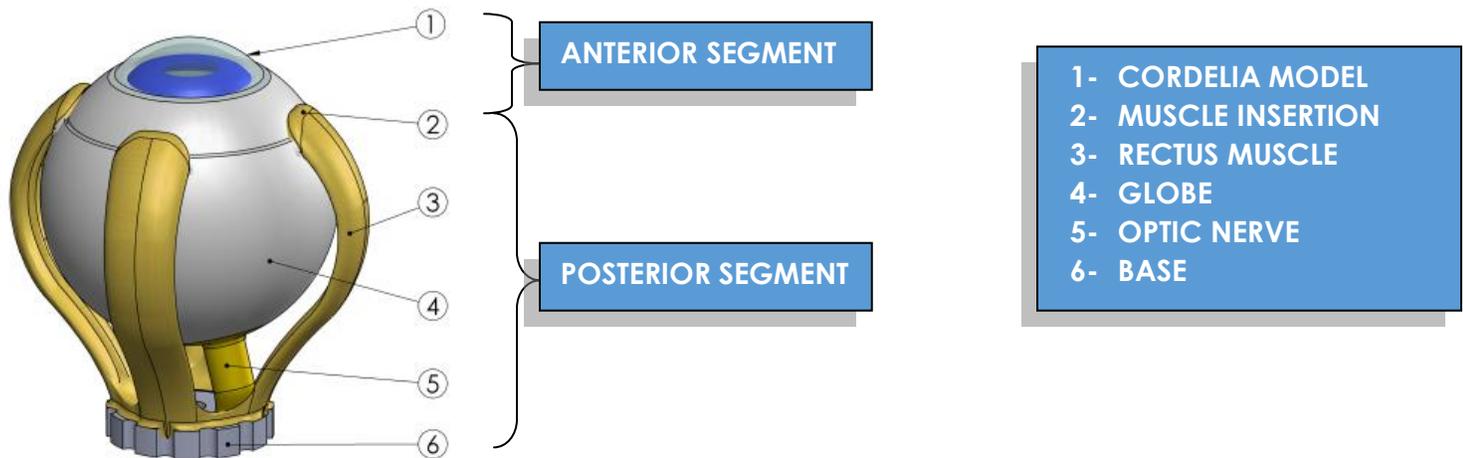
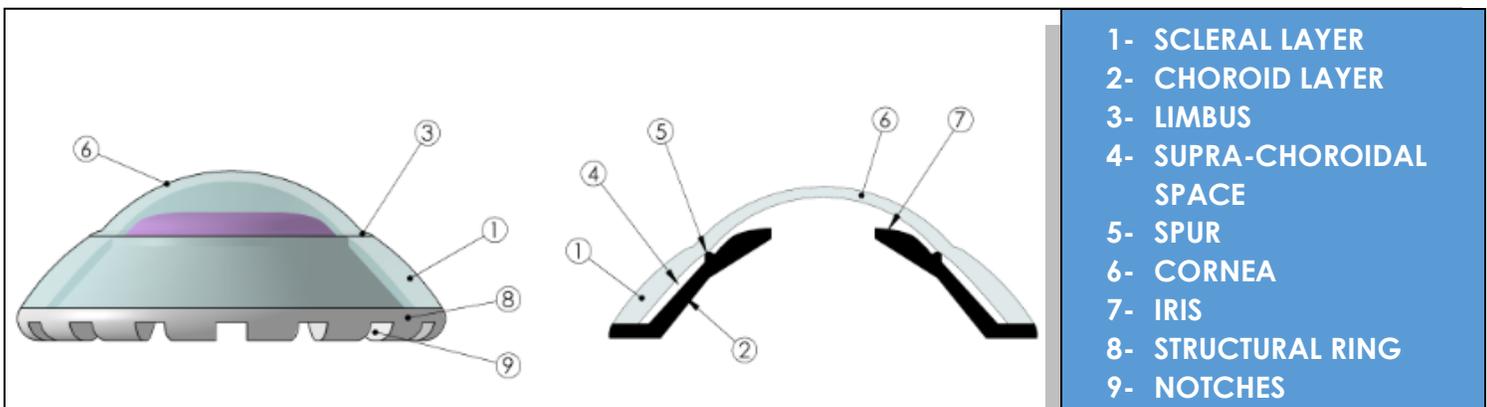


Watch an instructional video: www.youtube.com/user/BionikoDesign

EXOS is a comprehensive eye-banking task trainer encompassing both excision and enucleation tasks. Its modular design is based on a **Posterior segment** model with rectus muscles and optic nerve for enucleation and a detachable **CORDELIA** model for excision. The **CORDELIA** (sold separately), can be replaced to practice multiple excisions on a single posterior segment.

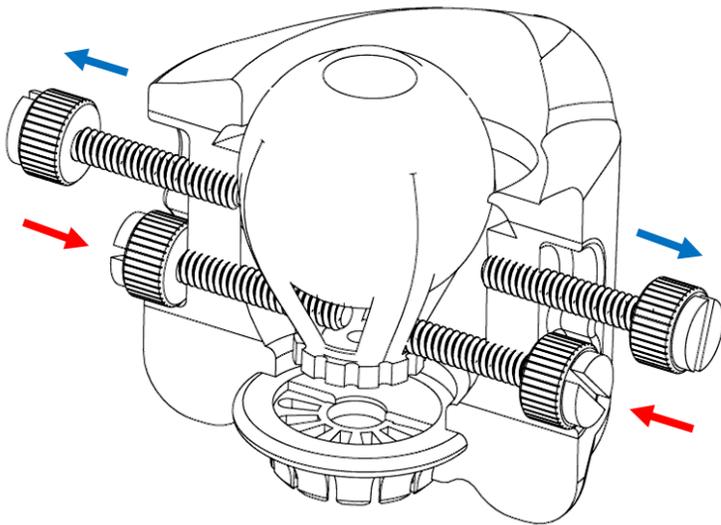


Do not use dry. Lubricate with water. Do not use BSS.
Soak CORDELIA for aprox 5 minutes in luke warm water (aprox 95F) immediately before use.



