INSULIN RESISTANCE SOLUTION PRACTITIONER TRAINING

Fitness

Transcript

Hi, this is Dr. Ritamarie Loscalzo and I am here to share with you some practical tips on using *Fitness* to control blood sugar and also to share some of the science behind it.

As usual, the information that I am presenting here is not intended to replace a one-on-one relationship with a qualified healthcare professional nor is it to be construed as medical advice. It is a sharing of information from my research, my clinical experience and my countless hours coaching patients and clients. I encourage you to share this with your own clients with the same caveat, that it is not medical advice. It is simply a sharing and it is an educational process for them to run by their doctor if they are under the care of one.

Exercise

One thing that is a universally accepted fact is that trained muscle clears glucose more effectively than untrained muscle, meaning that if you are fit and you move and you exercise and you eat and the sugar goes up, then the trained muscle is going to clear that; it is going to utilize it. It is going to be less insulin resistant than muscle would be if you were unfit. In other words trained muscle is more efficient at utilizing glucose and reducing insulin than is untrained muscle. If you have trained muscle and your glucose goes up it is much more rapidly going to come down. That means that if you do eat something that causes your blood sugar to go up, you can use exercise to bring it back down especially if you are fit.

Let's look at the types of exercise that has been studied and how it affects blood sugar, and why it affects blood sugar. 30 seconds of full-intensity exercise elevates growth hormone and it does so more than 30 minutes of moderately intense aerobics. The good news about that is that the growth hormone stays elevated for about 90 minutes after 30 seconds of full intensity exercise.

Here is another really good fact. Repeated exercise bouts during the day, well apart in time, produces a significantly greater total growth hormone secretion. I have given you a reference if you want to look a little bit deeper into that.

Effects of Exercise on Growth Hormone

Let's look at some graphs. Let's look at how that has been studied. The upper curve is the 30-second all-out exercise burst. The peak is the secretion of growth hormone. You can see that it goes up much higher than the lower curve, which is 30 minutes of aerobics. You can see, 30 seconds is more economical than doing 30 minutes of aerobics; not to say that aerobics is not a good thing to do. Aerobics firms and strengthens cardiac output better than 30 seconds, obviously, but for growth hormone, for pure and simple burning fat and putting on lean, 30 seconds of all-out exercise is going to raise growth hormone more effectively than 30 minutes of aerobics. If you do a second sprint at 60 minutes, so you do another 30-second, all out burst 60 minutes after the first one, it does not really do much to the growth hormone. It just continues to go down after it spikes. The optimal timing of the bursts appears to be 120 minutes up to four hours. Let's look at this a little more closely.

Growth Hormone Response To Intense Exercise

Here are three graphs. One is a control. One is a delayed exercise bout meaning that they started new 30-second bursts four hours apart. You can see the first exercise bout brings the growth hormone up to a certain peak and then it starts to fall down. It seems to fall down pretty significantly after about 90 minutes but it is still elevated past that. By the time the four hours roll around it is back down to baseline, another 30-second burst is done and the growth hormone peak is higher than the first one. Hey, that comes back down and then at four hours again; another 30-second peak brings the growth hormone up even higher, so it would appear that four hours is actually the ideal spacing.

If you look at the third graph, that is what is called sequential exercise bouts where a new exercise bout is begun after 90 minutes, which we would think, okay, 90 minutes it goes down and comes back up again. It is quite good, the response, you get a growth hormone spike, it comes back down, it is almost down to baseline but not quite and then it goes back again to about the same level. It comes back again, 90 minutes, almost all the way down to baseline but not quite, goes back up and then comes back down again. If we look at clock time, the reason for the later ones is the natural rising of growth hormone later in the day towards bedtime. You can see that the most efficient and effective way to burn fat, increase growth hormone, and get blood sugar under control, is to do these delayed exercise bouts spaced four hours apart. It means you don’t have to do all that many of them, right?

