

Chapter 4

Basic Rowing Technique

by Kris Korzeniewski

Introduction

An athlete's technical proficiency, combined with a good physical capacity, can greatly enhance the level of his or her performance. Although the role of technique is common to every sport, rowing requires considerable technical proficiency in order to achieve a high level of performance. It does not help to develop strength, endurance and other physiological capabilities if a rower does not have the skill to apply them to increasing the speed of the boat. Very often lightweight crews are successful against heavyweights, particularly in singles and pairs, showing that technical skill and a feeling for the boat can be the decisive factors.

The coach should concentrate on the fundamentals of rowing technique, rather than too many unimportant details. We are confident that the material provided here is enough to produce successful crews. Sticking with just the fundamentals seems to be the most efficient way to coach. In fact, many experienced, successful coaches admit that over the years they have simplified their teaching techniques. For these reasons, coaches should have a thorough knowledge and understanding of the basic principles of rowing technique. They should have a very strong image of the rowing stroke and should be able to transfer this image to their rowers in simple, easy-to-understand language.

Although the technique of sculling and sweep rowing are essentially the same, I recommend the symmetrical movement of sculling for beginners. Therefore, this Basic Rowing Technique section presents a description of sculling technique with some additional comments for sweep rowing.

A Description of the Basic, Natural Style

The essential principle of a rowing style is that all motions are related to the speed of the boat. After the blade is securely locked in the water, the body, suspended between the footstretchers and oarhandle, moves toward the bow; the leg drive and this suspension therefore propel the boat. While the legs are going down, all the other muscles are providing firm connection to the oar handle. Toward the end of the leg drive the upper body swings open, and is finally followed by a squeezing of the arms at the finish. This way, all groups of muscles work in a logical, sequential harmony, overlapping each other and creating steady pressure on the blade throughout the drive.

Phases of the Stroke

We will all now examine, one by one, the phases of the stroke cycle and provide a few very basic technical explanations. We will concentrate on the "natural style."

Entry

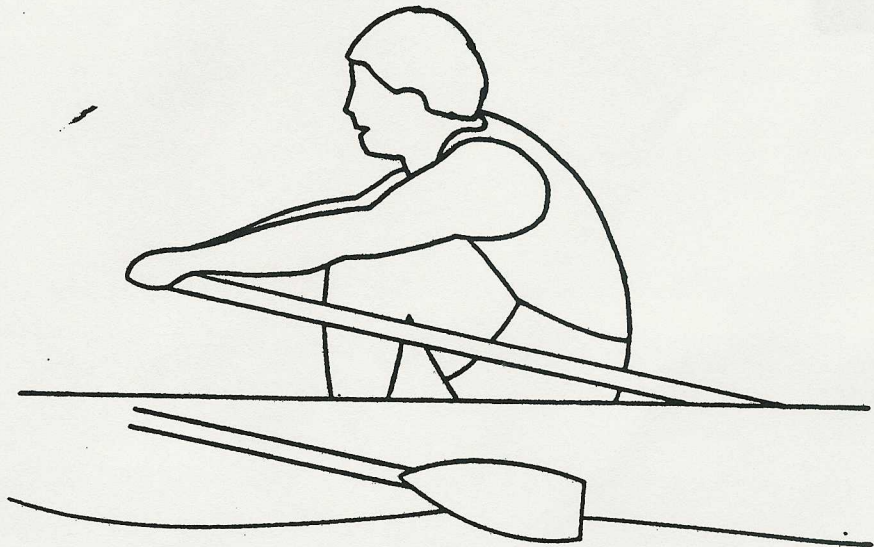


Figure 1 - The Entry Position

Sculling

- Find a natural body position, reaching from the hips (body angle) with a slightly curved upper body.
- Sit tall and relaxed using your total height and reach.
- Use good compression; shins should be almost vertical.

Sweep Rowing (additional comments)

- Keep your outside shoulder high using a slight rotation toward the end of oar handle.
- Both arms should be straight and outstretched.

The blades enter the water at the maximum of your reach. There should be no body lift to put the blades into the water; only the hands should lift the oar handle to put the blade in the water. The speed of entry into the water is critical so as not to lose length. The efficiency of the leg drive is lost if the blade is not buried in the water.

