GYSO Eps. 13 Dr. Holick

Dr. Gould: Alrighty everybody. Hello, out there. Welcome to Get Your Smile On. This is Dr. Joel Gould, your wellness dentist, and I'm here with another episode of our podcast. Today, I'm really excited. We're going back to the Vitamin D train. Talking about all the different conditions that we've talked about and all the physical health issues that I've had and my patients have had, when I discovered the Vitamin D secrets, and really it was a secret to me because I never heard anything about how important this vitamin which is not really a vitamin, this is a fat soluble hormone, and I can't really believe that this is not more widely known. So in my investigation, I went to many different pathways to find out who would be the best source of information regarding Vitamin D; and basically all roads lead to the gentleman that we're going to have on the show today.

It's Dr. Michael Holick. He's an MD and PhD, and his qualifications are little too numerous for me to list. I'm going to have him on in one second so he can introduce himself, and we can find out a little more about the origins of Vitamin D, and he has been at the forefront of this chemical for really a very, very long time. His book called the Vitamin D Solution, a three steps strategy to cure most common problems, all really about Vitamin D, and how to get it and why it's important. I'm going to bring him on right away, and I'd like everybody here know that this is really the gentleman who is the beginning and the origin and has helped so many people regain their health. So, Dr. Holick, are you out there?

Dr. Holick: I'm here in body and spirit. Good to talk to you, Joel.

Dr. Gould: All right, thank you so much for coming on the show. I know how busy you are and I really appreciate this time. My listeners have sort of been discovering about Vitamin D along with me, and we had discussed earlier that my Vitamin D story is very common, a chronic Vitamin D deficiency coming from Canada and just simply not getting the sun exposure, has really ruined my life in a lot of ways. But ultimately, I'm here to get the message out, so could you please tell us a little bit about yourself and your background, and your medical origins.

Dr. Holick: Sure. I'm Professor of Medicine, Physiology and Biophysics at Boston University Medical Center. I'm also Director of the Bone Health Care Clinic and the General Clinical Research Unit. How I got into Vitamin D is always the question. You would think that I cleverly thought about this 40 years ago. Not quite, I was a graduate student and in typical passion, when you're a graduate student and you're looking for a research project, you don't always have a choice and of course, you would like to be working in the hottest field at that time and back then, there was mitochondria and how the body uses energy, but there were no openings, and so it was suggested that I work in Vitamin

D and my response was instant, “Why would I want to work in Vitamin D?” and the answer was simple, “Because it’s probably the only thing you’re going to work at.”

I happened to be in the right place at the right time. For my Master’s Degree, I happened to be the one to identify the major circulating form of Vitamin D that when you go to your doctor and order 25-hydroxy vitamin D, that’s the metabolite that I identified in human blood. And then for my PhD, I was the one that identified the active form of Vitamin D produced by your kidneys known as 1,25-dihydroxyvitamin D. My roommate and I were the first to chemically make it, and because we realized that kidney failure patients who couldn’t activate Vitamin D, they had bone disease, so the stuff we made in the test tube, we gave to the patients, and they were wheelchair-bound that start walking again.

So that was kind of my first introduction to Vitamin D, and it always excited me ever since. I was extremely fascinated by the fact that why is it that sunlight would provide you with such an important hormone. For the past 30 years, basically, I’ve worked on areas trying to understand time of day, season of the year, latitude, degrees and pigmentation. At the same time, came upon the new observation which is at the skin, not only acts, not only recognizes and makes vitamin D but it has a receptor, and introduced to concept in the 1980s that maybe we could use activated vitamin D to treat psoriasis, and that’s basically one of the first tried treatments for psoriasis worldwide.

Dr. Gould: Wow. Okay, so you said so much there. I just want to go back for one second. When you said vitamin D, was there a lot of research being done in that field? Because I know that in those days, it was known that sunlight exposure was important for TB. Was that something, was that a field that was getting interest so that was basically they said, “Here you go, there’s not a lot of work out there. Take what you can get.”

Dr. Holick: Right, there was essentially no interest in vitamin D back in the early 1970s when I was a graduate student with Dr. DeLuca at the University of Wisconsin; and, it was only because we began to recognize that vitamin had to get activated first in the liver and then in your kidneys, and that kidney form was critically important for how your body responds to calcium and for bone health that all of a sudden it became of great interest. Really it’s only in the past decade that we’ve now recognized that probably more than one billion people worldwide are vitamin D deficient and has very serious health consequences.

