

# Dragonboat Stroke Checklist



*Note: The woman at right is not leaning forward enough. More lean equals more reach. See how much more reach the men at left are getting*

## Reach:

- LEANING: nose should be above or forward of your bent knee
- STRETCHING: paddle is at thigh of the person in front of you
- TWISTING: chest faces across the boat at your partner
- Look UNDER your arm, across the boat, into your partner's eyes
- Top hand is HIGH, above your head
- Bottom arm is STRAIGHT (and top arm nearly so)
- Paddle in PLANE perpendicular to the water (i.e. top hand is OUTSIDE the boat)

## Catch:

**FALL on the paddle. Paddle enters water nearly vertical**



## Pull:

- Rock back and sit UP all the way
- Top arm stays HIGH: never let your hand fall below chin level
- Arms are FIXED: almost no bending of either arm (Use your back, not your arms)
- Top hand stays OUTSIDE the boat over the water
- Stroke ENDS at or forward of your hip
- You are now facing the FRONT of the boat



## Exit

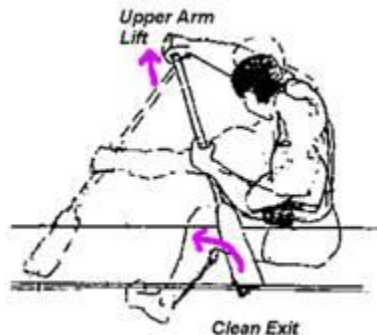
- Begin recovery IMMEDIATELY
- Pull paddle out of the water nearly VERTICAL by lifting your top hand.



*Note: This woman has pulled a little TOO high*

## Recovery

- Punch the lower arm forward until it is straight and you are in the reach position



## **PADDLING BASICS**

There are six key parts to the dragon boat stroke. When done properly, a boat flies; executed improperly, the boat will feel sluggish and heavy. The first three components set up the stroke, while the last three are considered to be the work-phase part of the stroke. The six components are called: rotation, reach/extension, catch, pull, exit, and recovery.

### **Rotation (set-up1)**

The image some coaches use to help paddlers picture rotation is that a pole is inserted through the head, along the spine, and then anchored to the dragon boat seat. Another way of achieving full rotation is to present your back to the shore or have your chest facing your partner. Full rotation, or twist as it is sometimes called, allows for maximum reach/extension. Shoulder position is the key to rotation. For the outside (or bottom) arm shoulder to extend or rotate forward, the top arm shoulder must come back behind your head. Try not to drop the outside shoulder too low. Keep the two shoulders parallel to the water as much as you can. The inside or top arm shoulder needs to move to the water side also to facilitate twist. This also helps to get your weight over the water by leaning out. Throughout all this keep your back straight, head up and stick out your chest.

### **Reach/Extension (set-up 2)**

This position in the stroke is crucial in maximizing the length of the stroke. The position of the outside paddling arm is equivalent to pulling a bow and arrow. The outside shoulder should be extended forward. The torso leans forward for additional extension.

A proper reach position also known as the setup is the foundation of a proper dragon boat stroke. The reach position is the extended position with the paddle a few inches above the water before the driving it into the water. This reach position determines the length of a stroke and a long stroke means more water is pulled. The reach position is the end point of the Recovery phase, but is the beginning of a new stroke cycle. "A-Frame" analysis is often used to determine the correct lines of the setup.



The "A" Frame Set Up Position

Key points when analyzing the "A" Frame:

- straight line from top hand through top arm shoulder to the hip
- Straight top arm at the elbow
- bottom arm parallel to the water with that shoulder extended forward
- top arm should be behind the head

The reach position determines the rotation of the torso. If the torso is "rotated" forward upon the paddle entering the water, the torso will naturally want to "de-rotate" back to the normal seated upright seated position.

As mentioned previously, the lower arm position is similar to drawing a bow and arrow. The bottom arm is extended straight forward parallel to the water. The lower shoulder is extended forward and therefore the shoulder on the top hand side comes back and up. In the Reach position, these four points on the body should be lined up in a vertical plane: (a) top hand, (b) head, (c) lower shoulder and (d) lower hand.

As well, from the side view there should be a straight line from the top hand, through the top arm shoulder to the hip. The torso rotation, extension of both arms and the forward lean are maximum.

The upper arm should be straight with very little bend at the elbow if possible. The top arm shoulder should be behind the head on the setup. The lower arm is fully extended and is locked at the elbow. The lower hand grip should be relaxed and not grip the paddle too hard. The paddle flips forward into the reach position where it is at its highest potential energy level. From this position, the potential energy will be used to submerge the paddles as the stroke progresses.

### **Catch (set-up 3)**

The catch phase is the most critical to the speed of the boat. The catch is the moment the paddle blade first bites into the water. With the torso leaning forward as much as possible, the catch is initiated with the outside or lower arm shoulder dropping to plant the first four inches of the paddle blade into the water. There should be an attempt to maintain the paddle angle of the reach position. To do this, do not start to de-rotate or un-twist during this phase. Once the tip of the blade is planted in the water continue to submerge the paddle by driving the top hand down. Paddle blade should now be fully buried or submerged. The shoulders and hips are still in the extended forward twist position ready for the pull phase.

