Episode 117 Transcript

Dr. Jaclyn Smeaton (00:00:01)
Welcome to the DUTCH Podcast where we dive deep into the science of hormones, wellness and personalized healthcare. I'm Dr. Jaclyn Smeaton, Chief Medical Officer at DUTCH. Join us every Tuesday as we bring you expert insights, cutting edge research and practical tips to help you take control of your health from the inside out. Whether you're a healthcare professional or simply looking to optimize your own wellbeing, we've got you covered. The contents of this podcast are for educational and informational purposes only.

The information is not to be interpreted as or mistaken for medical advice. Consult your healthcare provider for medical advice, diagnosis or treatment. Welcome to the DUTCH Podcast. I'm so glad you're here with me today. I have a fabulous guest who brings so much historical knowledge and really truly passion to the conversation around hormone therapy for women. Really, we started the podcast talking about testosterone, but we ended up talking about so much around hormone replacement therapy.

We've talked about how it's been really democratized as education online has increased and access to hormones has really grown through like venture capitalist type of companies. But also the downsides to that where we're really losing the intended and necessary personalization. We get into the science, particularly behind testosterone in women. If you ever wanted to know what it does in cycling females and why we have it. And then also when it should and shouldn't be considered for postmenopausal females.

You are going to love this episode. It is rich with science and references and a lot of really fascinating discussion. My guest today is a colleague I've had the chance to work with and learn from quite a bit, Dr. Felice Gersh. She's a multi-award winning physician who was one of the first to be dual board certified in OB-GYN and integrative medicine. She's the founder of Integrative Medical Group of Irvine where she combines conventional and holistic approaches to women's health care.

You'll know that she's a sought after speaker when you hear her talk today. She's so engaging and she's an author. She's written three books on PCOS and menopause and really about longevity medicine. Her mission is really to empower women to thrive by understanding and working in harmony with their bodies, especially in the realm of hormones. So let's go ahead and get started. You're going to love this episode. Well, welcome Dr. Gersh. I'm really happy to have you on the podcast again. It's always wonderful to talk with you and get the chance to learn from you.

Dr. Felice Gersh (02:29.878)
Well, I have so much fun talking to you and thank you for inviting me on.

Yeah, so I'm excited to talk about our topic today because I think it's highly misunderstood and that's testosterone in women. And so you've had a long career looking at women of all ages, but I want to start by talking a little bit about testosterone and its function in cycling females and then talk a little bit about, I think the area that's really growing and changing and burgeoning, which is the use of testosterone in post-menopausal females. So can you start by just telling me a little bit about

why testosterone is important, what does it do when it's in good balance in cycling females.

Well...

wish we actually had more research on this. is such an important topic and so little is actually been researched on this, but we do have some very basic information which everyone should know and most people don't including practitioners. Number one is where does testosterone even come from? This is like a big mystery to a lot of people and and then it course relates to what happens as we get into talking about menopause like what's the

Dr. Felice Gersh (03:41.84)
relationship of levels and what happens with perimenopause, menopause, and testosterone levels. So the first thing is to understand where testosterone is even coming from in the female body. So about 25 % is produced in the ovaries, and that's a very important piece of it. But...

and then 25 % is directly produced in the adrenal glands. And where's the other 50 % coming from? Well, not exclusively, but predominantly from precursor androgens that are predominantly produced in the adrenal gland. And...

that is like DHEAS and DHEA, 80 % of DHEA comes from, that circulating comes from the adrenal and 100 % of circulating DHEAS, which is a very abundant androgen is produced in the adrenal gland. So it's important to note that testosterone is largely, predominantly derived from the adrenal gland because that will come into play when we talk about what happens during perimenopause and menopause.

So androgens are produced in really huge quantities compared to estradiol. And so they're very important and they have receptors in like virtually all the organs of the body. And what isn't always clear is how much of the effect is directly on androgen and testosterone receptors and how much of the effect is through its conversion by the enzyme aromatase into estrogens.

is always 100 % of the time the precursor to estradiol and the enzyme aromatase, which of course is present in the ovary, that's how the ovary makes estradiol, but that enzyme is also present in many other organs. And many times the receptors for estradiol and the receptors for testosterone are very close in proximity in different organs. So it's always hard to really discern exactly

Dr. Felice Gersh (05:52.464)
what effects are directly from the testosterone receptor, what are from conversion into estradiol, and what about other estrogens like DHEAS will be converted predominantly into estrone. So it is complex, but we do know that because there are receptors for testosterone in all the organs, it is really important. It's not superfluous and it affects

the musculoskeletal system very significantly.

there are receptors for testosterone in so many places in the brain. It's really involved in mood and cognition in the brain. And there are receptors in the breast tissue. It may be anti-proliferative. We can talk a little bit more about that. So it may be sort of like the yin yang. There's always this sort of balance in the body between different hormones. So it may be a little bit like an opposite effect of some of the growth factors that estrogen can create.

it's involved so in the immune system that we know that males have very different immune system than females testosterone is more a suppressor of immune function so there's a balance in that regard as well and you know so we know that it's also involved in the cardiovascular system and we know in men but also in women that low testosterone is going to have a negative effect on cardiovascular

kind of health and of course because it's involved in

Dr. Felice Gersh (07:30.35)
the all over the body, it's going to relate to energy production as well, which is a very critical thing. So when women don't have adequate testosterone, they will often have just a poor sense of wellbeing and fatigue. So we know that it is very important and there's a little bit of

a cyclicity as well. We know that testosterone production increases right around the time of ovulation, which is for what purpose? For improving

sex drive and sexual function and sexual sensations. So of course we can't leave out sexual function, right, with testosterone. And there is that little bump, a little increased production around ovulation to drive sexual desire and sexual sensations. So it is definitely involved. then...

