

Module 10 Lesson 2

Transcript

Today in our lesson we are focusing on glycogen. Glycogen is a fundamental topic in sports nutrition and today we're going to talk all about it. We're going to talk about what glycogen is and why it's important during exercise, how endurance athletes can optimize glycogen stores, and recommendations you can make to your clients.

The story of glycogen, just a little biochem refresher here for you, is that carbohydrates from food are broken down into glucose. Some of that glucose goes into your blood and is used for immediate energy, and the leftover glucose gets stored in the muscles and the liver as glycogen. I won't focus much on the glycogen in the liver. That energy is sent from the liver to organs for cellular processes and it is shared with other organs. Your brain and spinal cord are the biggest consumers of glycogen from the liver.

The glycogen in your muscles, however, does not get shared at all. The glycogen in your muscles is used by your muscles. I'm not just talking about the muscles using glycogen in a workout, but the muscles used to type at your computer, and the muscles used to maintain your posture, and the muscles in your face that smile. They all use glycogen as their primary fuel. We store roughly 2,000 calories between our liver and our muscles in energy before it gets used all up.

What you eat, when you eat, and your physical activity all impact your glycogen stores. As a matter of fact, low carb and ketogenic diets are based on the premise that you have depleted glycogen stores and are forced to use fat for fuel as an alternative source of energy. When people start these diets, they usually experience brain fog because glycogen in their brain isn't firing well. This usually plateaus with adjustment and the same is said for weight loss which may be great in the beginning, then typically levels off.

I know this is an exercise module and I won't go on and on and on about low carb diets, but I will say that most of the weight loss from the low carb thing comes from water loss. Glycogen is strongly water-dependent and heavy in your cells. And removing the carbs from your diet means you lose a good bit of water weight.

Okay. Moving right along here. You know the glycogen in your muscles doesn't last forever. And for athletes who have experienced hitting the wall, that's just a way of saying that they ran out of glycogen stores. Yep. They run out of glycogen stores and they literally cannot go on. They hit the wall and it's like trying to draw water from a dry well. And it doesn't feel good. If you've ever

experienced it, you know what I mean. The last thing you want for your client athlete is for them to have an experience where they are trying to perform and they run out of fuel. It doesn't feel good. People who've experienced hitting the wall understand each other, like people who've witnessed the same terrible car accident. They empathize and understand the horror and it intimately bonds them forever. They pray it never happens again, and will do anything to prevent it.

So what do you do to optimize glycogen stores in your endurance athletes? Carbo load? Well, you've heard of carbo-loading before a marathon. Eating ample amounts of carbohydrates may be a really effective tool for some athletes, but for some others it can cause water retention and digestive issues. I'm not actually the biggest fan of the pre-race big pasta dinner, but I do recommend highly digestible carbs such as oats, sweet potatoes, regular potatoes, rice, and winter squash. But eating those throughout your training, you don't necessarily need to load up on them more the night before. You'll hear me say it a lot that I want to make sure your clients try training with these foods before a big competition.

You can also recommend fueling during the event. Goos, chews, sports drinks, gummies, hard candy, and actual foods, like apple sauce, can be great tools to maintain and replete glycogen stores and prevent hitting the wall, and keep endurance levels high. The biggest takeaway from today, make sure your endurance athlete clients are fully stocked with glycogen.

Now, for some of the other big points. The glycogen in your muscles is only used by your muscles. Carb loading before an event is a way to ensure endurance athletes have plenty of muscle glycogen to fuel their muscles during events. It's really important that your clients practice eating during training, not just the night before a big event. Carb loading for some clients may work great. For others, it's going to cause lots of issues. I like to recommend digestible carbs such as oats, potatoes, and rice as part of a training routine and plan, not necessarily just a big pasta boost the night before. And endurance athletes can also take in nutrition during events by eating things like sports gummies or gels or foods, like apple sauce, to ensure their muscles stay fueled. This is also very specific to the individual, and they need to practice this during training. I will see you in the next lesson.