Transcript

Danny Lennon: Dr. Nicky Keay, welcome back to the podcast. So great to talk to you.

Nicky Keay: Listen, thank you so much for inviting me back. it's really great to have another chance to discuss.

Danny Lennon: Yeah. So maybe as a quick reintroduction for people who heard your previous podcast, and maybe for those who didn't catch that, can you maybe start us off with a brief background about yourself, your main areas of interest, your work, and then what you've probably been doing over the period of time since you're last on the podcast a couple of years ago.

Nicky Keay: I'm a medical doctor, and I've got a particular interest in hormones and hormones as we're gonna discuss, these are these vital internal chemical messengers traveling around in the bloodstream. And what particularly fascinates me about hormones is they're really complicated. I know that sounds strange, and also I particularly, enjoy this challenge because hormones are so, so important not only to your health as we're gonna discuss, if you are any sort of exerciser athlete, whether you are elite, whether you are just amateur so my particular focus, if we really wanna drill

it down, is, the effect that hormones have on your health and your performance.

As an athlete, as an exerciser, whatever level that is. And I'm a honorary clinical lecturer at University College London. and so I teach and I research, guess what... on this topic of hormones, exercise, the effects of nutrition as well, because of course exercise has to be backed up with the other things, which I'm sure we're gonna discuss. So anyway that's really about me. And I think, why did I choose all of this? Because I've always been fascinated in about how the human body works. That's why I chose medicine. but then, because I've always been very active used to be a competitive swimmer. I played tennis to a reasonable level. Competitive, always dancing,

Danny Lennon: A few things that you just mentioned there is actually a good segue into good starting point because you mentioned something that should sound obvious to people of hormones are complex. Right? And when we think of endocrinology, I think a lot of people underestimate just how complex it is and where this often shows itself is as I'm sure to much of your an annoyance. If you look around the internet and you see people talking about hormones, you can see very oversimplified messages. It's now very common to see people painting a hormone as good or bad inherently, which is a very strange concept.

So I'm just wondering, to start off, could you speak to this idea of how we need to think of these things in more of a context dependent manner? And for example, you mentioned there. The age and over the time course, how hormones have different functions, maybe have different levels, time of day, all these types of things.

Can you maybe talk about the idea of thinking about them in context as opposed to a hormone is good or bad? As we sometimes see on the internet?

Nicky Keay: Yeah, there are quite a few things that, get me annoyed, but also actually really worry. Because it's the wrong message. It's like, it's just the same with food. There's no good or bad food. It's in the context. So with a hormone, for example, cortisol, people think "Oh goodness, that's a stress hormone. That must be bad." But guess what, If you don't have any, you've got a serious medical condition called Addison's, and you're gonna keel over. You know, so, but equally at the other end of the extreme, super high cortisol,

that's a medical condition, cushing's disease. That's bad. That is bad. So what I'm trying to say is that a single hormone, as you say, is not good or bad. It's what is the level of it? A and not only that, what is the level of it, but what is your response to it? So for example especially in women, where there is of course a lot of fluctuation of the hormones during the menstrual cycle, you can have two women, you can even have two twins side by side, and they will have the same level of estrogen, and yet one woman, it will, she will respond in a different biological way because we're, you are subtly different.

You see what I mean? So I absolutely agree with your message. There's no such thing as a good or a bad hormone. and also the other important thing you mentioned there, Is that no hormone works in isolation. That it's a network. I talk about hormone networks, so things work together, like cortisol actually has an effect on your thyroid hormones.

You see what I mean? It's all so not only is it misleading to say, Oh, single out a good or a bad hormone, no such thing, but also just to look at that in isolation. It's like, what's the. Context of the hormone network. The other really important point you made is that hormones, have their own internal biological clocks. So course all we mentioned, for example, goes high in the morning. The awakening response you see, and then it goes down lower in the evening. So you know it's gonna vary during the day for some of them. And of course the menstrual cycle hormones there, like, wow, that's really amazing choreography and fine tuning of the timing of the allmans going up and down and everything like this.

So there's the timing within the day, maybe within over a month. , you said it over the lifetime. obviously we all the physi basic physiology of course is the same. Yeah. Man, woman it's the sort of, the fundamentals are the same, but it's very different. You think about it, of course it is.