First Half of the Drive

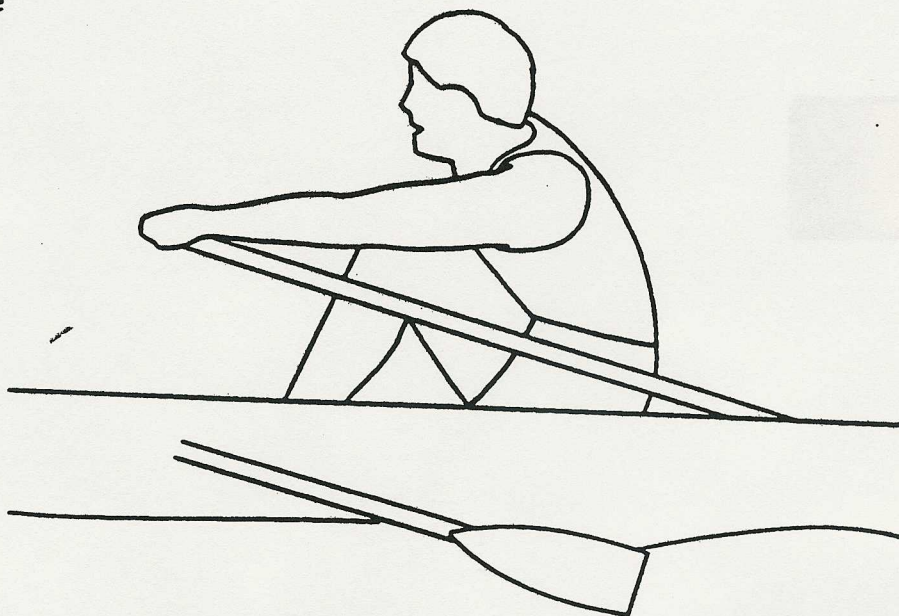


Figure 2 - The First Half of the Drive

Sculling

- After the entry of the blade into the water, the body weight is transmitted to the footstretchers using the force of the legs.
- The muscles of the back, shoulders and arms just hold firmly providing a good connection between the legs and the blade.
- There is no significant upper body lift (opening the angle between the chest and the thighs).
- All motion should be very horizontal.

Second Half of the Drive

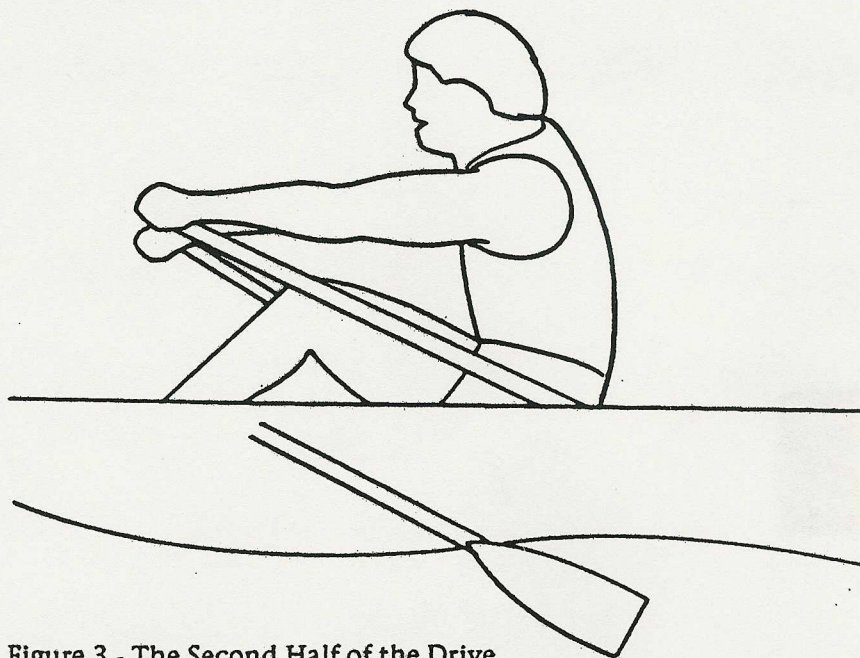


Figure 3 - The Second Half of the Drive

Sculling

- The second half of the drive is the strongest, most efficient part of the stroke.
- Continuation of the horizontal drive, body weight hanging on straight arms.
- It will appear as if the body swing "takes over" from the leg drive.
- The upper body is in a vertical or close-to-vertical position.

