Transcript Details
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Nutraceutical Approaches to Personalized Patient Care

Dr. Ramnarine:
Not all supplements are created equal. So how do we choose the right ones for our patients?

Welcome to *NutritionEdge* on ReachMD. I'm Dr. Shelina Ramnarine, and today we're taking a closer look at how supplement quality can influence clinical outcomes. Joining me for this conversation is Ms. Elizabeth DiMeo, a clinical nutritionist and Director of Education at EVEXIAS Health Solutions.

Ms. DiMeo, thanks for being here today.

Ms. DiMeo:
Thank you very much, Dr. Shelina. Nice to be here.

Dr. Ramnarine:

Let's dive right in. Ms. DiMeo, when we recommend supplements to patients, what factors influence whether they actually work as intended?

Ms. DiMeo:
I think the main thing to think about with supplements or nutraceuticals—nutraceutical meaning beyond the diet and before drugs—is when you're working with a patient and, for example, they're already taking nutraceuticals or supplements, first of all, you want to make sure that whatever they are taking is efficacious. Usually over-the-counter nutraceuticals are not the best choice, largely because they are not third-party tested, and that makes me drive into the conversation about how dietary supplements are regulated as food and not drugs. Third, when you have a dosage meeting label claim, that means that tissue saturation matters. So if you are, for example, giving a patient vitamin D, you want to make sure that you have K2.

So there's a lot of conversation around nutraceuticals and the why behind them, and I think providers probably get a little bit confused. Why not let somebody just go buy their own nutraceutical? It's better to have a third party test it. That way, there aren't ingredients in it that shouldn't be in it, and the product is efficacious across the board. So it's actually used like a drug in essence, but it's used to help pinpoint clinical or subclinical deficiencies in a patient.

Dr. Ramnarine:
Now, I noticed you used the word nutraceuticals when we were talking about supplements. Is there a difference between supplements and nutraceuticals, or can they be used interchangeably?

Ms. DiMeo:
Yes, and it's a good question because the term “nutraceutical” is derived from “nutrition” and “pharmaceutical,” referring to any product isolated from herbs or nutrients with therapeutic properties considered beyond the diet and before drugs.

So the way clinicians should really look at nutraceuticals or supplements—I'm going to use the word nutraceuticals—they are using them like drugs. So for example, it's important to give iodine with selenium. It's important to give D3 and K2. And now you're having a biological and chemical reaction from the nutraceutical in the body to have an outcome, just like you would a pharmaceutical. So that would be the reason behind using that term versus just saying, "I'm going to buy a supplement today. I'm going to go get some melatonin," or, "I'm going to go buy some calcium," or, "I'm going to get a probiotic." And they all have mechanisms of action, if you will.

So the way I think about it is as proactive medicine—that nutraceuticals should be used beyond the diet and before drugs and as

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proactive preventative medicine along with lifestyle change and dietary intervention. And then that leads us to 21st century medicine and the reason behind nutraceuticals versus supplements.

Dr. Ramnarine:
So going back to vitamin D, how do differences in forms like D2 and D3 matter clinically?

Ms. DiMeo:
Well, D2 is ergocalciferol, and it is synthetic. Typically, D2 is given as a prescription of 50,000 international units, so now we're looking at micrograms when we consider vitamin D, whereas D3 is more bioavailable, and it's basically more potent. So regardless of the patient's status, you want them to be somewhere between 60 and 80 nanograms per milliliter, and even for some people, upwards of 80. So I would say providers really should be looking at using D3 instead of D2. And when they do need to use a higher dose, say 10,000 IUs or 250 micrograms, then they want to use that if the patient is, say, under 40 ng per mL, right? Because again, if you're trying to get them up to 60 to 80, then you want to give a higher dose.

What would impact that dose? Insulin resistance or not enough fatty acids, particularly omega-3, right? And then some people just have conversion issues. There could be a functional issue with kidney or liver function because obviously, D3 has to get converted in the liver and then it gets converted in the kidneys. But at the end of the day, there's a vitamin D receptor in every tissue in the body. Vitamin D is needed. D3 is a better option than D2 because it's more potent and more bioavailable.

Dr. Ramnarine:
And how should we think about bioavailability when assessing whether a supplement will be effective?

Ms. DiMeo:
It's not just the supplement that you're giving; it's the tissue receptivity. So I always say to people, "A cell makes a tissue, a tissue makes an organ, and an organ makes an organ system." So the organ system is the human body. The cell needs to be working in order for the tissue to work, in order for the organ to work. So when we are considering cellular health, if the physiology isn't responding for any number of reasons, the product is not bioavailable for any number of reasons, the tissue is not receptive, it's not a good product because maybe a patient is buying something OTC and it's not efficacious and the dosage doesn't meet the label claim, and/or the patient has something like insulin resistance, then the bottom line becomes it doesn't matter how many things you put in the body. If the cell isn't receptive, it isn't going to work. So bioavailability is about receptivity and the health of the cell.

