

Nutritious Meal Generator

Dain Berrett

Executive Summary

In January of this year I decided to make a major lifestyle change in regards to my health and nutrition. I researched several fitness plans and settled on the *Body for Life* approach, mostly due to its practical nature and rounded approach to wellness. *Body for Life* emphasizes 6 days of exercise a week, alternating between strength training and aerobics. Because you are expected to gain muscle quickly, excellent nutrition is key. The program recommends 6 meals a day, each of which includes one portion each of protein and carbs. Additionally, two meals a day (at minimum) require vegetables. The acceptable proteins, carbs, and vegetables are limited to a certain lean, non-processed list.

For the first 10 weeks of the program things were going great and I was both losing fat and gaining muscle. I was enjoying the meals a lot at first, but was finding that I rarely had time to really plan them out. I kept on resorting to eating the same meals again and again and getting tired of them. Additionally, without knowing exactly what meals to plan for during the week, grocery shopping on Saturday was difficult for my wife and I. These difficulties were threatening my success in the program, and I knew I had to find a way to automate creating my meal plan each week from a pool of acceptable proteins, carbs, and vegetables.

My spreadsheet does this very thing, generating 6 meals for each day of the week and only drawing from a set list of *Body for Life* foods. Further, I have built in many of my own preferences to the logic in the macro. For example, the first meal of each day always includes eggs (I love eggs in the morning). The third and sixth meals are protein shakes (I love mixing these throughout the day). The other meals can come from any mix of the food groups. This meal generator will ensure that I stay on track with the program and continue to enjoy a diversity of foods. With one click I can generate meals for a week, and with another click I can print it off to hang on my fridge for reference.

Details

- **Assistance:** I received no assistance on this project.
- **User Interface**
 - I created a custom tab called 'Meal Generator' that included two custom buttons:
 - Create Meals: This button referenced a custom image that I found online, and kicked off the generateMeals() procedure.
 - Print Plan: This button printed the < Plan > sheet with one click so that I wouldn't have to open the Print dialog every time.
 - I created a nice instruction graphic on the first sheet in Adobe Fireworks so that if my wife or friends use the workbook (I plan on sharing it with some friends who are following the same *Body for Life* program) they have a basic guide.

MEAL GENERATOR

Instructions

1. Click 'Meal Generator' tab.
2. Click 'Create Meals' Button to create meals for the week.
3. If you like the results, click 'Print'.
4. Add options to food sheets for future meals.

- The plan sheet was very important as I would be referencing both when making meals and grocery shopping. I used a purple and blue color scheme, aligned everything, ensured it fit perfectly in a landscape print layout, and even added a motivational graphic showing how important good nutrition was to my overall well-being.

FILE MEAL GENERATOR HOME INSERT PAGE LAYOUT FORMULAS DATA REVIEW VIEW DEVELOPER

Create Meals Tools Print Plan

L15 : X ✓ fx

	A	B	C	D	E	F	G	H	I
1	Sat	Main Course	Carb	Vegetable	Sun	Main Course	Carb	Vegetable	
2	1	Breakfast burrito	Wheat tortilla	Salsa	1	Breakfast burrito	Wheat tortilla	Salsa	
3	2	Southwest Chicken Salad	Whole-wheat pasta	Lettuce	2	Meatloaf	Fat-free yogurt	Cucumber	
4	3	Chocolate Myoplex Shake	Strawberries	Mushrooms	3	Chocolate Myoplex Shake	Sweet potato	Zucchini	
5	4	Grilled Herb Chicken	Brown & wild rice	Broccoli	4	Meatloaf	Orange	Peas	
6	5	Lobster	Russet potato	Spinach	5	Southwest Chicken Salad	Whole-wheat pasta	Lettuce	
7	6	Vanilla Myoplex Shake	Whole-wheat pasta	Onion	6	Vanilla Myoplex Shake	Brown rice	Mushrooms	
8	Mon				Tue				
9	1	Breakfast burrito	Wheat tortilla	Salsa	1	Eggs & hash brown	Hash brown	Green Beans	
10	2	Grilled salmon salad	Whole-wheat tortilla	Lettuce	2	Grilled Herb Chicken	Strawberries	Zucchini	
11	3	Vanilla Myoplex Shake	Strawberries	Spinach	3	Chocolate Myoplex Shake	Whole-wheat bread	Carrots	
12	4	Spaghetti w/ Meat Sauce	Whole grain pasta	Carrots	4	BBQ Chicken	Potatoes	Zucchini	
13	5	King crab legs	Orange	Tomato	5	Beef & Broccoli Stir Fry	Brown rice	Broccoli	
14	6	Vanilla Myoplex Shake	Brown rice	Celery	6	Vanilla Myoplex Shake	Whole-wheat pita bread	Zucchini	
15	Wed				Thu				
16	1	Breakfast burrito	Wheat tortilla	Salsa	1	Egg sandwich	Wheat bread	Tomato	
17	2	Hamburgers	Wheat buns (cut to size)	Green Beans	2	Grilled Herb Chicken	Strawberries	Lettuce	
18	3	Vanilla Myoplex Shake	Corn	Peas	3	Vanilla Myoplex Shake	Orange	Zucchini	
19	4	Teriyaki salmon	Corn	Green Beans	4	Teriyaki salmon	Russet potato	Tomato	
20	5	Beef & Broccoli Stir Fry	Brown rice	Broccoli	5	Hamburgers	Wheat buns (cut to size)	Mushrooms	
21	6	Chocolate Myoplex Shake	Strawberries	Peas	6	Chocolate Myoplex Shake	Sweet potato	Cucumber	
22	Fri								
23	1	Breakfast burrito	Wheat tortilla	Salsa					
24	2	Grilled Herb Chicken	Orange	Peas					
25	3	Chocolate Myoplex Shake	Russet potato	Lettuce					
26	4	Grilled Steak	Strawberries	Peas					
27	5	Grilled Steak	Whole-wheat bread	Zucchini					
28	6	Vanilla Myoplex Shake	Strawberries	Broccoli					
29									

