# Paddling Technique

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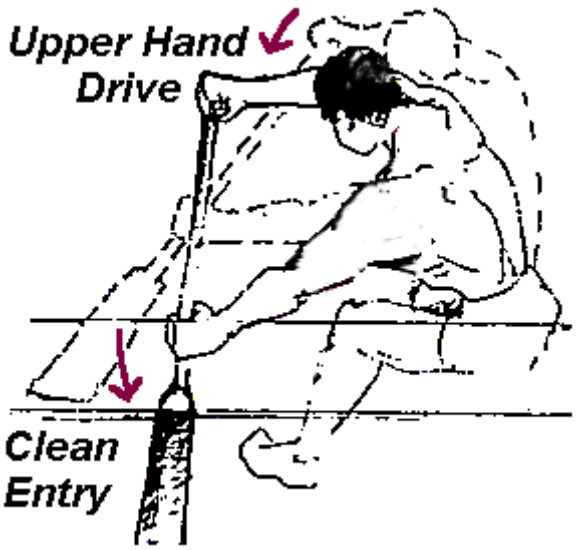
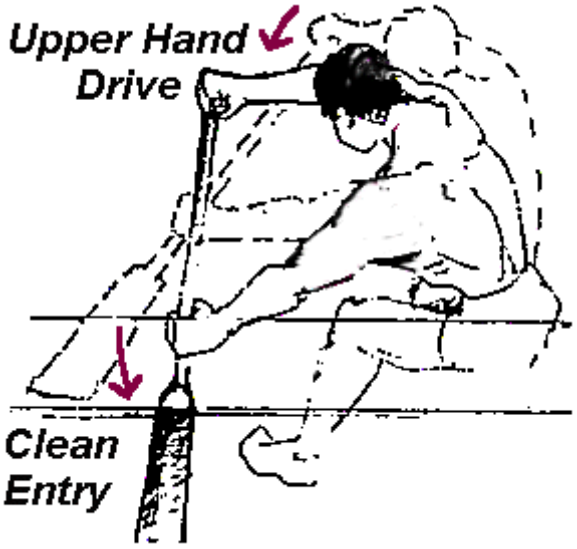


# PADDLE TECHNIQUE

## The Catch




Few sounds on the water generate as much satisfaction as 20 paddles plunging into the water in time and without splash; except maybe that sound a high platform diver makes when they cut the water surface with nothing more than a ruffle of bubbles.

Burying the blade in the water is called the 'CATCH' and it should be well in front of your body critical to initiate a powerful stroke. This where most novice paddlers are the weakest and it is the point at which even veteran paddlers fail when they start losing power due to lack of conditioning. The most common problem is to lose length by catching the water too far back by not reaching far enough forward in the RECOVERY or start smacking the water with a misguided sense of aggression.

A good CATCH requires a deliberate and powerful drive downward by your top arm, which is made more effective when the wrist and elbow of your upper arm are above the inside shoulder making your forearm parallel to the water surface. Some teams utilize very high upper hands to emphasize a forceful drive into the water, though good control as the blade enters the water is important to avoid splash.

Good paddle entry is executed in either a vertical 'spearing' of the water or can be combined with a slightly diagonal 'slice' as the blade carves into the water. The slice is found to be very effective by locking the blade in fast and deep with less of a vertical lunge, though requires a greater participation from the bottom hand in combination with the upper arm drive. Your bottom arm must be fully extended forward, but not locked at the elbow to help ANCHOR the paddle in the water quickly and cleanly to its full depth and correct location relative to the side of the boat, without any splash or horizontal movement.

A common problem is that 'work' is often applied too late after the CATCH as a paddler may be well into the first part of the STROKE phase before full power is exerted (wasted potential is a paddling sin). A good CATCH technique must transmit power into the STROKE phase within a fraction of a second. This is also important to unify CATCH in the boat in order to maximize POWER with each paddler transmitting power into the

STROKE at the same time, which is not always apparent. Getting into the water at the same time is one thing; beginning to pull together is another and is vital to a fast boat.

Excess splash or cavitation in the water (trapped air and disturbed water) is an indication that you are applying power with the momentum of the vertical drive, before the paddle is fully buried (lost energy is another paddling sin). The paddle blade at entry should be moving forward at the same speed as the boat in order to avoid such splashing. Smacking the water too aggressively can result in broken paddles and can lead to tension when your teammate behind you receives an unwanted face full of water. This type of problem is often created by a misapplication of aggression and is usually an indication that a paddler is getting tired or is unable to keep up with the pace. The CATCH is not a power phase, it's how you get into the water. Keep it fast and keep it clean.

Another common mistake is to lunge too far forward with your upper body or to bend excessively at the waist which starts the boat bobbing up and down.