in terms of like the menstrual cycle and cycling women, I mentioned, testosterone is the precursor to estradiol. So there is this incredible feedback loop with estrogen and the brain. So when estradiol is low, then...

the brain says, hey, I need more estrogen produced from the ovary. And it will trigger through the pituitary to make more of the hormone LH, luteinizing hormone. And that will travel and go to the ovary and that triggers the ovary to produce testosterone. And then when you have a normal functioning ovary, that testosterone will then convert through the action of aromatase in the granulosa cells

under the action of FSH, follicle stimulating hormone, into estradiol and then a whole other conversation for, know, we've talked about this before, when that aromatization isn't working properly, you end up with not enough estradiol and then too much testosterone and that's like underlying androgen excess condition like polycystic ovary syndrome. So when you don't have all these systems properly functioning, then you're not gonna have

Dr. Felice Gersh (09:41.968)
proper ovulation, proper sex drive, proper fertility. So testosterone is intimately connected to every function that goes on in the ovary and ovulation, sex drives.

fertility as a whole. So it's a very important hormone with both reproduction related functions and other functions that will say, you know, ancillary to having regular optimal fertility by optimizing other organ systems in the body.

Yeah, it's interesting because you know, you always think about testosterone as quote unquote the male hormone, right? And you have estradiol as the female hormone and testosterone while is I think, I think it's almost 10 times the concentration of estradiol in the body and in a woman's body, but it gets pushed to the side as less important or that being just kind of a pool to synthesize estradiol from. But it's really clear from what you're describing, there's so many important roles of testosterone independently.

We can't uncover all of them yet. Why do you think it gets overlooked in women? Do you think it is just the lack of research or attention to it? far as its own importance?

Right.

Dr. Felice Gersh (11:01.89)
Well, I am the ultimate feminist. go back to marching for the Equal Rights Amendment. Women have been so neglected in healthcare research. It just breaks my heart. It's until around a decade ago. It's like pretty recent history. were not even required to be in studies and not just human females, but even rat females were not required to be in rat studies.

the drugs that became very popular were actually only tested in men. And even when a few women were included, they didn't break it out. And now we know that women are so different in many, many respects than men in how they respond to so many things, not just their own hormones, but of course, pharmaceuticals. So I think women have been overlooked in so many aspects of health research and the things that are uniquely

Female are often the last ones to be looked at. I think it's really a crime that we don't know more and we don't have more research on so many aspects of female health and testosterone is definitely in that bucket.

Hmm.

And that really comes into play as we think about post-menopausal females, where I think there's an even bigger push to discuss the role of testosterone. But you mentioned the ultimate feminist and marching for women's rights. I read your bio, but I don't think it does a good job of elucidating your backstory. Maybe we can pause on testosterone for a minute so that our listeners can get to know you a little bit better. Because I think you're trained as a traditional OB guy, and you were really immersed in that system.

Dr. Jaclyn Smeaton (12:48.826)
integrative medicine, have such a rich, colorful background. Can you share a little bit about your personal backstory and why you're so passionate about women's health?

Well, as you said, I did go into traditional OB-GYN. I did medical school at USC. I did my residency in OB-GYN. But I don't even really know why. There was this little spark in me that always knew that there was more to optimization of health for women than just doing

surgery, which I became quite expert in, and giving pharmaceuticals, which I always was like, in the beginning, I was like the earliest adapter of every drug on the

market now.

You're taught about a lot of them too, right?

I was on the faculty as clinical professor at USC. taught surgery and I gave lectures. I've done grand rounds at medical schools and so on. And so I was very, I tried to be very up to date on everything, but there was always something that made me drawn to like additional things. So early in my practice and I started my own practice and I didn't really have an entreprenu...

Dr. Felice Gersh (14:00.432)
entrepreneurial spirit. I started my own practice because I wasn't even particularly desired. I was in the very first wave before hardly any women were in OBGYN. Now it's like the vast majority are women. But when I was in training, it was rare. We were very few.

So surprising.

still. Yeah, that's why I've lived through the Women's Health Initiative. So I know the before and the after. So I have, you know, I've lived the history of medicine, which is kind of useful sometimes. so even though I, you know, I happen to be the top resident in my class and I scored all these super high scores, I wasn't really recruited because I was asked questions that would be totally illegal now, like, well, how many babies are you going to have? Are you going to take off time? Are you going to work part time? All these things that you're not

have to ask anymore. But I wasn't seen as an asset. Being a female was looked at as a negative. So after interviewing at a variety of medical practices, they were all men. I said to myself, I'm just.

as good as them. If they could start a practice, I'm going to start a practice, and it just hit me. So I did a two-day course through the California Medical Association called How to Establish a Medical Practice. I went out, I found an office space, I built out an office, I learned how to set up everything, and that's how I started. And almost immediately, right out the gate practically, I brought on board a Chinese medicine practitioner, a nutritionist, a massage therapist, a psychologist, a biofeedback specialist.

Dr. Felice Gersh (15:36.464)
I just, I don't even, I didn't even have a background. I just somehow innately, intuitively knew that you had to do more. So I always had this sort of side thing going on with all of these, like I called them my ancillary people who.

What year was that when you started to practice?

It was in the early 1980s. I didn't even know I was ahead of the curve. I didn't know there was a curve. But then after 25 years of delivering thousands of babies, getting zero sleep most nights, it was crazy. I had the most crazy circadian rhythm. That's why I talk a lot about circadian rhythm, because mine was so dysfunctional. And I ended up stopping doing obstetrics. And then I felt this huge gap in my life.

because my my

my activities were so reduced in terms of satisfaction. just could do hysterectomies and surgeries, which I did a lot, but that was end-stage disease. And I said, can I do something more proactive? And that's when I went on my journey myself. Although I had all these other helpers, I went on my own personal journey and I started taking courses with naturopaths. I'd never even heard of a naturopath. Like, who are these interesting people? I took courses with Tori Hudson. I went to her classes.

