

# MODIFYING SOUL FOOD FOR THE DIETARY APPROACHES TO STOP HYPERTENSION DIET (DASH) PLAN: IMPLICATIONS FOR METABOLIC SYNDROME (DASH OF SOUL)

This article presents results of a community-based participatory study (DASH of Soul) designed to produce soul food that meets the nutrient criteria of the DASH diet plan. DASH of Soul was tested during a 10-month period with two sub-groups of low-income African American women: 1) a focus group cooking club recruited from among "early adopters" of a previous intervention; and 2) a broader peer group dinner club recruited through a health center serving the neighborhood of the focus group. Methods for the cooking club included 10 filmed cooking labs to: a) modify traditional soul food (MSF) to reduce food energy, total fat, saturated fat, sugar, and sodium; b) evaluate and improve upon sensory acceptability; c) integrate acceptable MSF into the DASH diet plan (MS-DASH); d) produce VHS- and DVD-formatted MS-DASH cooking shows. Methods for the dinner club included monthly participation in weekly promotional dinner meetings that featured the cooking show and a different DASH food group each month for 8 months. Based on computer software analysis, the nutrient composition of a sample MS-DASH menu developed by the cooking club was consistent with nutrient levels for the DASH diet plan. The authors concluded from the focus group interviews and intercept surveys that, with continued motivation, the potential is good for the study population to make MS-DASH a lifestyle choice, reducing their risks for diet-related diseases that cluster to comprise metabolic syndrome. (*Ethn Dis*. 2007;17(Supp 4):S4-7-S4-12)

**Key Words:** Soul Food, DASH Diet, African Americans

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## INTRODUCTION

Metabolic syndrome, a cluster of anomalies centering on insulin resistance with obesity, dyslipidemia, hypertension and type 2 diabetes,<sup>1</sup> is prevalent among African Americans.<sup>2</sup> Dietary Approaches to Stop Hypertension (DASH), a total diet plan based on increased intake of vegetables, fruits, and low-fat dairy foods, and reduced intake of fats and sweets,<sup>3</sup> has convincing implications for lowering diet-related burden in the metabolic syndrome.<sup>4-8</sup> Frequent consumption of soul food, described by a focus group of African American women as "seductive, satisfying, filling, spicy, high-fat, spiritual, traditional cuisine of Black Americans, especially southern Blacks," could be a barrier to compliance with the DASH plan.<sup>9</sup> Paradoxically, soul food staples such as greens, sweet potatoes, black-eyed peas, rutabagas, okra, and tomatoes are central to the DASH diet plan.<sup>10,11</sup> Fortunately, alternative ingredients and cooking methods acceptable to soul food lovers have yielded soul food recipes that are acceptable to populations of low-income African Americans and meet the standards of the DASH diet plan.<sup>12,13</sup> This article presents a process using a focus group of African American women with a high prevalence of metabolic syndrome to: a) modify traditional soul food; b) integrate the modified soul foods (MSF) into the DASH diet plan; and c) market the plan to the broader target group. Demographic and clinical characteristics of the study group, study participants' acceptability of the DASH diet plan based on modified soul foods (MS-DASH), and the comparability of MS-DASH to DASH diet nutrient targets are reported.

## METHODS

Study protocols were approved by the Florida State University institutional review board. Each participant signed an informed consent form.

### Study Participants

There were two study groups, a cooking club peer group and a broader adult population composed of patients from a neighborhood health center (NHC). Twelve low-income African-American women receiving health services from the participating NHC were recruited. They were chosen because they were considered to be early adopters based on excellent attendance and participation in a prior DASH intervention.<sup>8</sup> Following a program briefing, 10 of the original 12 women agreed to form the MSF club. Two women declined participation, citing either time constraints or lack of basic cooking skills perceived necessary for participation. Prior to implementation, two of the 10 women withdrew from the study because of health reasons. The remaining 8 women began a 10-week work plan to modify traditional foods to reduce calories, fat, saturated fat and sodium contents. One participant died within the first few weeks of the program.

