

Dr. Gould: Everybody, hello out there and welcome to my international listening audience. This is Get Your Smile On, and I am Dr. Joel Gould, your wellness dentist, broadcasting live from beautiful Manhattan Beach, California in the offices of Modern American Dentistry. Tonight, as your wellness dentist, I've got an incredibly interesting story about something that you've heard about, a little something called Vitamin D. Today I am calling my show Vitamin D for Dummies. The reason is that Vitamin D is not a vitamin. When I got into the whole idea of wellness dentistry I didn't really know that I'd be getting interested in nutrition and vitamins.

My whole foray into this whole industry of wellness is something that has been really exciting for me, and after 25 years of the practice of dentistry, not that I find teeth boring, but I really like the idea, and always have, of treating a whole person as a whole person. The most important part of that is getting to know who that person is and learning about what their life is like and how we can make them feel happy and more comfortable. We've talked about a lot of different topics. Vitamin D, when I was in dental school we learned about how important Vitamin D was for healthy teeth and bones. I don't really remember learning a lot more about it than that.

Since I have gotten into the understanding that Vitamin D is not a vitamin, it is a hormone, it has really gotten my interest up, and the more I looked into this the more fascinated I was by what's really going on in the medical industry and the lack of understanding and information of what Vitamin D is. When you need to get your Vitamin D checked you have to have a blood test. It takes a few days.

There's different methods that they can test, but we're going to talk tonight to one of the most interesting speakers on the subject of Vitamin D, and we're just about to bring him on the phone. I actually want to say that I'm really excited about this episode. We're doing this a little later today. This is 10:00PM west coast time, because my guest is calling in from Ireland, and it is 6:00AM there. We want to thank him for getting up a little bit early. Today we're going to cover the really interesting things that you don't know about Vitamin D.

What I find interesting is I ask people, "Have you had your Vitamin D checked?" Everyone says, "I take supplements. I'm good." The most interesting part about that is people just being so dismissive about the idea that they could know that they're getting the right amount of Vitamin D. What we're going to talk about is the mistakes that Vitamin D has sort of had through history, and also the idea that the FDA, their recommendations for Vitamin D is 800 international units. We're going to talk about Vitamin D doses and international units. The reason we're going to do that is because the FDA and a lot of different medical professionals really haven't had the idea of how much you need and how do we regulate this?

I'm going to go ahead and bring on my guest tonight. I want to welcome Ivor Cummins to my show. Ivor, are you there?

Ivor: Hi there, Joel. Here I am.

Dr. Gould: How are you doing? We've got 10:00PM on the west coast, and I guess the sun's coming up in Ireland?

Ivor: It is indeed.

Dr. Gould: I want to thank you for arranging this to be with me on the show. I'm really excited. I know that you're a very technical speaker, and I've watched your presentations. They're medically very fascinating, but today with my show I'm focusing on sort of a broader audience that maybe isn't as well versed in the medical side. I sort of want to focus on a lot about how you came to be this sort of Vitamin D expert. I'd like my viewers to know your background. Tell us about yourself.

Ivor: Right, Joel. I'm a biochemical engineer originally. I'm at work for nearly 30 years now, mainly focusing on complex problem solving in the engineering sphere. I've really specialized in leading teams to solve complex problems, follow the right methodology, and obviously this turned out very useful when I got into the medical world a couple of years back, when I had my own health issues. I was able to research hundreds of papers. I understand the statistics. I understand the biochemistry. At one point, I came across D quite early, so I was studying metabolic syndrome, atherosclerosis, heart disease, and metabolism and carbohydrate and fat, which is kind of getting to be a big deal now, the low carbohydrate movement. Inevitably I came across Vitamin D, because it's profoundly connected to all of that and to so many things, as you've mentioned yourself.

Dr. Gould: Great. Because this is a half hour radio show I want to get right to your information, but there's lots of different connected topics that are related to everything that you just said. I want you to know that these are topics that I really am going to be covering in my future shows, because like you I've had some health issues that are related to the things that I'm getting interested in discussing. This is a very broad topic, and I've really asked you some difficult questions here, how to sort of summarize how this works in Vitamin D. I'm going to let you do your thing. We talked about humans and evolutions and all that, and I guess give me your best elevator pitch for how Vitamin D came up in the world. I don't know if they use that expression in Ireland, but that's pretty typical out here in Los Angeles.