The **CORDELIA** anatomy includes a **scleral layer (1)** and **choroid layer (2)**. These layers are separated posterior to the **limbus (3)**, simulating the **supra-choroidal space (4)**, and are attached at the **spur (5)**, allowing a realistic excision to be performed. After trephination and dissection of the scleral layer, the user can practice stabilizing the scleral rim while detaching the tissue at the spur with minimal stress to the endothelium. **Cornea (6)** and **iris (7)** features provide additional landmarks that add to the model's realism. The **structural ring (8)** at the base of the model maintains the model's shape and the **notches (9)** mate with the **EXOS** posterior segment to prevent unwanted rotation of the model during trephination.

SETUP WITH BIONIKO FLEX-ORBIT



*Please refer to **FLEX-ORBIT** Instructions for use

1. Open all the **FLEX-ORBIT** screws and lubricate cavity surfaces.
2. Insert the **EXOS** model with the OPTIC NERVE (5) on the nasal side.
3. Insert posterior screws to secure the model BASE (6) to the **FLEX-ORBIT**. Confirm RECTUS MUSCLES (3) are properly positioned; screws should pass between them (see figure).
4. Keep anterior screws retracted. This allows for the **EXOS** model to move freely inside the **FLEX-ORBIT** without restriction, allowing traction with muscle hooks.
5. Fix the **FLEX-ORBIT** in place by pressing downward on a smooth surface to engage the suction-cup.

NOTE: Lift the suction release tab to remove FLEX-ORBIT from surface. DO NOT PULL ON THE ORBIT!

EXCISION SIMULATION

1. **Remove CORDELIA** model by squeezing GLOBE (4) lightly and leveraging out.
2. **Soak CORDELIA for aprox 5 minutes in luke warm water (aprox 95F) immediately before use.**
(*Note: cornea looks "milky" when hydrated*)
3. **Re-attach soaked CORDELIA** model to the **EXOS**. Do this by placing the **CORDELIA** under two MUSCLE INSERTIONS (2) first and then carefully lifting the other two insertions over the **CORDELIA** with the aid of a muscle hook or paper clip ([see video](#)). Press firmly on all sides and make sure there are no gaps between the posterior segment and the **CORDELIA**.
4. **Insert EXOS** model in the **FLEX-ORBIT**. (*See setup instructions above*)
5. **Lubricate CORDELIA** model surface. (*Tip: lubricate often*)
6. **Trephinate the sclera** to gain access to the supra-choroidal space. (*Tip: Pre-stain trephine edge*)
7. **Complete the scleral incision** parallel to the limbus with scissors. Take care to cut the scleral layer without perforating the choroid layer underneath. (*Note: the choroid layer on the model is not black. Careful inspection is necessary to ensure there is no damage to the choroid layer during dissection*).
8. **Check 360 degree separation** of the scleral layer.
9. **Detach the cornea from spur**. Stabilize the scleral rim using dressing forceps and gently grasp and push the choroid/iris layer away with tissue forceps until separation is complete. Minimize stress and manipulation of the cornea during separation. (*Note: Spur attachment is firm, as with young donors or dark eyes*)
10. Open **FLEX-ORBIT** screws and remove the **EXOS**. (*Tip: Squeezing FLEX-ORBIT helps*)
11. Discard used **CORDELIA** model by squeezing GLOBE (4) lightly and leveraging out.
12. If enucleation procedure practice is not practiced, reuse the **POSTERIOR SEGMENT** with a new **CORDELIA** model to repeat the excision procedure.

ENUCLEATION SIMULATION

1. **Insert EXOS** model in the **FLEX-ORBIT**. (See setup instructions above)
2. **Lubricate the EXOS** model and **FLEX-ORBIT cavity** with water. (**Note:** Do not pre-soak posterior segment)
3. **Hook and cut RECTUS MUSCLES** (3), clamping the last muscle to secure the eye.
4. **Cut the OPTIC NERVE** (5) with enucleation scissors and extract the eye.

Note: Enucleation task can be performed after excision step 9 above

INSTRUCTIONS FOR CARE

Follow these recommendations to maximize the life of your models:

- Store in a **cool, dry** and **dark** place (a drawer will be fine). Extended exposure to some indoor lights or sunlight (UV) may affect material properties. Prolonged exposure to humidity or high temperatures may adversely affect material properties.
- Do not place **heavy objects** on top of the model's box. Prolonged compression may deform the models.

FAQ

- **Q:** How can I use the **EXOS** if I don't have a **FLEX-ORBIT**?

A: Although **EXOS** is designed to be used with the **FLEX-ORBIT**, it could potentially be used with other donor-eye holders if there are means to secure the base.

- **Q:** Do I need to soak or lubricate the model?

A: For best results the posterior segment of the **EXOS** should **NOT** be soaked before use. Use local lubrication (dropper bottle) as needed. When performing an excision on the **CORDELIA** model you should soak the **CORDELIA** separately for at least 5 minutes and re-attach (see video).

- **Q:** Is there a conjunctival layer?

A: The model currently does not have conjunctiva. This is in our list of future developments.

- **Q:** How can I tell if the **CORDELIA** has been soaked enough time?

A: The cornea looks "milky" when hydrated.