

The historic Newell Boathouse has been home to the Harvard men's crew for more than 100 years.



P A C E M A K E S R A C E

Harvard University crew members and coaches advise CrossFit athletes to use pacing to become more efficient on the rowing machine.

By Emily Beers

A Visit to the Charles

It's a brisk day in March on Harvard campus in Cambridge, Mass. While many college varsity teams have already wrapped up their seasons, Harvard crews are waiting for the ice to melt on the Charles River so they can begin theirs.

Members of the men's varsity team slowly trickle into the Newell Boathouse, making their way to the second floor, where they start warming up for the afternoon training, their second session of the day.

Two athletes look out at the ice and snow that still covers the river during this uncharacteristically long winter.

"Melt already," one says.

The ice has relegated the team to training on Concept2 rowing machines—which they call "ergometers" or "ergs"—for a number of months. Everyone is eager to get back on the water.

This afternoon's session is self-directed. Head Coach Charley Butt is around to oversee the workout, but he's far from a drill sergeant.

"I'm not going to come in and blow a whistle or anything to start practice," Butt says with a smile before casually chatting with a few of his athletes in the warm-up area.

It's especially relaxed right now at the Newell Boathouse because it's exam time. As long as Butt's men show up and get their workout piece done at some point this afternoon, he's OK with the slightly independent training.

Craig Slater, a sophomore from New Jersey, warms up with two of his teammates. They plan to do a rate pyramid on the erg together. Busy with exams, Slater comes to the boathouse to help relieve stress.

"Our schedule is demanding, for sure. But it's fun. And when you're going through stressful times, coming here makes you forget (your stress)," says Slater, who spends 15 hours at Newell Boathouse each week.

"I mean, just look at these walls," he says, pointing to a host of pictures of successful Harvard crews from the past. "It's an honor to be here."

Slater's teammate, a Australian junior named Lachlan Han-

bury-Brown, agrees: "You can feel the past rowers that have sweat and bled in here."

Slater, Hanbury-Brown and their teammates already did three 12-minute rate pyramids this morning, meaning the stroke rate increased throughout the piece. In the first six minutes, they held a relatively low stroke rate of 24 strokes per minute. For the next three minutes, they bumped the rate up to 26. The following two minutes were at 28, and the final minute was a near sprint at 30 strokes per minute.

They repeated these 12-minute pieces three times, with some rest between each.

This afternoon's workout is just one 12-minute piece, but the results are expected to be better than in the morning

because of the reduced volume.

When the men hit the Concept2, they look smooth and almost methodically slow. They row in perfect unison, feeding off the rhythm of the others, which is especially easy today because they're all holding the same stroke rate.

Every stroke looks the same as the last; they're models of control and consistency. In fact, these men have the ability to close their eyes or cover the screen and maintain the same pace. They can hold the exact same split times for 30-plus minutes without feedback from a coach or digital display.

They explain this consistency is developed only over months and years of time on the indoor rowing machine.

A Common Rowing Problem

For many CrossFit athletes, the rowing machine is like a first date: a blend of dread and discomfort. The problem often isn't a lack of fitness but a lack of understanding of pace.

"I think I held around a 2:00 or a 2:20 pace on that 2-km row," is a line many a CrossFit athlete has mumbled while stumbling away from the machine.

Holding a 2:00 pace at the start of a 2-km piece and tumbling to a 2:20 pace in the last 500 m is like a runner sprinting the first 400 m of a 1,600-m run and then walking the last 400. No runner in his or her right mind would consider doing that in a race—and no CrossFit athlete's pace should fall off by 20 seconds during a 2-km row.



After the Charles thaws, these shells will be on the water.

Emily Beers



Courtesy of Patrick Lapage

Patrick Lapage (right) is now an assistant coach of the Harvard men's heavyweight crew.

00:00

SPLIT & STROKE RATE

Split—The amount of time it takes to row 500 m. If you hold a 2:00 500-m split for 2 km, your total time will be 8:00. Rowers often use the term “split” and “pace” interchangeably, and the numbers are always based off speed over 500 m. It’s the most important number to know when figuring out how fast you should be going.

