

# Rowing Quick Facts

## Rowing Quick Facts

Rowing is one of the original sports in the modern Olympic Games.

Baron Pierre de Coubertin, founder of the modern Olympics, was a rower.

Rowers were the third largest U.S. delegation (48 athletes) to the Olympic Games in 2000.

Eight-oared shells are about 60-feet long - that's 20 yards on a football field.

Rowing was the first intercollegiate sport contested in the United States. The first rowing race was between Harvard and Yale in 1852.

Physiologically, rowers are superb examples of physical conditioning. Cross-country skiers and long distance speed skaters are comparable in terms of the physical demands the sport places on the athletes.

An eight, which carries more than three-quarters of a ton (1,750 pounds), may weigh as little as 200 pounds. The boats are made of fiberglass composite material.

Singles may be as narrow as 10 inches across, weigh only 23 pounds, and stretch nearly 27-feet long.

The first rowing club in the U.S. was the Detroit Boat Club, founded in 1839.

The first amateur sport organization was a rowing club - Philadelphia's Schuylkill Navy, founded in 1858.

From 1920 until 1956, the USA won the gold medal in the men's eight at every Olympic Games.

The first national governing body for a sport in the United States was for rowing. Founded as the National Association for Amateur Oarsmen in 1872, it was changed in 1982 to the United States Rowing Association.

Yale College founded the first collegiate boat club in the U.S. in 1843.

FISA, the first international sports federation, was founded in 1892.

Dr. Benjamin Spock, the famous baby doctor, was an Olympic rower in 1924 and won a gold medal in the eight. Gregory Peck rowed at the University of California in 1937.

Physiologists claim that rowing a 2,000-meter race - equivalent to 1.25 miles - is equal to playing back-to-back basketball games.

In 1997, Jamie Koven became the first American to win the men's single sculls at the world championships since 1966.

In 1999, the U.S. men's eight won its third consecutive gold medal at the world championships, a first in U.S. history.

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## Glossary of Rowing Terms

**Bow:** The forward section of the boat. The first part of the boat to cross the finish line. The person in the seat closest to the bow, who crosses the finish line first.

**Bow coxed boat:** A shell in which the coxswain is near the bow instead of the stern. It's hard to see the coxswain in this type of boat, because only his head is visible. Having the coxswain virtually lying down in the bow reduces wind resistance, and the weight distribution is better.

**Button:** A wide collar on the oar that keeps it from slipping through the oarlock.

**Coxswain:** Person who steers the shell and is the on-the-water coach for the crew.

**Deck:** The part of the shell at the bow and stern that is covered with fiberglass cloth or a thin plastic.

**Ergometer:** Rowers call it an "erg." It's a rowing machine that closely approximates the actual rowing motion. The rowers' choice is the Concept II, which utilizes a flywheel and a digital readout so that the rower can measure his "strokes per minute" and the distance covered.

**FISA:** Short for Federation Internationale des Societes d'Aviron. The international governing body for the sport of rowing in the world, established in 1892.

**Gate:** The bar across the oarlock that keeps the oar in place.

**German rigging:** A different way of setting up which side of the boat the oars are on in a sweep boat. Instead of alternating from side to side all the way down, in a German rigged boat, two consecutive rowers have oars on the same side.

**Lightweight:** Refers to the rowers, not the boats; there is a maximum weight for each rower in a lightweight event as well as a boat average.

**Oar:** Used to drive the boat forward: rowers do not use paddles.

**Port:** Left side of the boat, while facing forward, in the direction of the movement.

**Power 10:** A call for rowers to do 10 of their best, most powerful strokes. It's a strategy used to pull ahead of a competitor.

**Repechage:** The second-chance race which ensures that everyone has two chances to advance from preliminary races since there is no seeding in the heats.

**Rigger:** The triangular shaped metal device that is bolted onto the side of the boat and holds the oars.

**Run:** The run is the distance the shell moves during one stroke. You can figure it by looking for the distance between the puddles made by the same oar.

**Sculls:** One of the two disciplines of rowing – the one where scullers use two oars or sculls.

**Shell:** Can be used interchangeably with boat.

**Slide:** The set of runners for the wheels of each seat in the boat.

**Starboard:** Right side of the boat, while facing forward, in the direction of movement.

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**Stern:** The rear of the boat; the direction the rowers are facing.