Dr. Felice Gersh (16:56.912)
took courses with functional medicine groups. And then I ended up doing the two year fellowship in integrative medicine because I felt as an MD that was through the medical school system. And with a recognized medical school, the University of Arizona School of Medicine, I felt that that was probably my best choice at the time. And then I was one of the very first, if not the first dual board certified OBGYN,

board certified in integrative medicine MD maybe in the US or the world. I'm not sure. There were very few of us and and that was almost 15 years ago. So and I've never looked back and I've well I've looked back only to learn lessons not to go back and so you know I've just forged a new path and you know I just have to defend defend women's rights defend

estrogen, sometimes I have to defend testosterone. For a long time I had to defend fat, you know, now I have to defend carbs. It's like, you know, I'm always on the defensive, you know, because there's always these crazy attacks, you know, and so I just, just do my, own thing in my little office, my little corner of Irvine, California, where, you know, I just try to do

scientific research through reading everything on PubMed.

and learning and interacting with wonderful people like you and your company to learn more and just keep growing and expanding and doing everything I can to both educate doctors and patients and then to provide care because my primary job is providing care. I have a brick and mortar office and I see patients every day. So I'm really in the trenches doctor. So I'm trying to do it all.

So I have primary, secondary, tertiary, and so on, functions and jobs. So my primary is still taking care of patients one on one, but then secondarily is educating and traveling and lecturing and so on.

Dr. Jaclyn Smeaton (19:13.642)
one. Yeah. How have the patients changed over time? Like from the early eighties when women were coming to you? I'm sure many of them came for traditional OB-GYN services. Now they're coming to you because of this unique specialty that you've developed. But the mindset around hormones and hormone balance, have you seen shifts over those years where women are asking different questions than they did?

Well, when it comes to like perimenopause menopause, because I was in practice more than 20 years ago, the Women's Health Initiative was shut down around 2002. And I was in practice at that time. And prior to that, hormones were very favorably viewed. I had most of my patients, a very high percentage of women before like the year 2000 were on hormones.

Hormones were recognized as essential to all kinds of functions in the body. And then when the Women's Health Initiative came out, and inappropriately, you know, we've talked about this a million times over, inappropriately was interpreted as harmful across the board for all kinds of hormone regimens and all women. It was such a travesty to everything that is scientific. And women were told,

by the media, by their doctors, that hormones are so dangerous. And I beg my patients stay on hormones. You know, we already had transdermal estrogen at that time. It wasn't everybody was on Prem Pro. That is not true. We already had had by, we already had micronized progesterone. We already had transdermal estrogens at that time. And we already knew a lot of the pros and cons. This was not like we didn't know. We knew, I knew, if I knew everybody.

I could know, but I begged my patients to stay on hormones and I would say about half of

them did and half of them didn't. And then a lot of them ultimately came back and said, I made a mistake, I want to go back on the hormones. And some of them came back decade later. I mean, that breaks my heart. But.

Dr. Felice Gersh (21:31.272)
Now, so people became afraid, let's put it that way. So a little over 20, a little under 20 years ago, no, actually now it's over 20 years ago, women became very fearful of hormones. And I had to beg them to stay on them and tell them the science and say, how could this possibly be the case? And explain how hormones work in the body. We knew a lot back then. We lost a lot of knowledge. It's like we had like amnesia.

became the norm. Lack of education on menopause became the norm. But I predated that. So I already had the background knowledge. They had some studies that over 80 % of...

practitioners today, whether they're naturopaths, nurse practitioners, PAs, MDs, DOs, over 80 % of them were not in active medical practice when the Women's Health Initiative came out. And after that, they were all told the wrong information about hormones. Not just the prostatone. Exactly.

I was in school from 2003 to 2007. it was after WHI was publicized and my guide classes were basically that you don't use hormones.

Right, testosterone, mean estrogen was maligned, testosterone was invisible. mean, was talk about testosterone, there was zero talk, zero, okay? And estrogen, you didn't want to give estrogen, didn't want to, and progesterone and progestin, those words were so mixed up and confused that there were many articles written and published in high-end

Dr. Felice Gersh (23:10.264)
peer-reviewed journals using the word progesterone when they were talking about Madroxine progesterone acetate, which is totally different. It's like crazy. But this was in like high-end medical journals. They used the word progesterone inappropriately. In fact, I was just listening to a video that was just made and they were using the word progesterone when it was at progestin. And this is like this week. This this week.

So it speaks to one of the issues

when you talk about lack of research in women's health, it's lack of the language, lack of the literacy of how to talk about it, lack of the basic knowledge that allows you to

distinguish. And I think you're right, so many experts, the physicians and providers who've become experts have had to do it on their own time. And actually, one thing that just as an aside, as we've built out our education, a lot of the studies that we've looked at for the effects of hormone therapy, they predate WHI.

like stronger larger studies we're going back to old data because there was such a vacuum and a gap where there was nothing

But here's the plus of being on the older side. I already knew that stuff.

Dr. Jaclyn Smeaton (24:23.278)
I knew it all, I know.

the crazy part of it. So I kept like, you know, like I kept, you know, holding the light, you know, the flickering candle, I wouldn't let the light go out all these years. So what's changed is that there's now entrepreneurship in terms of hormone prescribing predominantly online. Now, there's pluses and minuses to this. There are many, many new startup companies that are

now prescribing hormones for menopausal women, and they're doing it online and mass with standardized, pretty close to rigid protocols. I'm sure there's variations I'm generalizing here, because there are now many companies that are in this sphere. And they then hire doctors and others, different kinds of practitioners, to promote menopause as...

a condition deserving treatment. So, which I believe it is, okay, because it's a hormone deficiency state, just like hypothyroidism is a hormone deficiency state. I don't care that it's natural, it's not naturally beneficial. So I view it as I would look at any hormone deficiency state. You're deficient in a hormone, the treatment is the hormone. That doesn't mean you don't do meditation, exercise, eat vegetables, but that's not

a replacement for a hormone. Those are adjuncts to optimizing health.