Ivor: I work in the corporate world, so we got that phrase. I'll try and simplify. Basically, in terms of human evolution there's lots of different views, but I'll go with the primary one. Several hundred million years ago we left the seas, and in the sea vertebrates, animals with backbones, access calcium all around them, whereas when we moved onto the land you needed to get calcium through food and other forms and absorb it. So Vitamin D became a critical part of that. It enables the extraction of calcium and the absorption into the body to make bones and many other things. So very early on in our evolution Vitamin D became a very important part of our physiology. As a result, I believe it became importantly connected to many other control systems in the body, because it came so early.

Then for human evolution around 20,000 years ago, maybe 30,000, we migrated northwards, away from the high ultraviolet light environment of the equator, and that's where it's believed our skin coloration became increasingly white, and one of the key reasons was to access Vitamin D from UV sunlight energy, because there's so much less UV as you move northwards from the equator. Really in America, Northern Europe you've got a few months of the year where mainly in the midday period when the sun is directly overhead you access a lot of UV for Vitamin D production. Because it's so important for the body, it's believed that our skin lightened in order to access a lot more in environments where there was a lot less UV.

They have done studies linking human skin color from indigenous local populations from all over the world linking it to the available ultraviolet light and seeing very powerful correlations. So the human skin color basically tracks with UV availability, thus ensuring that you'll get plenty of Vitamin D production all around the world. That's kind of really a snapshot of how we've evolved to access this critical component.

Dr. Gould: I know that a lot of people may not know, or I think most people do understand that Vitamin D, the precursor to the active form is synthesized on our skin by sun exposure. Aside from that, where else would people get Vitamin D if they weren't getting their sun exposure?

Ivor: If you're not getting the sun exposure, and it's been hypothesized that the Inuit who are very far north with poor sun they have access to a lot of fatty fish. So you can get Vitamin D from organ meats, fatty fish, and a lot of foods that, to be quite honest, we don't eat a whole lot any more. So not only does the modern population, are we sun fearing, because of the dermatology scares, which are mostly invalid. We might get into that, but the population is also not eating Vitamin D rich food anymore. So cod liver oil, organ meats, fatty fish from cold water areas, they're the other sources, and, of course, to a certain extent in dairy products. Generally speaking the American population now, if you take an evolutionary level of hydroxy D in the blood that would have been the 40s, the average for the population is around 20, which is getting to the deficient level. Many people are below the deficient level.

Dr. Gould: I just want to clarify for our listeners. We're talking about a number like 20 or 40, and that's nanograms per microliter. That's how that is tested in the body. It's a standardized test.

Ivor: That's the standardized test. There are other units, but the US units nanograms per mL are probably the best ones. We won't confuse people with the other unit systems. An evolutionary level of this component in the body created from the Vitamin D itself would be in the 40s, possibly in the 50s for women, but everyone is pretty much way below that now.

Dr. Gould: That's something that's really more coming to light these days, which is great, but when I discuss this with my patients a lot of times everyone's very quick to say, "I drink lots of milk, or I take a multivitamin." Having you on the show, I wanted to make sure that everyone understands from an expert point of view it doesn't really matter what you think you're getting. It's really about the level in your blood. When you take a vitamin

it's different than when you have a hormone, so we're looking at a range aren't we? We want to be at a certain range, and that range would sort of change if you tested yourself every day. It wouldn't be the same. It would be a little bit variable.

Ivor: Yeah. There would be variability in the test, but generally it's not a bad test, even if you take a one off reading. They've found that over time it doesn't change too much for people who have consistent behavior. The best range that I can come to to advise people is around 40-50 would be the range. There are some researchers who believe you should be higher. I'm not sure there's evidence to really back that up, and then the government, of course, seems to be happy with levels around in the 20s, which I would say the evidence would suggest is too low. 40-50 would be a good range, and the beauty is you can get this simple test, and then over a period of three to six months you can access sunlight, take supplements, and then get a test six months later and just verify that you're generally on the right track.