A total of sixty-five subjects including the founding MSF club members made up the broader MS-DASH intervention population. Nearly all were female ( $n=64$ ) and African American ( $n=57$ ). Demographic and clinical measures were available from NHC medical records for 50 of the participants (mean age,  $50.4 \pm 11.6$  years). Based on body mass index  $\geq 30$ , all except two of the 50 women (96%) were obese. Systolic blood pressure (BP)

and diastolic BP exceeded the respective cut-off points of 140 mm Hg and 90 mm Hg in 36% and 28% of the participants, respectively. Triglycerides (<150 mg/dL), total cholesterol (<200 mg/dL), LDL-cholesterol (<130 mg/dL) and cholesterol/HDL ratio (<4.4) were out of range in 25% to 35%. On the other hand, only 4 of the participants (14%) had unacceptable HDL cholesterol levels (<40 mg/dL). But, the fasting blood glucose levels of more than half (55%) of the clients were above the acceptable range (65–109 mg/dL).

## Intervention Methods

### *Recipe Modification*

Traditional soul food recipes were obtained from club members. The principal investigator (PI) provided additional recipe options as needed. Dishes were prepared by individual club members in the test kitchen of the participating university, while each dish was replicated in the university's food lab by teams of club members and nutrition students. Week 1 featured MSF recipes from each DASH food group and general recipe modification guidelines to reduce fat, saturated fat, sodium and calories. A single food group was featured in subsequent weeks. During Week 10, club members integrated MSF dishes into the DASH diet plan. They evaluated MSF on the basis of taste, texture, aroma and other sensory properties. Comments were also solicited for how to improve non-selected recipes. Recipe inclusion in the cookbook was determined by group vote. There was no more than one club member absent at any given meeting and no club member was absent more than twice. Club members produced a cookbook on DVD that included a chapter for fats and sweets and other chapters on each of the other DASH food groups. The DVD-based cookbook contained seven chapters showing preparation of each food group's MSF

recipes and an introduction highlighting problems of obesity and obesity-related chronic diseases in the African American community. The MSF Cookbook is available online at the Nutrition Neighborhood Website ([www.chs.fsu.edu/nfes/nutrition](http://www.chs.fsu.edu/nfes/nutrition)).

### Community Promotion

The cookbook on DVD was introduced to a larger audience in the second phase of the project through a series of MS-DASH dinners held at the neighborhood health center following an adaptation of an intervention called DASH-Dinner With Your Nutritionist.<sup>13</sup> Variations to DASH-Dinner methodology included: a) beginning each dinner with a different chapter of the cookbook for successive DASH food groups and MSF recipes; b) following each dinner with hands-on exercises to integrate MSF into a week's DASH menu plan at two caloric levels (2000 to 2100 kcal and 1500–1650 Kcal); c) committing to follow one or a combination of the different MS-DASH caloric plans; and d) ending the evening with table talk specifically about perceived barriers to implementing the MS-DASH plans and suggestions for overcoming barriers cited. As with the original DASH-Dinner program, university nutrition students assisted with outreach and implementation activities. About one-third of the 65 recruited participants were regular attendees, missing no more than one of eight meetings that featured a different DASH food group.

### Evaluation Methods

The goal of this study was to evaluate the MS-DASH processes, which were deemed successful if the following process hypotheses were supported:

1. Starting with traditional soul food recipes, the MSF club will create a variety of acceptable MSF representing each DASH food group, as assessed by their endorsement of recipes for inclusion in the MSF cookbook as described earlier.

2. Nutrient values of a representative MS-DASH menu ("DASH of Soul") will be comparable to target levels of nutrients in the DASH diet plan, as assessed from MSF recipes of a sample Sunday's menu analyzed using USDA software for Handbook 8, available at NutritionData.com.
3. MS-DASH will be generally viewed as a viable lifestyle modification among cooking club participants, as assessed from focus group discussions with the original MSF club members and exit interviews with MS-DASH participants (extended club membership), as described below.

Focus group interviews were organized into two parts: Part I – Modifying traditional soul food recipes and Part II – Incorporating MSF recipes into the DASH diet plan. The process was guided by a narrated visual presentation introducing the discussion concepts rather than the standard hardcopy focus group guide.