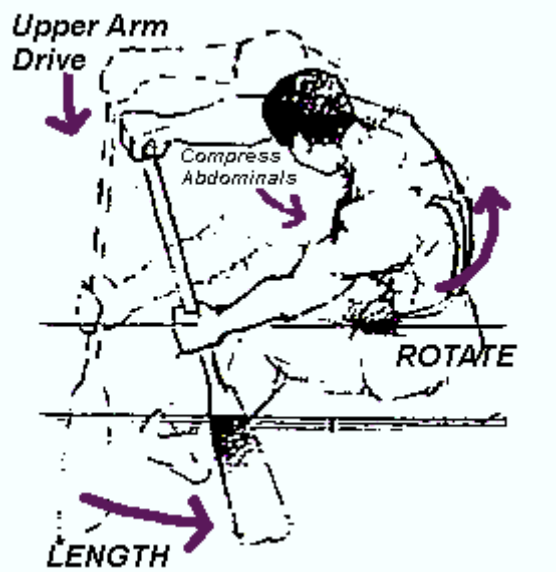
**"You want to run a quiet boat. You want a smooth running boat. Every time the boat wiggles left or right or bobs up and down, you lose a little. This can play havoc with your speed and efficiency - be fast."**

**- Peter Heed**

Remember that the length of 'the forward stroke' is controlled by a fully extended bottom arm and a rotated torso. You only need to bend far enough forward to bury the blade to its full depth at the CATCH.

Remember also, a powerful CATCH comes from a strong upper arm drive into the water at a forward position which is sharp, clean and instantly transmits power into the STROKE. Once the stroke rating increases to 90 plus, emphasis on the CATCH becomes more important in order to deliver power quickly.

# Compression




Many paddlers think that they are pulling water past their bodies to make the boat move forward; but this doesn't make any sense at all. In fact, the paddle, once it's in the water, moves very little in relation to a fixed point in space and that the boat is actually pulled up to this fixed point during the COMPRESSION phase.

This is the power phase and it is a full body endeavor which must coordinate arm, leg and torso muscles into a singular and controlled movement, transmitting power into a linear forward direction. Keeping the paddle relatively vertical and anchored in the water with the arms a paddler must use his/her torso to pull the boat forward. If too much enthusiasm results in pulling the paddle back through the water then energy is lost and a great turgid froth without much forward motion usually results. Much depends on a good solid CATCH, and the rest depends on solid control of power expenditure that accelerates the boat forward.

It helps to imaging that you are hurtling your body up and over the CATCH position by pressing the paddle vertically down. This requires a smooth and continuous motion compressing shoulders downward by crunching your abdominal muscles, at the same time rotating the torso at the waist utilizing the large back muscles ie. Lats. and Erectors. The upper arm must continue to be held high and drive down with the shoulders to keep the blade locked into its position in the water as the stroke develops. A minor forward push of the upper arm will transmit additional power into the paddle with your Deltoids and Pectorals, however you must keep the fulcrum point of the paddle high, about six inches below the upper hand 'T' piece.

The bottom arm must be strong to keep the blade on a straight track and transmit the power from the torso into the paddle, and will only bend slightly to push the FINISH of the stroke with your Biceps.

Following this motion, the paddle works as a third class level, with the upper hand remaining relatively fixed with the vertical drive of the shoulders and rotation of the torso providing force. Very often, paddlers get into the habit of pushing their upper arm over and downwards at the CATCH, thereby lowering the paddle fulcrum point to the location of their lower hand. The upper hand during this phase should not drop below your shoulders and your forearm should remain parallel to the water surface.

Another problem is that the paddle blade is often not deep enough to maximize the resistance area, particularly at the front end of the COMPRESSION phase. The paddler must bend forward to keep the blade buried right up to the shaft. Very often paddlers will also begin to lift their blades gradually out of the water towards the FINISH, which can be seen as their bottom hands rise in relation to the gunwale, starting midway through the stroke. Focusing on a good top arm drive and curling the torso over with your Abdominals to keep the paddle in the water will help.

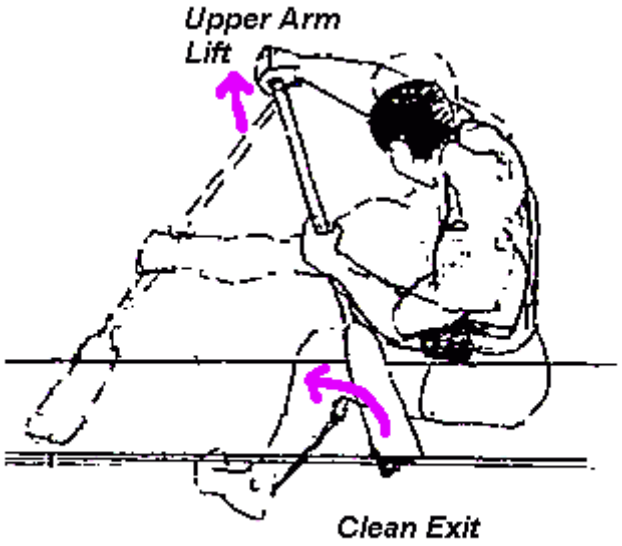
Adding power to the end of the compression phase relies on a deliberate push just before the FINISH. The paddle must be kept as vertical as possible with forceful upper arm drive downward, as if you were attempting to plant the paddle straight into the ocean bed. This takes tremendous focus to do it well and do it consistently. Efforts must be made to train the deltoids and pectorals to deliver power at this part of the stroke.

