

# **What You Should Know about Women's Hormones**

A Teleseminar Session with  
Pamela W. Smith, MD, MPH  
and Ruth Buczynski, PhD

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A complete transcript of a Teleseminar Session  
featuring Pamela W. Smith, MD, MPH and conducted by Dr. Buczynski Buczynski, PhD of NICABM

## What You Should Know about Women's Hormones

with Pamela W. Smith, MD, MPH  
and Ruth Buczynski, PhD

**Dr. Buczynski:** Hello everyone! Welcome back to our series on Women's Health. We have a great call lined up tonight - but first I want to welcome everyone on this call; all the practitioners who are calling in from all over the world, I know you are calling from so many different time zones - and it is early in the morning, in the middle of the night, and very late at night and in the middle of the afternoon. We have a wide range of places that we are participating from but this is worldwide event of practitioners gathering for the purpose of looking at women's health.

As far as our practitioner team, we are multidisciplinary; we are physicians, and nurses, and psychologists, and social workers; counselors, marriage and family counselors. We are physical therapists and occupational therapists, and dieticians, and clergy. We have got a wide range of practitioners. And *that* is really important. It is important to have that multidisciplinary approach as we work to serve the needs of women's healthcare.

My guest tonight is Dr. Pamela Wartian Smith. And she is an MD as well as a Masters in Public Health. And she spent the first twenty years of her practice as an ER doc in the emergency room at Detroit Medical Center. And from there she went into working with the Center for Healthy Living and Longevity where she is currently the Director. She is also the Director of the Fellowship in Metabolic Anti-Aging and Functional Medicine and the Director of the Masters Program in Metabolic and Nutritional Medicine at the University of South Florida School of Medicine.

Pamela, are you more a Floridian or a Michigan? I think of you as a Michigan person - but are you now residing in Florida?

**Dr. Smith:** I do reside in Florida. I live in St. Pete. My patients are still back in Michigan so I fly back and forth quite a bit.

**Dr. Buczynski:** I see. Okay. Well, we are awfully cold up here in the north - just so you know!

**Dr. Buczynski:** Well, let's jump right in. I just have to thank my staff because they are so good at helping to develop these agendas. Two staff members and myself have worked really hard for the last week to develop an agenda that would make the most of our time with you and your expertise. We want to start by looking at what everyone needs to know about the interplay of women's hormones.

When we think about women's hormones - you know, caricatures come to mind of PMS, and the stereotype of a woman gone crazy. But can you talk to us about what is important about hormonal balance?

### Women and the Importance of Hormonal Balance

**Dr. Smith:** Well, I really honestly believe - and I have written two books on hormones -that it is all about the hormonal symphony. The hormones do play in concert, and if you have one out of balance - too high or too low - then it really *does* affect all of the other hormones in the body.

Let me give you a couple of examples. Estrogen is a very important hormone. It has 400 functions in the body. It does a lot of things, from lowering cholesterol, to blood sugar, to blood pressure, and it helps the body deal with stress. It even helps with vision because there are estrogen receptors in a woman's eyes.

I mean, literally, I could go on and on. It stimulates the production of choline acetyltransferase, an enzyme which prevents Alzheimer's Disease. It improves infant sensitivity, sleep, increases blood flow, it inhibits platelet stickiness; it helps maintain the elasticity of the arteries. It even helps how the skin looks. It decreases LDL and even more importantly, prevents oxidation. It also helps with fine motor skills, maintains bone density - all of these great things. But it does have to balance with progesterone.

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If we get one of the hormones out of balance, then it can become a problem. For example, sometimes women who come to see me have been using progesterone. In some countries, like the United States, you can get progesterone without a prescription. These women are low in estrogen and they are afraid to take estrogen because they don't understand the hormonal symphony.

Well, there is definitely a downside, for women who use progesterone without estrogen onboard. For example, what estrogen does, as we just said, is lower blood sugar. What progesterone does is raise blood sugar. If a woman takes progesterone without adequate estrogen, then her blood sugar will start climbing. She will develop insulin resistance.

If she does it long enough, she can develop diabetes. Women with progesterone without estrogen can have weight gain. They could also increase total cholesterol, decrease HDL, increase LDL, and drive up triglycerides.

Women with too much progesterone can develop depression and fatigue. It can elevate cortisol, another hormone of the hormonal symphony. It can relax muscles of the gut so she can have a bloating, fullness and constipation. Too much progesterone can cause incontinence. It drives down growth hormone, the hormone that keeps you young and compromises the immune system.

So it really *is* all about balance.

**Dr. Buczynski:** Okay. We have talked a little bit about estrogen and progesterone. The other sex hormones would be testosterone and DHEA. But in addition to that, there are some other major hormones that come into play. Let's just identify the major hormones that we might want to think about.

**Dr. Smith:** Well, let's go back and look a little bit further at the

"If a woman takes progesterone without adequate estrogen, then her blood sugar will start climbing...she can develop diabetes and have weight gain."

idea of when we give estrogen, so that we are all on the same page. Studies have shown that when we give estrogen, the body makes three estrogens: E1 - Estrone, E2 - Estradiol, and E3 Estriol.

We don't replenish E1 because that is the one that most scientists believe increases a woman's risk of breast cancer. We give E2, Estradiol, which is the functional estrogen, the 400 functions. We also want to go ahead and give E3 which is the estrogen that most scientists believe helps to decrease the risk of breast cancer.

We always want to give estrogen transdermally because estrogen by mouth can increase blood pressure, drive up triglycerides, and increase E1, the estrogen we *don't* want to increase. It can cause gallstones and elevate liver enzymes. Estrogen by mouth can increase sex hormone binding globulin, and lower testosterone. It can lower growth hormone. Estrogen by mouth has prothrombotic effects. Three major studies have shown that estrogen transdermally does *not* - as long as you are using E2 and E3. Estrogen by mouth can increase C-reactor protein. And we want to balance, again, with the progesterone.