Dr. Gould: Before we talk about what happens when you don't have enough Vitamin D I want to talk about Vitamin D toxicity. How much Vitamin D would somebody have to take to feel a toxic effect?

Ivor: That's a great question. The best data, and I've researched a lot, that I can come to if you take over 30,000 international units a day of supplements you're entering the area where you could go too high in Vitamin D. So to give a reference for people, if you go out in healthy sunlight with a lot of your body exposed, and maybe you become slightly pink, you will generate around 20,000 units in that day. Nature has provided us with the system through our skin that's able to produce 20,000 units in maybe half an hour or an hour. That'll give you an idea of what's natural to produce in a day.

The current guidelines say 800, but to be honest 4,000 or 5,000 a day has no chance of toxicity, and it's probably what you'll need if you're not accessing sunlight in order to get your blood levels up to good evolutionary levels. Let's say up to 10,000 a day is certainly not toxic.

Dr. Gould: 10,000 a day, people who are taking supplements, that would definitely be a lot. Much more interesting to my listeners, and really when I was listening to your presentation you talk about something called a smile curve. The smile curve should actually be a frown curve, shouldn't it?

Ivor: Yeah. They're pretty impressive. The smile curve just shows that the incidence of many diseases get higher as you move away from the equator. There is an element that people away from the equator in more advanced societies they obviously eat more bad food and all that kind of stuff, but it's a very strong relationship where when you move from the equator you've less availability of ultraviolet light, and you tend to produce a lot less Vitamin D, particularly during the winter. Many diseases become worse in those areas, multiple sclerosis, diabetes, obesity, and heart disease. If people wanted to follow this up there's a book called *Cholesterol and the Sun* by Dr. David Grimes available on Amazon, etc. It really goes into a lot of what we're talking today for the layperson.

They've even seen that the patterns, if you take France, the incidence of multiple sclerosis doesn't just follow the north to south, like the smile curve, it actually follows the weather patterns and where there is less cloud cover and where there is more sun availability. UV availability tracks with many diseases, and it's believed to be through the Vitamin D effect.

Dr. Gould: I just want to clarify. When we talk about what a smile curve is, this is sort of more for a scientist who likes to plot things onto a graph. If I got this straight, and if I'm explaining this properly, it is if you plot the diseases that we talked about, and it's pretty much almost every disease, when you plot this on a graph, and you do it in relation to your distance away from the equator when you look at that graph it makes sort of a smile shape along the X and Y axis, for anybody who still remembers that from their junior high or algebra or geometry.

This seems to be something that everybody should know about. This isn't some groundbreaking discovery. These are scientists have taken just general data, and they've plotted it on a graph. When did people start to know or see that there was this correlation between poor health and less availability of sunlight?

Ivor: Yeah, Joel, I'd say decades ago really it's known, but I think the general established orthodox kind of medical community, as you said, there's not a lot of awareness. So although in scientific circles there's an awareness, it's not generally publicized a lot. I'm not sure why exactly. There are very strong correlations. Some would argue that they're only correlations, and that can't prove cause. I guess that's true to an extent, but because the correlations or associations are so strong in those curves you really have to assume there's something going on there. Interestingly, if you go from north to south even within countries you see a shift in the disease. It's not just across the world. It's also within countries and across Europe from north to south you see the same relationship. It's very powerful, and it's kind of consistent wherever you go. It's very strong.

The important thing is that there are also the mechanisms. If something like that correlates or tracks it may not prove cause, but for Vitamin D there is so much research showing how it can affect those diseases that if you put everything together it's quite powerful.

Dr. Gould: Being sort of medically aware and having almost 30 years in it was really shocked. I thought I had seen most of the mysteries of life exposed, but to see this was, hopefully my listeners are beginning to understand that this is really kind of a shocking revelation that all of modern medicine, and especially in a place like California where health and wellness is so highly valued, this is literally really still just not known. I had a patient in today or yesterday who is a medical doctor, and we talked a little bit about it. He said he was very big on D, but we talked about it. He had absolutely no training. There was really just no information out there, and if medical doctors don't know then certainly the general public isn't going to know.

