

V(A). Planned Program (Summary)

Program # 3

1. Name of the Planned Program

Childhood Obesity, Nutrition and Health

V(B). Program Knowledge Area(s)

1. Program Knowledge Areas and Percentage

KA Code	Knowledge Area	%1862 Extension	%1890 Extension	%1862 Research	%1890 Research
305	Animal Physiological Processes	0%		40%	
703	Nutrition Education and Behavior	10%		20%	
704	Nutrition and Hunger in the Population	80%		20%	
724	Healthy Lifestyle	10%		20%	
	Total	100%		100%	

V(C). Planned Program (Inputs)

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

Year: 2010	Extension		Research	
	1862	1890	1862	1890
Plan	15.0	0.0	3.5	0.0
Actual	12.0	0.0	4.0	0.0

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

Extension		Research	
Smith-Lever 3b & 3c	1890 Extension	Hatch	Evans-Allen
177374	0	260593	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
1012244	0	260593	0
1862 All Other	1890 All Other	1862 All Other	1890 All Other
0	0	0	0

V(D). Planned Program (Activity)

1. Brief description of the Activity

Nutrition efforts focus on educational programs which increase knowledge and skills in nutrition

needs of children and incorporate physical activity into lifestyle; media outreach; health fairs; training; assessment/data collection. Programs which teach body size acceptance were also targeted to youth.

EFNEP adult curriculum taught in a series of lessons; adult one-time lessons; youth curricula taught in a series of lessons and day camps; displays and demonstrations; state and community partnerships with agencies serving the low-income; training for educators; evaluation of program; Ongoing- Updating of curricula and materials.

Since skeletal muscle is the main site for utilization of glucose and fatty acids in the body and insulin resistance in skeletal muscle is the key step in the incidence of type 2 diabetes, we hypothesize that impaired fetal skeletal muscle growth due to nutrient deficiency plays an important role. The goal is to understand how the development of fetal skeletal muscle affects the properties of skeletal muscle of adulthood, and to develop effective strategies to mitigate or avoid incidence of diabetes and obesity caused by impaired skeletal muscle development due to fetal nutrient deficiency.

UW AES researchers intend to investigate the role of maternal nutrition in programming of pre- and postnatal body composition.

2. Brief description of the target audience

The University of Wyoming is committed to reaching underrepresented groups and individuals and to implementing the objectives of equal opportunity regulations relative to the consideration and treatment of clientele for participation in all programs regardless of their race, national origin, gender, age, religion, or disability. Specific target audience groups for the CNP (EFNEP) program: Low-income adults, Youth in Title I schools.

All other nutrition efforts targeted audience includes: general public, both adults and youth and policy makers.

V(E). Planned Program (Outputs)

1. Standard output measures

2010	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Plan	1000	4000	1500	3000
Actual	3838	4000	2515	3000

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

Patent Applications Submitted

Year: 2010
 Plan: 1
 Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2010	Extension	Research	Total
Plan	0	4	
Actual	0	13	13

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

- Number of Dining with Diabetes, food safety and programs which promote healthier food choices and lifestyles offered in Wyoming communities. Target is number of programs. Not reporting on this Output for this Annual Report

Output #2

Output Measure

- Number of participants in educational programs offered in NFS initiative. Target is number of participants.

Year	Target	Actual
2010	1000	5710

Output #3

Output Measure

- Number of partnerships formed with environmental health specialists (food safety); public health of other agencies, and Diabetes coordinators. Target is number of partnerships. Not reporting on this Output for this Annual Report

Output #4

Output Measure

- Increased adoption of healthy food practices and participation in regular physical activities. Target is number of participants reporting outcome.

Year	Target	Actual
2010	250	1427

Output #5

Output Measure

- Effectiveness of research programs will be based on integration into extension programs, patents, grant dollars, and publications. The ultimate research goal is to provide tools for detection of food contaminated products. (target is number of research projects in NRI) Not reporting on this Output for this Annual Report

Output #6

Output Measure

- Improve ability to detect and analyze for the presence of food-borne pathogens. Target is number of research projects.
Not reporting on this Output for this Annual Report

Output #7

Output Measure

- Number of educational programs delivered to youth. Target is number of programs.