The hormones that are the levels and in a child are gonna be totally different for someone in their thirties. and so, you have to respect that, that the hormone. Millions of years of evolution. By the way. They're amazing things. The body is amazing in general. So I think also sometimes people try to maybe tinker too much, of course you should pay, be respectful of your hormones, but, imagining that doing a particular thing for a particular hormone, suddenly if you do this is gonna make this good hormone very good, whatever that means. We, anyway, for a particular time in your life, of

course, it's, if you think about it logically, that's, that can't be right. It doesn't make any sense at all. So, the things vary over the lifespan, which is very important. And, my job as a doctor is to try it and support people whatever age they are; the youngsters, the teenagers, the, those in their twenties, thirties, forties. And then of course, we're getting more and more masters athletes, which is fantastic. Yes, there is life after 50, by the way. Probably 30 more years of it. So, but the hormones are obviously gonna be, they can be challenging because the lifespan is expand, is extending. So, for women, yes, we have to accept that it's normal physiology.

It's like, that's what happens, but it can be a challenge because the hormones change so dramatically. But there are things that you can do to, make the most of it. And that will include changing what you do. So I think that's the other important message. We do have the power,

Danny Lennon: Yeah. A number of important points there and maybe we can touch on each one individually and drill into some detail. One of the first things you said that I. You, you outlined. It's crucial for people is we need to stop looking at just the action of a hormone in isolation and realize this happens in the context of essentially this whole orchestra of various hormones.

Now, of course, at some points it's useful to think about the action of a hormone or we can break down that whole, these larger networks into more simplified networks or I'm sure listeners may have heard of like the HPA axis, right? The hypothalamic pituitary adrenal axis as just one axis, and there's many different of these that we can classify.

So could you maybe give people an, a, reminder of that point you made about how we should think about these in the context of how these work together, what we mean by a hormonal axis, for example, and then just that larger point around these networks of hormones and just reemphasize that.

Nicky Keay: At the sort of very simple level what's the point of a hormone, literally it brings DNA to life. Actually the word hormone derives from ancient Greek, apparently meaning to set in motion. And that's exactly what it does. It goes into the cell, into the nucleus and determines gene expression.

Isn't that amazing? Right? So that's that. And also because it's in the bloodstream, now we see why it goes all, it can go to all the tissues in the body. So one hormone estrogen can have an. Throughout the body, on the bone, on the reproductive tract, on the brain, on the gut, et cetera. So to some extent, I agree with you in some ways.

It's just interesting to think if we think of a single hormone that's interesting to know what it's doing. But it's gotta do, it's gotta do this in a controlled way, as it were. Right? And so the whole point, of physiology to a certain extent is to keep everything in a sort of a stable state, what we call homeostasis, because our body is very finely tuned.

We work best if our body temperature is consistent. If our blood glucose is consistent, our heart re all these things. So the hormones help that. So for example, let's do blood glucose, cuz that's a sort of a straightforward thing that I think most people will have heard of.

So if you eat something, Obviously you're gonna, your blood sugar is gonna go up, right? But you don't want it to go up too high because then you have lots of, too much glucose in the bloodstream. Diabetes, other is the extreme of that. So there's a hormone that sorts that out for you and brings it down. So insulin is released and then the insulins release, the glu blood glucose level will come back into that homeostatic range where you want it to be nice and at the very basic level. That's an example of quite a simple single hormone, how it works to keep everything nice and stable. Okay, so that's, But you mentioned, the axis, the hypothalamus pituitary. And also, by the way, I love that you said, orchestra, that's exactly what it is.

So the hypothalamus is the boss. It's the controller in the brain. No surprise that it's in the brain because it's sitting there very actually close to where the optic nerves cross over. So it can take in what's going on around you outside, but also, of course, it's literally at the seat of your brain. It can monitor what's going on inside.