The intercept surveys were conducted following a closing participants' appreciation celebration. Entrance questions (4 yes-no questions; 1 multiple choice; and 2 open-ended) focused on reasons for joining the program, attendance at the MS-DASH dinners, and the most important things gained from participating in the MS-DASH dinners. Exit interview questions (1 multiple choice question and 4 open-ended) focused on intentions to participate in a follow-up program if an opportunity arose, what was gained from the closing program presentation, and how participants planned to make MS-DASH a part of their lifestyle. No attempt was made to match entrance and exit responses as the aim was to assess group reactions.

## RESULTS

### Recipe Modification

Thirty-nine recipes were unanimously agreed upon for inclusion in the MSF Cookbook. One third of the modified

**Table 1. Standard substitutions for modifying traditional soul foods to reduce food energy, fat, saturated fat, and sodium**

Basic recipe modification guidelines	
Instead of	Use
1. Shortening to coat pans	Vegetable spray
2. Butter, margarine, oil	Liquid butter buds or low/fat free margarine
3. Whole milk	Skim milk, evaporated skim milk or plain non-fat yogurt
4. Full fat cheeses	Low fat cheeses
5. Sour cream	Fat-free sour cream or "mock" sour cream (16 oz non-fat cottage cheese, 2 T non-fat yogurt, 2 T lemon juice blended until smooth or fat-free yogurt)
6. Nuts	Reduce amount by ½ or substitute grape nuts cereal
7. Baking chocolate	3 T cocoa powder plus 2 t of water for each ounce
8. 1 whole egg	2 egg whites
9. Seasoning vegetables with fatty meats	Season vegetables with fat-free chicken broth (store bought; or home made, chilled and skimmed of fat)
10. Meat with skin on	Remove skin prior to cooking
11. Dark meat poultry	White meat
12. Frying foods	Bake or broil them
13. Fatty ground meat	Lean ground meat
14. Stews and casseroles that are heavy on meat and light on vegetables	Go heavy on vegetables and light on meat
15. Mayonnaise and salad dressings	Reduced-fat mayonnaise and salad dressing
16. Sugar-sweetened desserts	Substitute half of the sugar with an appropriate sugar substitute
17. Sugar	Reduce sugar by 25% and increase sweet spices or use sugar substitutes
18. Fruits packed in syrup	Use fruit packed in its own juice or water
19. Whole portion of pie or cake	Dilute with fresh, frozen or canned fruit
20. Full portion of traditional soul food	Half portions
21. Canned foods	Fresh, frozen alternate
22. Salt	Salt substitutes, and low sodium salt
23. Garlic salt, onion salt, celery salt	Fresh or powdered alternate
24. Red meats (ie, bacon, sausage and luncheon meats)	Turkey, chicken, fish

recipes were vegetable favorites such as collard greens, okra and tomatoes, and rutabagas. Four recipes combined vegetables with other DASH food groups: broccoli and cheese from the dairy group; teriyaki vegetable grill with seafood from the meat group; stir-fried vegetables and chicken from the meat group; and stewed vegetables with beef from the meat group. Five of the fruit-based recipes were obtained from www.dole.com and were accepted without significant modification. Several recipes were combinations of fruit with cheese, pasta, meat, or grain. The sautéed apple recipe is an original fruit dish. The remaining nine dishes were light desserts of sweets, fats, sugars, grains and milk.

Recipe modification sessions were filmed and edited into the production of 500 VHS-formatted and 50 DVD-formatted MFS Cooking Shows, which were distributed to program participants, local and state agencies, and intermediary distributors.

General recipe substitutions used to modify traditional soul food dishes are outlined in Table 1. Most of the substitutions centered on reducing food energy from dietary total fat and saturated fat (substitutions 1–15). Three substitutions were intended to reduce food energy from sugar (16–18) and two were intended to reduce food energy from both fat and sugar (19 and 20). Reduction of sodium in traditional soul food recipes is achieved with substitutions 21–24. In a previous study using the recipe substitutions outlined in Table 1, total food energy and food energy from fat were reduced by 37.2% and 55.3%, respectively in modified versions of traditional soul foods, while sodium was reduced by 58.8%.

