

V(A). Planned Program (Summary)

Program # 7

1. Name of the Planned Program

Childhood Obesity, Nutrition, and Health

Reporting on this Program

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 FTE/SYs expended this Program

Year: 2014	Extension		Research	
	1862	1890	1862	1890
Plan	10.0	0.0	6.3	0.0
Actual Paid	11.0	0.0	6.3	0.0
Actual Volunteer	0.0	0.0	0.0	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
175588	0	299359	0
1862 Matching	1890 Matching	1862 Matching	1890 Matching
175588	0	299359	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 will 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 will also be 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.

Research will focus on factors contributing to, and mechanisms associated with, incidences of metabolic disorders and disease. Nutritional strategies will be explored as methods to create healthy lifestyles. Discoveries resulting from explorations of fundamental processes are expected to lead to the development of new therapeutic inventions.

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.

3. How was eXtension used?

eXtension is utilized as a resource for educators and clientele. The link to eXtension is prominently displayed on the UW Extension Web site home page. Additionally all extension employees are made aware of professional development opportunities available through eXtension. UW Extension participates in "Ask an Expert". Questions from clientele receive responses on nutrition topics from Nutrition and Food Safety Educators as appropriate.

V(E). Planned Program (Outputs)

1. Standard output measures

2014	Direct Contacts Adults	Indirect Contacts Adults	Direct Contacts Youth	Indirect Contacts Youth
Actual	3559	100000	4635	5000

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

Year: 2014

Actual: 0

Patents listed

3. Publications (Standard General Output Measure)

Number of Peer Reviewed Publications

2014	Extension	Research	Total
Actual	0	15	15

V(F). State Defined Outputs

Output Target

Output #1

Output Measure

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

Year	Actual
2014	91

Output #2

Output Measure

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

Year	Actual
2014	4635

Output #3

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	Actual
2014	35

Output #4

Output Measure

- Conduct research on obesity, nutrition, and health. Target is the number of research publications, bulletins, reports, and presentations.

Year	Actual
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2014 18

Output #5

Output Measure

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

Year	Actual
2014	8194

Output #6

Output Measure

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

Year	Actual
2014	7000

V(G). State Defined Outcomes

V. State Defined Outcomes Table of Content

O. No.	OUTCOME NAME
1	Improved knowledge of food guide pyramid, serving sizes, and physical activity. Targets are the number of participants reporting outcome.
2	Improved eating behavior practices, food choices, and lifestyle habits. Targets are the number of participants reporting outcome.
3	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.
4	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.
5	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.
6	Create awareness of research on obesity, nutrition, and health. Target is the number of projects reporting this outcome.

Outcome #1

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	Actual
2014	7000

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 25 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 83 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 Real Food, Body Works, Healthy Eating, Weight Management and basic nutrition were conducted by nutrition educators. Articles were published in newsletters, newspaper columns and educational displays were developed. Youth were reached through series of classes conducted in schools by 4-H, Nutrition and Food Safety and Cent\$ibile Nutrition educators.

Results

91 percent of adults and 55 percent of youth reported improvement in one or more nutrition practices such as familiarity with MyPlate.

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

63 percent reported using the "Nutrition Facts" labels to make food choices.

50 percent reported thinking about healthy food choices more often when deciding what to feed their family.

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 #2

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	Actual
2014	4800

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Being overweight and obese increases the risk among children to develop type 2 diabetes, elevated blood pressure, non-alcoholic fatty liver disease, elevated cholesterol, and they are at risk for entering into adulthood as overweight and or obese. According to the Robert Wood Johnson Foundation, health expenses related to childhood obesity are approximately \$14 billion per year.

In Wyoming the rate of high school students who are overweight and obese has increased from 17.4% in 2001 to 23.5% in 2013. The rates for adults in Wyoming are also important, as adults influence the younger generation in many ways, including but not limited to genetic influence and environmental influences. In 2013, 64.4% adults in Wyoming were overweight and/or obese as reflected in the Behavior Risk Factor Surveillance System (BRFSS).

What has been done

A variety of classes (many multi-session) on Real Food, Healthy Eating, Body Works, Weight Management and basic nutrition were conducted by nutrition educators. Youth participated in day camps, and in-school curriculum including Grazing with Marty Moose, Munching through Wyoming History, Passports to Food Adventures, and WIN Kids. Most youth

classes are 5 or more sessions in length. Articles were published in newsletters, newspaper columns and educational displays were developed.