"We always want to give estrogen transdermally because estrogen by mouth can increase blood pressure, drive up triglycerides, increase E1, the estrogen we *don't* want to increase."

We also look at estrogen metabolism; how the body breaks down estrogen into 2-, 4- and 16-hydroxyestrone. And we can now measure those by doing a urine test.

So when people think that we just give estrogen, they come in and they think, "Well, I'm going to come in and get estrogen." We do look at how estrogen is broken down in the body as well because the good news is, if estrogen is broken down into less desirable forms, we can fix that in almost a hundred percent of patients.

**Dr. Buczynski:** And are we doing that with bioidentical hormones?

## Bioidentical Hormones

**Dr. Smith:** We are. There was a landmark article in *Post Graduate Medicine* January 2009 by Holtorf that really reviewed the world's literature and showed that it is very important to use bioidentical hormones, which means the same chemical structure that God gave you to begin with. It doesn't necessarily mean it comes from a plant. In this case it does - it comes from yams. But that is really not what the word "bioidentical" means in medicine - it means "the same chemical structure."

**Dr. Buczynski:** Now, before we go on further, let's just identify the other hormones. We have got stress hormones, and glucose hormones, and memory, and so forth. The stress hormone would be cortisol.

**Dr. Smith:** Yes. When we look at all of these we do end up measuring the estrogens, progesterone, testosterone, the stress hormones, DHEA and cortisol. We always measure pregnenolone in someone over the age of forty-five, which is the hormone which makes all the things I just mentioned. We also want to look at fasting insulin - that is part of the hormonal symphony as well.

"A landmark article...reviewed the world's literature and showed that it is very important to use bioidentical hormones, which means the same chemical structure that God gave you to begin with... the word 'bioidentical' means 'the same chemical structure.'"

**Dr. Buczynski:** This is good information. And the thyroid - we look at the thyroid as well?

**Dr. Smith:** We do. The thyroid is the body regulator. It is really important when we look at the thyroid to do *all* of the studies. We want to get a TSH, we want to get a Free T3, a Free T4, a Reverse T3, and thyroid antibodies. Because if we *don't* get all the different studies, at least thirty percent of the time we will miss the fact that the patient may be hypothyroid.

**Dr. Buczynski:** Right. That is more often missed than the other way around.

**Dr. Smith:** I agree with you. Absolutely.

## Factors That Affect Women's Hormone Levels

**Dr. Buczynski:** Yes. So, we are just sort of introducing or getting some groundwork here. What affects the level - and I apologize to the physicians on the call and many of the nurses; I am sure this is information that you already know - but for the sake of the psychotherapists on the call, what affects the level of women's hormones?

**Dr. Smith:** Many things affect the levels of women's hormones. For example, let's take pregnenolone, the mother hormone. A lot of times we will see people that are thirty-five with low pregnenolone and that should not be. But when people are really stressed and most people are in today's society, pregnenolone will preferentially make cortisol. And then people will complain of memory loss or memory not being as sharp. This is one of the symptoms of cortisone not being normal. And so it even starts way up there with pregnenolone.

"When people are really stressed...pregnenolone will preferentially make cortisol. And then people will complain of memory loss...one of the symptoms of cortisone not being normal."

For the first time, we are starting to see low estrogen levels in women who are still cycling. We are not really sure why that is happening.

Progesterone obviously is part of the balance. And sometimes women have hormonal dysfunctions because they have taken hormones in the past - like birth control pills, patches, IUDs. One of the big reasons women have low testosterone when they are still cycling *is* birth control pills.

"Sometimes women have hormonal dysfunctions because they have taken hormones in the past - like birth control pills, patches, IUDs. One of the big reasons women have low testosterone when they are still cycling *is* birth control pills."

**Dr. Buczynski:** What about afterwards?

**Dr. Smith:** Afterwards, it is kind of interesting and this is from Joseph Collins's work. After menopause, twenty to twenty-two percent of women have high testosterone. We want to *lower* testosterone because if it stays too high and it is not normal, then women have an increased risk, in not just having some symptoms like agitation and irritability, but if their testosterone is too high, they can have an increased risk of weight gain, heart disease and diabetes.

Studies are showing someplace between eighty and ninety

percent of women who have had a total hysterectomy - meaning ovaries and uterus out - will have low testosterone.

Only about half of the women who have a *natural* menopause, will lose testosterone in their lifetime.

**Dr. Buczynski:** Okay. Let's talk about toxins. What are the effects that toxins have on women's hormones?

## Toxins and Women's Hormones

**Dr. Smith:** Well, toxins certainly can have many effects on the body, depending on whether we are talking about toxic metals, or we are talking about the patient having too much calcium. If you look at thyroid, for example, the conversion of T4 to T3 is affected by many things; for example, excess copper, excess calcium, dioxins, TCDs, lack of enough nutrients like iodine; B vitamins and vitamin A. When people are stressed, B vitamins are used up more quickly.

Or people may be taking a medication that causes a nutritional depletion. This is a very common issue that I think is under-recognized in medicine. A lot of different medications deplete the body of some of the B vitamins, for example, birth control pills. We know women that have compromised B vitamins have an increased risk in cervical dysplasia. So you kind of get this big circle that occurs in people who are not nutritionally sound, as well.

**Dr. Buczynski:** What behaviors increase the amount of toxins in the body?

**Dr. Smith:** Well, certainly if people eat foods that are not organic. And certainly being from the Great Lakes region myself, most of us have figured out that you don't eat fish out of the Great Lakes unless it's way up from Lake Superior.

The amount of toxins really depends on the region you are from. So that can be an issue. Or certainly even something like mercury - as in mercury fillings in the mouth - can be a toxin.

"A very common issue that I think is under-recognized in medicine: a lot of different medications deplete the body of some of the B vitamins...We know women that have compromised B vitamins have an increased risk in cervical dysplasia."

"The United States is probably the only major industrialized country that still puts in mercury fillings...So from functional medicine we are recommending that people have their mercury fillings out by an environmental dentist."

