

Episode 149 Transcript

00:00:00:01 - 00:00:06:03

Dr. Bryant Esquejo

Acne could serve as a visible early indicator of metabolic diseases, including prediabetes and diabetes.

00:00:06:04 - 00:00:31:11

Dr. Jaclyn Smeaton

Welcome to the DUTCH podcast, where we dive deep into the science of hormones, wellness and personalized health care. I'm Doctor 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 health care professional or simply looking to optimize your own well-being, we've got you covered.

00:00:31:13 - 00:00:54:22

Dr. Jaclyn Smeaton

The contents of this podcast are for educational and informational purposes only. This information is not to be interpreted or mistaken for medical advice. Consult your health care provider for medical advice, diagnosis and treatment. Hi there and welcome to this week's episode of the DUTCH podcast. I'm so glad you're here with me. Today's topic is one that affects millions of people in America, and it's one that has such a big clinical impact.

00:00:54:23 - 00:01:13:11

Dr. Jaclyn Smeaton

People with acne really want to figure out how they can treat it, and what's so interesting about it is that acne has traditionally been thought of as a dermatological condition, obviously because it affects the skin. But a lot of the approaches that we've taken in medicine have been to treat the skin. Today is going to turn that upside down for you.

00:01:13:11 - 00:01:28:09

Dr. Jaclyn Smeaton

Or maybe a better way to say is turn it inside out. Because what our guest is and talk about today is his experience working with patients for a long time with acne. And he has a personal story with it as well, where really what we've seen and where functional medicine is headed is that this is an inside job.

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Dr. Jaclyn Smeaton

Acne is really an inside job. We have to look at what's going on internally your blood sugar eye, your inflammation at your microbiome and your gut microbiome and your skin, your stress level, your hormones. All of these things come into play to drive the development of acne, and they need to be evaluated and addressed in order to treat it.

00:01:47:05 - 00:02:09:10

Dr. Jaclyn Smeaton

We get in deep in the science in this episode, and so if you want to learn more about this type of approach, you are going to love this episode. My guest today is Doctor Bryant Esquejo. He is a California based naturopathic doctor who specializes in complex acne, along with other skin conditions like eczema, and provides integrative care for things like hormone imbalances and gut health and thyroid.

00:02:09:12 - 00:02:29:19

Dr. Jaclyn Smeaton

He's really rooted in the belief that skin health is a reflection of inner health, and his whole person approach to healing has earned him features and vogue and mind body green. Who, what, where and the daily Beast. He's a wonderful person to chat with and to learn from, and so let's go ahead and get rolling. All right. Well, Doctor Bryant, I'm so glad that you're here with me on the podcast today.

00:02:29:20 - 00:02:49:21

Dr. Jaclyn Smeaton

Thank you so much for joining. And we're going to talk about a topic that I think affects a lot of people, and the ability to find, like a healthful route to solve acne challenges can be so elusive for patients. Can you start by just sharing a little bit about what drove you to really become an expert in this area?

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Dr. Jaclyn Smeaton

Like what sparked your interest in studying acne through this functional medicine lens?

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Dr. Bryant Esquejo

Yeah, definitely. So I personally struggled with acne as an adolescent. I went through the whole entire rigmarole of the algorithm where I was under or where I was prescribed topicals, and then I was prescribed oral medications. Ultimately, I had to go and Accutane, and it did clear up my acne when I was a teenager. But then I started to notice, especially when I was in Portland for medical school, my acne started to come back up, and at that point I was like, okay, there's something else that's going on.

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Dr. Bryant Esquejo

And because of my own journey with acne and my own relationship with my skin, I wanted to understand what's happening from within and see it from a fully Nash hepatic lens and see if it actually works during my whole entire time in medical school. And it did. And in my head I'm like, okay. Like I want more people to start to understand their skin as not just like as a skin level problem.

00:03:43:03 - 00:03:52:08

Dr. Bryant Esquejo

Because I see now that acne and other inflammatory skin concerns are really a reflection of what's happening internally and really overall health. You know.

00:03:52:12 - 00:04:12:00

Dr. Jaclyn Smeaton

That's it's a really fascinating point. I think it's such a great place to start because I think traditional medicine treats acne as a skin issue. Right. And really, I think naturopathic medicine and long term medicine, look at that a little bit differently where like that's the expression of the problem. That's what you see. But the problem is actually something going on internally.

00:04:12:05 - 00:04:29:20

Dr. Jaclyn Smeaton

And that inside out look at skin conditions is a relatively new one that I think is probably still challenged by a lot of like the conventional dogma. Can you talk a little bit about that approach, like why is it that we look at internal drivers and what are some of those internal drivers?

00:04:29:22 - 00:04:49:01

Dr. Bryant Esquejo

Yeah, definitely. But just to echo what you said earlier, a lot of the conventional dogma just really sees acne through like this linear like algorithm, right, where many individuals just see skin issues as skin level problems. But there is a larger, portion of dermatologists and conventional providers who do understand that there are underlying factors that do play a role in acne.

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Dr. Bryant Esquejo

So I feel that by starting to answer this question, I feel that people need to understand it's really happening at the skin level, because once you start to understand those pathophysiological factors, people will be like, oh, I now understand why the systemic

factors are manifesting as skin level issues. So really what's happening at the skin level are it's widely known there are four passive physiological factors.

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Dr. Bryant Esquejo

So there's two Bactrim acnes which is a bacterium. There's also excess oil production, hyper characterization and inflammation. And all four of those come together to essentially manifest as acne on the skin level. And then, when we start to understand what's happening at the skin level, we can then understand what's happening systemically. So systemically, a lot of dermatologists, a lot of commercial providers understand that hormones play a role in acne, specifically with androgen hormones.

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Dr. Bryant Esquejo

But then past that, that's where it kind of gets a little blurry, you know? So some, conventional providers are starting to see it from a more functional lens, where they do see that there's this blood sugar nutrient sensing pathway, component that's playing a role in affecting hormones. There's also, some, conventional providers who are also understanding how HPA axis hormones are influencing, those, pathways that we spoke about, on the skin level, and then in regards to like inflammatory response, I think this is a really cool part because, you know, as a licensed naturopathy doctor, you're always thinking about the gut.

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Dr. Bryant Esquejo

And in regards to the gut, a lot of dermatologists are starting to now, like, how would I say they're starting to recognize how valuable considering the gut is within the context of acne, because there's more research coming out saying how gut concerns like IBS, Gerd, or gastro, esophageal reflux disease, peptic ulcers, constipation, all these other things are going to acne at the same time.

