

Human Nutrition

Human Nutrition

V(A). Planned Program (Summary)

1. Name of the Planned Program

Human Nutrition

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

| KA Code | Knowledge Area | %1862 Extension | %1890 Extension | %1862 Research | %1890 Research |
|--------------|--|-----------------|-----------------|----------------|----------------|
| 702 | Requirements and Function of Nutrients and Other Food Components | | 50% | | 50% |
| 703 | Nutrition Education and Behavior | | 25% | | 25% |
| 724 | Healthy Lifestyle | | 25% | | 25% |
| Total | | | 100% | | 100% |

V(C). Planned Program (Inputs)

1. Actual amount of professional FTE/SYs expended this Program

| Year: 2007 | Extension | | Research | |
|---------------|-----------|------|----------|------|
| | 1862 | 1890 | 1862 | 1890 |
| Plan | 0.0 | 0.5 | 0.0 | 2.5 |
| Actual | 0.0 | 4.5 | 0.0 | 2.0 |

2. Actual dollars expended in this Program (includes Carryover Funds from previous years)

| Extension | | Research | |
|---------------------|----------------|----------------|----------------|
| Smith-Lever 3b & 3c | 1890 Extension | Hatch | Evans-Allen |
| 0 | 88961 | 0 | 213790 |
| 1862 Matching | 1890 Matching | 1862 Matching | 1890 Matching |
| 0 | 22843 | 0 | 362210 |
| 1862 All Other | 1890 All Other | 1862 All Other | 1890 All Other |
| 0 | 281904 | 0 | 0 |

V(D). Planned Program (Activity)**1. Brief description of the Activity**

Subjects were recruited by public advertisement seeking healthy Caucasian and African-American women. Twenty Caucasian women with BMI <25 kg/m² and 20 African-American women with BMI <25 kg/m² were selected for comparison of races for risk factors of cardiovascular disease. An additional 40 African-American women were selected with BMI >30 kg/m². This group was divided into two groups - 20 subjects for the intervention group and 20 subjects for the control group. An informed consent form signed by each participant was collected at the beginning of the study. Blood samples, health history, dietary intake, physical activity level and anthropometric data were collected from all subjects as the baseline data. Percent body fat was measured using a BodPod (Life Measurement, Inc. Concord, CA). Blood samples were collected from an antecubital vein into vacutainer tubes containing EDTA after 12-hour overnight fast. Waist and hip measurements were taken according to the procedures recommended at the Airlie Conference. The weight-loss program to meet objectives 1 and 2 are currently ongoing.

The following animal study was conducted to meet objective 3.

High-Fat Diet Treatment (12 Weeks): Eighty male Sprague-Dawley rats were obtained (Charles River Labs, Wilmington, MA) at 4 weeks of age, housed in individual stainless steel cages, and provided unlimited access to a commercial laboratory diet (Purina LabDiet, St. Louis, MO) for an acclimation period of 2 weeks. For the next 12 weeks, the rats had unlimited access to a high-energy (4.2 kcal/g), high-fat (38% of kcals) semi-purified diet. Greatest and least weight gain quartiles during this period were used to assign rats into diet-induced obese (DIO) and diet-resistant, non-obese (DR) groups.

Diet / Exercise Treatment (10 Weeks): DIO and DR rats were then divided into groups fed either a high-fat (38% of kcals) or low-fat (12 % of kcals) diet and either an exercise or sedentary treatment in a 2 x 2 x 2 (obesity x diet x exercise) design. Five rats were assigned to each treatment group. Rats had unlimited access to their respective diets for 10 weeks. Exercise treatment consisted of treadmill exercise 5 days/week using a commercial animal treadmill (Columbus Instruments, Columbus, OH). For the first week, rats were gradually acclimated to the treadmill apparatus. On each following week, speed and duration of exercise were increased to a maximum of 15 m/min for 1 hour each day for the final two weeks.

Carcass Analysis: At the end of the experiment, rats were anesthetized with sodium pentobarbital (45 mg/kg, i.p.) and blood samples were withdrawn by cardiac puncture. Hearts and livers were removed and frozen for later analysis. Fat depots (epididymal and abdominal fat pads) were removed, weighed, and returned to the carcass for analysis of total energy content. To measure carcass energy content, carcasses were thawed, softened in an autoclave, homogenized in water, and samples were dried in an oven to a constant weight. Samples were removed and combusted in an adiabatic bomb calorimeter (Parr Instruments, Moline, IL).

