Health, Hormones, and a Woman's Brain

A Teleseminar Session with
Mia Lundin, RNC, NP
and Ruth Buczynski, PhD

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Contents

A complete transcript of a Teleseminar Session
featuring Mia Lundin, RNC, NP and conducted by Dr. Ruth Buczynski, PhD of NICABM

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Dr. Buczynski: Hello everyone! Welcome to this call. We are so glad that you are here today. People are calling in from all over the world, from various time zones - and no matter where you are, welcome to this call.

We are all a variety of practitioners and, again, that, by design, is important if we are really going to change the way medicine is practiced. So we are physicians, and nurses, and psychologists, and social workers, and counselors, and marriage and family counselors; we are physical therapists, and occupational therapists, and dieticians, and clergy; stress management, consultants, and health coaches - we are a wide, wide range of professions. Everyone, welcome to this call - we are glad you are here.

My guest today is Mia Lundin. She is a nurse practitioner and she is the author of *Female Brain Gone Insane* - how's that for a title? So, I can't wait to get into this because we are going to focus today on the issues that affect a woman's brain - and this is *so* important to all of us, across the lifespan.

So, Mia, first of all, welcome.

Ms. Lundin: Thank you Ruth. Thanks for inviting me.

Dr. Buczynski: Also I should tell everyone Mia comes from Sweden. She practices here in the US and got her degrees from the US, California. But at times you are going to notice a tiny, tiny Swedish accent. So, we're glad to have you!

Ms. Lundin: Thank you.

The Low Serotonin Epidemic: Why Balancing Hormones is Essential

Dr. Buczynski: The first thing I want to focus on is serotonin - and I guess balancing of hormones in general. Some people are saying that low serotonin is an epidemic in the US. First of all, do you think that is true? And secondly, what would you take that to mean, or how concerned would you be about that?

Ms. Lundin: Well, I see a lot of women in my practice that are complaining of symptoms consistent with serotonin deficiency. I think I agree - I think there is an epidemic of serotonin deficiency in this country. I think the reason for that is we women are doing *way* too much. We are stressing ourselves; we are not taking care of ourselves; we are not putting in what we are pulling out. And that is causing low serotonin. Then we can't handle life; we get overwhelmed, anxious, agitated, irritable, and just feel out of sorts.

"I think there is an epidemic of serotonin deficiency in this country. I think the reason for that is we women are doing *way* too much."

Dr. Buczynski: And is it also true for men or is it especially true for women?

Ms. Lundin: I think it is true for men too, but I think men are designed to handle stress much better than women are. We are running around acting like men today, a lot of us women; we are home taking care of children, we are out in the workforce - and never really taking time for ourselves.

> "We are designed to be nurturer, and be home, and take care of children, and nurture your family. But we are not doing that today."

Because that is not really what we are designed to do. We are designed to be nurturer, and be home, and take care of children, and nurture your family. But we are not doing that today. And we are not eating, or putting in our body what it takes, to build more serotonin, either.

Dr. Buczynski: Now, some of the practitioners who have patients - I think almost every practitioner on the call has some patients who work only inside the home, as homemakers and mothers - they would probably argue that that is a stressful life also.

Ms. Lundin: Absolutely. And of course a stressor can be many different areas. And our body doesn't know how to respond to stress, whereas being home with children, which can be very stressful too compared to not being able to pay your mortgage, to have marital problems, to have internal problems - bacterial and viral infections and such - all of those are stressors that will affect our nervous system and the change that takes places when our bodies are exposed to stress. And of course one is that our serotonin slowly starts to get depleted.

Dr. Buczynski: Okay. So, you have used the term… you have kind of coined the term "serotonin sink" when talking about the dynamic that leads to emotional imbalance. Can you share more about that with us?

Ms. Lundin: Yes, I use that a lot with my patients when I explain to them why they are feeling the way they do, because I tell them, "See it as if you have a sink of serotonin in your brain. And that level of serotonin has to be at a certain level in that sink for you to feel content and happy. Slowly we increase the level of serotonin through what I call the 'tap.'" And then how do we make serotonin?

So I ask my patients, "How do you make serotonin? Do you have a serotonin factory somewhere in your body? How do you make it?" And most women do not know. So I tell them how we make serotonin through protein, especially the tryptophan binding with B6 and magnesium. And you have to eat that; you have to provide your body with that.

> "...we make serotonin through protein, especially the tryptophan binding with B6 and magnesium. And you have to eat that."

And then of course we have to make sure the gut is working so they are not having problems with absorption and digestion so you will actually absorb the food that you eat or the nutrients that you take.

Then that has to be balanced with the output, the drain. And of course the more stressed-out you are, the wider that drain is going to open up and you are going to lose serotonin faster maybe than what you put in. So you end up with a depleted or too low level of serotonin in the brain.

Dr. Buczynski: Let's go on to some of the other - serotonin is not the only one - let's talk about GABA. First of all, GABA is really a shortened term - so can you give us the full…?

Ms. Lundin: Oh, you've put me on the spot with that one! Actually, no, I can't tell you that - I can't remember the name of that, sorry.

Dr. Buczynski: It's gamma-aminobutyric acid. But, at any rate, that is not as important as what is its role, what is GABA's role?

"GABA is there to calm you down. GABA is like your body's own valium."

