



Get Moving with the Latest Research on Diet and Nutrition

September 17, 2008

Rowan T. Chlebowski, MD, PhD

OPERATOR:

At this time I would like to welcome everyone to the Living Beyond Breast Cancer teleconference. It is now my pleasure to turn the floor over to your host, Elyse Caplan. Ma'am, you may begin your conference.

ELYSE S. CAPLAN, MA:

Thank you so much, and thank you to everyone who is joining us today for LBBC's teleconference, "Get Moving with the Latest Research on Diet and Nutrition." I very much appreciate your patience, as we got started a bit late today, but I think you'll be in store for a very informative program that will address a lot of your questions and concerns related to some of the most recent developments in this area of nutrition and how it relates to breast cancer and may impact your well-being and your life. My name is Elyse Caplan. I am the education director here at Living Beyond Breast Cancer, and I'm really pleased to moderate today's program. This program is made possible through the generous support of the Avon Foundation, and Living Beyond Breast Cancer is very grateful to the Avon Foundation for its support of our educational programs.

Just a quick overview: Like all Living Beyond Breast Cancer teleconferences, today's program will be interactive. We will start with a speaker presentation and then take questions after that. Some of the highlights you may learn about today will be the recent findings that may impact your risk of recurrence, ways to adapt your lifestyle – and some of the most popular questions on breast cancer, diet and nutrition will probably be addressed. We hope that anything you're eager to learn about will be covered, and if not, you'll have the opportunity during the Q&A session.

Teleconferences are just one way Living Beyond Breast Cancer is able to get information out to you across the country and across the globe. We do hope you will check our website

[<http://lbcc.org/>] frequently for the latest information on all of our educational conferences, teleconferences, publications, services and our toll-free peer support Survivors' Helpline [(888) 753-LBCC (5222)]....

...Now I'd like to tell you about our featured speaker, and then he will educate us for the next half-hour or so. Dr. Rowan Chlebowski is a professor of medicine at the David Geffen School of Medicine at UCLA and chief of the Division of Medical Oncology and Hematology at Harbor UCLA Medical Center. Dr. Chlebowski acts as a Women's Health Initiative representative to the National Cancer Institute cohort consortium and serves on the steering committees for multiple studies focused on breast cancer and women's health, including the Women's Health Initiative [<http://www.nhlbi.nih.gov/whi/>] and the Women's Intervention Nutrition Study [<http://www.cancer.gov/search/ViewClinicalTrial.s.aspx?cdrid=63537&version=patient>]. His major research interests include prevention and treatment, and he has published extensively in major journals, including the *New England Journal of Medicine*, *JAMA*, *The Lancet*, the *Journal of the National Cancer Institute* and the *Journal of Clinical Oncology*. Dr. Chlebowski was a presenter at the 2005 and '06 annual meetings of the American Society of Clinical Oncology and has many more credits to his name. But without further delay, I am pleased to welcome Dr. Rowan Chlebowski.

ROWAN T. CHLEBOWSKI, MD, PHD

Thank you for that kind introduction. The next 20, 30 minutes or so, we'll just chat about what's currently known about the nutrition, lifestyle of breast cancer, emphasizing issues related to breast cancer recurrence. For the questions that come in, I want to make the point that I am a medical oncologist. Basically, besides doing research in prevention in that concern, I do see a large number of breast cancer patients, so your questions

can extend into that area. Then, another bit of background information that I think is very important, and which often gets involved and leads to confusion, is the difference between study types and types of evidence.

The first type of evidence, which is more common, is this kind of observational study evidence, or epidemiological studies, and those are studies where they're less expensive to do, on one hand. What you do is look at a population of people – say, all kinds of women living in a certain geographic area – and then you look at the characteristics of the women who, say, develop breast cancer, or you take a population of women who had already established breast cancer and then, several years later, look at the characteristics of the women who developed recurrence or didn't develop breast cancer recurrence, and then you try to attribute the factors to the recurrence.

Often there is a lot of selection involved in that. For instance, we'll talk a bit about physical activity. You would imagine that women who are physically active compared with women who aren't physically active could have a lot of different characteristics. Generally, they would be leaner. They may come from a higher socioeconomic class. They may have better access to certain types of therapy where cost might not be a limiting factor. So it's very difficult in that kind of setting to pull out the increased physical activity and say that's related to the recurrence risk.

That's observational studies. They give evidence. They're generally thought to be hypothesis- or question-generating rather than providing a definitive answer. They are the kind that often appear on the news, because the news media generally don't make much of a distinction between the two. They have these health spots that they have to fill, so they would – it won't be clear that that's an observational study in terms of the emphasis that we see.



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The second type of evidence comes from randomized clinical trials. These are much more difficult to do, much more expensive, because what happens in these trials, as opposed to looking at what happened to several thousand women who already had breast cancer – you can do that looking at one time. You're looking at the records or calling the women up over a relatively short time. If you're doing a randomized trial, you have to identify the patients, consent them, have an intervention strategy, have a comparison group. You're trying to control for the one question that you're testing. Then you have to prospectively follow the patients for years until their cancers recur and then analyze those data. That gives much more definitive kind of evidence.

So, what's known about breast cancer and recurrence? We'll start with a couple of observational study backgrounds. We'll go over three major, randomized trials that have looked at this question – only three so far for this very important topic. Then we'll talk about exercise and about vitamin D.

Well, the observation has been building for years that women who were heavier and who were less physically active might be more likely to be at increased recurrence risk. The first observations came about 30 years ago, when, for the first time, it became possible to get a better feel for what the dietary intakes of women were in different countries. This was done in a very gross fashion, looking at how much animal fat, for instance, or beef was being consumed. The association was made that countries that had low dietary fat intakes, like Japan and the Far East – obviously, they would be different genetically as well – have had much fewer recurrences, even with the same stage of breast cancer. That was the first signal, which was supported in a number of observational studies and got people interested in this question. Actually, those were the first couple of randomized trials that have been reported.

Maybe I'll start out with the one that I was able to be reporting on a couple of years ago, and now it's been published in the *Journal of the National Cancer Institute*, the results, and they've recently been updated at our cancer meeting in ASCO last year. This is the Women's Intervention Nutrition Study. This is directly for the women who are listening who have breast cancer. This would be early-stage breast cancer – women who don't have spread beyond the breast or the lymph nodes – who have their cancers resected, either with a

lumpectomy followed by radiation therapy, or have a mastectomy, receive standard therapy. If they were hormone-receptor positive, they would get tamoxifen.

