



Alicia Anthony/CrossFit Journal

THE **CrossFit** JOURNAL

CHRIS HINSHAW: THE RUNNING MAN

CrossFit's Aerobic Capacity Course expert explains how interval training can help you do more work faster.

BY EMILY BEERS

Long-time CrossFit athlete Tawny Sanabria used to dread box jumps.

“And wall balls,” said the 45-year-old who trains at CrossFit Bel-Red in Redmond, Washington.

“I could never get into a good rhythm, and they would make me so tired. They were so exhausting.”

All that changed for Sanabria when she made one major alteration to her training: doing interval running at the track.

Specifically, Sanabria has been diligently following endurance coach Chris Hinshaw’s Aerobic Capacity program since March 2016.

“The program I’ve been following is just twice a week—a lot of intervals and prescribed paces,” Sanabria said. As expected, her running has improved in recent months, but to her surprise, so has her muscular endurance and stamina in the gym, she said.

“We recently did a workout with wall balls, rowing and a lot of hang cleans. And I just don’t need to take as many breaks anymore. I just don’t get as taxed,” she said.

Even upper-body gymnastics movements are easier now, she said: “My pull-ups and toes-to-bar have gotten a lot better, too.”

How do running intervals improve someone’s pull-ups?

Hinshaw—the coach of CrossFit Inc.’s new **Aerobic Capacity Course**—explained: “Let’s say you’re doing ring dips. Eventually, you’ll become lactic in your muscles. The muscles start to fatigue one at a time. All that is actually happening is your body is trying to protect you.”

He added: “Eventually, the lactic acid will go down into your legs, and if your legs are developed aerobically, your ability to pull that lactate out of your system and process it as fuel has improved.”

Hinshaw revealed his elite athletes—including Rich Froning Jr., Mat Fraser, Katrin Tanja Davidsdottir and Camille Leblanc-Bazinet—have all had experiences similar to Sanabria’s.

“Camille (Leblanc-Bazinet) will tell you when she does muscle-ups and pull-ups, her work capacity goes up when her running improves,” Hinshaw said. “When your legs are developed aerobically, your ability to recover during other kinds of movements is also substantially improved.”

What Is Aerobic Capacity?

Micah Zuhl is a professor in the Department of Health Sciences at Central Michigan University, where he teaches exercise-physiology as well as exercise-stress classes.

Zuhl said what Hinshaw and his athletes have noticed makes a lot of sense. It comes down to improved aerobic capacity,

Zuhl said, which he explained as simply a person’s ability to take in oxygen.

Specifically, when you are working at a high intensity, your body will start to emphasize non-aerobic energy systems, Zuhl explained. These systems use glycolysis to release energy and convert glucose into pyruvate, which is used for fuel in an aerobic pathway if enough oxygen is available. If oxygen is limited, pyruvate is converted to lactate.

Lactate can be used drive glucose breakdown, but only for a short time. After about 60-180 seconds of high-intensity anaerobic activity, lactate will start to build up in the muscles as a defense mechanism that increases muscle-cell acidity and prevents excessive exertion by limiting the ability to contract the muscle.

“When you’re more aerobically fit, you’ll be able to buffer the lactate (and resulting acidity) that builds up in the muscle more effectively,” Zuhl said.

In other words, you won’t become as acidic, and you’ll be able to continue to do movements such as pull-ups or ring dips longer.

Article: [“Why Does Lactic Acid Build up in Muscles?”](#)

Also consistent with Hinshaw’s observations, Zuhl confirmed that one of the best ways to improve aerobic capacity is through interval running: “If your aerobic system is more developed, this will help support the recovery of the muscle more effectively.”

He added: “With improved aerobic capacity comes improved recovery.”

More Air

When it comes to the best way to build an athlete’s aerobic capacity, Zuhl laughed and said: “That’s the magic question.”

There isn’t a clear consensus in the industry, but what is clear is higher-intensity and interval training seem to build aerobic capacity more effectively than straight endurance training, he explained.

“When we look at the data and we consider low-, moderate- or high-intensity training, the best way to increase aerobic capacity is through higher-intensity exercise,” Zuhl said.

Effort is considered high intensity when an athlete is working at 75 to 80 percent of maximum capacity, Zuhl explained.

“If you exercise at just 50 percent of your peak, then you’re probably not going to increase your capacity,” he said. “So, for example, 1-mile repeats would be better than going for a 20-kilometer run if your goal is to improve capacity.”

