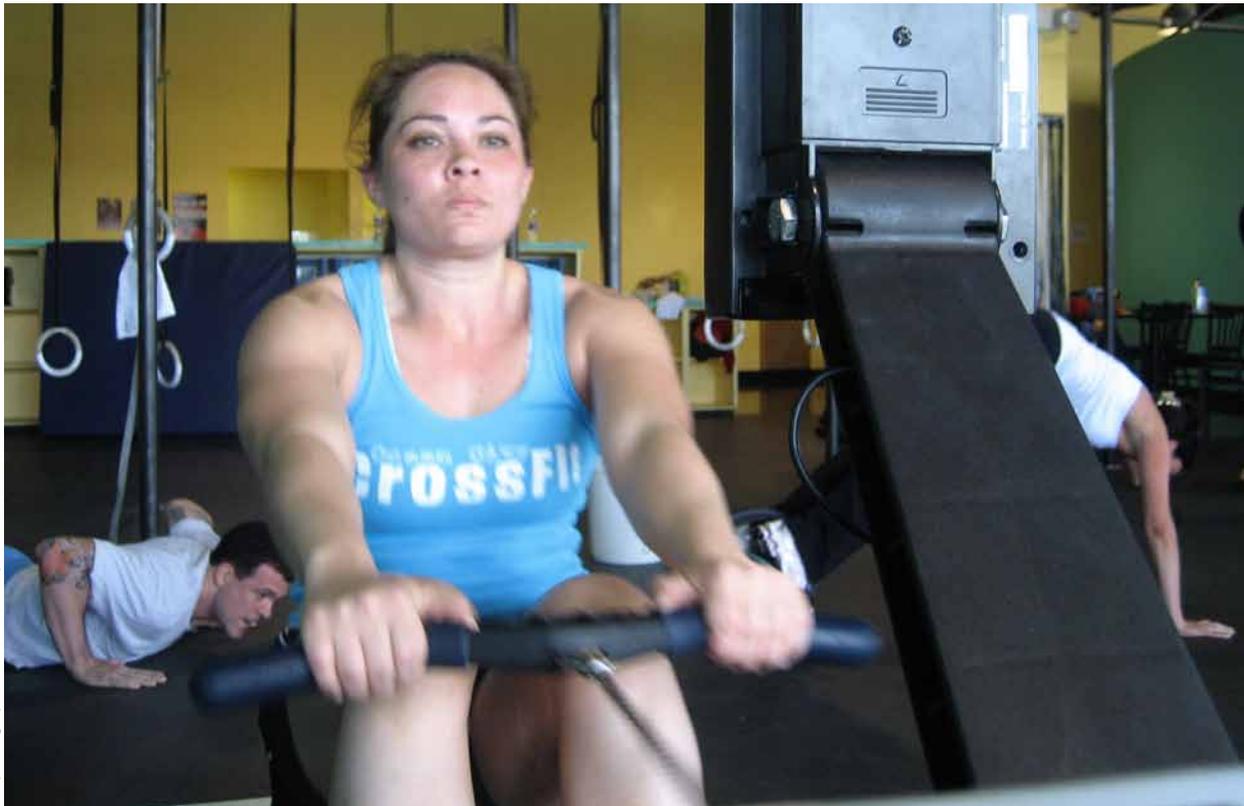

THE CrossFit JOURNAL

No Limits

Catherine Cochran isn't allowing diabetes to prevent her from CrossFitting. With very careful management of blood glucose levels, she's hitting WODs and getting fitter.