Ms. Lundin: GABA is there to calm you down. GABA is like your body's own valium. So, very often when I do neurotransmitter tests on my patients, the typical scenario that you see in these women that are stressed-out is that you see a really high GABA, you see low serotonin because when serotonin is low, the excitatory neurotransmitters such as norepinephrine, the "fight or flight" is going to be high because serotonin has to be there to counteract the excitatory neurotransmitters.

So what the body does, then, when there isn't enough serotonin, it starts to produce more GABA to calm this woman down, and her nervous system. So when you see high GABA, it doesn't mean that she doesn't need more GABA; it actually means that she *does* need extra supplementation of GABA.

And later I am sure we are going to talk about the perimenopausal woman who doesn't have enough progesterone; and progesterone is very supportive when it comes to GABA receptors.

"GABA is associated with the inhibition of anxiety, irritability more, but also anger, frustration, and rage."

Dr. Buczynski: And so from an emotional point of view, GABA is associated with the inhibition of anger?

Ms. Lundin: Anxiety, irritability more. But also anger, frustration, rage.

Dr. Buczynski: Alright. And we have talked a little bit about the nutrients that the brain needs in order to make serotonin. We were talking about protein B6, magnesium and so forth. Are there others, from a nutritional perspective, that are important?

Ms. Lundin: Yes, it is very important, when it comes to serotonin production, to eat protein, first of all - and you can see in this country a lot of teenagers are *very* deficient, and children too, in serotonin because they are not eating protein; they are eating mainly carbs - pasta, pizza, bagels and such. That is not going to produce much serotonin.

So you need to put protein in your mouth. And then you hopefully have enough digestive enzymes to break the proteins down. Then you also need the B6 and magnesium to produce the serotonin.

"5-Hydroxytryptophan [5-HTP] bypasses the rest of the amino acids that get in [to the blood/brain]."

But I use in my practice a lot of.. I used to use more tryptophan but today I am using 5-HTP instead, 5-Hydroxytryptophan, because 5-Hydroxytryptophan sort of bypasses the line of amino acids waiting to get across the blood/brain barrier; and it bypasses the rest of the amino acids that get in first.

And I use that a lot in my practice and it is very, very helpful. And, yes, you can see a *huge* change in how women feel. And also I do measure serotonin levels and see it coming up with 5-HTP.

Dr. Buczynski: And is 5-HTP a prescription, or a supplement, or…?

Ms. Lundin: It's a supplement. Here in the United States we can get it as a supplement. And it is starting to be more and more available in Europe, too, I have found.

Dr. Buczynski: Now you mentioned before that gut health is important - and I would just like to get back to that for a moment. Tell us why gut health is so important with serotonin.

Ms. Lundin: Because the brain and the gut are connected. It is so amazing how you see that connection - not just from the production of serotonin because most of the serotonin is produced in the gut, and when we are stressed-out from *not* having enough serotonin, we tend to get gut symptoms too where we don't absorb and digest food.

So I pay a lot of attention to the gut; to the membrane and the gut membrane and the small intestine. I pay a lot of attention to inflammation in the gut, leaky gut, increased permeability. Increased permeability causes an inflammatory response from bacteria, viruses and food leaking through, causing a catecholamine reaction, causing an imbalance in the brain chemistry.

Dr. Buczynski: So you are looking for things like leaky gut syndrome, or irritable bowel syndrome.

Ms. Lundin: Right. So a lot of patients come to me with the diagnosis of IBS - and of course, what is IBS? IBS is not a disease; IBS is just a cluster of symptoms meaning that something is not right there. So what traditional gastrointestinal doctors do in this country is they look inside; they look, they scope the patient, they might do some parasite tests and such. But then when they don't find anything in that department then the person is diagnosed with IBS.

"Irritable bowel syndrome... IBS is not a disease; IBS is just a cluster of symptoms meaning that something is not right there."

Really what you need to take a look at is the *function* of that gut. So I do tests through the specialty labs here in the states where we look at absorption, digestion, enzymes, good bacteria, bad bacteria, parasites and such, to see how is it functioning; is it doing what it is I supposed to do? And also look at food sensitivity tests, and looking at foods that actually cause inflammation.

Dr. Buczynski: Okay. So, predominantly so far we have been talking about serotonin and GABA. But there are two others that are pretty important - norepinephrine and dopamine. Can you just sort of highlight the differences between all of those?

Ms. Lundin: So, both norepinephrine and dopamine are excitatory neurotransmitters. And most women that I see that I test tend to have an overabundance of both of those. If you have too much norepinephrine you feel as if you are in "fight or flight" constantly; you have increased anxiety, fear, agitation, irritability; you wake up in the middle of the night. If you don't have enough norepinephrine, then you feel flat, depressed, sad; you can't focus.

"If you have too much norepinephrine you feel as if you are in "fight or flight" constantly; you have increased anxiety, fear, agitation, and irritability."

Dopamine is very similar. Dopamine tends to be more… when you see high dopamine, usually you see high dopamine from not enough serotonin, as it is when you don't have enough serotonin to calm the

excitatory side down, dopamine tends to get elevated. But when you raise serotonin, dopamine actually comes down. You need to have enough dopamine to feel content and happy. It is very important when it comes to sex drive and libido, and focus as well.

