

## RPG Sponsored Activities at FNCE

Friday, October 24	RPG Executive Board Meeting	1:00 pm – 6:00 pm
Saturday, October 25	RPG Executive Board Meeting	8:00 am – 11:00 am
Sunday, October 26	Renal Dietitian's Breakfast Sponsored by Diehl, Inc.	7:30 am – 8:30 am
Monday, October 27	DPG Showcase	10:45 am - 12:30 pm
Tuesday, October 28	Major Session Nutrition and Renal Transplantation Carolyn C. Cochran, MS, RD, CDE, LD Dallas Transplant Institute Dallas Nephrology Associates	10:00 am – 11:00 am

**RPG Endorsed Session:** RPG member, Pamela Kent, MS, RD, CSR, LD, will copresent “The Critical Role of Nutrition in Patients with Chronic Renal Insufficiency” on Sunday, October 26 at 10:30 am.



2003 Copyright by Renal Dietitians  
Dietetic Practice Group of the American Dietetic Association.  
All rights reserved.

Patricia Weber MS, RD, CDE, CSR  
Editor, *Renal Nutrition Forum*  
2433 Laurel Hill Ct.  
Murfreesboro, TN 37129-6031

PRSRT. STD.  
U.S. POSTAGE  
**PAID**  
Cincinnati, OH  
Permit No. 6523

## The Effectiveness of Lifestyle Intervention in the Diabetes Prevention Program: Application In Diverse Ethnic Groups

By Linda Delahanty, MS, RD, Shandiin R. Begay, MPH, Norman Coocoyate, Mary Hoskin, MS, RD, Mae Isonaga, RD, MPH, Erma J. Levy, MPH, RD, LDN, Kathy Mikami, RD, Sharon Ka'iulani Odom, MPH, RD, Kati Szamos, BS, RD\*

### ABSTRACT

The Diabetes Prevention Program, (DPP) demonstrated that a lifestyle intervention aimed at losing 7% of body weight and achieving 150 minutes of activity per week could reduce the risk of developing diabetes by 58%. Almost 45% of the DPP cohort were minorities including African-Americans, Hispanics, Asians, and American Indians. The lifestyle intervention was highly effective in reducing the incidence of diabetes in each minority group. The DPP lifestyle intervention included four components: a standard “core curriculum,” tool box strategies, tailored individual intervention, and “after core” classes and campaigns. The common features of the lifestyle intervention process that helped participants change their diet and exercise behaviors were goal setting, self-monitoring, frequent contact, problem-solving and managing high-risk situations. These features were adapted to accommodate the specific social, economic, and cultural needs of each individual in each racial-ethnic group. If we apply the critical components and features of the DPP lifestyle intervention experience, then we can achieve and sustain the changes in diet, activity, and weight necessary to impact and reduce

the public health burden of diabetes. The Diabetes Prevention Program was a randomized, controlled trial which was conducted in 27 centers across the United States to determine if a lifestyle intervention or treatment with metformin, compared with placebo, would prevent or delay the development of diabetes in 3,234 subjects with impaired glucose tolerance (IGT). The trial was completed a year early and found that compared to placebo, the lifestyle intervention reduced the incidence of diabetes by 58% and metformin by 31% over an average of 2.8 years (1). One of the unique features of the DPP was that it was conducted in a cohort representing the ethnically and culturally diverse population of the United States. Overall, more than 45% of the DPP cohort were minorities; African Americans (including people of Afro-Caribbean descent), Hispanics (including Latin Americans and Caribbeans), American Indians (concentrated in the Southwest), and Asian-Americans (including descendants from Japanese, Chinese, other East Asian groups, East Indians, and Pacific Rim Australian populations) (2). The DPP results demonstrated that the lifestyle intervention was highly effective in reducing the incidence of diabetes in all minority groups and the treatment effects did not differ according to sex or race-ethnicity, although women did have higher BMI levels at baseline than men in all racial-ethnic categories (1,2). Since the lifestyle intervention was significantly more effective than metformin in all ethnic groups (1), it is important for clinicians to understand the main components of the lifestyle interven-

tion and how it was tailored to meet the needs of the various minority populations. The goals of the lifestyle intervention were to lose at least 7% of body weight and to increase physical activity to at least 150 minutes of exercise per week. The DPP lifestyle intervention had four components: a “core curriculum,” tool box strategies, tailored individual intervention and “after core” classes and campaigns. First, lifestyle participants and coaches reviewed a standard “core curriculum” of 16 individual sessions within 24 weeks that addressed reducing fat intake, increasing activity, problem-solving skills, eating out, managing stress, and dealing with lapses. Each participant had a fat gram and calorie goal that was based on initial weight and targeted a 1–2 lb. per week weight loss (500–1000 kcal. less than weight maintenance calories) and 25% of calories from fat. If participants were not meeting activity and weight-loss goals, then lifestyle coaches employed tool-box strategies to address the specific barriers to success for each individual. For example, participants who had little or no access to exercise equipment might meet with the exercise physiologist on the DPP staff or with a personal trainer. Alternatively, a participant having difficulty achieving the weight-loss goal might be asked to use a meal replacement such as Slimfast for one or two meals per day as a tool-box strategy to help with weight loss. After the first six months, lifestyle coaches continued to provide individual contact at least once per month for the remainder of the study. These individual sessions were tailored to each person's needs and interests and also

*Continued on page 4*

The Effectiveness of Life Intervention

continued from page 1

included the use of the tool-box approach. In addition, after the first year, participants could attend and participate in “after-core” group classes (campaigns of four- to eight-week duration that were offered three times per year to help sustain progress with weight and activity goals and provide peer support). A more specific description of the DPP Lifestyle intervention can be found elsewhere (3, 4). The Web site for DPP Lifestyle manuals and other information is [www.bsc.gwu.edu/dpp](http://www.bsc.gwu.edu/dpp). The nature of the individual sessions, the options for using a tool-box approach to address barriers to success, and the ability to adapt after-core classes/campaigns to the needs of the participants at each center offered lifestyle coaches the flexibility that was necessary to accommodate the specific social, economic, and cultural factors that influence diet and exercise habits in each racial-ethnic group. Of the 1,079 lifestyle intervention participants, 54% (n = 580) were Caucasian, 19% (n = 204) were African American, 16% (n = 178) were Hispanic, 6% (n = 60) were American Indian, and 5% (n = 57) were Asians (Pacific Islanders were in this category); their mean baseline BMI was 33.9 ± kg./m.2; their average baseline weight was 94.1 ± 20.8 kg., and their mean age was 50.6 ± 11.3 years (1). The features of the lifestyle intervention process that helped participants change their diet and exercise behaviors were: (1) goal setting with regard to weight, activity, fat gram, and calorie intake; (2) self-monitoring with regard to achievement of these goals; (3) frequent contact to provide accountability and sustain focus; (4) problem-solving to address goals and potential barriers to achieving them; and (5) emphasis on managing individual high-risk situations. These common features of the lifestyle change process were applied for each participant regardless of racial-ethnic group. However, for each of the ethnic groups, the specific types of goals that were set, the methods of self-monitoring used, the ways to achieve frequent contact, the barriers to achieving goals, and the specific high-risk situations to manage were all reflective of the social, economic, and cultural diversity represented in the DPP.