Dr. Gould: Right, okay. In previous shows, we have talked about those, but I do want to bring up some of the most serious conditions, and these are things that still boggle my mind that it isn’t known. I’ve got lots of patients who have autistic kids and I’ve got lots of patients who have MS. Those are the two big ones that, “Why is this not little more known by

the medical community that there is a very strong connection between vitamin D deficiency and both of those conditions?"

Dr. Holick: As you know autism is relatively common, and vitamin D deficient is very common, so it may be playing a role in that disorder whether or not it's a causative effect. I think we still need more research to better understand that. But for MS, I think it's a lot more clearer which is that it's always been known that if you live above Atlanta, Georgia for the first 10 years of your life, you have 100% increased risk of getting Multiple Sclerosis for the rest of your life, and the study done at the genetic health study at Harvard showed nurses that had the highest intake of vitamin D throughout their life reduced their risk of getting Multiple Sclerosis by as much as 42%.

Dr. Gould: Wow. So that leads me to the next one, cancer. What can we say with confidence about vitamin D and cancer?

Dr. Holick: Well, it turns out that basically every cell in your body has a receptor for vitamin D. That means that it needs a vitamin D to fully function, and we're now recognizing that the hormonal form of vitamin D, this active vitamin D, is produced locally in many cells in your body including your colon, prostate, breast, and we think it does it to help to regulate cellular growth and to present cells from becoming malignant. What it also does is as the cell does become malignant, it actually acts like a sledgehammer and actually induces its own destruction, what we call apoptosis. Vitamin D is able in many ways to be able to regulate cell growth and help prevent malignancy, and that's why there are these associations with vitamin D deficiency with increase rate of colorectal cancer and ovarian cancer, and over I think it's about 15 cancers now that have been associated with vitamin D deficiency.

Dr. Gould: Okay. You're actively working in real medical community or not by any means on the fringe of anything, do cancer doctors or oncologists, are they aware of these studies and is this starting to factor into how they're treating a disease like cancer?

Dr. Holick: Yeah, it's a good question. I mean we make it very clear that if you have cancer, you're not going to treat the cancer with vitamin D because basically the cat is out of the bag. Vitamin D really can help prevent you from getting any cancer, but there's enough evidence out there to suggest that if you do have cancer, on chemotherapy, that it's possible that you respond better by improving your vitamin D status. I've seen several cancer patients in my clinic where they do feel better because as you know vitamin D deficiency also causes muscle weakness, aches and pains in your bones and muscles and fatigue, and that is often associated with chemotherapy.

Dr. Gould: Right. It's really incredible information. I'm from Canada originally, and I think we spoke about that. Both of my parents have recently been treated for cancer, and I was very disappointed that there was absolutely no mention of vitamin D, no checking of their levels, or anything. So I guess it's just a message that really isn't out there. It brings me

to, I show you on Today show recently, and I was really happy to see that a mainstream major media show would feature this. But then I want to bring up that they rebutted you with a guy, I guess, who is a dermatologist. Then I kind of got a laugh of it because as a dentist if I talk to my patients, "You cannot have one single drop of sugar ever in your entire life." That would be ridiculous.

So I want to talk a little bit about—you wrote this book, the Vitamin D Solution, which has pretty much changed my life, and I recommend everybody out there listening, if you have friends who are suffering really from most ill health effect, get this book because no matter what you're doing, having your vitamin D level at the right level, it can't be a bad thing. That brings me to how we get vitamin D. We've talked about our supplements in that.

Now, I want to talk a bit about sun exposure. No one is advocating that you go out there with no sunscreen on and fry yourself. What do you think? I want to let you just talk a little bit about safe sun exposure, and which brings to mind that also I want to talk about the app you have which is D Minder and then it's a guide to help you get safe sun exposure. So why don't you sort of tell us what's your issues have been with discussing just safe sun exposure and maybe just sort of briefly what that means to my listeners to understand how they could get their vitamin D in a more natural way than a supplement.