"You need to have enough dopamine to feel content and happy. It is very important when it comes to sex drive and libido, and focus as well."

Dr. Buczynski: So we really can't look at any of these by themselves; it is more the balance of them as they play off of each other.

Ms. Lundin: Exactly. And in my practice I have a big picture of a see-saw with the excitatory neurotransmitters on one side and the inhibitory on the other side - so the inhibitory being serotonin and GABA, and the main excitatory being norepinephrine and dopamine. And what happens really is that you have to bring one up to bring the other down, and they are working together.

Dr. Buczynski: That is helpful the way you… tell us more about you actually have a miniature see-saw to demonstrate how that… as a prop almost - is that what you're saying?

Ms. Lundin: No, it is just a big board where I have a see-saw - so a line in the middle, and then on the serotonin, GABA side I have an arrow that goes up; if you have too much of that you will feel really happy and calm. If you don't have enough, you get the serotonin deficiency symptoms - and the same on the other side.

I am very visual, and I like to draw, and I show my patients, "This is how it works" because I want them to understand that it is all connected. For example, to put it all together I draw four bubbles on a piece of paper; and those four bubbles are connected in the middle. And the part where they are all connected I tell my patients, "That's how you feel right now. Those four bubbles consist of your adrenal hormones, your thyroid is another bubble; your female hormones, and your brain chemistry."

They all interact and adjust to one another. So it is important to look at all four bubbles when you treat somebody. And of course around all that is the gut and absorption.

" Those four bubbles consist of your adrenal hormones, your thyroid is another bubble; your female hormones, and your brain chemistry."

It is hard when a patient sees one doctor treating one part of that, and another practitioner treating another part of that - because they all work together. When you start changing estradiol or estrogen levels, the thyroid is going to change. And I think we are going to talk about that later - the adrenals, and thyroid and all that.

Dr. Buczynski: Yes, let's do. But before we move on, also in terms of balance and this fluctuation, what is the difference between, let's say, day and night for instance?

Ms. Lundin: Yes, that is a very good question because we have to look at what we are supposed to do. In the morning we need to be stimulated to be able to focus and concentrate and do what we have to do. But as the evening comes around it is time to start slowing down.

When I treat patients who have serotonin deficiency, I always start by telling them - and they might have lack of focus and feeling sad and flat at the same time - but the first issue is always to treat that serotonin

"...[patients] lack of focus and feeling sad and flat at the same time - but the first issue is always to treat that serotonin deficiency."

deficiency; to put the brake pedal on, to achieve calmness and contentment. And then later you can pick them up.

Because otherwise they are going to get anxious, if you start stimulating norepinephrine and dopamine. So I always start with treating them with 5-HTP in the afternoon, starting at 4 o'clock, and then maybe another one at bedtime. And later, when they have achieved that calmness and contentment, when they come back I start giving them more of the dopamine and norepinephrine support, or thyroid support in the morning.

It is important to think about that and not mix precursors to neurotransmitters to give a mix of dopamine *and* serotonin support in the morning, and dopamine and serotonin support in the evening because you do it at different times of the day.

Dr. Buczynski: Okay. Now, I think let's get into, besides stress as an effect on brain chemistry imbalance, there are also some external stressors, or external influencers that can throw off brain chemistry? Things like what we eat, or alcohol, or drugs, heavy metals or… what are some of those? How does that work?

Ms. Lundin: Well, we can all make our own little list of stressors, and stressors *can* be internal or external. But of course toxins, certain medications can block neurotransmitters; hormonal imbalances… And inflammation is huge, too. But it all comes down to any of those stressors will make your nervous system respond the same way, meaning cortisol starts going up and serotonin starts to drop.

Then the longer you go like that, the more serotonin-deficient you are going to be. Eventually you are not going to produce much cortisol and you are going to be having adrenal insufficiency as well.

Dr. Buczynski: Okay. Well, so far we have been predominantly talking about brain chemistry. Let's get started now into the female hormones - and let's start with estrogen.

"It all comes down to any of those stressors will make your nervous system respond the same way, meaning cortisol starts going up and serotonin starts to drop."

Ms. Lundin: Okay! Estrogen is very important for women because estrogen really, when it comes to brain chemistry, estrogen supports serotonin big-time, dopamine big-time. So when we start lacking hormones as we go through the change, the brain chemistry is going to respond *to* the change from all levels, circulating estrogen, one, and progesterone, two.

But I really believe estrogen is *very* important - I can talk for about an hour just about estrogen, so… maybe if you can ask me one more specific question about estrogen?

Dr. Buczynski: Okay. Well, I want to get into estrogen replacement and so forth, but I think before we do that, let's just cover the ground and talk about progesterone as well as estrogen. Can you describe progesterone's interaction with estrogen?

Ms. Lundin: Yes. We have to have progesterone cycling in our body for estrogen to work. So we have estrogen there, but like in perimenopause we have really high levels of estrogen but not enough progesterone. So then, even if you have high levels of estrogen, it seems like the estrogen doesn't really

work in your body because progesterone primes the receptors for estrogen. So we have to cycle with progesterone for the estrogen to work.

So we can put estrogen and progesterone on the see-saw, like we did with the excitatory and the inhibitory neurotransmitters too. So estrogen is your picker-upper, it helps you focus and concentrate, it elevates mood. Progesterone, on the other hand, is your valium in the hormones. It is very calming and it binds to the GABA receptors. So we need to balance that at the same time as we balance brain chemistry.