### MS-DASH Sample Menu

A sample Sunday DASH meal plan incorporated with MSF ("DASH of Soul") is illustrated in Table 2. Contents of the DASH diet plan nutrient levels are

listed in Table 3 in comparison to the nutrient levels for the MS-DASH sample menu.<sup>14</sup> The energy content of the DASH of Soul day's menu (2059 kcal) was quite comparable to the targeted level of 2100 kcal. Total fat as a percentage of total kcal for DASH of Soul (22.3%) was less than the DASH target of 27%; as was percent of kcal as saturated fat (2.4% vs 6%), monounsaturated fat (10.6% vs 13%) and polyunsaturated fats (5.2% vs 8%). Total dietary fiber for DASH of Soul of 30 g exceeded the targeted DASH level (24 g). With respect to mineral levels, DASH of Soul also fared well. Total sodium was 13% lower (2,216 mg for the day) than targeted levels. Potassium exceeded the goal by 11% (4594 mg). Calcium exceeded the goal by 24% (1290 mg). Magnesium (387 mg) met 90% of the targeted amount.

### Focus Group Interviews

The seven MSF Club members unanimously agreed that the cooking

**Table 2. Modified soul foods integrated into the DASH diet plan: Sample Sunday Menu**

DASH of Soul Sunday	Amount	Food Groups <sup>†</sup>							
		G	V	F	D	MFP	NSBP	FO	S
Breakfast:									
Grits	1/2 c	1							
Sautéed tomatoes	1/4 c		1/2						
*Soulful fruit salad	1/2 c			1					
Whole wheat cheese (1 slice, low fat) toast	1 slice	1			1				
Chilled milk (skimmed or 1%)	8 oz				1				
Lunch:									
*Oven fried cat fish	3 oz					1			
*Mexican corn	1/2 c		1						
*Okra and tomatoes	1/2 c		1						
*Corn bread	2 slices	2							
Sliced strawberries	1/4 c			1/2					
Fat-free Cool Whip	2 Tbs								
Splenda-sweetened tea	1 c								
Dinner:									
*Baked skinless chicken thighs	3 oz					1			
*Collard greens	3/4 c		1.5						
*Baked sweet potato, small	1		1						
*Low-fat corn bread	1 cube		1						
*Sautéed apples	3/4 c			1.5				1/2	1/2
Snacks:									
*Tea cakes	1	1						1	1
Skim or low-fat milk	1 c				1				
Nuts (1.5 oz ) and raisins(2 oz)	3.5 oz			1			1		
Total DASH servings		6	5	4.0	3	2	1	1.5	1.5
Recommended DASH servings									
1600 kilocalories		6	3-4	4	2-3	1-2	3/week	2	0
2000 kilocalories		7-8	4-5	4-5	2-3	2 or less	4-5/week	2-3	5/week

\* Denotes recipes found in the Modified Soul Food Cookbook ([www.chs.fsu.edu/nfes/nutrition](http://www.chs.fsu.edu/nfes/nutrition))

† G=grains; V=vegetables; F=fruits; D=dairy; MFP=meat, fish, poultry; NSBP=nuts, seeds, beans and peas; FO=fats and oils; S=sweets.

club activities were well worth their time and effort. The women commented on improved cooking skills, increased nutrition knowledge, as well as motivation and empowerment to affect individual,

family and community health. A few sample comments are listed below:

- “Modifying the recipes was easy and fun. I really enjoyed getting together and the best part for me was learning

something new that I can use to improve my health and to keep my children healthy.”

- “Adopting the dishes must be a gradual process. Don’t try to get the family to accept all of the recipes at one time. Approach it like changing from whole milk to skim milk. It is easier if you try 2% for a while and then 1% instead of going straight from 2% to skim.”
- “I will start by promoting the modified tea cakes to friends and family because they will remember their grandma preparing them but they haven’t had them for a long time. Also since they haven’t had them in a while, they won’t be prone to compare the taste to the real thing.”