Year	Target	Actual
2010	{No Data Entered}	83

Output #8

Output Measure

- Number of youth participating in educational program targeting childhood obesity. Target is number of youth participating.

Year	Target	Actual
2010	{No Data Entered}	2515

Output #9

Output Measure

- Number of partnerships formed in local counties of professionals to collaborate on childhood obesity, nutrition, and health issues. Target is number of partnerships formalized.

Year	Target	Actual
2010	{No Data Entered}	36

Output #10

Output Measure

- Research: Conduct research and present results on obesity, nutrition and health. Target is number of publications, reports, bulletins, and presentations.

Year	Target	Actual
2010	{No Data Entered}	10

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Improved attitude related to diabetes self care, food, and physical activity. Targets are number of participants reporting outcome.
2	Increased knowledge of healthy food choices for optimal diabetes management, and health. Targets are number of participants reporting outcome.
3	Improved skill in selection of healthy foods. Targets are number of participants reporting outcome.
4	Improved eating behavior practices, food choices , and lifestyle habits. Targets are number of participants reporting outcome.
5	Using a variety of food resources to reduce food costs. Providing culturally acceptable meals that are balances for cost as well as for nutritional value. Target is number of participants reporting outcome.
6	Improved personal hygiene such as hand washing. Avoidance of cross-contamination resulting in keeping foods safe. Target is number of participants reporting outcome.
7	Increased availability of personal/family food resources. Target is number of participants reporting outcome.
8	Individuals gain awareness, knowledge and skills related to: improved attitude about healthy eating; increased knowledge of healthy food choices; improved skill in selection of healthy foods; improved body image. Target is number of participants reporting outcome.
9	Individuals incorporate skills and change behaviors related to: increased participation in physical activity; increased knowledge of healthy food choices; improved skill in selection of healthy foods; improved body image. Target is number of participants reporting outcome.
10	Individuals and families experience: improved nutritional health; reduced medical costs; health improved through improved community opportunities; healthier weight; decreased risk factors for nutrition-health related problems. Target is number of participants reporting outcome.
11	Increased awareness and knowledge of food safety practices. Target is number of participants reporting outcome.
12	Behavior or practice changes that improve food safety. Target is number of participants reporting outcome.
13	The short term goal of research efforts is to increase grant funding and to patent detective process. Target is number of projects which show positive outcomes in regard to additional funding and patents.
14	Research will result in easier, more rapid methods of detection of food-borne pathogens such as E.coli and Listeria. Ultimately, delineate genes that promote survival in the environment and result in disease contamination of food. Target is number of projects with results that demonstrate outcome.
15	Improved knowledge of food guide pyramid, serving sizes, and physical activity. Targets are the number of participants reporting outcome.
16	Improved eating behavior practices, food choices, and lifestyle habits. Targets are the number of participants reporting outcome.

17	Individuals gain awareness, knowledge and skills related to: improved attitude about healthy eating; increased knowledge of healthy food choices; improved skills in selection of healthy foods; improved body image. Target is number of participants reporting outcome.
18	Youth incorporate skills and change behaviors related to: increased physical activity; increased knowledge of healthy food choices; improved selection of healthy foods; understanding of serving sizes; improved body image.
19	Youth and families experience: improved nutritional health; reduced medical costs; health improved through community opportunities; healthier weight; decreased risk factors for nutrition-health related problems. Target is number of participants reporting outcome.
20	Research: Create awareness of relationships between obesity, nutrition and health. Target is number of projects reporting this outcome.

Outcome #1

1. Outcome Measures

Improved attitude related to diabetes self care, food, and physical activity. Targets are number of participants reporting outcome.

Not Reporting on this Outcome Measure

Outcome #2

1. Outcome Measures

Increased knowledge of healthy food choices for optimal diabetes management, and health. Targets are number of participants reporting outcome.

Not Reporting on this Outcome Measure

Outcome #3

1. Outcome Measures

Improved skill in selection of healthy foods. Targets are number of participants reporting outcome.