Stroke Rate—The number of strokes per minute. The shorter the race, the higher the stroke rate—in general. A men’s eight crew at the Olympic Games will hold around 38 strokes per minute. A CrossFit athlete should expect to hold a much lower rate for a 2-km piece on the rowing machine because he or she is likely less efficient than a trained rower. Rowing at a lower stroke rate will also keep your heart rate lower.

One of the difficulties in nailing down a pace is that rowing is generally more foreign than running to many, so athletes don’t realize they’re sprinting too hard because they aren’t sure what a rowing sprint feels like. Luckily, the monitor on an indoor rowing machine gives you instant and precise feedback, so you never have to guess how fast you’re going.

The key is paying attention to the numbers on the monitor.

Discovering Your Race Pace

Cory Bosworth is the assistant coach of the heavyweight women at Harvard—a crew that has maintained its historic name: Radcliffe. Prior to 1977, Harvard was an all-men’s school, while Radcliffe College was the women’s school. Harvard’s women’s crew is the only varsity team at Harvard that uses the name Radcliffe today.

Bosworth has a simple way to help novice rowers and inexperienced CrossFit athletes discover a good pace for both 2- and 5-km race pieces.

2 km

First, test your max-effort 500-m row. From there, you can expect your 2-km split (pace) to be seven to nine seconds above that 500-m time.

For example, if your best 500-m piece took you 1:50, you can expect your 2-km average split to fall between 1:57 to 1:59, meaning your total time for two 2 km would be between 7:48 and 7:56.

**“It’s much better to ride a fine line and wonder, ‘Am I going hard enough?’”
—Cory Bosworth**

CrossFit athletes might find this a daunting task at first. Often their average 2-km pace is much slower than just seven to nine seconds above their max 500-m sprint. This is likely due to going out too hard in the first 500 m of a 2-km row, hitting a wall and slowing down significantly during the rest of the race. Focusing on keeping a consistent pace—even if it means the first 500 m feels

almost too easy—will allow you to maximize your performance over 2,000 m.

Bosworth warns inexperienced rowers to be extra conservative—suggesting a 2-km pace as much as 10 seconds above your 500-m time. Once you can manage that pace, try to speed up your split by another second or two. There’s nothing worse than going out too hard and hitting a wall, she explained.

“It hurts (when you go out too hard), and it usually gets a really slow score, a number that doesn’t represent what you can do,” Bosworth said.

“It’s much better to ride a fine line and wonder, ‘Am I going hard enough?’ than going out too hard and petering out,” she added.

The key to the 2-km row is consistency. Many inexperienced rowers row the first kilometer much faster than the second, which is far from ideal. Bosworth recommends a novice rower should try to “negative split” the piece, meaning he or she should aim to make the second kilometer faster than the first.

“You trust you’ll have the fitness to kick in later, and you consciously hold yourself back (in the first half),” Bosworth said.

If you're a bit more experienced and can control your pace and hold a consistent speed for the entire piece, then a good option for you is as follows: First, determine your target speed. Let's say your target speed is 2:00 for a 2-km race. You would then plan to do your first and last 500 m one second below your target—at a 1:59 pace. Meanwhile, the two middle 500-m blocks would be rowed one second above your target—at a 2:01 pace.

Taking into consideration that your first and last 200 m—essentially your start and your sprint finish—are usually slightly faster, this allows you to save a little energy in the middle of the race so you can sprint for the final strokes.

As for the stroke rate for a 2-km row, most varsity rowers hold between 32 and 35 strokes per minute on the ergometer, while less experienced rowers are usually less efficient and better off holding a much lower stroke rate. Bosworth said a novice rower should consider holding a stroke rate of 28 strokes per minute.

She offered a general rule for stroke rates: “The newer you are, the slower you should go.”

Despite Bosworth's emphasis on being conservative in terms of both speed and rate, it's OK to go a little harder at one specific point: the start.

The golden rule for CrossFit workouts is that most workouts are not won on the rowing segment, though an athlete can definitely pull too hard.