**Dr. Buczynski:** And some patients need to consider having their fillings removed?

**Dr. Smith:** The United States is probably the only major industrialized country that still puts in mercury fillings. And most of the world now is recognizing that mercury is a toxin. The studies have shown that every time someone chews, each time, mercury is displaced. So from a functional medicine viewpoint, yes, we are recommending that people have their mercury fillings out by an environmental dentist, someone who is specially trained to have this done.

## Exercise and Hormones

**Dr. Buczynski:** What about exercise? What effect does exercise have on hormones?

**Dr. Smith:** Well, exercise is a *fabulous* way to lower blood sugar. So it will actually lower fasting insulin. Exercise is also a fabulous way to deal with cortisol because exercise is a great stress reducer. So we know it has direct effect on cortisol levels, and hence cortisol. In that hormonal symphony, exercise affects thyroid directly, affects estrogen directly, etc. Certainly studies have shown that when you exercise, it helps maintain memory. I don't know about you - I *hate* exercising!

"Exercise is a *fabulous* way to lower blood sugar. So it will actually lower fasting insulin...Certainly studies have shown that when you exercise, it helps maintain memory."

**Dr. Buczynski:** Yes!

**Dr. Smith:** I am not one of these people that get a high from exercising. I don't know about everybody else out there - some of you probably love it, some of you don't, like me. But what I try and find things for people to do is, like myself, I like to dance. There are two medical trials showing that dancing is really good exercise. So there are a lot of ways to exercise besides pumping iron.

**Dr. Buczynski:** I will tell you the one way that I motivate myself the most to exercise when I really don't want to. I don't think of it as a cardiovascular thing or as a weight management thing, all of which is good and certainly important; I think of it as an age kind of thing, you know, "This is good for your brain."

"If you talk about aging, it comes down to three things: vision, memory and mobility. In order for people to really have those three things as they age, they do have to be hormonally and nutritionally sound."

**Dr. Smith:** Me too.

**Dr. Buczynski:** So that will get me going even when I'm in a lazy spurt.

**Dr. Smith:** I totally agree. I think about maintaining memory because that is going to be the *big* issue. And if you talk about aging, it comes down to three things: vision, memory and mobility. In order for people to really have those three things as they age, they do have to be hormonally and nutritionally sound.

**Dr. Buczynski:** Now, I would like to go a little bit more into some of the hormones, particularly estrogen, as this is a women's health series. Would you tell me about the role of estrogen in women's bodies and what kind of things can happen when it's out of balance?

## The Role of Estrogen in Women's Health

**Dr. Smith:** Well, we do know that certainly hormones - estrogen and all the others - relieve symptoms. They prevent memory loss. We do know that estrogen helps with heart health, bone production, growth and repair.

Sometimes people don't realize, but estrogen, growth hormone, insulin, testosterone and DHEA are all hormones of repair. So, yes, there are a *zillion* symptoms of menopause, PMS, PCOS and it is very, very

important to resolve all of those different things. But estrogen does do many of the things that we talked about in the body, from lowering LDL and preventing oxidation, etc. It increases HDL by ten to fifteen percent.

Estrogen also lowers homocysteine which is a major risk factor not just for heart disease, but having high homocysteine is a risk factor of memory loss. It is also a risk factor for breast cancer because of poor methylation - so important to methylate. So homocysteine is key.

Estrogen lowers lipoprotein(a) which is inflammation of cholesterol itself - another important marker for heart disease. Estrogen is a natural calcium channel blocker. It enhances energy, mood, concentration. It even helps prevent tooth loss. Estrogen also aids in the formation of neurotransmitters like serotonin so it has a direct relationship with the neurotransmitters as well.

**Dr. Buczynski:** Now, before we go on because I do want to ask you about diet and some other things with respect to estrogen. I want to go back to homocysteine because that is unusual for someone to even bring it up. I have read a fair amount about homocysteine and it almost seems like something you just don't *hear* about in mainstream medicine. So what is it, and why is it important?

"Estrogen also lowers homocysteine which is a major risk factor not just for heart disease, but having high homocysteine is a risk factor of memory loss."

**Dr. Smith:** Homocysteine is an amino acid. If the body is functioning perfectly, then the amino acid of homocysteine is broken down in the body, becomes other things and then it is excreted. But homocysteine is, again, part of the methylation pathway. So it does require methyl groups in order for it to be broken down in the body. It even affects things, like depression because, sadly, depression is part of that pathway as well.

I think homocysteine in some ways got a bad rap because in the cardiology literature there are a couple of studies that were not as good as they could have been. Those studies basically showed that homocysteine may not be important.

Further studies have looked at homocysteine as being very important when it comes to heart disease but, even more importantly, having normal homocysteine is important to the prevention of breast cancer and memory loss. The perfect homocysteine level is six to eight - that is per Dr. McCully, who discovered homocysteine. I have had the privilege to sit under his lecturing. The lab may say it is up to fifteen - but perfect is six to eight. And in functional and metabolic medicine we like to look at optimal levels.

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## Diet and Estrogen

**Dr. Buczynski:** Okay. Now, let's go back to where we left off and talk about diet. Where does diet come

"Diet probably affects *all* of the hormonal function in the body because if people don't eat right they set up an inflammatory response - it is not just the idea that they gain weight. Studies have shown that for every one pound someone is overweight, they put *three million pounds* of stress a year on their joints."

into estrogen and how does diet affect estrogen?

**Dr. Smith:** Well, diet probably affects *all* of the hormonal function in the body because if people don't eat right they set up an inflammatory response - it is not just the idea that they gain weight. It is kind of interesting to note, though, that studies have shown that for every one pound someone is overweight, they put *three million pounds* of stress a year on their joints.

**Dr. Buczynski:** Wow! Let's repeat that: for every one pound that a person is overweight, they put - what was it again?