So the hypothalamus is the neuroendocrine gatekeeper, as we call it. It's sort of a processor, the master controller that surveys what's going around outside and inside, and then it passes messages to the pituitary gland. Okay. Which is just literally very close. Okay? The pituitary gland is indeed the conductor of the endocrine orchestra. I love that. So that's lit. So if you think

what a conductor does, it will indicate to, the strings, the brass. My music isn't very good, but you get the gist. It will direct it, and that's exactly what the pituitary does for the hormones. It will get the messages from the hypothalamus and it will give a direction: "Ah, right, we need some more thyroid hormone here". "We oh, we're in this bit of the menstrual cycle. We need to do something like that."

There's a sabretooth tiger standing in front of you. The hypothalamus. registers that there's an emergency, it will send a message to the pituitary gland. The pituitary gland, in turn, will send an urgent message to the adrenal cortex, and that will release cortisol, the stress response hormone.

Okay? And so, you can run away now from the sabre tooth tiger, right? So that's, the axis working, but now you're out of danger, so you don't want that high level of cortisol anymore, do you? So again, that's registered and now we tone down the message and the cortisol comes back to normal. So that's how an axis works.

So there's a, there are single hormones like insulin and blood glucose, but. Quite a lot of them are doing this access thing through the hypothalamus pituitary. And this applies to the adrenal cortex, it applies to the thyroid gland living here in your neck controls metabolic rate, production of the sex steroids. So if you're a man, testosterone, predominantly, if you're a woman. That's super complicated and beautiful the menstrual cycle hormone. So that's the gist of it. It keeps it all, nice and stable and responsive to what might be thrown at you.

Danny Lennon: One of the other really interesting points that you had touched on was around the diurnal variation we can see in some of these hormones, and you give the example cortisol, but there are of course others. And this is. Fan, fantastic example of that contextual nature. And I think one of the interesting points, and I think you've indeed written about this before, is that one of the elements to consider is because we have these diurnal variations in certain hormones, that means that people going and maybe trying to do their own diagnosis without understanding this context can go and get a single spot measure of a certain hormone and that may or may not tell. What they think it's telling them. Can you maybe speak to, again, this general idea of diol variation of hormones and some examples if you wish,

but then some of the important implications of that for both practitioners and then patients, I guess.

Nicky Keay: Yes. that is a bugbear of mine; doing a single hormone measurement isn't great by the way. so for example, the diol variation of corsol, going back to that, we know that it peaks at in the morning. So typically, we would prefer people to do it at 9:00 AM by the way, that's because when the lab's open, but effectively within an hour of waking up, because then we're gonna get the peak.

So for example, if, and sometimes this happens, people for whatever reason, , they don't do it then. And they get it, do it in the evening, and now actually it's a low level. So, then they might get worried, Oh my goodness, that's a low level, but because it's being compared to what you would expect it to be at its highest.

You see what I mean? So it can actually be misleading and people can get, worried and concerned when actually that's fine. So you have to know. these details. Another example would be the female hormones. according to the phase of the cycle, the follicular phase, the luteal phase, for example, hormones are levels are gonna be very different; the ranges, it varies so much so. If someone does it at a time in the cycle, and especially if they don't record when it was, then you know, by default the lab will put the follicular range on. And again, that can be worrying person testing because then they get this result and it looks like it's outside the range, you see?

And they could get unduly, worried. But actually it's normal for where it is. That's my sort of I agree with you. Be wary of doing the single. hormone in general. and also the timing, is really important, to take into consideration. testing hormones is very helpful I find, especially in certain situations where we're trying to figure out what's going on.

Like why is a period a woman's period stopped? I want to know, make sure there's not a medical condition or someone's got particular symptoms and we want. Find out what's going on. So I'm not against hormone testing. Obviously it's very important, but you have to do it, like you said, with the understanding, with the context of the person's symptoms, by the way, and the timing of it and all these other things.

Danny Lennon: Because I mean, one of the big problems which I know you and many other doctors probably have much concern about is now this idea that's certainly infiltrated. I would say that the wellness sphere, so to speak, is that you're seeing. People aiming to go get consumer tests and they're asymptomatic and just getting a battery of tests for these different hormones and trying to work out what this might mean as opposed to, are you actually working with your doctor who is ordering appropriate labs when they are appropriate and then interpreting them for you?

