

Does the Newest Olympian Training Fad Actually Work?

By Maggie Lange



American swimmer Michael Andrew, a proponent of blood flow restriction, ahead of the men's 100m breaststroke final in Tokyo this week. Photo-Illustration: by The Cut; Photos: Getty Images

So much is restricted at the Olympics this year: crowd numbers, fornication, a baseline level of humanist morality. And also, fascinatingly, the *blood flow* of participating athletes.

Just as Michael Phelps's cupping bruises enthralled curious minds in 2016, much like kinesio tape was named "the latest Olympic accessory" in 2012, a set of tourniquet-style contraptions strapped to buff arms and bulging legs are this year's curiosity. According to the *New York Times*, swimmers, rugby players, and long-

distance runners at the Tokyo games have been practicing blood-flow restriction, or BFR. The practice involves wearing a device that can look as simple as a blood-pressure cuff, but the effects can be pronounced.

BFR works by restricting blood flow to muscles, which in turn limits the oxygen that reaches veins in the muscle chain below the cuff, thus triggering muscle-building hormones. “It seems to stress the circulatory system that creates a hypoxic [oxygen-poor] environment for the muscle so that it must adapt,” explains Dr. Daniel Hollander, a professor of kinesiology at Southeastern Louisiana University. Hollander has been watchfully eyeing the rise of BFR techniques for over a decade. The practice was developed and popularized in Japan in the 1970s, where it’s known as *kaatsu*, and has risen in popularity in the U.S. over the past several years, he says. “The benefit of this type of training,” Hollander says, “is that it can enhance tissue recovery without a heavy load, so this helps protect the joint.” In other words, lifting a small weight with BFR could get you the results of lifting a much heavier weight without it.

The restriction of blood flow seems to force muscles to over-compensate — which means they recover faster than usual. “BFR is provoking this metabolic environment where it thinks it needs to send more hormones to the muscles. It puts the body into panic: *We need to send things to this area to build up strength and muscle!*” says Dr. Nicole Haas, a physical therapist and founder of Boulder Physiolab in Colorado.

But Haas says there’s a lot we don’t know about BFR. “The promise in this research is huge. But we’re just figuring this out. There’s a lot of research coming out, but it’s not specific to a muscle. It’s having a whole-body effect in ways we don’t understand yet.” Still, it’s enough to appeal to athletes looking for an edge. Early excitement, Haas says, has propelled some eager athletes, like a handful she’s seen in Boulder, to rent cuffs for individual use and then land in her office with injuries.

Bruising is a pretty common side effect, warns Dr. Brian Clark, the executive director of the Ohio Musculoskeletal and Neurological Institute. Muscle damage and potential for a dangerous vascular event are less common, but possible. “I do not think the current state of the science is strong enough for broad level adoption like we are seeing,” he cautions.

Pursuing any sliver of an edge, at such an elite physical level, incentivizes experimentation. Scientifically rigorous investigation is the tortoise to this hare. “Science has to move slowly, but practice can move as fast as it wants,” says Dr.

Hollander. At a high level, athletes are pursuing “the parameters of human performance in the way that science doesn’t have the luxury to do. They’re getting at the best result as fast as they can.”

Elite athletes often have resources and people devoted to stalking their vital signs and improvements. Not all of us commoners have those assets. “For regular people, I wouldn’t do BFR,” says Dr. M. Brennan Harris, associate professor of kinesiology and health sciences at William & Mary College. “There’s a danger here.” To repeat, BFR is messing with your blood. For those of us without the resources of trainers and coaches, Dr. Harris says “there isn’t that much information accessible to individuals about the right dose here. *What’s the right amount of constriction? How can I measure that right amount? What are the tools?*” He imagines that a fitness watch with a reliable measurement of oxygen percentage in the blood that could indicate “the max stimulation without the danger” might be soon on the horizon. “Whoever makes that is going to make some money.”

For now, “you want pretty good supervision,” Dr. Hollander insists. “It is risky if you don’t know the safety parameters. We don’t jump out of planes with a parachute without knowing how big the parachute is, and how much the person weighs.”

Even with precise supervision and thorough knowledge, BFR isn’t a magical shortcut to perfect strength. Dr. Kelly Starrett, a coach for some Olympians and a passionate supporter of BFR, notes that while it might give a quick muscle-building boost, you still have to make sure your body knows what to do with its increased power. “The problem with BFR is you can put on a bunch of muscle really fast. That doesn’t make you a better *mover per se*,” Dr. Starrett says. “It’s an amazing way to turn on a lot of circularity in your body, but you want to put that back into context.”

Of course, the promise of a magic shortcut might be the only factor competitive athletes care about. “In some ways, the worst thing that could happen is for a proponent of BFR to win at the Olympics,” says Chris Carmichael, who was the US Olympic Committee’s Coach of the Year in 1999 and the founder of a training group for endurance cycling, triathlon competing, and ultra-running. He cites the enthusiastic interest in cupping after Michael Phelps touted the practice — and won a handful of gold medallions — back in 2016. “Athletes just need to be careful not to give gadgets and the ‘training technique of the day’ so much credit that they undermine the value they place on training techniques that work reliably and predictably,” Carmichael says. “The unsexy truth is that greatness comes from a tremendous amount of time perfecting the fundamentals.”