

# How To Improve Your Rowing Technique In 20 Minutes

## Introduction

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Rowing, like most of the exercises employed by Crossfit, is a compound movement that requires aptitude and competence in each of the ten components of fitness (see the first Crossfit Journal for an elaboration of these components).

Rowing is an excellent metcon activity, employing vast amounts of muscle mass and moving it through a wide range of motion. In addition, the movement requires co-ordination, balance, rhythm and synchronisation in order to be effective and efficient.

It is arguably one of the toughest sports to compete in, with world-class athletes being capable of sustaining a 480 watt power output (or .64 horsepower) for a six minute effort. To put that in perspective, during a Fran workout, someone like Chris Spealer will produce around 380 watts (or .50 horsepower) for just over two minutes. This 'all-out' power effort is combined with a co-ordinated, highly technical and finessed stroke technique that serves to make professional rowing an extremely taxing event.

The fundamentals of the rowing stroke are relatively simple to grasp, but true mastery requires hours of practice and refinement. Rowing technique is critical to producing successful results on the ergometer. Generally speaking, it is not an exercise that can just be 'muscled' through with just grunt work and this is especially true of any distance greater than about 500 metres. This is because rowing inefficiency (that is, rowing with poor technique) begins to compound as distance and effort extends beyond the capacity of the short-term energy systems (ATP-PC and glycogen). Your 500m capacity is very often a poor predictor of your 2000m capacity.

This article will attempt to give a description of the generally accepted components of rowing technique and then spend some time focusing on the most common errors and how they can be overcome. The last part of the article will offer some tips on how to improve your ergo scores.

## Fundamental Rowing Technique

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### *Background and Basics of Rowing*

When done properly, rowing is a fluid movement with no distinct beginning or end points. However, for the sake of learning and understanding all the nuances of the rowing stroke and recovery, it helps to break the stroke up into a number of segments that will be analysed separately.

There are a number of very good resources on the web that give an in-depth discussion of how the rowing stroke is executed. Rather than repeat that here verbatim, I will refer you to three links in particular:

1. <http://www.concept2.com/us/training/technique.asp>
2. [http://www.concept2.com/us/training/muscles\\_used.asp](http://www.concept2.com/us/training/muscles_used.asp)
3. [http://www.concept2.co.uk/training/technique\\_video.php](http://www.concept2.co.uk/training/technique_video.php)

The first link gives a basic breakdown of the stroke with the four fundamental segments of the stroke – the catch, the drive, the finish and the recovery (leading back into the catch for a repeat of the cycle). There is also a small animation that helps to clarify the meaning of the descriptions.

The second link identifies the major muscle groups that should be used during each segment of the rowing stroke. I have found it useful to try and remain conscious of which muscles I am using during each component of the stroke to ensure that I am rowing as efficiently as possible, especially once I become fatigued. As a rule of thumb, you want to principally be using your large

muscle groups as force generators, with the smaller muscle groups providing a supporting role in maintaining the momentum and force generated by the larger muscles.

The third link is a video demonstration of a progression to a full rowing stroke that joins each of the segments discussed in the first link. Its useful in tying everything together. Rowing is definitely something that is easier to understand when demonstrated as opposed to just reading a description and trying to imagine what your body is supposed to be doing.

## **The Stroke**

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### *Important Aspects to Focus On*

While almost all aspects of the rowing stroke can be improved and endlessly tweaked, there are a number of key aspects that will assist in improving your efficiency and results. I'll list the characteristics I consider most important to get right below.

### *The Catch*

Getting this position right is tremendously important. This is how you set yourself up for each stroke. You need to ensure you have a proper platform from which you can deliver power efficiently to the flywheel of the ergo. Your shins should be vertical, chest resting on thighs, arms straight and your bodyweight on the balls of your toes.

Be relaxed in this position – it should feel relatively comfortable. In saying this, be careful not to slouch or collapse in this front position. You are going to be executing an explosive movement from this position, so approach it like you would any weightlifting or jumping exercise.

Setting yourself up properly at the catch gives you the best chance for success in the execution of the drive. So get it right.

### *The Drive*

The first part of the drive is all legs. No arms or back. Your back angle should remain essentially constant and unchanged for the first one-quarter to one-third of your leg drive. Most importantly, it should be explosive. Think about accelerating the handle towards your body. Driving with the legs ensures that the greatest quantum of work is done with your largest muscle groups - quadriceps and glutes.

As the legs approach the horizontal position, there will be a point where it will feel natural to open the back angle. This typically occurs when the legs are two-thirds towards the horizontal. The arms remain straight. This portion of the stroke is very powerful. The legs continue to drive and the back opens. You should feel like you are 'hanging' off the handle. Said another way, you are using the increasing momentum of your bodyweight to effectively lever the handle towards you at an ever increasing velocity. After this point in the stroke, your ability to generate power on the handle diminishes rapidly. Make sure you milk this part of the stroke for all it is worth.

You should only open your back just slightly beyond the vertical. Once you reach this position, you can engage the arms. Ensure that you have a stable body position to which you can draw the handle. This means keeping pressure through your feet on the foot stretcher, primarily through your toes. This allows you to complete what is known as 'drawing tall' or finishing in a strong, solid upright position with the handle aiming to finish just below your pectorals. Your arms should draw flat, with no bend in the wrists. Elbows draw past your shoulders. Make sure your shoulders are down and slightly back.