Dr. Holick: Sure. Just as you pointed out, if you ask a question, "Why is it that so many people are vitamin D deficient?" The answer is simple, "There's essentially no vitamin D naturally in your diet." And so you're right, we've always depended on sun for our vitamin D requirement, so I typically recommend that you go out about half a time that it would take to cost mild sunburn, and expose arms, legs, abdomen, back when appropriate, but always protect the face because it's the most sun-exposed and most sun-damaged. How much vitamin D will you make?

We did a study and showed that if you take a healthy adult in a bathing suit and expose them to simulated sunlight, like being out on the beach and getting a light pinky pear skin 24 hours later not a sunburn, it's equivalent to ingesting about 15,000 to 20,000 units of vitamin D a day. So, you're right, if you use the app called dminder.info, and it's free on your Android and on your Apple, it will tell you, anywhere on the globe, anytime of the year, that you can or cannot make vitamin D, and it will tell you how much vitamin D you're making, and it will tell you to get out of the sun because you made enough so that you don't damage your skin.

Dr. Gould: Okay. So, that type of talk sounds outrageous and ridiculous, to even imagine telling somebody to be outside without sunscreen, and of course, I'm joking. When I learned about the anti-sun lobby, it was really shocking to me. I guess, everyone wants to make money, but the idea that if you will spend some time outside for the first few minutes

and you don't put your sunscreen on, I just can't imagine how that's all terrible. We've discussed in previous how serious the lack of vitamin D can be now, you're putting sunscreen on, you're not getting any of the UVB rays, so you're not getting any of the benefits of the vitamin D production, at the same time you're exposing yourself to sunlight with UVB rays.

Dr. Holick: Yeah, and just to give you some examples that people don't appreciate is you've been taught to go out in early morning or late afternoon in the summertime, go jog and make your vitamin D. You actually make none. It's the worst time of the day believe it to go out for your skin because you're getting blasted by UVA which damages your immune system, increases risk for melanoma and causes skin wrinkling. You only make vitamin D from 10 a.m. until 3 p.m. If you live above Atlanta, Georgia, you basically cannot make any significant vitamin D in your skin from about mid-October until around mid-March or early April. So there's a lot of misconception out there about sunlight and vitamin D. We've done these studies to show exactly when and where you can make it. If you are a person of color, you're just wearing a very effective sunscreen, so they often need to be outside five to ten times longer to make the same amount of vitamin D as a white person.

Dr. Gould: Right, so do you think that's the correlation between darker skin tone and ill health effects like diabetes and heart disease? Do you think this is related to lower vitamin D?

Dr. Holick: I think so, and others have said the same thing that people of color had higher risk for, like you said, heart attack, stroke, diabetes, or aggressive cancers, infectious diseases like tuberculosis, and we think that that's all related to them having more significant vitamin D deficiency.

Dr. Gould: Right. It's pretty incredible stuff. All right, I want to talk about little other issue. This is something called proteinoids that you have spoken about, some other issues that we may get from that safe sun exposure. What brought this to the forefront and what can you tell us about what else we could be getting by having safe sun exposure?

Dr. Holick: It turns out people feel better with or without the sun, and there's a reason for it and that is that you make beta-Endorphin in your skin and your listeners probably are aware that beta-Endorphin is basically the endogenous opioid that gives runners their high, their feeling of well-being. So that's important. Also, when you're exposed to sunlight, you make Nitrate Oxide, and Nitrate Oxide is a substance that causes dilation of your blood vessels to help you make relaxed and helps to keep your blood pressure normal.

There are varieties of other substances in the skin that are also being produced that we think may play role in reducing risk like rheumatoid arthritis for example or people that have rheumatoid arthritis may feel better when they're exposed to sunlight, because there's a gene in the skin that can make a compound that will stimulate your adrenal glands to make steroid just like cortisol, and that will help decrease inflammatory

activity. It also has an effect on your immune system and can in a good way have an effect on your immune system to reduce risk for all the immune diseases, like you said multiple sclerosis but also type 1 diabetes, rheumatoid arthritis, and even inflammatory bowel disease, Crohn's disease.

Dr. Gould: Right. Okay, that's where I break in and say I've shared this with my listeners before that I was diagnosed with Crohn's when I was 12 years old, and I had suffered from this condition in my entire life. So for myself, there are many things that changed in my life when I started to supplement my vitamin D as I was below 20 when I first found out. One of the things that really kind of blew my mind is that my Crohn's disease symptoms day by day are receding. I live through to suffer this with my entire life. I ended up emailing my gastroenterologist, and I sent him all this incredible information and I got a response back, sort of a lukewarm, "Well, that might help."

