

Chorionic Villus Sampling- Transcervical Model

Client: Dr. Jesus Iruretagoyena

Advisor: Professor Kreeger

Team Members: Derek Klavas (Leader)
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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:

- Obtain sample rubber materials from the polymer engineering center and begin testing those materials for their feasibility under an ultrasound and also to determine if they possess a humanistic "feel".
- Continue brainstorming ideas for design matrix
- Update Dr. Iruretagoyena on how the project is coming along. See if he has any feedback or additional input on the ideas we are currently exploring

Accomplishments:

- Met with Greg Gion of Medical Art Prosthetics, LLC to discuss materials. He gave us a few sample materials to test under an ultrasound.
- Contacted Dr. Jim Zagzebski from the Department of Medical Physics for ideas on feasible materials. He referred us to a few websites and laboratories that may have what we are seeking.
- Contacted Dr. Iruretagoyena for permission to test materials under ultrasound. He gave us the contact information of Barb Trampe, ultrasound unit manager at Meriter Hospital, and Time Heiser, a sonographer at Meriter Hospital.

Expenses:

There are currently no expenses to report.