Does it mean if you can only fit in three of those during the day and you get the sequential increase that would be better than doing eight of them? No, because the cumulative effect of increasing growth hormone doing eight of those bursts is going to be better than the effect of doing less of the four-hour spread. Obviously there are only 24 hours in a day, and if you were up 24 hours the max that you can get is six.

Anyway it is very interesting to look at and keep this in mind as you are designing an exercise program or working with your clients in designing an exercise program that is going to fit their busy lifestyle and also is going to be efficient at lean muscle building, fat burning, and keeping their glucose managed.

Walking and Aerobic Exercise: Effects on Insulin Resistance

Let's take a look at some other things related to exercise. It appears that walking does not have much of an effect on insulin resistance. Aerobic exercise decreases cardiac risk, though, through mechanisms other than insulin regulation. When you do 30 to 40 minutes of moderate walking it does reduce cardiac risk by 40% and cancer risk by 35%. Even if you are not seeing the changes in blood sugar and insulin resistance, it is still important to include aerobic exercise. The interesting thing is that the walking seems to decrease cancer and cardiac risk almost as much as high-intensity aerobic exercise, plus it is easier on the body and you are much more likely to get people to do some walks. Here is the kicker. The benefit of walking is equal or better when it is broken up into multiple, 10-minute sessions than if it happens all at the same time, so that is really good news for your busy clients who cannot fit in 30 to 40 minutes of walking, but could easily find 10-minute intervals throughout the day to do it. This is really good news for busy people.

Exercise Guidelines for Blood Sugar Control

What I recommend is 30-second all-out bursts such as sprint's, bike sprints, short-bout exercises with weights, every four hours or so, to maximize growth hormone. You could also do things in between that are less intense, and have those more intense exercises spike it up. If you do a short session of burst exercise two hours after the evening meal it is really good at clearing nutrients and clearing glucose so that you are better prepared for fat burning during sleep.

If you recall, insulin and growth hormone don't coexist well. When you eat and the insulin levels go up, the growth hormone levels naturally go down. When we look again at these burst exercises, if you eat in between the bursts, the insulin is going to come up and the growth hormone is going to drop.

That is why I recommend about 90 minutes before and after exercise for eating. Obviously if you are training for a marathon and you are doing really, heavy-duty intense exercise, you may need to eat sooner than that but really the most efficient and effective way to do it, according to the biochemistry, is 90 minutes before and 90 minutes after exercise for eating.

30 to 60 minutes walking most days at a brisk comfortable pace is going to help with burning calories and keeping the heart strong. It does not necessarily bring glucose down or reverse insulin resistance, but it certainly is going to mitigate the negative effects of the insulin on the cardiac system. It's very important to include in the program and it is much easier to fit in 10 to 15-minute brisk walking intervals than to do longer ones, and it is just as effective and may even be more effective.

Growth Hormone Maximizing Exercise Routine

Start the day with 2 to 3 minute burst-type exercises in the morning upon arising. That means you go as hard as you can at a pace that you can maintain for 2 to 3 minutes, so at the end of 2 to 3 minutes you are breathing heavily and think that you cannot do anymore. Follow that, ideally 90 minutes later, by eating a no-carb or low-carb breakfast. You say that interferes with eating within an hour of waking up. Each person is going to have to experiment with this. You may have to break one of the rules in order to be practical and see which rule works better for the person to break. 30 to 60 minutes of walking in 10 to 15-minute intervals if they need to. Add sprints to the normal jogging; if somebody is already doing jogging, swimming, cycling, add some sprints, some 30-second all-out sprints to that routine for maximum growth hormone effect.

Do two minutes of burst type exercise two hours after the evening meal. It reliably lowers the after meal blood glucose by 20 to 40 points. Of course, no food after exercise and before bed. Ideally no food for 90 minutes after you finish exercise, and certainly three hours before bed. Your growth hormone will peak after falling asleep within about an hour and that is going to help to maximize your growth hormone, maximize lean muscle building, and maximize fat burning.