MMDP
PROVIDING A NEW CHANCE AT LIFE

FASTT SIMULATOR:
Manufacturing Manual

September 2019

USAID
FROM THE AMERICAN PEOPLE

Helen Keller INTERNATIONAL

Front cover: Dr. Sunny Mante of the African Filariasis Morbidity Project demonstrates the use of the FASTT simulator. (Photo: Mary Houghton)

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1.0 General Information

1.1 Overview of the Manual

This Manual provides step by step instructions for creating the production molds, the base, and the cartridge for the FASTT simulator.

WHO requires that countries submitting their dossiers for lymphatic filariasis (LF) elimination include information on the availability of quality surgical services for hydrocele patients. To support endemic countries in meeting the elimination dossier criteria, the USAID-funded Morbidity Management and Disability Prevention Project (MMDP), in close collaboration with the African Filariasis Morbidity Project (AFMP), developed a training course for hydrocele surgery that included a practical training component on a hydrocele surgery simulator: the Filaricele Anatomical Surgical Task Trainer, also known as FASTT. The training course, called the Filaricele Surgery Training Package, can be used with or without FASTT.

Development of the FASTT Simulator

The MMDP Project team contacted Human Analog Applications (HAA) about designing a simulator for hydrocele surgery. Two important decisions influenced the design of the simulator:

- *Who will be doing hydrocele surgeries?* In the public health context of developing countries this usually is specialized surgical nurses or physicians who operate in district-level hospitals where hydrocele surgery typically takes place.
- *Which hydrocele surgical technique should be featured on the simulator?* A consensus was quickly reached to focus on the resection technique as it removes part of the diseased tissue.

Another important element to decide on was which sets of skills the simulator would focus on. The key skills identified were incision-making, blunt dissection, and suturing, which are the critical components of hydrocele surgery.

Finally, the design team agreed on the size of the hydroceles that the simulator would represent and the decision was made to focus on Stages II-III (according to Capuano's classification). This is because larger hydroceles are referred to specialized hospitals and would not be operated on by the target audience of district-level hospitals.

With these decisions made, HAA developed a prototype that was tested by the AFMP before being finalized. In June 2016, the MMDP Project organized a training workshop in Burkina Faso to test the simulator and accompanying training package. In addition to AFMP and HAA staff, the project invited expert urologists from Burkina Faso (Drs. Adama Guira and Milko Hubert Somé) and Ethiopia (Drs. Messay Molla Mekonen and Deneke Beyene Andualem) to test the simulator prototype, provide their constructive feedback, and suggest improvements. The surgeons shared their feedback on the prototype, and also provided feedback on the training package. Both were subsequently finalized.

The finalized training product includes the Filaricele Surgery Training Package in English and in French, with presentation slides and instructional videos, along with the FASTT simulator for classroom practice. The unique aspect of the FASTT simulator is that it provides surgical trainees with a safe environment to learn from their mistakes before operating on live patients.

Overview of the Manufacturing Process

1. Create production molds
   Note: *You will need a set of existing molds for this step. The MMDP Project procured molds from Holland FX, LLC.*
   a. Testicle molds
      i. Right
      ii. Left
   b. Tunica Molds
      i. Right
      ii. Left
   c. Hydrocele Mold
   d. Base Penis Mold
2. Fill Testicle Mold, Right
3. Fill Testicle Mold, Left
4. Fill Tunica Mold, Right
   a. Testicle, Right
   b. Blood tube
   c. Pantyhose
5. Fill Tunica Mold, Left
   a. Testicle, Left
   b. Blood tube
   c. Pantyhose
6. Fill Hydrocele Mold
   a. Tunica, Right
   b. Tunica, Left
   c. Blood tube
   d. Fabric piece
7. Fill Base Penis mold
   a. Fabric
   b. Ribbon
8. Print Base
9. Assemble Simulator

Molds:

1. Testicle Molds, Right & Left

Interior, Right & Left

Exterior, Right & Left

Molds (continued):

2. Tunica Molds, Right & Left

Exterior, Right

Exterior, Left

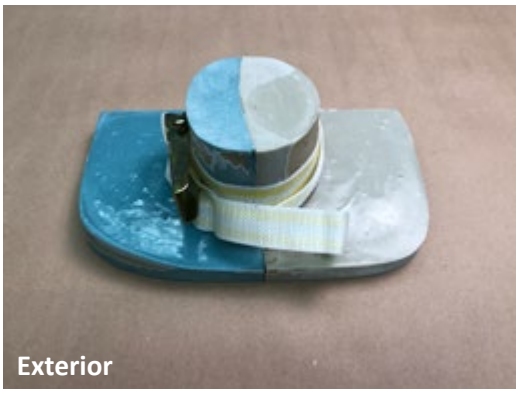

Interior, Right & Left

3. Hydrocele Mold

Exterior

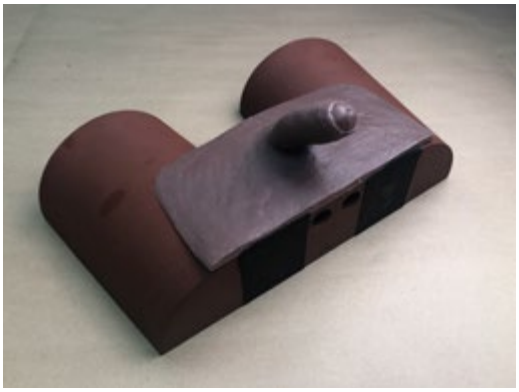

Interior

4. Base Penis Mold


Exterior


Interior

Cartridge Components:

1. Testicles, Right & Left	2. Tunica, Right & Left
	
3. Hydrocele	**4. Base Penis**
	

Printed Components:

1. Base	
	

Assembled Simulator:

1.2 Acknowledgements

This document was made possible by the generous support of the American people through the United States Agency for International Development (USAID) through the Morbidity Management and Disability Prevention for Blinding Trachoma and Lymphatic Filariasis (MMDP) Project, implemented by Helen Keller International. The contents are the responsibility of Holland FX, LLC and do not necessarily reflect the views of Helen Keller International, USAID, or the United States Government.

This FASTT simulator manual is intended for training purposes and is available through USAID and Helen Keller International. Through the HKI-implemented MMDP Project, USAID funded the development of the FASTT prototype and final design used in implementation of the MMDP Project, which ended September 30, 2019. The contents of this manual are the responsibility of Holland FX LLC and do not reflect the views of HKI or USAID. USAID and HKI are not responsible for the contents or any pursuit of manufacturing the FASTT simulator. For further information regarding the manual, training information, or procurement of the FASTT simulator, please see contacts in Section 1.3 Contacts.

1.3 Contacts

Holland FX, LLC aided in the prototyping and development of the FASTT simulator, and the creation of the *FASTT Simulator: Manufacturing Manual*. Please contact Holland FX, LLC to order FASTT simulator molds, or to inquire about training to produce the simulator.

Questions or requests can be directed to:

Holland Berson, Owner
Holland FX, LLC
www.hollandfxllc.com
holland.berson@gmail.com

Ho's Art, LLC aided in the production of the FASTT simulator. Please contact Ho's Art, LLC to order FASTT simulator bases and cartridges.

Questions or requests can be directed to:

Ming-Yen Ho, Owner
Ho's Art, LLC
hosartllc@gmail.com

1.4 Options for Base Production

There are two options for creating the Base of the FASTT simulator:

1. Resin cast by hand-pouring into a custom-made mold
2. Plastic model by 3-D printing with filament on a 3-D printer

Pros and cons of each method:

A **resin cast** offers a smoother surface with sculpted skin texture, and can be made without access to electricity, a computer, or a 3-D printer. It does require a well-ventilated area to work in, as the vapors produced by mixing the resin are not safe to breathe. The mold itself requires an investment of labor and materials up front. While filling the mold requires very few labor hours, it can be difficult to achieve a fill that does not contain air bubbles, and that has even coloration. There are associated labor costs for demolding, including removing the resin cast from the mold, cleaning and prepping the mold, and cleaning and sanding the resin cast. There are also associated material costs for disposable materials, including plastic cups, mixing sticks, release agent, and syringes. This option does create more waste.

A **plastic model** made with 3-D printing has the finely ridged surface of a 3-D printed piece, and requires the use of a 3-D printer and a computer to relay the file. If this technology is accessible, then production of the base requires very little labor time or material cost. There is minimal labor required to prepare the base once printed. There is very little waste created.

Both models have limited color-matching options, as resin pigments and plastic filaments are not typically offered in a wide or easily customized range of colors.

In brief, if there is access to the required technology available, then a plastic model requires less time, labor hours, and material cost, and generates less waste than a resin cast.

1.5 Required Materials

1.5.1 FASTT Cartridge: Equipment

Name	Used in	Model	Company	Source
Digital Scale	All	0.1 to 2000g	Home Science Tools	Home Science Tools
Heat Gun	Tunica, Hydrocele	Dual Temperature	Black & Decker	The Home Depot
3D Printer	Base	Stratasys F170	Stratasys	Stratasys
Sewing Machine	Hydrocele	Basic mechanical	Singer	JoAnn Fabrics
Clamps	Tunica, Hydrocele	Trigger clamps	Husky	The Home Depot
Scissors, fabric	Hydrocele, Base	Fabric shears	Fiskars	Fiskars
Scissors, medium	All	Stitcher scissors #5	Fiskars	Fiskars
Scissors, small	All	Curved	Excelta	Janel
Access to water	Hydrocele			

1.5.2 FASTT Cartridge: Materials					
	Name	**Used in**	**Model**	**Company**	**Source**
Silicone	P-727 Base	Testicles	P-727 B	Silicones, Inc.	Silicones, Inc.
	P-727 AQ Activator	Testicles	P-727 AQ	Silicones, Inc.	Silicones, Inc.
	P-656 Base	Tunica, Hydrocele, Base	P-656 B	Silicones, Inc.	Silicones, Inc.
	P-656 20AQ Activator	Tunica	P-656 20AQ	Silicones, Inc.	Silicones, Inc.
	P-656 5AQ Activator	Hydrocele	P-656 5AQ	Silicones, Inc.	Silicones, Inc.
	P-656 AQ Activator	Hydrocele	P-656 AQ	Silicones, Inc.	Silicones, Inc.
Silicone Additives	XP-684 Softener	Hydrocele	XP-684	Silicones, Inc.	Silicones, Inc.
	XP-690 Cling-On	Hydrocele	XP-690	Silicones, Inc.	Silicones, Inc.
	Thickener	Tunica, Hydrocele	XP-661	Silicones, Inc.	Silicones, Inc.
	Shin-Etsu Caulking	Tunica, Hydrocele, Base	K-45T	Shin-Etsu Silicones	The Engineer Guy
Pigment	Fuse FX Hearty	Testicles	BC-01	Fuse FX	The Engineer Guy
	Fuse FX Warm Rosy Skin	Tunica	S-306D	Fuse FX	The Engineer Guy
	Fuse FX Fatty	Hydrocele	BC-02	Fuse FX	The Engineer Guy
	'African' Pigment	Hydrocele, Base		Silicones, Inc.	Silicones, Inc.
	Vegetable Glycerin	Hydrocele	100% Pure vegetable glycerin	Now Solutions	The Vitamin Shoppe
	Food Coloring, Red	Hydrocele	Orcotint Red MD 50% concentrate	ORCO	ORCO
	Food Coloring, Yellow	Hydrocele	Orcotint Yellow MD 50% concent.	ORCO	ORCO
	Platinum Silicone Tubing	Hydrocele	EW-95802-03	Cole-Parmer Instrument Co.	Cole-Parmer
	Fabric	Hydrocele, Base	Chocolate Brown Helenca Pique Nylon Swim Lining	n/a	Fabric & Sewing
	Grosgrain Ribbon	Base	Seal Brown 2 1/4"	Ribbon Bazaar	Walmart
	Pantyhose (Sheer nylon hosiery)	Hydrocele	Ultrasheer Off-Black	First Quality	Sockdeal

1.5.2 FASTT Cartridge: Materials					
	Name	**Used in**	**Model**	**Company**	**Source**
	Sewing thread	Hydrocele	Black or Brown Sew-All Thread	Gutermann	JoAnn Fabrics
	PLA Plastic Filament	Base	Brown	Keene Village Plastics	Make Shaper
	Spray Mold Release	All	Universal Mold Release	Smooth-On	The Engineer Guy
	Hair braiding rubber bands	Hydrocele	Clear	Proclaim	Sally's Beauty Supply
	Syringe, large	Tunica, Hydrocele	60cc	n/a	The Engineer Guy
	Syringe, small	Hydrocele	12cc, curved tip	n/a	The Engineer Guy
	16oz Plastic mixing cups	All	16oz clear	n/a	Webstaurant Store
	2oz Plastic mixing cups	All	2oz clear	n/a	Webstaurant Store
	Mixing sticks	All	Tongue depressors	n/a	The Engineer Guy
	Chip brushes	Tunica, Hydrocele, Base	1"	n/a	The Engineer Guy
	Nitrile gloves	All	Size as needed	Glove Plus	The Engineer Guy

1.5.3 FASTT Molds: Equipment					
	Name	**Used in**	**Model**	**Company**	**Source**
Sculpting Tools	Scraper Tool	All	Smooth edge, metal or silicone	Kemper	The Compleat Sculptor
	Fettling Knife	All	Hard	Kemper	The Compleat Sculptor
	Wire Clay Cutter	All	n/a	AMACO	The Engineer Guy
	Silicone Clay Shaper	All	Flat chisel, extra firm	n/a	The Compleat Sculptor
	Microwave	All	700 watt	Sunbeam	Target
	Spray bottle	All	Any size	n/a	Target
	Scrubbing brush	All	Plastic Bristles	Scotch Brite	Target
	Wood chisel	All	¾ inch	Buck Bros.	The Home Depot
	Permanent Marker	All	Sharpie, Fine point	Sharpie	Target

1.5.4 FASTT Molds: Materials				
Name	**Used in**	**Model**	**Company**	**Source**
Monster Clay	All	Medium	Monster Makers	The Engineer Guy
WED Clay	All	Laguna EM217	The Engineer Guy	The Engineer Guy
Apoxie Paste	All	A&B kit	Aves	The Engineer Guy
Fiberglass Cloth	All	7533	Unknown	The Engineer Guy
Epoxy Solvent	All	Safety Solvent	Aves	The Engineer Guy
16oz mixing cups	All	16oz clear	n/a	Webstaurant Store
Mixing sticks	All	Tongue Depressors	n/a	The Engineer Guy
Acrylic paint	All	Any color	Blick Studio Acrylics	Blick
Petroleum jelly	All	100% pure/original	Vaseline	Target
Chip brushes	All	1”	n/a	The Engineer Guy
Nitrile gloves	All	Size as needed	Glove Plus	The Engineer Guy
Dish soap	All	n/a	Dawn	Target

1.5.5 Key	
	These materials cannot be substituted without further research on feel, reaction, and chemical compatibility.

2.0 Filling the Molds

2.1 Testicle Molds, Right & Left

2.1.1 Materials

Gather your supplies, outlined in the materials and equipment list on page 8.

2.1.2 Release

Prepare the molds with release agent

Use a chip brush to spread a thin layer of Vaseline over the inside surface of the molds.

OR

Use Universal Mold Release Spray and coat the inside surface of the molds. Use 2–3 coats, allowing roughly 1 minute between coats. Be sure to use in a well-ventilated area.

2.1.3 Measure

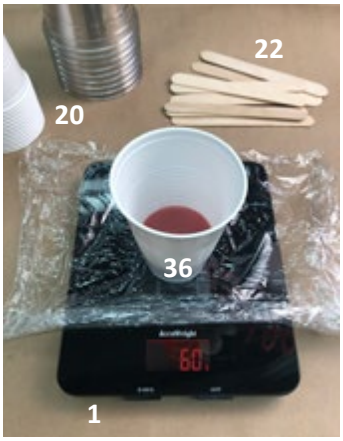
Measure out your silicone

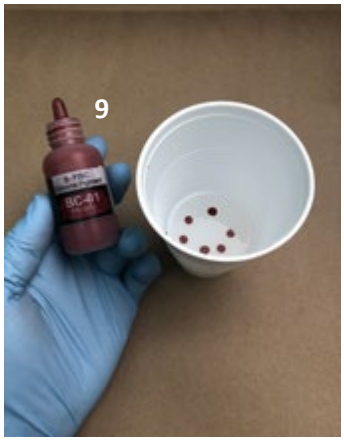
Using a digital scale, place a small cup on the scale and tare out the scale to 0.0 grams.

Measure out your silicone in separate cups. Place pigment drops in the cup with P-272 B (hereinafter referred to as B).

Silicone:	*Amount:*
P-727 AQ:	30g
P-727 B:	30g

Pigment:	*Amount:*
FuseFX Hearty:	6 drops





2.1 Testicle Molds, Right & Left

2.1.4 Mix

Use a mixing stick to scrape the P-727 AQ (hereinafter referred to as AQ) into the cup with B and Pigment and mix thoroughly, taking care to scrape the bottom and sides of the cup.

2.1.5 Fill

Place the molds securely on a flat surface, ensuring that they are level.

Pour the silicone into both Testicle Molds, taking care to not fill beyond the top edge of the sculpture.

Tip: To avoid trapping air bubbles in the silicone as it cures, pour the silicone slowly in a thin stream from high above the mold.

2.1.6 Cure

Allow to cure.

Tip: This will typically take roughly 2 hours, but platinum silicone's cure time is affected by temperature — warmer environments will cure the silicone faster, colder environments will cure the silicone more slowly.

2.1 Testicle Molds, Right & Left

2.1.7 Pop

Once the silicone is cured (should be firm to the touch, resilient to applied pressure, and the top surface will appear shiny), use your finger or a tool to lift the small end of the Testicle, and pull it out of the mold.

Set the Testicles aside for use in filling the Tunica molds.

2.1.8 Clean

Clean any silicone or excess release agent off of the molds with your hands, a towel, or soap and water.

2.2 Tunica Molds, Right & Left

2.2.1 Materials

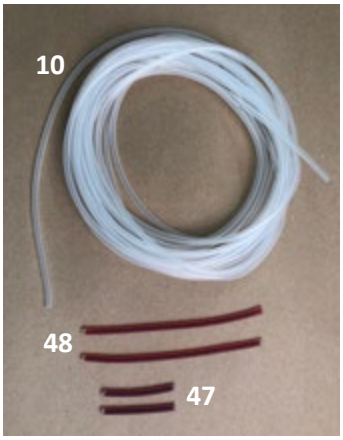
Gather your supplies, outlined in the materials and equipment list on page 8.

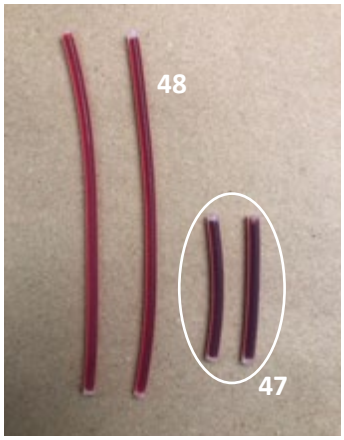
2.2 Tunica Molds, Right & Left

2.2.2 Prep Blood Tubes

Make the Blood Tubes in advance

Cut the tubing to length:
2 pieces of tubing at 2 inches long





Mix the blood

Combine vegetable glycerin with a combination of red and yellow food coloring until you achieve your desired color. This can be mixed in large batches and stored in an air-tight container, or mixed as needed. If working in small batches, add food coloring one drop at a time to avoid over-saturating the glycerin.

Fill the tube

Backfill the blood into a small curved tip syringe. Replace the plunger on the syringe, and hold it upright, with the tip in the air. Gently push the plunger in until all the air has been pushed out of the tip of the syringe.

Place the tip of the syringe into the tube, and slowly fill until the blood reaches the far end of the tube. Once the tube is filled end to end with blood, take a small amount of Shin-Etsu silicone caulking on a mixing stick, and create a seal on each end with a small glob of caulking. Set aside (on a surface that it will not cure to, such as wax paper) and allow to fully cure.

Test before using by gently squeezing the center of the tube to ensure that no blood leaks from either end.

2.2.3 Prep Pantyhose

Prepare the pantyhose in advance

Cut two sections of pantyhose that are each 6 inches long. Use a sewing machine or hand stitch one end shut. The foot of each pair of pantyhose can be used without alteration.

2.2 Tunica Molds, Right & Left

2.2.4 Release

Prepare the molds with release agent

Use a chip brush to spread a thin layer of Vaseline over the inside surface of the molds

OR

Use Universal Mold Release Spray and coat the inside surface of the molds. Use 2–3 coats, allowing roughly 1 minute between coats. Be sure to use in a well-ventilated area.

2.2.5 Measure

Measure out your silicone

Using the digital scale, place a small cup on the scale and tare out to 0.0 grams.

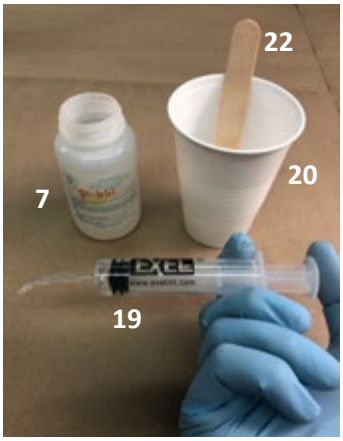
Measure out your silicone in separate cups. Place pigment drops in the cup with B.

Silicone:	*Amount:*
P-656 20AQ:	24g
P-656 B:	24g
Pigment:	*Amount:*
FuseFX Warm Rosy:	6 drops
Additive	*Amount*
XP-661 Thickener:	5 drops

2.2.6 Mix

Use a mixing stick to scrape the AQ into the cup with B and Pigment, and mix thoroughly, taking care to scrape the bottom and sides of the cup.

Once the silicone is mixed thoroughly, add the drops of Thickener. The purpose of this is to lower the viscosity of the silicone to between 100,000 – 150,000 centipoise (cPs), to where the silicone is brushable and will not run. The amount of thickener can be modified as needed to achieve this viscosity.

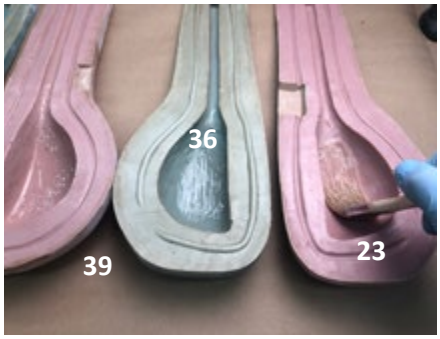


2.2 Tunica Molds, Right & Left

2.2.7 Fill

Using a chip brush, paint this silicone in an even layer across the inside of all 4 sides of the Tunica molds. Take care to remove any excess silicone that sits above the sculpture edge.