They're two very different things. So I'm glad you clarified that. One of the big points that maybe we'll spend a bit of time on is maybe looking at. Changes across the life course and some of the interesting time points of that. So maybe to go to the very start, could we maybe spend a bit of time talking about the maybe the fetal factors and the maternal environment that then can influence hormones in the fetus and how implications this maybe has over time. What's the best way to introduce people to this type of idea?

Nicky Keay: I've written a book called Hormones, Health and Human Potential, I said I like ballet and dancing? (Well) My book is in acts. It's Act one and Act two. Act one is discussing pretty much what we've said already, what are hormones, what do they do? The first act of my book is explaining, guess what? It's the hormones that have this are the missing link, Between what we do on the outside, our behaviors and how healthy we are and how we respond to that on the inside. Act two is going through exactly what you said. Now I'm using Shakespeare, the seven ages of man to go through what happens, man and woman. By the way, I've changed it slightly. Okay. The first thing, Shakespeare goes straight to the baby, the mulling, puking baby as he calls it, but actually you, and in this chapter I actually say, like you said, literally when you are in your mother's uterus, that's when it starts happening already, your hormones, because of course the genetics are.

Right. Of course the DNA is there, but like we said, how does it know when to switch on what to do and already the baby there is a wash with all the mother's hormones. and there's a thing, for example, we know that the mother's environment will affect her hormones and therefore how the baby is going to develop there in the uterus because the job is trying to prepare the baby for the outside world, isn't it?

That's the point. But for example, we know from, sad examples of, starvation during the second world. That the mothers were pregnant then they were in a very stressful situation. They were starving. And so that stress message will be given to the baby. So the baby would, adapt already its hormones to when it was, when it's going to be born to be prepared being in this world where there wasn't gonna be much.

Okay, so this is more of an epigenetic effect. So, the hormones are affecting how the DNA's going to be expressed, okay? And it can be passed on from generation to generation. So of course that was very helpful then to help the baby survive. But the problem is these changes often are maintained. And so now, as food became more plenti, Maybe over plentiful, we're going to say convenience foods, et cetera, Less exercise, then now we have this mismatch between what the baby is being prepared for in the uterus, in terms of its hormones, and then it comes to the world, and actually it's not like that. It's not starvation anymore. It's the opposite almost. So it's very, you make such a brilliant point that actually already is starting there. But then of course after that, the hormones, the main sort of point is to grow and develop. So of course, growth hormone starts to increase.

But then I suppose the main explosion of hormones is, of course, the teenage years. Now we get the reproductive hormones kicking in, and we, of course we get the divergence (between) the man and the woman, because testosterone, of course, we know apart from, I'm not talking just about external appearances obviously, but you know, internally the testosterone, the, and the muscles et cetera, and the differences there. But again, that's another sort of flash point

Danny Lennon: So we said here that, and tying back to your earlier point at the very start of the discussion, that we each probably have an individual response to certain hormones or certain levels of hormones and so on, and some of. Probably gonna be genetic, but as you said, there's a clear epigenetic part of this as well.

And this can be traced all the way back to the maternal environment and when we were a fetus, that actually is essentially shaping that profile of some of these hormones and the hormonal access we have at therefore maybe explaining, at least to some degree this individual variation we see later in life.

So we've talked about that early stage and then getting into adolescence as we move into the adult years. So there's many ways that we can look at this, but one that we wanna focus in on for the moment, because you've done so much work in this area, is looking at amenorrhea.

Now there's many aspects to it, but one that I wanted to ask you on today is, in relation to the, updating of the NICE guidelines earlier in the year. So for context, for people listening, that's the National Institute for Health and Care Excellence.

And for those guidelines, they made some changes based on the management of bone health, in the situation of amenorrhea. Could you maybe just speak a bit more to that and tell people the implications of some of these guideline changes. .

Nicky Keay: So, in the teenage years, that's when periods start. So menstruation, the fluctuation of the hormones over the menstrual cycle should start. And the average age is 12, it can be a little bit later in, athletes and dancers, it's true, but the absolute cut is 16. in the US they say 15 but effectively, if your periods haven't started by that age that's called primary amenorrhea. And definitely that needs investigating and looking, getting into, because female hormones are so crucial for health, we've already mentioned that estrogen having these whole range of effects including the bones. So there's primary amenorrhea, but there's. Secondary amenorrhea, which means that your periods have started, but then they stop, afterwards, whether you're 20, 30, whatever, later on, and they stop, for at least three or certainly six months.