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Dr. Bryant Esquejo

There is literature suggesting that gut microbiome shifts are associated to acne as well. And there's also, building, evidence that showing how modifying the gut microbiome may be supportive for those in acne. And I think the inflammatory pathways are very interesting. I know we'll dive into that. But to basically answer your question in so many words, the initial drivers I think about track are going to include hormones, inflammatory response.

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Dr. Bryant Esquejo
And yeah.

00:07:04:09 - 00:07:21:09

Dr. Jaclyn Smeaton

Well, I'm excited to dive into those. And I, you know, if you guys are listening now, you're probably like, okay, I give me all the juice because I want to understand this better. But it is really interesting, I think. Let's talk about the gut piece. I think like the way that we see this in medicine is that acne coexists often with other digestive complaints.

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Dr. Jaclyn Smeaton

Right. So it's like you see this association and then you have to ask why is that. And it is really interesting because in naturopathic medicine, in functional medicine, the patterns that are seen in the gut microbiome align with not just acne, but there's other microbiome patterns that are seen with other types of skin conditions, like eczema or, psoriasis even, and things like that.

00:07:42:09 - 00:07:46:12

Dr. Jaclyn Smeaton

So we know it's not everything, but it's a piece of the puzzle. I just find it so fascinating.

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Dr. Bryant Esquejo

Yeah, it's really interesting. Like, not only do I chill out individuals with acne, but I also have other skin concerns. And it's really interesting to think about how a lot of these gut microbiome shifts kind of look similar, when we look at the data. But the way it expresses on the skin between individual people is very different.

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Dr. Bryant Esquejo

And it's really interesting to me.

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Dr. Jaclyn Smeaton

Yeah. Well, let's start with maybe metabolic health. That was the first thing you mentioned was blood sugar. And you've written about the connection between blood sugar and acne. We'll put links in here, for the show notes. If you guys want to check out some of doctors writings on that. But how does something like insulin resistance begin to influence the skin?

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Dr. Jaclyn Smeaton

That doesn't seem like as direct a connection. Help us draw that conclusion of what's going on there.

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Dr. Bryant Esquejo

Yeah, definitely. I actually love talking about this with patients and all of this. And they're just like, what do you mean? Blood sugar is playing a role in what's happening on the skin level. So first of all, it just like set the stage for folks. There is a really cool literature that's really, has been published from what I remember, like 2012 up until today.

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Dr. Bryant Esquejo

So in 2012, 2022 and 2023, there has been, literature suggesting that certain blood sugar, biomarkers are associated with acne, with some of those researchers suggesting that insulin resistance may play a role in the development of acne. And then in 2013, there was a study that was published by Melnick and Zimbalist that basically outlined a proposed mechanism as to how blood sugar and the nutrient sensing pathway, which involves insulin and IGF one, may play a role in acne.

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Dr. Bryant Esquejo

So to just really lay that out, that proposed mechanism, what the researchers suggest was that, essentially when somebody has higher levels of blood sugar because of, you know, like a high glycemic diet or just eating more sweets, not going to lie, like during the holidays, I eat a lot of sweets and I get breakouts. But when somebody has higher levels of blood sugar, that then tells the pancreas to send out more, insulin and then that high level of insulin and then, triggers hepatic release of IGF one or instant like growth factor one.

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Dr. Bryant Esquejo

And when we look at IGF one, that's where, Melnick and Sibelius essentially suggest that, where hormones like engine hormones may be amplified, like the production of engine hormones may be then amplified. And from those androgen hormones. It is then suggested that, the skin pathophysiological factors may be affected specifically with hyper characterization and excess oil production.

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Dr. Bryant Esquejo

Now this shows IGF one. Let's go back to insulin. So in regards to insulin, the proposed

mechanism by millions of people, as they say that insulin and insulin growth factor one activate enter, which is like that nutrient sensing pathway specifically and through mTOR. They then suggest that it basically causes biochemical biochemical cascade and involves foxo one, which then plays a role in, what is it?

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Dr. Bryant Esquejo

It plays a role in excess oil production. So basically just to like make it a little bit more clear because I tend to go into the nuance, what a scientist suggests is that, higher blood sugar plays a role in higher levels of insulin, and it's like a factor wired to play a role in some of the pathway physiological factors that we see on the skin.

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Dr. Jaclyn Smeaton

I mean, we also know that when you have high insulin or you have insulin resistance, when you see shifts and how you metabolize hormones, and we see shifts towards five alpha reductase producing basically through the androgens being metabolized through more alpha versus beta pathways, where you end up making more androgenic metabolites, too. So there is that hormone connection there that we see.

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Dr. Jaclyn Smeaton

There's probably an inflammatory connection as well, you know, is that multifactorial thing. But it's interesting because I think, you know, no one wants to hear it like sugar causes acne. And I know even as a kid, when I was a teenager and everyone was having acne and they'd be like, oh, don't eat chocolate or don't eat sweets. And then the doctors would be like, no, it's fine.

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Dr. Jaclyn Smeaton

It's chocolate doesn't cause acne. But while you're saying it's like you can have occasional treats, it's not like if you eat it, you're going to get an immediate flare up. Well, although you said sometimes you do, but what you're really talking about here is that prolonged exposure kind of creates an environment where it's easier for acne to develop.

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Dr. Bryant Esquejo

Yes, exactly. So from what I've seen with my own patients and also my own skin, it's not immediate for many folks. So like what you said, it does take time for these shifts to develop.

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Dr. Jaclyn Smeaton

Yeah. Okay. So I know it. And I know acne is also just an inflammatory condition. So does that kind of come into play as well with metabolic health? Because we know that insulin ends up causing increased inflammation. Can you talk a little bit more about that too?

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Dr. Bryant Esquejo

Yeah, definitely. So like what I think like echoing I like to see it from like a skin level and a systemic level because I really see it from this like overall perspective. So when we start to look at like the inflammatory response, I really hope to see acne holistically. And I'll just understand that, you know, like acne is more multifactorial.

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Dr. Bryant Esquejo

But, when we look at what's happening on the skin level, we have to talk about like, can you bactrim acne? So can you. Bactrim acnes creates like pase, which basically breaks down the sebum into free fatty acids and glycerol and glycerol acts as like this energy source. Or the food for the acne is to persist, which is going to be important because we'll talk about that.