Not Reporting on this Outcome Measure

Outcome #4

1. Outcome Measures

Improved eating behavior practices, food choices , and lifestyle habits. Targets are number of participants reporting outcome.

Not Reporting on this Outcome Measure

Outcome #5

1. Outcome Measures

Using a variety of food resources to reduce food costs. Providing culturally acceptable meals that are balances for cost as well as for nutritional value. Target is number of participants reporting outcome.

Not Reporting on this Outcome Measure

Outcome #6

1. Outcome Measures

Improved personal hygiene such as hand washing. Avoidance of cross-contamination resulting in keeping foods safe. Target is number of participants reporting outcome.

Not Reporting on this Outcome Measure

Outcome #7

1. Outcome Measures

Increased availability of personal/family food resources. Target is number of participants reporting outcome.

Not Reporting on this Outcome Measure

Outcome #8

1. Outcome Measures

Individuals gain awareness, knowledge and skills related to: improved attitude about healthy eating; increased knowledge of healthy food choices; improved skill in selection of healthy foods; improved body image. Target is number of participants reporting outcome.

Not Reporting on this Outcome Measure

Outcome #9

1. Outcome Measures

Individuals incorporate skills and change behaviors related to: increased participation in physical activity; increased knowledge of healthy food choices; improved skill in selection of healthy foods; improved body image. Target is number of participants reporting outcome.

Not Reporting on this Outcome Measure

Outcome #10

1. Outcome Measures

Individuals and families experience: improved nutritional health; reduced medical costs; health improved through improved community opportunities; healthier weight; decreased risk factors for nutrition-health related problems. Target is number of participants reporting outcome.

Not Reporting on this Outcome Measure

Outcome #11

1. Outcome Measures

Increased awareness and knowledge of food safety practices. Target is number of participants reporting outcome.

Not Reporting on this Outcome Measure

Outcome #12

1. Outcome Measures

Behavior or practice changes that improve food safety. Target is number of participants reporting outcome.

Not Reporting on this Outcome Measure

Outcome #13

1. Outcome Measures

The short term goal of research efforts is to increase grant funding and to patent detective process. Target is number of projects which show positive outcomes in regard to additional funding and patents.

Not Reporting on this Outcome Measure

Outcome #14

1. Outcome Measures

Research will result in easier, more rapid methods of detection of food-borne pathogens such as E.coli and Listeria. Ultimately, delineate genes that promote survival in the environment and result in disease contamination of food. Target is number of projects with results that demonstrate outcome.

Not Reporting on this Outcome Measure

Outcome #15

1. Outcome Measures

Improved knowledge of food guide pyramid, serving sizes, and physical activity. Targets are the number of participants reporting outcome.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	3500

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Wyoming youth and adults are at risk as reflected by various health-related data: For example, over 20 percent of Wyoming adults report no leisure time physical activity, 47 percent of Wyoming high school students report not being enrolled in a physical education class, and 78 percent of both Wyoming adults and high school students do not eat recommended amounts of fruits and vegetables. Additionally, research in Wyoming, Montana, and Idaho documented body dissatisfaction as a significant predictor of self-consciousness keeping respondents from participating in physical activity.

What has been done

A variety of classes (many multi-session) on Steps to a New You, Healthy Eating, Weight Management and basic nutrition were conducted by nutrition educators. Articles were published in newsletters, newspaper columns and educational displays were developed.

Results

36 percent reported being physically active for at least 30 minutes per day, on four or more days per week, more often.

40 percent reported getting a 'super-sized' portion less often. (A 'super-sized' portion of food or beverage is one that is much bigger but costs only a little more money).

92 percent showed improvement in one or more nutrition practices.

25 percent reported weight loss as a result of changes in eating, meal planning, and increasing physical activity.

4. Associated Knowledge Areas

KA Code **Knowledge Area**
703 Nutrition Education and Behavior

Outcome #16

1. Outcome Measures

Improved eating behavior practices, food choices, and lifestyle habits. Targets are the number of participants reporting outcome.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	3838

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

The United States Department of Agriculture Dietary Guidelines for Americans identified the number one message of the new guidelines as getting the most nutrition out of calories consumed. Number two was finding a balance between food and physical activity. The key recommendations include an emphasis on increased consumption of fruits and vegetables, whole grains, and low-fat dairy and increased physical activity. Childhood obesity concerns identify similar issues in eating and lifestyle behavior.