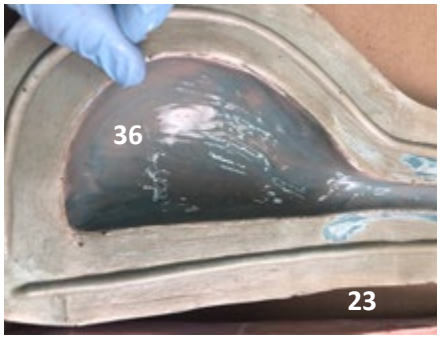
Use the heat gun to gently cure this layer, by moving it back and forth across the silicone, holding the nozzle at least 3–5” away from the surface of the silicone. Continue heating until the silicone is cured, and no longer tacky to the touch.



2.2.8 Second Layer

Repeat process with a second layer:

P-656 20AQ:	23g
P-656 B:	23g
FuseFX Warm Rosy:	5 drops
XP-661 Thickener:	5 drops



2.2.9 Third Layer

Repeat process with a third layer:

P-656 20AQ:	23g
P-656 B:	23g
FuseFX Warm Rosy:	5 drops
XP-661 Thickener:	5 drops

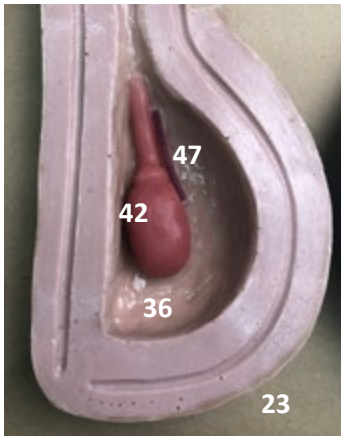
2.2 Tunica Molds, Right & Left

2.2.10 Add Testicles

Leave aside a small amount of the silicone from the third layer.

Once the third layer is heat cured, smear a layer of uncured silicone across the back of each Testicle. Gently press the Testicle into the BACK side of the Tunica mold, just below the long stem of the Tunica.

Smear a layer of uncured silicone across the back of two short blood tubes. Gently press one next to each Testicle, on the outer side (the curved edge).



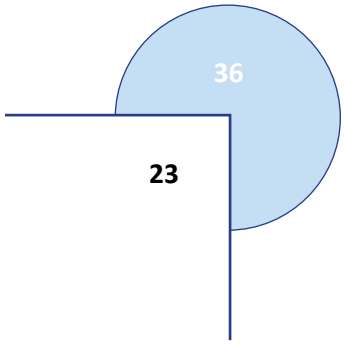
2.2.11 Seam

Mix silicone for your seaming layer:

P-656 20AQ:	12g
P-656 B:	12g
FuseFX Warm Rosy:	3 drops
XP-661 Thickener:	3 drops

Use a mixing stick to scrape the AQ into the cup with B and Pigment, and mix thoroughly, taking care to scrape the bottom and sides of the cup.

Once the silicone is mixed thoroughly, add the drops of Thickener. Once the silicone is properly thickened, use a mixing stick to backfill the silicone into a large syringe.



Replace the plunger on the syringe, and hold it upright, with the tip in the air. Gently push the plunger in until all the air has been pushed out of the tip of the syringe.

Run a bead of this silicone along the inside edge of the molds, ensuring that there is silicone on both the top and inside edge. See the diagram for placement of the silicone on the edge of the mold.

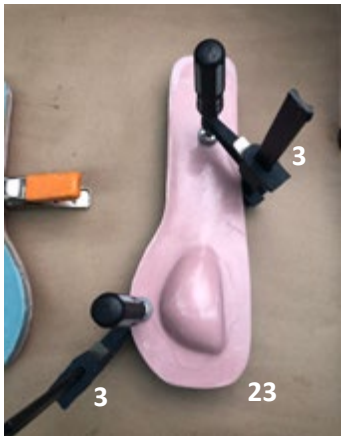
Close Right and Left molds, and secure on either end with clamps.

2.2 Tunica Molds, Right & Left

2.2.12 Cure

Allow to cure.

Tip: Keep the cup you mixed the silicone in next to the mold. Use any remainder in this cup to test to see if the silicone is cured to avoid opening the molds too early.



2.2.13 Pop

To open the molds, place a chisel or other tool in the pry spot, and apply pressure until the two sides release from each other. Gently pull the sides completely apart, and remove the cured Tunica from the mold.

2.2 Tunica Molds, Right & Left

2.2.14 Trim & Finish

Using a pair of small, sharp scissors, carefully trim the excess silicone from the seam around the center of each Tunica. Cut off the top of the tubular end of each Tunica, and fill them with water.

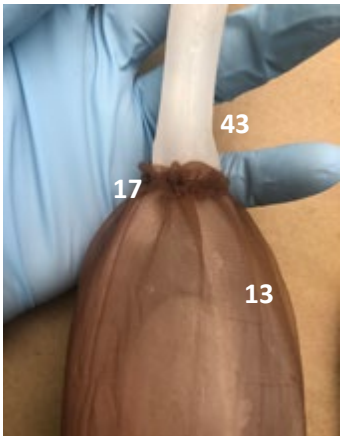
Use this opportunity to check for any leaks in your seam. If you encounter a leak, drain the water, and use a small amount of Shin-Etsu silicone caulking to patch it. Allow it to fully cure, and then re-test.

Once the Tunica are filled and water-tight, fold the end of each and wrap with a small elastic band as a temporary clamp.

Take the pantyhose pieces you prepared earlier, and wrap one around each Tunica. The stitched seam of the pantyhose should run along the seam of the Tunica. Use another elastic band to hold the pantyhose in place where the rounded and tubular sections of the Tunica meet.

Fold the top edge of the pantyhose back over itself, and use another elastic band to secure it, just below the other elastic band. These bands should all be tight enough to stay in place, but loose enough to allow water to pass through easily. Trim off any excess pantyhose below this elastic band.

Set the Tunica aside for use in filling the Hydrocele mold.



2.2.15 Clean

Clean any silicone or excess release agent off of the molds with your hands, a towel, or soap and water.

2.3 Hydrocele Mold

2.3.1 Materials

Gather your supplies, outlined in the materials and equipment list on page 8.

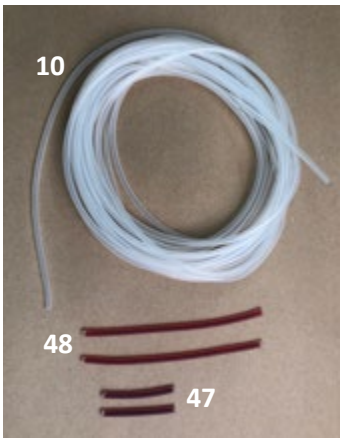
2.3.2 Prep Blood Tubes

Make the Blood Tubes in advance

Cut the tubing to length:
1 piece of tubing at 5 inches long

Mix the blood

Combine vegetable glycerin with combination of red and yellow food coloring until you achieve your desired color. This can be mixed in large batches and stored in an air-tight container, or mixed as needed.



Fill the tube

Backfill the blood into a small curved tip syringe. Replace the plunger on the syringe, and hold it upright, with the tip in the air. Gently push the plunger in until all the air has been pushed out of the tip of the syringe.

Place the tip of the syringe into the tube, and slowly fill until the blood reaches the far end of the tube. Once the tube is filled end to end with blood, take a small amount of Shin-Etsu silicone caulking on a mixing stick, and create a seal on each end with a small glob of caulking. Set aside (on a surface that it will not cure to, such as wax paper) and allow to fully cure.

Test before using by gently squeezing the center of the tube to ensure that no blood leaks from either end.

2.3 Hydrocele Mold

2.3.3 Prep Fabric

Prep fabric piece

Cut a piece of the brown fabric in a rectangle that is 3 by 5 inches.

2.3.4 Release

Prepare the mold with release agent

Use a chip brush to spread a thin layer of Vaseline over the inside surface of the mold

OR

Use Universal Mold Release Spray and coat the inside surface of the mold. Use 2–3 coats, allowing roughly 1 minute between coats. Be sure to use in a well-ventilated area.

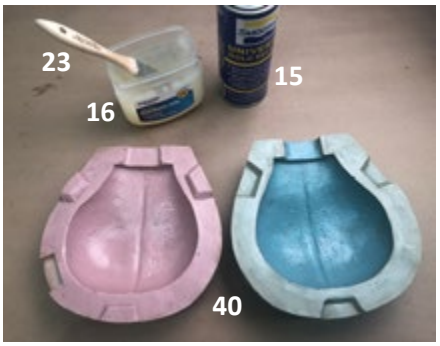
2.3.5 Measure

Measure out your silicone

Using the digital scale, place a small cup on the scale and tare out to 0.0 grams.

Measure out your silicone in separate cups. Place pigment drops in the cup with B.

Silicone:	*Amount:*
P-656 AQ:	25g
P-656 B:	25g
Pigment:	*Amount:*
'African' Pigment:	10 drops
Additive	*Amount*
XP-661 Thickener:	5 drops

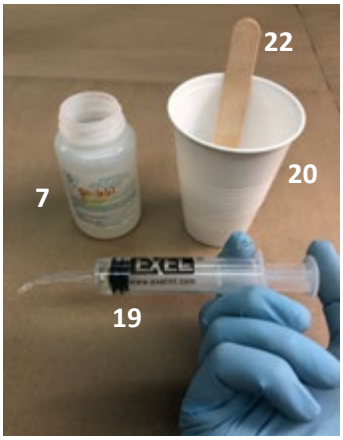


2.3 Hydrocele Mold

2.3.6 Mix

Use a mixing stick to scrape the AQ into the cup with B and Pigment, and mix thoroughly, taking care to scrape the bottom and sides of the cup.

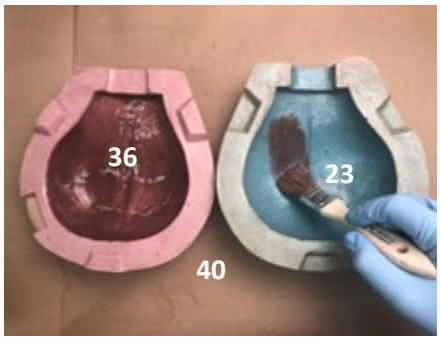
Once the silicone is mixed thoroughly, add the drops of Thickener. The purpose of this is to lower the viscosity of the silicone to between 100,000 – 150,000 cPs, to where the silicone is brushable and will not run. The amount of thickener can be modified as needed to achieve this viscosity.



2.3.7 Fill

Using a chip brush, paint this silicone in an even layer across the inside of all 4 sides of the Tunica molds. Take care to remove any excess silicone that sits above the sculpture edge.

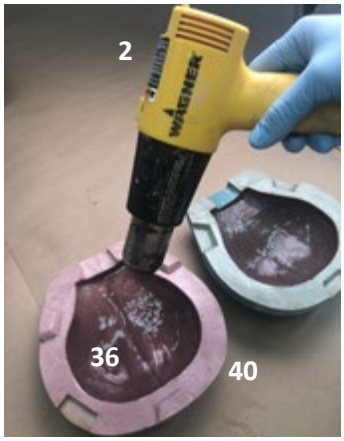
Use the heat gun to gently cure this layer, by moving it back and forth across the silicone, holding the nozzle at least 3–5” away from the surface of the silicone. Continue heating until the silicone is cured, and no longer tacky to the touch.



2.3.8 Second Layer

Repeat process with a second layer:

P-656 AQ:	20g
P-656 B:	20g
‘African’ Pigment:	8 drops
XP-661 Thickener:	4 drops

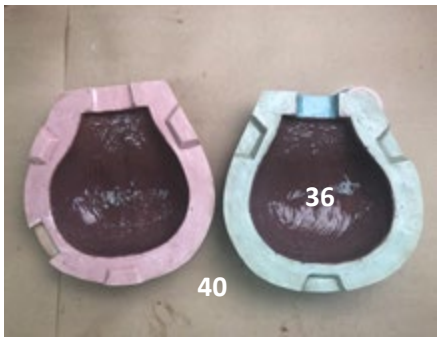


2.3 Hydrocele Mold

2.3.9 Third Layer

Repeat process with a third layer:

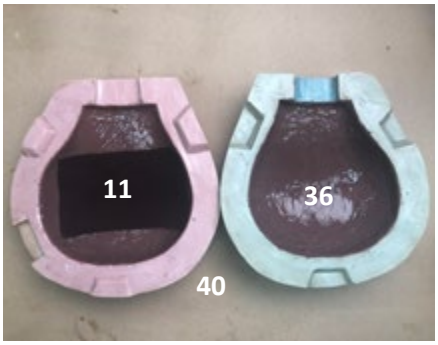
P-656 AQ:	20g
P-656 B:	20g
'African' Pigment:	8 drops
XP-661 Thickener:	4 drops

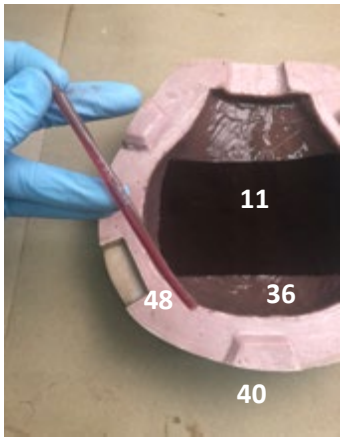


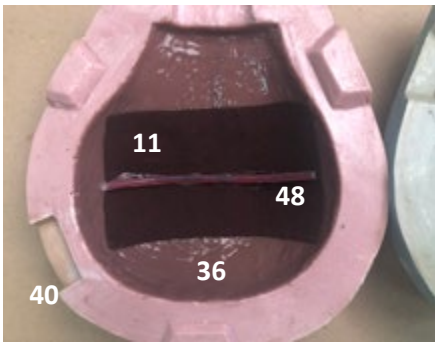
2.3.10 Add Fabric & Blood

Leave aside a small amount of the silicone from the third layer.

DO NOT heat cure the third layer. Instead, gently lay the fabric into the front side of the mold, roughly centered. Gently press the fabric into the silicone with your fingers or a dry chip brush, to ensure full adhesion. Use the excess silicone to glue the blood tube on top of the fabric, horizontally across the front side of the mold.







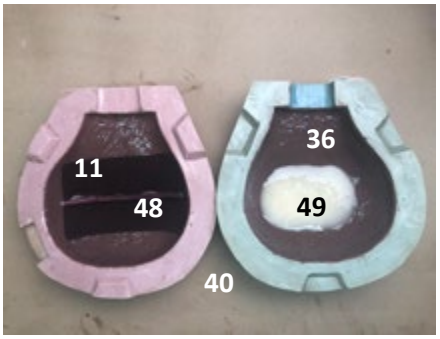
2.3 Hydrocele Mold

2.3.11 Add Fat & Tunica

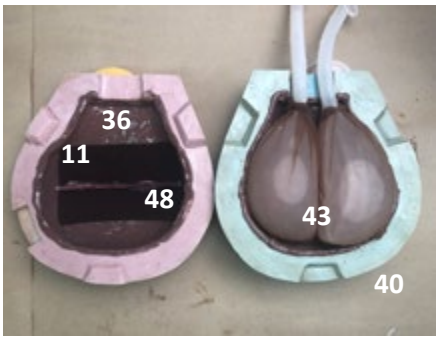
Mix silicone “Fat”:

P-656 5AQ:	13g
P-656 B:	13g
XP-684 Softener:	5g
XP-690 Cling-On:	2g
FuseFX Fatty:	7 drops

Pour the silicone into the back side of the mold, and allow to cure, typically for 3 hours.



Once the silicone is cured, lay in the Left and Right Tunica into the back side of the mold, taking care to recognize which is Left, Right, Front, and Back. Tuck any excess pantyhose within the sculpted area of the mold, keeping the flange clear of any excess material.



2.3 Hydrocele Mold

2.3.12 Seam

Mix silicone for your seaming layer:

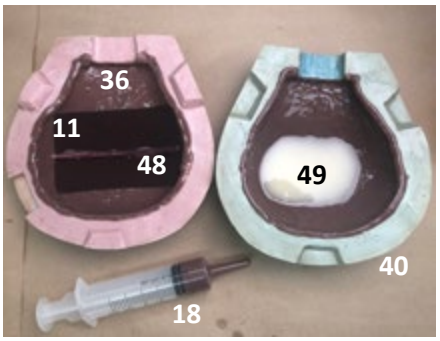
P-656 AQ:	8g
P-656 B:	8g
'African' Pigment:	3 drops
XP-661 Thickener:	3 drops

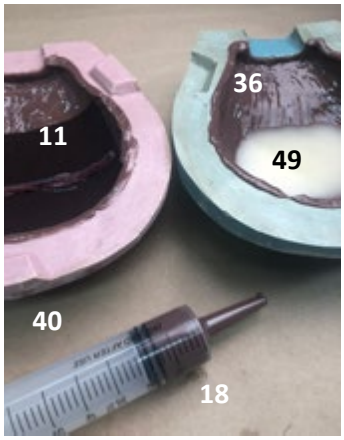
Use a mixing stick to scrape the AQ into the cup with B and Pigment, and mix thoroughly, taking care to scrape the bottom and sides of the cup.

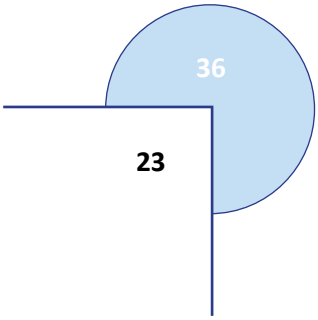
Once the silicone is mixed thoroughly, add the drops of Thickener. Once the silicone is properly thickened, use a mixing stick to backfill the silicone into a large syringe. Replace the plunger on the syringe, and hold it upright, with the tip in the air. Gently push the plunger in until all the air has been pushed out of the tip of the syringe.

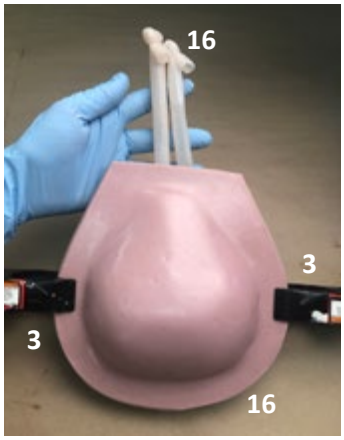
Run a bead of this silicone along the inside edge of the molds, ensuring that there is silicone on both the top and inside edge. See the diagram for placement of the silicone on the edge of the mold.

Close the mold, and secure it by tightly clamping either side. Place the mold upright, so that the tubes of the Tunica are coming out of the top. Use whatever method is convenient to keep the mold standing up. This will ensure that the silicone all cures around the water in the correct position.









2.3 Hydrocele Mold

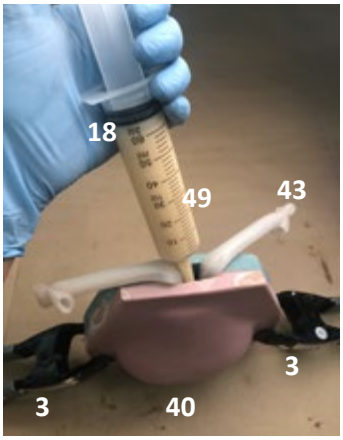
2.3.13 Backfill

Mix more silicone fat:

P-656 5AQ:	80g
P-656 B:	80g
XP-684 Softener:	30g
XP-690 Cling-On:	10g
FuseFX Fatty:	40 drops

Pour the silicone into the back of a large syringe. Replace the plunger on the syringe, and hold it upright, with the tip in the air. Gently push the plunger in until all the air has been pushed out of the tip of the syringe.

Inject the fat into the center opening at the top of the Hydrocele mold. Give it time to sink into place, and to absorb in the pantyhose.



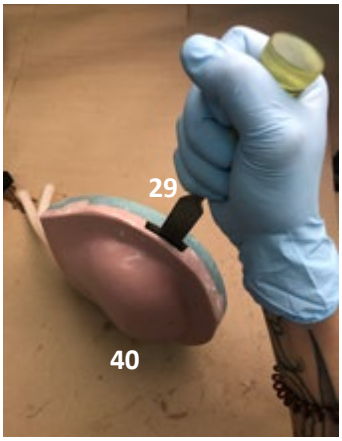
2.3.14 Cure

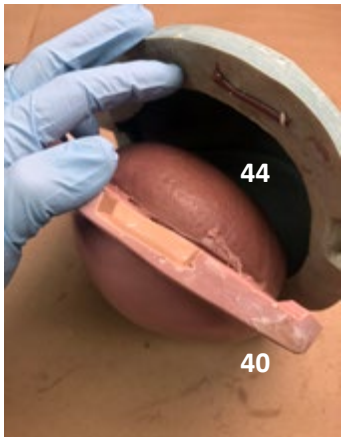
Allow to cure, typically at least 4 hours.

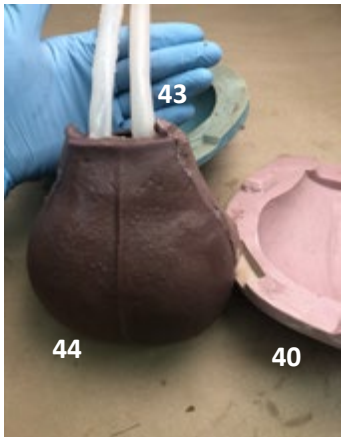
Tip: Keep the cup you mixed the silicone in next to the mold. Use any remainder in this cup to test to see if the silicone is cured to avoid opening the molds too early.

2.3.15 Pop

To open the mold, place a chisel or other tool in the pry spot, and apply pressure until the two sides release from each other. Gently pull the sides completely apart, and remove the cured Hydrocele from the mold.







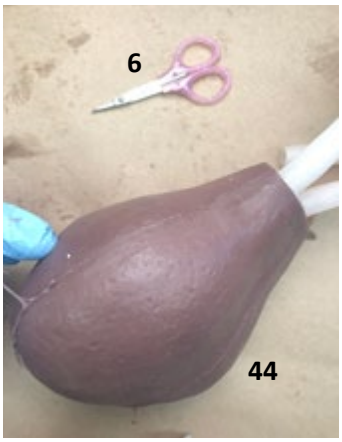
2.3 Hydrocele Mold

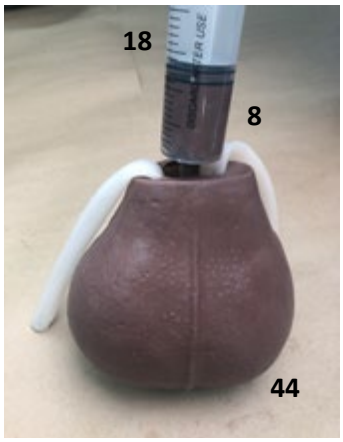
2.3.16 Trim & Finish

Using a pair of small, sharp scissors, carefully trim the excess silicone from the seam around the center and from the top of the Hydrocele.

Mix a small amount of Shin-Etsu caulking with the 'African' pigment, and use a mixing stick or syringe to fill any space remaining at the top of the Hydrocele, and smooth the top to create a clean surface that conceals any fat.

Allow to cure. The cartridge is now complete. Remove the rubber bands from the end of the Tunica tubes, and drain out the water.