**Dr. Smith:** Three million pounds of stress a year on their joints, particularly hips and knees. And so women are particularly affected by this because they are built bigger in the hip area to have children. So a lot of the hip replacements and knee replacements are done due to weight - they are not done due to trauma.

And of course we don't want people to be too skinny - that's not good either, that's not healthy. We want people to be a *healthy* weight. And it's work! It's not easy to lose weight. But exercise is an important part of that. So is balancing the hormones because if you have too much estrogen you can gain weight. If you have too much progesterone you can gain weight. If you have too little testosterone then you don't build muscle and burn fat. If you have too high a testosterone, insulin doesn't work as effectively, and you can gain weight. If you don't have normal DHEA and cortisol you can gain weight. If your thyroid is not normal, you can gain weight. Obviously if insulin is not working normally you can gain weight.

So, exercise and diet have a lot to do with those. But it is not just calories in and calories out. If it was that simple, all of our patients would be the weight that they want to be. People can have other issues. They can have allergies or they can need detoxification. There are a lot of things that really govern what happens with weight.

**Dr. Buczynski:** When you are talking about diet, what kind of diet are you thinking about that would be optimal - especially when we are thinking about trying to balance estrogen?

"We want people to be a *healthy* weight. And it's work! It's not easy to lose weight. But exercise is an important part of that. So is balancing the hormones..."

**Dr. Smith:** Well, I am not sure that there is a perfect single diet for every person on earth. If there were one I would have to choose the Mediterranean Diet because we know that one decreases inflammation. But we now have genome testing available. It is in its infancy, but the testing will improve over the years. We can now literally measure genomes and we can get a suggestion as to what diet would be best and also what kind of exercise program would be best.

**Dr. Buczynski:** That's really interesting.

**Dr. Smith:** It *is* interesting - I agree with you!

**Dr. Buczynski:** Yes. So how do you think that will be done? We will take a blood test?

**Dr. Smith:** That's a saliva test. It is currently on the market. It has just been out for a little while. I don't think that any of the companies that do it provide a *perfect* test but I certainly think that it's good enough to use in medical practice now to help guide us and give us another tool to help patients.

## The Effects of Estrogen Dominance

**Dr. Buczynski:** Interesting. Let's talk about too much versus too little estrogen, and the effects that that can have.

**Dr. Smith:** If patients have estrogen dominance or estrogen excess, they can have cervical dysplasia, depression with anxiety or agitation, an increased risk in uterine and breast cancer, water retention and they can put on weight, as we've said.

Too much estrogen can cause headaches, poor sleep, panic attacks, swollen breasts and for women in cycling, heavy cycles. If women have too much estrogen they have an increased risk in some autoimmune diseases such as rheumatoid arthritis and lupus. Estrogen dominance can increase the risk of hypothyroidism, cause irritability, mood swings, fibroids, fatigue, bloating - a lot of things can really be affected when someone has estrogen dominance.

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**Dr. Buczynski:** Okay. Now, I am thinking of the practitioners on the call - many are physicians and nurses who are working with people with hormone issues. But even for the psychotherapists on the call, I think it is important to understand what kinds of questions and what tests a good practitioner, who is looking at this holistically and looking at optimal hormone functioning, might use. What kinds of tests or what kinds of approaches might they take?

## Assessing Optimal Hormone Functioning

**Dr. Smith:** That's an excellent question. We did a clinically controlled trial in our practice, looking at what kind of testing is best. It is yet unpublished; we hope to get it published this year. I think there are pros and cons to all the tests.

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What we did discover is that serum testing only tells us what goes on in the serum. It does not tell us what goes on in the other tissues in the body. And so for initial testing, serum testing might be okay. But when we put a hormone on transdermally - for example estrogen, it stays on the red blood cell for only three seconds and then goes immediately to tissues. So you can never measure it by serum. It just isn't there!

And we proved that with three hundred women. We also proved that with men who use hormones transdermally when we looked at their hormones. With the three hundred women it was fascinating. We ended up overdosing every single one of them because we had used

serum. And we did serum and saliva, and people served as their own controls.

**Dr. Buczynski:** Tell me what you mean by that; you did a test free test, like an AB kind of test structure? How did they serve as their own controls?

**Dr. Smith:** Basically we did a serum test and a saliva test at the same time.

**Dr. Buczynski:** Okay.

**Dr. Smith:** The saliva test also always tells us the amount of hormone that's free; how much is available to use. You can not test all hormones' free levels by serum. Plus, for women, our hormones dance around unless we are post-menopausal. And so when we do a saliva test in younger women, we can literally do a 28-day test so we can see the entire breadth of what is going on, of her hormonal status.

"The saliva test always tells us the amount of hormone that's free; how much is available to use. You can not test all hormones' free levels by serum."

"We also look at free hormone levels. That will give us an evaluation of what happens when we use a hormone transdermally."

In premenopausal women we usually do a six-day test - again because the hormones are jumping around and we get a better picture. In post-menopausal women we would usually do a one-day test, or certainly a 24-hour urine. We also look at free hormone levels, that will give us an evaluation of what happens when we use a hormone transdermally.

**Dr. Buczynski:** And in addition to that, they will look at the history and measuring. Let's go through exactly what they will be measuring.

**Dr. Smith:** When patients come in to see us, if we are looking at hormonal status, what we usually do is make sure that their primary care doctor has done their complete blood count, and sugar, and cholesterol - all the basic labs. If they haven't been done, then we want to do that.

We want to take a really good history. In my personal practice, the history itself usually takes an hour. We obviously want to do a physical or, if their primary care doctor has done a physical we want them to send that over to us. And then it really is about individualized and customized care. So what studies we order depends on what the patient comes in with, what they have been taking, etc. So it really is different for each patient.

**Dr. Buczynski:** And in addition to that you look at basic kidney and liver functions?

**Dr. Smith:** Yes, that is what I meant by "basic study." Most patients come in with those tests done already and if they haven't been done then we do need kidney and liver, cholesterol, blood sugar, electrolytes, etc.