In fact, rowers pull almost as hard and as fast as they can in the first 10 to 12 strokes to get the flywheel moving because it ultimately doesn't affect their overall fatigue if the period of high intensity is short: about 20 seconds or so. This is because the first 10 to 12 strokes rely more on your phosphagen energy system, which fatigues quickly due to a reliance on stored creatine phosphate but can provide an initial burst before the body starts to rely predominantly on the glycolytic and oxidative energy systems. The demands placed on those systems need to be managed more carefully during the race to prevent the performance-limiting acidosis and metabolite build-up often characterized by the burning sensation athletes experience when working at relatively

high intensity for more than about 20 or 30 seconds.

With that in mind, you can hit the first few strokes hard “and consciously slow down your rate after that,” Bosworth explained.

She added: “To some degree, the start is free speed.”

5 km

When the day comes for you to tackle your first 5-km row, you'll be able to work off your 2-km pace to figure out a good speed for the 5 km.

Slater's 6-km pace—a common endurance-test distance for rowers—is six or seven seconds slower than his 2-km pace. This number largely depends on the athlete, though. Some athletes are sprinters, while other athletes are better at longer pieces. Rowers with more endurance will have 6-km splits closer to their 2-km splits; sprinters' numbers will be further apart.

Slater suggests a CrossFit athlete try a 5-km race at eight seconds above his or her 2-km pace. If your best 2-km time is 7:20, your average 500-m split is 1:50, so you could expect to hold a 1:58 split time for a 5-km race, resulting in a total time of 19:40.

As for stroke rate, Slater rows his 6-km piece at 30 strokes per minute but suggests a stroke rate of 24 to 26 for a less experienced rower.

Rowing in a WOD

Rowing a 2-km or 5-km race piece is, of course, much different than rowing 1 km before hitting 50 thrusters and 30 pull-ups, as CrossFit athletes do during Jackie. Similarly, athletes at 2012 Reebok CrossFit Games Regional competitions certainly didn't treat the 2-km row like a race piece when they had to do 50 pistols and 30 heavy hang cleans immediately afterward.

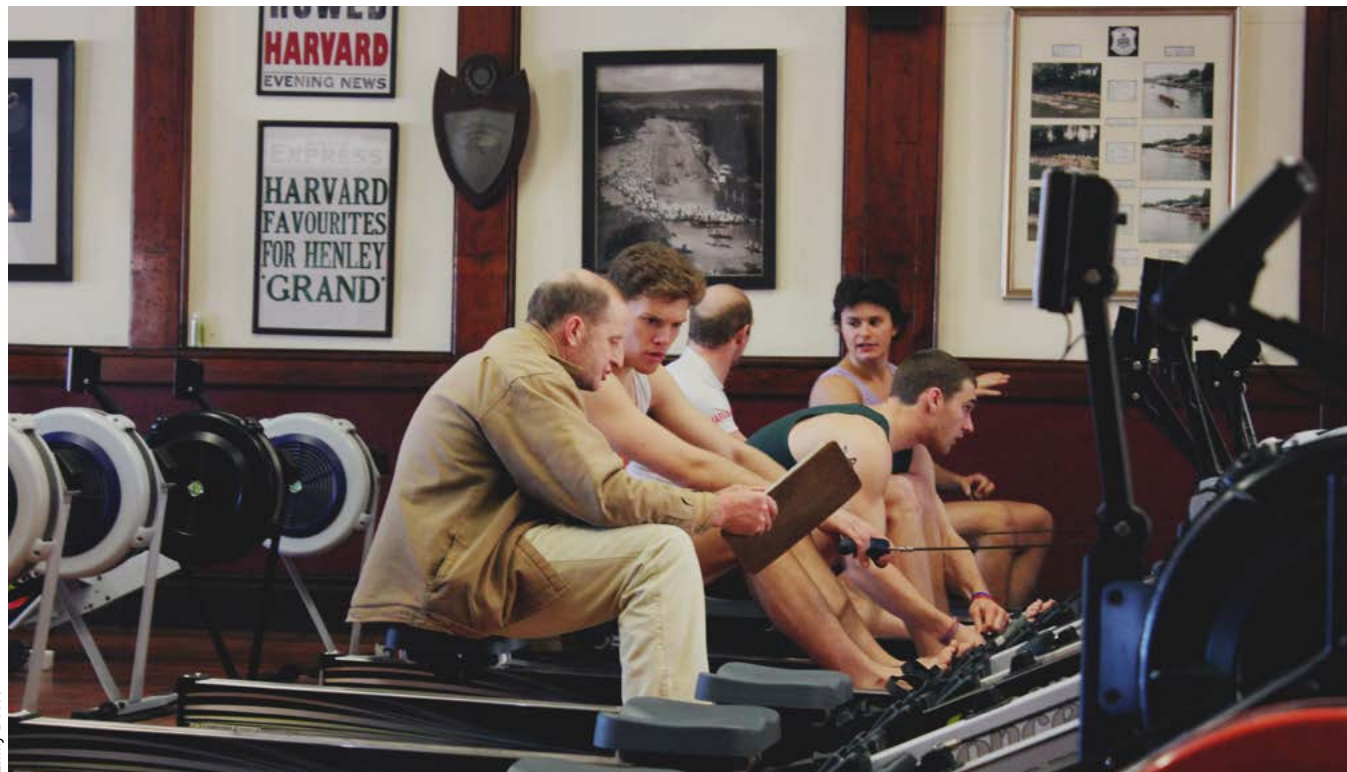
In Open Workout 14.4, a 14-minute challenge, athletes had to do a 60-calorie row before 50 toes-to-bars, 40 wall-ball shots, 30 cleans and 20 muscle-ups. Most employed a measured approach to the row that opened the workout, while those fit enough to complete the reps and return to the rower were usually faced with a short period of very hard sprinting.