2.3.17 Clean

Clean any silicone or excess release agent off of the molds with your hands, a towel, or soap and water.

2.4 Base Penis

2.4.1 Materials

Gather your supplies, outlined in the materials and equipment list on page 8.

2.4 Base Penis

2.4.2 Prep Fabric

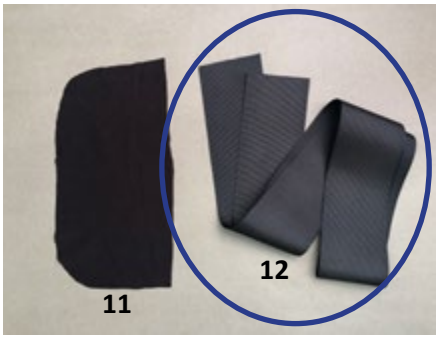
Prep fabric piece

Cut a piece of the brown fabric in a rectangle that is 4 by 8 inches.

2.4.3 Prep Ribbon

Prep ribbon pieces

Cut two pieces of ribbon, 10 inches long each.



2.4.4 Release

Prepare the mold with release agent

Use a chip brush to spread a thin layer of Vaseline over the inside surface of the mold

OR

Use Universal Mold Release Spray and coat the inside surface of the mold. Use 2–3 coats, allowing roughly 1 minute between coats. Be sure to use in a well-ventilated area.

2.4 Base Penis

2.4.5 Measure

Measure out your silicone

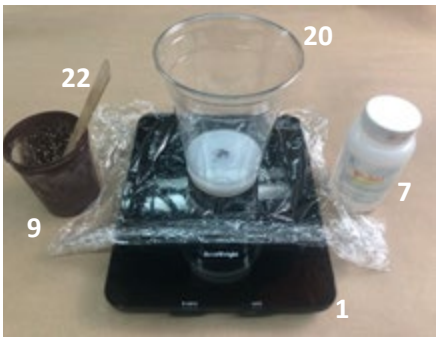
Using the digital scale, place a small cup on the scale and tare out to 0.0 grams.

Measure out your silicone in separate cups. Place pigment drops in the cup with B.

Silicone:	*Amount:*
P-656 AQ:	15g
P-656 B:	15g

Pigment:	*Amount:*
'African' Pigment:	6 drops

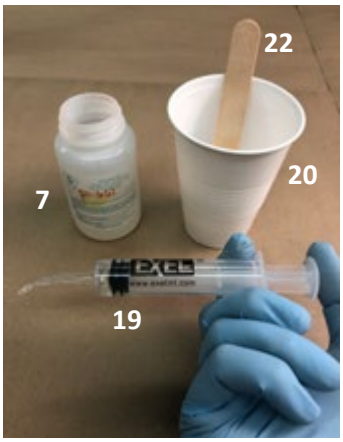
Additive	*Amount*
XP-661 Thickener:	4 drops



2.4.6 Mix

Use a mixing stick to scrape the AQ into the cup with B and Pigment, and mix thoroughly, taking care to scrape the bottom and sides of the cup.

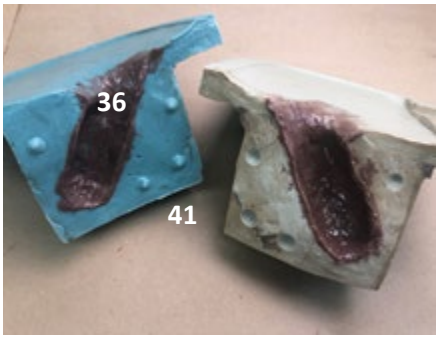
Once the silicone is mixed thoroughly, add the drops of Thickener. The purpose of this is to lower the viscosity of the silicone to between 100,000 – 150,000 cPs, to where the silicone is brushable and will not run. The amount of thickener can be modified as needed to achieve this viscosity.

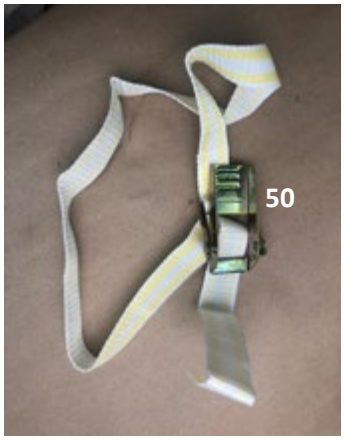


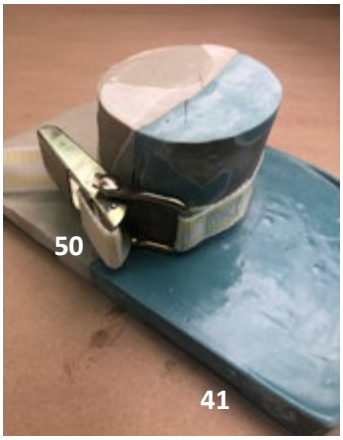
2.4 Base Penis

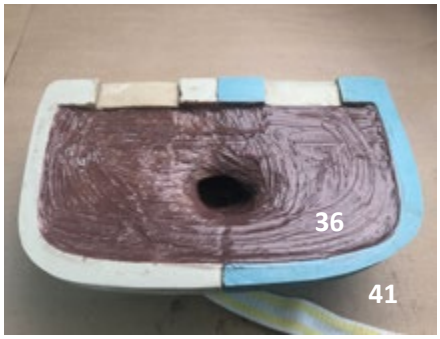
2.4.7 Fill

Using a chip brush, paint this silicone in an even layer across the inside of both sides of the Base Penis mold. Take care to remove any excess silicone that sits above the sculpture edge on the flat sculpted area, but allow the silicone to be brushed onto and slightly over the edge of the penis sculpture. Close the two-piece mold while the silicone is still uncured, and use a mold strap to secure the two sides tightly together. Using the remainder of the silicone, paint a layer across the sculpture surface of the mold all the way to the edges.









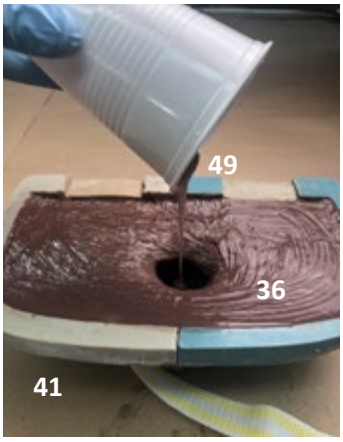
2.4.8 Add Fat

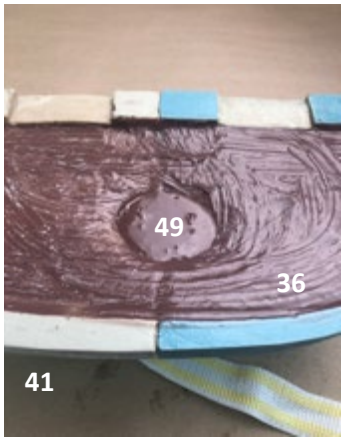
Mix the silicone “Fat”:

P-656 5AQ:	24g
P-656 B:	24g
XP-684 Softener:	9g
XP-690 Cling-On:	3g
‘African’ Pigment:	12 drops

Set the mold upright, so the flat surface is facing up.

Pour the ‘fat’ silicone into the penis.

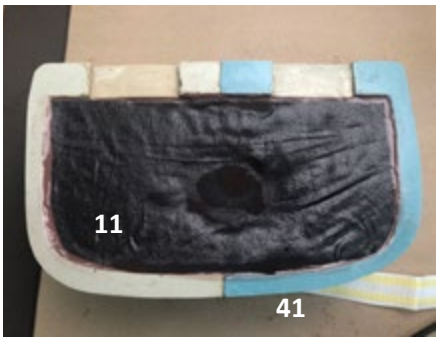




2.4 Base Penis

2.4.9 Add Fabric

While all the silicone is setting up, gently lay the fabric into the top of the mold, centered. Gently press the fabric into the silicone with your fingers or a dry chip brush, to ensure full adhesion, without pushing through to the surface of the mold.

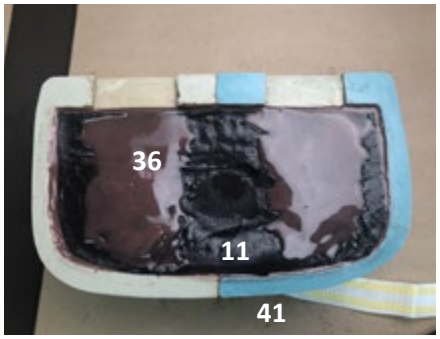


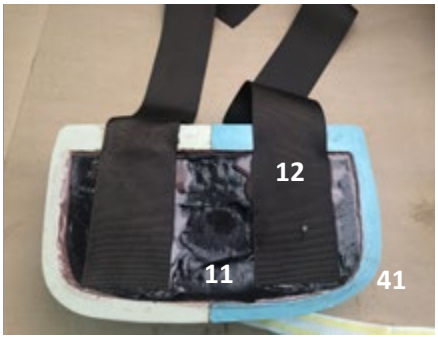
2.4.10 Add Ribbon

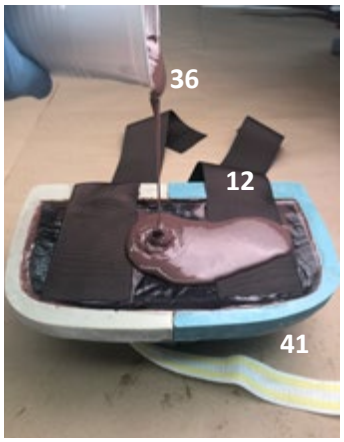
Mix another layer of silicone skin.

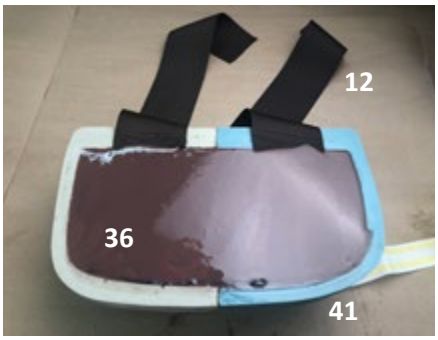
P-656 AQ:	30g
P-656 B:	30g
'African' Pigment:	12 drops

Use a chip brush to paint silicone onto the fabric where the ribbon will sit in the mold. Gently lay each strip of ribbon in place in the mold, pressing into the silicone layer, to glue it to the fabric piece. Pour the remaining silicone on top, covering all the fabric and ribbon pieces.









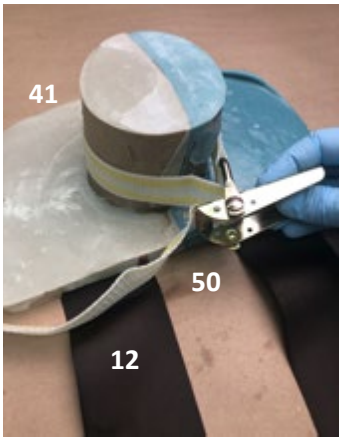
2.4.11 Cure

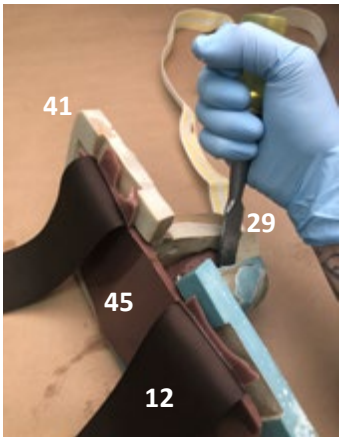
Allow to cure.

2.4 Base Penis

2.4.12 Pop

Once cured, remove the mold strap. Use your hands to release either side of the flat part of the silicone piece. Then use your hands, a chisel, or other tool to gently release the two sides of the mold from one another, and peel the rest of the piece out of the mold.

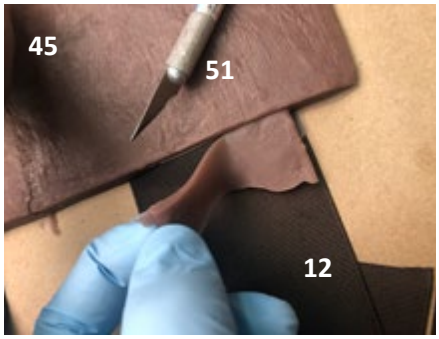




2.4.13 Trim & Finish

Using a pair of small, sharp scissors, carefully trim the excess silicone from the seam across the center of the Base Penis.

Using a pair of large scissors, trim any excess silicone around the perimeter of the piece.



2.4.14 Clean

Clean any silicone or excess release agent off of the molds with your hands, a towel, or soap and water.

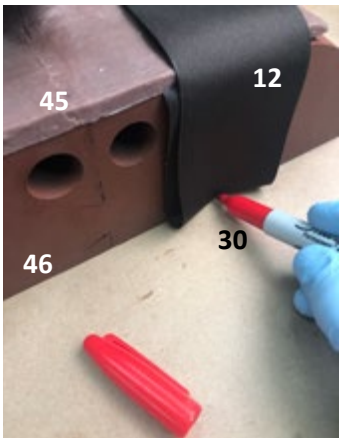
2.4 Base Penis

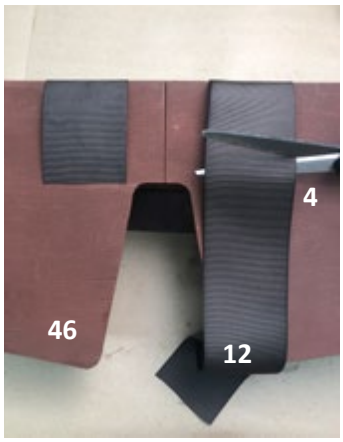
2.4.15 Complete Base

Completing the Base

Lay the Base Penis in place on the 3D printed Base (or the resin cast base, depending on which base you chose). Use a marker to mark where the ribbon will hit the edge of the base. Cut the ribbon to length, allowing enough length to wrap around to the bottom of the base.

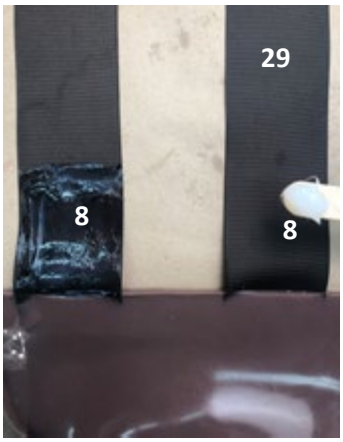
Optional: Use a lighter to gently skim the ends of the ribbon with a flame to prevent fraying.

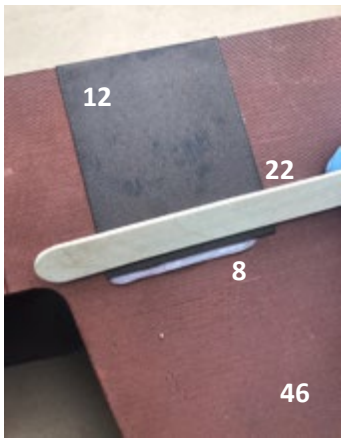




Using a mixing stick, spread a thin layer of Shin-Etsu caulking across the inside of both ribbons. Gently press the long edge of a clean mixing stick across the ribbon. Pull the mixing stick down the length of the ribbon, pressing the ribbon flat onto the Base, wrapping it around the back side for maximum support. Carefully remove any excess caulking from the sides of the ribbon.

(Continued on next page)



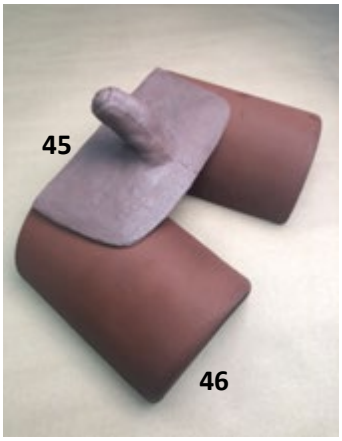


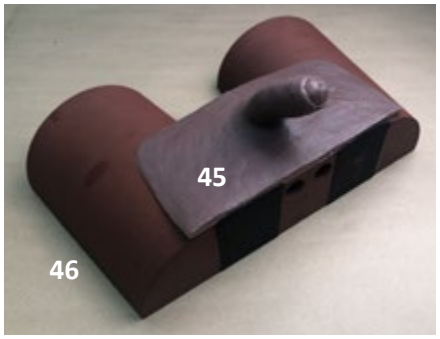
2.4 Base Penis

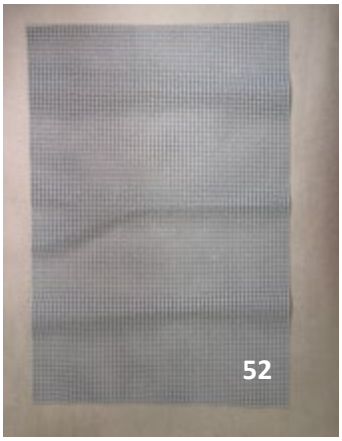
2.4.15 Complete Base *(continued)*

Allow to cure.

Cut out a section of shelf liner that is 13 by 20 inches, to utilize as a skid-proof mat for the base to sit on while being used. This can be substituted with any material that prevents the base from sliding across the surface on which it is being used.







2.5 Assemble the Simulator

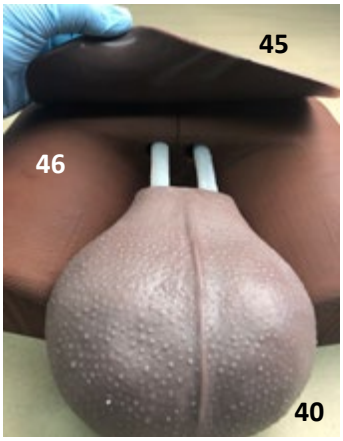
2.5.1 Assemble

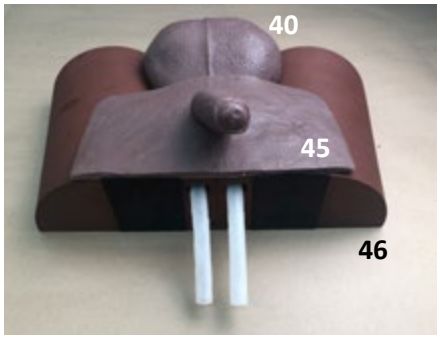
Identify the Front and Back of the cartridge, and position the Front facing up.

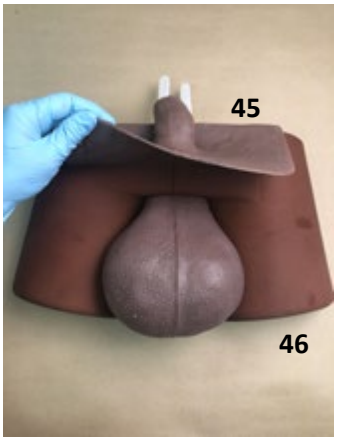
Lift the Base Penis back, and run the Tunica tubes through the two holes in the center of the Base. Take care to run them through both sets of holes, so that they run straight through the back of the Base.

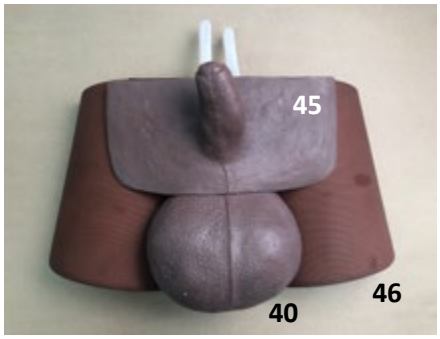
Position the cartridge snugly into the base. Lay the Base Penis back down over the Hydrocele.

Congratulations! The simulator is now ready for use.









3.0 Making the Molds

Note: You will need a set of existing molds to produce the molds. See 1.3 for information on obtaining molds.

3.1 Prep the Sculpture

3.1.1 Materials

Gather your supplies, outlined in the materials and equipment list on page 10.

3.1.2 Identify & Release

Start with the existing mold that you are looking to recreate. Take the two-part mold and lay it open on the table.

Use a chip brush to spread a thin layer of Vaseline over the inside of the mold.

3.1.3 Prep Clay

Take the bin of Monster Clay and microwave it until it reaches a liquid state, but stop before it begins to bubble. Timing will vary depending on the wattage of the microwave, and how much clay is in the bin. Start by heating in 2-minute increments.

Remove from the microwave and stir with a tool until smooth.

3.1.4 Pour Clay

Gently pour the liquid clay into either side of the mold, making sure it fills level to the top. Allow to cool in the coldest place possible — a freezer is ideal. Allow to sit for at least 2 hours, until thoroughly chilled.

3.1.5 Pop

The clay should shrink enough to allow you to easily pop the clay sculpture from the mold using your hands or a thin tool.

Note: Allow the sculpture to sit at room temperature until it is no longer producing condensation.

3.1.6 Seam & Texture

Heat more Monster clay, and use the warm clay to fuse the two sides of the mold together by smearing a layer between the two, and then pressing the two pieces together.

Use your preferred sculpting tools to re-sculpt the seam area to match the texture of the sides.

Note:

If the mold is a single piece and cannot be filled with clay (and have it removed in one piece) you can use Platinum Silicone to fill the mold to create the replica for molding.

Note: DO NOT use a Tin Silicone — this will prevent the current mold from being usable in the future.

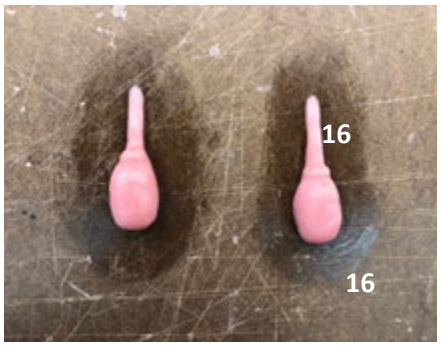
3.2 Testicle Molds, Right & Left

3.2.1 Prep

Start with the silicone replicas of the Testicles.

Smear Vaseline along the flat back side of the Testicles, and gently press them onto a board, spaced at least 10” apart from each other.

Use a silicone tip tool to gently smooth excess Vaseline around the edges to create a seal, and remove any excess.

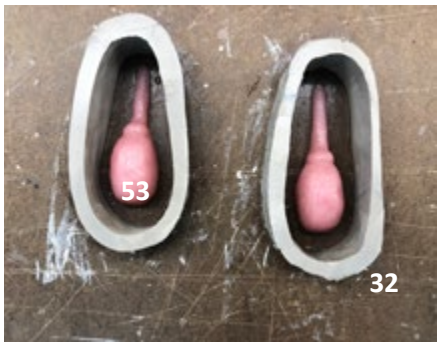


Building walls with WED Clay

Take your bag of WED clay, and pull back the plastic halfway. Place the clay block open-end down on your cutting board. Place the cutting wire behind the clay block, and holding the cutting wire across the cutting board, put gentle pressure downward onto the two supporting side boards while pulling the wire through the clay block and toward you. Once you have cut all the way through the block, lift the block upright and set it aside. Gently remove the layer of clay that you have sliced off, and move it to a clean surface. Use a blade to cut all 4 edges clean, and then cut a strip to your desired width.