"We can put estrogen and progesterone on the see-saw, like we did with the excitatory and the inhibitory neurotransmitters too."

Dr. Buczynski: Okay. Now, back in the day many doctors prescribed birth control pills to help women normalize their cycles and their symptoms and so forth. I am not sure if that is as frequently done now? You would probably be able to report on that better than I can. But what is your thought on that?

Ms. Lundin: Well, I believe in putting back what is really lacking. And we are not lacking ethinyl estradiol or synthetic progesterone. And really what the birth control pill will do is to shut down your own hormonal production that is so important and beneficial to your health.

So a lot of doctors and practitioners here in the States do use the birth control pill - I think it is convenient and easy; "Here, take this pill. You're going to have a bleeding here for these three days." And a lot of practitioners don't want to get the calls of somebody bleeding, or having irregular bleeding like you *do* with perimenopause.

"...I see a lot of patients with mood symptoms and PMS, and irritability... The progestin in the birth control pill tends to exacerbate those symptoms."

I think there is a convenience factor there - but then it comes to chemistry, I don't use it at all, for that purpose, because I see a lot of patients with mood symptoms and PMS, and irritability. And I have found that the birth control pill exacerbates those symptoms. The progestin in the birth control pill tends to exacerbate those symptoms.

I prefer to come in with the right hormone at the right time, looking at the four phases that I talk about in the book.

Dr. Buczynski: Okay. And I will want to come back to some of our discussion about natural ways to repair with diet and so forth, but I would like to go into the four phases first. So can we get started with phase one? How would you describe that?

Ms. Lundin: Okay, let me just give a little bit of an overview of the phases first. Most women go through these four phases. And it can take ten to fifteen years before you are through with that. And a lot of times that is not recognized by mainstream medicine.

The 4 Step Plan for Correcting Hormonal Imbalances

So the first phase is of course when you have normal female hormones and have a normal menstrual cycle and normal period. And the first phase that you get into I call the "PMS Phase." In the PMS Phase you are

going to see patients *still* tend to have regular periods - and the PMS phase starts somewhere aged mid-thirties to early forties in their life. And you still see regular periods.

But you see, in terms of symptomatology, often you see mood changes that get worse right before the period is about to start - so the latter part of the cycle. Some women have two weeks of symptoms; some have only a couple of days where they tend to feel more agitated, irritable, cranky, overwhelmed. And as soon as the period starts, they get that relief, "Oh, back to normal."

That is a true sign to me that the patient is still in what I call the PMS phase. She is lacking progesterone a little bit and she is probably serotonin-deficient in the first place. So she can't handle that drop of estrogen that happens before you start your period. Because when estradiol drops, serotonin is going to drop too. So she gets more of the agitated serotonin deficiency symptoms before her period.

"That is a true sign to me that the patient is still in what I call the PMS phase [Phase 1]. She is lacking progesterone a little bit and she is probably serotonin-deficient in the first place...You tend to see a low progesterone in the second, the luteal phase of the cycle."

Dr. Buczynski: So the first phase is a sort of normal, steady phase. And the second phase is a PMS kind of a cyclical phase. What is the third phase?

Ms. Lundin: The third phase is what I call "perimenopause." And in that phase hormonally you see high erratic levels of estrogen throughout the cycle. So that is why there is no point in checking an Estradiol level in these patients.

You tend to see a low progesterone in the second, the luteal phase of the cycle. Your periods are now becoming closer together or a little bit further apart, and they tend to have a heavier, more clotty type of period; sometimes more cramps. And mood-wise you see that serotonin deficiency-type of symptoms before, premenstrually - and as soon as the period starts, they don't get that relief that they used to get.

"The way to differentiate the PMS cycle from the perimenopausal cycle is that you don't get that relief when the period starts, the periods aren't really that regular any more, and they are heavier."

So now, instead, very often you hear, "My period starts and I start crying at the drop of a hat, or a I feel really sad, or I feel really low, or tired. And I really have only one good week out of the month - and that is the second week on the cycle." And I hear that a lot.

The way to differentiate the PMS cycle from the perimenopausal cycle is that you don't get that relief when the period starts, the periods aren't really that regular any more, and they are heavier. So that patient needs progesterone.

Dr. Buczynski: And this is when it starts affecting more of the release of cortisol which is starting to block the thyroid and so forth? Or could that be at any time?

Ms. Lundin: That could be at any time. Well, actually most of the patients that come and see me are in perimenopause because it is the most erratic phase when it comes to how women feel, because they are overwhelmed, on edge, irritable, cranky; having a *really* hard time with life.

Dr. Buczynski: So we will talk a little bit later about the thyroid and adrenal function and how that all sits together, but let's go on and finish with the fourth phase before we get into other stuff.

Ms. Lundin: Okay. On the fourth phase is when estrogen is finally starting to drop, and now you can see no periods; you can sometimes see a light period monthly, and sometimes see a period every third month. Now, it is not, as a symptomatology, they are not feeling as erratic as they do in perimenopause; they are feeling more sad, flat, sort of "I don't care - but I don't care that I don't care." And periods tend to be lighter.