### **Pull (work 1)**

Once the paddle is fully submerged or "buried", the next component of the stroke is the pull phase. The buried position is also called the "vertical" position or "90/90" which means from the front view and side view the paddle is straight up and down; at 90 degrees. The paddles should then pull back directly parallel with the boat. The top hand stabilizes the paddle as the bottom arm and back muscles pull back. To use the back muscles effectively, the paddler sits up while pulling and continues to drive the paddle downward with the top hand. Maximum power and endurance will come from using the larger muscles of the back, shoulder and trunk rather than relying on the smaller arm muscles. Note that both arms should be straight at the elbow while pulling through. Hips and shoulders should work together and move back with the paddle.

### **Exit (work 2)**

Conventional paddling theory says that the exit of the paddle should occur by the time it gets to the hip. In 2001, the Canadian National Teams introduced a new stroke that included an exit that was well past the hip. The bottom hand pulled back until it was at the hip but the blade tip was a good foot behind. The theory behind this new stroke is that the "pull phase" needs to be longer because of the relatively heavy boats compared to flatwater boats. The longer pull phase also produces the "glide" which seems to be the key to boat speed. A team, if in perfect synchronization, can lower overall rate and achieve faster times using this theory. If a team is not fully prepared to take on this new style it can have bad effects to the boat.

### **Recovery**

This part of the stroke is the rest phase when the muscles are not working as hard; recovery speed plays a large role in determining the stroke rate. During recovery, the torso starts rotating and leaning forward to setup for another cycle of the stroke. The blade tip is only 6 inches above the water surface. A long recovery can allow a team to rest altogether. Again, timing can be an issue.

# SETTING UP THE CREW POSITIONS

The boat crew is broken into three sections, the front which is the first six paddlers, the engine room which is the middle eight paddlers and the back which is last six paddlers. Weight of the paddlers must be taken into consideration when setting up the boat. Any serious weight distribution problems will adversely affect how the boat tracks for steering. The biggest paddlers are placed in the middle or engine room and lighter paddlers at the front and back sections.

The front six paddlers set the pace and should be reserved for paddlers with good long paddling strokes. The rest of the boat needs something visual to follow. The rest of the boat will have short choppy stroke if the front has short choppy strokes.

The middle eight or the "engine room" is usually reserved for the heavier, stronger paddlers. During the middle of the race the engine room dictates the pace. The stroke rate of the crew is usually determined by the engine room. The stroke rate is not too fast as long as the big engine room paddlers can twist and reach. Once the engine room paddlers start shortening up on their stroke, you know the pace is getting too fast.

The back six paddlers of the boat should have the strongest people in the boat. It is not uncommon for a novice crew to setup the boat with weaker paddlers who get out of stroke. For an intermediate crew or an advanced crew this would be a missed opportunity. A series which is a sequence of more powerful strokes meant to advance the boat and is initiated by the back six paddlers and ripples to the front of the boat.

Depending which section the paddler is sitting in, the water reacts differently in each section. At the front, the water is dead and more difficult to pull the paddle through. Moving to the center of the boat where the engine room is, the water rushes by quicker. The water is fastest at the back of the boat. What does this do to the timing of the strokes? Since the water is faster in the middle and back of the boat, paddles will "fly" back quicker. Middle paddlers will tend to rush their exits relative to the front paddlers. Front paddlers will need to have long strokes (up front) and be quick on the exits because of this natural tendency of paddlers behind them to rush. In the back because of the even faster water, paddlers will have a tendency to pause at the end of their strokes. These back of the boat paddlers need to lengthen their strokes and to drive the paddle in the water even harder to slow down the paddle and to be effective. That is why they say that the strongest (not fastest) paddlers should be in the back of the boat.

Side to side and front to back weight distribution must be taken into consideration when setting up the boat. The steersperson must have the knowledge of how to move paddlers around to improve the balance of the boat. Having the boat off balance can seriously affect how the boat tracks.

***The steersperson is 100% responsible for the safety of the crew.*** The steersperson has the best view of any obstructions on the water and must make the required commands to the crew to maneuver the boat. In race situations the steersperson must also be able to read wind and be knowledgeable of how the boat reacts in certain conditions. It is not good enough that the steersperson can just keep the boat straight, he or she must be able to bring the boat to the line in whatever wind conditions and make the maneuvers or commands to hold the boat on the line. **Note: The steersperson will be provided for each team.**

## Notes About Stroke Rate

The db stroke technique is executed at varying spm (stroke-per-minute) rates to achieve different purposes:

**-Basic technique training stroke** rate is around **45 to 50 spm**. Most paddlers can sustain this pace while completing full upper-body rotation at the catch and fully burying the paddle. Your coach should spend one-on-one time with you during this rate to supervise your technique.

**-"Six-Sixteen start sequences"** can rate from **60 to 80 spm**.

**-Race pace stroke rate** is around **65 spm** for novice teams, about 72 to 80 per minute for intermediate teams, and 85+ for advanced teams.

**-"Power" stroke rate** is the same as your team's race pace, but your coach will incorporate deeper catches and/or more upper body lean to facilitate this power interval.

**-NOTE: at rates of 72 spm and higher**, it becomes very difficult to completely bury the paddle and maintain pure form for most teams.

The 2004 World Champion Chinese team uses a special half-buried technique to maintain their blistering 120 spm rate. Your coach will discuss the pros and cons of going to higher stroke rates.

Conversely, the 2006 World Champion team from Toronto had a SR of only 70. They rested in the set-up position and are really strong in the water. The rest allows muscles to recover for a split second before the next catch. This can be a very effective race strategy for slower paddlers.

For beginning to intermediate boats, a sustainable rate of 65 to 68 spm with intense power is recommended.