The success of the lifestyle intervention in achieving behavior change can be measured by the diet, activity, weight, and diabetes prevention outcomes that were achieved. After the first six months, 50% of lifestyle participants had achieved the goal of at least 7% weight loss and 74% of lifestyle participants were exercising at least 150 minutes per week. At one year, the lifestyle participants had decreased daily energy intake by 450 ± 26 kcal. and average fat intake by 6.6 ± 0.2 %. At study end, the lifestyle intervention participants had lost an average of 5.6 kg with 38% maintaining a weight loss of at least 7% and 58% maintaining an activity level of at least 150 minutes. When compared to the placebo group, the lifestyle intervention reduced the incidence of diabetes by 51% in Caucasians, 61% in African-Americans, 66% in Hispanics, 65% in American Indians, and 71% in Asians (1). Each of the sections that follow describe specific considerations for implementing the DPP lifestyle intervention in the African American, Hispanic, Asian, and American Indian subgroups and provide insights about the techniques that were used to tailor the intervention along with case illustrations.

CLINICAL APPLICATIONS African-Americans

The techniques that were used to tailor the DPP lifestyle intervention for African Americans included modifying specific handouts geared toward their culture (i.e., recipe modifications), utilizing food preferences, and identifying additional resources that may be helpful to this group. Lifestyle coaches helped African-American participants change their eating habits by focusing on recipe modification as a way to influence food choices. The following suggestions related to ingredients, time and ease of preparation, cost, taste, and focus of recipes:

- The ingredients should be found easily in local grocery stores, and not sold exclusively in specialty grocery stores. If the ingredient is potentially unfamiliar to participants, provide specific information regarding where it can be found, estimated price, storage, and general cooking information.
- For main dishes, preparation time should be less than 20 minutes and total cooking time should be less than

- 45 minutes. Breakfast items or side dishes should have a preparation time no more than 15 minutes and total cooking time no more than 30 minutes.
- The preparation instructions should be simple enough for someone with an eighth-grade reading level to follow. The recipe should not call for the use of specialized cooking equipment. A glossary of terms should be included for the recipes to describe new or unfamiliar cooking techniques, such as simmer, sauté, braise, mince, and dice.
- The cost of any particular item (especially if it is a primary part of the dish) should not be prohibitive for any lower middle class person to purchase. In general, avoid recipes that call for expensive cuts of meat or cheeses, specialty grains, or wines/sauces that are used infrequently.
- Cuisines that originate from the African continent tend to be spicier than those originating from Europe. African-American foods generally will have more pepper, salt, and fat to enhance the flavor of food. Usual alternate flavoring methods found in mainstream low-fat/low-salt cookbooks may not always fit the tastes of African-Americans. A chef developed various samples of herb/spice blends that were provided to African-American participants as alternative flavor enhancers. These spices are now sold locally at various supermarkets in Baton Rouge and can be ordered and shipped to other states. (Cajun Injector, Inc., 9180 Hwy 67 South, P.O. Box 97, Clinton, LA 70722, 800/221-8060)
- Sixty-percent of the recipes should deal with modifications of foods typically eaten by many people (i.e., a lower-fat biscuit). Twenty-percent of the recipes should focus on nontraditional uses of familiar foods (e.g., tuna apple salad). The remaining 20% of the recipes can be used to introduce unfamiliar foods (e.g., roasted corn and garlic couscous).

The barriers many of the African-Americans faced throughout this program were perception of body image and family events where food is a big part of the social aspect. Many African-Americans in comparison to other races have a different perception of body weight in terms of

Continued on page 5

Rehab Corner

By Maureen McCarthy, MPH, RD, CSR Maureen is a Renal Dietitian with Renal Care Group— Pacific Northwest Renal Services, Portland, OR and can be reached at [mmccarthy@renalcaregroup.com](mailto:mmccarthy@renalcaregroup.com).

This column features an article submitted to the web page of the Life Options Rehabilitation Advisory Council (LORAC) by Jo Reeder, PT, MCSP, of UVA Health Systems. For other articles filled with helpful ideas, go to LORAC’s home page ([www.lifeoptions.org](http://www.lifeoptions.org)), select the “For Renal Professionals” link, and then select “Showcase of Ideas”.

Getting PT Services for Your Patients By Jo Reeder, PT, MCSP Physical therapy (PT) can be a valuable resource for the dialysis unit team as it treats patients’ physical decline. A variety of payers will cover PT services, but certain procedures must be followed.

How Physical Therapy Services Are Prescribed In most states, a physician must make the actual PT referral. However, any health care professional (i.e., RN, RD, SW, PCT) can recommend physical therapy to a patient’s doctor. PT referrals are for functional decline, decreased muscle strength, decreased joint range, gait problems, new onset of stroke or head injury, and/or a wound affecting function.

After the referral and a patient evaluation, the physical therapist develops a written

plan of therapy. This plan includes the diagnosis, treatment plan, goals of therapy, and frequency and duration of the intervention. The physician reviews and approves the plan of care; there is an expectation that the condition will improve in a reasonable length of time.

Most insurance providers allow a set number of visits, and this varies from company to company. If your patient has commercial insurance, check with the patient’s insurance carrier about coverage for physical therapy. There are also limitations on Medicare coverage of physical therapy. If your patient has Medicare, a physical therapy provider or the Center for Medicare and Medicaid Services (CMS) regional office can give you information about Medicare coverage for physical therapy services. You can find the phone number for your CMS (formerly HCFA) regional office at [www.medicare.gov/Contacts/Home.asp](http://www.medicare.gov/Contacts/Home.asp).