And then, and you're not pregnant, by the way. Obviously there are physiological reasons why your periods might stop, by the way, in women for nine months as it happens when you're pregnant. Say you're not pregnant and your periods stop. That is a warning sign because I talk about periods as being the barometer of internal healthy hormones. It's a monthly health check, free monthly health check for women effectively. Okay? So if they stop, that is a concern, especially if it's what we call functional hypothalamic amenorrhea. We've talked about the hypothalamus already, so as the name suggests, it's from the control center. So if you haven't got the right balance of your behaviors in terms of exercise, nutrition, and sleep.

I've done a lot of work on RED-S: relative energy deficiency in sports. So that's where there's a mismatch between your energy intake and what you are expending through doing your training and you haven't got enough left over to support other physiological things like periods.

So let's let's say that this woman has FHA; functional hypothalamic amenorrhea due to RED-S, for example. Okay? She's got an mismatch in what she's doing in her behaviors on the outside, as it were. And so, this is actually quite a concern. And by the way, to disspell a myth, if you ever get told by anybody, including doctors, that it's normal for women's periods to stop because of exercise and not to worry about it. That's not correct. See another doctor . And also the other thing that has changed is, sometimes the almost reflex reaction would be to give the combined oral contraceptive pill. I suggest this is because it makes everyone feel better. It makes the doctor feel better.

You're giving something, it makes the woman feel better because now she's having what's called withdrawal bleeds with the pill, depending on how you take it, but generally, but that's not a period. It's not because of your own hormones. So it's a false sense of security, and now there's more evidence showing that, this isn't helpful for the bones. The bones aren't stupid by the way. The bones, look at the type of hormone in the contraceptive pill. It is a type of estrogen, but the bones look at it and it's like, that's an imposter. That's not the real thing. And so they reject it. So that's why it's not helpful for bone health because I think it can be confusing.

The combined contraceptive pill, if you look at the contents, what's in it, it's definitely got estrogen it, right? But it's not the type of estrogen that your body produces and recognizes. Okay? So that, that's why the confusion arose. People assume that the bones weren't So fussy, and they would just take it, but the bones are not stupid, right?

They want the real thing. So up until recently, the beginning of the year, the NICE guidelines was sort of saying, and it's okay to give the pill, but, I wrote a little letter to them saying, Well actually, I'm not sure can you change this? Because the Endocrine Society, there's lots of research to show that this doesn't help the bones, like we've said, and actually, In this situation, HRT would be better.

And with all due credit and respect to NICE. They absolutely took it on straight away. They responded immediately and said, Thank you for pointing this out, and they updated the guidelines. So I think it was February they did it. So now, If you are a woman listening to this and you've had this experience where your periods have stopped and hopefully you haven't been told that it's normal, or if you've been offered the contraceptive pill, then politely you can pull up the NICE guidelines and say "well, actually, I don't think that's such a good idea", because it's not going to be bone protective.

Danny Lennon: So to clarify that important point for people that we typically think of estrogen as being protective for bone, and certainly this explains why later in life where you get a decline in estrogen, there can be potential issues for bone.

But in this case, you're saying when someone has been prescribed an oral contraceptive pill as a way of providing some estrogen to "solve their issue", the form of estrogen that is in doesn't seem to be as protective for the bone as we would think of estrogen usually being. Therefore, it's probably more indicated now to use hormone replacement therapy?

Nicky Keay: Yes, exactly, and because hormone replacement therapy, as the name suggests it. the real deal, Especially the type of HRT hormonal replacement therapy that you take through the skin. So the estrogen there is the real thing, okay? Right. The genuine article and you put it on as a gel or a patch, for example.