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Dr. Bryant Esquejo

And but in regards to free fatty acids itself, that can also drive inflammatory responses. But going back to see acne is actually bacterial acnes. When it does persist, it essentially induces the production of inflammatory cytokines from keratinocytes, super sites, monocytes and macrophages. And it activates all of that through toll like receptors two and four, which is going to be really important when we talk about systemic effects specifically with the gut.

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Dr. Bryant Esquejo

Now, in regards to the gut, it's not fully elucidated just yet, but there is emerging research that is essentially outlining some pathways. So there is this really cool article that was published in 2020 by Thompson and other researchers, where they essentially looked into gut dysbiosis in people with acne, and they essentially spoke about how gut dysbiosis may play a role in intestinal permeability, which some folks call leaky gut, and intestinal permeability or hyper permeability may then lead to translocation of lipopolysaccharide through LPs and through that LPs.

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Dr. Bryant Esquejo

The researchers suggest that, it causes this inflammatory cascade that involves toll like receptors two and four, which is really interesting. So systemically we see two and four being activated. And also on the surface we see it being activated as well. And through that pathway, the researchers suggest that this chronic low grade inflammation as to what's going on with the gut may influence what's happening on the skin.

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Dr. Jaclyn Smeaton

I want to kind of break this down, like in the way that you tell your patients, too, because it seems like, I mean, there's so much research out there, and I want you to layer on your clinical experience with that, to really share what your experience as. But I'm what I'm here to say is that we have like, like post polysaccharides are used in a research environment to trigger inflammation in the body.

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Dr. Jaclyn Smeaton

It's used in a lot of different types of science experiments. So you're saying that when they are injecting LPs in animal models, then they're seeing all these downstream changes and cascades. I mean, that's one of the things, the hallmarks that we see in women with PCOS, where acne is so common or high androgens are so common because what we see in PCOS, just to kind of tie it back for listeners, if you're not familiar with this, is that there are kind of genetic predispositions and biological predispositions where women make more LH compared to FSH.

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Dr. Jaclyn Smeaton

And so that should change throughout your cycle, where you make more FSH kind of in the early part of your cycle helps you make follicles, but LH drives more androgen production. And so when there's that disproportion or imbalance in those hormones, which both come from the pituitary gland in the brain, then we end up seeing kind of you don't ovulate, you make more androgens and it can lead to some of the physiology of PCOS.

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Dr. Jaclyn Smeaton

So if you're a listener who has PCOS and maybe has acne as a side effect, that's the connection there. Like when we what you're saying is that when there's inflammation, it really kind of stimulates that same process in a way that probably makes it a lot worse for patients who are already predisposed to make a lot more androgens.

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Dr. Jaclyn Smeaton

Did I tie it together? Well, I'm not an expert. I'm curious. Yeah.

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Dr. Bryant Esquejo

That was amazing. I tend to go into, like, the technical aspects, and I love that this is.

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Dr. Jaclyn Smeaton

The place for that. This is definitely the place for that.

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Dr. Bryant Esquejo

Yeah, I appreciate that you translated it.

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Dr. Jaclyn Smeaton

So tell me a little bit about like when you would think about inflammation or metabolic health being a component of someone's acne because of course that's a component sometimes, but not all. How do you know when you need to like, look under that rock?

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Dr. Bryant Esquejo

Yeah, definitely. So when I work with patients, I think about patterns. I think about symptoms, anything about signs. So in regards to patterns, when I work with folks, I mean from the get go, I like to ask all of the questions, a lot of questions. I mean, where I think understand what's happening at the skin level, what's happening systemically.

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Dr. Bryant Esquejo

So in regressive patterns I first look for, I ask them about their 24 hour dietary call. So I'm really gauging of diet is rich in high glycemic foods. And then I'm also asking about exercise. I'm asking about stress levels and stress response and also sleep quality beyond those in regards to symptoms. Honestly. And some resistance may go unnoticed.

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Dr. Bryant Esquejo

And these more obvious symptoms, don't really appear from the get go unless somebody has like more overt insulin resistance, just diabetes, you know, and in regards to diabetes, that can look like increased thirst, increased urination, increased hunger changes in vision

and, you know, slow healing wounds and so much more. But in regards to signs, this is the most interesting part and most fun part for me, because I'm sure the audience is starting to understand how big of a nerd I am.

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Dr. Bryant Esquejo

I love to look at lab data.

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Dr. Jaclyn Smeaton

You're in good company. You're in good. Like I said, the nerd is great.

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Dr. Bryant Esquejo

I like to I like to look at lab data and I like to look at, physical assessment science. So in regards to lab data, in a perfect world, I would love to have fasting glucose. I would love to have fasting insulin. And I would love to have hemoglobin A1, c C, regressive fasting glucose and fasting insulin. We can then gauge somebody's insulin resistance score, which is called home air.

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Dr. Bryant Esquejo

And interestingly enough, home air itself has been associated with acne. Now in regards to physical assessment signs, I'm looking at a thing. I'm looking for things that tell us that could be some insulin resistance going on beyond some other things. You know, depending on what the on the patient's picture is. But it regress and insane resistance itself.

00:17:48:01 - 00:17:52:05

Dr. Bryant Esquejo

I may look for a can those is Niagara cans have you are you familiar with that Jaclyn?

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Dr. Jaclyn Smeaton

Hillier but I'm not an expert. Tell us more.

00:17:53:23 - 00:18:08:06

Dr. Bryant Esquejo

Yeah definitely. So it can those this Niagara cans is essentially the skin issue where skin becomes darker and thicker and kind of appears more velvety. And it's because of high blood sugar. So it's actually associated with insulin resistance. And it typically appears in

like skin folds, like the back.

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Dr. Jaclyn Smeaton

Of their pants is a big.

00:18:09:20 - 00:18:26:02

Dr. Bryant Esquejo

Under the armpits in the ground. And the the science is fascinating. I could go into it if you want me to, but beyond that, I'm also considering, like, metabolic changes. So, like, changes in way to blood pressure and cholesterol. So basically, to answer your question and some new words, I'm looking at, patterns and looking at symptoms.

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Dr. Bryant Esquejo

And I'm also considering signs I love.

00:18:28:12 - 00:18:45:19

Dr. Jaclyn Smeaton

I mean, I want to talk a little bit more about the lab testing piece, because I think now that there is the easy access to labs through like, function health and all these other similar companies because it's superhuman. There's so many out there. We're not affiliated with any, but there it makes it so low cost comparatively to get this broad sweep of labs.