Make a wall that sits at least ½” higher than the high point of the replica. Wrap this wall all the way around the replica, roughly ½” away from it on all sides.

Smooth the seams with a silicone tip tool or a wet paint brush to create a seal with the board.



3.2 Testicle Molds, Right & Left

3.2.2 Release

Use a chip brush to spread a thin layer of Vaseline over any exposed board inside the walls.

Use spray release to cover all other surfaces of Monster clay and WED clay within the walls. Be sure to do this in a well-ventilated area. Recommended: 2–3 coats.

3.2.3 Measure

Apoxie Paste, Part A & Part B
2 plastic cups
2 mixing sticks

Put Apoxie Paste Part A (hereafter referred to as Part A) in one cup, and Apoxie Paste Part B (hereafter referred to as Part B) in another cup, ensuring that you use separate mixing sticks to dole out each. Do not contaminate one part with the other.

Measure out equal amounts by volume.

3.2.4 Mix

Use the appropriate mixing stick to mix Part A and Part B in a single cup. Scrape the cup to ensure that you are using all of the material.

Place cup in the microwave — the amount of time will depend on the wattage of the microwave, as well as the amount of Apoxie Paste. For a 16oz cup that is at least halfway full, start around 15 seconds. Remove the cup and stir. Microwave again in 5–10 second increments. Stir in between each time, until the Apoxie Paste reaches a state that is easily stirred; this typically takes a total of 25 seconds.

Note: Do not allow it to get too hot. It will melt the plastic cup and cure in seconds.

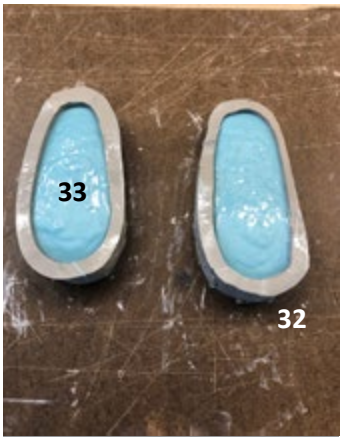
Thoroughly mix the Apoxie Paste. If you are unsure how well it is mixed, you can add a few drops of any color acrylic paint. Mix until color is uniform.

Tip: Pour the Apoxie Paste mixture into a clean cup to catch any unmixed spots at the bottom.

3.2 Testicle Molds, Right & Left

3.2.5 Fill

Pour the mixed Apoxie Paste into the well created by the walls, and fill until it is roughly ½" above the replica, taking care to avoid catching any pockets of air/bubbles on the surface of the replica.



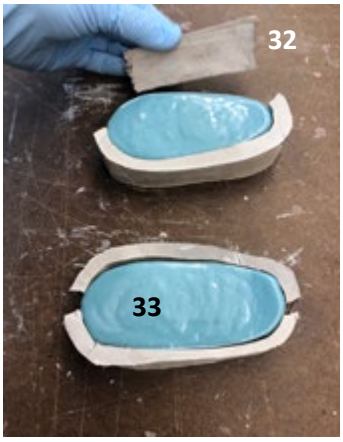
3.2.6 Cure

Allow to cure for 24 hours.

3.2.7 Pop

After 24 hours, remove all WED clay walls from the piece.

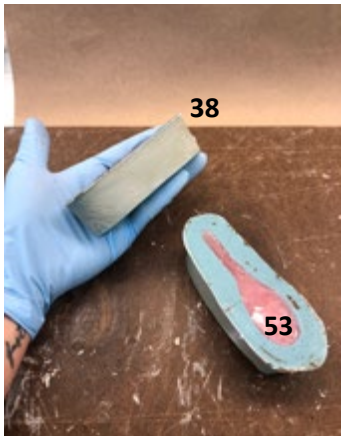
(Continued on next page)



3.2 Testicle Molds, Right & Left

3.2.7 Pop *(continued)*

Use a chisel and mallet, or similar tools, to gently knock the molds off of the board.



3.2.8 Clean

Pull out the silicone replicas.

Clean out the new molds with soap and water to remove release agent and any WED clay remnants.

Optional: Use an electric sander to smooth the sides of the molds.

Your molds are now ready to use.

3.3 Tunica Molds, Right & Left

3.3.1 Prep

Center the Tunica sculpture on a board.

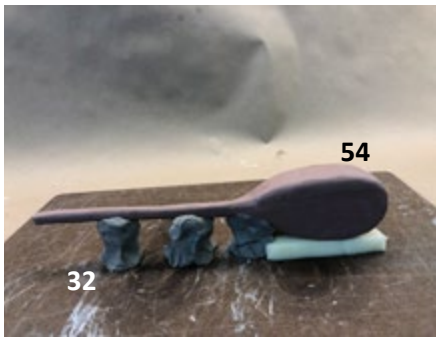
Cut a small piece of foam, or a strip of WED clay, to set beneath the sculpture as a cushion, to prevent it from flattening on one side.

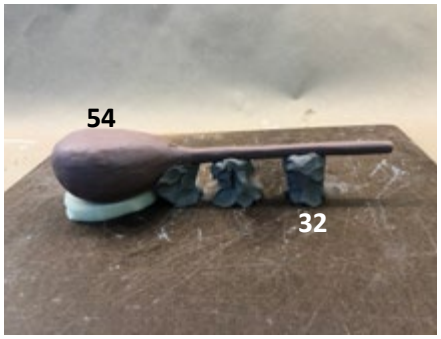
Identify the horizontal center line of the sculpture.

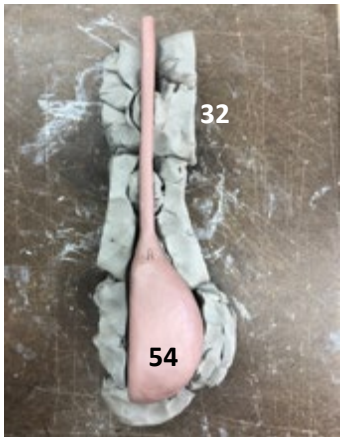
Create WED clay pillars and place beneath the sculpture to support it and hold it in place, keeping the center line parallel to the board.

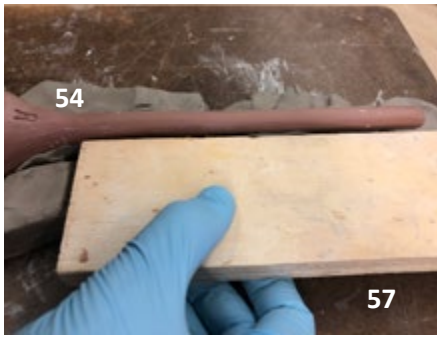
Cut pillars or strips of clay roughly 1.5” wide, that sit as tall as the center line, and place them securely around the full circumference of the sculpture.

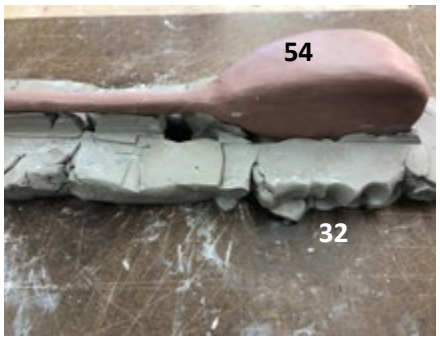
Use a small piece of wood that is the same depth as your strips of clay. Keeping this board right along the edge of the sculpt, gently press these supports down until the top side of the board sits at your center line. Continue this all the way around the sculpture.











Building walls with WED Clay

Take your bag of WED clay, and pull back the plastic halfway. Place the clay block open-end down on your cutting board. Place the cutting wire behind the clay block, and holding the cutting wire across the cutting board, put gentle pressure downward onto the two supporting side boards while pulling the wire through the clay block and toward you.

(Continued on next page)

3.3 Tunica Molds, Right & Left

3.3.1 Prep *(continued)*

Once you have cut all the way through the block, lift the block upright and set it aside. Peel up the layer of clay that you have sliced off, and move it to a clean surface. Use a blade to cut all 4 edges clean, and then cut a strip to your desired width.

Cut fresh WED clay walls, roughly 2” wide. Place them on the supports, all the way around the sculpture, taking care to press the edge right up against the sculpture at the center line. Use your sculpting tools to smooth the seams between walls, and use a silicone tip tool or a wet paintbrush to clean and seal the edge at the sculpture.

Use a blade to cut off any excess clay walls, creating a clean edge.

Cut new walls, tall enough to reach from the board to 1” above the horizontal walls. Attach these all the way around the sculpture.

Use your sculpting tools to smooth the seams between walls, and use a silicone tip tool or a wet paintbrush to clean and seal the edge where the walls meet.

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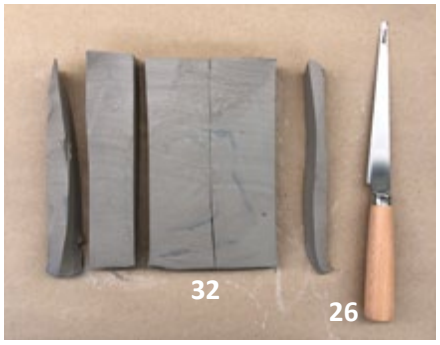
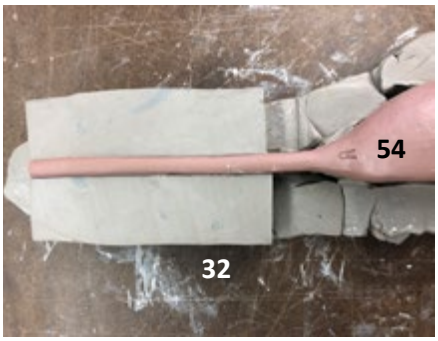
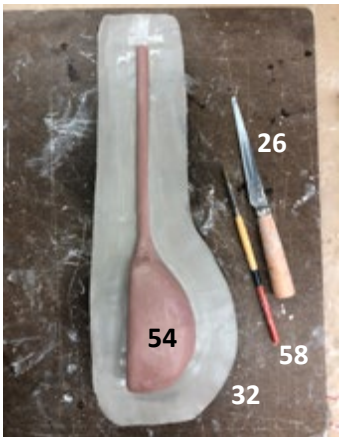


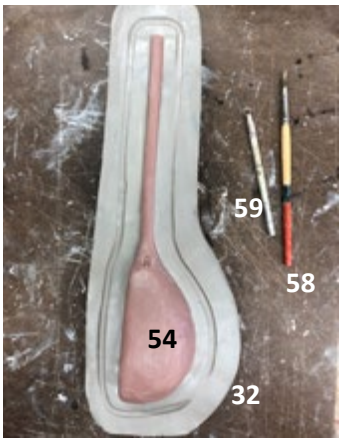


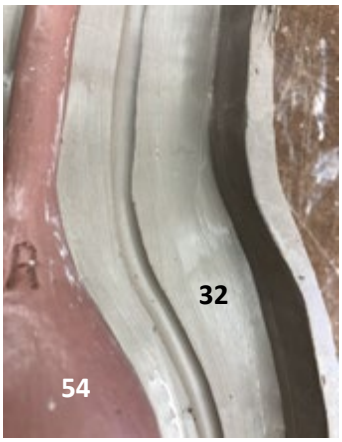


3.3 Tunica Molds, Right & Left

3.3.1 Prep *(continued)*

Use a round loop tool to cut a long trench in the horizontal wall, all the way around the sculpture. This trench will create a key for the two sides of the mold. Be sure to only sink the loop tool halfway into the clay to avoid creating an undercut. Remove the excess clay and smooth any rough edges with a wet paintbrush.



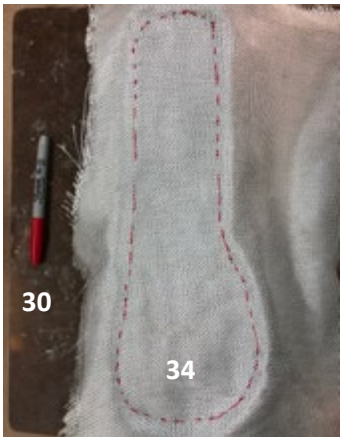


3.3.2 Release

Use spray release to cover all other surfaces of Monster clay and WED clay within the walls. Be sure to do this in a well-ventilated area. Recommended: 2–3 coats.

3.3.3 Prep Fiberglass

Cut a piece of Fiberglass sheet to shape, gently draping it over the walls of the mold and tracing the shape with a marker. Cut out with large scissors.



3.3 Tunica Molds, Right & Left

3.3.4 Measure

Apoxie Paste, Part A & Part B
2 plastic cups
2 mixing sticks

Put Part A in one cup, and Part B in another cup, ensuring that you use separate mixing sticks to dole out each. Do not contaminate one part with the other.

Measure out equal amounts by volume.

3.3.5 Mix

Use the appropriate mixing stick to mix Part A and Part B in a single cup. Scrape the cup to ensure that you are using all of the material.

Place cup in the microwave — the amount of time will depend on the wattage of the microwave, as well as the amount of Apoxie Paste. For a 16oz cup that is at least halfway full, start around 15 seconds. Remove the cup and stir. Microwave again in 5–10 second increments. Stir in between each time, until the Apoxie Paste reaches a state that is easily stirred; this is typically a total of 25 seconds.

Note: Do not allow it to get too hot. It will melt the plastic cup and cure in seconds.

Thoroughly mix the Apoxie Paste. If you are unsure how well it is mixed, you can add a few drops of any color acrylic paint. Mix until color is uniform.

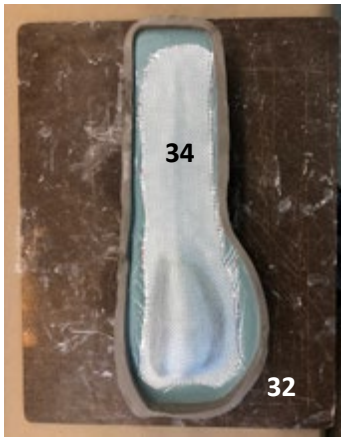
Tip: Pour the Apoxie Paste mixture into a clean cup to catch any unmixed spots at the bottom.

3.3.6 Fill

Pour the mixed Apoxie Paste into the well created by the walls, pouring from the center of the sculpture and allowing the Apoxie Paste to cover the entire area in a thin layer, taking care to avoid catching any pockets of air/bubbles on the surface of the sculpture.

Allow to cure until firm but tacky.

Gently place the fiberglass sheet on top, and use a clean dry chip brush to very gently press it onto the Apoxie Paste, taking care to avoid any pockets of air/bubbles between the Apoxie Paste and the fiberglass. Use a light hand to avoid pushing the fiberglass through the Apoxie Paste layer and onto the surface of the sculpture.



Allow to cure until hard to the touch.

Repeat Apoxie Paste to create a second layer over the fiberglass sheet, making sure to get full coverage.

3.3 Tunica Molds, Right & Left

3.3.7 Cure

Allow to cure for 24 hours.

3.3.8 Prep Side 2

After 24 hours, remove all WED clay walls from the piece, and use water to wash off any remnants of clay.

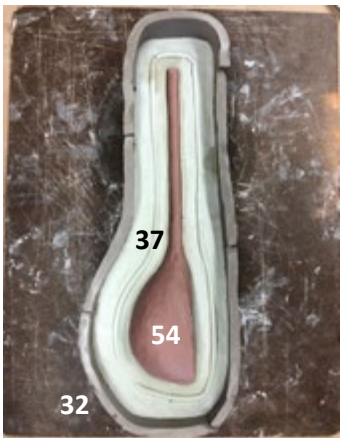
Flip the sculpture over, so the molded side is resting on the board.

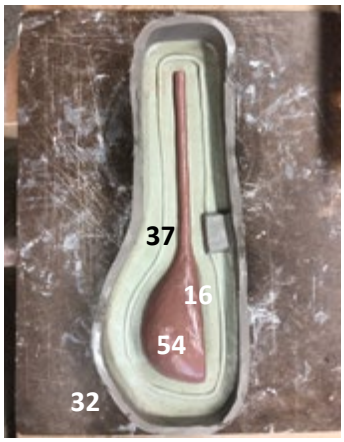
Create WED clay pillars and place beneath the sculpture to support it and hold it in place, keeping the center line parallel to the board.

Cut new walls, tall enough to reach from the board to 1” above the horizontal walls. Attach these at the edge of the cured Apoxie all the way around the sculpture.

Use your sculpting tools to smooth the seams between walls, and use a silicone tip tool or a wet paintbrush to clean and seal the edge where the walls meet the cured Apoxie Paste.

Make any adjustments/fixes to the sculpture.





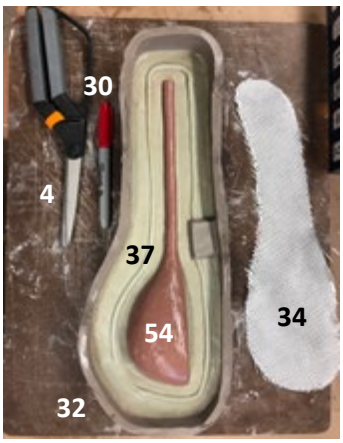
3.3.9 Release Side 2

Use a chip brush to spread a thin layer of Vaseline over the newly exposed edge/surface of cured Apoxie Paste.

Use spray release to cover all other surfaces of Monster clay and WED clay within the walls. Be sure to do this in a well-ventilated area. Recommended: 2–3 coats.

3.3.10 Fiberglass Side 2

Cut another piece of Fiberglass sheet to shape, gently draping it over the walls of the mold and tracing the shape with a marker. Cut out with large scissors.



3.3 Tunica Molds, Right & Left

3.3.11 Mix Side 2

Mix more Apoxie Paste — recommend coloring with a new color of Acrylic paint to help differentiate the two sides of the mold.

3.3.12 Fill Side 2

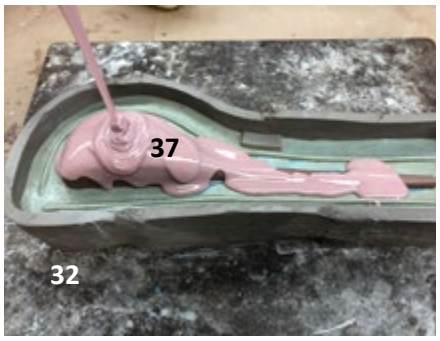
Pour the mixed Apoxie Paste into the well created by the walls, pouring from the center of the sculpture and allowing the Apoxie Paste to cover the entire area in a thin layer, taking care to avoid catching any pockets of air/bubbles on the surface of it.

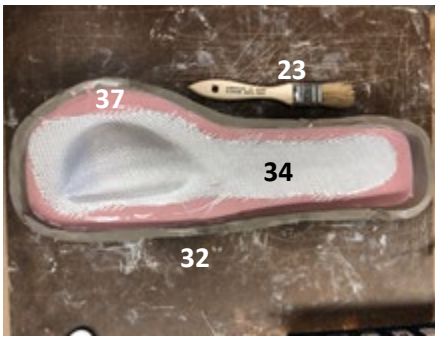
Allow to cure until firm but tacky.

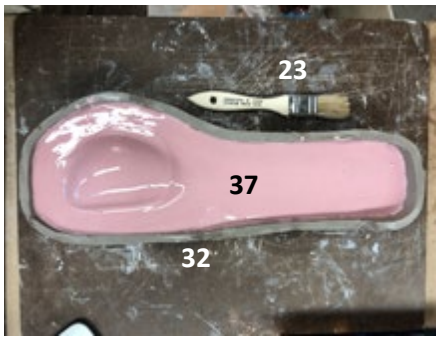
Gently place the fiberglass sheet on top, and use a clean dry chip brush to very gently press it onto the Apoxie Paste, taking care to avoid any pockets of air/bubbles between the Apoxie Paste and the fiberglass. Use a light hand to avoid pushing the fiberglass through the Apoxie Paste layer and onto the surface of the sculpture.

Allow to cure until hard to the touch.

Repeat Apoxie Paste to create a second layer over the fiberglass sheet, making sure to get full coverage.







3.3.13 Cure Side 2

Allow to cure for 24 hours.

3.3 Tunica Molds, Right & Left

3.3.14 Pop

After 24 hours, remove all WED clay walls from the piece, and use water to wash off any remnants of clay. Use a chisel and mallet, or similar tools, to gently knock along the seam of the two sides of Apoxie Paste until they split and release from each other.

3.3.15 Clean

Pull out the Monster clay sculpture. You can keep this to fix up for future molds, or break apart and return to the clay bin.

Clean out the new mold with soap and water to remove release agent and any clay remnants.

Optional: Use an electric sander to smooth the sides of the molds.

Your mold is now ready to use.

Repeat process for the second Tunica mold.

3.4 Hydrocele Mold

3.4.1 Prep

Center the hydrocele mold on a board.

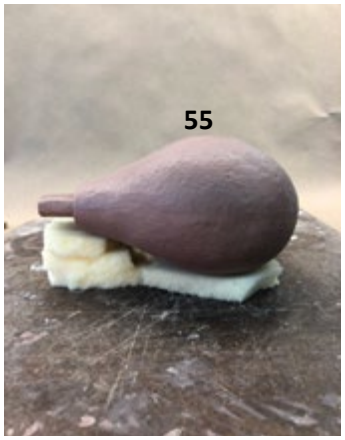
Cut a small piece of foam, or a strip of WED clay, to set beneath the sculpture as a cushion, to prevent it from flattening on one side.

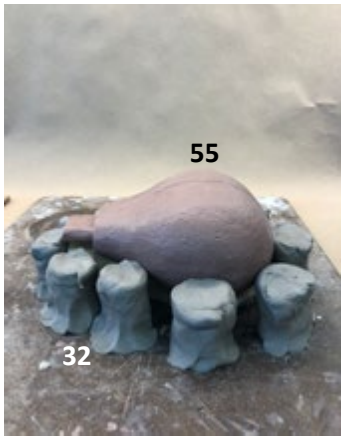
Identify the center line of the sculpture.

Create WED clay pillars and place beneath the sculpture to support it and hold it in place, keeping the center line parallel to the board.

Cut pillars or strips of clay roughly 1.5” wide, that sit as tall as the center line, and place them securely around the full circumference of the sculpture.

Use a small piece of wood that is the same depth as your strips of clay. Keeping this board right along the edge of the sculpture, gently press these supports down until the top side of the board sits at your center line. Continue this all the way around the sculpture.





Building walls with WED Clay

Take your bag of WED clay, and pull back the plastic halfway. Place the clay block open-end down on your cutting board. Place the cutting wire behind the clay block, and holding the cutting wire across the cutting board, put gentle pressure downward onto the two supporting side boards while pulling the wire through the clay block and toward you. Once you have cut all the way through the block, lift the block upright and set it aside. Peel up the layer of clay that you have sliced off, and move it to a clean surface. Use a blade to cut all 4 edges clean, and then cut a strip to your desired width.

Cut fresh WED clay walls, roughly 2” wide. Place them on the supports, all the way around the sculpture, taking care to press the edge right up against the sculpture at the center line. Use your sculpting tools to smooth the seams between walls, and use a silicone tip tool or a wet paintbrush to clean and seal the edge at the sculpture.