Dr. Jaclyn Smeaton (25:56.524)
Sorry, you find that your position on that is controversial? Do people push back against you?

Well, let's nap.

my goodness. Yeah, I have been an outlier on hormones, obviously, for like more than two decades. I'm not the only one, but we've been a minority for sure. I mean, I've written articles over the last just few years that have gotten published. And every time we thought, wow, this is going to change everything. Because what's one of my goals now? One of my goals is to get medical societies

like the cardiology societies and the neurological society to get different medical societies to actually adapt a philosophy.

you know, that hormones are good and should be used proactively to prevent different sequelae, you know, involving the neurological system, the cardiology, know, the cardiovascular system. But of course we need more studies because there's always the fallback is, well, where's the clinical studies? You only have science. Yeah. Well, let's do the clinical studies. Well, no one's going to fund them. And then you have, so we do not have

Dr. Felice Gersh (27:16.144)
have any medical societies right now, any, that are advocating for the proactive use of hormones for anything really other than suppression of night sweats and hot flashes, which is very good but not sufficient.

Is that due to fear, fear of making a mistake or overstepping? Do you think that's just due to fear, fear of, because now we're starting to see data around protection. enough. Yeah, not enough. So just going to more time, more studies.

Stay there, again.

Dr. Felice Gersh (27:50.08)
not

Dr. Felice Gersh (27:53.464)
So we definitely know these medical societies will never be turned, so to speak, into changing their positions by science. They want and demand clinical studies which are not being done. And the clinical studies that were done, like the KEEP study, they used inappropriate doses and they also used one of the arms, they used Premarin. And then even when they used estradiol

patch when they measured the levels, talking about measuring levels, they measured serum levels and they stayed in the menopausal range. And we know that dose matters,

levels matter. Right. Right. That's why we have labs that measure levels because levels matter. If you give a dose that has no significant effect on raising the level into a therapeutic range, why would you expect a therapeutic benefit, you know, of any significance? And then when they did

the elite study, used a milligram of oral estradiol and they used a very small dose of vaginal progesterone. They're using the wrong forms. were studies designed by cardiologists who never really understood hormones. And they were also even documented that they were following the mantra of the Women's Health Initiative, was, hormones are innately harmful, use the lowest dose. Now, this lowest dose

thing has also been pervasive with the online companies that are prescribing hormones. And because it's simple, but you know, this whole lowest dose thing exists in nothing else except in prescribing hormones for women. In what other situation is the lowest dose the whole mantra not

the optimal dose. You always want the lowest dose that is optimal, not the lowest dose that does a smidgey something. You know? Right. We say, want you to have the lowest amount of exercise to keep you alive. Why don't you exercise five minutes a month? Why don't you have one bite of vegetables a month? We don't do the lowest dose for something that is good. We only do the lowest dose for something that is harmful. Like,

Dr. Felice Gersh (30:17.666)
the lowest amount of chemotherapy to achieve your ends, right? Absolutely. chemo is toxic, but if you don't think hormones are toxic, why are you giving a suboptimal lowest dose? We need to change the way of thinking. And that's why when you talk about how is thinking changed, it's changed in that more and more, mostly through the advocacy of, you know,

venture capitalists who are making money off of prescribing hormones online to women and they want women to want hormones because that's their business model and therefore they are providing actually good education. So this is the good part. They're providing good education on what happens in menopausal and perimenopausal women. So that part's good. It's becoming more mainstream that menopause does all these different things.

much talking about testosterone at all, but they're talking about estradiol and a smidgeny progesterone, not that much there either, not that much, but mostly estradiol. so losing

these hormones is now recognized as having a whole bunch of sequela. And that's where the people out there who are doing a lot of podcasts and whatever, writing books and so on is actually good. But the problem is that how to then

proceed with prescribing hormones is not so good, you know, but we definitely need more studies. There's no question about that, but the mantra of ongoing the lowest dose, the lowest dose, not...

Although they talk about all these sequelae involving the brain, the musculoskeletal system, the cardiovascular system, the genitourinary system, every system in the body, all these different sequelae, when it comes to how to give hormones, it still comes back to the lowest dose, not the optimal dose. So we have a change of thinking, and a lot more women who want hormones, then the big question becomes how are we gonna prescribe hormones?

Dr. Felice Gersh (32:31.184)
testosterone has become a crazy thing in so many ways. There are now people prescribing mega doses of testosterone, crazy amounts, super physiologic amounts that create levels that are in the male range. So we have women on teensy doses of estradiol that remain in the menopausal range and massive doses of testosterone that are getting them into the male levels.

Like this has got to stop, you know? So that's where we have to get things like properly.

put together here and people need to understand what these different hormones do and how levels relate. And that's where it is really, really useful to go back to. And this is one of the things that I really do appreciate about the DUTCH test, I really have to say, and the whole philosophy of your company, looking at physiologic levels in the healthy reproductive age woman. And then...

looking at, because that's really my...

That's my lifeline is looking. How do I know what the optimal levels should be that we should be looking to achieve in women when we prescribe hormones in women who are no longer making hormones? Well, go back and look at what would a healthy 21-year-old woman have in her body? What are we talking about here? What kind of levels does she have? Well, that's where you go back to the menstrual cycle. That is so helpful.