This was before the era of aromatase inhibitors. I know some of the women more recently diagnosed might have received aromatase inhibitors. These are almost all postmenopausal, so the findings apply most directly to postmenopausal women. It involved 2,437 women from 39 centers around the country, all U.S. participants. They entered a little over a decade ago, studied in the mid-1980s. Then, after receiving standard therapy – and chemotherapy as well, especially if they were receptor negative, and they were receiving one of three defined standard chemotherapies at that time – then we randomized the patients to a lifestyle intervention program targeting dietary fat intake.

The control population was seeing dietitians but wasn't getting counsel on dietary fat intake or weight loss. They were just being counseled on nutritional adequacy. It's really interesting, because obviously breast cancer recurrence is a major event. It's very difficult to get rid of the cancer after it recurs with breast cancer, so against this very, very high threat to a woman's life, our intervention was, in effect, to ask the women to eat different things.

It's actually a bit more involved than that; really they ended up having eight every-other-week, one-hour visits one-on-one with dietitians, who were centrally trained in implementing a previously evaluated, low-fat eating plan. I should go into what the dietary change was. It isn't like telling people – giving them a diet, telling them what they should eat. Rather, the dietitians would look at what they're eating and try to get the fat out. About 20 percent calories from fat was the target. At that level, almost all of the fat is in the food. Some of you may be familiar with cardiac diets where they're substituting polyunsaturated for saturated fats. For breast cancer, we're trying to get down to 20 percent. At 30 percent you can do a substitution. At 20 percent, there are very little external fats, so there is nothing to exchange.

First of all, there would be no external spreads used: no butter, no margarine on rolls. There would be cereal and milk in the morning, low-fat milk in the morning instead of a sweet roll. External oils for salad dressings would go, so you wouldn't substitute for different salad dressings. You just would have to use something like a yogurt-based kind of dressing. Meats would be

fine. Portion size would be reduced. Cooking approaches would vary, more like with these Pam-like sprays and more baking. The snacks would change from chips or cheese and crackers to things like popcorn. Basically, you can see that people could pretty much eat the same foods, so it's sustainable but nontrivial change.

Now, if people were doing that, when you don't have the makings of a 1,000-kilocalorie hot fudge sundae in your freezer and refrigerator, which you can make in five minutes and eat in ten minutes, if you were hungry at 10 p.m. and had stocked your kitchen differently to follow this diet, then you could see how you would have to go to a fruit or something like that and really have substantially less caloric intake. This would be expected to be associated with a modest weight loss.

Two basic weight loss philosophies are either lowering dietary fat or increasing protein intake. We really won't go into that. But we were targeting dietary fat intake. We weren't targeting weight loss, but what happened was the women dropped their percent calories from fat down to 20 percent in the intervention group, maintained it for over five years. This is associated with about a six-pound weight loss. Fruits and vegetables, daily servings, increased just a little bit. The women didn't really go on a total healthy diet in a certain sense. They just modified their approach as the dietitians had counseled them. We think this ongoing contact with the dietitian is very important in terms of their maintaining adherence.

Well, what happened was that the recurrences went down 24 percent. This was really the first demonstration that the dietary change could influence the breast cancer or any cancer outcome, and it got me chatting with Katie Couric on "The Today Show" as well, so that was pretty good. It looked like the women who were heavier at first had somewhat more of a benefit. Now, this was 24 percent; it was of borderline statistical significance, but it was positive.

Interestingly, there was a much greater effect in the women who were receptor negative than in those who were receptor positive, suggesting that maybe our effect wasn't being – originally, we thought the effect would be mediated by changing estrogen levels, with the fat and the weight loss reducing estrogen, which we know it does. But it seemed to be least effective in the women who have hormone receptor-positive cancers, suggesting that maybe insulin or a change in insulin might be



involved. In our more recent follow-up, there were about 18 percent fewer deaths, which wasn't significant. But interestingly, the women who had estrogen receptor/ progesterone receptor-negative cancers – which were 362 women in this trial – had a 66 percent reduction in risk of death over about eight years. That's a hypothesis-generating finding of very powerful potential effect.

That's our WINS trial, and there are two other trials that could be related to that. One that you might have heard about that came out after our first trial is the WHEL [Women's Healthy Eating and Living] trial, which had a little different approach [<http://www.cancer.gov/search/ViewClinicalTrial.s.aspx?cdrid=66920&version=patient>]. They claimed to be doing dietary fat intake reduction, but they were also targeting increased fruit and vegetable intake and increased fruit juices to increase fruit and vegetable and fiber. They made a remarkable increase in the number of fruit and vegetable servings. Probably because of the vegetable juice and things they were drinking, they had absolutely no weight loss at all. The dietary fats went down in the first year or so but then went back to baseline levels. So it really was a different intervention, and it was pretty much a completely negative study.

I think it was a similar-size study – 3,000 women, early-stage, resected breast cancer entered within several years after diagnosis – so I think that provides strong evidence against fruit and vegetable increase having a major effect on breast cancer recurrence. There's some disagreement in the scientific community about whether they tested – to what extent – the dietary fat intake reduction hypothesis. But because they didn't really have a sustained reduction in dietary fat intake, without weight loss, I think it is not directly related to the question we did in WINS.

There is another dietary study I was involved with as one of the investigators that isn't identical, in that it was a primary prevention study [Editor's note: This is the Women's Health Initiative Randomized Controlled Dietary Modification Trial; <http://jama.ama-assn.org/cgi/content/full/295/6/629>]. There weren't women with resected, early-stage breast cancer. These were women who had never had breast cancer, but it was a very large study: 48,000 women randomized to similar dietary intervention, done in groups. These would be women who don't have cancer, would be less

motivated. They dropped their percent calories from fat to a lesser degree than we saw in the WINS trial. This was reported in the *Journal of the American Medical Association* about a year and a half ago. I was one of the authors.

Interestingly, there were 9 percent fewer breast cancers [inaudible] the women in the dietary group. But it was of borderline statistical significance. In that population, there was more of a signal for an effect in women who had higher dietary fat intake at entry or who were heavier at entry. So it looked like [in] those . . . women [who had not had breast cancer] . . . they had stronger evidence for a benefit. So we end up having one positive study, WINS, one borderline study, WHI, and one negative study, WHEL, but which I think addressed a little bit of a different question.