- **Data**

- I created sheets for each protein group, as well as categories such as carbs and vegetables. I built my solution so that I could add additional items to any of these sheets at any time and they would immediately be incorporated in the generated meal plan. Here is an example of the beef sheet:

	A	B	C	D
1		<i>Carb</i>	<i>Veggie</i>	<i>Notes</i>
2	Hamburgers	Wheat buns (cut to size)		Use only very lean ground beef.
3	Tacos	Wheat tortilla		Use only very lean ground beef.
4	Meatloaf			Use only very lean ground beef.
5	Beef & Broccoli Stir Fry	Brown rice	Broccoli	
6	Grilled Steak			Use only top round or top sirloin steak.
7	Spaghetti w/ Meat Sauce	Whole grain pasta		Use one small serving of whole grain pasta.
8				
9				

- **Procedures & Key Variables**

- **Macro-wide variables:** At the start of the project I declared several variables that would act as the arrays holding all of the possible foods from several different sheets. For example, regArray would hold proteins from all different protein categories and respective sheets, such as beef, chicken, shellfish, etc. Because these food arrays would be used in several different procedures, I declared them here so they would be available throughout the macro.
- generateMeals(): This procedure accomplished two main purposes:
 - 1) Create arrays containing addresses for each type of food. Carbs, veggies, egg meals, and protein meals were given their own arrays. All other proteins were grouped together in the regArray. I build my meals around proteins, and since I think that way in real life I wanted my program to follow the same logic.
 - 2) Introduce logic via a select case that would use loops to find the appropriate input cells in the < Plan > sheet, designate certain cells as available for certain meal categories (regular, egg, or protein shake meals), and route each loop iteration to the appropriate meal creator function based on the cell category.
- eggMeal()
 - generateMeals() passed eggMeal() the value to a specific input field, and eggMeal() then:
 - Referenced the eggArray and used the Rnd function to find a random index, and the corresponding cell address. Then, eggMeal() inserted this cell's value to the input field passed from generateMeals(s)
 - Checked the carb value for the randomly chosen egg field and, if empty, chose a random value from the carb array and sent it to the appropriate input on the < Plan > sheet. If a value was present, it simply passed it along.
 - Note: Some meals have carbs and/or vegetables that always go with them (a breakfast burrito, for example), but for others (such as steak) the carbs and vegetables are a lot more flexible (sometimes I like a potato and salad with my steak, and other times I like steamed broccoli and green beans). I therefore

needed my program to be flexible enough to include random carb or vegetable foods when a meal didn't require specific items.

- Checked the vegetable value for the randomly chosen egg field and, if empty, chose a random value from the vegetable array and sent it to the appropriate input on the < Plan > sheet. If a value was present, it simply passed it along.
- regMeal()
 - Similar functionality to eggMeal(), except using regArray.
- proteinMeal()
 - Similar functionality to proteinMeal(), except using shakeArray.
- printPlan()
 - I wanted to make it easy for myself to print off the meal plan after generating it. This button allowed me to do so with one click, regardless of which sheet was previously active.
- **Difficulties and Lessons Learned**
 - From my past experience as a product manager, I knew it was important to boil this one down to the critical features. I ended up being very glad that I did, because this took a lot longer than I expected it to.
 - I found it very useful to write out the logic of the program before I went to code. I did this at a high level for the entire macro, and also in more detail for each procedure.
 - I really struggled remembering the syntax for arrays, and had to do a lot of research on correct array methods since my solution was so heavily dependent on arrays.
 - I learned a lot about the InStrRev function. At first I thought that it was giving me the position of a designated character. This was causing me problems when I was using it with the Right function to cut out the cell reference of a string I had concatenated earlier. I finally realized I needed to subtract the InStrRev value from the length of the entire string to get what I wanted.