Remember this – your arms represent the weakest link in the entire stroke. They are the least capable of producing meaningful power on the handle and will be the first to fail if you continually engage them early. Use them LAST, ALWAYS. They simply maintain the momentum

of the handle coming into your chest; you have virtually no hope of using them to generate additional power throughout the stroke on a consistent basis. Legs, then back, then arms. Wash, rinse, repeat.

### *The Finish*

You should feel strong at the finish. Your legs will be flat, back slightly inclined, arms drawn flat to chest, shoulders down and relaxed. The handle should be sitting just below your pectorals in the vicinity of the solar plexus. Maintain pressure on the foot stretchers through your toes. This stabilises your position and sets you up nicely for the stroke reversal that is about to come ('the recovery'). Try not to thump the handle into your chest. You can attempt to execute a 'tap down', which is a short lowering of the handle at the very end of the stroke, just prior to the reversal, that assists in shunting the built up momentum generated throughout the stroke. This part is not essential, but becomes increasingly useful as your stroke rate increases.

### *The Recovery*

Believe it or not, this portion of the stroke is an opportunity to rest. Contrary to what you might think, it is not a race to get back to the catch as quickly as possible. Elite rowers will spend more than 60% of their time in 'recovery' over a 2000m race. Here's the proof – at a stroke rate of 34 spm (strokes per minute), a world-class rower will execute the drive and finish of a stroke in just .6 seconds, leaving roughly 1.1 seconds before the next stroke is due. That is rest time. Use it.

The recovery is the reverse of all the movements that have gone before it. During the drive it went: legs, back then arms. In the recovery its reversed: arms away, back follows and finally your legs compress. This process should be slow and controlled. You don't want to be racing back into the catch position. The more 'reverse' momentum you generate during the recovery, the greater the load on your quadriceps and glutes when you engage for the drive again at the catch. Try and be slow. If you're working anywhere near as hard as you should be during the drive, you'll be thankful for the break here.

### **Most Common Mistakes**

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1. Rowing with bent arms or bent wrists
2. Leaning back too much, drawing the handle too high
3. Shooting the slide
4. Opening the back angle too early
5. Breaking the knees too early on the recovery
6. Over reaching at the catch
7. Not being relaxed
8. Not maintaining adequate pressure on the foot stretcher
9. A pronounced handle thump at the finish

### **Tips for Improving Ergo Scores**

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#### *The Racing Start*

This tip alone can take seconds of your ergo times (especially your 500m).

The first 5 strokes will always be the hardest. The effort required to overcome the inertia of the flywheel is substantial and it will generally take you at least 3-4 full strokes to get to race pace. It is, in fact, quicker and more efficient to carry out a number of shorter, faster strokes at the beginning of a race.

Two of the most common race starts are as follows:

1.  $\frac{3}{4}$  -  $\frac{1}{2}$  -  $\frac{3}{4}$  - Full
2.  $\frac{1}{2}$  -  $\frac{1}{2}$  -  $\frac{3}{4}$  - Full

These fractions refer to the distance you travel up the slide from the 'finish' position. The rationale is that you produce better peak power from two half strokes (or a three-quarter and a half) in shorter time than you would have trying to complete two full strokes. Force-time curves for elite rowers indicate that peak power is produced when the legs and back are engaged simultaneously. This occurs at half to three-quarter slide, where the back angle begins to open as the legs are preparing to flatten out. This is the most powerful part of the stroke, meaning that you want to utilise this position when the strokes are hardest (i.e. the start).

### *Have a Plan*

Good rowers do not subscribe to the 'fly-and-die' race mentality. Consistency of pace is the key to good rowing performances. For example, a 1:22 first 500m is useless if you can only produce 1:38-1:40 per 500m for the remaining 1500m of a 2000m race.

Workout what your splits need to be **before** you get on the ergo. Then stick to them.

It is tempting to go harder and faster in the beginning when you feel fresh, however it will bring you undone in the latter stages of your race. For a 2000m ergo test, the majority of your oxygen debt is developed in the first 60-90 seconds of effort. Accumulating too high a debt, too early will diminish your performance dramatically. In other words, going out too hard early will mean you finish slowly.

### *Breathing*

Getting your breathing into a rhythm can be challenging, as your body tends to default to 'panic' breathing after about 60 seconds of effort. The most common method is to exhale during the drive phase, a breath and exhalation at the finish then another breath during the recovery coming up the slide before exhaling again during the drive. Breathing is obviously a personal preference, but figuring out some kind of rhythm to stick to tends to help people. Experiment with a few different methods and see what works best for you.

### *Optimal Stroke Ratings*

This is a very important consideration. Each rower has a threshold known as the 'critical rate'. This is the point where energy being expended to bring the rower quickly back up the slide is not resulting in a corresponding increase in power from the stroke. This helps to prove the importance of the recovery phase. Sometimes rowing at a higher stroke rating (i.e. slower recovery time) produces a slower result overall. This is because the extra energy that is expended in 'racing' the recovery actually results in diminished capacity to execute the drive sequence.

Critical rate varies not only between rowers, but also the expected distance of the effort. For example, critical rate matters little across a distance of 500m due to the fact that the effects of having used more energy in the short term will not be felt because the effort does not progress beyond 90 seconds. Across 2000m though, finding your critical rate is essential. Elite rowers will usually find it somewhere between 34-38 spm when rowing in a boat. An ergo will be slightly different, as the physics vary slightly from real 'water' rowing. Most people typically find that their ergo critical rate, across a 2000m effort, is somewhere between 28 and 32. You'll know you've found it when the recovery is not such an agonising effort.