By Catherine Cochran

June 2010



All photographs: Matt Tudor/Capital Jiu Jitsu

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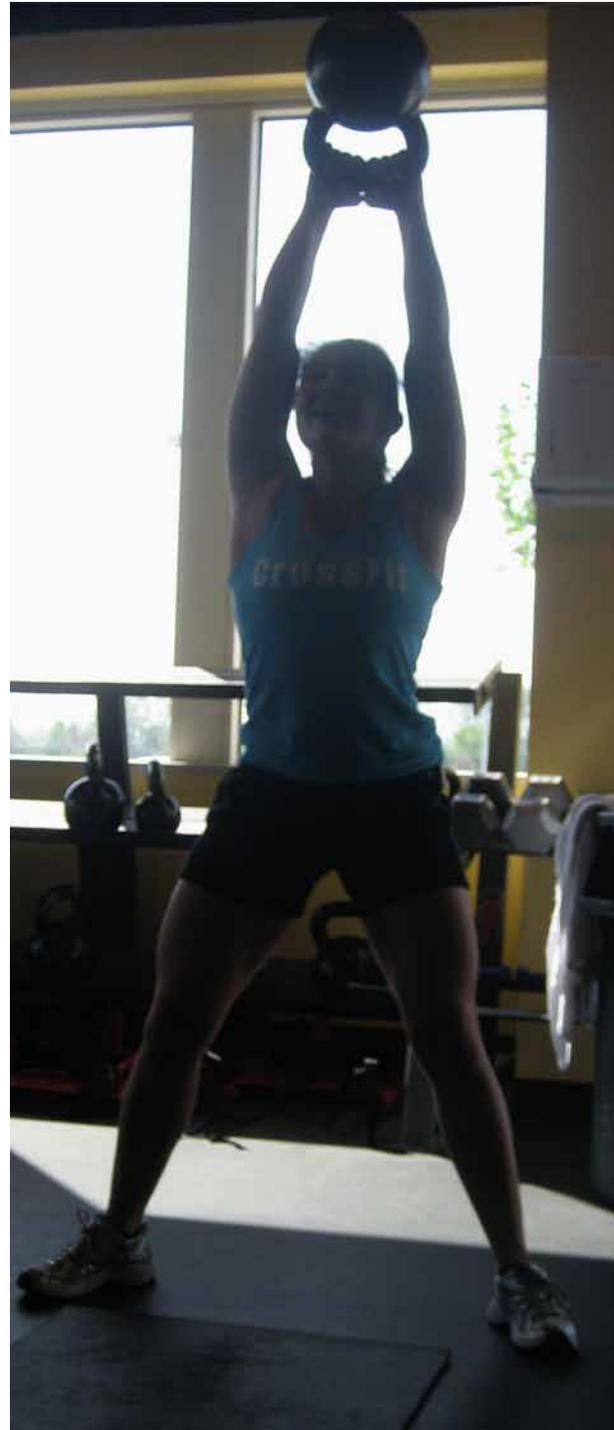
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On March 18, 2009, I arrived at Jeremy and Kathy Lafreniere's [Capital Jiu Jitsu \(CrossFit Dulles\)](#) in preparation for my first CrossFit workout. I had attended a trial yoga class the previous week, and upon entering the gym I had passed by the CrossFit area where athletes were swinging from pull-up bars and lifting weights. After the yoga class, which I decided was not for me, the manager of the gym, Steve, convinced me to come back and try CrossFit. Although I had not been active in 15 years, I had been a gymnast during childhood for eight years until two severely broken bones abruptly ended my career.

My first CrossFit workout was Fran. I used 25 lb. for thrusters, which I had never even heard of let alone performed, and a tension band for pull-ups. There were several other male and female athletes of differing levels in the gym, and many of them were also using tension bands. Coach Tom wanted one simple result for me: completion of the workout.

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I was petrified to lift that bar over my head, and my arms began to burn with the very first assisted pull-up. I wanted to quit during Round 2, but for some reason I listened to the coach, who urged me to keep going. By the time I got to the third round, Coach Tom told me I only had nine reps to go and might as well as finish. I was so angry at him for making me finish that workout that I stormed out of the gym like a child throwing a tantrum. On the way out, I felt angry at myself for being so weak. My lungs were burning, my arms were burning, and my legs felt like Jell-O.



By cautiously managing her blood sugar, Catherine Cochran has found she can do intense CrossFit workouts in spite of diabetes.



After despising her first CrossFit workout, Cochran was hooked and is now a Level 1 trainer.