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Dr. Jaclyn Smeaton

I think if you're going to see a functional provider, some of these things may not be covered by insurance. For example, if you wanted to do metabolic health screening, there's criteria for like when you would do that for a patient. So it might not be covered, but you could pay out of pocket. And those are now like 300 to \$400 generally.

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Dr. Jaclyn Smeaton

And you can get so much great information. I also love looking at those when I look at patients with any kind of hormone dysfunction, but I do a lot with fertility. It's also critically important to have good blood sugar for fertility. And then also with perimenopause menopause. As women are getting older, it's such an important piece of preventive care.

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Dr. Jaclyn Smeaton

You know, that goes above and beyond any kind of specific symptom, but it plays into

pretty much every disease. I mean, we're today, we're talking about it with acne. Like, who would have thought that blood sugar would play such a role? I mean, I love I so I'm glad that you brought that up because I think especially fasting glucose is like a lagging indicator, right?

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Dr. Jaclyn Smeaton

We always talk about like leading and lagging indicators in business. Do you want to look at the leading indicator? What are the first things that change that might clue you into there being a problem? Because it's easier to like take a left turn and go in a different direction. The sooner you know. And how am I? Are? And fasting insulin are really good ones to look at.

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Dr. Jaclyn Smeaton

Do you have a target like I generally am looking for fasting insulin under five is like what I would consider to be optimal, and I think the normal range goes up to 12. So I mean five is still way well within or like the bottom half of the normal range.

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Dr. Bryant Esquejo

Yeah. So to echo what you, said, I do my target range is between 2 to 6. So that's I.

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Dr. Jaclyn Smeaton

Just like okay.

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Dr. Bryant Esquejo

I, you know.

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Dr. Jaclyn Smeaton

Yeah. Good. I mean that's a great thing for people to listen to because again like these are not expensive things to be done. They're drawn in serum quest lab core very basic. But you can really combine that testing to bring to your provider and really get an idea of like, are these things contributing to my chronic condition that might seem unrelated?

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Dr. Bryant Esquejo

Yeah, it's actually very interesting that you bring up, everything that you said, because I

remember I was reading a study that essentially, suggested that sometimes people can have, higher levels of insulin and therefore have insulin resistance before other markers. Oh, yes. The markers are, start to show it in so many words. So like other blood sugar markers could be normal.

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Dr. Bryant Esquejo

But that insulin is high. So what's really going on? You know.

00:20:55:23 - 00:21:25:12

DUTCH Podcast

We'll be right back with more. If you're already running DUTCH tests in your practice or thinking about it, there's never been a better time to become an official DUTCH provider. Why? Because we go beyond lab testing. Our provider community gets exclusive access to clinical education, in-depth report interpretation training, monthly case reviews, and one on one clinical support. Whether you're just getting started or looking to sharpen your functional hormone expertise, we give you the tools to grow.

00:21:25:14 - 00:21:32:21

DUTCH Podcast

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00:21:32:23 - 00:21:35:06

DUTCH Podcast

Welcome back to the DUTCH Podcast.

00:21:35:08 - 00:21:51:01

Dr. Jaclyn Smeaton

Yeah, one of the things I've been thinking a lot about this is related to cortisol. And maybe this is a good pivot for us to talk about stress next. But we talk a lot on the team about how like with cortisol on the DUTCH test, we look at the free diurnal pattern that free cortisol rhythm like the four different time points across the day and what it looks like.

00:21:51:06 - 00:22:14:08

Dr. Jaclyn Smeaton

And that's the most common assessment done. But in a way that's like looking at blood glucose, right? It's like the active final impacted number. But when we look at a lot of DUTCH tasks, what we see is that other parameters change before that changes your metabolism of cortisol changes. You might store more as cortisone. You might have, you know, faster slow clearance.

00:22:14:08 - 00:22:37:08

Dr. Jaclyn Smeaton

You might see your car, the cortisol awakening response change first, but by the time it hits you are a diurnal pattern. Usually that's a later stage change. And so I think that what I'm trying to do is like really increase the awareness, I mean, in that model. But I think this is the same one where if you're only looking at blood glucose, which is the most standard screening, you might be getting there a lot later.

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Dr. Jaclyn Smeaton

You might be drawing a conclusion a lot later than you could have if you'd looked at other lab indicators.

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Dr. Bryant Esquejo

Yeah, that's actually interesting. You bring that up because I think about this study. It was, by Google and other researchers is published in 2023.

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Dr. Jaclyn Smeaton

And, I don't know, I just can't remember all the names, like, I love papers, but the fact that you can pull these others names, I need whatever you're having for breakfast.

00:22:59:15 - 00:23:20:00

Dr. Bryant Esquejo

I just read a lot, and I reference them often and authors, but there is this paper. I actually had to write down this reference because a line in that paper stuck with me. And in that line, the researchers essentially said acne can serve as a viable or sorry acne conservative visible indicator, visible early indicator of metabolic diseases, including prediabetes and diabetes.

00:23:20:04 - 00:23:39:00

Dr. Bryant Esquejo

So it's could be the first thing that's really showing up before we really start to understand what's happening systemically. So people really start to it's like tap into what's happening on their skin and question that. I really hope that it causes their providers or themselves to want to look further and figure out what could be going on.

00:23:39:02 - 00:23:59:13

Dr. Jaclyn Smeaton

I love that. And here's the thing about it is that acne is a condition that drives people to

seek solutions because it's so visible. It's like so impactful in your life, and you might be willing to make changes where if you didn't have that visible symptom, you may not be willing to make those same changes like it brings people in in a very motivated way.

00:23:59:16 - 00:24:25:23

Dr. Jaclyn Smeaton

And I think what a disservice it is if we're only putting topicals on, you know, you're doing retina or whatever, you're only treating the topical because some of those actually do work. But especially when we look at teenagers, you know, when all these patterns are set and when all these behaviors begin to be set for our adult lives, what an opportunity it is to, like, really help people carve the right, healthy path for themselves versus just mandating a symptom.

00:24:26:00 - 00:24:34:12

Dr. Bryant Esquejo

Exactly. I love that you went into lifestyle, because those are one of the things that I love reading about. And also honing in on an in clinic.

00:24:34:14 - 00:24:50:18

Dr. Jaclyn Smeaton

Well, I you did mention the acne is and I want to talk a little bit more about that because I think it's really interesting because when we look at acne, we already touched upon a couple of things. There's a skin microbiome and there's a gut microbiome, and they're both important in this clinical case. Can you talk us through that a little bit.