**Straight:** Refers to a shell without a coxswain i.e. a straight four or straight pair.

**Stretcher or Footstretcher:** Where the rower's feet go. The stretcher consists of two inclined footrests that hold the rower's shoes. The rower's shoes are bolted into the footrests.

**Stroke:** The rower who sits closest to the stern. The stroke sets the rhythm for the boat; others behind him must follow his cadence.

**StrokeCoach:** A small electronic display that rowers attach in the boat to show the important race information like stroke rate and elapsed time.

**Sweep:** One of the two disciplines of rowing – the one where rowers use only one oar. Pairs (for two people), fours (for four people) and the eight are sweep boats. Pairs and fours may or may not have a coxswain. Eights always have a coxswain.

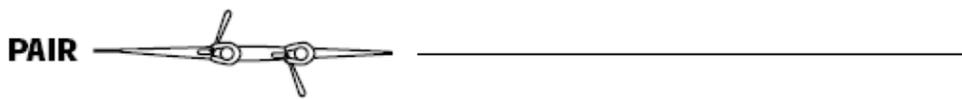
**Swing:** The hard-to-define feeling when near-perfect synchronization of motion occurs in the shell, enhancing the performance and speed.

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# Rowing Shells



The smallest of boats used in the sport. The single shell is used by one sculler with a sculling blade(oar) in each hand. Training in a single may be the best overall method to learn to row because performance feedback is immediate and therefore the rate of learning is usually higher than in any other boat type. Schedules can be individually tailored in a single, and this is definitely one of the attractions of this type of boat.



A shell rowed by two athletes, each using a sweep oar.



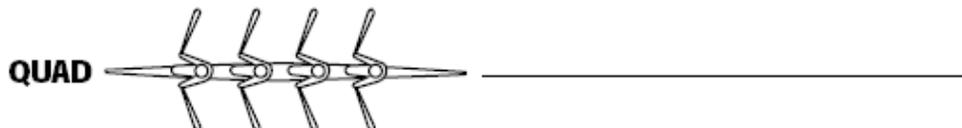
A shell in which two scullers row using a set of sculling oars each.



A shell in which four athletes row, each using a sweep oar. The rower in the bow of the boat steers with a rudder by a tiller wire attached to the toe of one shoe.



A shell in which four athletes row, each using a sweep oar. A coxswain steers the boat and calls the commands.



A shell in which four scullers row, each using a pair of oars or sculls.



The largest of all rowing shells. It is manned by eight rowers, each using one sweep oar. A coxswain steers the boat.

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# Terminology

### COMMON TERMS

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**Blades:** Another term for oars.

**Bow** (front of the boat): There should be a bow ball on the bow.

**Collar:** The plastic ring part way down the shaft of the oar that provides the fulcrum in conjunction with the oarlock.

**Coxswain** (*cox, coxy*): The person who steers the boat and gives the commands to the crew.

**Decking:** The plastic material which is used to cover the bow and stern of the boat where no one sits.

**Fin:** A short piece of metal toward the stern of the boat on the bottom of the hull. This helps to keep the boat moving in a straight line.

**Footboards:** This is where the participant places his/her feet when sitting in the boat. These are adjustable to permit shorter or taller people to sit in the same position relative to the desired arc of the oar. Some boats have clogs and other boats have shoes.

**Gate:** The top part of the oarlock which closes the oar into the oarlock.

**Gunwales:** Located above the boat's hull, rowers sit between the gunwales and the riggers are attached here. It provides some rigidity but is not as strong as it looks. One of the main purposes of the gunwale is to keep water out of the shell in rough conditions.

**Oarlock:** Holds the oar and acts as a swivel during the drive and recovery.

**Port:** This is the right side of the boat if you are rowing (on the left side of the boat for the cox). In some clubs, port oars are marked with red tape.

**Rigger:** The metal support that holds the oar. This is adjustable to make the participant more comfortable.

**Rudder:** This can be located in the very stem of the boat or attached to the fin. It is used to steer the boat.

**Sculling:** The participant rows with one oar in each hand.

**Shaft:** The long "stick" part of the oar.

**Slide:** The two metal tracks that the seat slides on.

**Spoon:** The large flat part of the oar which is in the water during the stroke.

**Starboard:** This is left side of the boat if you are rowing (on the right side for the cox). In some clubs, starboard oars are marked with green tape.