Sweep Rowing (additional comments)

- Both arms are straight and stretched.
- Maximum tension is on the outside arm (longer leverage).

Finish and Release

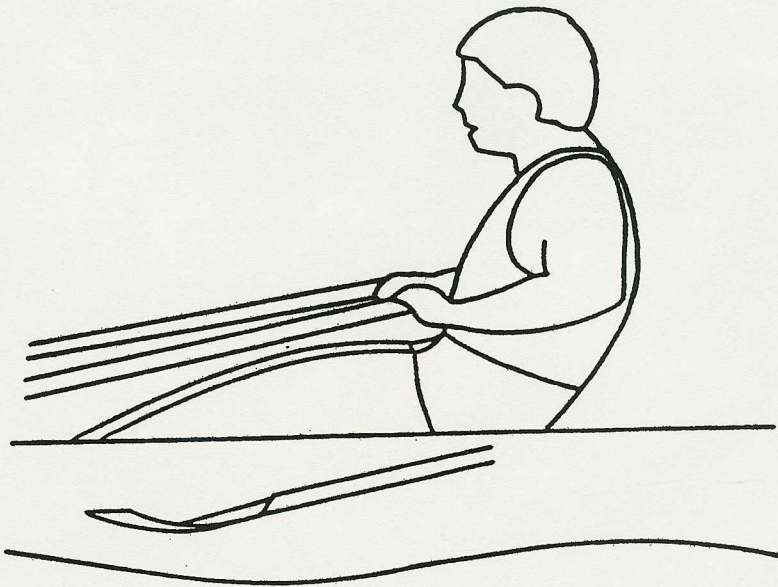


Figure 4 - The Finish and Release

- Legs and back finish their work almost simultaneously.
- Hands should continue the last inches of the draw with good support against the footstretchers.
- Keep the body in a tall position about 10 degrees past vertical; your head and chest should be behind the oar handles (no slouching).
- Semi-circular motion of release occurs in front of the body without touching it.

Sweep Rowing (additional comments)

- The outside shoulder should be slightly higher than the inside.
- The outside forearm is level; keep a high elbow position.
- Inside elbow goes down through the plane of the body.

As you can see in Figure 4, the body is in the "lay back" position, waiting for the hands to get away before starting to move out of the bow. This will prevent the very common mistake of cutting off the finish and rushing the body out of the bow.

First Half of the Recovery



Figure 5 - The First Half of Recovery

Sculling

- Outstretched arms (not locked) are pulling the upper body forward to the proper forward body angle; then the slide to the stern begins.
- Hands-upper body-slide - all in a fluid sequence of movement - make-up the first part of recovery.

Sweep Rowing

- The outside shoulder is slightly higher than the inside.
- The outside arm is totally outstretched as hands go over the knees
- Inside arm is still slightly bent.

Figures 5 and 6 show two very important points of the first part of recovery. Although these drawings are a little exaggerated, in practice all motions are very fluid and follow each other in a continuous cycle.