00:24:50:18 - 00:24:56:06

Dr. Jaclyn Smeaton

And like let's shift gears to talk a little bit about the role of microorganisms for acne. Yeah.

00:24:56:08 - 00:25:01:23

Dr. Bryant Esquejo

So just to clarify you want me to speak about what's happening at the skin level and then systemically.

00:25:02:00 - 00:25:14:23

Dr. Jaclyn Smeaton

Well I just know they both play a role. I love to know a little bit more. You talked a little bit about the impact of the acnes on the skin. Do we all have that and or I okay. And then people with acne, it just is more of a problem or it's in a higher percentage.

00:25:15:01 - 00:25:42:21

Dr. Bryant Esquejo

Yeah. Great question. So see acne is on everybody's skin. But what researchers are suggesting that is that certain strains are higher in people with acne. And that specific strain is more pathogenic and plays a role in the inflammatory response. I think the actual strain is one, a one, C acnes. And the thing it's actually really interesting is that, yes, we can address the acnes topically with like, you know, antibiotics, like topical antibiotics.

00:25:42:23 - 00:26:05:01

Dr. Bryant Esquejo

But what researchers also found, I don't remember the, the, the article or the er, but what researchers found was, once the antibiotic topical antibiotic was discontinued, C acnes ended up coming back. But in regards to answering your question. See, acnes is found on everybody's skin. But people with acne tend to have a higher level of a more pathogenic strain.

00:26:05:03 - 00:26:11:11

Dr. Bryant Esquejo

And when people were put on antibiotics to address that, pathogenic strain C acnes did end up coming back.

00:26:11:13 - 00:26:27:07

Dr. Jaclyn Smeaton

It's interesting. My son had like mild well, we went in for something else, but we saw a and like you know, he was in middle school and just like well what about my pimples and his are not bad at all. But they gave him this like essentially it's a bleach wash to utilize every day in the shower for his skin.

00:26:27:09 - 00:26:40:15

Dr. Jaclyn Smeaton

Can you talk a little of. It's a really commonly prescribed. You can buy him off Amazon. The doctors are recommending them so much. But you think about like, is there good bacteria that needs to be there where that type of antibiotic treatment might be harmful in the long term?

00:26:40:17 - 00:26:47:17

Dr. Bryant Esquejo

Yeah. Great question. So I think what you're talking about is bezzle peroxide which is available also over-the-counter. Is that correct?

00:26:47:18 - 00:26:52:18

Dr. Jaclyn Smeaton

I don't remember exactly what it was, but essentially when I looked at it, it was like a mild bleach wash, essentially.

00:26:52:19 - 00:27:09:17

Dr. Bryant Esquejo

Okay. But yeah, in regards to what, that product or what that active does, is that it basically causes like a bubbling reaction, with like hydrogen peroxide and essentially kills bacteria. So we do want to make sure that we have a balanced skin microbiome at the end of the day, to really optimize you know, some of these inflammatory response.

00:27:09:23 - 00:27:28:07

Dr. Bryant Esquejo

Now in regards to the skin microbiome, we talk about C acnes. But interestingly enough, we want to make sure that we have a diverse amount of, beneficial bacteria or just a diverse skin microbiome. At the end of the day, just so that we can start to optimize the levels of C acnes one day, one C acnes.

00:27:28:09 - 00:27:47:19

Dr. Bryant Esquejo

But yeah, I think it's really interesting. And there's also a lot of like emerging literature or emerging research that's looking into topical probiotics and, topical prebiotics to essentially enrich somebody's skin microbiome. And in some of those studies, they're seeing some great effects. But again, it's all emerging. Not really sat down just yet, but hopefully.

00:27:47:21 - 00:28:14:18

Dr. Jaclyn Smeaton

It is funny people are really thinking about. I attended a conference on skin microbiome a couple of years ago. Actually, it's probably five years ago now at this point, and it was like Colgate and all these Procter and Gamble, all these big companies that were presenting their science on topical products, an or new oral health as well. So like toothpaste, mouthwash and skin care products, shampoos, things that didn't disrupt the microbiome where they had really never looked at that before.

00:28:14:20 - 00:28:38:11

Dr. Jaclyn Smeaton

But like some surfactants might change pH, or they might disrupt the microbiome. And they're really all shifting to products that are microbiome neutral was the language they used. And it seems like something that we should be really considering because it's like if you wipe the slate clean, it's just like antibiotics in the gut. We now know that antibiotics in the gut can have a negative impact, because once you wipe out the good flora, anything

could come back.

00:28:38:11 - 00:28:44:01

Dr. Jaclyn Smeaton

It's like rolling the dice every time. So it's a great that you're there thinking about that.

00:28:44:03 - 00:29:06:15

Dr. Bryant Esquejo

It's interesting that you said that because with the skin microbiome, there are other microorganisms that are naturally found there. So the thing I think about is a possible, effect that could happen when somebody is on, antibiotics. So when somebody is on antibiotics, it kills the bacteria. Right. But that allows for the it lasts from our open space at the end of the day for other microorganisms to grow.

00:29:06:15 - 00:29:38:19

Dr. Bryant Esquejo

And something that I think about is, Melissa, as your, further, which plays a role in folliculitis, which some people call fungal acne. So in regards to that, when people have fungal acne, it could look like acne, like it's just bumps, you know? But the thing that, differentiates is that it's itchy commonly. Now, in regards to that, some people are prescribed antibiotics, thinking that it is a bacteria cause acne situation, not knowing that it could be that folliculitis fungal feeling he likes that could be going on.

00:29:38:21 - 00:29:56:04

Dr. Bryant Esquejo

But since the bacteria is being killed by that antibiotic again, it allows that free space for the actual yeast or fungus to grow on the skin, which is again naturally found on the skin. And that therefore leads to an exacerbation of fungal folliculitis. So I think it's interesting that you bring that up because I think about that.

00:29:56:06 - 00:30:09:07

Dr. Jaclyn Smeaton

Yeah. It's like that first do no harm tenant. Right. We want to make sure that the things we do don't create an environment that things could be made worse. Now to tell me a little bit about gut health, is that something that you look at very frequently as well in patients with acne?