Results

End of session and follow up evaluations indicated:

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

91 percent showed improvement in one or more nutrition practices.

47 percent serve more than one kind of fruit and 42 percent serve more than one kind of vegetable each day.

40 percent of youth could correctly identify the physical activity recommendation for children.

39.2 percent of all youth improved physical activity practices.

86.3 percent of all youth improved knowledge or skills necessary to choose foods consistent with Federal Dietary Guidelines.

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
724	Healthy Lifestyle

Outcome #3

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	Actual
2014	9000

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 25 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 83 percent of both Wyoming adults and high school students do not eat recommended amounts of fruits and vegetables.

What has been done

UW Extension 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 Real Food were all programs focused on objectives. Youth curriculum developed by the UW Cent\$ible Nutrition program was also implemented in schools across the state. Nutrition educators partnered with 4-H to implement Body Works. The Nutrition initiative team also does regular radio programs, news columns, and blogs to disseminate information to the public.

Results

9000 individuals participated in 300 classes of which 12 were multi-session with four to eight sessions in length. Over 50 percent, or 4500 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

Outcome #4

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	Actual
2014	5000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Being overweight and obese increases the risk among children to develop type 2 diabetes, elevated blood pressure, non-alcoholic fatty liver disease, elevated cholesterol, and they are at risk for entering into adulthood as overweight and or obese. According to the Robert Wood Johnson Foundation, health expenses related to childhood obesity are approximately \$14 billion per year.

In Wyoming the rate of high school students who are overweight and obese has increased from 17.4% in 2001 to 23.5% in 2013. The rates for adults in Wyoming are also important, as adults influence the younger generation in many ways, including but not limited to genetic influence and environmental influences. In 2013, 64.4% adults in Wyoming were overweight and/or obese as reflected in the Behavior Risk Factor Surveillance System (BRFSS).

What has been done

UW Extension 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 Real Food, Body Works, Healthy Eating, Weight Management and basic nutrition were conducted by nutrition educators. In addition 4-H educators partner with Cent\$ible Nutrition to implement special interest classes in the school system.

Results

Results of the educational programs (several were series of 5 - 8 weeks) reaching 5000 youth included:

100 percent of all youth improved in one or more core areas.

91 percent showed improvement in one or more nutrition practices.

86.3 percent of all youth improved knowledge or skills necessary to choose foods consistent with the Federal Dietary Guidelines.

Over 50 percent increased their knowledge of MyPlate food groups;

39.2 percent improved physically activity practices for at least 30 minutes per day during four or more days per week.

30 percent increased their knowledge of body size diversity.

As a result of attending the BodyWorks in Wyoming program:

Adults:

-88 percent reported intention to increase physical activity

-63 percent reported intention to exercise more with their child

-75 percent reported intention to eat more healthy foods

Youth:

-71 percent reported intention to eat more healthy foods

-57 percent reported intention to exercise more with their parent

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

Outcome #5

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	Actual
2014	5000

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Being overweight and obese increases the risk among children to develop type 2 diabetes, elevated blood pressure, non-alcoholic fatty liver disease, elevated cholesterol, and they are at risk for entering into adulthood as overweight and or obese. According to the Robert Wood Johnson Foundation, health expenses related to childhood obesity are approximately \$14 billion per year.

In Wyoming the rate of high school students who are overweight and obese has increased from 17.4% in 2001 to 23.5% in 2013. In 2013, 64.4% adults in Wyoming were overweight and/or obese as reflected in the Behavior Risk Factor Surveillance System (BRFSS). Like the majority of states in the US, Wyoming also showed a statistically significant increase in the number of physically inactive adults.

What has been done

UW Extension 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, blogs); health fairs; Programs which teach body size acceptance also are targeted to youth. A variety of classes (many multi-session) on Body Works, Real Food, Healthy Eating, Weight

Management, Dining with Diabetes, and basic nutrition were conducted by nutrition educators.

Results

Results of the 300 educational programs (several were series of 5 - 8 weeks) reaching over 5000 youth and adults included:

91 % showed improvement in one or more nutrition practices.