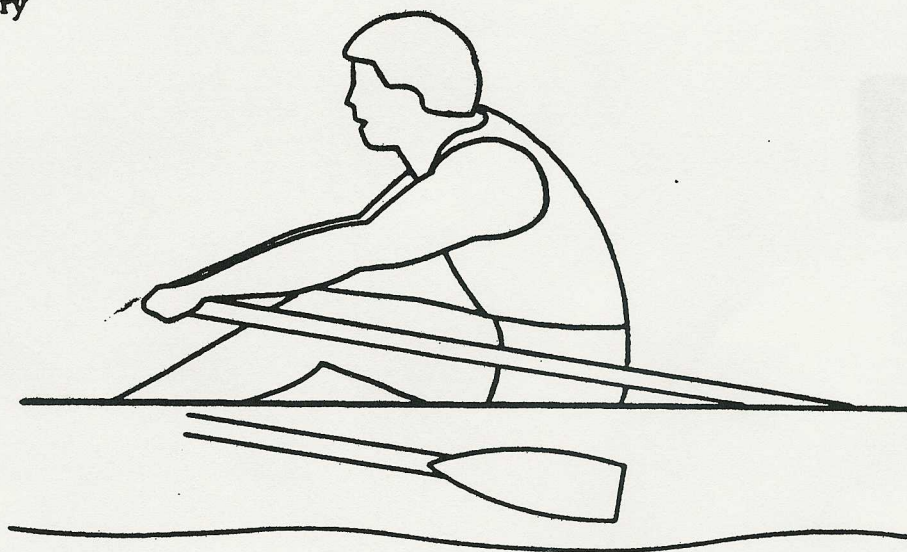


Figure 6 - The Second Half of Recovery

- The seat has covered half the distance between finish and entry:
- Arms are stretched forward.
- The body has completed the forward reach (total body angle is set).

Sweep Rowing

- The outside shoulder should be at the maximum of its forward reach, slightly ahead of the inside.
- Keep both arms outstretched without locking the elbows.

Blade Work

Blade work is a skill that has a direct impact on the movement and speed of the boat. For this reason many coaches pay much more attention to correct blade work than to the body motion. Yet very often the blade work is a direct reflection of what is happening inside the boat. Therefore, it is often possible to change either the body work or the blade work, and have the other one be changed at the same time.

The following is a description of correct blade work:

- Recovery** During the recovery, the blade travels toward the bow in a smooth, horizontal plane at a steady height. There should be enough clearance to allow an easy squaring of the blade before the entry without skimming the surface of the water.
- Squaring** The squaring, or turning of the oar so that the blade is perpendicular to the water's surface, should start when the hands pass over the ankles and it should be executed at a constant speed, and gradually, during the

last part of the recovery. Squaring the blade should neither slow down nor stop the motion of the blade ("hanging") before the entry into the water.

Entry The entry of the blade into the water should be done quickly and as a continuation of the recovery. It should be well synchronized with the speed of the boat, without too much back splash or front splash. For beginners, however, some minimal back splash is suggested, to make certain that they don't miss water. Use the gravity of the weight of the blade, instead of power, to place the oar in the water. "Scooping" the blade's entry into the water should be followed with immediate horizontal power application (leg drive) once it is fully covered.

Drive While executing the drive, the blade should remain buried in the water, moving horizontally and at an even depth of approximately three to four inches. In order to maintain steady pressure the drive should gradually accelerate from the entry to the final push of the boat, to stay with the acceleration of the boat itself.

Release The release of the blade from the water should follow the last "push" of the drive. The release should be a quick, clean, fluid motion of the blade up and out of the water while still square. The feather - turning the oar so the blade is parallel to the water's surface - follows sequentially after the blade leaves the water.

The whole path of the blade should be very horizontal during the drive, as well as during the recovery. It should be connected by semicircular ends (entry, release) where the blade changes its direction. The whole motion, squaring, entry, drive release, and feathering, should be related to the speed of the boat and the stroke rate. Most beginning rowers, however, feather too soon and too quickly in relation to the speed of the boat, and end up feathering while the blade is still under water. Some coaches deliberately exaggerate the speed of entry or release at a low stroke rate, hoping that when the athletes row at a higher cadence, the entry and release will be correct. We discourage this exercise.

The most common mistake related to the entry is "hanging" or "skying" before the entry. The blade misses the water, then "chases and hits," trying to get some grip on the water.

There are several possible reasons for this problem:

- Squaring too late, caused by a lack of feeling for the run of the boat and missing the best point to lock it in.
- Dropping the hands and shoulders, caused by reaching at the last moment before the catch. In most cases this is caused by insufficient reach during the first part of the recovery.

- Carrying the blades too close to the water level in the middle of the recovery, and then looking for clearance to be able to square just before the entry.

Physical Laws

What follows is a brief simplification of physical laws as they relate to the movement of the boat. This subject will be expanded upon in Level II and Level III. During the rowing stroke cycle, a rower is moving on the slide backward and forward. During his movement in the direction of the bow of the boat, the boat is propelled forward.

$F(\text{force}) = m(\text{mass}) \times a(\text{acceleration toward the bow}) = \text{Positive Force}$

The boat decelerates when the same mass accelerates in the opposite direction, especially in the last part of the slide.