**Dr. Buczynski:** Hormonal imbalances can be factors in a number of unrelated diseases - I am thinking heart disease, and osteoporosis, and quite a range of

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different diseases or ailments. Can you talk to us about that and the range of things that we are finding that hormonal imbalances are affecting?

"Let's look at the idea of osteoporosis. Estrogen maintains bone. Progesterone builds bone. Testosterone builds bone and contributes to the *strength* of bone. DHEA is all of the above. And if cortisol is not normal, bone will be broken down."

**Dr. Smith:** Yes, absolutely. For example, let's look at the idea of osteoporosis, like you suggested. Estrogen maintains bone. Progesterone builds bone. Testosterone builds bone and contributes to the *strength* of bone. DHEA is all of the above. And if cortisol is not normal, bone will be broken down.

In fact a lot of times you will find that patients will exercise, they will take their nutrients, they will be hormonally sound, except for cortisol - they will still break down bone. So, it is really important to deal with that cortisol level. So all of these hormones have a factor here and obviously thyroid does, too.

## Hormone Replacement Therapy

**Dr. Buczynski:** So, let's get to the big issue of hormone replacement therapy. What are some of the reasons that a woman should still think about it? I think at this point most women are pretty cautious and reluctant to think about that - but give us the lowdown on that.

**Dr. Smith:** Well, really the science now is showing that women do need to be hormonally sound throughout their lifetime. Are women born to need hormones after menopause? Honestly, probably not! After menopause, women make enough hormones on their own, by and large, to maintain function if they are not stressed. But, again, almost everyone is stressed.

"Science now is showing that women do need to be hormonally sound throughout their lifetime."

**Dr. Buczynski:** Yes.

**Dr. Smith:** I am very blessed to have two women in my practice that are in their late seventies, they both married the perfect man, they have a massive amount of money, and they all have perfect children. Both of those women still have enough hormones to maintain function - I don't give them hormone therapy at all!

"...because of stress, most people will need to be on low-dose hormonal therapy. We are not talking about hormones to get pregnant; we are talking about hormones to maintain function."

I mean, they are just very fortunate women! But in today's society, because of stress, most people will need to be on low-dose hormonal therapy. We are not talking about hormones to get pregnant; we are talking about hormones to maintain function.

So the studies are showing that bioidentical hormones are safe. We can look at estrogen metabolism - the 2-, 4-, and 16-hydroxyestrogen. We want the 2-hydroxestrogen to be predominant - it is the one that decreases the risk of breast cancer. The 16-hydroxy increases the risk of breast cancer, but you need a little bit of 16-hydroxy to maintain bone structure - you don't want it to be zero.

You really don't want to have any of the 4-hydroxy. Studies are showing how that is the one that damages DNA and can cause mutations - that is where the literature is going. For example, if women have fibroids, they tend to have increased 4-hydroxyestrogen. If women are deficient in methionine and folic acid because it is part of that methylation pathway, they tend to make more hydroxyestrogen.

And so we can go back. We can have people exercise to raise 2-hydroxyestrogen. We can have people eat more cruciferous vegetables, like broccoli, brussels sprouts, kale, cauliflower, flax, kudzu; broccoli derivatives like indole-3-carbinol, DIM, a higher protein diet; mega-3 fatty acids, B6, B12, folate, MTHF (methyltetrahydrofolate), trimethylglycine and in weight loss rosemary, turmeric. There are a lot of ways to raise 2-hydroxyestrogen.

For example, I happen to literally have a high homocysteine. I did my genome testing and I am heterozygous for MTHF, or reductase issues, so I *do* take methyltetrahydrofolate twice a day, and it keeps my homocysteine normal. But when I look at my family history which is high in breast cancer and high in heart disease, it is not surprising!

So you can literally go back and help the body metabolize appropriately. Also, when women are overweight, they tend to make more 16-hydroxyestrogen.

**Dr. Buczynski:** At this point, is the medical literature moving in favor of bioidentical hormones? You know, I think in women's health a lot of what began has really come from the consumer; women have fought for the health that they have. They fought against HRT back when they were being told that there was no problem with any form of HRT. And so I guess what I am asking now is are physicians pretty accepting of bioidentical hormones as an approach, or is it more that you have to find the right doctor to get a positive reception to that?

**Dr. Smith:** Well usually what we suggest people do is see someone who is Fellowship-trained and Masters-degreed in metabolic and functional medicine. And those people literally have learned from a medical school how to prescribe bioidentical hormones, how to help women to be healthier nutritionally, etc. so they have an additional degree.

"We are talking about women and why bioidentical hormonal therapy is something that really is about the chemistry and physiology of the body."

The good news about getting the Masters in metabolic and functional medicine is that it is open not only to MDs and DOs; it is open to nurse practitioners, PhDs, sociologists, exercise physiologists, PAs. It really is a fabulous program at the University of South Florida College of Medicine because it literally goes through the biochemistry and physiology of the body and how it works. And in this case we are talking about women and why bioidentical hormonal therapy is something that really is about the chemistry and physiology of the body.

**Dr. Buczynski:** Let's move on to a question that keeps coming up lately about how women can age optimally. Are you thinking that "sixty is the new forty?"

"We can have people exercise...We can have people eat more cruciferous vegetables, like broccoli, brussels sprouts, kale, cauliflower, flax, kudzu... There are a lot of ways to raise 2-hydroxyestrogen."

## Maintaining Our Health as We Age

**Dr. Smith:** Oh, absolutely! As I approach sixty, yes it is the new forty! Absolutely! Studies really are showing that many people will now live to be a hundred - but no one wants to live to be a hundred if they go to a nursing home at the age of eighty.

So the question is: How do you stay healthy? And certainly memory is a big issue. In all of the studies, there are really none that refute this - estrogen equals memory. It literally does, it increases blood flow to the brain, it increases glucose and oxygen to the neurons, it protects the neurons, it increases neurotransmitters, it decreases Alzheimer's beta-amyloid peptides, increases sensitivity to nerve growth factor, and it keeps the blood brain barrier working.