Many clinicians, I think, looking at some of these results, feel the question [of diet] is somewhat still open. [There is] an example of [a] study that's following up – which [is] now adding a formal weight loss target of about 10 percent body weight for women who are overweight, and increasing physical activity, and we'll talk about that in a few minutes – [and is] also controlled against placebo. [Weight loss is] a kind of thing where we don't have compelling evidence that people have to do [it] to know that for sure it's going to work. But when you look at [the studies], [they suggest weight loss] is a pretty strong signal [to decrease chances of recurrence]. I think if a woman who has a diagnosis of breast cancer wants to know what she can do to help prevent recurrence, [weight loss] might provide an answer that could have other health benefits as well, perhaps maybe especially if she has a hormone receptor-negative cancer, and of course that population can't benefit from hormone-based therapies.

Those are the clinical trials. I mentioned exercise and physical activity a couple of times. I should say for patients with established breast cancer, in the past few years, there have been four large studies – observational studies – looking at whether women who were more physically active after a breast cancer diagnosis had fewer recurrences. The results are really remarkable. It looks like a modest amount of exercise. For cardiovascular reduction, you need this kind of aerobic exercise. It would have to be activity where you couldn't be talking while you're walking, and things like that. But for this, it was just regular walking.

Walking for three hours or more a week has been associated with between 20 and 40 percent

reduction in risk of recurrence. Recurrence is often a noncurable condition. It just seems incredibly remarkable in terms of something like that. The dietary change, you can see how a lot of us – you have a whole history of wanting to eat certain types of foods, wanting to prepare them a certain type of way, have a family unit who wants to eat a certain kind of way, wants to have their foods prepared a certain kind of way. So you have a fair amount of additional barriers to how you're going to make a dietary adjustment.

But for walking three hours a week, even in, as they say, sunny California – but my daughter is in Connecticut, and I know that even in the winter there, when it's cold or whatever else is going on, there are places, like the malls, where it's pretty easy to get in three hours a week of walking.

That's the kind of thing where we don't have randomized trial evidence. Those trials are just being started now. They'll take a while to get completed. But, of course, for a woman who has breast cancer now, it may not do you any good to find out three years from now that your recurrence could have been prevented by increasing physical activity. So basically, unless one has a limitation to regular walking, I would encourage any of the women who are out there who have a breast cancer diagnosis to actively consider this.

Basically, you just have to look at your life and say – we're all busy, but you'd say, boy oh boy, there's got to be three hours or so that you could free up to do this kind of thing that really could potentially benefit your health and possibly even your survival. Again, there's no randomized clinical trial evidence.

Many breast oncologists – and I'm kind of a breast oncologist – would feel a little restrained from trying to encourage women to do this. It's interesting, because I work on both sides of the fence. I'm doing these trials, but I'm also giving the drugs and trying to make the drugs better. I have a lot of contact with experts in drug development. One of the things they tell me is, "Since we're not sure, we don't want to make a woman feel guilty that if they didn't do this – like change their diet – if they weren't physically active, that they were responsible for their cancer coming back." In a certain sense, I could see that.

In some places we have great certainty. With smoking, we're not afraid to tell people who smoke, "If you don't stop smoking, you're likely to die of lung cancer or heart disease." We tell people that, and that seems very rude. I think the weight of



evidence for what we've been talking about so far – dietary fat intake reduction, moderate weight loss – doesn't reach that threshold and certainly doesn't reach that threshold for increased physical activity. On the other hand, those things are inexpensive, would have other health benefits, would probably be generally good for people and reflect our evolutionary norm, I guess, is the other way to look at it.

Anyway, that's where we stand. Many of you might say, well, my oncologist never told me about any of this. I think that's the reason. One oncologist told me he didn't want a woman to feel guilty if her cancer came back because it was related to her having a Big Mac. In a certain sense, it could be viewed as dismissive. The other way is, unless you're certain, to not want to make people feel guilty. But I think these trials did demonstrate that such interventions can be done in a wide scale in a randomized trial setting. We meet the same criteria, published in the same journals that the drug development, the new drug trials are being published in and are getting the same peer review.

I'll touch on one more topic that has gotten interest and, again, recent publicity related to breast cancer recurrence or for breast cancer survivors. That's the question about vitamin D intake and breast cancer risk, on the one hand, and measurement of 25-hydroxy vitamin D – the active component that it gets converted into in the body – in the blood and in breast cancer in women who have diagnosed breast cancer. There have been a number of observational studies – many, many – that suggest that low vitamin D might be associated with higher breast cancer risk.

At this last cancer meeting this past June, Pam Goodwin from Toronto produced evidence – again, a retrospective, observational study – in a population of about 700 breast cancer patients that the women who had the lowest 25-hydroxy vitamin D levels were at substantially increased breast cancer recurrence risk [http://www.asco.org/ASCOv2/Meetings/Abstracts?&vmview=abst_detail_view&confID=55&abstractID=31397]. The question is whether women should be taking more vitamin D with breast cancer. Should women have their 25-hydroxy vitamin D levels measured and then try to increase the levels? Those are very active concerns. That received active discussion.

At the breast ASCO meeting, which was two weeks ago in Washington, I presented results from the Women's Health Initiative trial – again, not

breast cancer, but this was for 36,000 postmenopausal women randomized to calcium/vitamin D, calcium with 1,000 milligrams of elemental calcium per day and 400 international units of vitamin D3 [<http://jnci.oxfordjournals.org/cgi/content/abstract/djn360>]. There's D1 and D3. D3 is a little bit better absorbed. Multivitamins commonly have 400 international units of either D1 or D3. You can see it is an intervention, but not really a high-dose intervention. That was the recommended dose when we started the trial.

Interestingly, there was absolutely no effect on breast cancer incidence. I think the more important finding that puts caution to some of the other questions was that we measured the 25-hydroxy vitamin D levels in all 1,100 women who developed breast cancer and then matched that by measuring the 25-hydroxy vitamin D in another 1,100 participants in the trial who didn't develop breast cancer, and the levels were no different in the two groups. Interestingly, when we divided up the 25-hydroxy vitamin Ds into the women with the lowest fifth number and women with the highest fifth in terms of averages, it did not appear that the dietary intake or supplement use was very much related to the 25-hydroxy vitamin D. It seems to be coming from someplace else.

One of the things that it seemed to be coming from was genetic. The levels were high not because women were taking more vitamin D, but because they had high levels. We looked at other factors that might be associated with the 25-hydroxy vitamin D level, and, interestingly, leaner women who were more physically active had higher levels. And it might be an indirect measure of sunlight exposure. But the interesting finding, of course, is that increased physical activity, leaner women, would be less likely to have recurrences. So maybe the 25-hydroxy vitamin D is not the important parameter. It might be simply measuring the women who are not so heavy and are more active, and those are the factors that were influencing their recurrence risk.

