Background
Congresswoman Eddie Bernice Johnson was instrumental in the passage of a Federal appropriation in 2009 through USDA, for research in childhood obesity prevention to be conducted by the Institute for Obesity Research and Program Evaluation. It was decided through a joint meeting with Representative Johnson’s staff, that the research activity will be an innovative project to engage middle school youth in the development and optimization of two nutrition education media products. These products will be designed to improve understanding of nutrition and to enable students to achieve energy balance and a healthy weight. The project will begin at Dade Middle School in the Dallas Independent School District (Dallas ISD).

What are the research objectives?
The overall aim of this project is to design, develop, and implement two media products: an interactive educational media game and an energy expenditure graphic (Calorie Converter) to teach the concepts of nutrition, energy consumption and energy expenditure to middle school-aged children.

- The interactive educational media game will be designed and tested to provide a graphically based, in-depth instructional tool for nutrition education that is aligned with state and national science and math standards to facilitate its use in today’s standards-driven middle school curriculum.

- The calorie converter will be designed and tested to provide a graphic illustration of the energy content of foods that will act to supplement the information in the Nutrition Facts panel for food and beverage items at the point of purchase. The goal is for the young consumer to be able to know at a glance the physical activity requirement associated with the consumption of specially-labeled food and drink products.
What are we doing?
We will be collaborating with 7th grade students at Dade Middle School in Dallas, Texas. There, we will use focus groups and questionnaires to assess students’ baseline knowledge and understanding, as well as misconceptions about: nutrition calories, energy balance and energy expenditure. We will also identify current levels of physical activity, food choices made at school and home, and learn about students’ gaming experiences and preferences. This baseline knowledge and skills assessment will allow us to define the instructional space to be used within the interactive educational media game.

Our interactive educational media game will employ Problem-Based Learning so that students will gain comprehension and critical thinking skills beyond the factual knowledge traditionally used to teach nutrition. To advance to the next game level, students will learn concepts and apply critical thinking skills to solve real life situations embedded in the game. This will enable students to establish and build on their understanding of food nutrients, the body’s energy (calorie) needs, health, as well as physical performance and appearance.

School administrators are always looking for ways to incorporate concept-based instructional modules that meet national and state standards. The interactive educational media game resulting from this project can facilitate this need because it is a closed model—no instruction delivery needed— and can be used in any school having computers and internet access.

Middle school-aged students will also provide input in the development, design, and testing of an informational "energy expenditure icon" (Calorie Converter) to be placed on food labels, designed to function at any point-of-purchase (e.g., vending machines, cafeterias, etc.) or in food merchandising (e.g., media and print ads).

Our project team will also collaborate with Texas AgriLIFE representatives from the Urban Research Center in Dallas to disseminate research findings to counties throughout North Texas, and to establish a foundation for future partnership opportunities. Linkages with pre-existing childhood obesity prevention efforts in Dallas, including with researchers affiliated with the Dallas Area Coalition for the Prevention of Childhood Obesity and clinicians at the MLK Junior Family Clinic are planned.

Conclusion
Following the design and development of the interactive educational media game and the calorie converter, our goal is to expand the development and refinement of these media products by engaging additional middle schools. This expanded testing will allow us to more fully evaluate the impact of the media products on student food choices and body weight on a comprehensive scale.

The prototype Calorie Converter illustrates the energy content of two food choices offered in a vending machine by showing the time it takes to expend those calories through an activity like walking.