The American Physical Therapy Association (APTA) has posted information about reimbursement for physical therapy services on its website at [www.apta.org/reimbursement](http://www.apta.org/reimbursement). You can find a chart of state regulations pertaining to direct access to physical therapy evaluation, examination, and intervention at [www.apta.org/pdfs/gov\\_affairs/directlaws.pdf](http://www.apta.org/pdfs/gov_affairs/directlaws.pdf).

Where Physical Therapy Services Are Provided Dialysis unit staff can help patients access PT services in different settings. Patients

can go to a free-standing, outpatient physical therapy clinic, go to an inpatient rehabilitation center, receive home health physical therapy if they qualify as “homebound” (for definition, see [www.hcfa.gov/pubforms/transmit/a0121.pdf](http://www.hcfa.gov/pubforms/transmit/a0121.pdf)), or they can go to the physical therapy department of a hospital.

At University of Virginia Health Systems, for example, physical therapy is provided within the dialysis center so the patients can get their physical treatment before, during, or after dialysis. This on-site PT has been very effective for both patients and staff. It is easier to facilitate on-site physical therapy in a hospital-based unit, but with a little extra planning it can be achieved in a free-standing unit.

Physical therapy intervention can break the spiral of debilitation and decompensation frequently observed in the ESRD population. In addition, a more physically active, higher functioning end-stage renal disease population may have significantly better long-term survival rates.

Jo Reeder, PT, MCSP is willing to reply to readers’ questions and can be reached at [jr3f@virginia.edu](mailto:jr3f@virginia.edu).

Do you have a rehab success story highlighting the role of renal dietitians in the process? Contact Maureen McCarthy for an interview that may lead to an article in this column ([mmccarthy@renalcaregroup.com](mailto:mmccarthy@renalcaregroup.com); or phone 503-250-5011).

Kidney Friendly Food Facts

continued from page 19

Food	Portion	Fiber gm	K+ mg	Phos mg
Bulgur Wheat, cooked	.5 cup	4.1	62	5
Corn Bran, crude	.5 cup	32.5	17	3
Couscous, cooked	.5 cup	1.1	46	4
Cream of Wheat, cooked	1 cup	1.8	43	3
Farina, cooked with water	1 cup	3.2	30	0
Kasha, roasted, cooked	.5 cup	2.3	74	3
Kellogg’s Apple Cinnamon squares cereal	.5 cup	3.1	111	13
Kellogg’s Blueberry Squares	.5 cup	3.2	122	14
Macaroni, enriched, cooked	1 cup	1.8	43	1
Noodles (egg), enriched, cooked	1 cup	1.8	45	11

Food	Portion	Fiber gm	K+ mg	Phos mg
Oatmeal, cooked with water	1 cup	4.0	131	2
Popcorn, air-popped	1 cup	1.2	24	<1
Quarker Crunchy Bran cereal	.5 cup	3.2	38	169
Ralston cereal cooked with water	.5 cup	3.0	77	3
Rice, brown, cooked	.5 cup	1.8	77	1
Shredded Wheat, rectangular biscuit	1 each	2.6	103	0
Spinach Egg Noodles, cooked	1 cup	3.7	59	19
Wheat Chex cereal	.5 cup	1.7	58	134



# Stipend Report from the National Kidney Foundation

## Spring Clinical Meetings, 2003

### The Role of Inflammation in Chronic Kidney Disease

**Presented by T. Alp Ikizler, MD**  
**Summarized by Julie Geraci, MED, RD, LD** Julie is the renal dietitian for Eastern Oregon Dialysis in La Grande, Oregon, which is located in the Northeast section of the state. She can be reached at [jgeraci@renalcaregroup.com](mailto:jgeraci@renalcaregroup.com).

In 1997, 21% of patients with end stage renal disease (ESRD) died within the first year. Despite recent improvements in the science and technology of renal replacement therapy, the prognosis for these patients remains poor. Several predictors of mortality for ESRD patients have been established, which include increased creatinine, decreased Urea Reduction Ratio (URR), decreased albumin, decreased anion gap, increased age and low deviation from ideal body weight.

Uremic malnutrition and chronic inflammation are also co-morbid conditions that predict poor clinical outcome in ESRD patients. It has been determined that

C-Reactive Protein (CRP) is a predictor of mortality as well as a marker of inflammatory state. Normal CRP is <5. With a CRP > 10, the patient has a 4 \_ times greater chance of death. Patients with elevated CRP have a 2 \_ times greater chance of hospitalization. In a study by Qureski et al, it was determined that patients with > 20 CRP had co-existence of inflammation and malnutrition. These conditions are also closely associated with cardiovascular disease (CVD), which is the major cause of death in ESRD patients. A study by Stenvinkel et al showed that 22% of pre-dialysis patients had malnutrition, inflammation and CVD. This study suggests that chronic inflammation can predispose ESRD patients to a catabolic and atherogenic state.

Inflammation is a response to tissue injury or disease. What causes inflammation? In ESRD patients there are several reasons. First, uremia and decreased renal function. Second, renal replacement therapy. There

is the issue of biocompatibility, especially with catheters and inflamed grafts and also, the difference between dialyzers and the dialysis treatment itself. Finally, co-morbidities such as CVD and infectious agents. The consequences of chronic inflammation include muscle loss, anorexia, catabolism and loss of lean body mass. The resulting malnutrition can accelerate the progression of CVD. Although a single common etiology has not been identified in this complex process, there are some nutritional and anti-inflammatory intervention options. As mentioned earlier, CRP is a good marker of malnutrition and inflammation. The CRP can be monitored for several months. If the CRP is consistently over 10, the patient has a very high risk of death. It is possible to use anti-inflammatory agents to decrease CRP. These agents must be used with caution and monitored carefully. More work needs to be done to study treatment options to improve the high mortality and morbidity in ESRD patients.