What has been done

Nutrition and food safety educators conducted 229 educational programs on basic nutrition, health, and food selection. Activity based programs such as Steps to a New You, Strong Bones, and Dining with Diabetes were also held. Health fair displays, newspaper articles, and newsletters were also used to reach youth and adults.

Results

One hundred percent of participants reported increasing knowledge as a result of educational efforts. Over half of evaluation respondents indicated they had changed at least one dietary behavior.

Shorter term impacts included participants reporting they feel strongly that:

- *what people do can make a big difference in the control of their diabetes and overall health
- *healthy food can taste good
- *physical activity comes more easily to them

Longer term (at two- to four-month follow-up)

- *Better understanding of the Plate Method for portioning their food
- *Increasing the proportion of participants...who eat high-fiber cereal

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

Outcome #17

1. Outcome Measures

Individuals gain awareness, knowledge and skills related to: improved attitude about healthy eating; increased knowledge of healthy food choices; improved skills in selection of healthy foods; improved body image. Target is number of participants reporting outcome.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	3838

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Wyoming residents are at risk as reflected by various health-related data: For example, over 20 percent of Wyoming adults report no leisure time physical activity, 47 percent of Wyoming high school students report not being enrolled in a physical education class, and 78 percent of both Wyoming adults and high school students do not eat recommended amounts of fruits and vegetables.

What has been done

UW CES educators conducted over 300 classes which emphasized a holistic approach including proper nutrition, increasing physical activity and healthy food choices. Strong Bones - Strong People, basic nutrition, and Steps to a New You were all programs focused on objectives. Youth curriculum developed by the UW Cent\$ible Nutrition program was also implemented in schools across the state.

Results

3838 individuals participated in 229 classes of which 10 were multi-session with four to eight sessions in length. Over 50 percent, or 1900 participants reported improved eating behavior

practices, food choices, and lifestyle habits through end of session evaluations.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle

Outcome #18

1. Outcome Measures

Youth incorporate skills and change behaviors related to: increased physical activity; increased knowledge of healthy food choices; improved selection of healthy foods; understanding of serving sizes; improved body image.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	2574

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Childhood obesity has more than tripled in the past 30 years. The prevalence of obesity among children aged 6 to 11 years increased from 6.5% in 1980 to 19.6% in 2008. The prevalence of obesity among adolescents aged 12 to 19 years increased from 5.0% to 18.1%. Approximately 13,000 of 57,000 Wyoming children ages 10 to 17 years (22.9%) are considered overweight or obese according to BMI for age standards. Wyoming ranks third among the 50 states and D.C. in overall prevalence.

* Only one in six (16.3%) Wyoming children in higher income families are overweight or obese. The state ranks third in prevalence among higher income children.

* One in five (20.2%) Wyoming children with private health insurance are overweight or obese.

* Wyoming children are more likely than their counterparts nationwide to be physically active for at least 4 days per week, and less likely to spend 2 hours or more in front of a television or computer screen.

What has been done

UW CES utilized EFNEP youth curricula taught in a series of lessons and day camps; displays

and demonstrations; Other nutrition efforts focused on educational programs which increase knowledge and skills in nutrition needs of children and incorporate physical activity into lifestyle; educators use media outreach (newspapers, newsletters, radio); health fairs; Programs which teach body size acceptance also are targeted to youth.

Results

Results of the 65 educational programs (several were series of 5 - 8 weeks) reaching 2114 youth included:

- 30% reported eating a variety of foods;
- 36% increased knowledge of nutrition;
- Over 50% increased their knowledge of MyPyramid food groups;
- 23% could identify missing food groups in meals;
- 37% could identify physical activity recommendations for their age;
- 28.5% increased their knowledge of body size diversity.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
724	Healthy Lifestyle

Outcome #19

1. Outcome Measures

Youth and families experience: improved nutritional health; reduced medical costs; health improved through community opportunities; healthier weight; decreased risk factors for nutrition-health related problems. Target is number of participants reporting outcome.