00:30:09:09 - 00:30:37:23

Dr. Bryant Esquejo

Yeah, definitely. So gut health is definitely one of those, core pillars that I speak to patients about. Beyond hormones, beyond blood sugar, beyond stress response. Gut health is

definitely one of those things. So when I, speak to patients about gut health again, I speak to them about the science. I'm sure they get really overwhelmed. I tell them about the IBS that we spoke about how it's linked to, what is it, acne and all the other, gut conditions that we spoke about earlier and how, gut bacteria may also play a mitigating role in all of that.

00:30:38:00 - 00:31:05:19

Dr. Bryant Esquejo

So in regards to somebody's symptoms, if I start to suspect it could be something going on with the gut, that's when they speak to them how it might be worthwhile to look into possible gut microbiome testing and or addressing the gut microbiome with nutrition. Our lifestyle would, depending on the severity of their symptoms. So I like to use the functional gut test, in addition to other tests to really get a full picture of somebody who's health and wellness.

00:31:05:21 - 00:31:18:23

Dr. Bryant Esquejo

But, to basically answer your question, yes, I look at, gut health in addition to other factors that, play a role in acne, but I do see gut health, also playing a core role in a lot of my patients to see me for acne.

00:31:19:01 - 00:31:36:02

Dr. Jaclyn Smeaton

I want to shift gears to and of course, talk about stress and and androgens, because that's like the DUTCH podcast. We couldn't get out without talking about those two things. Can we talk a little bit about the role of stress? You've talked about this a couple times that like stress will impact acne. Okay. Let's yeah help us understand why.

00:31:36:04 - 00:31:40:17

Dr. Bryant Esquejo

Yeah. So the triggers triggering my acne stress also does it. Hence why.

00:31:40:18 - 00:31:44:14

Dr. Jaclyn Smeaton

Yeah. You said it got worse in med school. Well, there we go. Yeah.

00:31:44:16 - 00:32:02:03

Dr. Bryant Esquejo

And then clinically, many of my patients have told me that, like, acne or stress triggers acne. And I'm sure a lot of people listening to this podcast have also noticed that, too. And, there's some interesting, science that really lays out, like the HPA axis hormones and

how those hormones may play a role in the development or contribute to the development of acne.

00:32:02:08 - 00:32:23:22

Dr. Bryant Esquejo

So, you know, like when the brain perceives this stressor, it doesn't really, perceive it's like an emotional stress or a physical stress. It's just a stressor at the end of the day. And that's where the, brain first sends out, corticosterone and releasing hormone. So critical dropping releasing hormone or CRH has actually been linked to sebum production, which is one of those pathophysiological factors that play a role in acne.

00:32:23:22 - 00:32:43:22

Dr. Bryant Esquejo

So like people skin gets oilier. Now in regards to CRH, that then triggers that release of act and then act, then it leaves the brain, goes into the blood, and then ends up in the adrenal gland. So in regards to that, once this Negrito glands it sends out DHEA and also cortisol, you know, and in regards to DHEA that is an androgen.

00:32:43:22 - 00:33:08:18

Dr. Bryant Esquejo

And that can be transformed into testosterone DHT. And once we have that testosterone DHT picture going on, like what we said earlier, that can play a role in CBN production and hyper characterization. Now in regards to cortisol itself, there was this really interesting paper, that was published last year that really spoke about how cortisol may influence inflammatory response in acutely dampen it.

00:33:08:20 - 00:33:30:23

Dr. Bryant Esquejo

And by acutely dampening it that therefore may then affect how the body responds to see acnes on the skin level. In addition to that, in that same paper, they spoke about how, chronic stress has been associated with oxidative stress, and possibly through like, you know, the, renin angiotensin system. But, in regards to the cortisol picture, there's like this inflammatory component that's playing a role.

00:33:30:23 - 00:33:40:12

Dr. Bryant Esquejo

But when we look at stress itself, through that axis, it seems to affect a lot of those, passive physiological factors that we spoke about that happen at the skin level.

00:33:40:14 - 00:33:56:16

Dr. Jaclyn Smeaton

Yeah, it's really like it's a complex mechanism. I mean, I think I've always thought about DHEA, you know, stress and I mean cortisol and DHEA come from different type, different layers of the adrenal glands, for lack of a better term, different tissue types within the adrenal gland. But they're both stimulated by Act. So they are kind of like cousins.

00:33:56:16 - 00:34:19:12

Dr. Jaclyn Smeaton

They're not always released in the same amounts. But generally there is a correlation between these two hormones kind of getting pumped out. And DHEA production can be stimulated by stress responses that are really kind of intended to drive cortisol production. So I'm glad you bring that up because you can see changes in androgen production through DHEA pathways. At times of stress hormone cortisol is high.

00:34:19:12 - 00:34:40:04

Dr. Jaclyn Smeaton

We oftentimes see those correlated. And then it's really interesting what you talk about where then you have the cortisol which is supposed to be like our body's fire extinguisher putting out fires. But if it dampens inflammation then you can't react to an organism or something. You could leave yourself more at risk of a problem. Yeah definitely. Well tell me a little bit about on DUTCH.

00:34:40:04 - 00:34:49:20

Dr. Jaclyn Smeaton

Tell us what you like to look at in your patients with acne. Like if you're going to run the DUTCH test take a look at that. What are some of the key areas that you want to make sure you're evaluating.

00:34:49:22 - 00:35:08:08

Dr. Bryant Esquejo

Yeah definitely. So this is a really great question because when I think of the DUTCH test, I really like to have it as, how would I say it fills in gaps that conventional testing doesn't really check just yet, you know, because from my understanding, the DUTCH test looks at metabolites, hormone, metabolites, and also gauges.

00:35:08:10 - 00:35:13:01

Dr. Bryant Esquejo

The amount or the level of hormones and tissue levels is that. Am I saying that correct?

00:35:13:01 - 00:35:28:17

Dr. Jaclyn Smeaton

Yeah, I mean, I think so, and I love that you bring that up, that you are obviously a really a

provider who really understands the test. I think blood looks at how much hormone is in the pool, in the blood available to cells to use when you look at metabolites, and we can estimate how much is in the blood based upon urine.

00:35:28:22 - 00:35:55:06

Dr. Jaclyn Smeaton

But when you look at metabolites, you're looking at after it comes through cellular use, like what happens in the cell and what spat out at the end. And it's so telling, particularly with things like androgens where you have metabolites that are stronger binders to the androgen receptor than the original hormone, like DHT, a metabolite of testosterone is three times as potent as testosterone, meaning it binds to the androgen receptor and stimulates a response.