That study will be published in a few weeks. I anticipate that will have a lot of discussion to help change the field. You hear a lot of discussion now about giving high doses of vitamin D to get to a target population. I don't think there is really a basis for that recommendation at the present time. We have these findings that suggest other factors are determining a woman's 25-hydroxy vitamin D levels, not how much she's taking in by diet or supplements.

We've covered a lot of ground there, so maybe I can stop and see if I've generated any questions or comments.

ELYSE S. CAPLAN, MA:

Dr. Chlebowski, first of all, you did cover a lot of territory in about a half-hour. I know it's a topic that is pressing on a lot of people's minds. You mentioned something that I think is really important, aside from a lot of the research, of course, which is obvious. At the beginning of your comments, you talked about observational studies and how they are not definitive answers. They're not evidence-based. And they are often what appears in the news media.

I think that is something we're all exposed to, and we need to have it put in context. Women need to take the things we hear about as they relate to breast cancer and, in this case, for today's topic – nutrition or diet – and get back to the medical oncologists and the your health providers to pose these questions so you can find out what applies to you and your specific personal situation. I appreciate you delineating between observational studies, epidemiological studies, randomized trials. Those are important frameworks for people to keep in mind as we look at the research.

I also think it was great that you covered the WINS trial, the WHEL trial and the Women's Health Initiative, all things that we have heard a lot about and that we're following in the research. For today's purposes, we're just looking at the impact of diet on breast cancer incidence or risk for recurrence, but would you agree it's fair to say there are many other variables that play into a woman's risk for recurrence outside of diet and exercise?

ROWAN T. CHLEBOWSKI, MD, PHD

Sure, and I think that's responsible for sometimes a perceived disconnect between what a medical oncologist will tell a woman or advise a woman when even these discussions are raised. I think as a medical oncologist, we're trying to get strict evidence – because we're giving very toxic therapies – that these therapies are really worth it. We have to have very strong information about efficacy. I think it's true that the current information that we have doesn't provide that same level of evidence for lifestyle or nutrition.

Even more important, as you stated, is that you could do all the right things – and this comes up all the time, doesn't it? There may be people, they're doing everything, what appears to be correct, and then they develop breast cancer and



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then their breast cancer recurs. They were doing all the right things from a lifestyle standpoint. They were going to the finest oncologists; they were getting the most current therapy. It just goes to show that other factors in terms of the nature of the tumor, that we don't control how it develops.

It pretty much runs the show in a fair number of cases. That's kind of the balance, because you want people to do all of the right things. You don't want people not to go to medical oncologists. You don't want people to turn down therapy and maybe not consider lifestyle change. But they have to recognize that often times, unfortunately – we see this from the medical oncology side – the tumor runs the show. That's important to remember, especially if people are in that situation, to know that it wasn't their fault that the tumor has come back or the tumor develops.

ELYSE S. CAPLAN, MA:

I appreciate those comments, because so many women feel that the rug got pulled out from under them. Many don't have a history of breast cancer and are trying to figure out, "Why did it happen to me?" and feel a lack of control. But some of the points you've covered with diet, nutrition and lifestyle are things that individuals can manipulate and take control of. Sometimes that can be very empowering.

I'd like to move into the question-and-answer portion. Please keep in mind that your questions should be brief, limited to one – because we'll have a lot of questions to answer – and try to keep your question framed in a broad framework, because Dr. Chlebowski can't do a personal consultation. Thanks so much.

OPERATOR:

Thank you. Your first question is from Hanover, New Hampshire.

CALLER:

Thank you so much. I was very interested in the results of the WINS diet, but I understand they apply mostly to postmenopausal women. I was wondering for premenopausal, hormone negative women, is this kind of diet also seen as beneficial? Are the exercise recommendations similar to what's seen in the postmenopausal women? Thank you.

ROWAN T. CHLEBOWSKI, MD, PHD

Sure. Thanks for the question. In the WINS trial, we only evaluated postmenopausal women, so we don't know if it applies to premenopausal

women. Same thing for the Women's Health Initiative. Theoretically, though, one would think it would have the same potential benefits, because it would seem like if it's really mediated through insulin change, that could have the same potential benefit. We have no randomized clinical trial evidence. I think the observational studies suggest that it probably should work the same. But, again, no randomized clinical trial evidence.

In terms of the exercise, the exercise recommendation is pretty simple. It looked like walking three hours or more a week at a regular pace – you can walk and talk, but you can't be walking in the mall and looking at every window. It looked like more strenuous exercise wasn't particularly more beneficial, and longer durations, more than around six hours or so per week, weren't more beneficial. For a woman to get this benefit that we see in the observational studies, it isn't like marathon training. It's just the discipline of getting out and walking. Boy, that's the easiest thing of the palette of lifestyle recommendations that might have benefit.

CALLER:

Thank you very much.

OPERATOR:

Your next question is from Chevy Chase, Maryland.

CALLER:

Thank you. I'd like to find out if there are any studies talking about alcohol consumption in breast cancer recurrence.

ROWAN T. CHLEBOWSKI, MD, PHD

Yeah, let's see. It's kind of interesting that – so, moderate alcohol intake associated with decreased coronary heart disease risk but moderately elevated breast cancer risk of development. It's kind of a balancing act in terms of overall benefit. I'm trying to think. It doesn't seem that alcohol use jumps out from the recurrence side as being a factor related to increased recurrence. Having said that, I don't have a particular recollection of how that works, but it doesn't seem that it jumps out as a very strong effect, because it's something that is not frequently asked to be controlled for in these trials, and we didn't see an association in the WINS study with alcohol intake.

CALLER:

Thank you.

OPERATOR:

Your next question is from Minneapolis, Minnesota.

CALLER:

I've been reading a lot about the impacts of hormones and antibiotics in the animal products that we consume: milk, cheese, meats. I'm wondering if there are any studies under way around that and the impacts of those hormones on excess estrogen and hormone receptive breast cancer.

ROWAN T. CHLEBOWSKI, MD, PHD

It's an interesting area. As we were talking about, I'll give you this big picture concept about not feeling guilty about doing lifestyle or not. Here is another area. This is where there is this great interest in food additives but limited research in the area. It's interesting; I think people would rather think that it's something that's happening to them – in other words, you go to the grocery store, and no matter what you buy, you're going to get this bad effect – rather than a choice you make by either buying this or that product. I should say that I'm not aware of any compelling evidence that those additives are influencing recurrence risk or hormone levels. It probably needs to be studied. It's interesting. It gets less studied because the weight of evidence isn't so great to have it be studied.