**Table 3. Nutrient levels for modified soul foods integrated into the DASH diet plan (DASH of Soul) compared to target nutrients**

Nutrient	Target	DASH of Soul Sunday
Total calories	2100	2059
Total fat % kcal	27	22.3
Saturated fat % kcal	6	2.4
Monounsaturated fat % kcal	13	10.6
Polyunsaturated fat % kcal	8	5.2
Total dietary fiber (g/d)	24	30
Sodium (mg/d)	2500	2216
Potassium (mg/d)	4140	4594
Calcium (mg/d)	1040	1290
Magnesium (mg/d)	430	387

- “Lead by example: when the family sees us cooking better and eating healthier they will begin to ask why and that will be our chance to tell them. Also, when they see that we have lost weight and are feeling better, they will want to do what it is that we are doing.”
- “I live at home with my mom and dad and we all have medical problems that the diet plan and recipes could help us to control better.”
- “Friends and family members will be more willing to adopt the plan and our cookbook when they see that they won’t have to give up favorite foods, just modify them by simply substituting ingredients.”
- “I say we should just follow the diet; I mean follow MS-DASH.”
- “Having the DASH diet plan gives us something to go by because without a plan we plan to fail.”

Some barriers noted were fussy kids, habits that are hard to break, preparation time (especially for washing and chopping fresh vegetables for seasoning and the rising cost of fresh vegetables). Common responses to these barriers that the group tended to agree with were plan ahead and make gradual changes. Suggestions for promoting the cookbook to the community included: leaving information in public libraries; using churches as access channels to the community; family reunions; and holding a workshop with congregations from several churches.

### Intercept Surveys

About 20 of the 35 NHC participants were arbitrarily intercepted entering and exiting the program. Fifteen of them said that they attended at least six of the different MS-DASH dinners focusing on a different DASH food group. Every participant said that they would definitely participate in a follow-up program similar to this one and everyone also stated that they would recommend this program to a friend. Most of the women said that they

decided to participate in the program in order to learn how to eat nutritiously and how to achieve a healthy weight. Also, many were influenced to start the program because a friend had recommended the program. When asked what were the most important things learned from the program, most frequent answers were: a) how to prepare lower-fat recipes; b) importance of daily exercise; and c) how to read food labels. In the exit interviews, most women said that the program met all of their expectations and that eating healthy and making MS-DASH a lifestyle were the main messages that they got from the program. They said that they would make MS-DASH a part of their lifestyles by cooking with less fat, eating right, reading nutrition facts labels, exercising, and keeping in touch with the group.

### DISCUSSION

The importance of soul food in the health paradigm is often marginalized because pig feet, ham hocks, chitterlings, and crackling bread are infrequently consumed by most Blacks today.<sup>9</sup> However, this study is consistent with earlier findings suggesting that soul food is, in addition to “hog and hominy,” a traditional cooking style that often transforms wholesome African American staple food favorites such as greens, root vegetables, legumes, chicken and fish into carriers of elevated quantities of food energy, fat, saturated fat, and sodium.<sup>9,14</sup> Since these food components in excess have been associated with increased disease risk including the cluster of anomalies called metabolic syndrome,<sup>4-8</sup> controlling their consumption by following healthful meal plans such as DASH and MyPyramid are among national public health objectives. Results of this study are in agreement with an earlier soul food study, which demonstrated that modification of traditional soul foods

using simple substitutions can yield acceptable healthier soul food cuisine.<sup>9</sup> Additionally, integration of MSF into the DASH diet plan (MS-DASH) met target levels of nutrients and seem to have appealed to the NHC population of low-income African American women of this study. The MS-DASH trial was a pilot study which we look forward to collaboratively testing within a randomized controlled clinical research design.

### CONCLUSIONS

Alternative simple ingredient substitutions of traditional soul foods that maintain flavor and acceptability offer an important intervention strategy for reducing diet-related risk for the cluster of diseases that characterize metabolic syndrome. The decreased calorie, fat, sodium and increased intake of the protective minerals calcium, potassium and magnesium provided by modified soul food menus compare well with target nutrient levels for the DASH diet plan. The impact of MS-DASH should be tested within a randomized controlled trial following the multi-center controlled study design used in the original and subsequent DASH trials.

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