

Undergraduate Research Symposium May 17, 2013 Mary Gates Hall

Online Proceedings

POSTER SESSION 3

MGH 241, Easel 160

2:30 PM to 4:00 PM

Influencing Colorectal Cancer Screening through Health Education

*Avigail Galvan, Senior, Biology, Heritage College
McNair Scholar*

*Mentor: Katherine Briant, Fred Hutchinson Cancer
Research Center*

*Mentor: Beti Thompson, Cancer Prevention Program, Fred
Hutchinson Cancer Research Center*

*Mentor: Genoveva Ibarra, Fred Hutchinson Cancer
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Colorectal cancer is the third most common cancer in the United States; and is also the third for highest mortality rate. About 90% of all Colorectal Cancer (CRC) cases are in people 50 years of age or older. For that reason, colorectal cancer screening tests such as the FOBT and colonoscopy are recommended for everyone over 50. Colorectal Cancer death rates in Washington State go up by age but differ by ethnicity. They are highest in African Americans (27.5 per 100,000), Native Americans (14.8 per 100,000), Whites (14.8 per 100,000), and Hispanics (13.4 per 100,000). CRC has a high chance of being treated successfully if caught at an early stage, with up to 90% of early cancers being successfully treated and/or prevented. In this study, we will ascertain if Hispanics and Native Americans are more likely to complete a colorectal cancer screening test after getting a tour of the large inflatable colon (CASPER). The colossal colon is a walk-through inflatable replica of the human colon. It illustrates examples of healthy colon tissue, as well as polyps and colon cancer. The study uses a pre/post-test design. Each participant will be asked to complete a brief test. Pre-test questions ask basic questions to assess knowledge about colorectal cancer and attitudes about colorectal cancer screening. A pre-test is completed before walking through CASPER. Post-test questions will ask the same basic colorectal cancer knowledge and attitude questions to see if there is a change after walking through the inflatable colon. Data analysis was done using paired t-tests to assess changes, if any, using Excel. The results show significant changes in participant likelihood to have a CRC screening, CRC knowledge, perceived knowledge, and likelihood to talk to acquaintances about CRC screening. They also show that CASPER is an effective way to educate partic-

ipant about CRC.

POSTER SESSION 3

Balcony, Easel 121

2:30 PM to 4:00 PM

Diabetes, Obesity, and Ossabaw Pigs

*Kristin Nancy Kontogianis, Senior, Biochemistry, Business
Administration (Human Resources Management)*

Mary Gates Scholar

Mentor: David Flum, Surgery

Mentor: Yuki Aoki, Surgery

Obesity is a growing epidemic. Consequently, the percentage of Americans living with Type 2 Diabetes Mellitus (T2DM) has increased; 25.8 million Americans suffer from diabetes, and 90-95% of adult diabetes is T2DM. Bariatric surgeries—gastrointestinal operations designed to encourage weight loss by rerouting and reconnecting various parts of the stomach and small intestine—have been developed in response to increased obesity. A ramification of these surgeries is the elimination of T2DM; 84% of patients with T2DM experienced complete remission of diabetes after bariatric surgery. At RYGB Mechanisms (RYGBM) Animal Lab, we seek to understand the mechanisms of weight loss and T2DM remission in bariatric surgery through the development of an animal model. The animal models selected for this research are Ossabaw pigs. These pigs, raised on high fat diets, are obese and naturally develop insulin intolerance similar to T2DM in humans. There are two leading hypotheses for the causal relationship of bariatric surgery and the elimination of T2DM: the Lower Intestinal Hypothesis and the Upper Intestinal Hypothesis. To test these hypotheses, we perform five variations of bariatric surgery on the animal models: Gastrojejunostomy (GJ), GJ with Duodenal Exclusion, Roux-En-Y Gastric Bypass (RYGB), RYGB with Vagotomy, and Sham operation. We perform these variations of surgeries in attempts to identify which procedures will decrease T2DM while being the least invasive and most recoverable. Pre-operative and post-operative weights indicate if the surgery worked as a weight loss mechanism, while the pre-operative and post-operative changes in insulin sensitivity and gut peptide hormones—ghrelin, PYY, GLP1—indicate if the procedure succeeded as a T2DM loss mechanism. Since the start of the study, survival rates have improved, and RYGBM compilation of data has increased, thus enhancing conclusive findings, though data to

support either hypothesis is still in progress.

POSTER SESSION 4

Commons West, Easel 37

4:15 PM to 5:45 PM

Women's Economic Situation in Mogadishu

*Jihan Mohamed (Jihan) Rashid, Senior, Near Eastern
Studies (Languages & Civilization)*

*Mentor: Clarence Spigner, Health Services, Department of
Health Services*

Mogadishu, the capital of Somalia, is overcoming over twenty years of violence, political chaos, and lack of economic growth. Now, for the first time in twenty years, with a recognized government and renewed international investment, Mogadishu has a chance to escape the cyclical patterns of poverty and hunger. However, this cannot be simply done through a top to bottom format of political changes; the political inequalities ingrained in the population need to be alleviated. The people who are most vulnerable, women, particularly young women, and minorities have to be given economic opportunities. I went to Mogadishu to find out more about the economic situation of the city, particularly, the economic situation of young women in Mogadishu through observation and conversations with this population. I visited busy market places and very small kiosks. I spoke with women who graduated from Universities and women who were illiterate about their situation and perspective of Mogadishu's economy. I found out that the Mogadishu economy is alive, changing rapidly, and there are many people who are living decent lives. However, there are many more women who are poor, illiterate or with little education, and/or come from tribes that are politically marginalized. If these women, and others in similar economic situation, are not systematically given beneficial economic opportunities, the cycle of poverty, violence, and disease will continue.