So it was so hard for me, when I realized what had happened in my life and how so unnecessarily I had a combination of a vitamin D deficiency and sleep apnea, and that sort of brings me to the next topic, why is vitamin D and sleep apnea, do you have any idea why these things are linked? Because we see a lot of people here with either undiagnosed or untreated sleep apnea, and every one of them has the absolute lowest levels of vitamin D, some of them below 10. What can you say about how vitamin D would interact with sleep or why this would even be a factor?

Dr. Holick: Two things may be going on. We know that there are vitamin D receptors in your brain and vitamin D is playing an important role in neurotransmission in your brain. It will stimulate the production of serotonin which has a positive benefit overall. But also vitamin D deficiency causes muscle weakness, and that includes your diaphragm. I think that improving your vitamin D status will improve muscle function throughout your whole thorax and help you in your breathing activity and also stimulate neurotransmission in your brain that may help reduce the need to have this apnea type of circumstance when they're going to sleep.

Dr. Gould: Okay. Wow. It's funny because I like to think about what are the things, my friends all think I'm crazy obviously because I talk about this a lot but there's so many things that are linked to this, I've tried to go through what isn't affected by vitamin D. When it brings you back to old time is that it doesn't really matter, we can't Google a lot of this stuff and I'm thankful you've done a lot of work in the science of this but the question is what's the downside to somebody no matter what their health or level of illnesses to supplementing their vitamin D, and which are minimum level that you think the people should be at? I know there's a little bit, not real controversy, but some people have different ideas of what their level of vitamin D should be. What's the downside about supplementing your vitamin D and then seeing what happens?

Dr. Holick: Sure. What I was telling physicians is that if you think about this, our hunter-gatherer forefathers outside every day were making vitamin D all the time. So, how do you know what they are really doing? Studies have been done in the five lawyers who were outside everyday in Africa. Their blood levels on average are about 40 to 50 ng/mL. The Endocrine Society, which really recommends how to treat and prevent vitamin D deficiency to doctors, recommends that your blood level should be at least 30 and preferably 40 to 60, and up to 100 is perfectly safe.

Dr. Gould: Okay, I know we've talked about this in the past but it's very tough to overdose on vitamin D. Something has to be going very wrong and what I've been telling my patients when I say they're taking 1000 international units and their level is at 16, I let them know that they're never going to build up their supply by that. What are the symptoms of vitamin D overdose? I know that there really aren't any when it comes to sun exposure because your body doesn't rule your body from entering from producing too much, is that's the case?

Dr. Holick: Yeah, you're absolutely right. We showed that many, many years ago. Vitamin D toxicity is typically seen when your blood level is above about 150 to 200 ng/mL. It's one of the rarest medical conditions. What happens is that your blood calcium first arises, your blood pressure goes up, you start to have the position of calcium in your kidneys, so you can wind up with kidney failure, it can deposit in your blood vessels. But it takes a long time for that to happen. Typically like I said, you would have to take literally 50,000 units of vitamin D a day for a year before you can have to begin to worry about toxicity.

We had reported a case of a lawyer who went on the internet back in the early 90s to buy vitamin D thinking he was taking 2000 units a day. The company forgot to dilute it. He was actually taking a million units a day for a year, and he was intoxicated. So he asked me to be his doctor. I told him to stop all vitamin D, wear sunscreen, don't get make any vitamin D and he totally resolved, and he had no complication from the vitamin D intoxication. So even though doctors are mortified about this, it almost never occurs unless it's intentional or inadvertent exposure to massive amount of vitamin D for a long period of time.

Dr. Gould: Right. So this has been the biggest issue I think from what I'm seeing, it's just a discussion with my patients, sometimes I ask them, "Have you had your vitamin D level checked?" and they get really up the norms and said, "Mine is fine. I take a multivitamin." I have to explain to them that there's only 400 international units in a multivitamin and then when I recommend 5000 or 8000, they get excited by the thousands part. If this was not named a vitamin, would there be a completely different experience of vitamin D? Do these really get messed up because we called it a vitamin and who did this? Who called it a vitamin?