One of these issues is that for testing some of these things, like the dietary fat intake, you need a weight of evidence so that somebody would say, "We'll give you \$30 million to test it," because they think it's likely to be important. If something doesn't have that weight of evidence, then it's almost like a catch-22. You can't get started on it. The current evidence, I wouldn't be concerned about food additives for breast cancer recurrence at the present time. I agree it's an area that probably needs more attention but probably needs more data before it's going to get bigger attention.

CALLER:

Thank you.

OPERATOR:

Your next question is from Fort Lee, New Jersey.

CALLER:

Thank you. Nutrition after breast cancer is so huge for me, so I thank you for taking the time out of your busy schedule to do this talk. I was diagnosed a year ago, and I now struggle with the



whole organic thing and the soy. I'm estrogen receptor positive, so I assume limited soy is probably best for me – if you can comment on that. And vitamin D – I have a seven-year history of basal cell carcinoma, so I'm very fearful about being out in the sun. I wear my SPF 55 and never really want to be out in the sun very long. I know the importance of getting vitamin D, but how can I go about doing that? Those are, I guess, some key things for me.

ROWAN T. CHLEBOWSKI, MD, PHD

The first part is taking the soy because of climacteric symptoms, hot flashes, stuff like that? Or why would you be taking the soy?

CALLER:

You read about how the soy has controversial – before getting breast cancer, it's said it can help against. Then once you're diagnosed with breast cancer, it depends on – at least as far as I've learned – if you're estrogen receptor positive, then it's not so great to have a lot. Not that I do. I'm not a soy milk drinker, but [I eat edamame] or other things like that. But if you're estrogen receptor negative, it's a good thing – correct me if I'm wrong.

ROWAN T. CHLEBOWSKI, MD, PHD

That's okay. That's observational study evidence, and it's the kind of [an] observational study – see, like when we [inaudible] the diet, there had to be enough evidence to have somebody give us the money to do the trial. The soy stuff is at the point where there doesn't seem to be enough money for people to think a trial is worthwhile. I think a moderate amount of soy isn't going to hurt. I don't think there's strong evidence that it's going to be helpful. If people are taking it to try to treat vasomotor symptoms, I don't think that's such a good idea, because you're making a bet that – it's probably going to be estrogen mediated. You're making a bet that it doesn't have an unfavorable effect on breast cancer. We don't really know that. So I think the moderate amount of soy that you're taking is fine.

Vitamin D, you probably need some. Current recommendations are – it used to be 400. Now it may be 800 international units per day. That's easy to do. There are carloads of inexpensive vitamin D available. You just take one pill a day of D3, 800 units. Then you're kind of bypassing the need for sunlight exposure.

CALLER:

I could do it by vitamins and then not worry about, oh, I have to stay out there and not put on SPF 55?

ROWAN T. CHLEBOWSKI, MD, PHD

Yeah. That's right. It's probably a good idea to not be too sun exposed, because it looks like you end up having some reason to avoid that. I think that would be a potential solution.

CALLER:

Right. Thank you very much.

OPERATOR:

Thank you. Your next question is from Ross, California.

CALLER:

Hi, Doctor. Thank you very much. You've been very informative. Regarding the question of exercise, I'm a huge exerciser. I do not only walking but also weightlifting. Are there any studies or indications whereby other forms of exercise besides walking are beneficial in terms of recurrence?

ROWAN T. CHLEBOWSKI, MD, PHD

A little less so, because it's been harder to get observational studies for people who do a substantial amount of strength training. If you say, "Do you do recreational physical activity that involves walking?" you get a bigger proportion of the population than of women who would say they do some kind of strength training. Having said that, there are a lot of relatively small trials looking at either strength training or more aerobic exercise in breast cancer survivors. It looks like many of these markers of fatigue and energy and quality of life all seem to be improved. Like I said, we just don't have enough evidence to strongly relate strength training to recurrence risk. But it seems like it certainly wouldn't hurt. That's where we are in terms of the evidence.

CALLER:

Thank you.

OPERATOR:

Your next question is from Arlington, Virginia.

CALLER:

My question relates to whether there is any evidence that indicates that there are related cancers. In other words, if you have breast cancer and another cancer, could it be that the other cancer and whatever dietary issues are surrounding that particular cancer could also have an impact, then, on the recurrence of breast cancer?

ROWAN T. CHLEBOWSKI, MD, PHD

Thanks for the question. The question is multiple cancers in an individual. It is interesting that, compared to what we'd expect from a population basis, there are relatively few cancers that women would get more than one type of cancer. Having said that, there is a direct association on a genetic basis between certain types of cancers – so ovarian cancer, breast cancer for the germline mutation carriers; there's a strong association. It was felt that maybe colorectal cancer would be under the same kind of dietary control, but, again, in that same dietary modification trial, in the Women's Health Initiative I talked about, where we saw a signal for breast cancer effect, we didn't see any signal at all for colorectal cancer effect.

It's theoretically possible, but I think because the numbers are smaller, it's a little hard to see the association. If there is an association, it's probably more likely to be genetic or related to environmental exposure. For instance, people who get a – not necessarily related to breast cancer. People who get, say, for instance, a head-and-neck cancer, which could be alcohol-, smoking-related, are much more likely to get esophageal cancer, lung cancer, where you had all of those three fields exposed to the same environmental exposure.

CALLER:

I, for example, had thyroid cancer initially and then subsequently was diagnosed with breast cancer. I know that there are many women out there who are like me who have had both of those cancers.

ROWAN T. CHLEBOWSKI, MD, PHD

That's another association. ... So, yeah. It looks like their going together may not be "dietarily" mediated. That's right. Because there are questions as to whether some of these thyroid hormones, which can be growth factors, are going to influence particular types of breast cancer development. When we look at the things that are being associated with breast cancer, you have estrogen, which is a growth factor; insulin, which is a growth factor; testosterone, which is a growth factor. And thyroid, we don't think of it that same way, but it also can be a modulator of growth.

CALLER:

It's just so central to metabolism. Thank you.

ROWAN T. CHLEBOWSKI, MD, PHD

Sure.



OPERATOR:

Thank you. Your next question is from Louisville, Ohio.

CALLER:

Thank you for taking my question. I am a six-year survivor. I'm 72, not overweight, very active still. But away from the diet, is there anything new on the length of time you can take aromatase inhibitors? I will finish up my five years in July, which takes away my security blanket. I was wondering, are they going to extend this or is there any new testing done on this?