**"Keep the paddle vertical during the power phase. The paddle should be in line with the keel line of the (boat). Too often, paddlers tend to follow the side of the (boat) with their paddle. Bow persons' paddle should enter the water away from the sides of the boat and come in so the paddle nearly touches the boat at recovery. Stern paddlers do just the opposite, planting the paddle right beside the boat and coming straight back."**

**- Peter Heed**

The legs play a much more critical role than one would think as they are used to push the boat forward and lock the body into your seat. They must anchor the body into the boat to the point that your knees can suffer severe strain. Ideally all paddlers should align their outside legs against the gunwale and outside foot rest (or seat in front) so that a continuous line on force is directed into the boat. The inside leg should be tucked under the seat with the knee braced against the inside spine of the boat, which helps lock the body in and assist in an easier rotation. Sitting slightly forward to hang over the front edge of the seat will also help to lock in and provide resistance to the forward motion of the recovery.

# ***Finish***




(lower arm to be straight not bent as in drawing)

The power stroke is brought to an end when the elbow of the lower arm is aligned with body and the shoulders are parallel to the seat ie. *the neutral position*, with the blade still fully in the water. Any power applied after this point, which is certainly possible, results from over-rotating the torso and more often will create a lifting force due to the angle of the paddle that will pull the boat down into the water and/or will ship water into the boat. This is an important point since the body is capable of exerting force beyond the neutral position, however, it is not an energy expenditure which will contribute effectively to the forward motion of the boat.

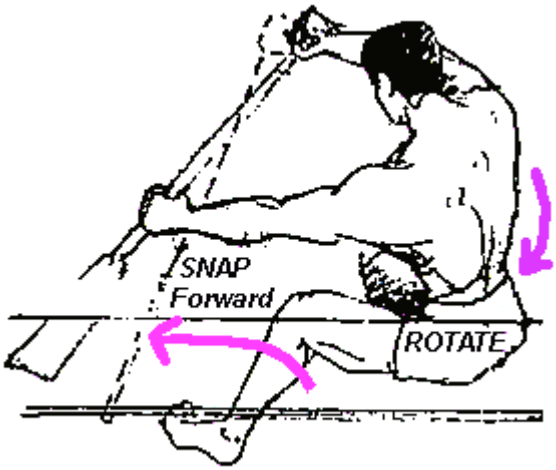
The paddle should be slipped diagonally up and out of the water leading with the upper hand as quickly and cleanly as possible with minimum resistance or splash (Deltoids*)( lower arm straight and does a tear drop exit – don't bend the lower arm – take the paddle forward with body)* . Many teams emphasize lifting the paddle high with the upper hand to keep the paddle as vertical as possible. This is good in flat water conditions and in boats with close seat spacing as it allows a paddler to reach up and around the paddler in front.

A common problem is that the FINISH is either initiated too early particularly when the stroke rating is high, or lacks any clear definition as the paddler begins to lift his blade out of the water half way through the COMRESSION phase. It is imperative that the paddler focuses on keeping the blade deep in the water and applying full power to the stroke right though to the FINISH position. Think of the vertical upper arm drive!

It's worthwhile to focus on a 'power punch' at the FINISH to provide a kick at the end of the stroke similar to the aggressive CATCH at the beginning. To achieve this, the outside elbow should be kept close to the body and the paddle blade should be feathered out (straight arm) with a powerful kick from the forearms and biceps. The paddle should be brought out fast and high to avoid drag and to initiate a speedy RECOVERY. This will also help to push water away from the boat as the blade exits.

The FINISH should be executed with the same aggression and precision as the CATCH, and with the same timing throughout the boat.

# ***Recovery***




The RECOVERY is the key to the forward stroke technique as it sets up the CATCH well forward of the torso.

The most efficient RECOVERY is achieved by rotating the torso to push the outside shoulder straight forward while the inside shoulder is pulled to the back ie. in reverse of the STROKE. The lower arm must punch forward to create a long 'reach' while the upper arm is pulled the opposite direction and thrown back over the head to open up the chest.