(Continued on next page)

3.4 Hydrocele Mold

3.4.1 Prep *(continued)*

Use a blade to cut off any excess clay walls, creating a clean edge.

Cut new walls, tall enough to reach from the board to 1” above the horizontal walls. Attach these all the way around the sculpture.

Use your sculpting tools to smooth the seams between walls, and use a silicone tip tool or a wet paintbrush to clean and seal the edge where the walls meet.

Use a round loop tool to cut a key in the horizontal wall, all the way around the sculpture. Be sure to only sink the loop tool halfway into the clay to avoid creating an undercut. Remove the excess clay and smooth any rough edges with a wet paintbrush.

3.4.2 Release

Use spray release to cover all other surfaces of Monster clay and WED clay within the walls.
Be sure to do this in a well-ventilated area. Recommended: 2–3 coats.

3.4.3 Prep Fiberglass

Cut a piece of Fiberglass sheet to shape, gently draping it over the walls of the mold and tracing the shape with a Sharpie. Cut out with large scissors.

3.4.4 Measure

Apoxie Paste, Part A & Part B
2 plastic cups
2 mixing sticks

Put Part A in one cup, and Part B in another cup, ensuring that you use separate mixing sticks to dole out each. Do not contaminate one part with the other.

Measure out equal amounts by volume.

3.4 Hydrocele Mold

3.4.5 Mix

Use the appropriate mixing stick to mix Part A and Part B in a single cup. Scrape the cup to ensure that you are using all of the material.

Place cup in the microwave — the amount of time will depend on the wattage of the microwave, as well as the amount of Apoxie Paste. For a 16oz cup that is at least halfway full, start around 15 seconds. Remove the cup and stir. Microwave again in 5–10 second increments. Stir in between each time, until the Apoxie Paste reaches a state that is easily stirred; this typically takes a total of 25 seconds.

Note: Do not allow it to get too hot. It will melt the plastic cup and cure in seconds.

Thoroughly mix the Apoxie Paste. If you are unsure how well it is mixed, you can add a few drops of any color acrylic paint. Mix until color is uniform.

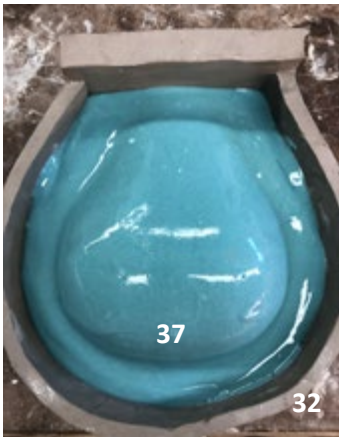
Tip: Pour the Apoxie Paste mixture into a clean cup to catch any unmixed spots at the bottom.

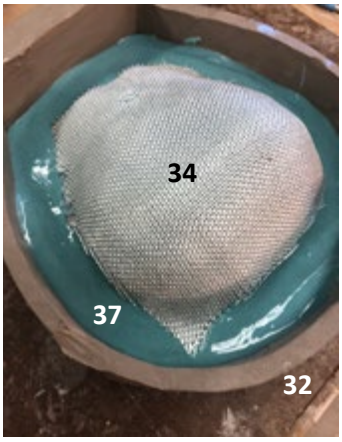
3.4.6 Fill

Pour the mixed Apoxie Paste into the well created by the walls, pouring from the center of the sculpture and allowing the Apoxie Paste to cover the entire area in a thin layer, taking care to avoid catching any pockets of air/bubbles on the surface of the sculpture.

Allow to cure until firm but tacky.

Gently place the fiberglass sheet on top, and use a clean dry chip brush to very gently press it onto the Apoxie Paste, taking care to avoid any pockets of air/bubbles between the Apoxie Paste and the fiberglass. Use a light hand to avoid pushing the fiberglass through the Apoxie Paste layer and onto the surface of the sculpture.





Allow to cure until hard to the touch.

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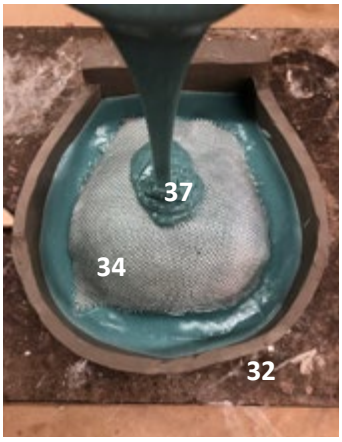
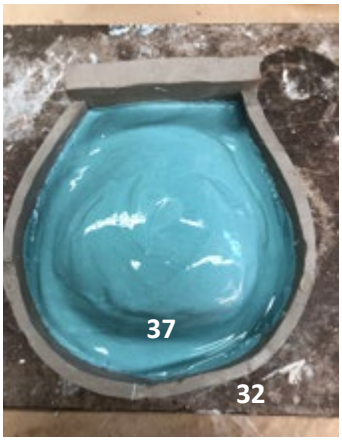
3.4 Hydrocele Mold

3.4.6 Fill *(continued)*

Repeat Apoxie Paste to create a second layer over the fiberglass sheet, making sure to get full coverage.





3.4.7 Cure

Allow to cure for 24 hours.

3.4.8 Prep Side 2

After 24 hours, remove all WED clay walls from the piece, and use water to wash off any remnants of clay.

Flip the sculpture over, so the molded side is resting on the board.

Create WED clay pillars and place beneath the sculpture to support it and hold it in place, keeping the center line parallel to the board.

Cut new walls, tall enough to reach from the board to 1” above the horizontal walls. Attach these at the edge of the cured Apoxie Paste all the way around the sculpture.

Use your sculpting tools to smooth the seams between walls, and use a silicone tip tool or a wet paintbrush to clean and seal the edge where the walls meet the cured Apoxie.

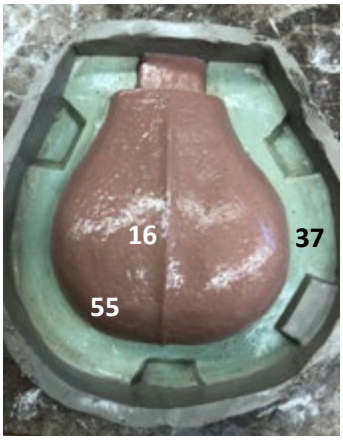
Make any adjustments/fixes to the sculpture.

3.4 Hydrocele Mold

3.4.9 Release Side 2

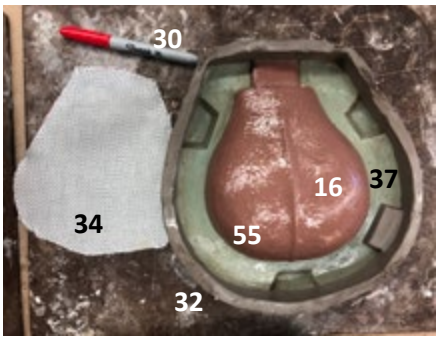
Use a chip brush to spread a thin layer of Vaseline (petroleum jelly) over the newly exposed edge/surface of cured Apoxie Paste.

Use spray release to cover all other surfaces of Monster clay and WED clay within the walls. Be sure to do this in a well-ventilated area. Recommended: 2–3 coats.



3.4.10 Fiberglass Side 2

Cut another piece of Fiberglass sheet to shape, gently draping it over the walls of the mold and tracing the shape with a Sharpie. Cut out with large scissors.



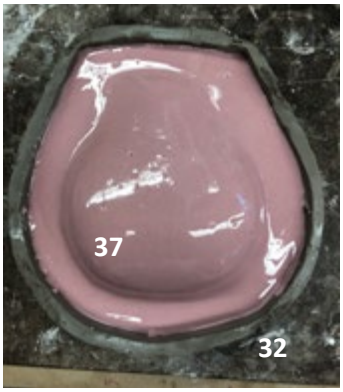
3.4.11 Mix Side 2

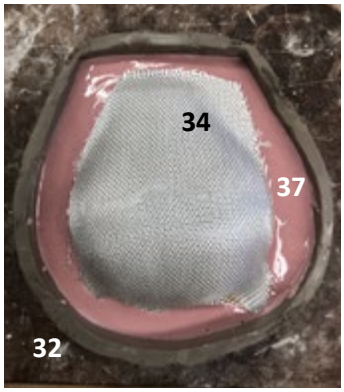
Mix more Apoxie Paste — recommend coloring with a new color of Acrylic paint to help differentiate the two sides of the mold.

3.4 Hydrocele Mold

3.4.12 Fill Side 2

Pour the mixed Apoxie Paste into the well created by the walls, pouring from the center of the sculpture and allowing the Apoxie Paste to cover the entire area in a thin layer, taking care to avoid catching any pockets of air/ bubbles on the surface of it.





Allow to cure until firm but tacky.

Gently place the fiberglass sheet on top, and use a clean dry chip brush to very gently press it onto the Apoxie Paste, taking care to avoid any pockets of air/bubbles between the Apoxie Paste and the fiberglass.

Use a light hand to avoid pushing the fiberglass through the Apoxie Paste layer and onto the surface of the sculpture.

Allow to cure until hard to the touch.

Repeat Apoxie Paste to create a second layer over the fiberglass sheet, making sure to get full coverage.

3.4.13 Cure Side 2

Allow to cure for 24 hours.

3.4.14 Pop

After 24 hours, remove all WED clay walls from the piece, and use water to wash off any remnants of clay.

Use a chisel and mallet, or similar tools, to gently knock along the seam of the two sides of Apoxie Paste until they split and release from each other.

3.4.15 Clean

Pull out the Monster clay sculpture. You can keep this to fix up for future molds, or break apart and return to the clay bin.

Clean out the new mold with soap and water to remove release agent and any clay remnants.

Optional: Use an electric sander to smooth the sides of the molds.

Your mold is now ready to use.

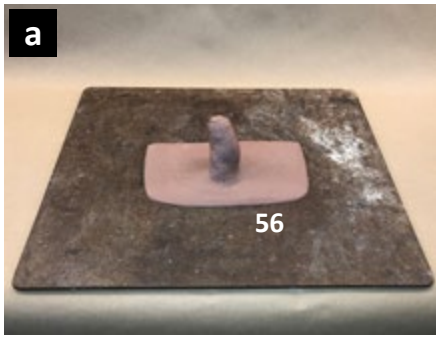
3.5 Base Penis Mold

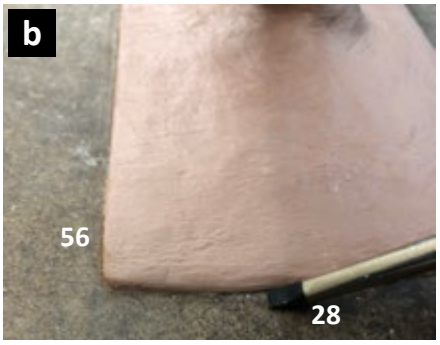
3.5.1 Prep

(a) Lay the sculpture down onto the center of a board, flat side down.

(b) Use a silicone tipped tool to gently press the edge of the sculpture down to create a seal against the surface of the board. If there is a large gap, use warm Monster clay to fill the gap and proceed. **(c)** A blade can also be used to clean up edges.

Once the edge of the sculpture is sealed all the way around, you can begin building walls.





Building walls with WED Clay

(d) Take your bag of WED clay, and pull back the plastic halfway. Place the clay block open-end down on your cutting board. Place the cutting wire behind the clay block, and holding the cutting wire across the cutting board, put gentle pressure downward onto the two supporting side boards while pulling the wire through the clay block and toward you. Once you have cut all the way through the block, lift the block upright and set it aside. Peel up the layer of clay that you have sliced off, and move it to a clean surface. **(e)** Use a fettling knife to cut all 4 edges clean, and then cut a strip to your desired width.

Cut a clay wall that is roughly 2” wide, and as long as possible. **(f)** Identify the center line of the sculpture, and gently place the wall along it (keep the clay to one side of the center, so that you are creating an edge along the center line).

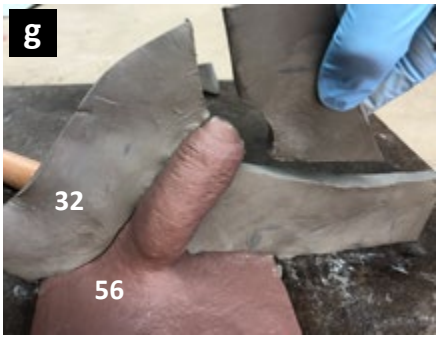
(Continued on next page)

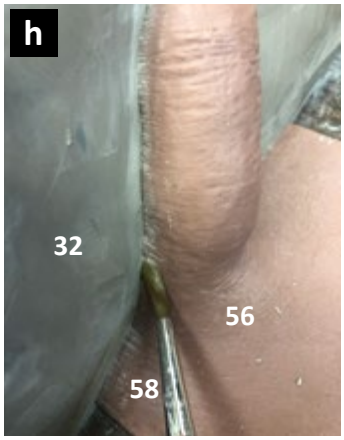
3.5 Base Penis Mold

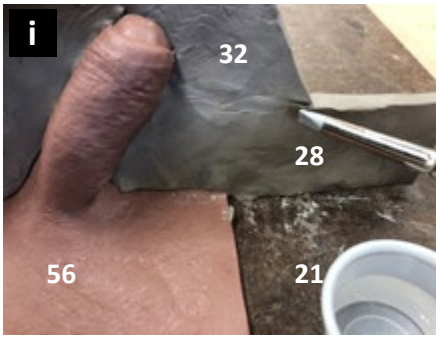
3.5.1 Prep *(continued)*

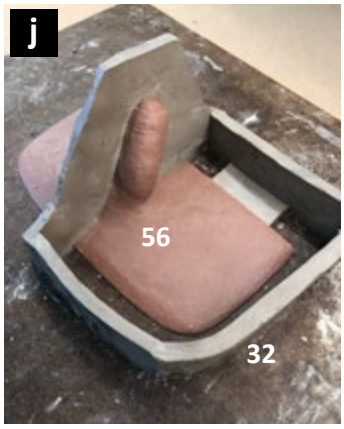
(g) Continue with more clay until you have covered the sculpture and roughly 1” to either side. **(h)** Use a silicone tool or a wet paintbrush to gently melt the WED clay against the monster clay, creating a smooth edge. **(i)** Use a rake or loop tool to seam your walls together end to end on the outside. Use a silicone tool or wet brush to seam walls on the inside.

(j) Cut more clay walls to wrap around the side of the sculpture, all roughly 1” from the sculpture’s edge. These should meet with the center wall at a 90-degree angle. Use a rake or loop tool to seam your walls together end to end on the outside. Use a silicone tool or wet brush to seam walls on the inside, and to seal all your edges down to the board. Use a wet kidney tool to ensure that all inside walls are smooth.









3.5.2 Release

Use a chip brush to spread a thin layer of Vaseline over any exposed board inside the walls.

Use spray release to cover all other surfaces of Monster clay and WED clay within the walls. Be sure to do this in a well-ventilated area. Recommended: 2–3 coats.

3.5.3 Measure

Apoxie Paste, Part A & Part B
2 plastic cups
2 mixing sticks

Put part A in one cup, and part B in another cup, ensuring that you use separate mixing sticks to dole out each. Do not contaminate one part with the other.

Measure out equal amounts by volume.

3.5 Base Penis Mold

3.5.4 Mix

Use the appropriate mixing stick to mix Part A and Part B in a single cup. Scrape the cup to ensure that you are using all of the material.

Place cup in the microwave — the amount of time will depend on the wattage of the microwave, as well as the amount of Apoxie Paste. For a 16oz cup that is at least halfway full, start around 15 seconds. Remove the cup and stir. Microwave again in 5–10 second increments. Stir in between each time, until the Apoxie Paste reaches a state that is easily stirred; this typically takes a total of 25 seconds.

Note: Do not allow it to get too hot. It will melt the plastic cup and cure in seconds.

Thoroughly mix the Apoxie Paste. If you are unsure how well it is mixed, you can add a few drops of any color acrylic paint. Mix until color is uniform.

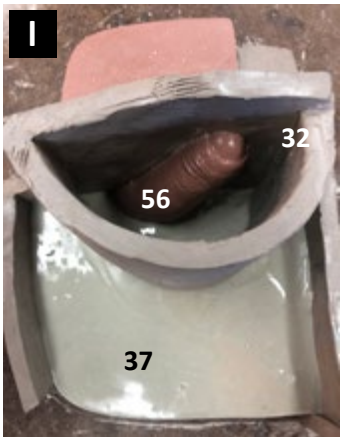
Tip: Pour the Apoxie Paste mixture into a clean cup to catch any unmixed spots at the bottom.

3.5.5 Fill

(k) Pour the mixed Apoxie Paste into the well created by the walls, and fill until it is roughly 1” deep, taking care to avoid catching any pockets of air/bubbles on the surface of the sculpture. Once the bottom of the sculpture is covered, set this aside and allow to cure until hard. Depending on how long the Apoxie Paste was microwaved, this can range from 2 hours to 24 hours.

(l) Once the Apoxie Paste has hardened, cut another clay wall. Wrap this wall around the sculpture of the penis, roughly 1” away, and make sure that the walls are at least 1” higher than the highest point of the sculpture.

(m) Mix more Apoxie Paste, and fill this well to at least ½” over the top of the sculpture.



3.5 Base Penis Mold

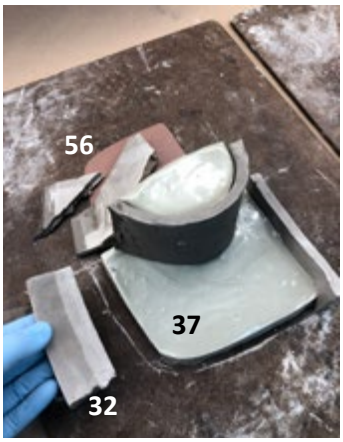
3.5.6 Cure

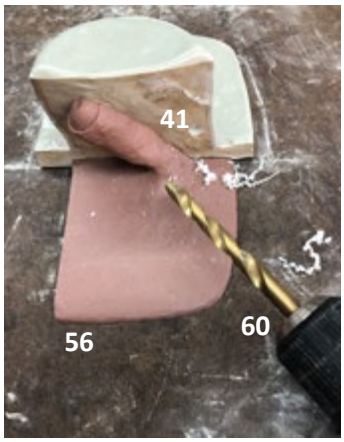
Allow to cure 24 hours.

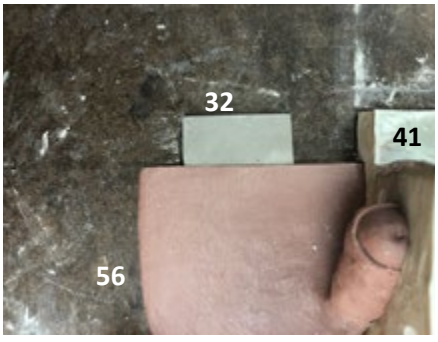
3.5.7 Prep Side 2

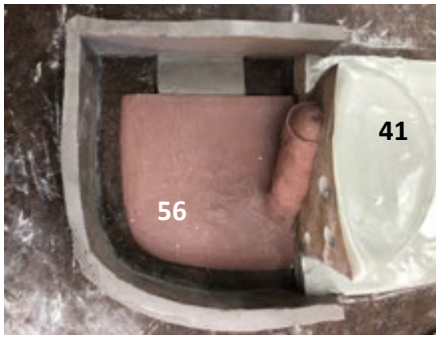
After 24 hours, remove all WED clay walls from the piece, and use water to wash off any remnants of clay.

Cut more clay walls, and wrap them around the other side of the sculpture, 1” from the edge.









3.5 Base Penis Mold

3.5.8 Release Side 2

Use a chip brush to spread a thin layer of Vaseline over any exposed board inside the walls. Also coat the newly exposed edge/surface of cured Apoxie Paste.

Use spray release to cover all other surfaces of Monster clay and WED clay within the walls. Be sure to do this in a well-ventilated area. Recommended: 2–3 coats.

3.5.9 Mix Side 2

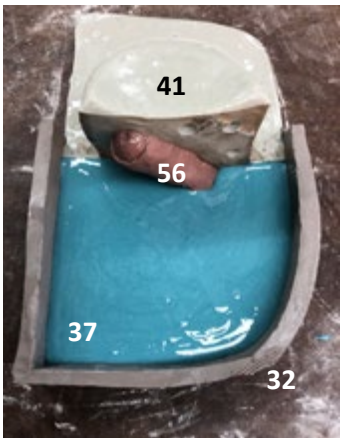
Mix more Apoxie Paste — recommend coloring with a new color of Acrylic paint to help differentiate the two sides of the mold.

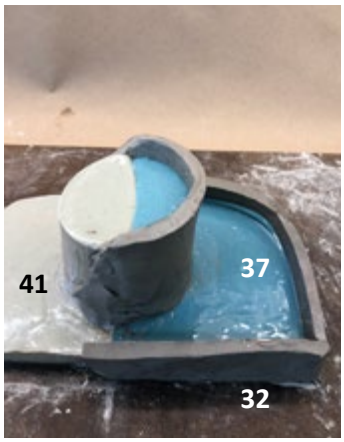
3.5.10 Fill Side 2

Pour the mixed Apoxie Paste into the well created by the walls, and fill until it is roughly 1” deep, taking care to avoid catching any pockets of air/bubbles on the surface of the sculpture. Once the bottom of the sculpture is covered, set this aside and allow to cure until hard. Depending on how long the Apoxie Paste was microwaved, this can range from 2 hours to 24 hours.

Once the Apoxie Paste has hardened, cut another clay wall. Wrap this wall around the sculpture of the penis, roughly 1” away, and make sure that the walls are at least 1” higher than the highest point of the sculpture.

Mix more Apoxie Paste, and fill this well to at least ½” over the top of the sculpture.





3.5 Base Penis Mold

3.5.11 Cure Side 2

Allow to cure 24 hours.

3.5.12 Pop

After 24 hours, remove all WED clay walls from the piece, and use water to wash off any remnants of clay. Use a chisel and mallet, or similar tools, to gently knock along the seam of the two sides of Apoxie Paste until they split and release from each other.

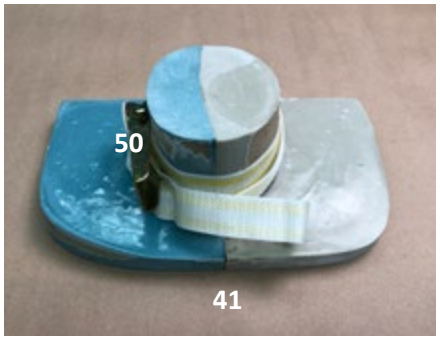
3.5.13 Clean

Pull out the Monster clay sculpture. You can keep this to fix up for future molds, or break apart and return to the clay bin.

Clean out the new mold with soap and water to remove release agent and any clay remnants.

Optional: Use an electric sander to smooth the sides of the molds.