## Reimbursement Update

**By Julie Geraci, MED, RD, LD,** Renal Dietitian, Eastern Oregon Dialysis, 710 Sunset Drive, La Grande, OR 97850, 541-663-8420, Fax: 541-663-8421, E-mail: [jgeraci@renalcaregroup.com](mailto:jgeraci@renalcaregroup.com)

### Medicare Medical Nutrition Therapy

In 2000, Congress expanded Medicare coverage to include Registered Dietitians providing Medical Nutrition Therapy (MNT) to diabetes and renal disease patients. According to information received from the American Dietetic Association (ADA), upon the first anniversary of the benefit, it appears that as many as 10,000 individuals were referred by their physicians to Registered Dietitians for MNT. According to data obtained and analyzed by ADA, these 10,000 individuals represented new referrals for

nutrition services. Without the Medicare benefit, they probably would not have been referred to a Registered Dietitian. The experience of the first full year of Medicare MNT appears to be encouraging other health plans to adopt more expansive coverage of MNT. According to recent interviews made by ADA, other health care plans and related institutions continue to follow Medicare's lead. In the 107<sup>th</sup> Congress, a bill was introduced to expand the Medicare benefit to cover cardiovascular diseases. This bill received tremendous support in Congress in 2002. Due to disagreements between the House and Senate over Medicare prescription drug benefits, no Medicare reforms were enacted. The bill will be reintroduced in the 108<sup>th</sup> Congress. In order to contain cost outlays, new bill language will limit MNT for cardiovascular

disease to 3 hours per year for each Medicare patient referred unless the physician believes additional care is medically necessary. For the latest news on MNT, legislative issues, or seminars, continue to frequently check the American Dietetic Association website at [www.eatright.org](http://www.eatright.org).

### CMS Learning Module

For those of you interested in learning more about filing claims for MNT, the Centers for Medicare and Medicaid Services (CMS) has a learning module titled "Medicare HCFA 1450" (also called UB92). This program is a claims-filing, computer-based training course. For more information go to [www.cms.hhs.gov/middlearn/CBT\\_1450.asp](http://www.cms.hhs.gov/middlearn/CBT_1450.asp).

### The Effectiveness of Life Intervention

*continued from page 4*

being overweight and being too thin. Big hips, thighs, and buttocks are considered a "healthy look" in the African-American culture. Being "too thin" is perceived as being anorexic and "not healthy." With that in mind, it was important to negotiate with each participant an agreed-upon weight that would help them meet their goals for the program.

Social events centered on food are a huge part of the African-American culture. Lifestyle coaches provided African-American participants with a "Soul Food Guide Pyramid" handout ([www.soulfoodpyramid.org](http://www.soulfoodpyramid.org)) as a means of including their cultural food preferences into everyday life. Culturally appropriate food guide pyramid use is important since recent studies have shown nutritional deficiencies and health complications related to the African-American diet and lifestyle. In addition, information derived from the classroom setting and from the participants food diaries were compiled to get an overall picture of what specific types of foods they ate in order to gather additional resources they may need. A nutritional software program was used to analyze family recipes and then handouts noting different recipe substitutions were provided to adapt the recipes. Web sites, recipes, cookbooks, and handouts all geared toward African-Americans were all valuable resources for tailoring the lifestyle intervention.

### Hispanics

The University of California, Los Angeles (UCLA) Diabetes Prevention Program Centers had two DPP clinics. Table 1 shows the demographic differences between the two UCLA clinics and the large number of Hispanics that received the DPP lifestyle intervention. Both aspects of the intervention, diet and structured physical activity, were sensitive to the cultural preconceptions about the role of men and women in the Hispanic household. It became clear that most of the women in the program were taught from an early age to become the nurturers, to prepare food for the rest of the family and, as such, were expected to prepare the traditional meals of their culture. This oftentimes meant that these

foods were the only ones available. Some of the women explained that their own well-being was secondary, that their main role was one of caregivers to the other family members. Meeting their needs and food expectations was implicit in this role. As the DPP lifestyle coaches honed their listening skills, they were able to effectively tailor the intervention in such a way that it blended naturally into the everyday life of the participants and this produced results. Lifestyle coaches focused the intervention on the participants' personal and cultural goals. Most of the participants sincerely wanted to avoid the onset of diabetes. Many had witnessed family members or friends whose lives had been dramatically affected by diabetes complications. The coaches realized that the challenges lay in the fact that the concept of prevention seemed alien to the health-care model they embraced. The lifestyle coaches soon came to know that most of the participants associated weight loss with disease and had difficulty understanding weight loss as a means to prevent the onset of diabetes. The team of lifestyle coaches respected their views and adapted the intervention to these views and cultural values, always keeping in mind the DPP lifestyle goals of 7% weight loss and a minimum of 150 minutes of weekly physical activity.

The 16 Session Core Curriculum of the intervention gave ample leeway for cultural adaptation. The intervention was implemented by using the following tools and strategies:

- All materials from the Lifestyle Resource Core were translated to Spanish and were thoroughly explained during the individual sessions, with many aspects adapted on a one-to-one basis. All coaches spoke fluent Spanish.
- Continuity and consistency were the axis of the intervention. During the 16 Session Core Curriculum, the participants received midweek phone calls from the coaches to ensure that all materials were understood and the weekly assignment was on track. Continuous monitoring helped to establish rapport and our participants felt cared for, thus awakening in them a sense of belonging, commitment, and personal empowerment.
- After the basic Core Curriculum came the quarterly campaigns for

weight loss and increased physical activity. Each campaign underwent a makeover at the UCLA DPP Center. All the materials were translated and adapted. Additional materials were also added that were tailored to the needs and interests of the participants. All campaign series were taught in both English and Spanish. In addition, the UCLA DPP Center created a specific campaign to teach the participants how to shop for food and create weekly meal plans—it was called "Shopping the DPP Way." This campaign was then made available to all DPP Centers and set the foundation for a Hispanic weight-loss meal program based on specific meal plans created by the participants during the campaign. The program provided an important tool and helped several of the participants reach their 7% weight-loss goal and beyond.

### Asian Indians

The UCLA Diabetes Prevention Program Center randomized 12 Asian Indian participants. Table 2 shows the difference of their BMI in relation to other ethnicities within the center. The DPP Asian Indian population had a more difficult time reaching the 7% weight-loss goal. This difficulty was mainly due to their baseline BMI being lower and, even though all of them had IGT (impaired glucose tolerance), they did not perceive themselves as being overweight. Thus, it was especially important to stress the relationship between the risk of the onset of diabetes and abdominal fat and the importance of diet and physical activity as a prevention tool. With this approach, the Asian Indian group maintained an overall 80% compliance to the weekly 150 minutes of moderate physical activity. The lifestyle coaches tailored the diet intervention for Asian Indians by:

- Learning about their eating patterns, specific culture-based foods, and developing targeted educational materials to support their lifestyle modification process.
- Utilizing the knowledge derived from the Asian Indian Food Pyramid to create the "Basic Dietary Guidelines for A Healthful Indian Diet."
- Creating the Asian Indian Meal Plan for Weight Loss. The participants were encouraged to adhere to this

*Continued on page 6*

The Effectiveness of Life Intervention

continued from page 5

meal plan at least one complete week a month. The compliance to the meal plan allowed more accurate monitoring and food recording.

