Sports Nutrition

Dr. Kyle Steineman

Hello, everybody. I'm Dr. Kyle Steineman. I'm going to be talking about some sports nutrition. This is by no means everything that's important to a chiropractic practice when working with athletes. I think it's some of the more important things that we need to be knowledgeable about.

So getting started here with goal setting-- you know, with any patient, it's important to start with goal setting. But I think especially with athletes, especially since they're generally working towards a very specific goal-- and this could be anything. You can't really say that it's a basketball player, so they want to be better at basketball. You know, everyone has different things that they're working towards, so I always start here.

So I want to know what their goals are. Are they looking to gain muscle mass? Are they looking to reduce body fat? Are they looking for actual performance gains, like measurable things, like aiding in actual performance for their sport? Or are they looking for more like tissue recovery? Or are they just in the off season, working out, and they're looking to increase the tissue healing in between whatever workout they're doing?

It really could be just anything. It's not our job to tell them what they should be working towards. We really have to receive what they're saying and take it for this. You know, it's so easy to say, I think that you should be working on your body fat percentage when, you know, that's not really right to do. We can educate them, if that's something you think is important for their overall health.

But ultimately, it's their career. It's their job to know what they're working towards. And they need to tell us, and we need to receive that, so I always start here. And really, it's a spectrum, so their most important thing might be that they're trying to decrease inflammation after an injury. But they can also be working on secondary and tertiary things along with that, so we need to find out exactly what all they care about before even getting started.

And how I do this is I have a specific section on my intake form where I have them rank what they're most the most important thing is to them-- is it their athletic performance, is it their long-term health, is it something like energy level, weight loss. It could be anything. And when we talk about a spectrum, most people will care about these to some degree, but we need to find out what their most important top half is so we can work on that. And that really dictates what types of things we prioritize when we talk about nutrition with them.

When we start talking about, why is this even important? Why do we need to do nutrition with patients? I think it's pretty important to start with this study right here. It's Loren Cordain-- really, really famous paper talking about nutrient deficiencies and surpluses. So just looking at this table right here, looking at which minerals, people that they surveyed, where their

deficiencies were-- 73% deficiency in zinc, 75% in calcium. Now, if you just took a general group of people and tested their blood and see how many people were deficient in some sort of nutrient, there are going to be a lot of people with nutrient deficiencies, so I think this is just so huge, to get like a broad-spectrum vitamin. It really does seem to help people.

And so when we talk about which foods to address these deficiencies and surpluses, I highlighted the-- I put a dot right next to the food group that had the most of a certain vitamin. And you'll notice that with whole grains, milk, they're not really the best choice for any certain nutrient, but the best choices seem to be meats, vegetables, fruit. Nuts aren't really on this list. They're not in the group that has the highest amount of anything. We tend to steer toward these as well, just because of the protein content, the fiber and the low glycemic index. But as far as why we're steering away from the grains, the milks, things like that--

And since this is a fixed conversation, I wanted to include this table. This is international nutrient trends. And I just want to highlight-- you guys can take a look at this paper, I found it pretty interesting-- that there are subtle differences between groups, between nations. But by and large, especially with things like the Western diet taking over large groups of people, we tend to have a lot of the same problems. But we need to keep in mind that there are subtle differences, and you really need to deal with a case-by-case basis. Each person is different.

So when we're talking about our athletes, one of the most common things you're going to run into is overtraining syndrome, and that is what this chart shows here. There is a degradation. They start to heal a little bit, but it's an inadequate healing, and then they train again. And you just keep getting lower and lower and lower, until you end up with a dysfunction. What we can do with nutrition here is obviously going hand-in-hand with training frequency and things like that, but we increase the rates of healing for tissues so that they can, hopefully, avoid something like--

And this next paper is a great one on diet and how it can cause deficiency. I would recommend this paper for anybody, any chiropractor out there. Something to look at-- this one diagram. Western diet leading to mitochondrial dysfunction, which ends up leading to dysfunctional tissues. Lots of different ways you can do this. The one I was specifically going to talk about here was leading to things like tissue necrosis, osteoarthritis, osteoporosis-- some of the things that we definitely want to address for our athlete patients.

And when we talk about tissue healing, when we talk about anti-inflammatory natures of nutrients and medications-- now we need to take into account how they're affecting the actual recovering tissue after an exercise. So I thought this paper was pretty interesting. This was on NSAIDs and soft tissue after exercise. So if you look at this top graphic here, they give one group no NSAIDs. They gave the other group an NSAID.

