#1 Vitamin D DANGER You Absolutely Must Know!

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0:00:02.7 Speaker 1: Hello, Health champions. Today, we're gonna talk about the number one vitamin D danger you must know. You can make a very strong case for vitamin D being the number one deficiency in the world. And not only that, but it's of critical importance and we're only just learning just how important it is. In fact, some people have said that it's a biomarker of chronic disease and frailty. In other words, looking at nothing else, like you only get one thing on the blood work and there's a very strong correlation between your vitamin D status and how well you're doing overall. So we're gonna talk about a number of critical steps that we all have to have in place in order for us to utilize vitamin D properly. And if you wanna follow along and get a copy of these slides, then there's a link down below so that you can get that.

0:00:55.1 S1: Now, when we're talking about what vitamin D does, there is a classic role and a nonclassic role. So, typically vitamin D is primarily associated with calcium, phosphorus, and bone about depositing, getting Vitamin D gets calcium into the bone so it can harden and make proper bone. And this was found out in 1920 based on something called rickets. If you have a severe deficiency of vitamin D, as you're growing up, as your bones are growing and lengthening, you can't make hard bone and you get what's called Osteomalacia soft bones. And they found out that vitamin D was completely responsible for these soft bones. And as soon as they provided some vitamin D, they solved the problem of rickets. But that was only one thing. That was the first thing they found. But it's only one thing of what vitamin D does.

0:02:00.4 S1: So now we have learned more about its nonclassic role. And this has to do with immune function about activating immune cells. Regulating immune cells has to do with apoptosis, the lifespan and the programmed cell death of cells. Vitamin D is critically important to regulate inflammation. So if vitamin D is low, inflammation goes up. It is also involved with neurogenesis. That means building new brain tissue, making new brain cells, new brain connections as in repairing brain tissue after concussions maybe. But also in terms of learning new things, you have to make new connections and vitamin D is critical for that. So here where there's some controversy that most of these nonclassic roles we have learned in the last 10 years, not all of it, but the vast majority that we know about vitamin D we've learned in the last 10 years to compare with the calcium stuff we found out over a hundred years ago.

0:03:07.9 S1: But some people are kind of stuck in this old thinking. So when we ask if you're getting enough vitamin D, some people kinda argue that, yeah, you have enough vitamin D to make bone. And that may be true. But the question then is, do we have enough vitamin D for all these other critical functions? But as important as this stuff is, there's way, way more. So cell proliferation, for example, the production and the maturation of cells, the cell differentiation, the ability of a cell to become a bone cell or a heart cell or a liver cell or a brain cell. That's all about differentiation and about gene stability, the stability of your genetic makeup of your DNA. So when this is working, we have healthy tissue.

0:04:02.4 S1: Now there's something called cancer and cancer is characterized by uncontrolled cell proliferation. It is with poor cell differentiation and with genomic instability with those three things in place, as we could have with low vitamin D, that is called cancer. So especially malignant bad cancer that is uncontrolled is associated with low vitamin D. Another thing that is becoming rampant is autoimmune disease. The most common one is for thyroid. And we test thyroid antibodies on all of our blood work, and we find it probably in 20, 30% of people there are thyroid antibodies, but not just thyroid, there is rheumatoid arthritis, there is lupus, there is Ankylosing spondylitis, there is psoriasis or psoriasis arthritis, and the list goes on and on and on. Even Type 1

diabetes, is an autoimmune disease that can be influenced by vitamin D. And then we have all of the neurodegenerative diseases, the breakdown of nervous system tissue or insufficiency such as in Parkinson's or Alzheimer's dementia.

0:05:21.5 S1: We also have neuropsychiatric disorders like Schizophrenia and depression that are also influenced by vitamin D. So I think you can begin to see just how important it is that there's virtually no body function where vitamin D is not involved. So to call it important is an enormous understatement. And just like we said before, you could look at vitamin D as a single biomarker and get a pretty good idea of how healthy this person is. And then, a good question is, is the vitamin D a cause or a result of the disease? In other words, are people sick because they don't get enough vitamin D? Or is the vitamin D low because they're sick and can't process it or utilize it properly?