And there are studies showing that this is bone protective for whatever reason you have amenorrhea. The FHA and the younger woman, all, as you mentioned already menopause when everything, unfortunately all the hormones go "woompf" very low, ovarian hormones, estrogen. So, it's for the same reason that we give it to, menopausal women, to prevent osteoporosis. The main reason to be fair, the main reason I should clarify that the main reason for giving HRT for to a menopausal woman is for her symptoms, right? To make a quality of life. But we know, by the way, that it also is, bone protective. So it is for the same, reason there.

Danny Lennon: One other thing HRT that can sometimes maybe can be confusing if people just see these terms, but is important to distinguish between is that "body identical HRT" versus "bioidentical HRT", which

people may seem written somewhere. Can you clarify the difference between those two things?

Nicky Keay: Sure. So maybe we can sort of switch to the older person now. As you get older, your hormones do decline, growth hormone declines. And for men, yes, your testosterone does go down a little bit. A little bit women, sorry. that's, when the ovaries stop working. Menopause, to clarify what menopause is, maybe we should just say that menopause, it means you stop having periods. Okay. And this is because the ovaries retire.

So the os no longer produce eggs. So reproduction, that's the end. But also they don't produce hormones anymore, or hardly very low levels of estrogen and progesterone. so what are the solutions?

And this, because it's such a dramatic change, From having, estrogen during the menstrual cycle can be as high as 1,000 picomoles per liter. Right? But when you reach the menopause, you know you're doing well if it's 100 picomoles per liter, so you see it, it is a big drop.

And so that can affect how you feel, speaking from experience, it really affects, can affect your quality of life. Not every woman. Some women, it doesn't affect more than others, but certainly we know there's been a study and up to 25% of women going through the menopause really suffer severely and they might even, give up their work, which is really, really sad.

When they've worked so hard all their life to get to a certain level anyway. So the things that the menopausal woman might experience when her ovaries are retiring are, the periods themselves. Obviously they're gonna become irregular and stop. So that's what we said already. temperature regulation becomes a problem.

So you maybe heard of hot flushes, so you just get really hot for no reason and that can disturb your sleep. Your. Becomes disturbed anyway, but then if you are waking up in literally a hot sweat, it's not helpful. So temperature regulation also, in terms of, brain fog as it's described just like forgetfulness, just not feeling on it.

And this leads into mood because if you feel you're not on the ball, then you get anxious. So I think those are the sort of the key symptoms. And so for that is why HRT is often suggested.

But you're absolutely right, one needs to be discerning. Just as we were said, you should be discerning about what the contraceptive pill is. You should be discerning about your HRT. And. The message is the following. Just to reiterate what you said. Much better to go for body identical, so what your body is used to seeing.

This is, available, regulated, licensed on the NHS through prescription. Okay, no problem. But unfortunately there are things called "bioidenticals" and I'm a member of the British Menopause Society and I've done their training course, so this is a direct. Pretty much quote, if I can remember, you get from their website, so if you wanna verify this, please go and look there. Okay. They say that they advise strongly against bioidenticals because effectively it's a marketing ploy. It is to sell you very expensive stuff. By the way, It's expensive. because they say they can give you. exactly what you need.

And it is identical to your body, but it's not licensed. It's not regulated. I mean, they sound very similar, don't they? Bioidentical/ body identical. But the thing to really ask is who is giving you this prescription? Is it an NHS prescription?

Because if it is, then it will be the licensed, regulated sort. If it's from a compounding pharmacy, it's not. So just, and also I would suggest you sort of check with the doctor that's prescribing it. From my personal experience, HRT definitely does help with your symptoms. But also I'm feeling, less concerned. I mean, of course everyone should be about their health in the future, but less likely to have osteoporosis, less likely to have heart disease.

The main killer in menopausal women, by the way, it's not breast cancer. It's heart disease because the estrogen goes so low. So, there are definitely a lot of pros for taking HR T and certainly for the athletes masters athletes I work with. Helps them continue to train. But be discerning, what your being offered, of course.

Danny Lennon: Yeah and this is an important conversation for anyone to have with their doctor who is an appropriate, qualified professional and can

guide them in that right direction. And as you say, there are. Many benefits for, post-menopausal women using HRT both acutely for the resolution of some of those symptoms. And then chronically, you said, with reduction of disease risk. I'm wondering, can I just ask a bit about like your experience as a practitioner in an individual cases different patients? And one thing that I think has anecdotally been reported, has been people have been placed on HRT, but that initial prescription, it takes a bit of trial and error to some degree to get it exactly right.