ROWAN T. CHLEBOWSKI, MD, PHD

That's one of the areas that I have a particular interest in. I'm looking at a big review I'm writing on aromatase inhibitors and breast cancer. One of the little chapters is duration of therapy. I think this could be of interest to other people as well, unrelated to diet. The aromatase inhibitors, which reduce estrogen levels 90, 95 percent, already low postmenopausal levels, are currently recommended for five years of therapy. There are trials in the United States looking at more than five years or stopping. Interestingly, trials in Europe are giving – after five years of prior hormone therapy, they're comparing two years of aromatase inhibitors to five years. So they're taking a seven-year base.

We have a lot of signals that it looks like tamoxifen, for longer intervals, is more effective. We have a fair number of signals that longer-duration aromatase inhibitors are better. We may not get definitive evidence for years. On the individual basis – this is off product label – I think we have enough information on the safety parameters that I'm telling people that we don't have definitive – we don't have evidence – and I'm telling people that it's not the label indication, but I'm continuing aromatase inhibitors. This would be something where you might as well wait until you get close to the five years, but then I would ask my doctor.

I think it's going to vary from medical oncologist to medical oncologist what people will do, how you'll interpret the evidence or how comfortable you'll be with continuing. But I think there is a theoretical case to be made for continuing aromatase inhibitors beyond five years.

CALLER:

That's encouraging, and my oncologist is at a major center, so I'm sure he will be on top of it. But I always like to keep asking, so when I get up there I have information.

ROWAN T. CHLEBOWSKI, MD, PHD

Okay, great.

CALLER:

Thank you.

OPERATOR:

Your next question is from Clarksdale, Mississippi.

CALLER:

Thank you. This has been really interesting. I have a lot of things here I've been jotting down. I had HER2 breast cancer and one breast removed, and then it got into my lymph nodes, but it had not been in another part of my body. I'm wondering if money is not spent on prevention before people get it or for recurrence, what in the world are we spending money on? We have not found a cure yet, have we?

ROWAN T. CHLEBOWSKI, MD, PHD

I should say let's compare it to 15 years ago. Fifteen years ago, a woman with hormone receptor-positive breast cancer – now, compared with 15 years ago – probably has about a 70 percent less chance of having recurrent disease and dying of breast cancer than she did 15 years ago. In your case, which I understand, you're talking about HER2 overexpressing cancers, where with Herceptin and chemotherapy, that's the same story. Compared with 15 years ago, you have a 70 percent less chance of having recurrent disease and dying than you did 15 years ago. It's not a cure, but that's really moving forward.

We're doing a prevention trial now with aromatase inhibitors. It's exemestane versus placebo in postmenopausal women. Our target for this intervention is we're anticipating a 70 percent reduction in postmenopausal breast cancer. If that's the result we get, and people knew if they took a pill for three or four years that they would reduce 70 percent of the chance of developing breast cancer, that would really be something. So we're spending some money on it. Who decides how much money we spend is we do, when we do the polls and vote for one guy versus the other guy, like that. ... That's what determines how we spend the money. Society determines, through our elected officials, how we're going to prioritize our expenditures. But we're making progress.

CALLER:

Thank you. Because I think we need to be.

ROWAN T. CHLEBOWSKI, MD, PHD

Okay, good.

OPERATOR:

Thank you. Your next question is from Vacaville, California.

CALLER:

I have a question. I know you're an oncologist, so this is kind of out of the diet-based talk that you had. But I was wondering if there is any correlation when you're having surgery with a high inflammation level and recurrence.

ROWAN T. CHLEBOWSKI, MD, PHD

That's an interesting topic. I think some of these questions – I appreciate them – will be of general interest as well, so I think they're well worth coming to and addressing. There is this early recurrence peak for breast cancers, occurring in the first two to four years or so, and then recurrence settles down and then it stays, unfortunately, at a constant rate for decades afterward. It's a little unclear what the biology would be for that recurrence peak.

Michael Baum, who is a very prominent London surgeon, breast surgeon, retired from surgical practice and then opened an oncology practice and now has done some thinking about it, some animal models suggesting that – just as you're proposing – inflammation markers related to surgery could be responsible for the early recurrence peak. But of course you need to get the tumor out, like that, so that's a bit of a two-edged sword.

We're getting better at knocking down that recurrence peak with aromatase inhibitors instead of tamoxifen, for instance, in postmenopausal women, and with trastuzumab, or Herceptin, in HER2 overexpressing patients. That's a theoretical concern. One could also think about less invasive ways of removing the tumor. You have a couple of things going on there. We need the tumor out. Currently it's an unavoidable aspect of standard breast cancer management.

CALLER:

How about in a prophylactic setting, though, if you're thinking of having the other breast taken off and you don't have cancer in that breast?

ROWAN T. CHLEBOWSKI, MD, PHD

Oh, aha!

CALLER:

And checking the C-reactive protein – is there any validity to having that tested prior to going through surgery?



ROWAN T. CHLEBOWSKI, MD, PHD

No, I don't think so. We don't have any correlation between any of these inflammatory markers used before or after in breast cancer recurrence. It's an interesting prospect. The question, because there are a couple of things: There are more prophylactic mastectomies in women getting double mastectomies now. There's a little bit of a trend in the United States that wasn't there ten years ago. So, doing maybe even subcutaneous mastectomies and then reconstruction. That's an interesting discussion point. I haven't seen any data on it, but you raise an interesting point. Thanks. That was good.

OPERATOR:

Thank you. Your next question is from Madison, Maine. Please go ahead.

CALLER:

I just want to thank you so much for the way you untangled this information for us. It's so vital for us. My question is regarding nutrition and exercise. I am being treated. I travel five hours to go to Dana-Farber Cancer Center. I'm being treated with two years of tamoxifen followed by five years of aromatase inhibitors. The tamoxifen has given me incredible hot flashes. Short of taking another med to deal with that, is there anything exercise or nutritionally that you can recommend to help me manage those sleepless nights?

ROWAN T. CHLEBOWSKI, MD, PHD

That's a very difficult kind of situation. People talk about exercise and hot flashes. That's commonly recommended, but the data are really not very good for that in terms of making a difference, making a substantial difference. There's nothing that I know of in terms of diet. I would caution against trying soy or over-the-counter things, because almost all of those agents – black cohosh, soy – are going to be estrogen mediated. And do you want to be giving something that's giving back estrogen while you're taking tamoxifen?

If it becomes intolerable, then it really becomes a question of hot flashes are less on aromatase inhibitors. They're increased above baseline, but they're less than on tamoxifen. I know the Boston group commonly recommends tamoxifen, first of all, by aromatase inhibitors. Actually, in some of these settings, we've been on pros and cons debating things at medical meetings with some of the prominent investigators at

Dana-Farber. The other thing would be to ask your doctors what they say about considering switching to aromatase inhibitors to see if your hot flashes are better.