> "...most of the patients that come and see me are in perimenopause because it is the most erratic phase when it comes to how women feel, because they are overwhelmed, on edge, irritable, cranky..."

Some of them have become estrogen-deficient, too, and pretty much not much progesterone at all circulating any more. So I don't know if you want me to talk about how I treat the different phases, or…?

Dr. Buczynski: Yes, I think let's do that next. Go ahead and let's talk about treatment issues in the various phases.

> "On the fourth phase is when estrogen is finally starting to drop, and now you can see no periods...they are feeling more sad, flat, sort of "I don't care - but I don't care that I don't care."

Ms. Lundin: In the PMS phase I will make sure patients are eating healthy; a high protein and low simple carb type of a diet. I give them B vitamins, I give them essential fatty acids, calcium, magnesium and sometimes vitamin D3. And I also give them cyclic progesterone, bioidentical progesterone cream, days sixteen to twenty-eight. And that works great.

So the progesterone now is going to help support the GABA receptors to calm this patient down premenstrually. And depending on how severe their symptoms are, their emotional symptoms, I also give them 5-HTP throughout the cycle. And the progesterone is going to normalize the cycle and they are going to have less PMS.

The treatment is pretty much the same in perimenopause; sometimes they use a little bit more progesterone…

Dr. Buczynski: Before you go into that, you said, "Depending on how severe the symptoms are" - can you give us a little bit more of a guideline, like what level of severity are you looking for, for the 5-HTP?

Ms. Lundin: Well, if a patient is having a little irritability and feeling overwhelmed for a couple of days before the cycle premenstrually, I would probably wait with 5-HTP to see how they do at the follow-up that I do in a month; how they do on the progesterone and the vitamins.

> "In the PMS phase I will make sure patients are eating healthy; a high protein and low simple carb type of a diet."

But if they are having a really tough time and feeling really overwhelmed, and can't handle their children, or any family members, then I treat them with 5-HTP right away. And I will often also give them a little GABA support. So I use the combination of GABA and taurine - and that works great too.

Dr. Buczynski: What is taurine?

Ms. Lundin: Taurine is another amino acid that has a very calming effect. Another amino acid I use a lot my practices is L-theanine because L-theanine helps to calm down that overactive brain, where you can't shut down your brain, where you have the movie running and you can't shut it down, especially at bedtime. And L-theanine doesn't really make you tired but it calms down that overactive brain.

Dr. Buczynski: Okay. Now, for the people who are taking notes, how do you spell L-theanine?

Ms. Lundin: L-theanine.

"...oral progesterone has a more calming effect on the brain than the cream, or tends to have more of a calming effect on the brain."

Dr. Buczynski: Okay, thanks. Alright, moving on to treatment issues for perimenopause.

Ms. Lundin: For perimenopause actually it is basically the same; the hormonal deficiency still just progesterone but maybe a little bit more progesterone. And if somebody needs, again, if they need more calming agents then I tend to use oral progesterone instead of progesterone creams - still bioidentical progesterone but oral - because oral progesterone has a more calming effect on the brain than the cream, or tends to have more of a calming effect on the brain.

And serotonin support with 5-HTP and GABA and taurine, depending on the severity of emotional symptoms. And what you see then is you see when you give that, the patient will now have 28-day cycles again; the periods are not as heavy as they were and tend not to be as clotty, and they are timed - and the patient feels much more balanced and calm.

Dr. Buczynski: Alright. And how about menopause and post-menopause? What are your approaches there?

"Estradiol is the most potent estrogen. It is also what helps the brain to be more balanced. I use estradiol in transdermal form."

Ms. Lundin: Yes, I believe in 17-b-estradiol which is the bioidentical estrogen. We have three estrogens: E1, estrone, E2, estradiol, and E3, estriol. Estradiol is the most potent estrogen. It is also what helps the brain to be more balanced. I use estradiol in transdermal form. Here in the States we have patches and gels and creams.

Dr. Buczynski: And why do you use transdermal versus oral?

Ms. Lundin: Because we now have studies that show the oral causes an increased risk of VTE, Venous thrombosis. The thrombosis risk is slightly elevated with oral but we are finding in some neuro studies that that is not the case with transdermal. Also oral can increase CRP which is the inflammatory marker; the oral can increase triglycerides. And transdermal does not do that. So it seems to be a safer way of replacing estrogen.

Dr. Buczynski: So the oral could even make you more at risk for a stroke?

Ms. Lundin: Yes. But there is a study called the ESTHER study that was done on transdermal estrogen where there didn't seem to be any increased risk of clotting. And they also compared clotting factors which seemed to be… there is a difference in the oral if you look at the actual clotting factors.

I can't tell you the specific ones, but you can look at it - the ESTHER study. That was a study that was done on post-menopausal women, forty-five to seventy-year-olds in France, 1999- 2005. It is the retrospective study looking at the increased risk of venous thrombosis. And there was a four-fold increased risk in women taking oral estrogen compared to non-users.

I use transdermal estrogen because I think it is safe, and I cycle that with oral progesterone because we only have a few studies. We have the PEPI trial looking at progesterone and the benefits of prevention or the prevention of endometrial cancer.

> "I use transdermal estrogen because I think it is safe, and I cycle that with oral progesterone."

And we don't *have* a whole lot of other studies here in this country on that, when it comes to bioidentical hormones. So I use bioidentical progesterone - 200 mg for twelve days a month, or 100 mg every night. And that is what the PEPI trial indicated was a safe dose to use.