Dr. Ramnarine:
For those just tuning in, you're listening to Nutrition Edge on ReachMD. I'm Dr. Shelina Ramnarine, and I'm speaking with Ms. Elizabeth DiMeo about the importance of understanding supplement quality.

So Ms. DiMeo, we know supplements don't work in isolation. If we continue to look at vitamin D, how do cofactors like magnesium and vitamin K2 influence its effectiveness?

Ms. DiMeo:
Just like any action, there's a reaction. So any enzyme requires a cofactor coenzyme. So whenever you give, in my opinion, a vitamin D3, you typically want to give A, D3, and K2. Vitamin A because it stimulates osteoclastic and osteoblastic activity, which is important for breaking bone and making bone. You need to do both, and your bone is constantly regenerating, just like your gut is regenerating. Vitamin D tells vitamin K2 to get the calcium out of the blood and into the bone. That's to help support cardiovascular health because with too much calcium in the blood, it becomes an excitatory nutrient, if you will. And then of course, if you don't have enough calcium in the bone, your body's going to pull it out of the blood and into the bone. So there's a relationship between bone health and heart health insofar as D3 and K2 are concerned. Magnesium is extremely important as a cofactor in over 500 enzymatic reactions, so it's important to have magnesium in the diet when somebody is taking A, D, and K2 together.

Dr. Ramnarine:
And what patient-specific factors should we consider when personalizing supplementation strategies?

Ms. DiMeo:
Well, it's interesting you ask that question because what I think is the conversation or has been for the last, say, 20 years, is calcium is the driver of bone health, for example. But calcium really isn't the driver of bone health. It's vitamin D3 and K2. When we're talking about bone health, most of the time, with vitamin D3, people equate it with bone. But they don't understand that D3 is a prohormone, and it has a tissue receptor in every single tissue in the body: breast, prostate, bone, gut, you name it. So there's all kinds of issues with regard to why would I give a patient calcium, for example, when the patient, maybe just needs D3 K2, vitamin A, weight-bearing exercise, and an anti-inflammatory diet.

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So when we come at the idea of nutraceuticals beyond the diet and before drugs, the patient's specificity is more about the patient's lack of nutrition—I'm going to say diet intervention—that drives the conversation. And then how do you look at that? Well, you just simply look at vitamin D status. You can look at magnesium status, red blood cell magnesium is a better test to look at. You can look at a patient's diet, and through that assessment, you can discern whether they're healthy. Gut function is another one, because if you have poor GI function, which can be manifested as IBS or IBD, it can interfere with how well your body absorbs nutrients. Therefore, your cells absorb the nutrient, if you will, then the tissue absorbs the nutrient, then the organ absorbs the nutrient, and the organ system.

So when you're thinking about patient care and about why prescribe and what to prescribe, I think we have to ask more questions than we're asking. “What is your bowel function like? Are you moving your bowels every day? Do you take nutraceuticals? What are you taking? What is your diet like? Do you have fatigue? What is your stress level?” And so on and so forth.

Dr. Ramnarine:
Given everything we've discussed today, Ms. DiMeo, how can clinicians make informed, evidence-based choices when recommending supplements in real-world practice?

Ms. DiMeo:
I would say the main thing is trust a third-party or cGMP-tested nutraceutical. So there are a lot of companies over the counter that make products. As I said earlier, dietary supplements are regulated as food, not drugs. This is under the DSHEA Act. This is very important because there's no FDA pre-approval for something over the counter. It isn't until there's a problem that the FDA steps in. So where this matters the most is as it relates to dosage meeting label claim—is there anything in the product that shouldn't be in there?

So where does this third-party cGMP come in? Companies have their cGMP stamp that basically says the product has gone through rigorous evaluation post-manufacturing. If it meets label claim, it has a mechanism of action, and it's going to do what that provider wants that patient to do. So for me, I don't want to throw the baby out with the bathwater and say all OTC supplements are bad. There are a few good companies.

And the last thing I would say to this is there's a lot of influencers on social media driving the conversation about nutraceuticals and basically claiming that this one does this and this one does that. But are they third-party regulated? I would hasten to say probably not. This is where the conversation circles back and we say a nutraceutical is like a pharmaceutical beyond a diet and before drugs, and you want to use it that way.

Dr. Ramnarine:
That's a great way to round out our discussion. And I want to thank my guest, Ms. Elizabeth DiMeo, for joining me to discuss how we can better prioritize supplement quality in clinical practice.

Ms. DiMeo, it was great having you on the program.

Ms. DiMeo:
Thank you very much. Appreciate it.

Dr. Ramnarine:
For ReachMD, I'm Dr. Shelina Ramnarine. To access this and other episodes in our series, visit *NutritionEdge* on ReachMD.com, where you can Be Part of the Knowledge.

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