95.5% had a positive change in any food group.

63% reported using the Nutrition Facts label to make food choices more often.

Over 55% increased their knowledge of MyPlate food groups;

39% are physically active 30 minutes per day, four or more days a week.

4. Associated Knowledge Areas

KA Code	Knowledge Area
703	Nutrition Education and Behavior

Outcome #6

1. Outcome Measures

Create awareness of research on obesity, nutrition, and health. Target is the number of projects reporting this outcome.

2. Associated Institution Types

- 1862 Research

3a. Outcome Type:

Change in Action Outcome Measure

3b. Quantitative Outcome

Year	Actual
2014	4

3c. Qualitative Outcome or Impact Statement

Issue (Who cares and Why)

Vitamin D insufficiency and deficiency increases risk for both chronic diseases and acute illness in humans and may be more prevalent in overweight and obese individuals presumably due to fat sequestration by adipose tissue. Recently, however, the "fat sequestration" hypothesis has been challenged.

What has been done

Pigs were used as a model to evaluate the relationship between obesity and vitamin D status.

Growing pigs (29 ± 1 kg) on standard grower diet were exposed to 1 hr of sunlight during solar noon for 2 wk at the spring equinox and again during the summer solstice.

Results

During the spring equinox, sun exposure increased serum concentrations of total 25(OH)D by 175% while control pigs had an increase of 25% from standard vitamin D supplemented feed alone. Serum concentrations of total 25(OH)D returned to control values following 3 mo of indoor confinement. The second exposure to sunlight during the summer solstice increased serum concentrations of total 25(OH)D by approximately 45% when pigs were near slaughter weight (94 ± 3 kg). An increase in serum concentrations of total 25(OH)D was not observed in pigs held indoors. It is anticipated that completion of the proposed studies will contribute to a better understanding of how Vitamin D synthesis influences tissue deposition of vitamin D and overall health and wellbeing in humans.

4. Associated Knowledge Areas

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

V(H). Planned Program (External Factors)

External factors which affected outcomes

- Economy
- Appropriations changes
- Public Policy changes
- Government Regulations
- Competing Public priorities
- Competing Programmatic Challenges

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 The University of Wyoming Extension.

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)

Evaluation Results

UW Extension Nutrition and Food Safety educators teach curricula which uses a holistic approach to nutrition and health. All participants completed a pre- and post-questionnaire, enabling to measure new attitudes gained such as, living a life focused on health, honoring hunger, and enjoy physical activity every day. The following are significant impacts reported by them.

50% Participants increased physical activity purposely. 39 percent reported being physically active for at least 30 minutes per day, on 4 or more days per week more often.

90% of participants now stop eating when they start to feel full.

Adults who participate in programs complete end of session evaluations. Those in series of lessons complete a pre- and post-survey and/or follow up evaluations. Over 4000 adults completing lessons reported the following.

Nutrition Practices and Food Intake

- 91 percent improved in one or more nutrition practices.
- 90 percent had a positive change in any food group.
- 55.6 percent use the MyPlate to make food choices more often.
- 43.1 percent serve more than one kind of fruit, and 42 percent serve more than one kind of vegetable to their families each day more often.

Physical Activity Practices

- 39 percent are physically active for at least 30 minutes per day during four or more days per week

2936 youth participating in Grazing with Marty Moose, Munching Through Wyoming History, Passports to Food Adventures, and WIN Kids curricula reported the following through pre- and post-assessments to capture behavior changes.

Specific questions for each curriculum showed the following after the lessons.

- 50 percent improved their knowledge of MyPlate food groups.
- 31.5 percent more correctly identify the number of food groups in a meal
- 47 percent tried new fruits and 42 percent tried new vegetables more often.
- 29 percent could correctly identify the physical activity recommendation for children.
- 86.3 percent of all youth improved knowledge or skill(s) necessary to choose foods consistent with the Federal Dietary Guidelines.

Key Items of Evaluation

Research data have provided conclusive evidence that changes in individual lifestyles and behaviors can lead to improved health status (Centers for Disease Control and Prevention, 1997; Canadian Nurses Association, 1992).

100 percent of participants gained knowledge and raised awareness of the role nutrition and physical activity play in health.