CALLER:

Thank you so much.

OPERATOR:

Your next question is from Miami, Arizona.

CALLER:

Hello, Doctor. Thank you very much for providing this information for us. I've been treated through Mayo Clinic in Scottsdale, Arizona, for my breast cancer for the past year. I was estrogen/progesterone positive, HER2 negative, negative nodes, full bilateral, and an Oncotype score of one, so my risk of recurrence is extremely low, fortunately. I am being treated with Arimidex right now, and I have concerns about phytoestrogens in foods.

I've tried very hard to watch what I'm eating. I've lost 40 pounds. I've worked out on a regular basis. I'm doing what I think are all the right things that I should do so that if it does come back at least it's not going to be for lack of effort on my part. But I get very conflicting information about phytoestrogens for estrogen/progesterone positive and whether or not they have any effect on the aromatase inhibitors.

ROWAN T. CHLEBOWSKI, MD, PHD

Are you taking them or just trying to avoid them or what?

CALLER:

I don't know if I should be avoiding them. There are things like multigrain bread. ... [The multigrain bread has this] little backwards [U] for 100 grams. But [it has] like 4,798.7 [of phytoestrogens]. It's way up high on the list of phytoestrogens. Yet for a healthy diet, going to multigrain breads [seems to be the way to go] ...

ROWAN T. CHLEBOWSKI, MD, PHD

One of the things that's coming out is that at one time we thought maybe there is a universal diet that's good for all chronic diseases, Western diseases. But it might be so tough that nobody could take it. In other words, if we go back to the evolutionary norm when we were running around trying not to be eaten and eating berries and twigs and stuff – so, that could be like a rare protein except for the one time a year that you catch a caribou or something. What I want to say is that some of the things that might be good for heart

disease may not be as good for breast cancer and vice-versa. For breast cancer, I'm a little concerned about going out of my way to look for phytoestrogens. I think if you just try to avoid them by buying regular stuff, you'd stay away from them, because it's only particular foods that would have them in the higher concentrations.

My bias would be that we don't know what phytoestrogens do. We don't know if they're estrogenlike or not estrogenlike on breast cancer. We simply don't. Then the question is, why go out of your way to take a chance on observational study data that could be bad? Now, we're saying exercise is observational study data, but it's hard to see how exercise is going to be bad. But phytoestrogens could be bad, so I would try to avoid things that are loaded with phytoestrogens.

CALLER:

Thank you very much.

OPERATOR:

Your next question is from Ann Arbor, Michigan.

CALLER:

My question is whether you are familiar with The Cancer Project, which is actually a project of Dr. [Neal] Barnard, where he talks about the necessity for eating an all plant-based diet in order to prevent cancer and other diseases and also to prevent recurrences. I actually had taken a course. It was a cooking course. This was a series of classes that basically taught us about the different aspects of food and the havoc they can create if they're not plant-based.

ROWAN T. CHLEBOWSKI, MD, PHD

The relative benefits of a plant-based diet, it's probably substantial, and kudos to [inaudible] Foundation for posing some of these questions. Whether you need to go to all plants or not I think is, again, one of those – you really have to depend on observational studies, and often somebody who would be talking about plants and specific types of plants related to breast cancer might even have to go back further to talk about preclinical data. I think to stay away from meat and animal protein and animal fat is probably a good idea based on the observational study data. There may be other health benefits for doing an all plant-based diet. But I don't think there is particular evidence for specific types of plants and things and for, particularly, incidence of breast cancer recurrence.



CALLER:

Of course the dilemma is, again, soy, because that's obviously a big part of eating a plant-based diet in order to get protein and other nutrients. Then, of course, those who are estrogen positive have that dilemma of, okay, a plant-based diet, except can't eat a lot of soy.

ROWAN T. CHLEBOWSKI, MD, PHD

Again, everybody likes their own evidence and likes the stuff that they do. When I look at the evidence, I say if I had a choice of a high-soy, all-plant diet versus a low-fat kind of diet with some animal protein and less soy, I probably would go away from the soy myself, the reason being that soy is a potential two-edged sword. The idea is that it's supposed to be a SERM [selective estrogen receptor modulator]-like estrogen, but we do not know that in clinical practice.

I think there would be less evidence – I mean, there is less evidence for all-plant diet in breast cancer recurrence or breast cancer development than there is for some of the other things that we've been discussing, and for the same reason. The same reason is we were able to get our \$30 million to do the study because a whole bunch of people who are neutral to the field thought we should get the money. They didn't have to give the money to this. They could give the money to something else. If this all-plant diet had strong evidence, then you could probably go to somebody, and somebody would give you the money to test it.

That's one of my criteria. When people talk about, "This sounds like it's a great idea; it should be safe and everything, or should be done instead of what everybody else is recommending," I'd say, well, usually if something is going to work, there are agencies here like the NIH. Or if there's a drug, it would be like a drug company will spend the money to try to make the money or try to improve health outcomes. That's part of my criteria – to get the money, that means you have to get people who are not particularly interested in your field.

When we get the money for this kind of trial, I have to go to a medical oncologist who really would be quite skeptical of diet being able to make a change and convince them that I should get the money to do this rather than doing more drug development. Like the previous caller was saying, why aren't we doing more on this? It's all a relative thing, so people have to decide whether there is enough evidence to want to rigorously test it.

CALLER:

Thank you very much.

OPERATOR:

Your next question is from Bethesda, Maryland.

CALLER:

I guess I'm not statistically up on the latest data on the risk of recurrence of breast cancer in postmenopausal women who go on an aromatase inhibitor for five years.

ROWAN T. CHLEBOWSKI, MD, PHD

Compared to either tamoxifen or nothing?

CALLER:

Let's try both of those.

ROWAN T. CHLEBOWSKI, MD, PHD

We don't have trials against nothing, because tamoxifen was the standard. Tamoxifen for five years, we got great evidence – tamoxifen for five years versus placebo – because they did a whole bunch of trials all at one time, and they've been analyzed and updated. We go to Oxford and look at the data every five years. It looks like tamoxifen for five years reduces recurrence risk by 50 percent in the first five years and then reduces it by 30 percent, even after you stop after five years, in years five to ten. That's pretty good.

Aromatase inhibitors: We have ten-year data for aromatase inhibitors now versus tamoxifen. It looks like it reduces recurrence risk 20 to 25 percent in both the first five years and the second five years, so you get 50 percent and then you get 24 percent of the remaining 50 percent, so it's going to be a 60 or 70 percent reduction in risk of recurrence for taking aromatase inhibitors. That's a big reduction.

CALLER:

That's great.