2. Brief description of the target audience

African-Americans, low-income families and other under represented groups in St. Louise, Kansas City, Bootheel and Jefferson City areas in the State of Missouri.

V(E). Planned Program (Outputs)**1. Standard output measures****Target for the number of persons (contacts) reached through direct and indirect contact methods**

| | Direct Contacts Adults | Indirect Contacts Adults | Direct Contacts Youth | Indirect Contacts Youth |
|-------------|-----------------------------------|-------------------------------------|----------------------------------|------------------------------------|
| Year | Target | Target | Target | Target |
| Plan | 200 | 500 | 100 | 200 |
| 2007 | 1320 | 10060 | 1200 | 500 |

2. Number of Patent Applications Submitted (Standard Research Output)**Patent Applications Submitted**

| Year | Target |
|--------------|---------------|
| Plan: | 0 |
| 2007: | 0 |

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

| | Extension | Research | Total |
|-------------|------------------|-----------------|--------------|
| Plan | | | |
| 2007 | 0 | 0 | 0 |

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

1) Number of publication 2) Number of presentation 3) Number of workshops 4) Number of contacts 2007: number of presentation: 2 number of workshops: 6 number of contacts (direct & indirect): 1,000 2008: Number of publication:1 Number of presentation, workshops and contacts : Same as in 2007 2009: Same as in 2008 2010: Same as in 2008 2011: Same as in 2008

| Year | Target | Actual |
|-------------|---------------|---------------|
| 2007 | 1008 | 282 |

V(G). State Defined Outcomes

| O No. | Outcome Name |
|-------|---|
| 1 | Increase knowledge of good nutrition measured by surveys pre- and post-nutrition education. Increased awareness about relationship between nutrition and physical activity and chronic diseases measured by periodic surveys in research subjects and other clientele. increase nutrition knowledge and awareness of importance of nutrition for prevention of chronic diseases by 90% of participants in direct contacts and 70% of indirect contacts. |
| 2 | -Number of citations of publications by other scientists in scientific papers. -Use of research results by nutrition extension and health care specialists. I-improvement of eating behavior and physical activities. -Decrease in percentage of overweight and obesity in research and extension participants. Medium-term: 2007 - measurable weight reduction (1-5%) in overweight and obese subjects and clientel. Utilization of research outcomes by the extension specialist (2-3 good nutrition guides). measurable weight reduction (1-5%) in overweight and obese subjects and clientele 2008 - Utilization of research outcomes by the extension specialist (2-3 good nutrition guides). 2009 - Same as 2008. 2010 - Same as 2008 and number of citations of publications = 10 2011 - Same as 2008 and number of citations of publications = 15 |
| 3 | Measurable improvements in public health and reduction in health care costs for specific population such as African-Americans, low-income families and other under represented groups. Expect 80% positive response of those contacted. |

Outcome #1

1. Outcome Measures

Not reporting on this Outcome for this Annual Report

2. Associated Institution Types

3a. Outcome Type:

3b. Quantitative Outcome

| Year | Quantitative Target | Actual |
|------|---------------------|--------|
|------|---------------------|--------|

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

What has been done

Results

4. Associated Knowledge Areas

| KA Code | Knowledge Area |
|---------|----------------|
|---------|----------------|

V(H). Planned Program (External Factors)

External factors which affected outcomes

Other (Personnel)

Brief Explanation

Unable to hire Nutrition Extension Specialists.

V(I). Planned Program (Evaluation Studies and Data Collection)

1. Evaluation Studies Planned

Retrospective (post program)

Before-After (before and after program)

During (during program)

Comparisons between program participants (individuals,group,organizations) and non-participants

Comparison between locales where the program operates and sites without program intervention

Evaluation Results

Underserved minorities and other disadvantaged adults 50 and older indicated they became more aware and knowledgeable about the importance of adopting a healthy lifestyle. Participants took a proactive role in seeking health information (e.g. increased utilization of the eHealth Medline Plus website). Participants became more aware of ways to manage their personal health.

Key Items of Evaluation

Health Education programs should consider using the Lay to Lay method of providing health information to low income and minority audiences.

Community Outreach Workers utilized the lay-to-lay approach of teaching. The lay teachers were effective in providing health information to community groups. They were able to have participants more engaged in health related events. They built trust and encouraged participants to be more forthcoming with personal health information.