Dr. Holick: Well, it's historical because this happened back in the early 1920s when vitamin A was first discovered for your sight and the B vitamins were discovered, the C vitamin was discovered, and then they found cod-liver oil had something that prevented rickets. So they called that new vitamin which is called a vital amine because they thought these were all amines, vitamin D and it stuck. You're right, vitamin D is a hormone, but sometimes people also are frightened of the concept of hormone so it's a catch-22 in terms of what to call it. In terms of how much vitamin D, simply I tell a parent that children, they should be on 1000 units of vitamin D a day. Teenagers and adults should be on at least 2000 units of vitamin D a day. If you're obese, you need two to three times more. I typically take about almost 4000 units a day.

All of my patients are on 3000 units of vitamin D a day. Like you said there is no downside to increase in your vitamin D intake. You're right, just even before 2010, the recommendation from the United States government basically was people only need 200 units of vitamin D a day. They've been off by a factor of at least 10, and that is clear because like I said we know that we are exposed to sunlight in a bathing suit, like you're making up to 20,000 units of vitamin D a day. So our hunter-gatherer forefathers are basically making probably 3 to 5,000 units a day and that's the amount of vitamin D we think that all adults need to satisfy that requirement.

Dr. Gould: Right. So just a refresher of memory, that technically is not enough if you're really low because this is a fat soluble hormone that needs to build into tissue and does take time. I wanted to ask you about one of the things that I've been thinking about a lot and the vitamin D deficiency when it comes to moms, pregnant moms, and I have this concept or idea that I'm the second of three children, so my brother got the most vitamin D during our mother's pregnancy. I'm sure she was not supplementing at all. So by the time my sister was born, she had been born with the least amount of vitamin D. How long is it takes somebody to really get to those low levels to start to affect pregnancy and having children?

Dr. Holick: Yes. The half-life is about two weeks. If you're vitamin D sufficient in the summer time, and you don't take vitamin D supplement because you can't make vitamin D from sunlight during the fall and the winter, then you will become vitamin D deficient within a couple of month; you'll be below 20 ng/mL. That's why we're telling all pregnant women, they should take their prenatal vitamin, and they should be taking at least 2000 units of vitamin D a day. A study was done in South Carolina, and they showed that pregnant women that took 4000 units of vitamin D a day raise blood level around 40 to 50 ng/mL, and there was no untoward consequence. We think that's important because in literal, vitamin D deficiency increases risk for preeclampsia, the most serious complication of pregnancy and there's evidence that children born of months that are vitamin D deficient are more likely to develop wheezing disorders and asthma within the first few years of life.

Dr. Gould: Wow. So basically what you're saying is something that I've been telling my listeners for a while is that this is a very safe type of chemical to take. The consequences of not taking enough are very serious and the consequence of taking too much seems to be very limited. Once again, what's your best guess as to why it isn't more known?

Dr. Holick: It's mainly because it's a vitamin, right? It's not a super expensive medication. It's for prevention. It's not for treatment.

Dr. Gould: All right. So when you see these commercials, I think there are three new psoriasis medications on the market now that I've seen them advertising. Is there any thought like is vitamin D, would that be a component to these new medications, because this isn't seemed to be what they're pushing?

Dr. Holick: Right. Active vitamin D is available by prescription and works reasonably well for those that have like less than 10%, psoriasis at typical elbow and knees. It works reasonably well but taking vitamin D, improving your vitamin D status can sometimes also be valuable. I've dealt with psoriasis patients since probably for about 30 years now, and some of these medications especially the ones—also your immune system can have some pretty negative effects and so the choice is active vitamin D initially, topically, and to improve your vitamin D status.

Dr. Gould: Right. Obviously, that's the problem we've been seeing a lot. The pharmaceutical industry wants to make all these expensive drugs, and we haven't even yet got everybody to a level of vitamin D where we don't know who really has an illness that needs to be treated with special medication and who's just vitamin D deficient. It must be pretty frustrating for you to watch this over the years.

Dr. Holick: Right, exactly, I realized this back in the 1980s when they started promoting sunscreen and telling you to avoid all sun exposure, that's abstinent step of work and it also has consequences; and to me, the major consequence is it is going to cause a worldwide vitamin D deficiency epidemic and that's exactly what it's done. So 40% of Australians now are vitamin D deficient. So even the Dermatology Society of Australia now recommends some sensible sun exposure. The World Health Organization, if you go on their website, they are now recognizing that some sensible sun actually does provide you with your vitamin D. So slowly but surely, the tide is turning; but, in United States, still the American Academy Dermatology is emphatic that you should never be exposed to one direct ray of sunlight for your entire life.