The main key in designing a culturally appropriate lifestyle modification intervention model for the Asian Indians was having the commitment to understand their beliefs in regards to food. Consideration was given to their views on body image as well as what they thought they needed to learn. The relevance of agreeing on the purpose of weight loss cannot be underestimated. It led to sustained action on their part. The lifestyle coaches' own learning process and cultural sensitivity created the environment that promoted not only weight-loss and activity results, but retention of this group of participants throughout the study.

**Pacific Islanders and Other Asians**  
In Hawaii, there were 24 participants randomized into the intensive lifestyle arm of DPP: 45% (n = 11) identified themselves as Pacific Islander, 33% (n = 8) as Asian, and 21% (n=5) as Caucasian.

The local Hawaiian culture is best described as a stew rather than a melting pot, as the many different ethnic cultures come together and mix, yet maintain their own distinct characteristics. It is the norm for locals to participate and celebrate each other's cultural activities and holidays. For example, it is not unusual for one family to celebrate a baby's 1st birthday luau (Hawaiian), Girl's Day, Boy's Day, and Yakudoshi (Japanese), and Chinese New Year. As in most cultures, a strong food component prevails at all these events, and ethnic foods are served in great variety and quantity. Familiarity with these foods was critical for the Lifestyle Case Manager. It was also a challenge for participants who, for example, diligently recorded ingredients from nine-course Chinese banquets and found that none of the dishes were contained in their Fat and Calorie Counters. Thus, staff spent a considerable amount of time identifying local food resources for fat and calorie information and conducting nutrient analyses for recipes.

The Asian participants were mostly third generation Japanese and Chinese Americans, who unlike their immigrant grandparents, were westernized and belong to a local culture that eats similar foods, and who required little or no distinctive intervention modifications. The local participants in general were provided the same intervention without modification as their ethnic differences have become a unique, multiethnic local culture.

The concept of "ohana," or family in its most extended sense, is deeply engrained in traditional Native Hawaiian culture. Today, as in the past, ohana play an important role in daily living and can serve as a major influence in choosing healthy, as well as unhealthy, lifestyles. Thus, case managers, particularly with the Native Hawaiian participants, focused on including family members in as many of the individual and group sessions as possible.

**Case Study 1**  
Participant X is a 46-year-old, married female with two children she home-schools. Upon the closing of a family business, she has assumed responsibility as caregiver for her grandmother who has diabetes. X's spouse appears threatened by her desire to make lifestyle changes and sabotages her efforts by, for example, purchasing ice cream and other high-fat, high-calorie foods to bring home to her. Every Sunday, the ohana would gather for a potluck dinner. It was customary for the women to remain in the kitchen after dinner; sitting at the table and talking, nibbling on the leftovers and then cleaning up. Many attempts were made by DPP to increase involvement of family members, to no avail. The spouse never attended group or individual sessions despite numerous invitations. Participant X was unsuccessful in losing weight and incorporating physical activity into her schedule and eventually converted to diabetes.

**Case Study 2**  
Participant Y is a 47-year-old married male with two children. His family lives in a compound of several homes with family members. Early in the DPP, he recognized the importance of including his family in his efforts to make lifestyle changes,

and arranged to have the Lifestyle Case Manager give an evening presentation at his home for his family and close friends, his ohana. The presentation included a brief overview on the history of Native Hawaiian health, a comparison of the traditional Hawaiian diet and contemporary dietary patterns, and finally a discussion on cultural values and traditions in today's society and how they translate to improved health. These concepts were incorporated, as appropriate, into counseling sessions throughout the study particularly with Native Hawaiian participants. Y's family continued to be an important influence on Y, and participated in many of the group and individual sessions. Participant Y reached his weight and exercise goals.

**American Indians**  
The prevalence of diabetes among the Native American communities is among the highest in the world. Individuals who chose to join the Diabetes Prevention Program (DPP) clinical trial research study were motivated to adhere to their treatment regimens through their desire to impact diabetes in themselves and in their family and to have a lasting impact on diabetes in their communities.

The Lifestyle Balance Curriculum was designed to be usable with various ethnic groups including American Indians. Tools provided such as the Fat Counter book included foods commonly consumed in all communities, with specific foods added to allow for individual community preferences. Locally, recipes were chosen and food plans modified if needed to suit participants' preferences. Local oral translation by staff of any part of the curriculum or instructions was available if needed. Other modifications to the Lifestyle Balance Curriculum were not necessary.

Most of the lifestyle coaches knew the communities or had worked in other Indian communities. Relationships between participants and staff were strong. Some examples of barriers that the lifestyle coach and the participant worked through that were unique to our area were stray dogs, blowing dust, desert heat, and rattlesnakes. As the environmental barriers were overcome through individualized contacts, the participants

Continued on page 7

Kidney Friendly Food Facts

**By Sharon Schatz, MS, RD, CSR, CDE** Sharon is a renal dietitian with Gambro Healthcare in Lumberton, NJ. She can be reached at Srsmsrd@aol.com or sharon.schatz@us.gambro.com.

The variety of fruit-based beverages continues to expand and may complicate the counseling process when teaching your patients about what they can eat. Most of our potassium lists show plain fruit juices, not blends or fruit juice cocktails. In previous columns I addressed how potassium may differ in cranberry juice cocktails versus products with 100% juice. Apple juice has also gone "designer". The Old Orchard web site, <http://www.oldorchardbrands.net>, for example, is great for determining the nutrient content of juices

and juice cocktails. Most of the 100% apple juice blends have 280 mg potassium in an 8 ounce serving. Flavors include apple kiwi strawberry, apple passion mango, and apple strawberry banana. Patients, however, can have similar varieties in the juice cocktail versions that contain only 95 mg potassium per 8 fluid ounces. For specific nutrient data, refer to the Old Orchard site. A store locator is also available there.

Some web addresses\* that contain links to many common foods or their companies are listed below. This may simplify checking out specific products. <http://www.kitchenlink.com/companies.html> <http://www.recipegoldmine.com/foodco/foodco.html>

<http://www.moms-kitchen.com/companies.htm>

Phosphorus control is a never-ending quest. Dietitians are often inundated by gastrointestinal complaints that are related to phosphate binder use. The following tables show foods with higher fiber and lower phosphorus and potassium contents. Keep in mind that the portions listed are not necessarily common serving sizes. In next issue's column, there will be tables of higher potassium, lower calorie foods for use in peritoneal dialysis patients who need to increase potassium, but must manage their weight. Please send me your suggestions and ideas for future columns.