As we get towards the end of this I want to talk to you about what you're now working on, but I want to still focus on the Vitamin D, just because I know that you're sort of past

this, and this passé. You've talking about this without the recognition that it deserves. I want to put a more common sense version of this for my listeners so they can understand why a chronic Vitamin D deficiency in America, how would that show up? We discussed back and forth about the idea of hibernation and winter and summer. I know that it's not super technical to talk about this, but I think that it would really give our listeners an understanding if we could maybe discuss about the move north of the border and what happens in spring with animals, mammals versus winter. How would you sort of explain that to the average person who's not completely aware of the whole Vitamin D story?

Ivor: The seasonal shift there's a lot of different theories. Again, diseases track seasonally. When many diseases, including tuberculosis back in the day and heart disease, to be honest too many to mention, the incidence or the amount of them increases when people are at their low Vitamin D level. Low Vitamin D again is associated with excessive disease rates, based on seasonal shifts. You can store Vitamin D, so if you access plenty in the summer and you can store the Vitamin in your fat, and it can kind of carry you through the winter. There are strong beliefs emerging that maintaining a steady D intake during the whole year has a lot of benefits. A lot of studies around that, and the best advice would be to keep your D level pretty consistent throughout.

Dr. Gould: Right. It makes perfect sense once you sort of become aware of this. One of the things that was also interesting to me is the idea that having an optimal level of Vitamin D would allow your intestinal flora, or the bacteria in your intestines, to make different types of chemical products, like B vitamins. Was that something that you were really looking into, or is that not the focus of what you were considering?

Ivor: The whole gut health thing is really important. More of my expertise in that front would be around carbohydrate, that excess of carbohydrate and fructose and pretty much give you the wrong gut microbiota, but Vitamin D does partake in that also, but it's not something I'd have gone so deep into, more the mechanisms connecting to disease. Vitamin D has a lot of mechanisms in the body that really mimic what some drugs attempt to do.

Just to your earlier question about the medical field, I think doctors are trained mainly in pharmaceutical intervention, recognize the disease, and then give it the right drug. I think if D is at a good level it has the effect that a lot of drugs would have. It enables processes to run much better, and you would not have as much need for the drug or treatment side. I think the medical profession really is educated not in nutrition or in the criticality of these vitamins, but more in identifying the problem and then applying the pharmaceutical.

Dr. Gould: Right. That is welcome to America. What's funny about me is that as a wellness dentist, being in California, I'm also Canadian. The Canadian healthcare system is very different than the US healthcare system, and having lived in both countries I really see the differences. Although in Canada we do still have the same push to treat things with medications.

I wanted to talk just a little bit about the cancer connection here in two different ways. One is the idea that sun exposure causes cancer, and then the other is the Vitamin D connection with regard to people's DNA. I think those are two kind of really shocking facts that were brought to light when I heard you speak. Back to the elevator pitch, what's your best elevator pitch on how cancer, DNA, and sun exposure fit together?

Ivor: Cancer's a really interesting one. I think, if I try and simplify it, there's been an idea for many decades now that the sun causes cancer. Keep out of the sun. Less the better. Which is obviously an absurd idea. We evolved with the sun. It creates D. It creates nitrous oxide. It expands your blood vessels. There's a huge amount of beneficial effects from the sun. We evolved with it. This idea for a few decades has been it causes cancer. People might not be aware, there's only around 2,000 deaths a year from the classic simple skin cancers. They're very common, but there's a very low mortality rate. You can treat them relatively easily.

However, there's around 8,000 or 9,000 deaths a year from melanoma, which is the really nasty skin cancer. The thing about melanoma is most good studies show that getting more sun exposure means you'll have a lower rate of melanoma. The reason is that healthy sun exposure keeps your Vitamin D high, and your skin protects itself by releasing melanin and by tanning. So the irony is that more healthy sun exposure without burning actually links to lower rates of the serious skin cancer, the one with the high mortality. Unfortunately, the whole dermatology world for the last 40 years has nonstop driven this idea that sun causes cancer.

Even a lot of sunblocks nowadays, they actually block the UVB, which creates Vitamin D, and they allow through the UVA. The UVA, there's a lot more UVA in the sun's energy, and it's the UVA in many studies that links more closely to cancer generation. The funny thing is people with sunblocks were losing their Vitamin D, losing the benefits of UVB, while the sunblock was allowing through the UVA, which is more closely linked to cancer generation, the melanoma. The whole sun and cancer thing has been, I think, completely mixed up, and as a result people are staying away from healthy sun, evolutionary sun, and they're losing out on all the benefits. It's pretty mixed up.