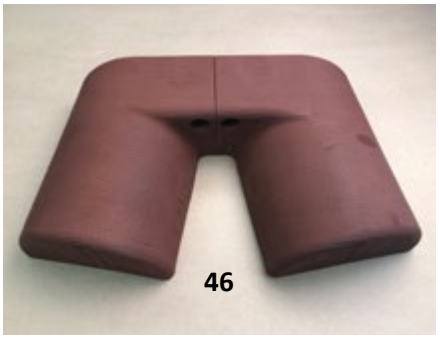
Your mold is now ready to use.

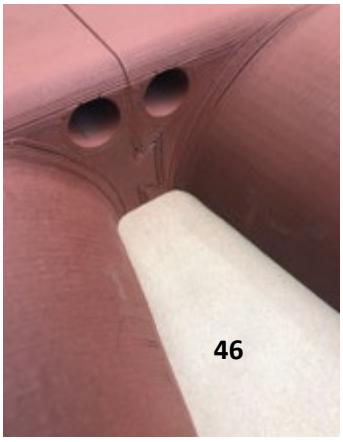


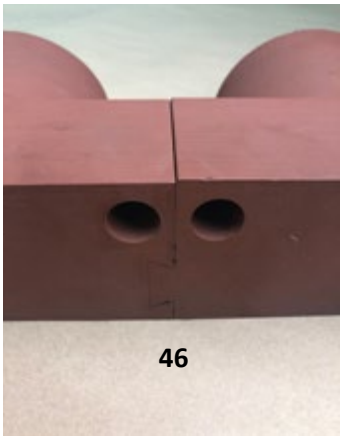
3.6 3-D Printed Base

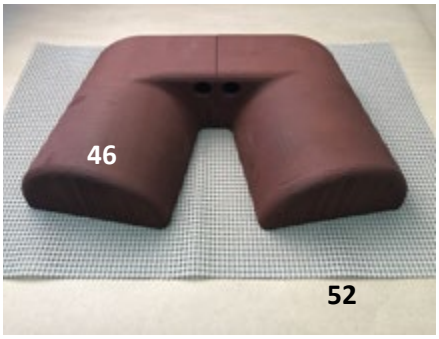
3.6.1 Printing

Upload STL file and follow instructions for 3D printer to print the base with PLA Plastic Filament.





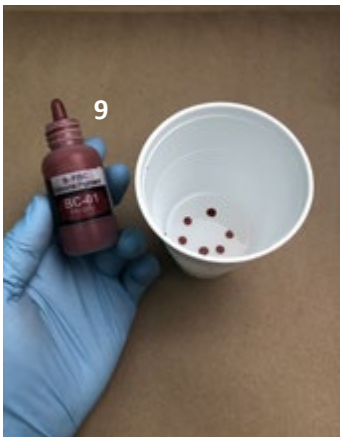




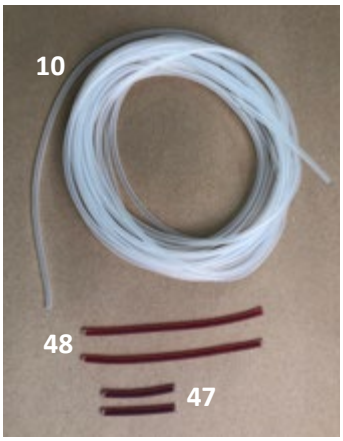
4.0 Image Reference

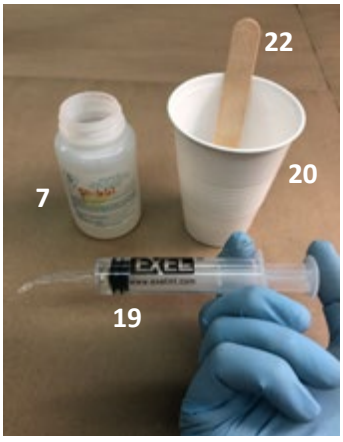
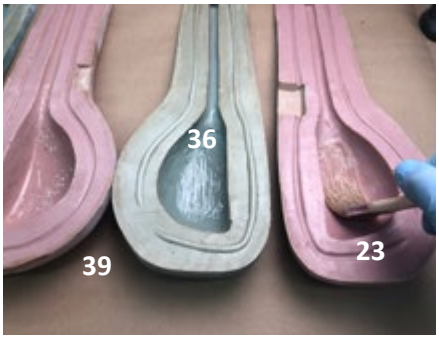
4.1 Filling the Molds: Instructional Images for 2.1 – 2.5

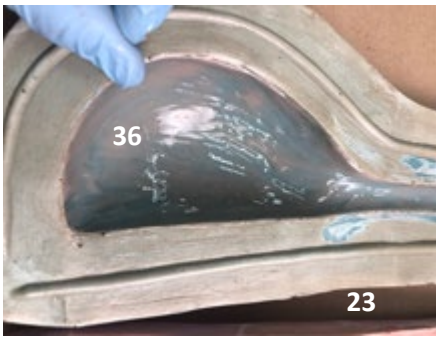
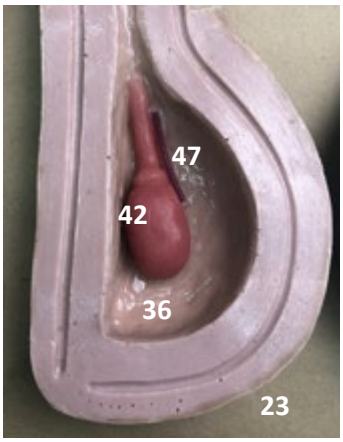
See 5.0 for Number Key to materials pictured

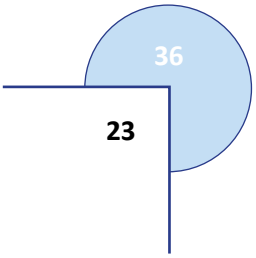
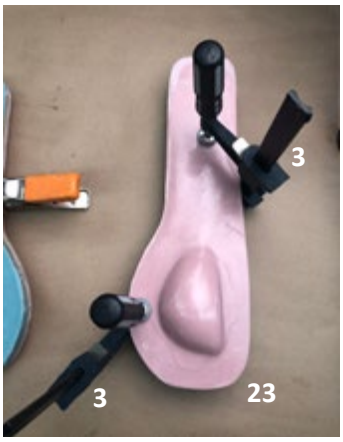
2.1 Testicle Molds, Right & Left		
2.1.1 Materials		
2.1.2 Release		
2.1.3 Measure		
2.1.4 Mix		

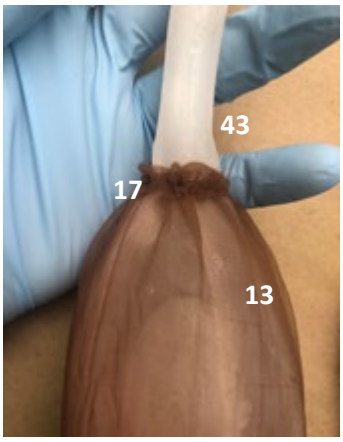
2.1 Testicle Molds, Right & Left		
2.1.5 Fill		
2.1.6 Cure		
2.1.7 Pop		
2.1.8 Clean		

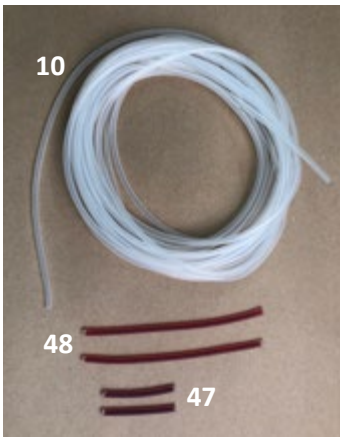
2.2 Tunica Molds, Right & Left		
2.2.1 Materials		
2.2.2 Prep Blood Tubes		
2.2.3 Prep Pantyhose		

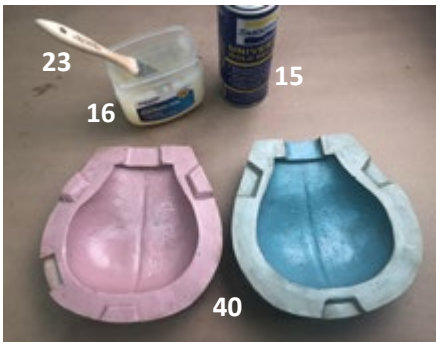
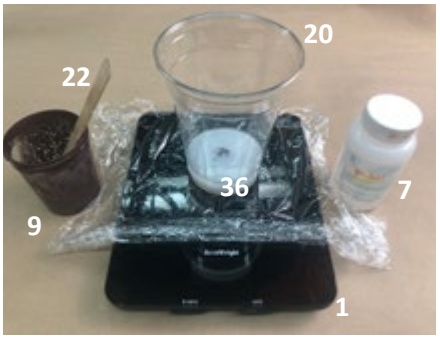
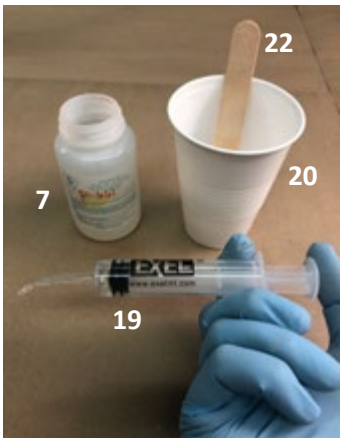
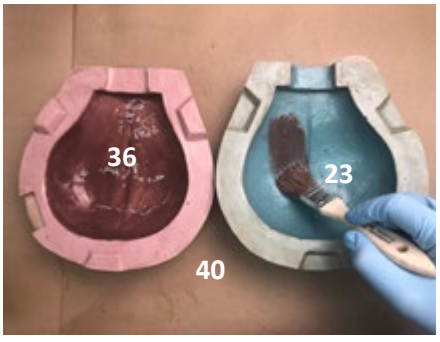
2.2 Tunica Molds, Right & Left	
2.2.4 Release	
2.2.5 Measure	
2.2.6 Mix	
2.2.7 Fill	

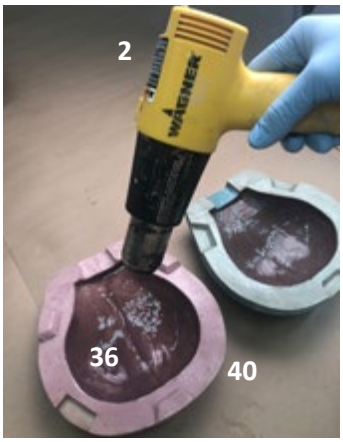
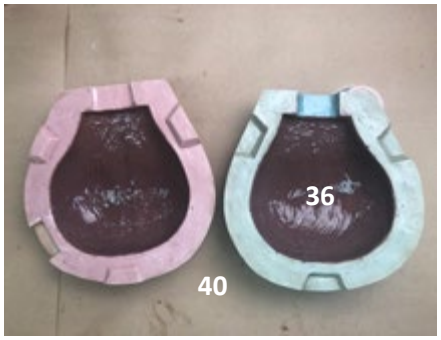
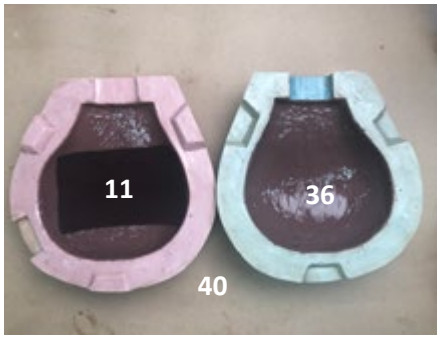
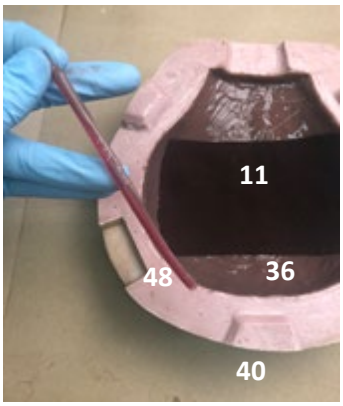
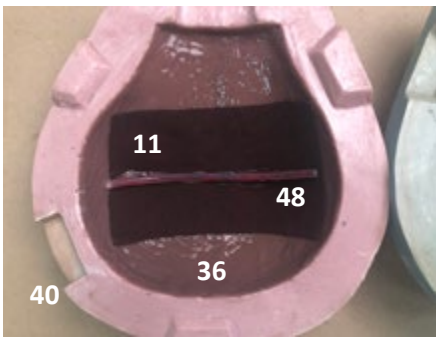
2.2 Tunica Molds, Right & Left		
2.2.8 Second Layer		
2.2.9 Third Layer		
2.2.10 Add Testicles		

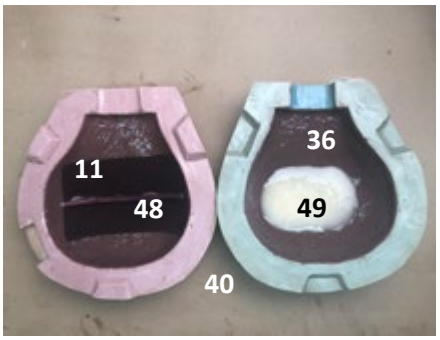
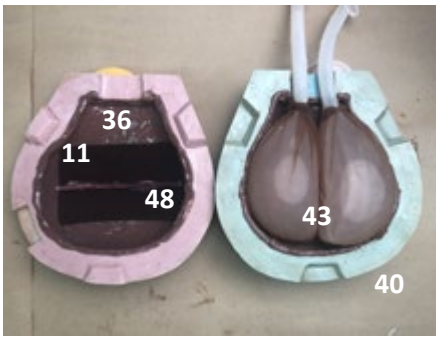
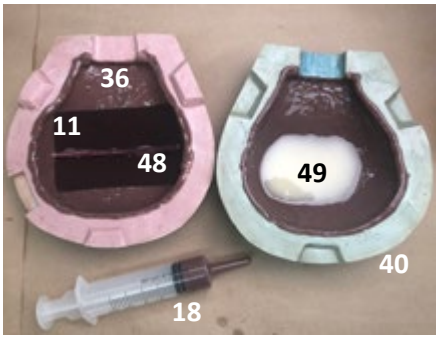
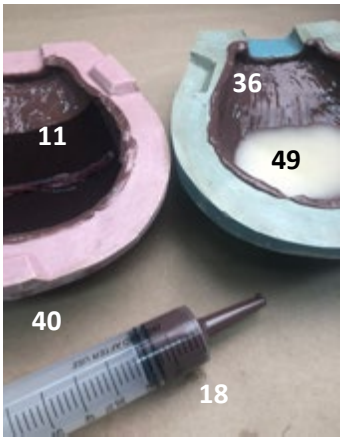
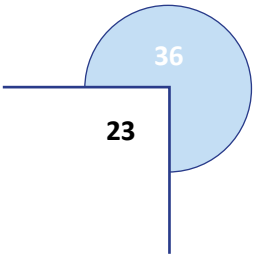
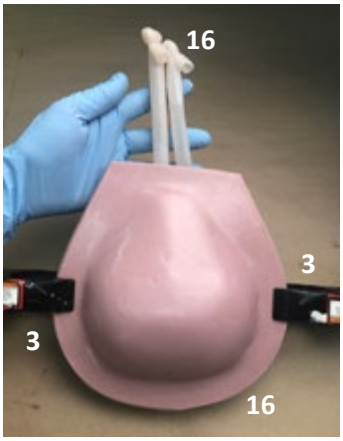
2.2 Tunica Molds, Right & Left		
2.2.11 Seam		
2.2.12 Cure		
2.2.13 Pop		

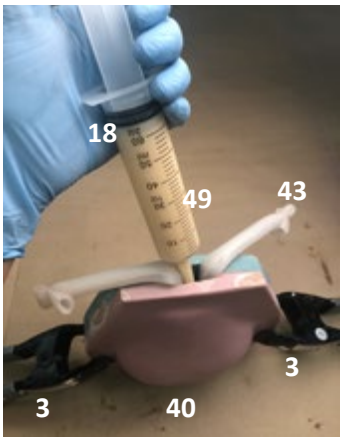
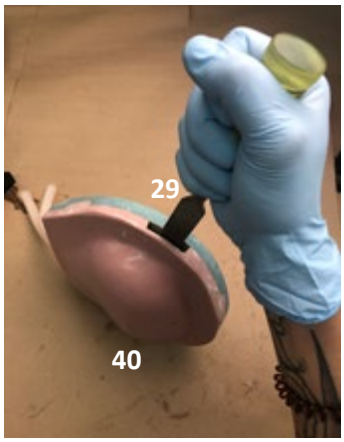
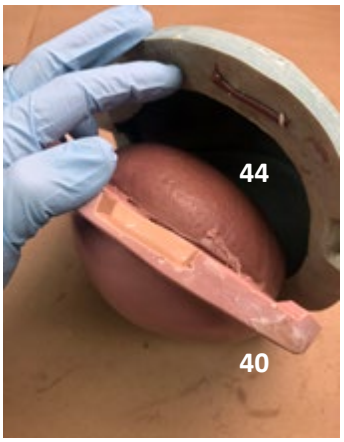
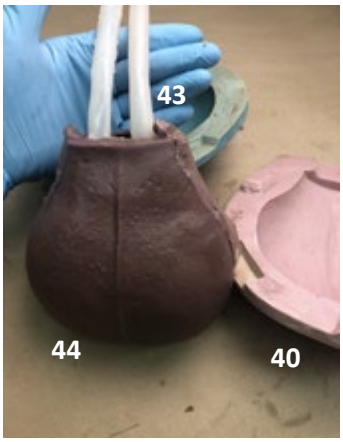
2.2 Tunica Molds, Right & Left		
2.2.14 Trim & Finish		
		
2.2.15 Clean		

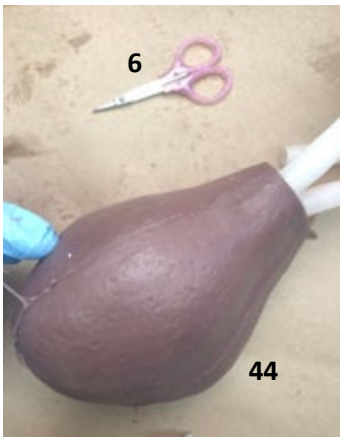
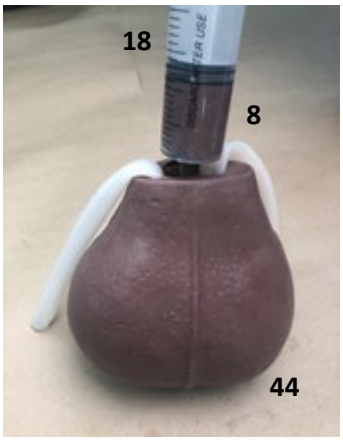
2.3 Hydrocele Mold		
2.3.1 Materials		
2.3.2 Prep Blood Tubes		
2.3.3 Prep Fabric		

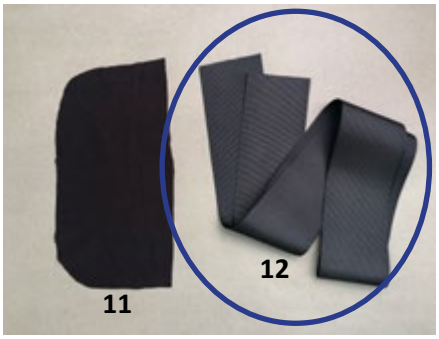
2.3 Hydrocele Mold	
2.3.4 Release	
2.3.5 Measure	
2.3.6 Mix	
2.3.7 Fill	

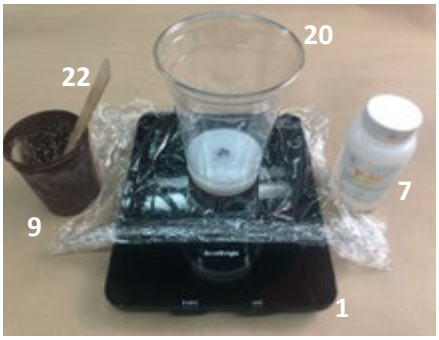
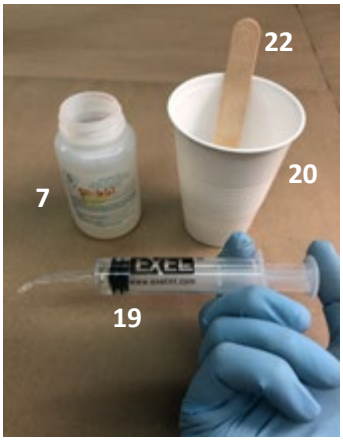
2.3 Hydrocele Mold		
2.3.8 Second Layer		
2.3.9 Third Layer		
2.3.10 Add Fabric & Blood		
		

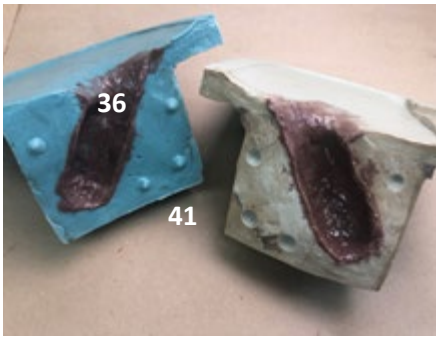
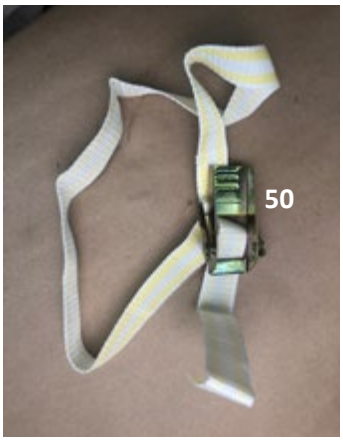
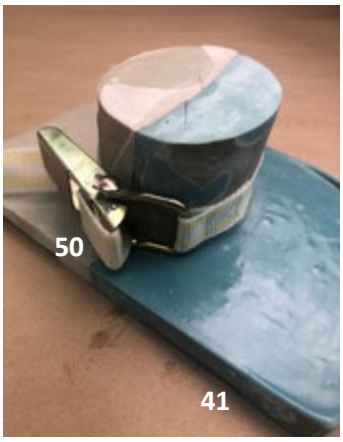
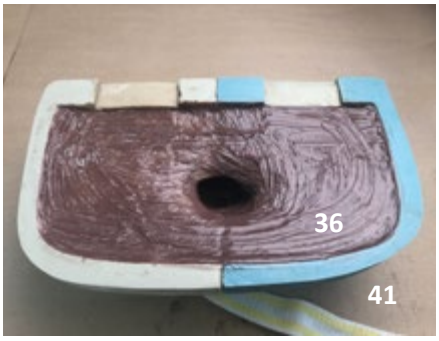
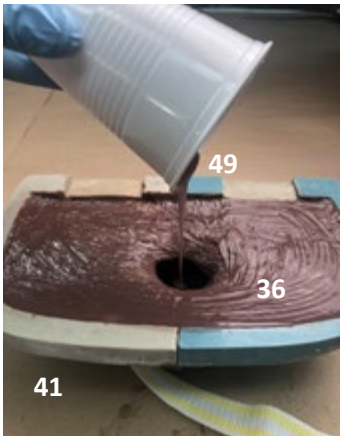
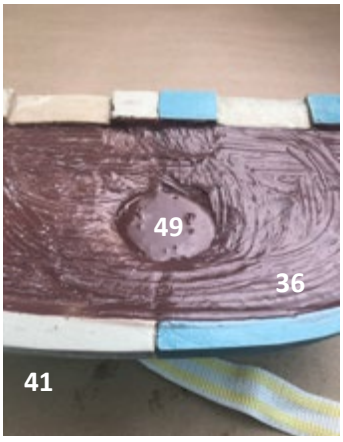
2.3 Hydrocele Mold		
2.3.11 Add Fat & Tunica		
2.3.12 Seam		
		

