modification  
(Photo Credit: Laura Laverick)



Picture 2 – Grab it and Inside  
(Photo Credit: Kels Kaiser)



Picture 3 – Passing off to the Safety Person  
(Photo Credit: Kels Kaiser)



Picture 4 – Desensitizing to a Needle Stick  
(Photo Credit: Kels Kaiser)

Picture 5 – Successful Blood Draw with Kerajaan  
Left to Right:  
Dr. James Kusmierczyk, Kerajaan, Krista Havecker-Seeburger,  
Laura Laverick  
(Photo Credit: Emily Gertiser)