**Stern** (back of the boat): This is usually where the coxswain sits and is where the rudder is.

**Stretchers:** The slings that the crew may put the boat on in order to make adjustments to the boat before going on the water.

**Stroke seat:** The rower who sits in the stern seat who sets the rhythm and pace for the crew.

**Sweep:** The participant rows with both hands on the same oar.

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## Eleven Insights to the Sport of Rowing

1. Rowing is a total body workout. Rowing only looks like an upper body sport. Although upper body strength is important, the strength of the rowing stroke comes from the legs. Rowing is one of the few athletic activities that involves all of the body's major muscle groups. It is a great aerobic workout, in the same vein as cross-country skiing, and is a low-impact sport on the joints.
2. Rowers are probably the world's best athletes. Rowing looks graceful, elegant and sometimes effortless when it is done well. Don't be fooled. Rowers haven't been called the world's most physically fit athletes for nothing. The sport demands endurance, strength, balance, mental discipline, and an ability to continue on when your body is demanding that you stop.
3. Sweep (like a broom) and Sculling (with a "c"). There are two basic types of rowing: sweep rowing and sculling. In sweep rowing, athletes hold one oar with both hands. In sculling, the athletes have two oars, one in each hand.
4. The boat. Although spectators will see hundreds of different races at a rowing event, there are only six basic boat configurations. Sweep rowers come in pairs (2s), fours (4s) and eights (8s). Scullers row in singles (1x), doubles (2x) and quads (4x). Sweep rowers may or may not carry a coxswain (cox-n), the person who steers the boat and serves as the on-the-water coach. All eights have coxswains, but pairs and fours may or may not. In all sculling boats and sweep boats without coxswains, a rower steers the boat by using a rudder moved with the foot.
5. The categories. Rowers are categorized by sex, age and weight. Events are offered for men and women, as well as for mixed crews containing an equal number of men and women. There are junior events for rowers 18 or under or who spent the previous year in high school, and there are masters events for rowers 27 and older. There are two weight categories: lightweight and open weight.
6. The equipment. Today's rowing boats are called shells, and they're made of lightweight carbon fiber. The smallest boat on the water is the single scull, which is only 27-30 feet long, a foot wide and approximately 30 pounds. Eights are the largest boats at 60 feet and a little over 200 pounds. Rowers use oars to propel their shells. Sweep oars are longer than sculling oars, typically with carbon fiber handles and rubber grips (although some sweepers still prefer wooden handles). Sculling oars are almost never wood.
7. The crew. Athletes are identified by their position in the boat. The athlete sitting in the bow, the part of the boat that crosses the finish line first, is the bow seat or No. 1 seat. The person in front of the bow is No. 2, then No. 3 and so on. The rower closest to the stern that crosses the finish line last is known as the stroke. The stroke of the boat must be a strong rower with excellent technique, as the stroke is the person who sets the rhythm of the boat for the rest of the rowers.
8. SPM not MPH. Rowers speak in terms of strokes per minute (SPM), literally the number of strokes the boat completes in a minute's time. The stroke rate at the start is high – 38-45, even into the 50s for an eight – and then "settles" to a race cadence typically in the 30s. Crews sprint to the finish, taking the rate up once again. Crews may call for a "Power 10" during the race – a demand for the crew's most intense 10 strokes.
9. Race watching. The crew that's making it look easy is most likely the one doing the best job. When watching a race, look for a continuous, fluid motion from the rowers; synchronization in the boat; clean catches, i.e. oars entering the water with little splash; and the boat with the most consistent speed.
10. Teamwork is number one. Rowing isn't a great sport for athletes looking for MVP status. It is,

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however, teamwork's best teacher. The athlete trying to stand out in an eight will only make the boat slower. The crew made up of individuals willing to sacrifice their personal goals for the team will be on the medal stand together. Winning teammates successfully match their desire, talent and blade work with one another.

11. Rowing is the ultimate walk-on sport. (It's easier to get started than you think.) USRowing is a membership organization that serves rowers of every age and ability from the beginner to the experienced rower to the national team. So, there's definitely a place for you.

