



V1 PADDLING

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Basic concepts

Rudderless V1 paddling is an art form that requires subtle changes in outrigger paddling style to suit the boat. Basic technique points remain the same; entry, catch, pull, exit and recovery are all retained. The catch and the exit and application of force become more important without a rudder to correct for poor stroke mechanics. Some of these changes are;

Left side: left side strokes are paddled as they would in a ruddered boat (OC1). In V1 it is very important not to put weight on the ama while paddling left or your boat will turn left despite paddling on that side.

Right side: right side strokes are shorter than when paddling OC1, they are usually between $\frac{2}{3}$ to $\frac{3}{4}$ of the stroke length on the left, with more of the stroke in front of the body when moving straight, and slightly closer to the body when steering. As with the left side, all weight must be kept off the ama or steering is adversely affected and the hull will turn right within 1-2 strokes

Pull: smooth acceleration to the exit is absolutely essential; any loss of force or increase in force will result in a direction change in the V1

Exit: the exit must be quick, clean and have no impact on boat run, or it will change the hull direction resulting in an increased need to steer (and speed loss)

Balance: you must be able to paddle without distributing weight to the ama as this affects steering.

Changes: You need to be quick and effective with changes as you will need to be able to do them at will, with little to no chance of losing hull speed or direction.

Steering

There are two main strokes you will use in V1 propulsion strokes and steering strokes. You must be skilled enough to know before your paddle goes in the water which of these two strokes you are going to make. Sitting on the fence will give you a poor propulsive stroke and a poor steering stroke resulting in sub-par performance. Proper preparation in rudderless paddling will minimize the speed loss though steering to the point where you can actually be faster rudderless due to the lack of form drag attributed to the rudder.

1. **Changes:** The easiest way to steer without affecting hull speed is through changing sides. For a given set of conditions (wind, waves, current, etc.) you must be able to quickly identify how many strokes you can do each side before the boat changes direction and be prepared to follow that pattern while it works. In some situations (i.e. strong right wind/waves) you may have to paddle the entire race on one side (in this case left). With good stroke mechanics and steering skills you can balance your strokes out somewhat in adverse situations.

To be effective at changing sides

2. **Steering strokes:** Steering strokes come in two categories, front steering and back steering.
 - a. **Front steering:** Front steering strokes are those done at the front end of the paddle stroke. They do minor corrections on the boat run while contributing a good deal to propulsion.
 - i. **Front draw/:** this is the easiest front steering stroke. The paddle entry is angled so that the initial portion of the stroke (before the main pull) draws in toward the hull at a slight angle (10°, 20°, 30° or 40°) then back in propulsion. You lose catch on these strokes and need to be aware of pulling too far back.
 - ii. **Front pry:** This stroke is used primarily as a cross-over steering stroke to do a major course correction. It is similar to an "*uni*", where the blade enters vertically flat along the length of the hull and then pulls out from the hull slightly before sweeping back into a poor propulsive stroke. The angle of the sweep will dictate the degree of steering. While it is possible to do this stroke as a straight *uni* (crossed over arms), the biomechanics it renders the stroke steering only at this time, and if crossing from left to right, a high hull risk maneuver.
 - b. **Back steering:**

- i. **J-stroke:** while this is the stroke everyone is familiar with, it is probably more the name than the stroke. A well executed J-stroke provides good propulsion, then just before the exit the propulsion is stopped and the wrist is rolled in to put the paddle parallel to the hull and the elbow rotates out to apply lateral pressure on the blade. What we are actually looking for at this point is to push the hull away from a stationary paddle in a lateral direction. This movement should occur behind the central pivot point (center of rotation/mass) in the hull rotating the hull about this axis.

Mistakes often occur when the J begins too early or while pulling, thus providing no purchase upon which to push the hull away from the paddle.

- ii. **Back draw:** the classical draw stroke is also a valid way to steer your V1, at great expense to forward velocity. To ensure this is an effective steering stroke and not just a lateral translation of the hull to a parallel course, make sure the draw takes place behind the central pivot point.
- iii. **Poke:** same as in OC6 steering, the poke can quickly alter your course. As with the draw stroke the poke has a high speed cost. Be careful that your poke does not become a pry. A left pry will drive the ama down unless you are very careful, can result in a very dramatic left turn, while an unstable right pry can result in a huli.
- iv. **Other: "C" stroke:** A modified draw stroke where the blade enters the water at 10 -20 – 30 degrees and brought slightly under the hull. The pull is shortened and a modified "J" is executed.