Dr. Felice Gersh (34:10.447)
What levels does she have? We'll call them optimized physiological levels for women during the optimal health fertility years. And that's where we should be trying to achieve levels, not the levels that are still menopausal, not levels of testosterone that are super physiologic. And then looking at how the body utilizes these hormones to help us to

understand what else needs to be addressed and maybe how to personalize our hormone prescribing practices.

We'll be right back.

If you're a clinician seeing more women in their late thirties to early fifties who don't quite fit the typical menopause profile, but are clearly not feeling like themselves, this is for you. We're thrilled to announce the release of our new course, perimenopause management. This is a comprehensive evidence informed course designed to help you identify and address hormonal shifts before your patients reach menopause. You'll get clinical tools, treatment strategies, and real world case examples to elevate how you support women

through this often overlooked transition. Make sure you're a registered DUTCH provider to gain access to this free course. Visit DUTCHtest.com to become one today. We're back with the DUTCH podcast. Yeah, thank you for that call out. And this actually came up very recently because in April we released

Dr. Jaclyn Smeaton (35:43.404)
a new version of our report. One of the changes we made was we used to have a chart that showed the age-dependent testosterone ranges, androgen ranges, DHEA as well. But we would show the decade of life and then the range that you'd expect to see. But what we wanted to do was color code the dials the way that we do.

for estradiol and progesterone where we show a luteal range to post-metaposal range. And it forced us to ask that question, well, what should be labeled as luteal or optimal for a cycling female versus not? And that's exactly what we came to was looking at.

really eliminating the perimenopausal years from either group and having that optimal range for cycling females for luteal range, we said about 18 to 40, and then postmenopausal was over 52. And so that really helps to kind of, and there's of course there's overlap and you'd expect that women in between because testosterone has a slow decline over time in natural production, that you're gonna have people that are in that

overlap space.

We were just trying to, how can we represent that best for a clinician?

That's great. And I'm really glad you brought up that subject because so many doctors now are just reflexively prescribing testosterone to women when they are prescribing, like they're in menopause and they're prescribing it automatically, usually in, not always, but sometimes in like random doses that don't always make any physiologic sense, but they're prescribing it along with the estrogen, usually estrogen.

Dr. Felice Gersh (37:20.014)
and some sort of progesterone or sometimes even a progestin. So I think what you said is really important and that is not always driven home. Once you understand, like I started off saying, where does testosterone come from? How does it work? Well, the bottom line is that...

There is a general decline in testosterone production with aging, and most of that decline is coming from the adrenal gland, although some from the ovary, but a lot. And in fact, the area of the adrenal gland that makes androgens, the DHEAS, the DHEA, testosterone, androstenedione, and so on.

that area of the adrenal gland is called the zona reticularis. And if you do imaging as women and men age, you find that area, the zona reticularis, literally shrinking. It's like, uh-oh, we're shriveling, know, shrivel, getting smaller. So there is an age-related decline, but it's not identical in every, we'll talk about women, it's not identical in every woman. So there's a general decline, but for,

For any woman, you need to individualize it because for some it's a faster decline, for others it's less, and in general, so this is general statement, by the age of 40, a woman will produce close to half the amount of testosterone that she was maybe producing when she was 20.

Now, that is just a general statement, but that has nothing to do with menopause. There is no decline of testosterone production associated with perimenopause and menopause. And in fact, the ovaries may produce more testosterone in the perimenopause years and early menopause years because when the ovaries have sensors to estrogen,

Dr. Felice Gersh (39:20.842)

I said the ovaries, I'm sorry. The brain has sensors to estrogen, but the brain does not have sensors to testosterone. So no matter what the testosterone level is, the brain will not do anything to change it. doesn't, that doesn't work that way. But when the...

ovaries are producing less estrogen, the brain has sensors to that. And then what does it do? What I mentioned earlier, it triggers through the pituitary higher production of LH, luteinizing hormone, which triggers the ovaries to make testosterone. You don't need a single egg in the ovaries to make testosterone, zero. That's why for years and years and years after menopause, the ovaries continue to make testosterone.

does generally tend to decline, like everything kind of declines with age over time, but they'll just keep making them. That's why we now know, I thought this as an OB-GYN, it's like this makes no sense. Removing the ovaries of a woman prior to the age of 65, like long after she's been through menopause, will increase her risk of mortality. So like this removal of ovaries, because they're still making testosterone. That's like a really important

It doesn't go away with menopause from the ovaries. still make it. But in perimenopause, early menopause, you're having this higher LH production, it does stay that way, but it does sort of decline the effect over time. But you have this high LH that triggers the ovaries to make more testosterone. And...

What also happens as estrogen production goes down, the liver will produce lower amounts of sex hormone binding globulin. And the vast majority of testosterone, 99 % is bound up in the blood and most of that is to sex hormone binding globulin which binds it really tightly. So when you have less sex hormone binding globulin, which you will have when estrogen levels go down, then you have

Dr. Felice Gersh (41:30.786)
then what happens is that you will have more unbound testosterone and it's the unbound or free available testosterone that is free to act on the tissues. So it's not just the total amount, it's the amount available unbound to the tissues. So around perimenopause, many women will suddenly say, what is happening? Am I going through a second puberty? I'm now getting acne? I'm getting facial hair?

this with this stubble. What is happening? And their hair starts thinning. They get that androgenic alopecia. And so they have more available unbound testosterone. And they may even be making more testosterone from their ovaries because of the increase in LH production from the pituitary. So at that moment in time, the last thing that woman needs is

a big dose of testosterone.

You know, she will not appreciate you if you're prescribing it. So that's where you have to really individualize and look at it. As well, if you have a woman who happens to go down the pathway to, and this like is me, okay, that makes more of the potent types of.

of metabolites of testosterone, dihydrotestosterone, DHT, because they go down the 5-alpha reductase pathway more, then they will make more metabolites of testosterone that have more powerful androgenic effects. And those are the women that are more likely, and this is a lot of women, they lose hair, you they get the androgenic alopecia. So you have to be cautious about testosterone prescribing and understanding.

that, you know, how the testosterone is utilized.

