

Female Barrier Teaching Model

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Abstract

The client's current teaching method of using female barrier is currently inadequate. The use illustrations and inaccurate pelvic models leaves audiences unconvinced in the effectiveness and comfort of female condoms (FC) use. The goal of the project is to design a female pelvic model that contains the major anatomical landmarks of the external vagina to demonstrate the proper installation of female barriers, including FC and dental dam. We designed a model that consists of a modified inflated novelty doll and a transparent silicone masturbation sleeve to demonstrate the proper insertion of FC. Two groups of students from the HIV/AIDS class participated in hands-on testing to assess the ability of the new model to improve the knowledge of FC insertion. A student t-test indicated a statistically significant difference between the group were exposed to new model teaching group versus traditional teaching group ($p < .005$).

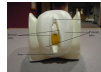
Background

- ◆ 40 million HIV/AIDS cases in 21st century [1]
- ◆ Unprotected sex – major cause of HIV infection [2]
- ◆ Female condom[3]
 - The only STD prevention controlled by women
 - >95 % effective in pregnancy prevention
 - Proper use: 97.1% reduction in STD transmission
 - Improper use: 87.6% reduction in STD transmission
- ◆ Current method - See illustration



Competition

- ◆ Gaumard Scientific Model, \$155 [4]
 - Rigid, hard plastic
 - Anatomically incorrect
 - Appropriate opening and texture
- ◆ LINDI Pelvic Model, \$85 [5]
 - Rigid, hard, transparent plastic
 - Anatomically incorrect
- ◆ Female Condom Model, \$18
 - Transparent silicone
 - Anatomically incorrect



Design Specification

- ◆ Include anatomical landmarks: outer labia, inner labia, clitoris and vagina, anus
- ◆ Not rigid, mimic natural tissue
- ◆ Weight: < 1 kg
- ◆ Meet major airlines carry-on restriction
- ◆ Transparent vagina tube

Final Design

- ◆ **Gross Anatomy**
 - A modified inflatable sex doll with intact vagina opening
 - Inflatable/collapsible
 - Shows relative position of FC insertion
 - Performix Vinyl Leather Repair Kit for sealing
 - Molded vagina opening attached to vinyl pelvic model
 - Labia majora, labia minora, clitoris
 - Platsil gel 10 & deadener
 - Labia majora : 2 Gel A: 2 Gel B: 1 deadener
 - Labia minora: 1 Gel A: 1 Gel B: 2 deadener
- ◆ **Transparent masturbation sleeve**
 - Correct placement purposes
 - Permanently placed FC
 - FC: dyed inner/outer ring for visual contrast
- ◆ Total Cost: \$ 55
- ◆ Total Mass: 345g
- ◆ Minimum storage (without transparent sleeve): $6^{1/2} \times 3^{1/2} \times 2$ in



Figure 1. Anterior view of FC model



Figure 2. Transparent masturbation sleeve



Figure 3. FC model complete set

References

- [1] Stevens, K. (2008) The AIDS Pandemic in the 21st Century. U.S. Census Bureau.
- [2] World Health Organization (2008) WHO/UNAIDS Fact Sheet.
- [3] <http://www.femalecondom.com>
- [4] Gaumard Scientific Company. <http://www.gaumard.com>
- [5] Lindi Pelvic Model of Gonorrhea. <http://www.lindi.org/index.html>

Acknowledgement

We would like to acknowledge Mr. Greg Gion for the help in the manufacturing of the external tissues; students in the HIV/AIDS Advance class for their fundraising effort; Jenny for her willingness in educating us about Female Condom; Sex Out Loud Organization for their generosity in providing us their tools; and Red Letter News for their kind discounts.

Testing and Results

HIV/AIDS advance and basic class students were divided into two groups. One group was exposed to our model, the other was presented with traditional teaching method.

Part I – Opinion based survey

- ◆ Study audience's preference over visual aids
- ◆ Our model is superior to traditional presentation

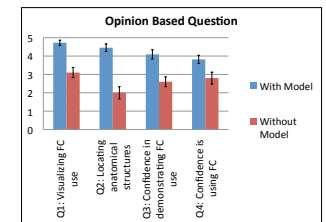


Figure 1. Opinion Questions Audiences believes that our model is more effective in visualizing the use of FC compared to traditional no-model presentation (Average with SE as error bar; $p < .05$ for all 4 questions; $n_{with\ model} = 11$; $n_{without\ model} = 10$)

Part II – FC Knowledge Quiz

- ◆ Tests audience's knowledge of facts of FC
- ◆ All answers were included in oral presentation of FC
- ◆ No statistically significant difference between our model and no model presentation

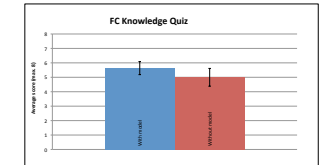


Figure 2. Knowledge Quiz No statistically significant result was found in audience's improvement in factual knowledge of FC use (Average score with SE as error bar; $p = .409$; $n_{with\ model} = 11$; $n_{without\ model} = 10$)

Part III – FC Insertion Technique Test

- ◆ Tests audience's knowledge of using FC
- ◆ Statistically significant improvement in audience's skill in using FC
- ◆ Audience uses our model to demonstrate FC use

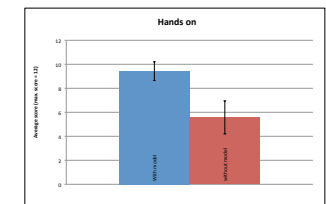


Figure 3. Technique Test Statistically significant result in audience's improvement in technique of using FC (Average score with SE as error bar; $p < .05$; $n_{with\ model} = 7$; $n_{without\ model} = 7$)

Future Work

- ◆ Prototype improvement:
 - Customize transparent inflatable pelvic model
 - Find an alternative material – non silicone
 - Test mechanical properties of prototype
- ◆ Model usage:
 - Will be used in HIV/AIDS basic class (Fall '09)
 - Sex Out Loud indicated interest on the model
 - Potential international use