3. **Weight shift:** using your weight in the canoe can also affect steering. When executing a front steering stroke, keep you weight back in the canoe to unweight the bow, allowing it to turn slightly. When steering from the back, unweight the stern.

Weight shift can also occur from left to right. As a rule, keep all your weight off the ama. The only time you can justify putting weight on the ama is when you need to steer left and choose to do so while paddling on the left. This can be accomplished by moving one or other leg against the side of the boat.

4. **Other:** While changes, weight shift and steering strokes make up the majority of the steering elements in V1, there are a number of less orthodox steering solutions used by various countries.

One of the more useful is using your foot and leg as drag to initiate a course change. This method is very good in the final stages of a race where maintaining maximum propulsion is to your advantage and all other steering methods have failed to work satisfactorily. The amount of foot and leg used will be related to the amount of drag, and course change. There is a big speed cost on this if you are not careful and judicious.

Using a slight drag of the paddle on the water during the recovery can also offer subtle course changes. In rough water this method can both add stability through support of the paddle, but at the risk of a wave catching the paddle and destabilizing you.

Starts

- 1- Lane positioning.

The day's weather conditions will dictate how you position your boat in your lane. Wind, waves and swell all must be considered. The strength of the wind and the size of the waves will dictate where you will start in the lane and what paddling side you will start on. In ideal situations setting up in the middle of the lane works well. This gives you room for going off course. If you cross into another lane you cannot interfere with another boat or you will be disqualified.

Always sight down the lane – distinguish the two buoys/flags that are your finish buoys. Make sure they are the right colour. Mark the mid-way point. Mark a point, behind the finish line for a far off mark. 500 metres on a sunny day is a long way and it is easy to go off your course.

If there is no boat holder you will most likely be kept behind the start line for 3:00 – 5:00 minutes. You will be brought to the line with 1:00 to start. You will always be called back if you are over the start line but seldom called forward.

If boat holders are in place you will be brought to the line up to 3' before the start. You must continually gauge your position and your boat angle. Communicate with your boat holder. Talk through the start sequence with them before race day and practice the start.

There will be linesman on one side of the course lining boats up. The start boat will be sitting 50 metres in front of the paddlers. The start boat will have two flags: Red and Green. When the boat aligner signals a white flag the starter will raise a red flag (start imminent) then lower the red and raise the green simultaneously. This can occur anywhere

from 5 seconds after the red is raised to a minute or more. Always watch for the flags and be prepared to start the second the Red flag drops. Waiting for the green flag to rise may delay you while others are moving.

A black flag on the start line indicates a rule infraction and may result in a recall or restart. Three horn blasts and/or a black flag in the starter's boat will indicate a false start.

2- Boat angle.

The angle your boat is set at will be determined by the side you start on in addition to the wind, waves and whether the boats are held at the start or not. The angle is to offset your first few strokes, ideally by the third stroke your boat is positioned straight down the course and you are ready to race your plan. Practice your starts before race in different lanes and if possible in different conditions.

Injury prevention

Wrist: wrist problems are wither neural (carpal tunnel type), tendon (tendonitis) or muscular compartment (compression) syndromes. All of these are related to initiating the inward wrist roll while there is still pressure on the blade. The wrist roll must initiate the instant after the pull ceases.

Elbow: Tendon issues are also common at the elbow. Again, these are related to poor sequencing of the stroke and initiating the steering or exit before the full has been terminated. This is very common in the J-stroke.

Shoulder: Shoulder issues are less common. They will be muscular, tendonous or neural based on the exact nature of the injury. Most will be related to incomplete relaxation during the stroke exit or using the shoulder to initiate the pull rather than the torso.

An excellent way to minimize V1 (steering) related injuries is to adopt a gradual transition from OC1 (ruddered) to V1. The following chart is a good guideline:

WEEK	New V1 paddler		Experienced V1 paddler	
	OC1	V1	OC1	V1
1	90	10	70	30
2	80	20	60	40
3	70	30	60	40
4	60	40	50	50
5	50	50	40	60
6	50	50	30	70
7	40	60	20	80
8	30	70	10	90
9	20	80	<10	>90
10+	10	90	<10	>90

V1 paddling will improve you OC1 and open up many new challenges to solo paddling. Have fun!