Dr. Felice Gersh (43:22.646)
in terms of whether it goes down more pathway into estradiol, more aromatization, or it goes more into the five alpha reductase effects and they get more DHT, the more potent testosterone. So all of these things really matter. That's why it can't be cookie cutter. It has to be personalized. And every woman doesn't need to get the same cookie cutter dose of testosterone.

testosterone when they get started on estrogen. Some women may do really well to start on some testosterone in earlier, before official menopause, which is an arbitrary designation anyway. And some women may never want to go on testosterone because, you know, they have a family history of all the women get quite bald, you know, they're not looking for that. Also, there's not a clear

cause and effect when we give, we know testosterone is really important in the body, but giving testosterone doesn't always transform all of those symptoms. It's very individualized. Every woman has to be looked at in a very personal way. And also understanding that there is not a single FDA approved product of testosterone for women. I was actually involved

believe it or not, way back, this is like about 20 years ago when there was a testosterone patch that almost got approved by the FDA for use particularly in women who had oophorectomy because we know that every woman who has her ovaries removed immediately will have a testosterone insufficiency state because she lost all, she lost all the testosterone her ovaries make and there is, because the brain doesn't have androgen,

receptors, the brain doesn't compensate by telling the adrenal gland to make more androgens to make up for what's lost from the ovary. It doesn't work that way. So there is no compensation for the loss of testosterone from the ovaries when the ovaries are removed. The woman will automatically, definitely by definition, have a testosterone insufficiency state when her ovaries no longer are there, producing 25 % of

Dr. Felice Gersh (45:48.204)
the testosterone that the body normally would have. And it was almost approved, and then it wasn't. So we've never had a single testosterone product for women. Women, in my opinion, should never use the male products, like the gels and such, because...

So interesting. Let's talk about that because that's what I see prescribed most commonly either compounded or the male gel just one tenth of a one

Yeah, okay, I've seen it. They give a pack, you know, the pack, which is a single dose for the male and they say, make this last 10 days. Nobody, they've been, they've had plenty of studies that no one does it right. You will almost always overdose women like 99%. I can never say a hundred percent almost always you will overdose women when you try to convert the male product for the female. So

Yeah, make a pea size make it last

Dr. Felice Gersh (46:42.754)
you're much better off using compounded cream testosterone. But once again, we have no guidelines. There are actually no guidelines, when I say no, I mean zero, double zero. No guidelines for how to prescribe dose, what levels. The one condition that is FDA approved for...

treating would be hypoactive sexual desire disorder and generalized sexual dysfunction in women. And they have like a whole new little name for that. But the bottom line is that's it. But they do not base that on level of testosterone, dose of testosterone. The only thing that's recommended is don't go above the upper reference range of a woman. You're not supposed to super physiologically dose them.

But there are no guidelines for, well, at what dose, at what level, when you measure it. There is nothing. There are no guidelines. It's just, if a woman has this sexual dysfunction, you can try her on testosterone if she's like postmenopausal. I mean, it's like, it's nonsense, okay? There's no data. There's no, there's no dosing. So most of us, including me, I make up

my own protocols. I mean, there are no guidelines. There are no protocols. So for myself, and I'm just making this clear,

I made this up myself, okay? I figure if you get multiple levels, because testosterone can fluctuate. mean, yes, so if you get different levels, know, people get one level and they say, you definitely need it. How do I know? That could be an odd level. There are things that can change why you make less or more. so if you get it in the morning, usually testosterone tends to be higher in the morning.

Right, over hours.

Dr. Felice Gersh (48:34.584)
So if you get a morning level, try to get it around the same time, maybe like 10 o'clock in the morning, and you get at least two, three levels. And if it stays in the bottom 50 percentile, or even the bottom 25 percentile of the normal physiologic reference range for reproductive aged women, not perimenopause, not menopause, know, like,

menopausal, like reproductive aged women, you are in the lower half or even the bottom quarter of the reference range on multiple tests and you have some symptoms and you desire testosterone, then give it. And I always start low because no woman is happy if you give her acne and facial hair. I have not seen any woman be happy about that. you know, I go like

I start low and slow because no one dies from slightly low testosterone. That's good, right? You know, it's not like you have, you know, like you're going into, you know, a situation of Addison's disease and you're going to have shock. It's not, you know, it's like, that's the good news is that you're not in a critical situation here with testosterone being a little low. Okay. So,

you know, definitely and look at all the other androgens as well, because, you know, from the adrenal, like look at not all the others, but DHAs. And so then I would start low and I personally have my own protocol, but this is made up. There are no protocols. There are no written protocols. So I start low depending on the level one or two milligrams a day. That's all I start with. And I almost never go above five.

And I find that most women started to have symptoms that are unpleasant when they get much above five. But I do individualize it because it depends on how they metabolize it and their symptoms and so on. And the symptoms are kind of vague. Like I don't have

happiness. I don't have a sex drive. My orgasms are less powerful. I feel weaker. Like I can't lift those 50 pound weights. Like what's happening?

Dr. Felice Gersh (50:55.276)
I don't feel like my muscles are as strong as they used to be, you know, or, you know, you know, I, just feel sluggish. You know, some of them are a little like, like, are you depressed? Do you have low testosterone? You know, they're not always black and white, you know, like what's your diet and, and, so on. But, but you know, based on that, I, I am fine. I would prescribing testosterone. Here's another problem, which is really annoying. It's a controlled substance. Yeah.

It's tough to get.