"As I approach sixty, yes it *is* the new forty! Absolutely! Studies really are showing that many people will now live to be a hundred...So the question is: How do you stay healthy?"

Estrogen is an antioxidant. It is there for manual speed and dexterity. It even increases acetylcholine, the main neurotransmitter of memory. It's *amazing* when you look at memory. The body does require estrogen but again, it does require that it be balanced with all the other hormones in the body.

"...estrogen equals memory. It increases blood flow to the brain, it increases glucose and oxygen to the neurons, it decreases Alzheimer's beta-amyloid peptides and it keeps the blood brain barrier working."

**Dr. Buczynski:** So given that women are living longer, what steps *should* they be taking in order to maintain their health while they are aging?

**Dr. Smith:** Truly it's very important to exercise, eat the best that you can and to be hormonally and nutritionally sound. The good news is this is not *Star Trek* medicine. We have these studies available today. We have appropriately trained practitioners to really help us *do* all of this.

I am a menopausal woman. This is the best time of my life! It's fabulous!

**Dr. Buczynski:** How about water, hydration, and things like that?

**Dr. Smith:** Water is a key component to many things. People forget sometimes that when you are thirsty, it is the body's last cry for water. Water is a great way to detox and certainly detoxing the body is really, really important. We learn more and more about that every day. It also helps the skin look beautiful. It also helps with weight loss because it makes you feel full.

**Dr. Buczynski:** Okay. I think I have read that you are among the many people who are down on aspartame?

"Water is a key component... Water is a great way to detox...It also helps the skin look beautiful. It also helps with weight loss..."

**Dr. Smith:** It's not *me* that's down on aspartame. I like to look at studies. I'm a scientist, and many studies are now really showing, that aspartame is not the most desirable sweetener. It can cause a whole lot of symptoms. In fact, if you contact the Food and Drug Administration, eighty percent of the complaints to the FDA on non-prescription items have been on aspartame. There were so many symptoms from

aspartame users that the FDA quit keeping track of them years ago.

Stevia is a fabulous sweetener. It doesn't raise blood sugar; it doesn't really have any side effects. That would be the perfect sweetener.

"Many studies are now really showing, that aspartame is not the most desirous sweetener. It can cause a whole lot of symptoms."

**Dr. Buczynski:** So there are no side effects from Stevia?

**Dr. Smith:** Not that we are aware of in clinically-controlled trials. There haven't been any reported either the last time I reviewed it, which was about a month ago.

**Dr. Buczynski:** Let's talk about antioxidants in our whole conversation about aging optimally. Do you see antioxidants as the answer to unhealthy lifestyle choices?

**Dr. Smith:** Well, that's such a great question, truly. You can't really replace a "bad lifestyle" with antioxidants. And nobody's perfect. I do the best I can; I try and encourage my patients to do the best they can. But since we are talking about women today, there are some very interesting studies on the antioxidant Coenzyme Q10.

There is a study that showed that women who are depleted in Q10 have an 800% increase in breast cancer. So we do need those important antioxidants. Starting at about the age of fifty, the body starts to make less antioxidants like lipoic acid and Q10. Plus if we take medications, they may deplete the body of things like Q10, like statin drugs do. Some of the beta blockers deplete the body of Q10; and so can vigorous exercise. And most of the medicines that are oral hypoglycemics deplete the body of Q10.

**Dr. Buczynski:** Okay. So you have said that 75% of health and life expectancy is based on lifestyle, environment, nutrition and so forth. Can you tell us some of the research that has led to that conclusion?

**Dr. Smith:** There have actually been several trials, from studies that have been done with Harvard, Cambridge etc that have been published in major medical journals and there is a lot out now in *very* traditional medical journals, showing that lifestyle is key in not just weight management, but lifestyle is key in the prevention of cancer.

"...there is a lot out now in *very* traditional medical journals, showing that lifestyle is key in not just weight management but lifestyle is key in the prevention of cancer."

One in three women gets cancer in their lifetime. But one of the really new things out on cancer is that we are discovering that not only sugar feeds cancer cells, but having a high fasting insulin increases a patient's risk of almost every cancer that there is. Having a high fasting insulin is a problem when you look diabetes. Diabetes is now being called "Type 3 Alzheimer's Disease" in the literature. So, again, all of this is a hormonal symphony.

"There are some very interesting studies on the antioxidant Coenzyme Q10. There is a study that showed that women who are depleted in Q10 have an 800% increase in breast cancer. So we do need those important antioxidants."

**Dr. Buczynski:** Tell us more about that. What do they mean by “Type 3 Alzheimer’s Disease?”

**Dr. Smith:** Well, they are really looking at different kinds of Alzheimer’s Disease and different causes. So they have now dubbed “Type 3 Alzheimer’s Disease” as memory loss. MRI changes are also indicative of Alzheimer’s Disease in people who are diabetic and there definitely seems to be a correlation. That is new in the literature last year.

**Dr. Buczynski:** Interesting. Yes, the *New England Journal of Medicine* had a study looking at diet and lifestyle, and the preventability of Type 2 diabetes.

**Dr. Smith:** Yes, they did.

**Dr. Buczynski:** For the people who might have missed that, can you capsule that study?

**Dr. Smith:** Well, there have been several interesting studies. That one looked at lifestyle. There has been one that also looked at prevention of cancer. There has been one that also looked at what would it really take to raise C-reactor protein. I found that one also very interesting because when we look at elevation of C-reactor protein, it only takes one meal that is not desirable. It raises C-reactor protein after only one meal.

And so there have been a whole lot of trials, not just the one in the *New England Journal of Medicine* that looked at lifestyle, fitness and health, and the fact that just eating better helped prevent many major diseases. There have been several studies that looked at the advantages of a “balanced diet” - for lack of a better term.

“Just eating better helped prevent many major diseases. There have been several studies that looked at the advantages of a ‘balanced diet.’”