00:35:55:06 - 00:36:03:06

Dr. Jaclyn Smeaton

A clinical response three times more strongly than testosterone. So it's great to be able to evaluate that. So A-plus for you on that one.

00:36:03:08 - 00:36:28:18

Dr. Bryant Esquejo

Thank you. But yeah, like, in regards to conventional hormone testing, sender guidelines do not suggest that unless somebody has other symptoms of hormone imbalance. So if somebody does have normal like androgen hormones, my question is why are they still expressing symptoms. Is there something going on with their heart and metabolites. And I feel that the DUTCH test has been valuable in my clinical practice where I see these actual metabolites and there are some like shifts and imbalances.

00:36:28:18 - 00:36:48:09

Dr. Bryant Esquejo

But one thing that I found to be so helpful, and I think it's so cool, it's like on the DUTCH test report, there's just like a fan that looks at five alpha metabolites, and seeing some of these five alpha level tells me we should be investigating something further. Because is it stress response. Is it, is it blood sugar status.

00:36:48:09 - 00:37:21:10

Dr. Bryant Esquejo

Is it something else. Because something is shifting the hormone metabolism to that five alpha side, which we know, can play a role in higher, levels of like the five alpha reductase. It basically, synthesizes higher levels of DHT through testosterone, you know, and then another thing that I found to be very helpful in my clinical practice, you spoke about it multiple times, is the, is looking at someone's cortisol response throughout the day

because that helps me understand, like, okay, there's something going on acutely or there's has been something going on chronically.

00:37:21:12 - 00:37:43:02

Dr. Bryant Esquejo

And if it's something that's going on chronically, that's when I start to have the, conversation with the patient about, okay, like what's going on here? How can we support your stress response? Because stress, like I said earlier, has been associated with acne through all of these different pathways. But yeah, the DUTCH test, I think it fills in gaps where, conventional testing, it's not able to look just yet.

00:37:43:04 - 00:38:05:11

Dr. Jaclyn Smeaton

Yeah. And I love that you point out that five alpha andro slight. I'm sorry, not 511 or the, five alpha reductase slider bar that tells you how they prefer to make it. Do they make more alpha metabolites or more beta metabolites and testosterone and DHEA get metabolized by this hormone, five alpha reductase or five beta reductase. Other hormones due to like cortisol and progesterone.

00:38:05:11 - 00:38:19:12

Dr. Jaclyn Smeaton

We can look at that on the DUTCH test too. But when we look at that for androgens, the alpha metabolites and this is not for you, I know that you know the stuff. Doctor Bryant, this is for our listeners. But the I always remember it because I remember alpha male alpha metabolites like that's how I can keep track.

00:38:19:12 - 00:38:41:06

Dr. Jaclyn Smeaton

Those alpha metabolites are the ones that are like more, you know, I don't know, androgenic essentially. And they're more likely to cause those like male associated symptoms, facial hair growth, things like that. And so when we make that slider bar, it tells you how much you make. And you're right, some of it's genetic based upon your own genetics, what that would be.

00:38:41:06 - 00:38:57:11

Dr. Jaclyn Smeaton

But then there's other underlying chronic issues that can cause it to shift. Traditionally, it ends up shifting all the bad things like insulin resistance and stuff, shift it more to make more alpha metabolites. And the most potent one that we want to look at, we actually just moved it to our home page or our summary page of the report.

00:38:57:15 - 00:39:14:16

Dr. Jaclyn Smeaton

It's called five alpha androstane diol or five alpha andro. We call it little nickname. And that one is the byproduct of DHT. And now you can see it on a dial we like made it more prominent on the female report. And we just put out a white paper, which I'll link to in the show notes for you guys if you're interested in this.

00:39:14:16 - 00:39:41:00

Dr. Jaclyn Smeaton

Because more so than any measurable hormone or metabolite, it's the most, it's the most accurate at distinguishing patients who have problems with androgenic symptoms like acne, hirsutism, android, genetic alopecia, and others. So we just wrote a white paper on this because it's a really interesting story of really understanding how metabolites are so impactful to our health clinically.

00:39:41:00 - 00:40:08:17

Dr. Jaclyn Smeaton

It's not just the parent hormone. And we actually I mean, I could give you hundreds of case reports where patients testosterone and DHEA are normal in blood and they're normal on the DUTCH test. But then when you look at their metabolites, they're a mess. And you can see why they have androgenic symptoms like acne. But it's not something that you would ever pick up if you looked just at the hormones, which is such an interesting thing and just speaks to the value of testing.

00:40:08:19 - 00:40:11:07

Dr. Bryant Esquejo

I think that's really cool. Honestly. I want to read that paper.

00:40:11:09 - 00:40:37:12

Dr. Jaclyn Smeaton

I will send that to you. I will send that to you when we get off today. Because it's so interesting when you I mean, I think looking at hormone metabolism is especially helpful for anyone with androgen symptoms. So as we continue to learn more about acne as a systemic condition and think about it on this more whole person perspective, what areas of research like really light you up right now that you just can't wait for us to get the answers?

00:40:37:14 - 00:40:56:07

Dr. Bryant Esquejo

I'm sure people are starting to understand how big of a research reading nerd I am. But there are some things that I'm very curious about. So first of all, of course the gut

microbiome is really fascinating to me. So, particularly that LPs hormone blood sugar connection is really interesting to me, especially since I've been reading more about it within the context of PCOS.

00:40:56:09 - 00:41:14:04

Dr. Bryant Esquejo

Another thing that I'm very fascinated about is getting a clearer picture as to how gut microbiome mechanisms influence inflammatory response and acne. Like we spoke about the TLR all right. Toll like receptor two and four systemically. But there's something else going on. Because the picture is not fully clear. And I hope science does clarify that.

00:41:14:06 - 00:41:41:17

Dr. Bryant Esquejo

And then in addition to, those factors with the gut microbiome and other gut microbiome thing I'm curious about is post biotics. So for people who are yeah, what's biotics? They're essentially, gut derived, byproducts. And there's some really fascinating literature coming out right now that talks about stretching fatty acids, branched chain amino acids, bile acids and how they may influence hormones that play a role in acne or an inflammatory response that plays a role in acne.

00:41:41:17 - 00:42:08:14

Dr. Bryant Esquejo

And I think that is so cool. Beyond those, we I touched on this earlier. I'm, I'm really passionate about lifestyle. And I'm really curious to know how, scientists continue to understand how lifestyle and how somebody lives influences their acne. Because there is this really cool study that came out last year that essentially found that one year post-treatment of acne, up to 50% of people experience acne recurrence.