Sophomore Craig Slater of Tinton Falls, N.J.



Though these rowers would rather be on the river, the Concept2 ergometer will do until spring.



Surrounded by more than 100 years of history, Harvard rowers also have access to modern technology including two indoor rowing tanks.

The golden rule for CrossFit workouts is that—generally speaking—most workouts are not won on the rowing segment, though an athlete can definitely pull too hard and negatively affect the other parts of the workout. In most workouts involving a row, the plan should be to minimize the fatigue the athlete carries into the rest of the workout without setting a very slow pace that causes the athlete to fall behind.

While rowers don't often run miles or hit pull-ups the instant they finish a row, every year Harvard rowers compete in a fun intrasquad rowing and running event in which they race for bragging rights.

It begins with a 7,500-m row and is followed with a 4.2-mile run that ends with athletes running up and down the stairs at Harvard Stadium.

"The winners every year aren't the best rowers. They're the best runners," Bosworth said. "It's easier to make up time on the run."

She suggests going 10 percent slower than you normally would on any particular distance if you have other work to do after the row. So if it takes you 4:00 to row an all-out 1-km piece, then your Jackie row time should be in the neighborhood of 4:24. Very fit athletes might be able to adjust the 10 percent suggestion and row faster, but the closer they get to their all-out 1-km times, the greater the risk that they'll be very fatigued on subsequent movements.

The key is to come off the machine feeling relatively fresh and ready to complete your next task.

2-km Prep Workouts

Patrick Lapage is the assistant coach of the Harvard's Men's Heavyweight Crew. Originally from England, Lapage rowed for Harvard from 2008 to 2012.

He offered some tips on rowing workouts CrossFit athletes can do to hone their pace and ultimately maximize their 2-km performances.

Lapage suggests:

1. Practice holding one split for as long as possible. This will

develop consistency and "boat feel" as the athlete starts to gain awareness of what a particular speed feels like over a long period of time.

2. 8 x 500 m—Do 2 sets of 4 500-meter pieces, with 1 minute in between each piece, and 5 to 10 minutes of rest between each set of 4. The idea is to hold the same speed for all 8 pieces.

3. 3 x 1,000 m—Again, the goal is to hold the same speed for all 3 pieces. Rest for 3 to 5 minutes in between pieces.



ABOUT THE AUTHOR

Emily Beers is a **CrossFit Journal** staff writer and editor and a former varsity rower at The University of Western Ontario.