“Certainly balancing what we need between the different groups is really, really key. It is very important to have good fat. The body requires fat...to decrease inflammation.”

**Dr. Buczynski:** And were the results significant?

**Dr. Smith:** Yes, they were significant. In fact, most of these trials have been statistically significant.

**Dr. Buczynski:** At like a 0.05 kind of level?

**Dr. Smith:** Exactly.

**Dr. Buczynski:** Okay. So what elements of nutrition are the most important?

**Dr. Smith:** Well, certainly balancing what we need between the different groups is really, really key. It is very important to have good fat. The body requires fat; fat is very important. People need more Omega-3 fatty acids to decrease inflammation. The body *does* have to have carbohydrates - low glycemic index carbs. In fact, 25% of the carbs that go into the body go straight to the brain for fuelling. And carbs are not evil - it is just you have to have the right ones, meaning fruits and vegetables, etc.

And then obviously the body does require protein. Proteins are just as important as everything else is, when we look at the balance between all the groups. So, different numbers have suggested, there was a trial that just came out yesterday, that jockeys back and forth about how much fat, how much protein, how much carb. But I think most of these trials now are moving away from the high-carb diet to more of a

balanced carb diet where proteins and carbs are a little bit more balanced than they have been in the past.

**Dr. Buczynski:** They are perhaps a little less strict about fat.

**Dr. Smith:** They are - but again, encouraging good fats. Like today at lunchtime I had an avocado as part of my lunch, which is just really great, good fat.

**Dr. Buczynski:** And pretty much everyone now is agreeing that sugar is the culprit in a lot of health issues.

**Dr. Smith:** Well, we know sugar is probably the most addicting substance on earth. So nobody is devoid of eating sugar. But what we don't want to encourage our patients to do is eat sugar all day long.

"For some people...gluten is turning out to be a bigger issue. Some of the foods now have higher gluten content and so for some people this can cause weight gain. Perhaps, it can cause an autoimmune disease..."

I have my patients keep a journal on what they are eating, if they are trying to lose weight. It's amazing! Now, some of my patients, when I look at their journals, eat sugar from morning to dinner.

And for some people, more than we thought, gluten is turning out to be a bigger issue. Some of the foods now have higher gluten content and so for some people this can cause weight gain. Perhaps, it can cause an autoimmune disease - for example vitiligo has been related to gluten intake in some patients. Vitiligo is an autoimmune diseases. So, again, it is a balance issue.

**Dr. Buczynski:** And are they thinking now that women can get all of their nutritional needs from good food?

**Dr. Smith:** It is really hard to get *all* of your nutritional needs from good food because the ground gets depleted of nutrients. The United States, as in most countries, puts in phosphorous and nitrogen but we don't put selenium, manganese, and all the good minerals back in. So foods literally get their nutritional content from the ground. So it is really difficult to only eat your way into things. Of course we *want* you to eat your way into as much as possible.

"It is really hard to get *all* of your nutritional needs from good food."

And then, again, starting at the age of fifty or so, even with good nutrients from food, the body still doesn't make all the nutrients that we need.

Then of course, if you are somebody who is a marathoner or if you are vigorously exercising, even at the age of twenty, you need to add extra nutrients beyond food because nutrients get depleted from vigorous exercise.

**Dr. Buczynski:** Let's talk just a little bit about free radical production and sources like environmental sources - TV screens, cell phones, microwaves and things like that.

I think some people listening to the call will be very familiar with those concepts, and others will be like, "What? What's the problem with my microwave?" What are you recommending to patients about these kinds of things?

**Dr. Smith:** Well, the studies have shown that when you microwave your food it does create free radical production, plus it decreases the amount of nutrients in the food. So personally I don't own a microwave

and I try and encourage my patients not to microwave a whole lot because we want the nutritional content to be there. So sometimes convenience becomes a bigger issue than we think. We certainly know lack of antioxidants is a big issue when it comes to aging because the whole aging process is really an increase in free radical production all over the whole body.

**Dr. Buczynski:** You suggest to your patients that they not use a microwave; do many pick you up on that? What is the reaction to that?

"The studies have shown that when you microwave your food it does create free radical production, plus it decreases the amount of nutrients in the food. So personally I don't own a microwave."

**Dr. Smith:** A surprising amount, do. A lot of times it is because many of the patients who come to see me either really want to just be healthy and stay healthy or they are people who have been really, really sick. They have been to eleven doctors and looked at every conventional approach. I am a very conventionally-trained internist and I believe in conventional medicine.

"It is just that when you look at the biochemistry and physiology of the body, free radical production, mitochondria, and superoxide dismutase, you understand that the body *does* need to have glutathione, the strongest free radical quencher produced by the body, replenished."

It is just that when you look at the biochemistry and physiology of the body, free radical production, mitochondria, and superoxide dismutase, you understand that the body *does* need to have glutathione, the strongest free radical quencher produced by the body, replenished. And it *does* take things like selenium to replenish glutathione.

I think this is really something that in medicine we really haven't taught people to do. We have given them the golden prescription, but we haven't looked at the cause of the problem. We haven't looked at and individualized and customized care.

**Dr. Buczynski:** What are you recommending about cell phones?

**Dr. Smith:** Cell phones - minimize. I think it is going to be hard to get away from cell phones. You can use the little things that decrease the amount of antioxidants that are produced and are commercially available, some of them seem to be good, from trials. But, again, I try and minimize my *own* cell phone use.

**Dr. Buczynski:** And how about TV screens?

**Dr. Smith:** TV screens and computer screens are an issue. They really are. At least computer screen-wise, they have things now that we can use to minimize our free radical production. And TV screens - obviously sitting further away from them is a good idea.

**Dr. Buczynski:** And is there any information about laptops versus desktops or anything like that?

"I think this is really something that in medicine we really haven't taught people to do. We have given them the golden prescription, but we haven't looked at the cause of the problem. We haven't looked at and individualized and customized care."