Dr. Gould: It's one of those things that when you start to come up against the American medical community, and that's such a strong belief they have that any sun exposure is dangerous. What I like about the whole issue is that I think about the pharmacy companies that are going to lose money if people were to have their optimum Vitamin D level, a lot of medication use would go down, but I think those people should probably reinvest in the vacation and safe sun exposure industry. I think we could probably have a lot more fun with resorts where you go for your Vitamin D than going to a hospital and getting some chemicals that are just basically putting a Band-Aid on what's a larger issue. It's pretty incredible. Thank you so much for how articulate you are in getting that message across. It's really great to hear.

Before we get to the end of the show, is there anything about Vitamin D in all your work and studies that really struck you that you want to sort of leave my listeners with so that they can understand a little bit more about this crazy topic?

Ivor: Yeah. Elevator pitch on that one. I guess to keep in mind that you make 20,000 units a day easily in the healthy sun exposure without burning, so that should give people an idea of what nature pretty much intended. Why would the body create 20,000 units in a day of something unless it had a reason? Therefore taking a few thousand units a day while tracking your blood with a test occasionally can get you into that 40+ evolutionary range. D level is connected to so many diseases. It's kind of bizarre in a sense, but it also, without getting into detail here, has detailed technical mechanisms as to why it would connect to those diseases. It's not really a mystery.

Without going into detail, there are many, D actually enables you to go into your DNA, your very DNA, to unwind it and create molecules that help create enzymes to deal with infections and deal with other problems. I think you mentioned earlier, Joel, if people realized their DNA is not just kind of sitting there, or enables you to procreate. Your DNA is accessed all the time in your 40 trillion cells, and it is unwound, the two strands, and you encode off proteins and enzymes, depending on what your body needs. It's a living library, and Vitamin D is intimately connected into accessing that library properly to access the code of our evolution for helping us with health problems and running your system.

It's really profound, and everyone should be around the evolutionary level, ideally, but over probably three quarters or more are below the evolutionary level we would have had as humans thousands of years ago.

Dr. Gould: It's just incredible. I know in America, that's what hear around the world, but is this known in a lot of other countries, or is it better known in other places and most Americans are not knowing or ignoring it?

Ivor: It's a worldwide problem, Joel, because a lot of the worldwide health community has kind of followed the US lead and the guidelines. It's a worldwide problem. In the UK now rickets is actually making a return, so from the industrial revolution in the 1800s we had children with malformed bones from lack of sun exposure. It's actually coming back in the UK now after 20 or 30 years of bad science, I would say.

Dr. Gould: That's absolutely unbelievable. First of all, I just want to thank you for going back into the Vitamin D world, but now I want to talk to you about what you're working on now. I was following on your website, which we're going to give to our listeners at the end here. It's a little different focus. Maybe not another elevator pitch, but this is something that you're really into. I'd love you to explain to me and to my listeners what it is that you're working on.

Ivor: Okay. Really what I've been working on the past while, I'm doing a book, and I'm funded by a philanthropist. It's to explain a couple of things. One is the calcium scan of the heart, the CT scan, which is very inexpensive, and it really tells you if you have heart disease in your arteries like no other technology. You get a CAC score, and that will basically show you. You can have someone who is high risk, and they can get a scan and find out that they have zero calcium in their arteries, and they're actually in good shape, or likewise you could appear to be healthy and slim, like my sponsor, and find out that

your arteries are in terrible shape, and you've got advanced heart disease. It's to get that message out there about this CT scan of the heart.

Then also to explain how to avoid heart disease. A lot of that has to do with the hormone insulin, and our modern population is suffering massively from high insulin, metabolic syndrome, middle obesity, and heart disease. A lot that relates to excessive carbohydrates driving up your insulin levels. I can't go into detail here. That's what the book's about.

Dr. Gould: As I read on your website, and I was sort of wondering, we have all these processed carbohydrates and back 30,000 years ago did our ancestors eat any carbohydrates that we would consider very healthy that we want to include in our diets?