Hinshaw’s workouts reflect this. Specifically, he places emphasis on his athletes’ 1-mile and 400-meter running times.



Alicia Anthony/CrossFit Journal

At the Aerobic Capacity Course, trainers learn how and why they should create dynamic warm-ups for their athletes.



Alicia Anthony/CrossFit Journal

An All-American swimmer in college, Hinshaw (center) has completed 10 Ironman triathlons as a professional.



The Aerobic Capacity Course focuses on running because Hinshaw believes it's the best way to develop an athlete's aerobic system.



“It’s actually not really about becoming a better runner.” —Chris Hinshaw

**“I use a lot of running because it’s the best way to develop aerobic capacity because it works your legs—the largest muscle group in the body. And running makes you support your own body weight more than something like rowing or swimming.”
—Chris Hinshaw**

Don’t be mistaken. Hinshaw isn’t necessarily trying to turn CrossFit athletes into runners. He respects the CrossFit goal of creating well-rounded athletes, not specialists.

“It’s actually not really about becoming a better runner,” Hinshaw said. Instead, running is just the best tool he has found to help achieve the end goal of improved broad fitness, he added.

“I use a lot of running because it’s the best way to develop aerobic capacity because it works your legs—the largest muscle group in the body. And running makes you support your own body weight more than something like rowing or swimming,” Hinshaw explained.

Zuhl elaborated: “Aerobic capacity is about being able to deliver oxygen with the heart and to extract oxygen from the muscle. And with running, there’s both. There’s a central component that is strengthening the heart, and there’s a peripheral component—the skeletal muscles.”

Theoretically, swimming can achieve the same result as running, which is why world-class swimmers have some of the highest aerobic capacities in the world, Zuhl said. But he also said he believes running is more effective for building aerobic capacity than cycling because it works the upper body more effectively.

“You’re going to get the tax on the heart with running, rowing and cycling, but with running you’re going to get more stress on all the muscles of the body, which will lead to more adaptations, so you’re going to get a greater overall aerobic adaptation,” Zuhl said.

Further, running is also an easy way for coaches to assess their athletes’ relative weaknesses, Hinshaw said.

“Do you need more speed or more endurance, and to what degree do you need one more than the other?” Hinshaw said he asks when assessing his athletes.

Teaching coaches how to assess athletes is one of the main objectives of the Aerobic Capacity Course, he said.

One of the stories he likes to tell at the course is about his time working with Froning, who approached Hinshaw for help after the 2014 CrossFit Games, in which the then-three-time Games champ performed very poorly in a long event involving rowing, double-unders and running.

“Even though he won the Games, his aerobic system was terrible compared to his speed,” Hinshaw said. At the time, Fron-

ing’s 400-meter time was 60 seconds, while his 1-mile time was 6 minutes.

World-class runners tend to fatigue in the neighborhood of 6 percent for every doubling of a run’s distance, Hinshaw explained, so his goal for CrossFit athletes is to have them fatigue only 20 to 21 percent between their 400-meter and 1-mile times.

When Hinshaw started working with Froning, he discovered Froning slowed down 28.5 percent between his 400-meter and 800-meter times and another 28.5 percent between his 800-meter and 1-mile times.

“(Froning’s) mile in relation to his 400-meter was terrible. All his workouts (had been) spent focusing on speed. His weakness was unquestionably his 1-mile time. So 100 percent of my focus was on improving his mile time,” said Hinshaw, who was able to help Froning shave 19 seconds off his best 1-mile effort in 12 weeks—from 6:00 to 5:41.

Today, Froning continues to utilize interval running in his training program five days a week, Hinshaw said.

“It’s giving him a lot of value for his time.”

Preserving the Stimulus

Once a coach knows how to assess an athlete’s strengths and weaknesses, pacing and intensity are two keys to improving aerobic capacity, Hinshaw explained.

“Each workout should have a very specific stimulus, meaning a prescribed pace and intensity. Everything I do, I prescribe very specific intensities—the intensity needed for a specific adaptation,” Hinshaw said. “So if you’re going to go for a run, I ask, ‘What’s the best use of your time for that run?’”

He added: “Coaches need to be able to explain to their clients, ‘This is the stimulus for Fran.’ Fran isn’t intended to be a 20-minute workout. So if you can’t do that, then we need to come up with a solution (to make that happen) to get the stimulus we need for this specific adaptation.”