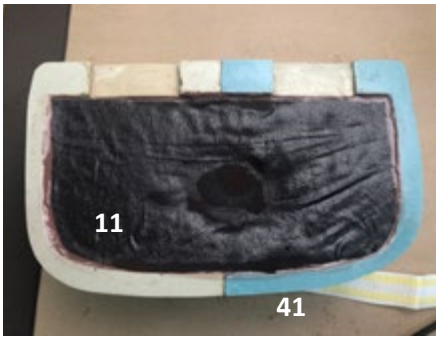
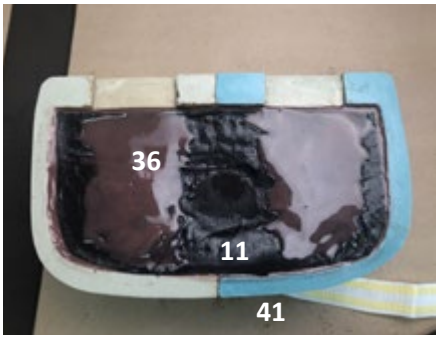
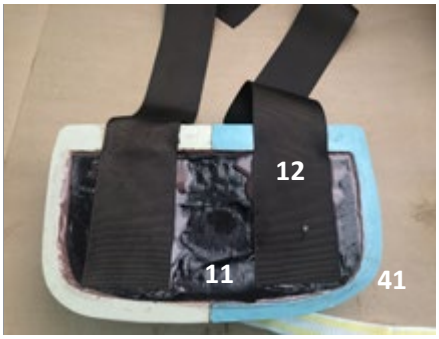
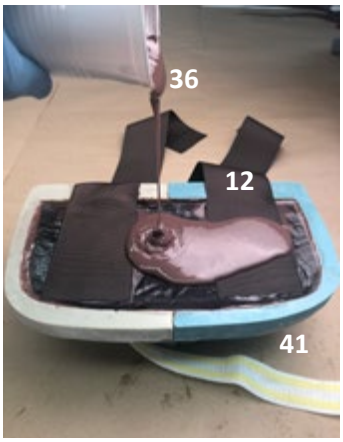
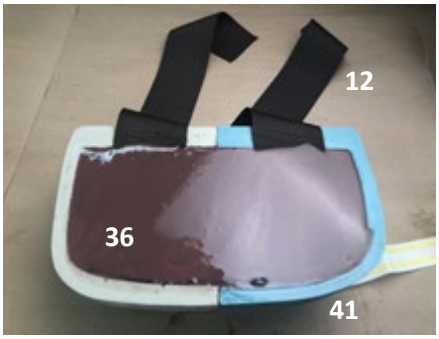
2.3 Hydrocele Mold			
2.3.13 Backfill			
2.3.14 Cure			
2.3.15 Pop			

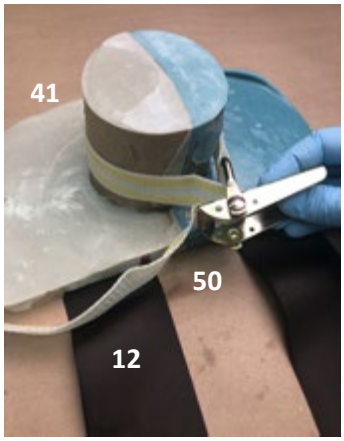
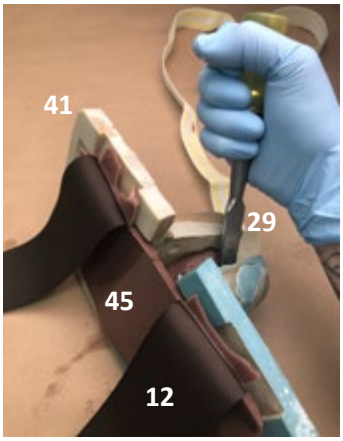
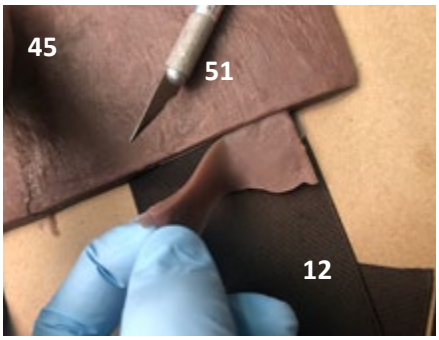
2.3 Hydrocele Mold		
2.3.16 Trim & Finish		
		
2.3.17 Clean		

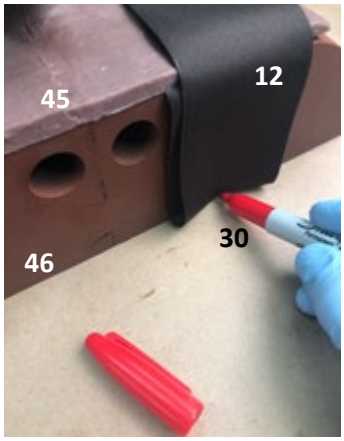
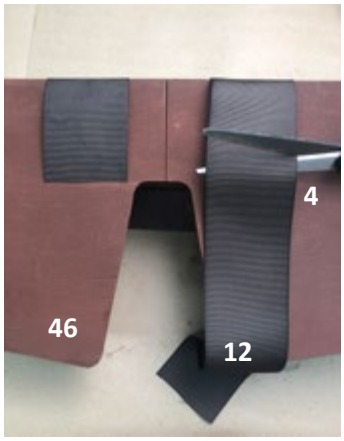
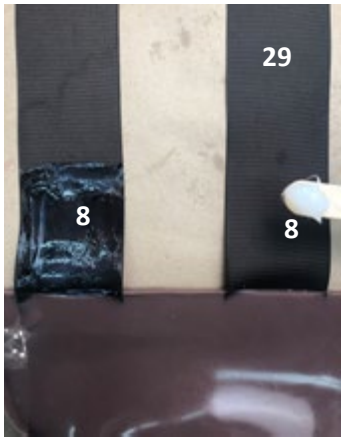
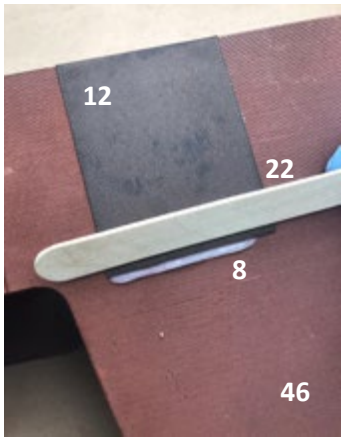
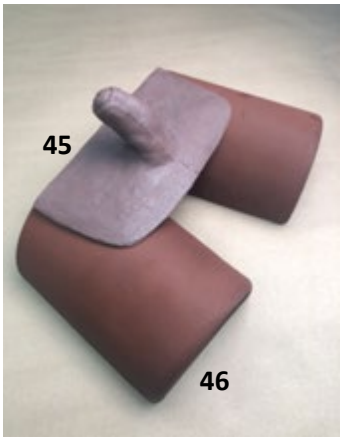
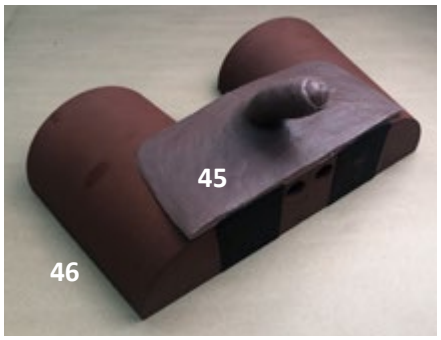
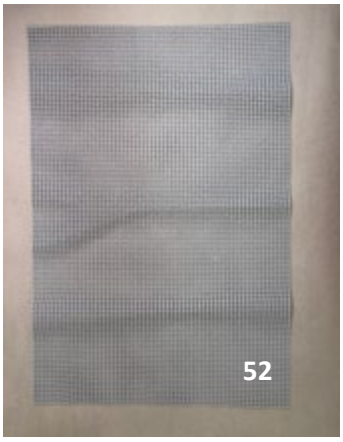
2.4 Base Penis	
2.4.1 Materials	
2.4.2 Prep Fabric	
2.4.3 Prep Ribbon	

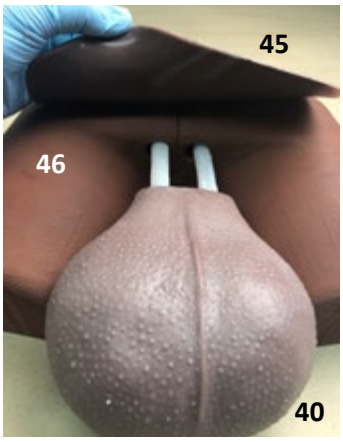
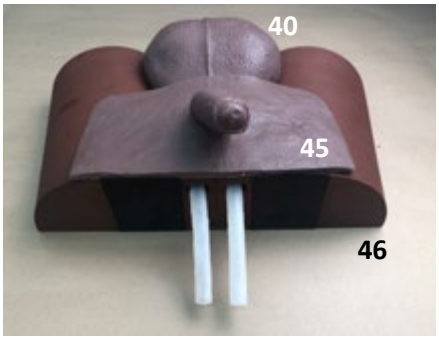
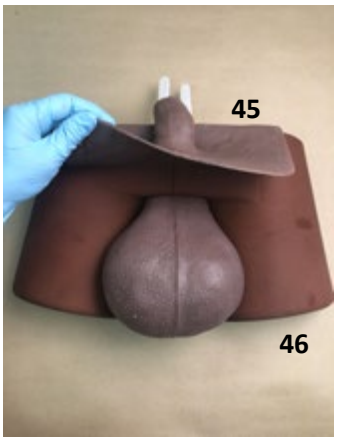
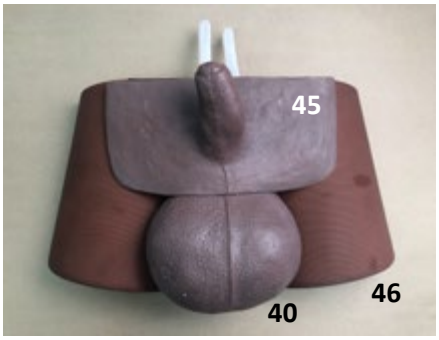
2.4 Base Penis	
2.4.4 Release	
2.4.5 Measure	
2.4.6 Mix	

2.4 Base Penis		
2.4.7 Fill		
		
2.4.8 Add Fat		

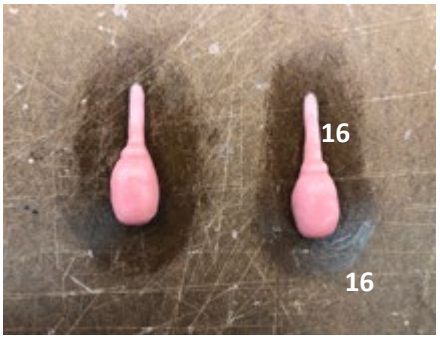
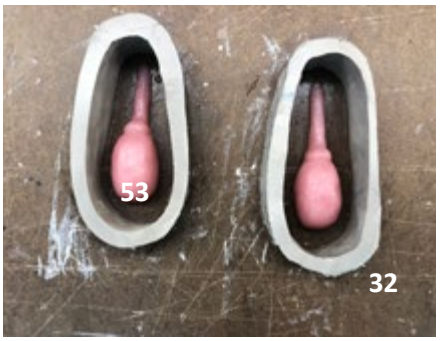
2.4 Base Penis		
2.4.9 Add Fabric		
2.4.10 Add Ribbon		
		
2.4.11 Cure		

2.4 Base Penis			
2.4.12 Pop			
2.4.13 Trim & Finish			
2.4.14 Clean			

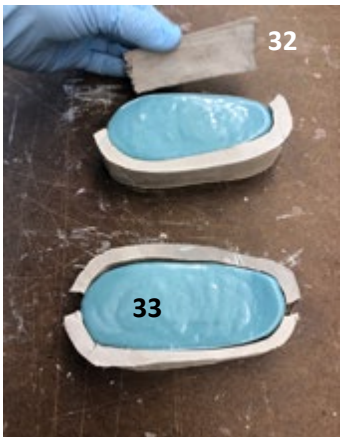
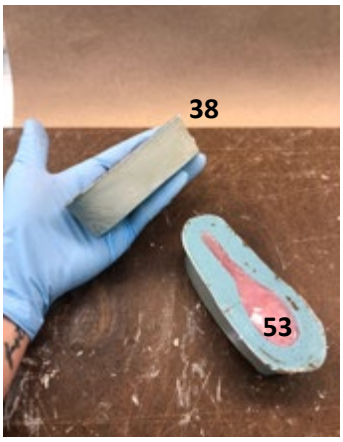
2.4 Base Penis			
2.4.15 Complete Base			
			
			

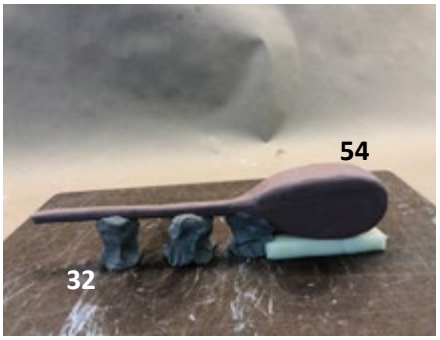
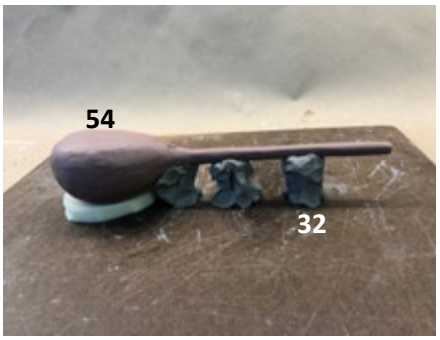
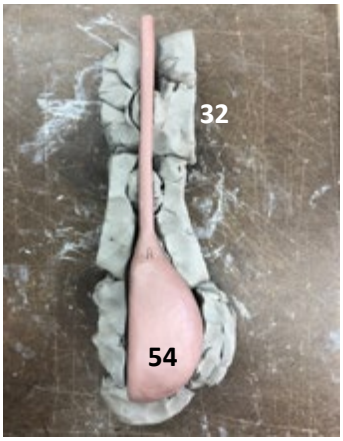
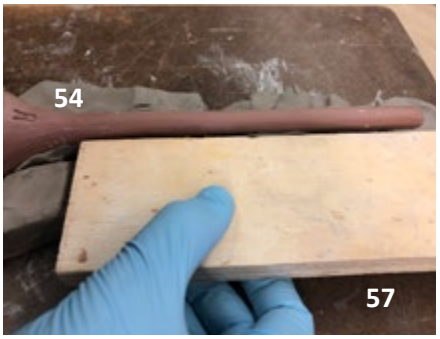
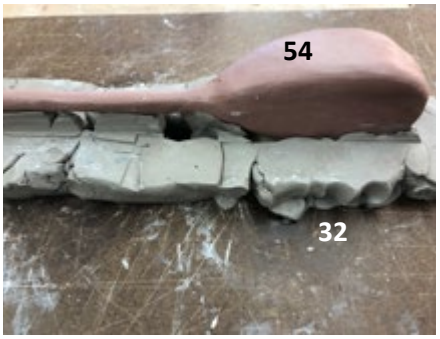
2.5 Assemble the Simulator		
2.5.1 Assemble		
		

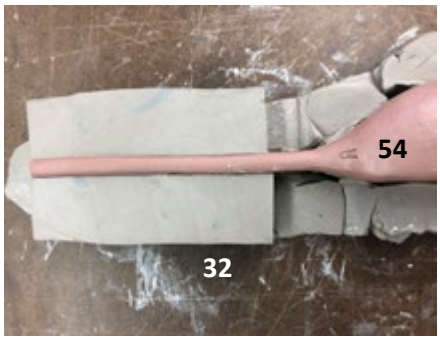
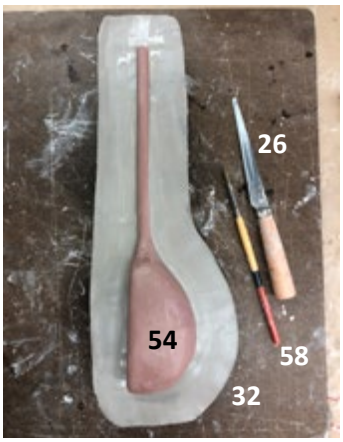
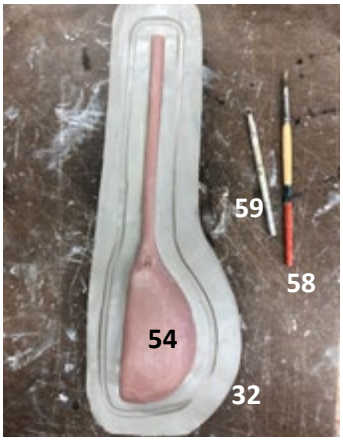
4.2 Making the Molds: Instructional Images for 3.1 – 3.6

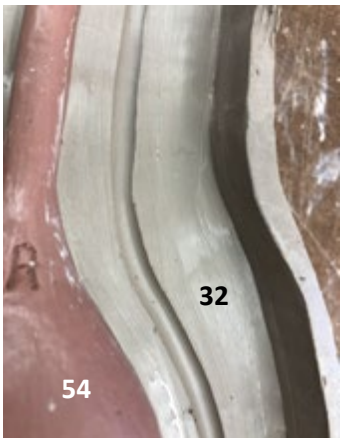
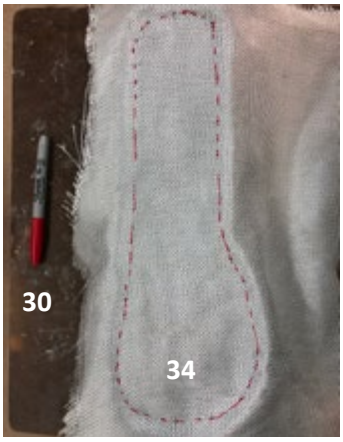
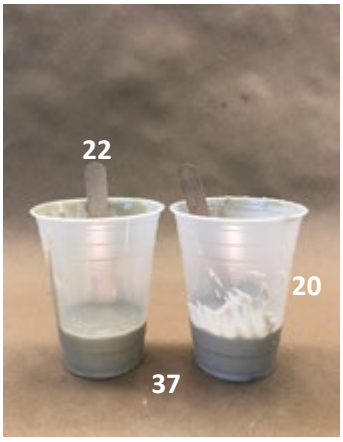
3.2 Testicle Molds, Right & Left		
3.2.1 Prep		
		
		

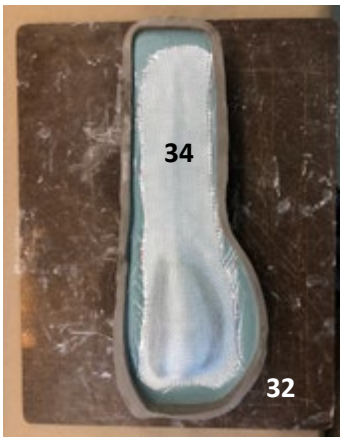
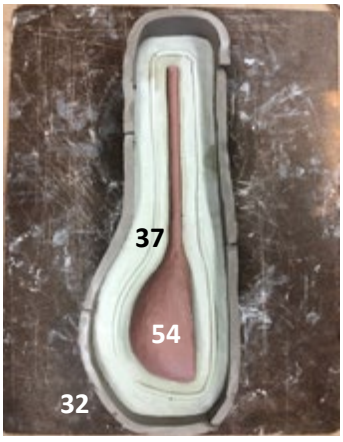
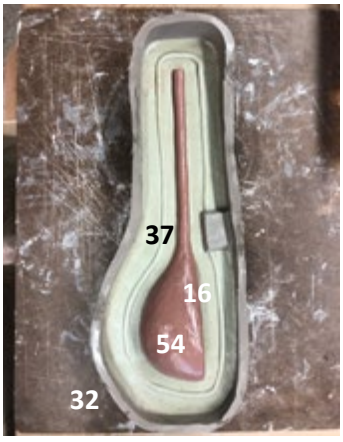
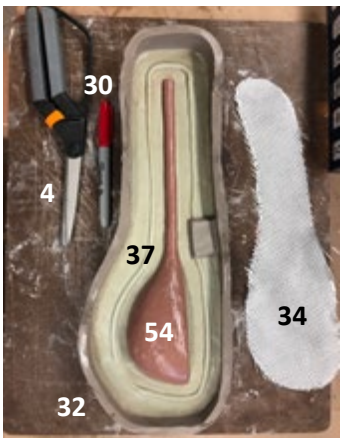
3.2 Testicle Molds, Right & Left	
3.2.2 Release	
3.2.3 Measure	
3.2.4 Mix	
3.2.5 Fill	
3.2.6 Cure	

3.2 Testicle Molds, Right & Left		
3.2.7 Pop		
		
3.2.8 Clean		

3.3 Tunica Molds, Right & Left		
3.3.1 Prep		
		
		

3.3 Tunica Molds, Right & Left		
3.3.1 Prep (continued)		
		
		

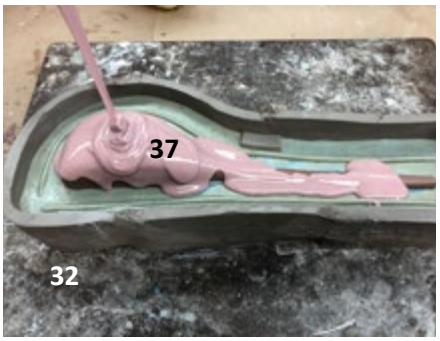
3.3 Tunica Molds, Right & Left		
3.3.1 Prep (continued)		
3.3.2 Release		
3.3.3 Prep Fiberglass		
3.3.4 Measure		
3.3.5 Mix		

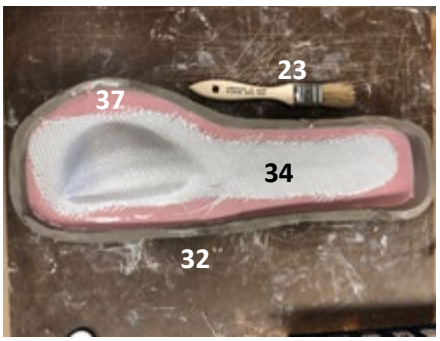
3.3 Tunica Molds, Right & Left		
3.3.6 Fill		
3.3.7 Cure		
3.3.8 Prep Side 2		
3.3.9 Release Side 2		
3.3.10 Fiberglass Side 2		