This must be a quick and snappy motion since it is effectively 'down time' - when energy is not spent moving the boat forward; ie. the less time it takes 'get up front' the more time a paddler can spend pulling the boat. A fast recovery must be trained since it makes great demands on the Abdominal muscles, Deltoids and Traps, different from the efforts needed in the COMPRESSION phase. The key to a higher rating is a faster RECOVERY which allows stroke length to be maintained.

Precise timing in the boat is controlled by a coordinated RECOVERY where each paddler must execute a sharp and deliberate snap forward with the lower arm pushed from the shoulder.

**"Don't keep your recovery the same speed as the power phase of the stroke. Watch the good paddlers - their recoveries are fast. The time your paddle spends swinging through the air isn't helping you at all. To go fast, you have to get that paddle back in the water where it will do some good. To increase your stroke rate, do it making quicker recoveries."**

**- Peter Heed**

Remember, a clean recovery is executed in a snap forward motion and is not achieved very well if the outside arm is carving great circles in the air. It is a relatively straight linear movement forward aligning with all other paddles in the team with outside elbows and paddle blades kept close to the gunwale.

A slight pause before the CATCH phase will mark both the end of the full stroke cycle and will help to synchronize the timing of the team; though at a high rating the 'pause' is more of a mental punctuation mark than any noticeable lapse in time

Though the movement forward should kept 'bright and crisp' the paddle should be held lightly to relax forearm muscles. Very often paddlers exert too much power getting forward. The RECOVERY should be fast but light. Over time it will become effortless movement, but it takes a lot of work to achieve speed and should not be neglected as part of a training regime.

Boat speed in the RECOVERY phase will slow down obviously due to the break in paddling, though the rate of deceleration know as the Check can vary from team to team as a result of different technique. As paddlers move forward, their centre of gravity (CG) can also move forward causing the boat to decelerate more. Strangely enough the boat will actually accelerate slightly on its own at the end of the RECOVERY phase once the paddler’s forward movement ceases. In this respect, you should focus on minimal movement of the CG in the RECOVERY, and confine that movement to a forward and backward line, not up and down or side to side.

One common problem is that the upper arm is allowed to drop too much resulting in a horizontal RECOVERY. In a tight boat, this will be problematic and will also begin to hamper efforts to increase rating.

Bending the upper arm also leads to excessive movement which will limit performance at a higher rating and can cause the boat to jump around a lot. Neither the upper or lower arm needs to flex very much in the RECOVERY, or for any phase for that matter.

# VARIATIONS in STROKE TECHNIQUE

As previously mentioned, stroke technique will vary slightly from person to person due in a large part to differences in physiology and training background, and should be tolerated to a certain degree, particularly at a local race level. While it is important to have everyone paddling the same technique, it is more important to ensure that each paddler is contributing to his or her highest potential. Even the best teams in the world show a variation in individual technique yet they all pull a lot of water and win.

The critical issue is that each paddler hits each phase of the stroke with precise timing and that the movement front to back and side to side are consistent throughout the boat to maintain balance and smooth running. Even though paddlers may have slight differences in form, ie. some rotating more or others with a slightly higher blade on recovery, if everyone is executing each phase correctly and in time, it is doubtful that efforts spent on minor adjustments for the sake of consistency make any significant difference in boat speed.

It is more important to focus on the smooth transition of power from one phase of the stroke to the next and that the delivery of power is timed perfectly for each paddler at every point in the stroke.

The basics of technique that establish consistency among team members are recapped as follows:

- the consistent location of the CATCH and FINISH
- minimal splash or lifting of water
- uniform speed of RECOVERY and STROKE (some people move faster than others)
- uniform depth of paddle in the water
- uniform angle of the paddle as it moves through each phase
- the precise timing at which each phase is initiated
- the alignment of paddles with the direction of travel
- the elimination of excessive movement (bobbing your head up and down or side to side will not improve performance and only waste energy)
- fluid and unbroken movement through each phase
- uniform breathing pattern

The nature of the boat can also effect the characteristic of stroke technique due to shorter seat spacing, higher gunwales, the weigh of the boat or the size of the paddles. It is imperative to 'test' out a race boat by varying stroke length and rating to find the most effective combination to make the particular craft move the fastest. For example, an eight man colour boat responds much better to a longer stroke with a greater emphasis on a drawn out kicked finish, compared to a quicker dragonboat stroke.

Natural elements such as tide, wind or water conditions will impact on technique. Racing with a tailwind for instance should increase boat speed and allow for an increased stroke rating, whereas rating should decrease and a greater stroke length should be implemented when heading into a wind.

In choppy water it is important to have paddle blades higher on the recovery and to emphasize greater depth in the water to avoid going in too 'short' when a wave trough is encountered. Choppy water will also slow the boat down so it is important to be able to adjust stroke rating in order to suit the abilities of the crew to the particular conditions experience.

**Taken From the Hong Kong Dragon Boat Training Manual**