USRowing is the one organization you need. Our rowing roots reach back to 1872, making us the oldest national governing body in sports. We offer a wide variety of benefits to our members: a photo-laden magazine, national and regional members-only regattas, specialized e-newsletters, access to club contacts throughout the country, our trained referees to maintain safe racing conditions at all races, a certified coach's education program and much more. It all adds up to a strong lineup. Join our crew online at [www.usrowing.org](http://www.usrowing.org) or call toll-free 1-800-314-4ROW.

## Viewer's Guide

If you are new to the sport of rowing, this Viewer's Guide will give you the basics for your first regatta.

### The Events

Events are divided into two disciplines: sweep rowing and sculling, and two categories within those: lightweight and open.

### Sculling and Sweep Rowing

Athletes with two oars – one in each hand – are scullers. There are three sculling events: the single – 1x (one person), the double – 2x (two) and the quad – 4x (four).

Athletes with only one oar are sweep rowers. Sweep boats may or may not carry a coxswain (pronounced cox-n) to steer and be the on-the-water coach. In boats without coxswains, one of the rowers steers by moving the rudder with his or her foot. Sweep rowers come in pairs with a coxswain (2+) and pairs without (2-), fours with a coxswain (4+) and fours without (4-) and the eight (8+), which always carries a coxswain. The eight is the fastest boat on the water. A world-level men's eight is capable of moving almost 14 miles per hour.

The pairs and fours with coxswain are sometimes the hardest to recognize because of where the coxswain is sitting. Although the coxswain is almost always facing the rowers in an eight, in pairs and fours the coxswain may be facing the rowers in the stern or looking down the course, lying down in the bow, where he or she is difficult to see.

Athletes are identified by their seat in the boat. The athlete in bow is seat No. 1. That's the person who crosses the finish line first (which makes it easy to remember – first across the line is No. 1 seat). The person in front of the bow is No. 2, then No. 3, No. 4, No. 5, No. 6, No. 7 and No. 8, a.k.a. the stroke. The stroke of the boat must be a strong rower with excellent technique, since the stroke sets the rhythm and number of strokes per minute the rest of the crew must follow.

### Lightweight and Open Weight

An athlete of any weight can enter the open categories, although the average woman in an open race will approach 6' in height and an average open weight man 6'6". Lightweight Men cannot weigh more

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than 160 pounds and the average weight in the entire boat cannot exceed 155 pounds. Lightweight Women cannot weight more than 130 pounds and the average weight in the entire boat cannot exceed 125 pounds.

Lightweights row the same events as open weight athletes, except that other than the men's lightweight eight, they do not carry coxswains, so there is no lightweight 2+ or 4+.

## The Race

All events at the FISA World Championships and Olympic Games are 2,000 meters, or approximately 1.25 miles. The racecourse is divided into six lanes and each 500-meter section is marked with buoys.

The race begins with all boats aligned at the start in the lanes they've been assigned. Individuals in each lane hold the stern of each boat steady while an official, known as the aligner, ensures that each boat is even with the others and squarely facing the course.

Each crew is allowed one false start; two means disqualification. If within the first 100 meters there is legitimate equipment breakage (e.g., an oar snaps in two), the race will be stopped and restarted with repaired equipment.

The stroke rate (the number of rowing strokes per minute that a crew is taking ) is high at the start – maybe 45 to even 50 for an eight; 38 to 42 for a single scull. Then, the crew will "settle" into the body of the race and drop the rating back – 38 to 40 for an eight; 32-36 for a single. The coach and the way the race is going determine when the crew will sprint but finishing stroke rates of 46+ in the last 200 meters aren't unheard of. However, higher stroke rates are not always indicative of speed. A strong, technically talented crew may be able to cover more water faster than a less-capable crew rowing a high stroke rate.

Unlike canoe/kayak competitions, rowers are allowed to leave their lanes without penalty, so long as they do not interfere with anyone else's opportunity to win. An official follows the crews to ensure safety and fairness.

Despite the exhaustion of the race, the crew will row for five to 10 minutes afterwards in order to cool down. In rowing, the medals ceremonies include the shells. The three medal-winning crews row to the awards dock, climb out of their shells and receive their medals before rowing away.

## The Stroke

The whole body is involved in moving a shell through the water. Although rowing tends to look like an upper body sport, the strength of the rowing stroke comes from the legs.

The stroke is made up of four parts: Catch, Drive, Finish and Recovery. As the stroke begins, the rower is coiled forward on the sliding seat, with knees bent and arms outstretched. At the catch, the athlete drops the oarblade vertically into the water.