\*Web sites accessed July 2003.

Food	Portion	Fiber gm	K+ mg	Phos mg
Apple	1 medium	3.73	159	10
Apple ring, dried	1 each	.56	29	2
Applesauce	1 cup	2.93	183	17
Asian Pear	1 each	4.39	148	13
Blackberries, fresh	.5 cup	3.82	141	15
Blueberries, fresh	.5 cup	1.96	65	7
Boysenberries, fresh	.5 cup	3.82	141	15
Cherries, fresh	1 each	1.06	15	7
Cranberries, dried	2 TBSP	0.76	6	15
Cranberries, fresh, chopped	.5 cup	2.31	39	7
Fig, dried	1 each	2.32	135	15
Fig, fresh	1 medium	1.65	116	1
Grapefruit, fresh	.5 medium	1.69	159	2
Kymquat, fresh	1 each	1.25	37	5
Loganberries, fresh	.5 cup	3.81	141	13
Mandarin Orange Sections, canned	.5 cup	2.24	153	7
Mango, fresh	.5 each	1.86	161	11
Pear, bartlett, fresh	1 medium	3.98	208	18
Pear, Bosc, fresh	1 small	3.34	174	15
Pear, D'Anjou, fresh	.5 large	2.51	131	11
Pear, dried	1 half	1.31	93	10
Pineapple, fresh, diced	1 cup	1.86	175	11
Prickly pear, fresh	1 each	3.71	227	25
Raspberries, fresh	.5 cup	4.18	93	7
Strawberries, fresh	1 medium	0.50	34	3

Food	Portion	Fiber gm	K+ mg	Phos mg
Tangerine, fresh	1 medium	1.93	132	8
Broccoli, chopped cooked	.5 cup	2.26	228	46
Cabbage-green, raw, shredded	.5 cup	0.80	72	15
Cabbage - red, raw, shredded	.5 cup	0.70	72	15
Cabbage, shredded, cooked	.5 cup	1.72	73	11
Carrots, cooked	.5 cup	2.57	177	23
Carrots, fresh, grated	.5 cup	1.65	178	24
Cauliflower, fresh, cooked	.5 cup	1.67	88	20
Collard Greens, chopped, cooked	.5 cup	2.66	247	25
Corn, white, canned	.5 cup	2.10	195	67
Corn, white, fresh, boiled	1 ear	2.08	192	79
Corn, yellow, canned	.5 cup	1.64	160	53
Corn, yellow, fresh, boiled	1 ear	2.16	192	79
Corn, yellow, frozen, cooked	.5 cup	1.97	121	47
Green Beans, canned	.5 cup	2.03	85	21
Green Beans, fresh, cooked	.5 cup	2.00	187	24
Green Peas, frozen, boiled	.5 cup	4.40	134	72
Green Peas, fresh, boiled	.5 cup	4.40	217	94
Green Pepper, raw	1 small	1.33	131	14
Pea Pods, fresh, boiled	.5 cup	2.24	192	44
Pea Pds, frozen, boiled	.5 cup	2.23	138	37
Turnip Greens, cooked	.5 cup	2.52	146	21
Turnips, fresh cubes, boiled	.5 cup	1.56	105	15
Barley, pearled, cooked	.5 cup	3.0	73	2
Buckwheat groats, roasted, cooked	.5 cup	2.3	74	3

Continued on page 21



## Awards



**M**arwan Alice Chan, RD, CSR, LD, was named the 2003 Recognized Renal Dietitian of the year at the 2003 National Kidney Foundation (NKF) Spring Clinical Meetings in Dallas. Alice has been a renal dietitian for over 27 years. She is the Renal Dietitian for the University of Texas Medical Branch in Galveston, Texas. Alice has been at the forefront in found-

ing the local Council on Renal Nutrition (CRN) and involvement in NKF activities. She has been on the Medical Review Board and Chair of the Nutrition Subcommittee of the End Stage Renal Disease Network (ESRD) of Texas. Some of the activities she has championed in that role are: pursuing quality care for patients through medical case review, the development of nutrition care for ESRD patients and ESRD facility licensing rules which include a staffing ratio for renal dietitians, a statewide study in Intradialytic Parenteral Nutrition and a survey on malnutrition. On the national level, Alice seeks to pro-

mote and strengthen the profession of renal nutrition thorough participation in various CRN committees, the American Dietetic Association (ADA) Renal Practice Group, and Commission on Dietetic Registration/ADA offices and committee activities.

Alice has published over 6 professional articles and more than 7 educational materials. She is a frequently-invited speaker in the renal medical community, and continues to inspire with her motto, "Together, we can make a difference."



**L**inda McCann, RD, CSR, LD, received the Joel D. Kopple Award at the 2003 National Kidney Foundation (NKF) Spring Clinical Meetings in Dallas. This award is presented annually to an individual who has made significant contributions to the field of renal nutrition, impacting the areas of legislation, clinical practice, education, and research.

Linda has been a renal dietitian for over 29 years. She is currently Director of Nutrition Services for Satellite Healthcare in Redwood City, CA, with responsibility for all nutrition services within the four divisions of Satellite Healthcare (Dialysis, Research, Capital, Laboratory Services) and supervision of 23 renal dietitians in 16 dialysis clinics.

Linda is the originator and editor of the popular CRN Pocket Guide to Nutrition Assessment of the CKD Patient, recently published as a third edition. She has been an NKF volunteer, both at the local and national levels, for over 20 years, including service on the local and national Boards of Directors. She held many offices in the national CRN including that of chairperson in 1992.

Linda served as the only dietitian on the original NKF K/DOQI Advisory Board, participating in review and direction of the first five K/DOQI guidelines. She is also the only non-physician member of the K/DOQI Bone and Mineral Metabolism workgroup. She has actively participated in the development of nutrition-related implementation tools for the K/DOQI guidelines including a Satellite-sponsored web site, Net Nutrition A-Z, and day-long CRN workshops on Dietitians and K/DOQI: Turning Recommendations into Routines.

Linda has published over 19 articles in a variety of professional journals and has written several book chapters on renal nutrition. Linda has spoken to and trained many professionals, patients, and lay persons around the world on many topics related to renal nutrition. She established a mentorship program at Satellite in 2002, to offer training to dietitians who want to develop renal expertise. She has been a strong advocate for quality patient care and for professional development. Her passion for renal nutrition has been evident from her college days through every phase of her career. She credits much of her career development to the NKF Council on Renal Nutrition programs which she first began attending in 1974.

