I'm Wendy Demark. It's a pleasure to be here tonight. I'm going to be talking about ‘Living Your Best After Cancer: Healthy Diet Choices.’ The two major points I'm going to be covering are how important diet is for the cancer survivor and what dietary changes are most helpful for the cancer survivor. In looking at contributing factors to cancer mortality, we see that diet plays a significant role. It contributes to about 33% of cancer deaths and is about equivalent to the deaths due to smoking. These studies were done about 30 years ago. There were two very famous epidemiologists – Sir Richard Doll and Sir Richard Peto – who did the first studies. They found that diet is a contributing factor in anywhere from 10 to 90% of cancer deaths. This depends upon the cancer. For example, in brain cancer diet plays a much lesser role and contributes to about 10% of cancer-related deaths, whereas cancers such as colorectal cancer, breast and prostate cancer are considered more diet-related and diet plays more of a factor, contributing to about 90% of cancer deaths. So, on average, diet contributes about 33% to cancer deaths.

Because diet is so important, the American Cancer Society makes dietary recommendations for cancer survivors. Just this month the American Cancer Society put forth their renewed guidelines and here they are. First of all, achieve or maintain a healthful weight and choose foods that maintain a healthful weight. Secondly, adopt a physically active lifestyle and try to exercise at least 30 minutes, five times a week. Third, eat a variety of healthful foods with an emphasis on plant sources. This means ample servings of fruits and vegetables a day, at least five servings, choosing whole grains in preference to processed or refined grains or sugars. Fourth, limit the consumption of red meats, especially those that are high in fat and processed. Lastly, if you drink alcoholic beverages,
try to limit the consumption. We’ll go over each of these factors in detail a little bit later.

Let’s hit the first recommendation. Striving for a healthy weight. How can you tell if you’re at a healthy weight? What we use is a formula called the body mass index or BMI. You use this formula by taking your weight in pounds and multiplying that by 703, and then you divide that by your height in inches, and also you divide it again by your height in inches. For example, let’s take the typical American female who is 5-foot 4-inches and weighs 150 pounds. In order to use this formula we take the 150 pounds times 703, and we would divide that by 64 inches (a woman who is 5-foot 4-inches is 64 inches in height). It’s 150 pounds times 703, divided by 64, and divided by 64 again. If you calculate that out you come up with a number that is over 25 – it’s 25.6. That means this woman is overweight because her BMI is over 25. If we went through that formula and the BMI is over 30, that woman would be obese. This is how we use the body mass index. I encourage each of you to figure out what your BMI is. If your BMI is over 25, you are not alone. Here we can see a series of graphs that go anywhere from 1992 to 2004, and we see the prevalence of overweight in the United States in 1992, we see that in most of the country less than 50% of people were overweight as depicted by the top graph that shows most of the nation in gray, which is less than 50% overweight. You see a few purple states there, which means that 50 to 55% of the population within the state was overweight. If you shift over to the right-hand side in 1995 you see actually some red states, and that means that more than 55% of the state’s population was overweight or obese. You see more purple states and less gray states. If you shift down to 1998, you see even more red states and more purple states, and by 2004 almost all of the country had a majority of their population being overweight or obese, with most of the country being more than 55% overweight. So, obesity and overweight are pandemic in the United States as well as in the world at large, no pun intended. Looking at weight management and energy balance as it pertains specifically to the cancer survivor, indeed, if I was standing in front of you 20 years ago I probably would be talking more about the anorexia and cachexia that happens in cancer survivors and, indeed, that is not to dismiss this problem because anorexia and cachexia are problems for some cancer survivors, especially those living with advanced cancers, however, overweight and obesity are more of a problem for cancer survivors nowadays, and there are a number of reasons for that. First of all, overweight is a risk factor for several cancers – cancers of the endometrium, colon, esophagus, kidney, and breast cancer that occurs in older women – and, indeed, if we look at breast and prostate cancer survivors we find that 71% of breast and prostate cancer survivors are overweight or obese. We also know that overweight at diagnosis is a poor prognostic indicator for overall or cancer-free survival for a number of cancers and those are listed here – cervical cancer, esophageal, gastric, colorectal, uterine, pancreatic, and the list goes on. And, finally, weight gain is a common occurrence during and after treatment, and more and more studies are showing that that weight gain is linked with significant comorbidity functional
decline and experts are actually starting to gather data that overweight and obesity is linked to recurrent and progressive cancer.