$F = m \times a (\text{toward the stern}) = \text{Negative Force}$

It is almost impossible to reduce negative force completely. There will always be some checking of the boat, slowing it down a little. It is the degree of checking that separates good crews from poor ones. A controlled slide, correct entry of the blade into the water (before any pressure on the footstretchers) and immediate change of direction of the body mass toward the bow of the boat (suspending the body mass on the oar handle) will reduce negative force.

Forces in Rowing

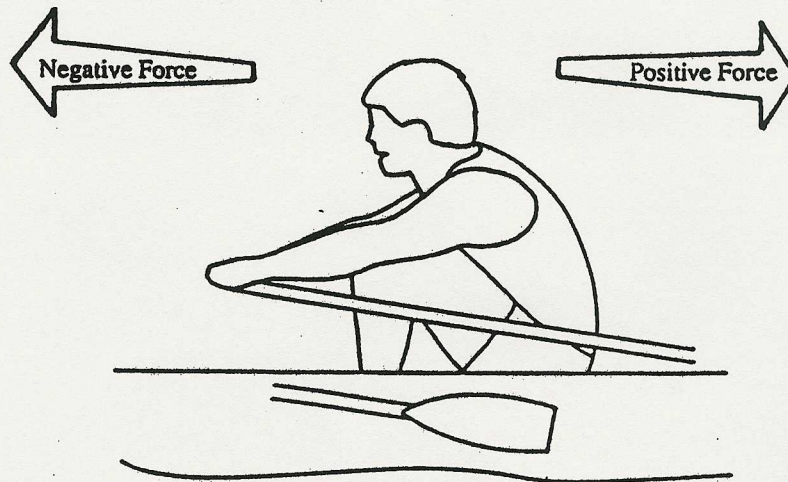


Figure 7 - The Forces in Rowing

If not done correctly, a rower will arrive at the catch and at the moment that he is supposed to reverse the direction of his mass toward the bow, a "check" in the boat occurs. This could be due to:

- The blade not being locked in the water
- The upper body mass continuing to travel forward, even though it has stopped (perhaps even reversed) the slide. This could be created by the slide rushing toward the catch.

This mistake, of course, is magnified with the increased mass of the rower, which explains why so often some very large rowers cannot move the boat, and cannot win the race. This is due to checking the boat, making the boat "heavy," caused by poor technique rather than by lack of effort.

Velocity of the Boat

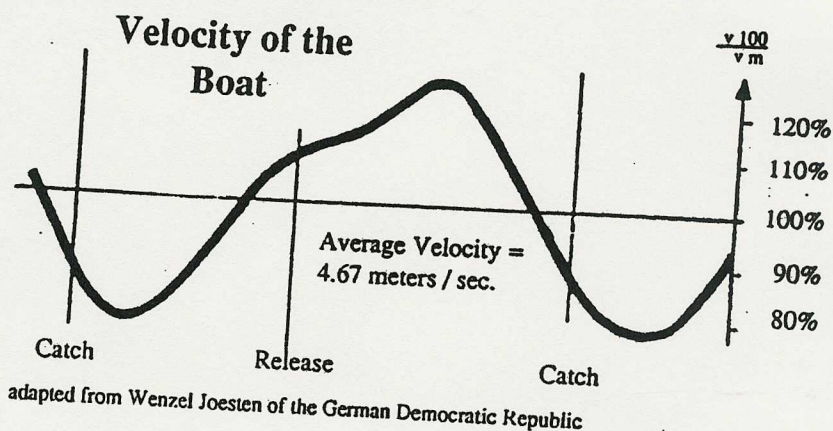


Figure 8 - The Velocity of the Boat

The effect of these forces (positive and negative) on the velocity of the boat is not constant, but instead has some significant patterns. The entry occurs during the deceleration phase and additional slowing of the boat speed follows the entry. The boat starts accelerating during the rest of the drive and continues after the release, during the first part of the recovery. Crews that have very good technique show smaller variations from the given average velocity.

The basic rowing technique presented here is a quite logical, natural approach. There is no room for dramatic, abrupt motions which would be in conflict with the speed of the boat. Body actions, blade motions, seat movements must all be in harmony with the speed of the shell.

Level II will go into more details on rowing technique including a detailed discussion of the movement of the boat.