Linda and her husband, Dennis, have been married for 33 years. They have a 26 year old daughter, Meghan, and a 24 year old son, Kelsey- both of whom Linda counts as her most significant successes in life!

## The Effectiveness of Life Intervention

*continued from page 6*

felt more empowered to work through future barriers. Through the one-on-one coach contacts, the participant and coach developed a genuine relationship. Other tools such as measuring cups and spoons, a calculator, a food scale, good walking shoes, and a portable weight scale were important to a participant's initial motivation and success. Some may not have been able to purchase these items on their own.

The team approach was important. Staff met regularly to brainstorm barriers and suggest approaches and worked together to help participants meet their goals. The team consisted of coaches and other staff, many of whom were local community members. All DPP staff were able to clearly reinforce the lifestyle goals during walking sessions or other contact visits. The participants knew that we would ask them about their lifestyle goals. Flexibility in meeting times with participants and frequent rescheduling was important. Lastly, continually reevaluating the barriers to lifestyle goals and working through them with lifestyle coaches and other team members was valuable.

Many individuals did well using planned menus or meal replacements such as Slim Fast, especially when one of the barriers to weight loss was having no schedule or a chaotic lifestyle. Frequent contact and use of self-monitoring materials assisted those who struggled with meeting their DPP goals.

By taste testing, participants were provided opportunities to try "new" lower-fat choices and Slim Fast products as a part of meetings and cooking classes. By tasting these foods, participants could decide if these foods were worth purchasing for themselves and their families. They were also encouraged to take samples of foods they cooked at home for their family to try. When resource availability was an issue, case managers worked with participants to meet goals within these limitations.

Another common practice was to encourage participants to attend walks sponsored by the community fitness programs. This gave the lifestyle participants encouragement and reinforcement in meeting

their physical activity goals. Staff support, including transportation if needed, was provided for these events. Participants were also introduced to local fitness facilities. Availability of the facility and coordination between their staff and DPP staff was helpful in introducing participants to the wellness centers' activities locally. Overall, case-managed support for the Lifestyle program was important for the participants to be successful in reaching their DPP goals. The curriculum provided the basic tools for successful implementation of lifestyle changes in all ethnic groups, including American Indians. Participants gained knowledge, skills, and tools from the Lifestyle Balance Program and then determined in their own way how to make the lifestyle changes work in their lives.

## CONCLUSIONS

As weeks became months and months became years all of the DPP participants went through a transformation process. Today, participants are more knowledgeable about diet, structured physical activity, and stress management as a means to help prevent the onset of diabetes or avoid its complications. Many have set an unprecedented example in their homes and communities and report how this process has enriched the quality of their lives. The outcome results of the DPP unequivocally underline the premise that lifestyle modification intervention is a sound model for health professionals to rely on for long-term success. This intervention model needs to address peoples' diverse cultural beliefs, traditions, and lifestyles, thus allowing individuals to use their own skills and ability to change their behaviors.

Being culturally sensitive to the needs of minority populations was crucial to the success of the DPP. Interventions should not only include the cultural aspects of the population in question, but also look at other things that may influence them (i.e., family, food preferences, impact of diabetes on their life) in order for them to be successful. There needs to be a keen sensitivity to cultural beliefs if lifestyle intervention is to succeed. The basic structure of any lifestyle modification within this context implies a willingness to modify the interventionists' personal thinking in order to bridge the cultural distance between

**Table 1. Demographic Differences Between Two UCLA Clinics**

Ethnicity	Clinic 16	Clinic 27
Hispanic	41	5
Caucasian	5	2
African-American	---	1
Asian Indian	1	11
Asian	1	---

the professional and the participant.

"There are an estimated 10 million persons in the United States that resemble the participants in the Diabetes Prevention Program in terms of age, body-mass index, and glucose concentrations, according to the third National Health and Nutrition Examination Survey" (1, 5). We hope that dietitians and other health-care providers

**Table 2. BMI Differences Between Asian Indian and Other Ethnicities (two UCLA clinics combined)**

	Asian Indian	Others
BMI at start of study	26 kg/m.2	30 kg/m.2

will apply the critical components and features of the DPP lifestyle intervention experience so that we can achieve and sustain the changes in diet, activity, and weight necessary to impact and reduce the public health burden of diabetes.

## REFERENCES

1. The Diabetes Prevention Program Research Group. Reduction in the incidence of type 2 diabetes with lifestyle intervention or metformin. *N Engl J Med.* 2002;346:393-403.
2. The Diabetes Prevention Program Research Group. The Diabetes Prevention Program: Baseline characteristics of the randomized cohort. *Diabetes Care.* 2000;23:1619-1629.
3. The Diabetes Prevention Program Research Group. The Diabetes Prevention Program: A description of the lifestyle intervention. *Diabetes Care* 2002; 25: 2165-2171.
4. Wylie-Rosett J and Delahanty L. An integral role of the dietitian: implications of the diabetes prevention program. *J Am Diet Assoc.* 2002;102(8):1065-1068.
5. Trends in the prevalence and incidence of self-reported diabetes mellitus—United States, 1980-1994. *MMWR Morb Mortal Wkly Rep.* 1997;46:1014-1018.

*Continued on page 8*

# Congratulations!

## The Effectiveness of Life Intervention

continued from page 7

\* Linda Delahanty, MS, RD. Massachusetts General Hospital- Diabetes Center. Boston, Mass.

Shandiin Begay, MPH. Southwest American Indian Center. Phoenix, Ariz.

Norman Coocycate. Albuquerque, N.M.

Mary Hoskin, MS, RD. Southwest American Indian Center. Phoenix, Ariz.

Mae Isonaga, MPH, RD. University of Hawaii 'i at Manoa. Ewa Beach, Hawaii.

Erma J. Levy, MPH, RD, LDN. Pennington Biomedical Research Center. Baton Rouge, La. Kathy Mikami, RD. Lamalama Ka Ili Community Health Services of Molokai General Hospital. Honolulu, Hawaii.

Sharon Ka'iulani Odom, MPH, RD. Ke Kula 'o Samuel M. Kamakau. Kailua, Hawaii.

Kati Szamos, BS, RD. University of California at Los Angeles. Alhambra, Calif.

Delahanty L, Begay S.R, Coocycate N, et al. The Effectiveness of Lifestyle Intervention In The Diabetes Prevention Program: Application In Diverse Ethnic Groups. Copyright Diabetes Care and Education, a Dietetic Practice Group of the American Dietetic Association. Reprinted by permission from *On the Cutting Edge*, Vol.23; Number 6, 2002.