Dr. Buczynski: Do we have any statistics on what percent of menopausal women are taking hormone replacement, and of those what percent are taking the old-style… the synthetic versus the bioidentical?

Ms. Lundin: Well, I don't know the numbers but I know it changed drastically after the results of the Women's Health Initiative Study came out about ten years ago now, where we definitely saw an increased risk in oral - not so much in estrogen but the combination group that used synthetic progesterone - there was definitely an increased risk of breast cancer and increased risk of cardiovascular disease in the combination group.

But the group that only used conjugated estrogen, horse estrogen, really - and this is what doesn't get across - is that those women had twenty percent less breast cancer than the non-users. The oral group had twenty percent less breast cancer than the non-users.

But the combination group - the oral conjugated estrogen, equine estrogen, Premarin, and synthetic progesterone, Provera, in that study - had a twenty-five percent increased risk of breast cancer.

The problem really was in the progestin, the synthetic progesterone, not with estrogen. So after that study - in answer to your question - after that study the use of those type of hormones went down drastically. And I think we are starting to see, with new studies coming out - there is one called the KEEPS study that should be done any day where they are comparing transdermal estrogen with the conjugated equine estrogen, Premarin, to look at breast cancer and cardiovascular disease and what difference it makes.

> "...the oral conjugated estrogen, equine estrogen, Premarin, and synthetic progesterone, Provera...had a twenty-five percent increased risk of breast cancer."

Dr. Buczynski: So how can a patient going through a perimenopausal stage know if they are using too much or too little progesterone?

Ms. Lundin: Well, progesterone - I always start with what is recommended in the PEPI trial, and that is the 100 mg every night, or 200 mg for twelve nights. And if they are felling okay on that, great, I will leave them on that because I know I have some scientific backup there when it comes to safety and endometrial health.

But there are women that can't handle progesterone that well because it tends to be sedating, and too much GABA can make you feel depressed because it affects the GABA receptors. So then you are getting into a little bit of a problem knowing where to go form there because you want to make sure the patient is safe, too, when it comes to endometrial cancer prevention.

Then I have different options that I give patients - I don't know if you want me to get into that now?

Dr. Buczynski: Sure, let's go ahead and go a little into that.

Ms. Lundin: Yes, if they can't tolerate the oral progesterone then sometimes we go down in dose, or sometimes I do a transdermal progesterone, or sometimes I do transvaginal progesterone.

"There are women that can't handle progesterone that well because it tends to be sedating, and too much GABA can make you feel depressed because it affects the GABA receptors."

And with any of the options, I really emphasize that this has not been studied and we need to make sure that the lining is staying thin and healthy. So I recommend a pelvic ultrasound maybe every three to six months in these patients to make sure that the lining is still nice and thin.

Dr. Buczynski: And that is if you are using it vaginally?

Ms. Lundin: Any of the other options - the 200 mg for twelve nights, or 100 mg every night.

Dr. Buczynski: Alright. Now, I would like to go back a little bit and go through some of your suggestions on food and nutrition, and some of the lifestyle suggestions that you have in addition to the bioidentical hormones. We talked a little bit about supplements and you have mentioned protein many times. What does protein do for the brain?

"It is *very* important to eat protein... [because it] will break down into amino acids."

Ms. Lundin: Protein will break down hopefully in the gut to amino acids. Amino acids are precursors to brain chemistry, so every brain neurotransmitter has the precursor in the amino acid family. So if you look at dopamine and norepinephrine, the precursors are tyrosine and phenylalanine. If you look at serotonin, it is tryptophan.

It is *very* important to eat protein just for that particular reason - but also important for overall health and for insulin function and prevention of diabetes, and prevention of insulin resistance of course.

Dr. Buczynski: And how about carbs? How do carbs affect the brain?

What You Eat and It's Affect On the Brain

Ms. Lundin: Carbs are… let's turn it around a little bit. When you don't have serotonin you tend to be craving the simple carbs such as the muffin, and the sugar, and the alcohol because you are really self-medicating. And this is a huge issue when it comes to the younger population, too, but also to women who are feeling out of sorts.

They don't really know - the body is screaming for something. It is screaming for contentment and calmness - but you don't know what to do because you are feeling anxious, and worried, and overwhelmed. So you tend to gravitate towards those foods that are more nurturing, you think, such as the simple carbs. And simple carbs are really not that good for us when it comes to general health, and it is not really good for thyroid function either.

But what we do need is the complex carbs to balance the protein intake. But carbs tend to initially raise serotonin, but just for a very short period of time; and then it is going to be gone and you want more of it - especially the simple carbs.

"...what we do need is the complex carbs to balance the protein intake."

So they don't do much long term when it comes to neurotransmitter function or support.

Dr. Buczynski: Okay. How about fats?

Ms. Lundin: Fat is very important for the brain. I think in this country we have had "fat phobia" for a while, thinking that we don't need any fat but I constantly have to reeducate my patients: you need fat but you don't need the simple carbs.

We need the good fats. And I put every patient on essential fatty acids because the brain cells and the neurons you can't transfer information through the brain cell, through the wall of the brain cell unless it is nice and soft and transparent. And that is what essential fatty acids help with. It doesn't really change the balance or the amount of neurotransmitters, but it helps the way it gets absorbed.