0:06:11.9 S1: And the answer is definitely both. That, if you are low in vitamin D, it can cause all sorts of problems. And if you are sick, you're not gonna process vitamin D as well. So it kind of becomes a vicious cycle there. So just how big of a problem is this worldwide? Well, officially, you're called deficient if you are below 20 nanograms per decilitre on a blood test, and that's about 42-97% of the world's population, depending on different regions, depending on the country. So in some countries where they fortify and they supplement the food more, they can be as low as 40, but there's still 40% of the population in those places that are less than 20 nanograms, which is disastrously low.

0:07:09.6 S1: And in some areas, especially in the Middle East, you can find as much as 97% of people being deficient. And then, someone said, Well, that can't be right, that many people can't possibly be deficient." So they tried to kinda change the guidelines a little bit and they said, "Well, you know we found that even at 12.5 nanograms, most people still mineralize bone pretty well." But see now, they're back into that classic role where they're mostly concerned with whether you can put calcium in the bone or not. They're not really addressing the bigger picture. Either way, even 20 nanograms is way, way too low. And then the next level up, they're not calling you deficient, just insufficient. And that is when you're below 30 nanograms per decilitre. But like I hinted, a lot of these numbers are mostly concerned with the classic role. Are we able to mineralize bone?

0:08:11.1 S1: So the question is what's really optimal? If we really want the full benefit for hundreds and hundreds of these critical functions, how high do we really need to be? So I'm gonna talk you through a few steps where you can start understanding that a little bit better. So I'm gonna tell you a little story about the steps necessary for utilizing vitamin D. So classically, the idea is that we are out in the sun and we get sunlight. And as our skin is exposed to the UV radiation, now we make vitamin D in the skin and all should be well. But most people would agree today that what we can produce via the skin is just not enough today because there's so many different factors that can interfere. And one for example is air pollution, that because of the extensive amount of air pollution, we're not making vitamin D the way we used to.

0:09:13.7 S1: Another thing is that if you ran around naked in the sun all day long, you'd probably be okay. But I have noticed most people tend to wear clothes and they tend to spend quite a bit of time indoors. And also pigmentation. The darker your skin, the more you kinda repel that UV radiation. So the darker your skin, the less you can convert and make vitamin D. Latitude, if you live really far from or quite far from the equator, you also don't get as much sun or not the same intensity of sun. The intensity will change with the season and the time of day. So if you're mostly out in the sun like toward the end of the day, then the sun isn't strong enough to really convert a lot

either. Then as we age, the conversion goes down further. And then there's all these different conditions like insulin resistance, which 80% of the population has to some degree where they eat too many carbohydrates and too much sugar and the insulin stops working properly, it's not enough. So we have to make more insulin and we become insulin resistant, that also interferes with vitamin D production.

0:10:33.0 S1: So for most people, the only realistic alternative is to get vitamin D also through diet and/or supplementation. And whether we get it through diet or supplementation, now of course we have to absorb it. And in terms of diet, there's very, very few dietary sources. Really, it's a few animal products. The only rich product really is cod liver oil and cod liver pate. If you eat those on a regular basis. And the other one would be irradiated mushrooms, that's a pretty strong source. So mushrooms that have been exposed to UV light, there's a little bit in various animal products and animal fats like butter and cream and animal fats and eggs, but not really enough. So supplementation is really the only practical and reasonable way for most people to get their vitamin D on a daily basis. So now, when we eat it as food or a supplement, of course it gets into the stomach and we have to break it down.

0:11:44.6 S1: And in order to break it down, we need digestive enzymes to break down our food. And because vitamin D is a fat-soluble vitamin, we also need to eat it with fat. If you eat a very low fat diet and you don't release enough bile for example, you're not gonna break down and make use of that vitamin D very well. In fact, they found that by eating a vitamin D supplement with the biggest meal of the day, you could increase absorption by 50% because it's absorbed as part of food as part of fat. And if you have a bigger meal, then there's gonna be more digestive enzymes and a more involved absorption process with that. But then, the vitamin D has to be transported. So just because it got in your stomach and you managed to absorb it and even get it into the bloodstream, it still doesn't do you any good.