## Advances in Practice

### Carnitine supplementation in patients undergoing maintenance dialysis therapy

**By Philippa Norton Feiertag, MEd, RD, CSR, LD** Philippa is a Clinical Analyst/Renal Nutrition Specialist with Clinical Computing, Inc. in Cincinnati, OH. She can be reached at [feier@fusenet.com](mailto:feier@fusenet.com).

Patients with chronic renal disease are encouraged to engage in moderate physical activity to reduce their risk of cardiovascular disease (CVD) (1). However, exercise capacity in this population is limited by reduced oxygen supply due to anemia and cardiovascular abnormalities, and by decreased muscle strength (2,3). In patients with end-stage renal disease (ESRD), exercise capacity often remains low despite correction of anemia (4). This suggests that impaired muscle metabolism may lead to muscle dysfunction in patients with ESRD.

Considerable attention has focused on levocarnitine (L-carnitine) deficiency as a possible cause of muscle weakness in dialysis patients. L-carnitine is a naturally occurring carrier molecule that transports long-chain fatty acids into mitochondria for use as an energy source, and removes the toxic by-products of fatty acid metabolism (5). Muscle function is critically dependent on an adequate supply of carnitine because long-chain fatty acids are the primary energy source for skeletal muscle. Results of clinical studies indicate that L-carnitine may also play a role in improving lipid profile, increasing response to erythropoietin (EPO) therapy, decreasing hypotension and muscle cramps, improving cardiac function and preserving exercise capacity in dialysis patients (4,5).

Several factors contribute to carnitine deficiency in patients undergoing dialysis therapy, including inadequate intake of carnitine-rich foods (meat and dairy products), decreased carnitine synthesis in the kidney and loss of carnitine during HD (5-7). Approximately 75% of free carnitine is removed from plasma during each HD treatment, resulting in plasma free carnitine concentrations below the normal level of 40 micromol/L in 95% of patients on HD for more than 6 months (5).

In December 1999, the Food and Drug Administration (FDA) approved L-carnitine injection (Carnitor®) for prevention and treatment of carnitine deficiency in patients with ESRD undergoing dialysis (8). However, the Kidney Disease Outcomes Quality Initiative (K/DOQI) Nutrition Work Group concluded that there was insufficient data to support the routine use of L-carnitine for patients undergoing maintenance dialysis therapy (9). The Work Group recommended additional studies, including clinical trials of L-carnitine for the treatment of hyperlipidemia and EPO-resistant anemia, and outcomes research to identify subgroups of patients who respond to L-carnitine for one or more of its proposed indications.

On November 8, 2002, however, the Centers for Medicare and Medicaid Services (CMS) issued a national coverage determination, providing payment instructions for IV L-carnitine for patients with ESRD (10). This determination became effective on January 1, 2003.

Intravenous L-carnitine will be reimbursed for patients with ESRD who have been on dialysis for a minimum of 3 months. Patients must have documented carnitine deficiency, and either EPO-resistant anemia or intradialytic hypotension that precludes delivery of the intended dialysis therapy (10). However, continued use of L-carnitine will not be covered unless improvement is evident within 6 months of treatment initiation.

This column will review L-carnitine's role in muscle metabolism and summarize recent research into the effects of L-carnitine supplementation on health outcomes in patients with ESRD undergoing dialysis.

#### Role of L-carnitine in muscle metabolism

L-carnitine is synthesized in the liver and kidneys, and transported to cardiac and skeletal muscle tissue for use in energy production (11). Transport of long-chain fatty acids by L-carnitine into the mitochondrion requires 3 enzymes located on mitochondrial membranes.

At the outer mitochondrial membrane, carnitine-palmitoyl transferase I (CPTI) catalyses the formation of acylcarnitine from fatty acids and coenzyme A (11,12). Carnitine: acylcarnitine translocase (CT) transports acylcarnitine across the inner mitochondrial membrane, where acyl-CoA formation is catalyzed by carnitine-palmitoyl transferase II (CPTII). Acyl-CoA then undergoes beta-oxidation, generating acetyl CoA, which enters the Krebs cycle (11,12). The energy storage

Continued on page 9

## Thought of the Month

### How's the price of renal vitamins affecting your patients?



What happened to you?

My doctor didn't prescribe NephPlex®RX.



**NephPlex® RX!**

Why make your patients pay more?

**CALL 1-800-879-4755**  
for information or samples.



**NEPHRO-TECH, INC.**  
Shawnee, Kansas 66203  
[www.nephrotech.com](http://www.nephrotech.com)

## Latest Version of USDA's Premier Nutrient Database Released: a press release from the Agricultural Research Service (ARS).

July 30, 2003: An updated version of the Agricultural Research Service's flagship nutrient database was launched today by ARS, the U.S. Department of Agriculture's chief scientific research agency. The database is the major authoritative source of food composition in the United States.

More than 400 new entries have been added to the "USDA National Nutrient Database for Standard Reference, Release 16," or SR16 for short, for a total of 6,661 food items. The database is managed by ARS' Henry A. Wallace Beltsville (Md.) Agricultural Research Center (BARC).

Each food item is shown with an information profile that provides data from among 125 possible food components, such as vitamins, minerals and fatty acids. SR16 is available in a variety of formats, including

a consumer-friendly, downloadable version with a nifty search feature for both stand-alone and portable computers.

The database includes both generic and brand-name food items. Information is derived from a variety of rigorously evaluated sources, including USDA-sponsored laboratory analyses, qualified food-industry data and available scientific literature.

Among many upgrades, values for individual carotenoids and for vitamin K have been included for the first time. The carotenoids are a group of red, yellow and orange pigments in fruits and vegetables that may impart beneficial health effects. They include beta-carotene, alpha-carotene, beta-cryptoxanthin, lycopene and lutein+zeaxanthin. The nutrient profiles for many raw fruits, as well as raw and

cooked vegetables, have been updated. And the reporting of ready-to-eat breakfast cereals has undergone major updates.

The release also includes new analytical data for many retail meat cuts trimmed to 1/8 inch of external fat, along with updated values for many cuts trimmed of all external fat.

The ARS-BARC Nutrient Data Laboratory in Beltsville, Md., provides free electronic access to SR16 online from its web site and via download onto certain personal computers, hand-held digital assistants and laptops. SR16 also will soon be available for purchase on CD-ROM.

To access SR16, go to:  
<<http://www.nal.usda.gov/fnic/foodcomp>>