For example, if Hinshaw were to prescribe a workout of 10 rounds of 200 meters on the rowing machine with 30 seconds of rest between pieces, the most important thing would be to get the athlete to figure out the right pace to be able to maintain the same intensity with each interval, he explained.

“Usually athletes will just get slower and slower each interval because 30 seconds isn’t enough time to recover, but they’d be much better served hitting the same speed for each one.”

Athletes and coaches who attend Hinshaw’s one-day Aerobic Capacity Course will learn all about the importance of pacing in relation to building a more robust and efficient aerobic system, Hinshaw explained. The seminar also includes lectures on topics

such as fatigue, physiology, balancing energy systems, applying aerobic-capacity training to target goals, and training protocols for speed endurance and strength endurance. Attendees will learn to assess aerobic fitness, create paced workouts and programming based on heart rate, and create dynamic warm-ups. Overall, trainers will learn how to use endurance-training methodologies to help CrossFit athletes do more work faster.

Attendees have a chance to put Hinshaw's lectures to use during an interval running workout. At the inaugural Aerobic Capacity Course at CrossFit Humanity in San Diego, California, in May, Hinshaw put trainers through a 10-round workout of 60 seconds of running with 10 seconds of rest.

Sure enough, everyone went out too hard, Hinshaw said.

"Even people who thought they were good at pacing went out too hard and fell off their pace. All 10 intervals should have been the same distance."

"How am I going to maximize adaptation efficiency? That's what the course is all about." —Chris Hinshaw

Sanabria, who was introduced to Hinshaw when he hosted a seminar at her gym in January 2016, said it took her a while—and lots of practice—to really start understanding pacing, both how to do it properly and why it's so important.

"Focusing on the right pacing was new to me. But the program gives you a very specific pace for each workout. In some workouts, there are a variety of paces (Hinshaw) wants you to hit," Sanabria said. "I've learned that I don't just have one speed. I can speed up, slow down and speed up again."

When both the coaches and athletes understand what the workout's intended stimulus is, the athletes will get more bang for their buck, Hinshaw reiterated.

"How am I going to maximize adaptation efficiency? That's what the course is all about ...," he said. "So, for example, if I'm only working with Camille (Leblanc-Bazinet) two days a week, then I need to make sure those workouts are targeting specific things."

When aerobic-capacity workouts target specific aspects of training and fit well into the bigger program, then athletes are sure to see gains beyond their wildest dreams, he added.

"Small doses of proper endurance training balanced with what you're already doing in the gym—that's creating a level of adap-

tation with elite athletes that has never been done before.

"And if I can do that with elite athletes, then I can do it with the regular population more easily. If Mat Fraser can knock a minute off his mile time, then a lifestyle athlete can knock off 3 minutes."

Results in Redmond

Josh Fitchitt, one of Sanabria's coaches, also attended Hinshaw's seminar at CrossFit Bel-Red in January.

Fitchitt has high praise for the coaching he received from Hinshaw.

"He really helped us work with certain biases our athletes have," Fitchitt said. "For example, as a coach, you have to ask questions like, 'Does this athlete need to work more on speed and improve his VO₂ max, or is this a power athlete who needs more aerobic-threshold training?'"

Asking such questions has helped Fitchitt become a more effective coach and programmer, he said.

"We don't necessarily run more now, but we run differently. And it is more effective for our athletes," he said.

Sanabria's results are a testament to Fitchitt's implementation of Hinshaw's program.

When Sanabria tested her 1-mile run in March, it took her 10 minutes. Now, her training pace is in the 8:40 range, she said.

"That's a comfortable pace now for training," Sanabria said.

She has also shed almost 20 seconds from her 400-meter time, dropping March's 2:01 to 1:43.

Sanabria credits her gains—both on the track and inside the gym—to Hinshaw's wisdom.

"I understand my pace. And I understand what each workout is trying to accomplish." ■

About the Author: Emily Beers is a CrossFit Journal contributor and coach at [CrossFit Vancouver](#). She finished 37th at the 2014 Reebok CrossFit Games.



When athletes have well-trained aerobic systems, they're able to work longer on box jumps, pull-ups and other movements seen in CrossFit.



Fitchitt, a former triathlete, lists his mile time as 5:11.



Tawny Sanabria said interval training helps her avoid rest breaks during workouts.