Why do you experience the dawn effect or high morning blood sugar levels?

So the dawn effect is actually a normal effect. In the morning before you wake up around say four o'clock in the morning, five o'clock in the morning, the body actually knows that you're just about to wake up. And so it actually has a surge of certain hormones including cortisol, growth hormone and adrenaline. And this is really to prepare your body to wake up and get energized. So if you look at a normal person and measure their blood glucose very, very carefully, what you'll notice is that the blood glucose falls during sleep and it actually goes up a little bit before you wake up. So this is the so-called dawn effect. If you have insulin resistance, if you have type two diabetes, because there's a lot of glucose there, sometimes a lot of glucose gets pushed out into the blood so you actually get a high blood glucose first thing in the morning and then you get very good readings every other time.

And with fasting you can see exactly the same effect. And some people worry about this and say, "Well, you know what's going on? Why is my blood glucose going up? I haven't eaten anything." And the answer to that really is that if your blood glucose is going up and you haven't eaten anything, where did that glucose come from? Well, it came from your own body.

So essentially your liver can store glucose and it can push out the glucose into the blood. So what you've done during the time that you've been eating your meals, your liver has been storing glucose. At night where you've been sleeping and just before you wake up, your liver is now pushing the glucose out into the body. And if it tends to run a bit high, that's why you see this dawn effect. So it's not something that you really have to worry about, but it does mean if your sugars are running high in the morning, that means your liver is overloaded with a lot of sugar and you probably need a bit of fasting or you need to lower your carbohydrates in your diet.