At the beginning of the drive, the body position doesn't change – all the work is done by the legs. As the upper body begins to uncoil, the arms begin their work, drawing the oarblades through the water. Continuing the drive, the rowers move their hands quickly into the body, which by this time is in a slight "layback" position, requiring strong abdominal muscles.

During the finish, the oar handle is moved down, drawing the oarblade out of the water. At the same time, the rower "feathers" the oar – turning the oar handle – so that the oarblade changes from a

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vertical position to a horizontal one. The oar remains out of the water as the rower begins recovery, moving the hands away from the body and past the knees. The body follows the hands and the sliding seat moves forward, until, knees bent, the rower is ready for the next catch.

## The Equipment

### *Oars*

Oars move the boat through the water and act as balancers. Sweep oars are longer than sculler's oars and have wooden handles instead of rubber grips. The shaft of the oar is made of extremely lightweight carbon fiber instead of the heavier wood used years ago.

The popular "hatchet" blade – named because of its cleaver-like shape – is about 20 percent larger than previous blades. Its larger surface area has made it the almost-universal choice among world-level rowers.

### *The Boats – Sculls and Shells*

All rowing boats can be called shells. Rowing boats with scullers in them (each person having two oars) are called sculls, e.g., single scull, double scull, quadruple scull. So, all sculls are shells but not vice versa! Originally made of wood (and many beautifully crafted wooden boats are made today), newer boats – especially those used in competition – are made of honeycombed carbon fiber. They are light and appear fragile but are crafted to be strong and stiff in the water.

The smallest boat – the single scull – is approximately 27 feet long and as narrow as 10 inches across. At 58 feet, the eight is the longest boat on the water.

The oars are attached to the boat with riggers, which provide a fulcrum for the levering action of rowing. Generally, sweep rowers sit in configurations that have the oars alternating from side to side along the boat. But sometimes, most typically in the 4- or 4+, the coach will rig the boat so that two consecutive rowers have their oars on the same side in order to equalize individual athlete power.

## Race Watching

- The crew that's making it look easy is most likely the one doing the best job. While you're watching, look for –

Continuous, fluid motion of the rowers. The rowing motion shouldn't have a discernible end or beginning.

- Synchronization. Rowers strive for perfect synchronization in the boat.
- Clean catches of the oarblade. If you see a lot of splash, the oarblades aren't entering the water correctly. The catch should happen at the end of the recovery, when the hands are as far ahead of the rower as possible. Rowers who uncoil before they drop the oarblades are sacrificing speed and not getting a complete drive.
- Even oarblade feathering. When the blades are brought out of the water, they should all move horizontally close to the water and at the same height. It's not easy, especially if the water is rough.
- The most consistent speed. Shells don't move like a car – they're slowest at the catch, quickest at the release. The good crews time the catch at just the right moment to maintain the speed of the shell.
- Rowing looks graceful, elegant and sometimes effortless when it's done well. Don't be fooled. Rowers haven't been called the world's most physically-fit athletes for nothing. A 2,000-meter rowing race demands virtually everything a human being can physically bring to an athletic

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competition – aerobic ability, technical talent, exceptional mental discipline, ability to utilize oxygen efficiently and in huge amounts, balance, pain tolerance, and the ability to continue to work when the body is demanding that you stop.

## More Race-Watching Tips

- Race times can vary considerably depending upon the course and weather conditions. Tailwinds will improve times, while headwinds and crosswinds will hamper them.
- If a crew "catches a crab," it means the oarblade has entered the water at an angle instead of perpendicularly. The oarblade gets caught under the surface and will slow or even stop a shell.
- A "Power 10" is a call by the coxswain for 10 of the crew's best, most powerful strokes. Good coxswains read the course to know how many strokes remain for their crew to count down to the finish.
- Crews are identified by their oarblade design. The USA blades are red on top and blue on the bottom, with a white triangle at the tip.
- It doesn't matter whether you win an Olympic medal or don't make the finals – each crew still carries their boat back to the rack.
- Coxswains from first-place boats worldwide are thrown into the water by their crews.
- Coxswains don't now and probably never did yell "stroke! stroke!" Similar to a jockey, their job is to implement the coach's strategy during the race, in addition to steering and letting the rowers know where they stand in the race and what they need to do to win.