This graph depicts weight change after diagnosis and the association with recurrence and mortality. These data come from the Nurses' Health Study where there were over 5,000 breast cancer survivors in that cohort. This cohort is specifically comprised of women that are nonsmokers. Let me orient you to this graph. The pink bars depict cancer recurrence. The yellow bars depict breast cancer mortality. The blue bars depict all-cause mortality. If you look at the referent group, the referent group is those that are able to maintain their weight and those are the second set of bars from the left-hand side. You see those women that are able to maintain their weight after a breast cancer diagnosis have less risk for recurrence, breast cancer mortality and all-cause mortality, the lowest risk. If you look at the bars to the left-hand side, you see a little bit of an increased all-cause mortality among those who lose weight or have a loss in BMI, but that is nonsignificant. However, if you take a look at the bars to the right of the referent bars, the women that were able to maintain their weight, and you see those who have a shift or a gain in BMI of 0.5 to 2.0 units, or over a 2-unit gain, we see significant increases in recurrence, breast cancer mortality and all-cause mortality in those women who have increased BMI after their diagnosis. How much weight is this? Actually a 0.5 gain in BMI, if you're talking about a woman who is tall like me, 5-foot 10-inches, then you're talking about a 10-pound gain or so. However, women that are shorter, women that are around 5-foot 2-inches or 5-feet, would only have to gain about 3 pounds in order to have an increase of 0.5 BMI, so this is not a huge amount of weight.

The main messages are to maintain a healthful weight throughout life, and this is after diagnosis as well. But let me just hit on one other thing that we have been able to find from the data that has been collected in the area of breast cancer. We see that women that are most at risk for breast cancer are those who are actually thin in their early life, thin as young girls or teens, and then gain a large amount of weight during their adult years. Again, it's very important to maintain a healthful weight throughout life and to balance caloric intake with physical activity and to lose weight if currently overweight or obese.

So how are we doing? Most Americans aren't doing very well. On any given day in the United States we consume 815 billion calories – 200 billion more than we need. We consume 47 million hot dogs, 4 million pounds of bacon, 60 million pounds of red meat, and 170 million eggs. To top that off, we eat 3 million gallons of ice cream, 10 million pounds of candy, 16 million gallons of beer and ale, and 1.5 million gallons of hard liquor (enough to make 26 million people drunk). So what do we need to do? Well, first of all, we need to remember portion size. Our portion sizes have grown dramatically over time. On the left-hand side you see sizes of portions in 1980 as compared to those in the year 2000. You see here that this little bagel was 3 inches in diameter in 1980 and it was only 140 calories. Now, we have bagels that are much bigger, that are twice as big, 6 inches in diameter, and 350 calories. By the same token, we have
french fries that at one point in time, 20 years ago, were 210 calories and 2.4 ounces. Those have grown dramatically, tripling in calories over the past 20 years, and those are making an impact on our waistlines. Another thing that can help us with weight control is to think volumetrics and to choose lower calorie foods that can fill us up. An example of this is for the equal amount of calories we could either choose to eat six potato chips, which go down awfully quickly, or instead we could choose three cups of popcorn, which will require us more time to eat, we would certainly get more satisfaction out of chewing it, and it would occupy more space in our stomach.

Another volumetric approach is to eat a lot of plant foods. Foods such as fruits, vegetables and whole grains have comparatively fewer calories while they also deliver a lot more nutrients. Here is a picture of many plant-based foods. Lots of fruits, vegetables, and whole grains. Indeed, these should comprise the basis of the diet. If you are a cancer survivor, can these really prevent you from having a recurrence? Well, to date the data are limited that show a benefit with regard to cancer related survival; however, cancer survivors who do eat plant-based diets have lower death rates from other diseases and lower rates of comorbidity. For example, cancer survivors have much higher rates of cardiovascular disease, but for those that eat plant-based diets their risk is less than those who eat a western diet. These data come from the Nurses’ Health Study, as well.