"TV screens and computer screens are an issue. They really are. At least computer screen-wise, they have things now that we can use to minimize our free radical production."

**Dr. Smith:** Not yet. The only study that I have seen and, again, you can't read everything but I did see an interesting trial on men. I realize this is a women's thing tonight but the study on men is kind of interesting. Men that put their laptops in their lap have an increased risk of testicular cancer.

**Dr. Buczynski:** Yes. Of course that is not a controlled study, but still it is interesting food for thought.

**Dr. Smith:** It warrants more study, doesn't it?

**Dr. Buczynski:** Yes, that's exactly right. You know, the first foray into any avenue of study is usually a study that isn't rigorous but it is the beginning, it is a pilot. And that is a pretty interesting finding.

But this last part that we have been talking about - *all* of these things - cell phones, TVs, microwaves and so forth - that is going to be a tough sell. We seem to be moving more into the cell phone and computer; even the big-screen TVs and so forth. And microwaves, with our "got to have everything fast" kind of society, you know, you can't replace a microwave and get it done instantly.

**Dr. Smith:** This is true. It is a balance of convenience versus health. It *does* take time to be healthy. It takes time to exercise, prepare the meal - but, again, what is your priority? If you don't have your health, what do you have?

**Dr. Buczynski:** It especially takes time to prepare vegetables.

**Dr. Smith:** It does! Absolutely.

**Dr. Buczynski:** Protein maybe not so much. Obviously, with takeout, there is no time involved there. But preparing vegetables, I have started to try to spend some time on Sundays just preparing vegetables.

**Dr. Smith:** That's a *great* idea!

**Dr. Buczynski:** You know, because I don't have time during the week, and it takes *so long* to do a good job, other than a salad, which isn't so long. But otherwise it's hard if you don't get a head start on that early in the week - for me, anyway.

Well, thank you so much, Pamela, for participating in this call. We have traveled a *big* territory here tonight - and you have a wealth of experience. And I just want to mention your books. Actually, I am going to be sending out an email and I will include links to some of your books.

One of the books is called *Choosing a Safe Course of Action That Works for You - What You Must Know About Women's Hormones*, and another book is called *What You Must Know About Vitamins, Minerals, Herbs, and More: Choosing the Nutrients That Are Right for You*.

The reason I am going to send you links to these books, is I think you might want to check them out and see if you think they might be appropriate for you to use and to recommend to patients. You might find that that is a good source and I don't know about you, but I am always on the lookout for something that

"It is a balance of convenience versus health. It *does* take time to be healthy. It takes time to exercise, prepare the meal - but, again, what is your priority? If you don't have your health, what do you have?"

I can use and recommend to patients.

Meanwhile, I just want to say to everyone, thanks for being part of this call. I know that many of you stay up really late to be here tonight - and thank you for the sacrifice that you have made.

I am also going to be sending out in that email a link to the Comment Board. We want to get everyone from our community going to that Comment Board and sharing your thoughts and sharing how you are going to apply what you heard tonight? That Community board is really important because it gives everyone a chance to both share what you are thinking and also hear what other people are thinking. So please put in your first and last name, your city and state, or country, and your profession and then talk about how *you* are going to use what you heard tonight.

Meanwhile, Pamela, thanks so much for taking the time out of your schedule to be part of our call and to be part of this series. And thanks for all of your studies - you have done a careful journey and preparation with both the conventional medical side in the emergency room, the functional side of medicine, the anti-aging, and metabolic science. You have a *wide* range and a wonderful combination of training. And thanks for all your good effort on that.

**Dr. Smith:** Well thank you for inviting me tonight. This has been a true honor.

**Dr. Buczynski:** Oh, great! So, goodnight everyone - and take good care now!

## About The Speaker:

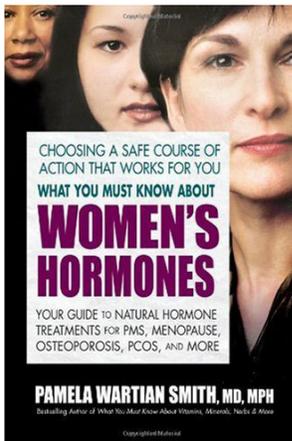


Pamela W. Smith, MD, MPH spent her first twenty years of practice as an emergency room physician with the Detroit Medical Center, and she is the founder and medical director of The Center for Healthy Living and Longevity.

Dr. Smith serves as Director of the Fellowship in Anti-Aging, Regenerative, and Functional Medicine, a modular training program that utilizes hands-on clinical training, extensive case studies, and web broadcasts to promote dialogue among trainees and experienced clinicians interested in clinical approaches to extend the healthy human lifespan.

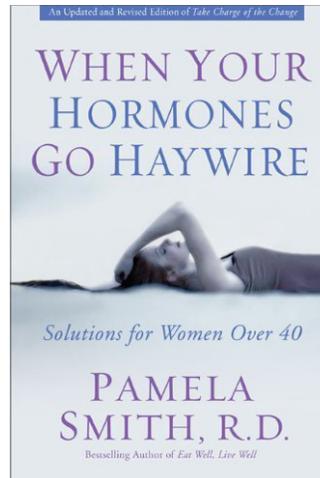
## Books by Featured Speaker: Pamela W. Smith, MD, MPH

*What You Must Know About Women's Hormones: Your Guide to Natural Hormone Treatments for PMS, Menopause, Osteoporosis, PCOS, and More*



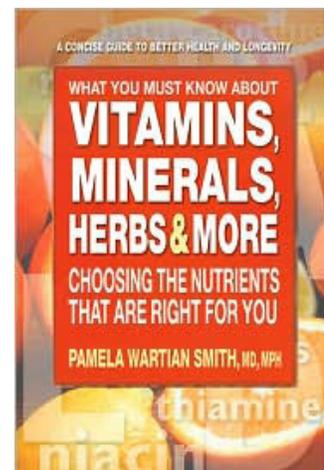
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