Diabetes and CrossFitting

I don't have to describe the days that followed to the CrossFit community. Everyone has felt this level of pain and discomfort before, and we've all gotten used to it. During those days of discomfort, I decided I had to return and show the coach I really wasn't that scared, weak or out of shape. I now realize that I really wanted to prove those things to myself.

I returned to sign up for CrossFit, much to the surprise of Coach Tom and the manager of the gym. After three months of CrossFit, I went to my endocrinologist for my regular quarterly check-up, where the doctor informed me that he thought CrossFit was "too intense" for my body to handle because I am a Type 1 diabetic.

If there is one thing I can't stand, it's being told that I shouldn't or can't do something because I have diabetes. That said, controlling diabetes is extremely important, no matter what activities I choose to do. I knew I had a greater challenge in front of me than I had originally anticipated, but CrossFit had already given me more will than I ever had before. I was committed to striving for elite fitness, which for me includes maintaining tight control over diabetes.

Type 1 diabetes is the more rare form of the disease, often referred to as "juvenile diabetes." Although it has similarities to Type 2 diabetes, it is in most respects completely different. Type 1 diabetics are insulin-dependent and must inject insulin, either using some kind of syringe or pump therapy, which is a constant insulin drip.

In a person without Type 1 diabetes, certain processes take place to create insulin, which carries glucose from the blood to cells in the body. All carbohydrates break down into glucose, commonly referred to as sugar, and the liver produces glucose, especially when the body is stressed. The liver in a type 1 diabetic produces even more glucose than one in a non-diabetic, and that process is magnified when stress is elevated in the body due to any number of events, such as illness or a highly intense CrossFit workout. Unlike Type 2 diabetics and people without diabetes, Type 1 diabetics do not produce insulin, and blood glucose levels rise as a result (hyperglycemia), which can cause long-term effects such as kidney, neurological and cardiovascular damage. Acute hyperglycemia can cause death. Without insulin, people cannot survive, and if I don't inject insulin into my body every single day, I will die.



Certain types of workouts affect Catherine Cochran more than others, so she adjusts her insulin levels accordingly.

Three months after starting CrossFit, my doctor performed my regular HbA1c test, a simple blood test that measures the average amount of glucose over the past three months. The result was 7.6 percent, which means my blood glucose was averaging around 190 mg/dl. To put that into perspective, a non-diabetic will almost always be around 85 mg/dl. When the doctor asked what had changed, I told him about CrossFit. He explained to me that my liver was most likely increasing glucose production due to the extreme stress I was putting on my body during a workout, causing very high glucose levels I wasn't aware of.

The next day at CrossFit, I checked my blood glucose just before I started the warm-up and had normal results (70-120 mg/dl). I hit the WOD hard, called time and collapsed into my sweat angel. After regaining the strength to stand, I checked my blood glucose again and was shocked to find it was over 300 mg/dl. I immediately took insulin to bring the glucose back down to normal. Three hours later, I began feeling symptoms of hypoglycemia, so I pricked my finger, checked my blood and found I had plummeted to glucose levels around 50 mg/dl. Although 50 mg/dl is not dangerously low for me, the glucose could drop lower if left uncorrected, resulting in insulin shock followed by death if immediate treatment is not received.

Hitting WODs and Managing Diabetes

Diabetes is dangerous and deadly. I know that. I have known that since diagnosis. My husband is all too aware of the dangers and has had to act quickly at all hours of the day and night, quite literally, to save my life. If you have Type 1 diabetes, you know how difficult it is to control your condition. If you are a CrossFitter with Type 1 diabetes, you have an even bigger challenge. But isn't that why most of us continue to hit our WODs at 100 percent capacity—for the challenge? We strive for faster times, more reps, increased power. We strive for elite fitness every day.

For all Type 1 diabetics, many medical doctors will tell you not to do CrossFit. Most of you are probably just as stubborn as I am when it comes to anyone telling you to limit your activities due to diabetes. It is, without a doubt, more difficult to control your blood sugar with the intense WODs that you will encounter, but it is certainly not impossible. And if you are coaching Type 1 diabetics, make sure they learn how to take care of themselves. CrossFit is safe for everyone, but just like a CrossFitter with a chronic injury, diabetics have to know how to be safe.