"Everybody gets essential fatty acids in my practice. It is also a very good anti-inflammatory."

Also it is very important when it comes to insulin function and preventing insulin resistance. Everybody gets essential fatty acids in my practice. It is also a very good anti-inflammatory.

Dr. Buczynski: Now, I loved your book, by the way…

Ms. Lundin: Thank you.

Dr. Buczynski: Sure! And actually frankly I found it the kind of book that I could recommend to a patient. It has got a wide range of information and it covers so many things. But one of those things that you said that I thought was so interesting is you talked a little bit about neuroplasticity, and that in order for neuroplasticity to occur the brain needs proper food and nutrition. Can you tell us just a little bit more about that?

Ms. Lundin: Well, my specialty is not really neuroplasticity but I think the right hormones and the right nutrition will build that foundation that we need for overall wellbeing and function. And so when it comes to the building blocks, and giving the body what it needs to produce hormones and human growth hormones, and the thyroid, and the female hormones, it needs to be there. The foundation has to be there.

I think when I see a patient with a multitude of symptoms coming in - and I have a symptom list that they fill out - and the whole symptom list, every symptom is checked-off, you can't start chasing symptoms. They have to go to the foundation of health first, to make sure that they have hormonal and nutritional balance. And once you achieve that, a lot of those symptoms will go away.

So when it comes to neuroplasticity, that is not really my expertise so I'm sorry.

Dr. Buczynski: So you use more of a functional medicine approach would you say?

Ms. Lundin: Yes, I do. I tell my patients I believe in giving your body what it really needs to do what it is supposed to do - because it is a really intelligent body you have there; and when we think about all of these things that it does do, 24/7, that you don't even have to think about.

"I tell my patients I believe in giving your body what it really needs to do what it is supposed to do..."

But the body needs information to do what it is so good at doing. So when you don't give it that; when it doesn't receive the information such as hormones and nutrition, then malfunction is going to take place. And symptoms are signs of malfunction.

You really have to listen to symptoms and know why they are there; instead of band-aiding symptoms, go out there and say, "Why are they there? What is that imbalance? And what can I do to balance this patient? What can I give this body so it functions better?"

Dr. Buczynski: Okay. Now, before we move off of the major food groups - we have talked about proteins and carbohydrates; we have talked about why fats are important - there is one more major food group, or so it seems, and that is sugar. Why is sugar so bad?

"...the main reason sugar is bad is because it increases inflammation in your body, and inflammation is bad news."

Ms. Lundin: Well, I think the main reason sugar is bad is because it increases inflammation in your body, and inflammation is bad news. And sugar is going to increase the incidence insulin resistance. So you are going to see that blood sugars slowly start creeping up; insulin starts creeping up. And what happens when insulin is high, nothing else in the body is going to work because insulin now, in combination with the stress hormone that we all have a lot of, they both block the hormone receptors.

This is important for practitioners to know; that if you have a patient who seems to be hormonally balanced on the hormones that you are giving her, then and all of a sudden she is calling you, and she is having symptoms again, and nothing… I mean, she is still in menopause.

You have to look at her stress and you have to look at what she is eating because an example of that is all of a sudden she can't sleep at night; she wakes up in the middle of the night because she is now drinking alcohol at night because she is more stressed-out. Alcohol is going to increase insulin; alcohol is going to block the receptors for hormones.

"...if your patient has improved and then starts to slip backwards... look at what she is eating because that might have to do with why things are happening."

You see them become more imbalanced on many different levels, from high insulin; it also increases the sex hormone binding globulin, so now you have more binding globulin and less hormones available. So a patient becomes very hormone-imbalanced from sugar; they are going to gain weight of course, they are going to become more inflamed - and you see the inflammatory markers go off and of course then brain chemistry is very much affected by that.

Dr. Buczynski: I think that was a really good suggestion; if your patient has improved and then starts to slip backwards, look at what she is eating as a possible place to identify, rather than just changing the medications and so forth - look at what she is eating because that might have to do with why things are happening.

Ms. Lundin: Right.

Dr. Buczynski: Now let's focus on thyroid and adrenal functioning, and how they affect brain health. Shall we focus on adrenal health first?

The Role of the Thyroid and the Adrenal in Brain Health

Ms. Lundin: Yes, I think it is very important to realize that the two work together. I will give you an example about it. Here is the patient that is extremely stressed-out; her hormones are not very balanced, she is having high stress in her life. She has had that for a long time.

The longer you are stressed-out, the more depleted the adrenals are going to be, and initially you are going to produce high levels, during initial stress phase, you are going to produce high levels of cortisol, high levels of DHEA and high levels of adrenalin.

As time goes on, eventually you are going to see those levels start dropping. So now they are becoming more insufficient in adrenal hormones. And we used to think - this is a very important fact that I want to get across - that we used to think that those adrenals cannot produce the hormones any more. So a lot of practitioners started giving patients glandular supplements to push, to give the body what the adrenals weren't giving the body.

But what we are starting to see now is that HPA axis has actually shut down, so the adrenals are beginning to make the right information from the hypothalamus pituitary. So therefore you are not going to end up with low levels of DHEA, and cortisol, and bring on adrenal fatigue.

