

## The Healthy Diabetes Plate: An Evolving Diabetes Meal Planning Program

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The three components of diabetes self-management are diet, physical activity, and medication (if necessary) [1]. Data collected by the Centers for Disease Control and Prevention (CDC) National Diabetes Surveillance System shows that approximately 57.4% of adults with diabetes in the United States attend at least one diabetes self-management class [2]. Unfortunately, among adults age 40 and over with diagnosed diabetes, only 52% managed to keep their blood sugars under control by achieving a HbA1c of less than 7% [3].

There are two problems that create additional difficulties for keeping their diabetes under control. The first is that many individuals with diabetes find the diet component difficult to understand [4]. This may occur when the meal planning tool they are taught is 'carbohydrate counting' which requires them count the grams of carbohydrate they consume at meals and snacks as a way to manage their blood sugar levels [5]. The carbohydrate-gram counting process requires mathematical skills that may be difficult for some individuals [6]. The American Diabetes Association recommends that more research be conducted on using the Plate Method, a simplified meal plan that focuses on healthful food choices [1]. The second problem is the increasing incidence of diabetes and the lack of adequate diabetes education facilities [7]. Currently, the incidence of diabetes is approximately 9% of the U.S. population [8] and it is forecast that approximately 40% of the U.S. population will develop diabetes in their lifetime [9].

The University of Idaho has addressed these two problems by designing a simplified meal planning program, *The Healthy Diabetes Plate*, and teaching it in face-to-face classes in rural and urban counties. *The Healthy Diabetes Plate* [10] is a four-lesson curriculum that targets the diet component of diabetes self-management and was originally designed to be taught by University Extension faculty at land grant institutions to individuals who did not have access to diabetes education programs in urban or rural counties. The original *Healthy Diabetes Plate* curriculum was published in 2003 and visually taught participants how five food groups (Vegetables, Meat/Protein, Bread/Starch/Grain, Fruit, Dairy) fit on a plate as a breakfast, lunch, or dinner meal. Between 85-99% of participants who attended the classes were able to correctly plan meals [11].

In order to reach a wider audience and the increasing diabetes population, *The Healthy Diabetes Plate* materials have been adapted to the internet, virtual world, and include social media. Using these different formats, we are able to more readily update the materials and add new information. *The Healthy Diabetes Plate* website, [www.extension.uidaho.edu/diabetesplate](http://www.extension.uidaho.edu/diabetesplate), was originally designed in 2009 as a way to provide credible information to individuals who use the internet for health information [12]. The website contains 12 pages which cover the five food groups, tips and tricks, interactive meal planning pages, and five video clips. The interactive meal planning page teaches them the types and amounts of food they should be eating at breakfast, lunch, and dinner. Five video clips provide a tour through the grocery store where they learn the wide variety of foods they can include in their meals. With the higher incidence of diabetes in Hispanics, the webpages have been translated into Spanish [13].

*The Healthy Diabetes Plate* has also been adapted to a virtual world

called Diabetes Living which was designed in 2011. It contains a kitchen area and two restaurants. Participants start out in the kitchen and learn kitchen equipment and cooking skills so they can prepare a variety of recipes that fit within their diabetes meal plan. Once they master the cooking skills, they are ready to try eating out at two restaurants and choose meals from a menu and a buffet [14].

We are currently testing the effectiveness of our updated *The Healthy Diabetes Plate* curriculum, measuring changes in meal planning skills, eating behaviors, self-efficacy, and hemoglobin A1c levels. We have added two social media pages, HDP Facebook and HDP Pinterest, to the curriculum for various reasons. The first is that they will be used to provide the social support that is helpful in getting people to manage their diabetes. The second is that they will help reinforce the principles covered in the classes. The third is the increase in popularity of social media sites for individuals over 45 years-old. It is estimated that 60% of these individuals will be using social media sites in 2015-2016 [15]. We will also determine if these social media pages will be effective with our diabetes class participants.

Diabetes meal planning programs must evolve so they can be taught in a variety of settings to meet the needs of our increasing and diverse diabetes population.

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