First, CrossFit is scalable. Record your WODs and record your blood sugar before and after. I did so and started to notice a pattern. Three months into CrossFit, intense WODs lasting more than about 20 minutes caused my blood glucose to spike to unsafe levels (over 250 mg/dl). However, intense WODs lasting less than about 20 minutes did not cause unsafe blood glucose spikes. That meant I had to scale my WODs so that I could complete them in 20 minutes. There is nothing wrong with scaling a WOD midway through. Of course, many of you will refuse to scale a workout when you know you can keep the intensity needed, and you'll complete the WOD prescribed even if it means seeing black spots. That's OK too if you ask me.

Second, if you are going to refuse to scale a WOD, learn what types of workouts are going to affect you, and learn exactly what effect they'll have. In the CrossFit community, this means learning how the three metabolic pathways are going to affect you. Balancing these three pathways is important for all CrossFitters, but for diabetics it goes one step further. If I run a 5K or 800-meter intervals, my blood glucose will most likely drop, not spike. I get the same reaction to a one-rep-max day. Being on pump therapy makes it very easy to adjust for these workouts. Thirty minutes before I start the workout, I lower my basal rate to 30 percent. On the other hand, if I hit a Filthy Fifty or a Murph, I can't finish the workout in less than 20

minutes and I don't want to scale it. I'm a CrossFitter, and "prescribed" is an important word in my vocabulary. Being on pump therapy makes it easy to adjust for these WODs: I increase my basal rate by 20 percent 30 minutes before a workout. If I forget to increase my basal, my blood glucose will be high.

Third, know what factors will affect the first two circumstances and what the effect is. If I miss blocks during the day, my performance will be different. If I work out at a different time of day, my performance might be different. If my stress level is higher than normal, my reaction to insulin and the workout might be different.

Fourth, attend a Level 1 Certification. I know I am different because I have diabetes, and I know I am affected differently by these workouts due to diabetes. It all came together for me after my Level 1 Certification at CrossFit Charlotte. The CrossFit trainers did an excellent job of explaining CrossFit methodology and programming, and everything makes much more sense to me now. These trainers have armed me with all the knowledge and resources I need to ensure CrossFit is just as safe for me as it is for everyone else.

Fifth, know that factors will change constantly. Keep tracking your workouts and your blood glucose levels. Track the changes and make appropriate changes of your own. Since my first day of CrossFit, I have completed Fran three more times, all prescribed and all under 10 minutes. Fran normally doesn't affect me with high glucose levels anymore. However, I recently learned at the Level 1 Certification that if I drive over six hours to a gym in a different state, sit through several hours of CrossFit classroom learning, participate in a Tabata workout, and change my daily diet ritual, then Fran will cause blood glucose levels of over 300 mg/dl. This is a learning process. It is not static or linear. If I elevate other stressors, workouts that don't normally affect my blood glucose levels will affect those levels.

No Barriers

I plan to continue being active in the CrossFit community as an athlete and now as a coach. Diabetes will not stop me from progressing as an athlete, and it shouldn't stop anyone else either. Since I learned how to adjust insulin levels for workouts, my doctor has been happy with my HbA1C tests. I have also been able to lower the amount of insulin I take daily, including my bolus ratio. This is due to the change in body composition, because insulin works more efficiently with muscle than fat.

By now, my doctor knows he won't change my mind about CrossFit, and he no longer tries.



About the Author

Catherine Cochran is the director of finance and administration for a construction management company in northern Virginia, as well as a CrossFit trainer and athlete. She would like to thank the CrossFit community of athletes and coaches at her gym, Capital Jiu Jitsu, for pushing her harder every day, and the coaches who were at the Level 1 Certification at CrossFit Charlotte, who encouraged her to share her experience with diabetes and CrossFit with the rest of the community: Joe Alexander, Chuck Carswell, Mike Giardina, Andy Hendel, Nicole Gordon, Andrea Seward and Bobbi Millsaps.