Ivor: Yeah. They would have seasonally had access in the Northern Hemisphere to fruits. They would have been lower sugar fruits though, and they would have only got them at certain times in the year, whereas now everyone's gorging on high sugar fruits all year around. That's a problem. They also would have accessed tubers and underground tubers, but they would have been eating a lot of above ground vegetables, which are low in sugar and glucose. So they would have been eating carbohydrates, but far healthier than what we eat today.

Once you process them you take away a lot of the goodness. You're left with pure glucose sugar, and that sends your insulin crazy. It's a massive problem nowadays where people's insulin levels are way above where they should be, and that promotes fat storage. It stops you healthily burning your own fat, and it basically drives a whole host of diseases. Insulin, I think, in the next decade is going to be the big story. They've underestimated the damage from high insulin for 50, 60 years, at least.

Dr. Gould: Before we close the show, this is all similar topic is that we have the entire American medical industry sort of running in a completely different direction than what you have been looking into. Do you see any hope? Are there messages getting out there? Do you see a little bit of a turn of the tide for America and for how we're viewing our health?

Ivor: I think it's beginning, Joel. The 2016 dietary guidelines, a preview has been sent out, and they are dropping dietary cholesterol from the guidelines. It's no longer of concern. I think this was known decades ago around the world. They're also beginning to pull away from recommending low fat diets, which quite frankly have been a disaster and have been a large part of the diabetes and obesity epidemic, pushing higher carb, and they're realizing that now. Even the official authorities that have not moved for 20, 30 years, even though the scientific evidence shows they should have, are beginning to move.

I was just in South Africa in February, and the world's first low carbohydrate summit was on, and I was part of that. We had 20 experts from all around the world, doctors, PhDs, specialists, speaking for four days on the perils of carbohydrate. It was a huge event, and people can look it up on the web. I think the world is beginning to realize, with the internet, with access to scientific papers like I was able to get through the internet, smart people around the world are beginning to realize they really mixed things up 50

years ago or 40 years ago when they pushed high carb guidelines. All that I think in the next 10 years is going to completely shift.

Dr. Gould: I really hope so. Part of me doing this show is to actually help to push things in that direction. Some of my other shows that I have and will have covered are really a lot of preventive care talk. In dentistry preventive care saves thousands of dollars and pain and time in the chair, just the same way that preventive care of your body by eating and getting the right amount of safe sun exposure can really decrease a lot of people's pain, agony, and suffering.

I want to let everybody know how they can get a hold of you. If you want to give out your website address, go ahead.

Ivor: Thanks, Joel. It's www.thefatemperor.com.

Dr. Gould: I love it. That's a great name. I'd love to have you on a later show to speak about this, and I'd love to even know how you came up with that name. That sounds pretty incredible. I love the idea also that eating relatively healthy meat and cheese is back on the diet, because they're pretty great.

Ivor: Yeah, and there's no better way to protect your teeth than to back off on that carbohydrate.

Dr. Gould: Definitely. Hold on, I've got to have some business. No. I'm in the promotion of health here, and there's no secret about how to get rid of tooth decay. It's funny how it all fits together.

I want to thank you so much for coming on my show. I really appreciate it. You are my first international guest, and I'd love to have you on the show again. Thank you.

Ivor: For sure. Thanks a lot. It's been a pleasure.

Dr. Gould: Great. Hopefully we'll speak to you soon. All right, everybody. I hope that if you're listening live that kind of shocked you, because, like I said, when I learned about this I was really blown away. There's so many interesting topics that this opens up, health and wellness and wellness dentistry, absolutely. Vitamin D is a very interesting issue, and in future episodes I want to talk about the link between Vitamin D and sleep, sleep apnea and sleep breathing disorders. I've got some incredible guests who can maybe take us down that road.

That's it for tonight. I want to thank all of you for listening. I want to thank my incredible producer, and happy birthday, Maria DiGiovanni. You're the best. Until next time, get your smile on. I look forward to seeing you. Follow us on Twitter and Facebook, Modern American Dentistry, and fairly soon hopefully we'll have these podcasts posted on iTunes. Thank you for listening, and we'll see you next week.