

Chorionic Villus Sampling- Transcervical Model

Client: Dr. Jesus Iruretagoyena

Advisor: Professor Kreeger

Team Members: Derek Klavas (Leader)
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Week of April 24- April 30, 2009

Problem Statement:

Chorionic villus sampling is a prenatal diagnosis procedure that involves extracting placental tissue from the uterus of a pregnant woman in her first trimester of pregnancy. This tissue contains the same genetic information as the unborn fetus. Testing thus allows chromosomal abnormalities and genetic defects to be diagnosed early on in the gestation period. The current, and most difficult, method for chorionic villus sampling requires a catheter to be inserted through the woman's vagina and into the cervix (also known as the transcervical approach). However, doctors and residents currently do not have a model to simulate female anatomical structures and practice the transcervical method. The goal of this project is to develop a realistic and affordable model that precisely replicates the anatomy of a pregnant woman, is constructed out of ultrasound permeable materials, and can be repeatedly used to practice the transcervical approach.

Last week's goals:

- Conduct testing with Dr. Iruretagoyena to assure the model performs well under ultrasound, and to see if any necessary additions to the model are required
- Finish back piece of ABS box
- Begin working on poster

Accomplishments:

- Finished constructing model and had it tested under ultrasound. Originally the model did not perform well, so modifications had to be made. The final prototype, however, was successful.
- Completed poster for Tong Biomedical Engineering Design presentation and competition.

This week's goals: (April 24- April 30, 2009)

- Compile final report

Expenses:

- 1 sheet of ABS plastic 24" x 24" x 3/8" thick = \$74.91
- 4 EcoFlex silicone 00-30 trial kits = \$114.68
- Acetone, foam sealant, rubber gloves (for vagina rubber) = \$17.00
- Total cost = \$206.59