You know what? Not everybody can prescribe it, you know, and you have to have a compounding pharmacy that is trustworthy. You know, where do you place it? I didn't mention this, but there are androgen receptors in the female genital tract, like in the lower portion of the vagina and around the vulva. So testosterone can help in people who have like sort of recalcitrant

vaginal atrophy or painful intercourse, a lot of times putting

Even literal from osis like I've seen like really interesting data

Dr. Felice Gersh (52:02.602)
unlike in sclerosis, you know, it's mixed data. That's the problem. Data on almost everything because different dosages, different formulations, you know, that's sort of the problem. So it's a little, I don't want to say trial and error. I just say trial and try again because it's not error, you know? So sometimes we do have to just try some things, but it's being used in academic centers exactly as I just said for

Mixed data.

Dr. Jaclyn Smeaton (52:29.036)
Yeah, I was actually taught, just to kind of back that up, I took a certification in women's health at Harvard Medical School this spring. And it was taught there. We were able to see.

Exactly. It is taught. That's exactly what I'm saying. But it's still, you know, there's still no written, you know, like there's no medical society protocols, right? But absolutely. And

more and more, and this is sort of the crazy thing about estrogen in general, too. It's not FDA approved for like cardiovascular health, you know, to prevent cardiovascular disease. But many academics,

Not an FDA approved application.

Dr. Felice Gersh (53:07.052)
as though they won't get their medical societies to actually approve it. They won't do it. But they'll say, it's not FDA approved, but, you know, they throw up, but you could do this, you know, but you know what? That's not gonna fly. You've got, can't, you're making the, if you don't make it, this is an official recommendation and you keep just doing the buts on the side, but you can do this, but you can do this. Many doctors are fearful and many health systems.

will not approve it. know, many doctors, the majority of MDs now are employed and

It's interesting, yeah, when you talk about the democratization of access to hormones through venture capitalist funded online programs, the need for that really comes up when hospital-based systems, which the majority of us participated, or your insurance-based systems, they don't offer it because it's not a public standard of care. And I think one of the challenges with testosterone in particular is cost.

for women in access. And compounded gets even more expensive than using a pea-sized amount of testa gel. But you end up pushing people to that type of model when you don't have standardization. There's actually the need for the research.

Absolutely. That is why.

Dr. Felice Gersh (54:25.79)
Exactly, it keeps coming back to the research. That's why I love when you do some research and you actually publish it. It's fantastic. You know, if anyone has any billionaire friends, please send them our way to fund some studies. We will do them. We will do them. We can get them funded, you know, and it's a challenge right now getting funding. That is for sure for women's health studies. It was always and now it's even worse. So we but we need these studies because like when you have these big health care systems and you just have the academics doing stuff behind the

seen saying, well, we do this, but it's all not official. You know, it's like, but it's all the buts,

but we do this, but this we can use this, you know, but you don't make official recommendations. The big health care systems aren't going to cover it. They're not going to sanction it to permit it for their doctors who are employed. And they'll even punish doctors for doing it. Right. They'll say, no, you can't do that. That's not part of our protocol. It's not FDA approved. That always comes back to not FDA approved or not approved by any medical system.

society officially. So we definitely need to do that. But fortunately, it's not illegal. You know, it's totally legal to use testosterone off label. It's not illegal. And if you can have patients who are willing to pay for

because it's not gonna be covered by insurance and are willing to pay. And then we start low and we give it a try and we watch for like, what's their reaction? Like how do they metabolize it? Are they going too much to the DHT pathway? Or are they going more into the aromatization? Or what's happening with these hormones and how do they feel? It's a little touchy-feely because when they do studies,

and it's also related to formulations and dosing, we don't get standard responses. That's part of the problem. It's like you say, these are all the symptoms of low testosterone in women, and then you give them testosterone, and in the studies, you don't always get positive responses. And then why is that? Did they underdose them? Did they use the wrong formulation? What happened here? Do they have adequate estradiol? That's another important thing. Testosterone should never be given.

Dr. Felice Gersh (56:43.66)
by itself, like it's part of a package. Estradiol upregulates testosterone receptors.

You know, so testosterone receptors will not work properly in a female in an absence of estradiol. So I always get the estradiol and progesterone started first, unless they're not menopausal, of course, you know, if it's the occasional woman who is like has totally fine estradiol and progesterone, but her testosterone is really tanked, that can happen because they're not together. They're not the same, you know, but if,

if I'm starting a woman on estradiol and progesterone, I get that set and right, and then I add the testosterone, because progesterone down-regulates testosterone receptors, estradiol up-regulates testosterone receptors. You gotta get things right, and then you add in the testosterone. But there are some people now that are just giving these mega doses of testosterone by itself.

I've seen that too. I've seen that too. And I think the thought, because I've been to a class where I was taught that as well, you know, so I think the piece that I would say is that they're teaching it that you'll have downstream conversion and aromatization into estradiol, but it's insufficient. It doesn't make sense to start with that.

When you give a precursor, you don't know where it's going to go down. It's like, like you give someone pregnean alone. You don't know what they're going to do with that pregnean alone. You can't know, you know, and, you know, the same thing. You give testosterone to a male. Okay. Is he going to turn some of it into estradiol? You bet. And that's appropriate. Is he going to turn 90 % of it into estradiol? No. You know, if

Dr. Jaclyn Smeaton (58:36.578)
some men more than others and then they need a rheumatase inhibitor or...