The placebo group had a slight increase after 72 hours of exercise. The NSAID group, obviously, you would imagine is very, very low PGE2 after exercise. So what this will do will be PGE2 is

important for basal dilation and increase circulation to a damaged tissue. So if you drop these too low, you're going to get inadequate nutrients in that area. The therapeutic range with this-- you don't want too low, too high.

So with the NSAIDs, it drops it significantly, and this can lead to decreased healing. And just this lower image here, PNIP, is an indicator for collagen synthesis. So you'll get, with this placebo group after exercise, an influx of this, so that it can start synthesizing collagen. And with the NSAID group, there's little to none. There is a reason why we want to address these things with nutrition rather than NSAIDs.

Going along with a lot of the things that are talked about within these courses, we'll talk about TBIs. I pulled this quote out of this one paper, and I'll just read to you. "Our study shows that following TBI, secondary injury chiefly involves inflammatory processes and chemokine signaling, which compromise putative targets for pharmaceutical neuroprotection." After TBI occurs, there is a inflammatory response that has been called a secondary injury during this process, and it just fits so nicely into what we talk about-- the entire inflammatory diet being able to address these with the food we eat.

So here, they measured two groups-- one with normal glycemic and one with hypoglycemic. So this image on the left was their serum glucose for this issue. And here, we see they did a study of detecting fragmented DNA segments. The normal glycemic group had significantly less damage than the hypoglycemic group during the secondary injury. So really controlling glycemic index foods and keeping the overall environment anti-inflammatory is definitely a good thing when we talk about these head injuries.

And something that's just topical I think we need to talk about because it tends to come up quite often-- I'm not going to go through this whole quote with you, but this is a pretty good paper on the neuroprotective properties of ketogenic and ketone bodies, the diet there. This just basically says that increased circulating ketone bodies can increase the efficiency of which the fuel can reach the rain and increased mitochondrial efficiency, and that can be overall good for health, especially in the brain. And so that's a pretty cool study that shows kind of how that occurs.

So they did a study where they did ketogenic diet for three weeks. There was an increased density of 46% for mitochondria. Then this can lead to increased ATP production, which will help in the tissue healing. So if you look at this image over here-- you can read the charts if you like-- but this picture shows with a ketogenic diet, that there is an increased density of mitochondria.

So these are some things that I use in my practice personally. I just want to point these out in case anyone wants to use these. So the 24-hour diet recall form-- it's pretty much like the title says. They write down what they ate in the last 24 hours. I tend not to use this one as much. I like the food frequency questionnaire more because a 24-hour segment can show you quite a bit

about what they are eating, but like anything else, people tend to fluctuate a little bit during the week, during the weekend. Things, typically, are not always the same.

So 24 hours is a nice simple one because they'll actually remember what they ate in the last 24 hours, typically, but like I said, I like a bigger sample. You know, multiple 24-hour day recall forms, and then they take those home and bring them back. But you can find that anywhere online. Same with the food frequency questionnaire.

So MyFitnessPal-- a lot of you have probably heard of this one. A lot of people like this app where you type in what food you ate, and it'll give you some data and give you some numbers. I think keeping track of some of these things that are continually coming out is really important, not only because patients will know about them-- so you need to know about them, so that you can say if it's good or bad-- but having the best tools can really be whether a patient stays on track or doesn't. So finding the easiest way for them is really crucial, so MyFitnessPal is my personal favorite.

And then Whole30's website-- I don't get a ton of stuff off of them, but they have a lot of really good cheat sheets that are really useful for handouts in your office. There's a Whole30 shopping list that's really great. Sneaky Sugars, because that's always tough, and a lot of people don't understand those. And you can certainly create your own.

And this is just the food list that I like to personally hand out to my patients. It's kind of a combined list. You can come up with your own and put your branding on it, but I highly recommend doing this because people need it kind of like a yes or no, a good or bad. And that's not even how these foods typically even-- I wouldn't classify them as good or bad. It really depends on the scenario.

But for patients, they really need this. They need a yes or no, and this is my list. It's low glycemic, nutrient-dense foods. I try to keep it as simple as possible and if they want more information, I dig a little deeper.

If there's any questions or comments, certainly feel free to email me. I love talking about this stuff, and I love talking to doctors who are interested. So here's my email and reach out if you have any questions.