0:12:46.3 S1: And there is something called a Vitamin D Binding Protein, VDBP for short. And if that protein is low, that means that there's less vitamin D activity, 'cause virtually no vitamin D is floating around by itself. It's all carried to where it needs to go by this VDBP. So not only do you need to have enough vitamin D, you also need to have enough of this protein. And if you don't, for example, they have found an increased risk of malignant tumors, especially as it relates to breast cancer, prostate cancer, and colorectal cancer. And there is a strong association with these cancers and a low VDBP. And then, of course, if you don't have enough of the protein, it's still gonna help to take more vitamin D so that you can saturate it better so that there's more available. And in fact, they found that in a group of people just taking 1100 international units per day, which still isn't a whole lot, they reduced the risk of this cancer by 60% to 77%.

0:14:03.1 S1: But the binding protein also isn't enough. It can only transport it, but now we need to get it into the cell. So we have all these different steps that build on each other. And the next is like I mentioned, to get it into the cell. And now, we have something called a vitamin D receptor. So the binding protein is gonna take this vitamin D from the bloodstream or from the skin and take it to its target organ. And now we have these little receptors on the surface of the cell. And only if those VDR receptors are working can we get the vitamin D in and express that biological function. And these vitamin D receptors are basically on every cell in the body, but they're more highly expressed where the vitamin D is the most important.

0:14:58.8 S1: And these would be places like your kidney cells, your immune cells, your bone

cells, but also in special places in your nervous system, a lot of different places. But among others, the substantial nigra, which is associated with making dopamine and Parkinson's. So if you have low vitamin D, you can't really get the full activity out of your substantial nigra, your dopamine goes down and you're at increased risk for Parkinson. Hypothalamus is an area that regulates your hormones and your hunger and your thirst and temperature and so forth. So now, when these areas don't work, now we have neuropsychiatric effects like schizophrenia, depression, we have neurocognitive, like Parkinson's and various motor disorders and dementia, and we even have a lot of different endocrine disorders and hormone imbalances.

0:16:01.9 S1: Even diabetes has a very strong link to vitamin D and they link it specifically to this vitamin D receptor, both Type 1 and Type 2 diabetes. So when vitamin D is low, now there is less insulin release. We produce less so we can't manage blood glucose as well. But the main thing of course, leading to diabetes, to Type 2 is insulin resistance. When we have a lot of vitamin D, then insulin resistance goes down. When vitamin D is low, insulin resistance goes up. And when our immune system is down, if vitamin D is low, immune regulation goes down. Now we have less defenses against Type 1 diabetes, which is an autoimmune disease. And that brings us to cofactors. So we can go through all these different steps, we can get the vitamin D into the cell, but we still can't necessarily have vitamin D activity, at least not all of it, because most nutrients, most enzymes and cofactors, they work together with other things.

0:17:16.2 S1: And the number one cofactor to help you process vitamin D is going to be healthy foods, rich whole healthy foods that are grown the right way and cooked the right way, provide more nutrients, more cofactors than anything else possibly could. If you eat processed food and a bunch of sugar, now you're missing a little bit of everything. The number two thing is exercise, believe it or not, because exercise optimizes the function, it activates every cell in your body. It allows it to live up to its potential if you will. Now first and third place is adequate vitamin D intake. So whether you get it from the sun or whether you need to supplement, obviously you have to get enough vitamin D one way or the other. Number four is magnesium. Magnesium participates in hundreds of different chemical reactions and pathways in the body, and it is the most important cofactor for vitamin D to do its thing.

0:18:27.2 S1: Number five is Omega-3 fatty acids, the EPA and the DHA. They are also essential for activating and transporting Vitamin D. Number six is zinc. If you haven't noticed yet. Zinc tends to show up in all sorts of places. Number seven is boron, which is another essential mineral, and number eight is vitamin K2. Now some people need to add that as a supplement, some people can manufacture it through the gut and we do get some through food as well. A lot of times it is recommended that you get your vitamin D3 in combination with the vitamin K2. I haven't found that to be optimal most of the time. I find that a lot of people need to start with vitamin D3 and do that for maybe three to six months and then maybe for some of them to start adding in vitamin K2.