One of the cornerstones of a plant-based diet is to choose whole grains in preference to processed grains and sugars. Include whole grain products such as whole grain breads, whole grain cereals, rice and pasta. It’s very important that you read the label because a lot of times in foods such as breads, the manufacturer will use caramel coloring and not use the whole wheat in the product. So make sure that you do read the label. You should also eat other foods from plant sources several times a day, and limit the consumption of refined carbohydrates including pastries and cookies and sweetened cereals, soft drinks, and sugars. Again, fruits and vegetables are a very important part of a plant-based diet and one should eat at least five or more servings of fruits and vegetables each day. In fact, women really should try to consume at least seven servings a day and men should consume nine servings of fruits and vegetables a day. Why should men consume even more than women? First of all, men eat more, so proportionately they should consume more fruits and vegetables. Secondly, men have higher cancer rates than women and the nutrients that are in fruits and vegetables have the potential of being protective for cancer. Try to include fruits and vegetables in every meal and for snacks. By the same token, limit french fries, snack chips, and any kind of fried vegetable product. Indeed, you reduce the benefits of fruits and vegetables if you do add a lot fat. Lastly, although it is probably better if you choose the whole fruit or the whole vegetable as opposed to the juice, if you do decide to drink juice make sure that it is 100% fruit juice or vegetable juice. You really do need to check the label because if you do go down the juice aisle, chances are there are more fruit drinks and fruit blends, which really are nothing more than fancy Kool-Aid. If you really are
wanting juice, make sure it is 100% juice and the only way you can do that is to read the label.

What about alcohol and the cancer survivor? First of all, alcohol is related to cancer of the kidney, head and neck cancers like esophageal cancer, and breast cancer. There isn’t really any safe amount of alcohol that you can drink with regards to breast cancer. The risk is linear. Secondly, head and neck cancer survivors who continue to drink have more complications, and they have higher rates of recurrence, and higher rates of mortality. So alcohol doesn’t help with all of that. What alcohol does help with, however, is heart disease. Cancer survivors have a much higher risk of heart disease than their age and race matched peers who don’t have cancer. Therefore, cancer survivors need to weigh the risks because they will derive some cardiovascular benefit from drinking moderate amounts of alcohol. What does moderate mean? Moderate means no more than two drinks a day for men, and no more than one drink per day for women.

What about supplements? Cancer survivors take a lot of supplements. In the little blue box at the bottom of the slide we see that 60 to 89% of survivors take supplements and 40 to 50% begin additional supplements after they’re diagnosed. What one has to remember, however, is that to date there really isn’t a lot of scientific data that back these supplements. Indeed, no supplements have proven benefits for cancer-related outcomes. And there is the potential that some of these supplements could actually endanger health. So those of you who are cancer survivors, who are interested in taking supplements, make sure that you are an informed consumer. Consult the National Center for Complementary and Alternative Medicine. Here is their web site on this slide – http://nccam.nih.gov. Indeed, one thing we have to remember is to rely on food as sources of nutrients. Indeed, that’s why we eat food, is to get the nutrients from it. Sometimes we lose sight of that. Finally, although sometimes it is hard to tell your doctors the various supplements that you’re on, make sure that you do. Some of those supplements may interfere with the drugs that you’re taking or may have side effects that the doctor can apprise you of.

As a review, it is very important for the cancer survivor to maintain a healthful body weight and to eat a healthy diet. It is important, also, to exercise, which Dr. Wilson will go into in the next presentation. Here are the main points: (1) Achieve and maintain a healthful weight. (2) Consume a plant-based, nutrient-dense diet. (3) If you do drink, moderate your alcohol intake. (4) I would encourage you to seek sources that can help you. There are hospital-based and community-based initiatives here with Virginia Commonwealth University and the Massey Cancer Center. I know that Dr. Wilson has some programs that she can apprise you of. There are also national programs that can help – such as the NCCAM site for supplement use. The American Cancer Society has local chapters that can be of help, as well. Another thing, I would encourage you to participate in any clinical trial that you can. Clinical trials offer a way for us to learn more about cancer survivors and, indeed, this is an area where so much
more has to be learned. That starts with you. One such trial that you could participate in, perhaps, if you fit the eligibility criteria, is a trial that we have ongoing right now at Duke that we’re recruiting for. We need about 100 more people. That trial is aimed at testing the impact of a diet and exercise mailed material/counseling program on weight loss and physical functioning of 640 prostate, colorectal and breast cancer survivors. At the bottom right-hand side of this slide you see the program that we can send out to people. It’s a home-based program. You don’t have to come in at all. However, the cancer survivor has to be at least 65 years of age, at least 5 years out from diagnosis, and have no progressive disease. The contact information is there on the slide. Anybody who’s interested in such a program, we certainly would welcome your contact.

Finally, I’d like to thank you for your attention. It’s been a pleasure to be here tonight, and I wish you all well. Thank you.