Dr. Gould: Wow, well, I have had have some friends contact me and say, "I never did fall for that. All sun exposure is bad." I'm glad to see that maybe some people are a little less cautious with the sunscreen, but I really want to make known to all the listeners and everybody that the sun can be harmful as well. So your D Minder app is spectacular. Your book really lays out the clear way how to get vitamin D safely. A couple more things before I let you go. This is only half-hour show and I really appreciate your time.

I had a discussion with you about the idea, this is what I've been really focused on, is that I've been treating sleep apnea here in the office as I have it myself and as I get more educated in this, all the talk is about how our airways are much more narrow than they used to be compared to the skulls that we see 300 to 500 years ago and the biggest thought that all these experts, these are some of the three eminent experts in the world that I've been listening to and these are smart guys, they're talking about when a country or a civilization becomes industrialized because of the soft diet, they have jaws atrophy and they're small. I had a clearly different idea; I thought that as country becomes industrialized, and they move indoors, we start to have vitamin D deficiency. My question, I think the study done in a boy in 1960 something, if you thought that it was likely that there can be some way that vitamin D deficiency was responsible for helping our jaws to narrow, because we see a lot of dental crowning these days and a lot of smaller airways, what's you're feeling on that?

Dr. Holick: It's a good question. We know that vitamin D is critically important for bone cell activity and also for the cells that make the code and matrix. It helps them mature properly, and if you're vitamin deficient, that all goes awry, and it's quite possible that some of these observations that you've made may very well be associated with the literal vitamin D deficiency which is incredibly common. We did a study at our hospital and it showed pregnant women on prenatal vitamins taking two glasses of milk a day and 600 units of vitamin D a day, at the time they gave birth, 76% of moms, 81% of newborns were vitamin D deficient less than 20 ng/mL.

Dr. Gould: Wow. To me, it seems fairly obvious. For myself, I had the same thing. As a vitamin D deficient kid, I have narrow, high vaulted palate and dental crowning, and I also have dental decay and I see this on my patients now, the ones with periodontal disease, they got really low vitamin D. So it makes perfect sense to me that it's something that boosts your immune system. When you're deficient, you would have the consequences like gum disease, and I know there are ideas that it is linked to vitamin D.

Dr. Holick: Exactly. The National Health Services showed that vitamin D deficiency is associated with periodontal disease and tooth loss.

Dr. Gould: Crazy. Wow. It's pretty incredible. Okay, before I let you go, I just want to sort of repeat, I'd like you to just tell us again what's the name of your app so they can download it because it's pretty incredible the thing that it does. I've got my data in there so I'm tracking my own vitamin D. What is it called again, one more time?

Dr. Holick: So dminder.info. You can go to my website drholick.com. Lots of information about vitamin D and the app is there as well.

Dr. Gould: Okay. Well, I don't even know what to say. As far as I'm concerned, you're really the forefront of the most major discovery in current medical history. I thank you so much for your time and the information that you gave to our listeners.

Dr. Holick: My pleasure, too. Have a delightful day.

Dr. Gould: Okay, thank you. You too. Bye.

All right, everybody. So that was the incredible Dr. Michael Holick. Funny that just a few short months ago, I had absolutely no idea what vitamin D was. I had the safest idea having learned about it really briefly in dental school about how vitamin D is important for bone and teeth formation because of calcium. Here is 25 to 30 years later, I found out that not only is vitamin D critical to almost every single system of our body that my entire life has been affected by a vitamin D deficiency.

So as a wellness dentist, what my message is to make sure that I can reach as many people as possible with the easiest and simplest ways to either regain your health or maintain your health, and I just simply can't believe that there's something out there that's basically free of charge that reduces and can prevent cancer that does all these incredible things and I personally experience the benefits from.

I'm going to close the show up by saying for me, this is the ultimate vitamin D experience and truth for you. I hope that I haven't bored you with this, but this really is some pretty incredible stuff. So, until next week. Thank you all for listening to Get Your Smile On. Please share this podcast with any friends you have who may have any medical issues. You can also rate us on iTunes. We'd love some good reviews and I look forward to speaking to you all next week. Thank you and please Get Your Smile On.