0:19:29.7 S1: But how much vitamin D do you need to take? We've pretty much concluded that most people should supplement. But how much? So the basic recommendation is that you should get at least 600 IUs per day, International Units. And if you are over the age of 60 or so, you should get 800 IUs. Now, if you're in a different part of the world, sometimes they measure this in micrograms and then you divide the international units by 40 to come up with the micrograms, and some nutrition labels will have both. The standard guidelines also say that 2000 IUs is the max that you should ever get. Now, here's the problem that for a lot of people, that is not gonna be enough. That 2000 IUs might be okay for some people. And it's a lot of genetic factors, it's about sun

exposure, etcetera. But 2000 IUs is not gonna be enough for most people.

0:20:39.9 S1: 5,000 is gonna be okay for a lot of people, but we also have a lot of people in the clinic taking 5,000 IUs and they're still deficient on their blood work even after months of taking that. And we test vitamin D on everyone in the clinic. Some people take 10,000 and it is probably too much for most people. So in the clinic we find that the majority of people probably center in around 5,000 IUs. If they take 10,000, that's if they're really deficient, we probably put them on 10,000 for a month or two. But in the long run, 10,000 is gonna put you over, it's gonna put you into vitamin D toxicity, which is also something that you really don't want. So here's the thing, because there's so many variables, so much individual variability and so many factors to weigh in, you really don't know unless you measure. You gotta get a blood test and you gotta get the level. So next time you do blood work, you have to either order it or insist that they put it on there.

0:21:54.3 S1: And once you get your results back from the blood levels, what are we talking about? What should a good level be? Well, less than 20 nanograms is, like we said, it's deficient. It is much under, it's in the red zone basically. And if you're in the US, typically they're gonna measure nanograms per decilitre. If you're in other parts of the world, they might measure in nanomoles per litre. And the way to get from one to the other is you multiply the nanograms by 2.5. So I'll give you both units here. Then in the orange zone, meaning you're insufficient, it's still too low, but it's not critical. That's 30 nanograms, which would be 75 nanomole. Now, what most people who are involved with functional medicine, with nutrition, with holistic practices, that people that do a lot of blood work and specialize in that, they will set the lower limit at 50 nanograms, which would be 125 nanomoles.

0:23:00.1 S1: And the upper end of optimal is probably around 80 nanograms or 200 nanomoles. So that's the range that you're looking for. Optimal is between 50 and 80. And the reason that we wanna be in this range, and for a lot of people you probably wanna be toward the higher end of that, is that while some people can probably get by with 30, like we just talked about, there's so much individual variability in terms of absorption, in terms of binding protein transport and vitamin D receptor and your availability of cofactors that if you have one or more limitations along the way, then you have to compensate by having some more. So if you are hovering around the upper end, you're probably doing well. But we also get people in on the blood work and now they're over 100 and this is where we wanna back off because there is such a thing as vitamin D toxicity, it can put your blood calciums too high, it can cause all sorts of problems in your body, so you really don't wanna go too high either. And that's why it's so important to measure this stuff.

0:24:13.4 S1: So 100 nanograms would be 250 nanomoles. And where it really gets to be a problem is over 150 nanograms or 375 nanomoles. This is vitamin D toxicity and it's not real easy to get there, but you wanna make sure you don't get even close. You probably have to take tens of thousands for quite a long time. But like we said, there's also some variability and we've had people get to 100 without taking a whole lot. For some people that could be 2000, 3000, 4000, 5,000 and other people need to take 10,000 and they still don't get there. So you need to measure it and you need to stay and monitor and then stay in a good range. So I hope you see that vitamin D is too important to ignore. It's too important not to know where you are. It governs so many critical functions.

0:25:13.0 S1: So you need to measure, you need to know where you are. You can't just take 2000 or 5,000 and assume and then you supplement based on that measurement and then you recheck and

you monitor, and then you rinse and repeat as necessary. After you've... In the beginning, you probably want to check every two to three months until you get a handle on it. And I think you should check blood work anytime you try to make changes. You should get blood work every three months. Once you get some results and you learn your baseline and you get stable, you don't need to take blood work nearly as often, and the same holds true for vitamin D. But you need to start understanding how your body functions. If you enjoyed this video, you're gonna love that one. And if you truly wanna master health by understanding how the body really works, make sure you subscribe, hit that bell and turn on all the notifications so you never miss a lifesaving video.