Can you maybe just talk about that idea of, different types and different dosages and. It may need some working out on an individual level.

Nicky Keay: Absolutely. And yeah, I do exactly that. That's quite a lot bulk of my when I'm discussing with women about the HRT. So first of all, I explain that, get the good stuff, the license regulated HRT.

But also I say, it's not the elixir of youth. So don't expect that taking it for a week, suddenly you're gonna feel like 21, So at least three months for it to kick in and then you can make an accurate assessment of "how am I feeling?". But also the other thing I say to women is that, give it three months, but don't hesitate to come back and say, Okay.

It's working or it's not, because it is possible to personalize and titrate the dose. Okay. but in terms of what I, would advise, and this is what the British Menopause Society, Says is that the best type of HRT is the type of estrogen through the skin like we discussed. So that is a patch or a gel. The reason is it goes straight into the bloodstream from the skin. If you take a tablet, it has to go through the liver and it's just a little bit more complicated.

We know that taking estrogen through the skin just reduces any problems involving the liver and metabolic effects, et cetera. Right? So that's the first thing. I personally prefer the gel because, it is easier to titrate, especially the ones that comes in, they come in little sachets. You can get the pump. Which is fine, but it's just a bit awkward and bulky to take on holiday . Right. So I prefer, some, prefer the little saches because you just like, I just come back from holiday in France and I just put in seven sachets for when I'm away. Easy. Done. And also the sachets come in different sizes.

So, one milligram is a good starting place, but it also comes in 0.5. So if we need to titrate it, we can do little fine adjustments. So that's the estrogen side. The best is through the skin. As advised by the British Menopause Society, you must always take. progesterone as well in HRT. If you just take estrogen, then the lining of the uterus will get too thick and that's a problem.

So unless you've had a hysterectomy, you must take progesterone as well. So what are the options for progesterone? there are various I, but to sort of cut a long story short, the best one surprise is a body identical one, so called micronized progesterone. This one you do have to take in a soft capsule.

Again, the non-regulated forms, they say, Oh, you can do it through the skin, but it's not well absorbed. So it's not advised by the British Menopause Society. So it's micronized progesterone. The trade name is Utrogestan. That's what the Menopause Society describe as a mild progesterone, which is quite nice. You can either take one tablet every evening. or you can mimic your cycle. You can take it in blocks and so you might get a withdrawal bleed. You can start HRT when you're still having some periods, by the way, in fact, that's now advised by the Menopause Society. It used to be old fashioned. Oh, you have to wait until you're definitely menopause, 12 months, no periods, and you are suffering like hell. But it seemed a bit cruel, right? So actually the. It's definitely the soon you start it, the better we know.

But also now the tendency is if you are having symptoms and you've still got some sort of cycles, then it's okay to start the HRT then, and then you could almost sync it with your cycle. So that's, those are the key points for the HRT: make sure it's body identical license regulated through the NHS et cetera through the skin for the estrogen one gel or patch your choice. and the top notch one is the micronized progesterone, but there are other, if you prefer, there, you can have the marinaquill, which has progesterone in, there are other ways of doing the progesterone.

but I think the important point, like you said, is don't be concerned. It's not the elixia of youth. It won't happen overnight, but definitely if you feel you're still struggling after three months, definitely go back to whoever was your original prescriber and say, Listen, can we just tweak the dose?

The other thing we should quickly say maybe is testosterone. For women. That is a possibility. but it's only specifically for, rather a long-winded thing, sexual dysfunction, as they'd say. that is the only indication.

Danny Lennon: So maybe to finish off, the final thing I wanted to get to was something again you had touched on earlier, is that when we look at the target for many people who are health conscious that there now is a potential that people can live quite a long life.