Many, many times you see that shutting down in the patient who has low serotonin. So the connection between the hypothalamus and the pituitary is sending the right information to the end glands such as the adrenals and the thyroid is very much affected by low serotonin.

"...HPA axis has actually shut down, so the adrenals are beginning to make the right information from the hypothalamus pituitary."

You can see how there is this backup mechanism in the body that is when you are under stress, things are shutting down for reason - because you are supposed to lie down and rest.

What you see, then, with thyroid, is that the T4 does not convert to T3 - it goes into reverse T3 to protect you - into reverse T3 where it is a parking space for the active form of thyroid, to sort of calm you down. You rest; you got really tired - and now you *have* to rest.

A lot of patients coming with adrenal fatigue, and they have gained weight already because they do that in the initial stress phase when cortisol is high; they feel really tired, memory loss, can't focus, depressed.

> "...patients [come] with adrenal fatigue, and they have gained weight already because they do that in the initial stress phase when cortisol is high; they feel really tired, memory loss, can't focus, depressed."

Somebody checks their T3 and it is low, and they give them T3. They can't handle that because the adrenals and the serotonin have to be addressed first because they are going to get anxiety, and palpitations and all kinds of symptoms. So they do work together very much, those two glands.

Dr. Buczynski: And a lot of people are hypothyroid and not aware of it.

Ms. Lundin: Yes, there are a lot of women with stress with the thyroid, too, and most women with low or subclinical levels of thyroid often have Hashimoto's. Hashimoto's is an autoimmune disease - and I think autoimmune disease starts in the gut, and a leaky membrane. But what they end up with eventually is malfunctioning thyroid from autoimmune disease.

Now it is not producing as much hormones as it should and of course most doctors just check TSH - and, again, TSH can have a blunt response when serotonin is low, for someone who is under stress, long-term stress, or somebody who depressed is not going to have a normal TSH because it is not responding. It has a blunt response. And you see TSH not sending the right signal to the thyroid to make the hormones.

But you also see actual high TSH with a lot T4 and a low T3. But what is important to do is to make sure that they check TSH, free T4 and free T3, and sometimes reverse T3, too, to really get the full picture. And that is missed a *lot.* A lot of doctors don't check free T3 - and that *is* the active form of thyroid.

Dr. Buczynski: Just because they are using old tests, or tests that we didn't know to test for that before?

Ms. Lundin: I think that is because… I don't know if I can say that here but…

Dr. Buczynski: You can try.

Ms. Lundin: Yes, I think I have been trained, a lot of doctors have been trained to just replace T4, and therefore they are only checking TSH and T4, and never T3.

> "...make sure that they check TSH, free T4 and free T3, and sometimes reverse T3, too, to really get the full picture."

Dr. Buczynski: Okay. You know, we are about out of time here, and I just want to say thank you so much for being part of our Women's Health program, and for giving your time to share *so* much information on a woman's brain.

And to everyone on the call, first of all I want to thank you for being here. I know you are here at all kinds of times of the day and night in order to be at this call at 5 o'clock on Eastern - so I want to thank you for taking the time out of your busy schedules to be part of the call.

And I am going to be sending you an email, and in that email I am going to be doing a few things. First of all I am going to send you a link to Mia's book. The book, again, is called *Female Brain Gone Insane.* I think you should check it out because it may well be something that you might find good for your patients as well as for yourself and your family. So check it out and see if it makes any sense for you and your practice.

In addition to that, I am going to send you a link to the Comment Board. Now, this is our community board and it is important to go to the Comment Board and talk about how you are going to use what we learned tonight. When you do, put in your first and your last name, your city and state, or country, and your profession - and then tell us how *you* are going to use what you heard tonight with your patient tomorrow.

So, everyone that is on the call, thank you *so* much for being part of this call - for being part of this Series actually - and we appreciate you joining us.

And Mia, especially to you - thank you so much. I wanted to give people the name of your website - so it is www.mialundin.com. There will be a lot of resources there, and especially folks that are overseas, I know that Mia is going to have a tour or do some training in Sweden in a bit of time so that might be something you will want to look into.

So, Mia, thank you so much for being part of the call tonight!

Ms. Lundin: Thank you so much for inviting me and thank you all for listening.

Dr. Buczynski: Everyone, take good care now! Bye-bye.

Ms. Lundin: Bye-bye.

About The Speaker:

Mia Lundin, R.N.C., N.P. is a recognized authority on women's hormonal and emotional balance with an active practice, *The Center for Hormonal and Nutritional Balance Inc*, in Santa Barbara, California. She attributes her success to her own experience and her personal understanding of the physical and emotional effects of hormonal changes and from listening to and treating thousands of women suffering from depression, anxiety, and irrational behavior due to hormonal imbalances. She is the author of *Female Brain Gone Insane; An Emergency Guide For Women Who Feel Like they Are Falling Apart*.

Featured Book by Speaker: Mia Lundin, RNC, NP

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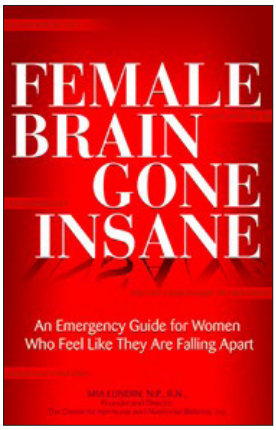

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