00:42:08:16 - 00:42:16:05

Dr. Bryant Esquejo

And in that study, they, they actually found that eight independent risk factors were associated to recurrence. And many of those were lifestyle factors like.

00:42:16:05 - 00:42:19:22

Dr. Jaclyn Smeaton

So worth it. That's that's amazing alcohol consumption. You said.

00:42:20:00 - 00:42:41:09

Dr. Bryant Esquejo

Yeah. Smoking, alcohol consumption. Habitual late sleeping. They say unhealthy dietary patterns and so much more. So there's something going on with lifestyle and I want more

research to come out about it so that people understand, like, okay, like acne is more than just a skin issue. It's happening inside, but also in my environment, because what's happening in our environment impacts internal physiology.

00:42:41:09 - 00:42:46:13

Dr. Bryant Esquejo

And I want people to strive to understand their health holistically by seeing their skin holistically.

00:42:46:15 - 00:42:59:16

Dr. Jaclyn Smeaton

That's I mean, what a great goal that is to take a look at it that way. What do you think? Like where do you think that these functional medicine labs like advanced hormone testing like just ask, where does that fit into the process or the picture long term? You think?

00:42:59:18 - 00:43:25:23

Dr. Bryant Esquejo

I'm sure the audience starting to understand that I see acne through such a multifactorial lens and, depending on where or depending on, somebody who sees me, it could be one factor. It could be multiple factors or multiple organ systems that are playing a role. So depending on the patient that's sitting in my office and depending on what patterns come up, from what they tell me, what symptoms come up and what clinical signs show, I start to understand what labs may be warranted.

00:43:26:00 - 00:43:43:15

Dr. Bryant Esquejo

To suggested the patient so I consider blood work. Definitely. Which is like those conventional blood work, orders. And then I like to pair that because, you know, like I said earlier, conventional blood work doesn't like it has some it doesn't have all the pieces. Right. And if you all of that functional testing can start to fill in those pieces.

00:43:43:17 - 00:44:03:00

Dr. Bryant Esquejo

So sometimes I do a gut microbiome test to really understand like, okay, like why is some of these inflammatory response so high? On their blood work. Is there something going on with the gut microbiome? So we'll look into that. And then if I suspect there could be a hormonal component, that's where I may speak to them about, like, functional hormone testing, like with urinary metabolites, like the DUTCH test.

00:44:03:02 - 00:44:22:22

Dr. Bryant Esquejo

And if there's something going on with the DUTCH test, and we just did conventional testing and DUTCH testing and there's something going on for like, you know, in the can, I'm like, what is going on here? So we might have to fill in that gap and fill in, or get the fuller picture or more picked, a more I get a better picture, and get a gut microbiome test.

00:44:22:22 - 00:44:46:06

Dr. Bryant Esquejo

So in so many words to answer your question, I feel that understanding somebody's acne, from a really personalized point of view, will start to pave the way for advanced testing. And those advanced testing suggestions. It can be personalized for person to person, and it kind of like leads to this cycle. Entire domino effect, where you want to fill in these gaps that some test may not be able to, provide.

00:44:46:06 - 00:44:47:00

Dr. Bryant Esquejo

Just. Yeah.

00:44:47:02 - 00:45:04:06

Dr. Jaclyn Smeaton

Yeah. Thank you for bringing up again because we haven't talked about that yet, but that's a one of the markers that we measure in our organic acids section of the test. And it's a marker for dysbiosis. So while it's not not a microbiome test it will flag in in a nonspecific way when there's a lot of dysbiosis present.

00:45:04:06 - 00:45:27:20

Dr. Jaclyn Smeaton

So I'm glad you mentioned that because it might be a good way. If you're running the DUTCH test to look at the hormone piece, where you can get a window into gut health there as well. Well, this is awesome. I mean, I think that the one last question I'd have for you is really if you were speaking to clinicians about acne, whether it's integrative or not, and their approaches have always been more topical in nature.

00:45:27:22 - 00:45:34:12

Dr. Jaclyn Smeaton

What what do you want their takeaway to be like? How should they be thinking about this differently when it comes to treating acne?

00:45:34:14 - 00:46:02:10

Dr. Bryant Esquejo

Definitely. So I hope throughout this whole entire conversation, people at least start to

think about how acne is more than just a skin level problem. I really hope that clinicians start to really see how internal physiology could manifest. What we see on the surface. In addition, I hope that clinicians also consider how the environment and how somebody lives and their lifestyle influences both external and internal physiology.

00:46:02:10 - 00:46:24:16

Dr. Bryant Esquejo

So at the end of the day, going back to that line, that I spoke about earlier, from Gill, I have the quote right in front of me. Acne could serve as a visible early indicator of metabolic diseases, including prediabetes and diabetes. But I love that quote. But I want to expand that even more, like it could possibly show what's going on with some of these gut.

00:46:24:16 - 00:46:36:02

Dr. Bryant Esquejo

It could show what's going on with some of these hormones. It could reflexively stress response, you know, or even how they live. And I want people to start seeing skin in that manner in so many words with more than just acne.

00:46:36:04 - 00:46:49:02

Dr. Jaclyn Smeaton

Well, I mean, my job right there for sure. That's what a great way to wrap. Thank you so much for joining us on the pod today. If people want to learn more about the work you do or read the blogs that you're putting out, read this. If you're putting out, where can they find you?

00:46:49:04 - 00:47:08:12

Dr. Bryant Esquejo

Yeah. So the easiest way is Instagram. I'm very active on Instagram. I'm also active on threads, and I'm trying to write more on Substack. It's been fun. But it's more a longer format, you know, so if people just want, like, bites, they could get it on Instagram and threads if they want longer format, it's on Substack.

00:47:08:12 - 00:47:11:09

Dr. Bryant Esquejo

If they want even longer format. I have a blog as well.

00:47:11:11 - 00:47:27:05

Dr. Jaclyn Smeaton

Fabulous. And we will put links to all those in the show notes so you can check that out and continue to follow Doctor Bryant. If you like learning more about this, root cause medicine as a root cause approach to hormonal health and other areas of health, I want

to make sure you don't miss out on our episodes every Tuesday.

00:47:27:07 - 00:47:34:23

Dr. Jaclyn Smeaton

We can subscribe to our podcast from wherever you screen and make sure that you follow us on social or just at DUTCH Test. See you soon!

00:47:35:00 - 00:47:47:18

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