And multiple of these, decades are going to be later in life where. The goal is not just to extend that lifespan, it's more so for how can people stay healthy during that time. And so with that, there's a focus on, well, we know there's gonna be some hormonal changes. We've mentioned some already now in relation to post-menopause in women where we see these declines in e trogen for example. We've talked about hormone replacement therapy for estrogen, progesterone. For men, you said there's gonna be a decline in testosterone, but a bit more mild of a slump over time. Another issue that we could have got into is hormone replacement therapy there. But beyond those kind of sex hormones, are there other hormonal changes that happen over time that occur with aging that we should maybe mention that have any implications that can, either people can do anything about, should they try and mitigate those? Is it something they even need to try and offset? what are some things that you might put on people's radar? .

Nicky Keay: As you quite rightly say that, I think the objective isn't, oh, how long can you live? But it's the quality of the lifespan. That's really important. But the good news is yes, the hormones are going to decline we know. But you can do something about it through modifying those lifestyle behaviors. So, so exercise, What can you do? What should you do? And this is where doing the strength type of exercise is really helpful and important. Strength work, is really super important to mitigate those declining hormones and encourage, muscle strength and function. We want to avoid sarcopenia where the muscles wither away, and you can't get outta the chair without pushing down on the hands. That's a easy test.

If you're struggling with that, it's like you definitely need doing your strength work. So exercise number one. Number two, nutrition, protein. to support your muscles, really focus on that protein. The other thing, I know it's not nutrition, but actually vitamin D. Because you know the sunlight, even if we

walk around naked all over winter, you won't get enough, be able to get enough sunlight to generate vitamin D.

And then the third thing, So we done exercise, nutrition, sleep to quote Shakespeare, it's the sleep is the chief nourisher In life's great feast, sleep is when hormones do their thing. And also it helps regulate those biological clocks for the hormones. So, as you get older, we know that sometimes you see people sort of, having a nap falling asleep and then they say, Oh, I can't sleep very well at night.

So, you have to be even more consistent with that sleep hygiene routine and make sure you're getting enough sleep. So, yeah, there are things you can. , to try and keep those hormones, firing as best they can as you get older. And that hopefully will help prevent and get you that quality of life that you're looking for.

Danny Lennon: Nicky, maybe for people who are more interested in diving into the details of this topic, can you maybe tell them again a bit more about the book, where they'll be able to get that and then anywhere else on the internet where they can find you and your work.

Nicky Keay: It will cover a lot of the things we've discussed, but in more detail. And also it's got some, I'm calling hormone stories, which are fictional characters, examples of it, if you will, of what to do. And the top tips. during your lifespan, in terms of exercise, nutrition, and sleep.

the title of the book, Hormones, Health and Human Potential, and it's available at the moment, via the website of my publisher. Seqoia Books. Also on my web, my own personal website, Nickykeayfitness.com. There's also the link to the, to, to where you can order the book. I'm holding some free discussion events, so there's one in Cambridge on Sunday, the 6th of November at 2:00 PM in my old college there. So, it's free at open discussion. So please come along and ask your questions I'm also doing one at UCL University College London on the 9th of November at 5:00 PM That's a Wednesday, so please come along to that.

And then the final sort of road show, as it were, is at the Rafa cycling clubhouse, which is in Piccadilly, London. That's on the 21st of November, 7:00 PM And I'm doing that with Chrissy Wellington, which is very exciting.

Danny Lennon: Brilliant. So that will all be linked in the show notes for everyone listening. So please do go and check that out. And with that we come to the final question, which we end the podcast on. Nicky, this can be to do with literally any topic that you wish, but it's simply, if you could advise people to do one thing each day that might have a positive impact on any area of their life, what might that one thing be?

Nicky Keay: One thing. Wow. That's quite tricky, isn't it? I'm gonna say actually really focus on getting that good sleep, because, we've spoken about exercise and nutrition and that's gonna be different for different people. So it, but actually don't underestimate sleep. I mean, once in a while, of course, one goes out, one has a party, of course that's fine. But you know, in general, don't, be tempted like I often am and look at your computer and do work late at night because that's going to, that's gonna disrupt the production of your sleep hormone melatonin. So yeah, think about your sleep.

Danny Lennon: Fantastic. With that, Dr. Nicky Keay, thank you so much for coming on and talking with me today. It was a pleasure and, I'm glad we were able to do this.

Nicky Keay: Cool. Thanks so much.