Some men, they're very inflamed, when you have high levels of inflammation, high levels of inflammation upregulate the enzyme aromatase. That's why men can get like man boobs. That's why men can get prostate enlargement. The prostate is the analogous organ to the uterus. you know, lot of, when you have a lot of testosterone being aromatized into estrogen, then you get growth factors. One of the beautiful, wonderful things about estradiol is it

It creates growth factors, which is great, but uncontrolled growth factors is uncontrolled proliferation. That's what happens when you have uncontrolled inflammation. That's why everything has to be looked at in context. If you give a ton of testosterone to someone who is highly inflamed and they're creating more aromatization, then you're really driving down the estrogen pathway. That's true.

testosterone to a woman, you don't know how much is going to be converted or where. I mean, that's not how it works. That's not physiologic. I'm always saying I'm a simple thinker. I am trying to outsmart nature by uncoupling. So this is reproduction and hormones, except not testosterone. This is the hormones, estradiol and progesterone. They're like this.

They're completely intertwined. We cannot be fertile our whole lives as women because we will die in pregnancy and childbirth. Only men can be fertile their whole lives because they don't go through pregnancy. So it will not hurt them to be sperm deliverers forever.

Dr. Felice Gersh (01:00:24.066)

but women have to go through pregnancy if they're fertile and they get pregnant and they will die when they get older. We will die as elderly primogravities, okay? That's why women who are over 35 and pregnant are called elderly because risk goes up with age and pregnancy. I I delivered thousands of babies, believe me, I saw firsthand. So nature has to stop fertility, but the hormones...

Estradiol and progesterone are completely intertwined with reproduction, so you lose them both. But I'm trying to outsmart nature by uncoupling reproduction and bioidentical hormones that has never been done before and maintaining the hormones without the fertility. And that is quite the trick, you know? But if I'm going to do that...

I'm not going to give hormones in a way that never existed in the female body. I'm not that clever that I can outsmart nature. I always say the biggest experiment that failed in trying to outsmart nature is ultra processed food. Okay. I'm not going to make that mistake with hormones and think that I'm so smart. I'm going to create a hormone regimen that never exists in any female at any time of life. And that's the regimen I'm going to give her.

That makes absolutely no sense to me as a simple thinker. I'm going to uncouple reproduction and hormones. But when I give the hormones, I'm going to give them in a biologically compatible physiologic way to create levels and somewhat rhythms that are aligned with nature at its best when women are healthiest. And I'm not going to create a whole new paradigm of hormone.

therapy that makes no sense physiologically that human females never have that kind of hormone regimen or levels or anything in their bodies ever. And that's sort of my big sort of promotional push now is once now, like we're getting back to where we started, menopause is finally being more and more recognized as a stage of life that has massive

Dr. Felice Gersh (01:02:43.246)
metabolic shift changes. Things are happening in every organ system and this should no longer be ignored as it was after the women's health initiative problem. So once we get that established, which is still not universal, mean, it's still a minority of doctors who even understand that menopause is a significant metabolic shift in the female body. But once we get that kind of sort of normalized as a way of thinking,

then the my big push is if we're going to give hormones, and it can include testosterone, we should give it aligned with physiological rhythms and levels and not try to create a new paradigm of hormone therapy that never existed ever in nature and that we try to

understand how all these hormones interact with each other and with other hormone systems.

you know, like the thyroid and, and adrenal and there's interactions connections with everything. No, we could talk for hours. The bottom line is that testosterone a hundred percent is a female hormone testosterone generally declines with aging separate from menopause. It doesn't go down at menopause. may even go up a little bit.

We didn't

Dr. Felice Gersh (01:04:08.706)
but you may have more unbound testosterone as sex hormone binding globulin goes down when estrogen levels go down. So you may or may not need or recommend hormone replacement of testosterone for your women at different stages of life, but it is an appropriate hormone to prescribe. Don't give doses that create non-physiologic levels. Stay within the reference range for a healthy reproductive aged woman.

and monitor. I say you can't not measure if you want to monitor. So you have to measure and you have to monitor because things can change. When we give testosterone as a cream through the skin, that's totally weird. The skin is supposed to be a barrier, right? It's supposed to keep things out, not let things in like a sieve. So different women will absorb testosterone through the skin differently.

and in different locations. So there's a lot, don't say trial and error, I say trial and try again. You may have to try different spots, but don't put it in an area where you don't wanna grow hair, where you won't accept hair, because testosterone can activate those hair follicles and can convert from the vellus.

to the terminal hairs. Those are big, thick black hairs. We don't want to grow big, thick black hairs in places women would be horrified. So you've got to pick your placement, and you can use it on the labia, you can use it on the vulva, and especially when they need it, like you said, like if they have changes of the skin, if they have atrophy of the clitoris and so on, that's appropriate.

You know, you have to have knowledge, you have to monitor, you have to measure, and you have to individualize. This is highly personalized medicine. The hormone world is highly personalized because we're doing things that never nature expected through avenues that were not designed for that purpose, like the skin. And it's a great frontier that is finally kind

of opening up after being shut down.

Dr. Felice Gersh (01:06:19.874)
for 20 plus years in large measure after the Women's Health Initiative. So I'm excited for the future and hopefully we'll see better and better things for women lying ahead.

I hope so. mean, it opens the doors to really a new beginning when it comes to options available for women for feeling their best optimally for a long time. So Dr. Gersh, thank you so much. It's always a pleasure to get the chance to speak with you. Your energy and passion and knowledge really shine through. So I really thank you for being on the touch test today. If people want to learn more about you, what's the best way for them to get a hold of you?

Well, my practice is called the Integrative Medical Group of Irvine. That's where I am right now. I have patient in a minute. And so I have a practice where I see patients in person and I can also incorporate telemedicine. You know, I have to follow the laws and so on, but I do a lot of telemedicine. In addition, I have a pretty active Instagram Live and a YouTube channel. And I have my three books and hope to write more.

Wonderful. And we'll put links to all those in the show notes. Thanks again, Dr. Gersh. Thanks for joining us on the DUTCH podcast. Join us every Tuesday for new conversations with leading functional health experts. If you like what you've heard, be sure to like, follow and subscribe wherever you get your podcasts.