2. Associated Institution Types

- 1862 Extension

3a. Outcome Type:

Change in Condition Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	1944

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Approximately 13,000 of 57,000 Wyoming children ages 10 to 17 years (22.9%) are considered overweight or obese according to BMI for age standards. Wyoming ranks third among the 50 states and D.C. in overall prevalence.

* Only one in six (16.3%) Wyoming children in higher income families are overweight or obese.

The state ranks third in prevalence among higher income children.

* One in five (20.2%) Wyoming children with private health insurance are overweight or obese.

* Wyoming children are more likely than their counterparts nationwide to be physically active for at least 4 days per week, and less likely to spend 2 hours or more in front of a television or computer screen.

What has been done

UW CES utilized EFNEP youth curricula taught in a series of lessons and day camps; displays and demonstrations; Other nutrition efforts focused on educational programs which increase knowledge and skills in nutrition needs of children and adults and also incorporate physical activity into lifestyle; educators use media outreach (newspapers, newsletters, radio); health fairs; Programs which teach body size acceptance also are targeted to youth.

A variety of classes (many multi-session) on Steps to a New You, Healthy Eating, Weight Management and basic nutrition were conducted by nutrition educators.

Results

Results of the 65 educational programs (several were series of 5 - 8 weeks) reaching 2114 youth included:

92 percent showed improvement in one or more nutrition practices.

27% reported eating a variety of foods;

Over 50% increased their knowledge of MyPyramid food groups;

24% could identify missing food groups in meals;

45% could identify physical activity recommendations for their age;

33% increased their knowledge of body size diversity.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior
704	Nutrition and Hunger in the Population
724	Healthy Lifestyle

Outcome #20

1. Outcome Measures

Research: Create awareness of relationships between obesity, nutrition and health. Target is number of projects reporting this outcome.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Knowledge Outcome Measure

3b. Quantitative Outcome

Year	Quantitative Target	Actual
2010	{No Data Entered}	4

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

It has been well established in the scientific literature that obesity in reproductive age women, resulting from the consumption of too many calories before and during pregnancy markedly increases the incidence of obesity, systolic or diastolic hypertension, high triglyceride levels, low HDL levels, glucose intolerance and type II diabetes in their offspring. This cadre of health concerns is referred to as the Metabolic Syndrome, and has increased markedly in the United States population in recent years and is occurring in younger individuals.

What has been done

Using the sheep as our animal model, we have developed an overnutrition protocol designed to make ewes extremely fat by conception and maintain them in an obese state throughout gestation. In short, offspring born to obese ewes develop aspects of the Metabolic Syndrome that are observed in human offspring born to obese women.

Results

Understanding of the specific physiologic factors leading to the observed postnatal health problems in offspring born to obese mothers will allow the development of methods to prevent the alterations in fetal growth and development associated with maternal obesity and result in the birth of normal health offspring. Implications of this research relate equally to both humans and livestock and will help to alleviate the epidemic of obesity and type II diabetes seen in the population of the U.S. and other developed countries.

4. Associated Knowledge Areas

KA Code	Knowledge Area
305	Animal Physiological Processes
703	Nutrition Education and Behavior
704	Nutrition and Hunger in the Population
724	Healthy Lifestyle

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy
- Appropriations changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges
- Populations changes (immigration, new cultural groupings, etc.)
- Other ()

Brief Explanation

Many conditions and situations that exist in Wyoming are similar to those in other parts of the country, for example, the following:

Food choices made available and advertised to consumers by producers; Access to timely and accurate information; Coordination and cooperation of federal agencies and state partners, schools and other youth agencies; Existence of local collaboration; Level of funding at federal, state and local level; and Willingness of community organizations, to collaborate with Wyoming Cooperative Extension Service.

If EFNEP funding is decreased, appropriations will impact program delivery. Population changes impact limited resource audiences eligible for program.

Availability of funding for research in childhood obesity.

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)
- Time series (multiple points before and after program)
- Case Study

Evaluation Results

Key Items of Evaluation