ROWAN T. CHLEBOWSKI, MD, PHD

That is very good.

CALLER:

Thank you.

ROWAN T. CHLEBOWSKI, MD, PHD

I think maybe the thing to look for is – and then you can ask your oncologist after December. At our recent cancer meeting, there was a study describing bisphosphonate use with zoledronic acid or ...

CALLER:

Yes, I'm going into that study. I'm going to be in phase III of it.

ROWAN T. CHLEBOWSKI, MD, PHD

It was a European study that was reported using zoledronic acid; the same drug is Zometa for cancer, but it's also called Reclast for osteoporosis. For osteoporosis as an indication, for one 5-milligram shot once a year to prevent and treat osteoporosis, well, in this clinical trial, where they gave that same drug 4 milligrams every six months, a six-month injection for three years, they had a 36 percent reduction in risk of recurrence. So if a woman has breast cancer diagnosed, has osteoporosis, you probably could get that drug now in terms of treating the osteoporosis and reducing recurrence risk.

Interestingly, at the San Antonio meeting in the middle of December, there is going to be a definitive study looking at whether these bisphosphonates – these IV bisphosphonates that treat osteoporosis – will reduce recurrence risk. If that's the case, then pretty much, I bet, almost every woman with a diagnosis of breast cancer will be on that drug. That would be something to remember to ask your doctor about from the middle of December on.

CALLER:

Great. Thank you.

OPERATOR:

Your next question is from San Mateo, California.

CALLER:

Thank you for taking my call. I have a question about sugar intake and if there are any studies that show lower risk of recurrence.

ROWAN T. CHLEBOWSKI, MD, PHD

Oh, with more sugar intake?

CALLER:

Exactly. I've read that reducing or eliminating sugar from your diet stops or can stop the growth of cancer.

ROWAN T. CHLEBOWSKI, MD, PHD

Let's see. There could be a relationship – again, a lot of this is going to be observational studies. One of the things that's coming forward, it looks like, if insulin is related to breast cancer, higher insulin is related to breast cancer recurrence, maybe breast cancer incidence, then the more sugar coming in, the higher the insulin would be. That



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would be one potential relationship. Women with diabetes are more likely to get breast cancer, so that would be just an in-the-clinic observation. There are attempts at using drugs that reduce insulin that are given to diabetics now – metformin, a very commonly used drug – to see if that would also prevent breast cancer recurrences. That's kind of targeting the same kind of – but it's more targeting the insulin, which is an indirect response to the higher glucose.

OPERATOR:

Thank you. Your next question is from [inaudible] Illinois.

CALLER:

My question is concerning vitamin B17, or I think it's also called laetrile. There are a lot of books and articles out there in the past few years concerning vitamin B17 having the potential of treating cancer. I'm just wondering what's your take on that. Thank you.

ROWAN T. CHLEBOWSKI, MD, PHD

Yeah, that's an old, old story.

CALLER:

Correct.

ROWAN T. CHLEBOWSKI, MD, PHD

That's one of those 30-year-old stories, I guess. It came into being; there were a couple of laetrile clinics, and people were offering that treatment within the United States. It was a time when our treatment wasn't very good. There really was never any clinical evidence of efficacy. I remember the American Cancer Society then developed what they called a questionable practices list, and it put laetrile on its questionable practices list. So it was kind of like being identified as a communist, or something like that. In terms of current concepts, it really has pretty much gone away as something to consider.

I really think that the way it works now, there are so many drugs in development that have promise, that we're seeing responses with new drugs, first time in patients, that there really isn't any reason to look for nonconventional therapies, especially with breast cancer. There are so many trials, so many promising agents around. Anyway, laetrile's historical importance – 30 years ago, we didn't have much. Some people were trying to set up practices based on that. They got agencies to stop. I think the concept of laetrile has pretty much gone away.

CALLER:

What about eating fruits and vegetables that are rich in vitamin B17?

ROWAN T. CHLEBOWSKI, MD, PHD

In the WHEL trial, we would have to look at the paper to see which fruits and vegetables they were eating, but they increased a substantial amount of fruit and vegetable intake, and it really didn't have any impact on recurrence risk, so I think there's less evidence for that.

CALLER:

Thanks a lot.

ELYSE S. CAPLAN, MA:

On that point, I think we have come to near the end of our program. I want to thank very much Dr. Rowan Chlebowski for his time and expertise. I really want to thank the participants. The questions during our question-and-answer session always impress the staff here at Living Beyond Breast Cancer because they are excellent questions. You're definitely doing your research and wanting to learn more so that you can integrate good practices into your day-to-day life and improve your quality of life and, in this case, find ways to reduce recurrence that may be possible for us to take control over.

Dr. Chlebowski brought up a lot of different things. This is a great way to draw a conclusion to today's program, something he just said: that there is so much research going on and so much more that we're learning every day. Of course we need to learn a lot more so that one day we can prevent breast cancer from happening, and in the meantime come up with newer treatments so we can take care and cure women and have permanent remissions, for lack of a better word. But we are doing a lot of research.

Dr. Chlebowski highlighted some of the key studies in the nutritional end but indicated that there are many more studies going on. There are many new treatments in the pipeline, which is what he basically concluded the last answer with – just giving us words of encouragement that there is a lot of breast cancer research going on. And over time we will learn more and hopefully integrate into practice the new treatments, the new methods to prevent, treat and reduce recurrence risk.

On that note, because I do my final conclusion, I want to know if Dr. Chlebowski has any parting comment.

ROWAN T. CHLEBOWSKI, MD, PHD

I want to thank everyone for the opportunity to participate here. I must say, I was tremendously impressed with the questions, the topics that were raised, the succinctness and the directness with which they were identified. I think they really generated useful, practical information. I really was impressed with the whole process.

ELYSE S. CAPLAN, MA:

Thank you. We would, again, like to thank the Avon Foundation, whose generous support made today's program possible. One of the things we'd like participants to do is, because this topic is such a popular topic and there is so much to say about it, Living Beyond Breast Cancer has message boards on our website [<http://lbcc.org/>], so please feel free to continue your discussion peer to peer. Find some peer support by visiting the LBBC website [<http://lbcc.org/>] and clicking on the "Message Boards" button. You can post a message and perhaps learn some tips from other women who have experienced ways to manage some of their side effects and deal with some of their nutritional and lifestyle challenges that may be practical. Also, complete your evaluations and please remember that if you want peer emotional support, you may call our toll-free peer support Survivors' Helpline at (888) 753-5222 – that's to speak to another woman affected by breast cancer for peer emotional support.

[END OF TRANSCRIPT]