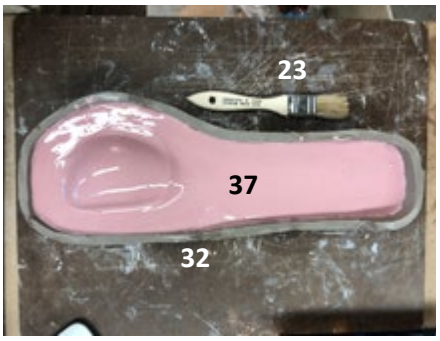
3.3 Tunica Molds, Right & Left

3.3.11 Mix Side 2

3.3.12 Fill Side 2



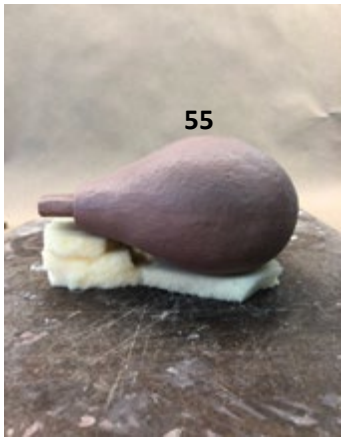
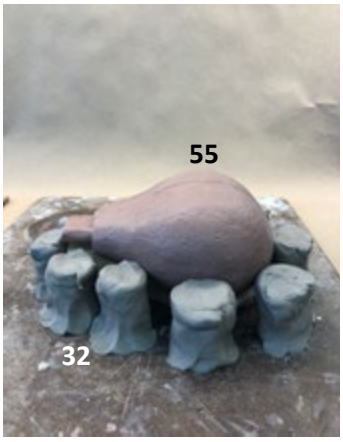
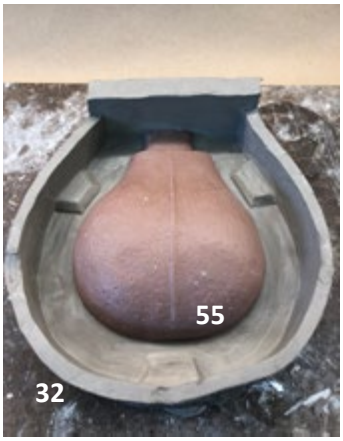


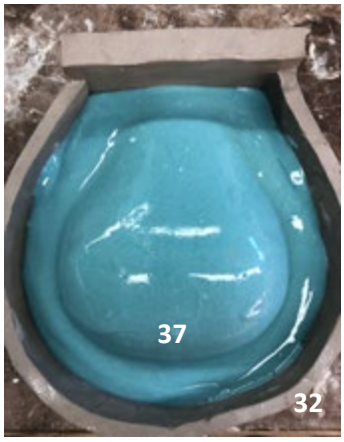
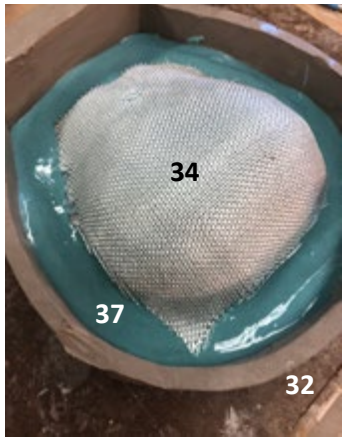
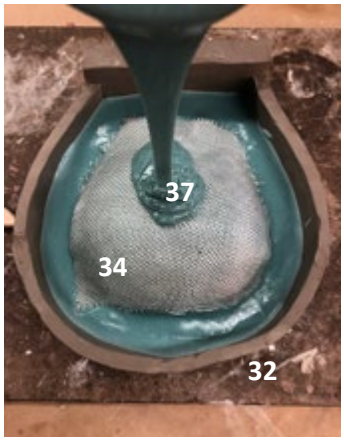
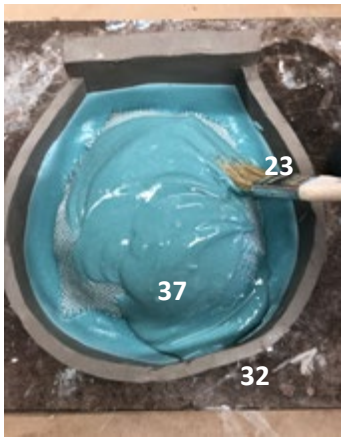
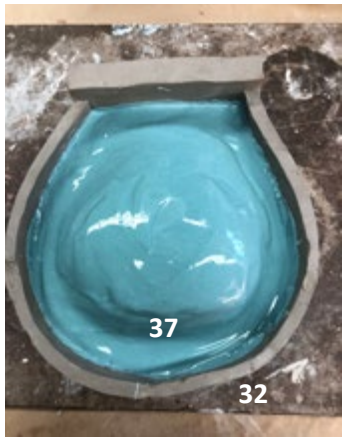


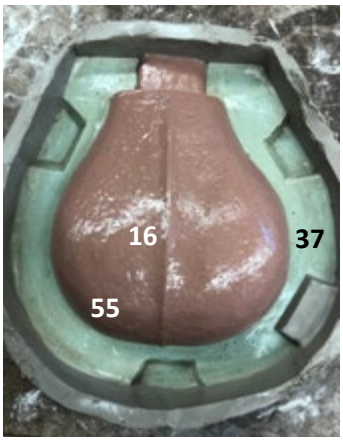
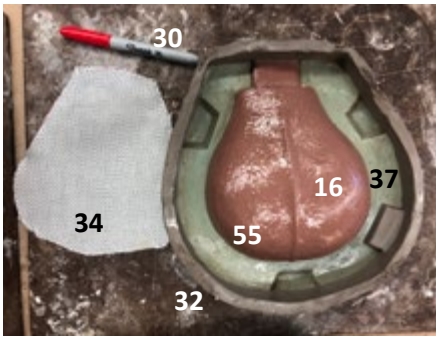
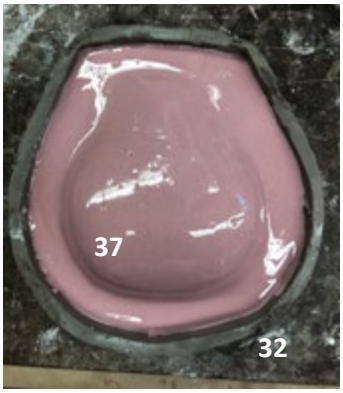
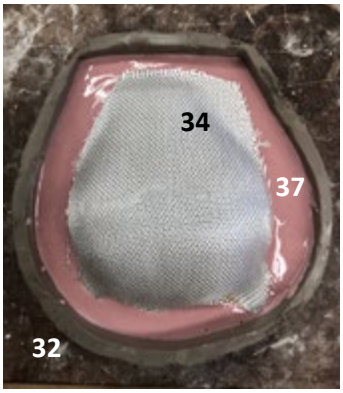
3.3.13 Cure Side 2

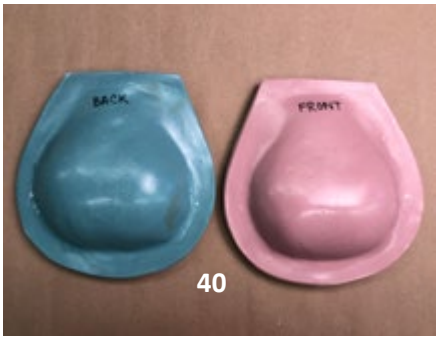
3.3.14 Pop

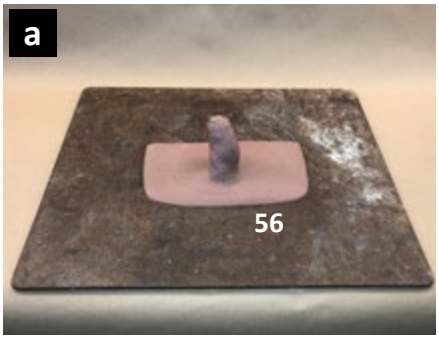
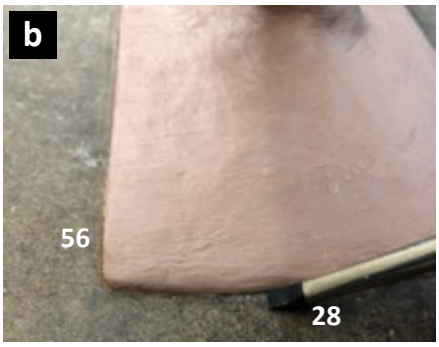
3.3.15 Clean

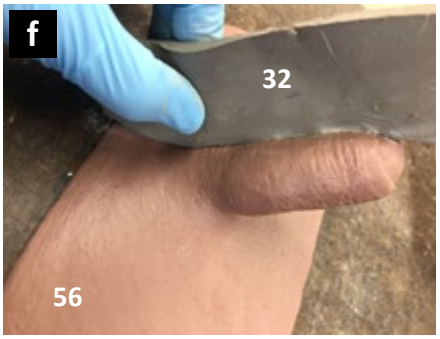
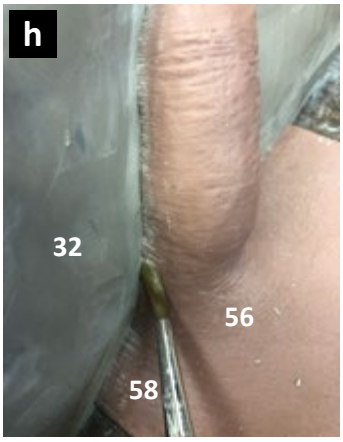
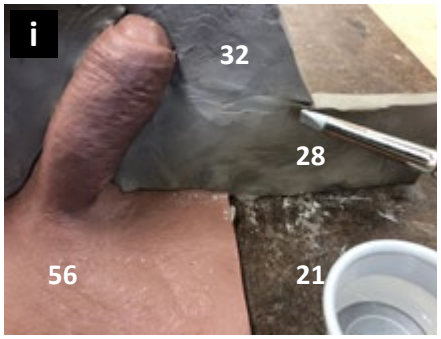
3.4 Hydrocele Mold			
3.4.1 Prep			
			
3.4.2 Release			
3.4.3 Prep Fiberglass			
3.4.4 Measure			
3.4.5 Mix			

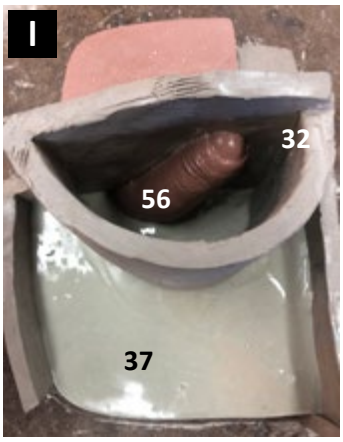
3.4 Hydrocele Mold			
3.4.6 Fill			
			
3.4.7 Cure			
3.4.8 Prep Side 2			

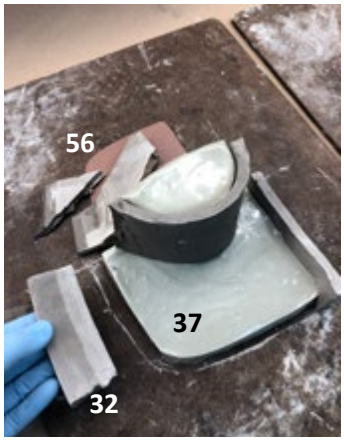
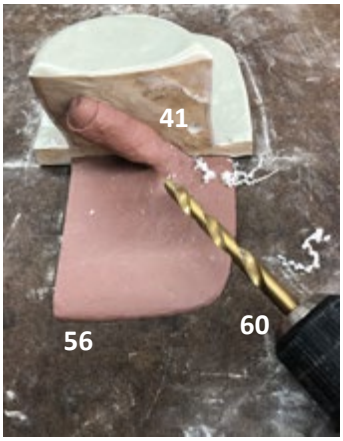
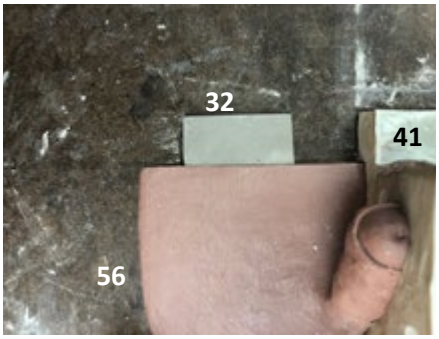
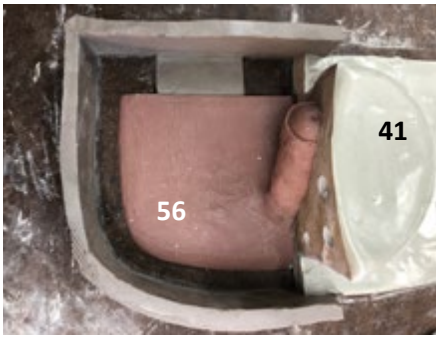
3.4 Hydrocele Mold		
3.4.9 Release Side 2		
3.4.10 Fiberglass Side 2		
3.4.11 Mix Side 2		
3.4.12 Fill Side 2		
3.4.13 Cure Side 2		
3.4.14 Pop		

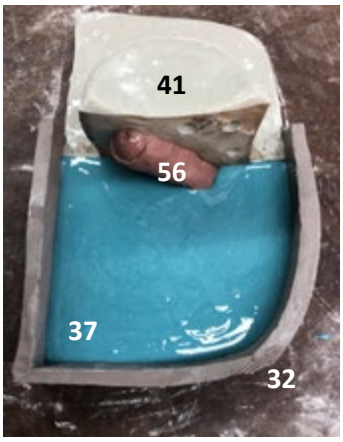
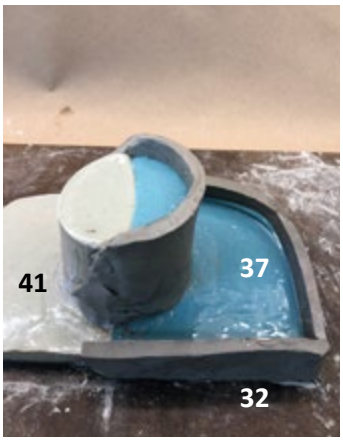
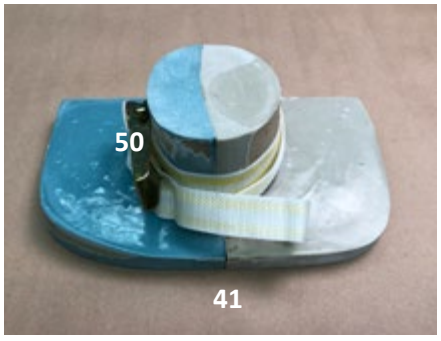
3.4 Hydrocele Mold		
3.4.15 Clean		

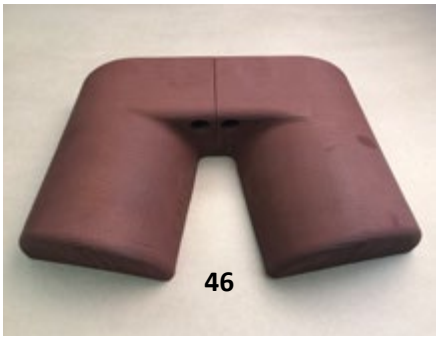
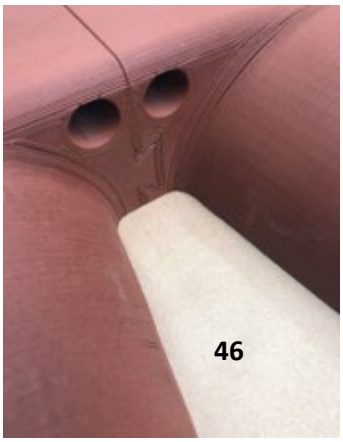
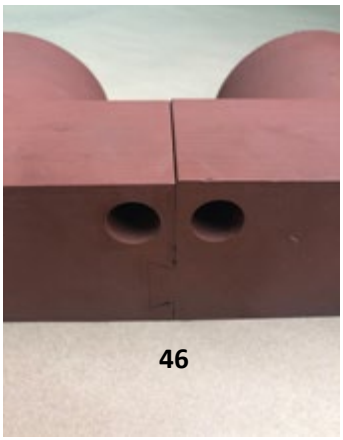
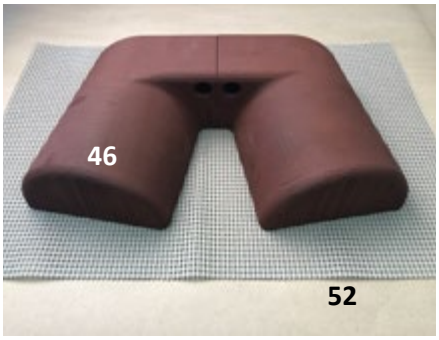
3.5 Base Penis Mold		
3.5.1 Prep		
		

3.5 Base Penis Mold		
3.5.1 Prep (continued)		
		
		
3.5.2 Release		

3.5 Base Penis Mold		
3.5.3 Measure		
3.5.4 Mix		
3.5.5 Fill		
		
3.5.6 Cure		

3.5 Base Penis Mold			
3.5.7 Prep Side 2			
			
			
3.5.8 Release Side 2			

3.5 Base Penis Mold		
3.5.9 Mix Side 2		
3.5.10 Fill Side 2		
3.5.11 Cure Side 2		
3.5.12 Pop		
3.5.13 Clean		

3.6 3-D Printed Base		
3.6.1 Printing		
		

5.0 Number Key for Images

1. Digital scale
2. Heat gun
3. Clamps
4. Scissors, fabric
5. Scissors, medium
6. Scissors, small
7. Thickener, XP-661
8. Shin-Etsu caulking
9. Pigment
10. Platinum Silicone Tubing
11. Fabric
12. Grosgrain ribbon
13. Pantyhose
14. Sewing thread
15. Spray mold release
16. Petroleum jelly
17. Hair braiding rubber bands
18. Syringe, 60cc
19. Syringe, 12cc curved tip
20. Plastic mixing cups, 16oz
21. Plastic mixing cups, 2oz
22. Mixing sticks
23. Chip brushes
24. Nitrile gloves
25. Scraper tool
26. Knife
27. Wire clay cutter
28. Silicone clay shaper
29. Wood chisel
30. Permanent marker
31. Monster clay
32. WED clay
33. Apoxie Paste
34. Fiberglass cloth
35. Acrylic paint
36. Silicone
37. Apoxie Paste
38. Testicle Molds
39. Tunica Molds
40. Hydrocele Mold
41. Base Penis Mold
42. Testicles
43. Tunica
44. Hydrocele
45. Base Penis
46. Base
47. Blood tube, 2” (2 inches)
48. Blood tube, 5” (5 inches)
49. Silicone “fat”
50. Mold strap
51. Blade
52. Mat
53. Testicle sculpture
54. Tunica sculpture
55. Hydrocele sculpture
56. Base Penis sculpture
57. Wood piece
58. Paintbrush
59. Round loop sculpting tool
60. Drill bit

6.0 Glossary

“A”	In the context of silicone, this refers to Part A, which is named for being the Activator component.
“AQ”	In the context of silicone, this refers to a quick-setting Part A, which is named for being the Activator component. This quick-setting Activator allows the silicone to cure faster than it would with other Activators (P-727 AQ, P-656 AQ, P-656 5AQ, P-656 20AQ).
“B”	In the context of silicone, this refers to Part B, which is named for being the Base component (P-727 B, P-656 B).
Contaminate	Exposing one component of a chemical compound to its linking component, causing the two to polymerize within the container.
cPs	Abbreviation for Centipoise, a unit of dynamic viscosity. Centipoise is the amount of force necessary to move a layer of liquid in relation to another liquid. Centipoise is considered the standard unit of measurement for fluids of all types. It is one hundredth of a poise. See also, “viscosity.”
Chip Brush	Disposable soft bristle brush.
Fettling Knife	Steel blade that tapers to a point, with a thin, dull edge. Available in “Hard” or “Soft,” which refers to how flexible or rigid the blade is. Typically used in ceramics for cutting clay.
Flange	The projecting, flat rim of a mold. Used to create a protective distance from the edge of a sculpture, as well as provide a flat surface to clamp a multi-piece mold together.
Grosgrain Ribbon	Heavy, stiff strip of fabric made of silk or nylon, defined by prominent ribs that create extra durability and strength without adding much weight or bulk.
Key	Convex shape on a multi-piece mold that creates its inverse concave shape on the adjoining side, allowing an easy visual for how the two sides align. The two shapes will lock together when the mold closes, ensuring that the mold is closed properly.
Kidney Tool	Kidney-shaped tool made of flexible steel or silicone for pressing and smoothing clay.
oz	Abbreviation for Ounce, a unit of measurement.
Part A (Apoxie)	In the context of Apoxie Paste, this is one of two components that are mixed together to create the Apoxie. It is labeled Part A on the container.
Part B (Apoxie)	In the context of Apoxie Paste, this is one of two components that are mixed together to create the Apoxie. It is labeled Part B on the container.
PLA Filament	PLA is an abbreviation for Polylactic Acid. PLA Filament is a vegetable-based plastic material, which commonly uses cornstarch as a raw material. It is the primary natural raw material used in 3D printing.
Platinum Silicone	Two-component high tear strength and flexible mold or casting compound, which cures when the silicone rubber is chemically cross-linked by means of the addition of a peroxide or platinum curing agent. All the silicones used in the FASTT simulator are platinum silicones.

Plunger	Also known as a Piston. The secondary piece of the syringe that fits tightly within the cylindrical tube called a Barrel.
Pry Spot	Thin opening along the flange of a multi-piece mold, which allows a flat tool to be inserted to apply pressure to open the mold.
Release Agent	Chemical used to prevent other materials from bonding to surfaces.
Seal	Any substance that is used to join two things together so as to prevent them from coming apart or to prevent anything from passing between them.
Sharpie	Permanent marker, a brand name
STL File	STL is an abbreviation for Stereolithography. This is a file format used in rendering software to describe the surface of a three-dimensional object.
Tacky	Maintaining a slightly sticky feel, not fully dry.
Tare Out	To reset the display of the scales to zero when an empty container is placed on the weighing platform, in order to display only the weight of the contents of the container once it is filled.
Tin Silicone	Two-component flexible mold or casting compound, which cures when the silicone rubber is chemically cross-linked by means of the addition of a tin curing agent. The tin in this silicone will inhibit Platinum Silicone from curing, and is therefore not used in the FASTT simulator.
Trench	Long, narrow ditch.
Undercut	Any protrusions, holes, cavities, or recessed areas that prevent a mold releasing from a positive or adjoining side. Typically caused by two rigid materials hooking together.
Viscosity	Measure of a fluid's resistance to flow, typically measured in centipoise (cPs). An example of low viscosity is water, at 1 cPs. An example of medium viscosity is honey, at 10,000 cPs. An example of high viscosity is peanut butter, at 250,000 cPs.