

KAYAK TECHNICAL TEMPLATE

Introduction

This Kayak Technical Template is for coaches involved with athletes preparing for competition at the National Championships, Junior Worlds or Under 23 National Team programs.

The following terms / concepts appear in this document and require explanation.

Brain Concept: athlete is actually thinking of the action, or trying to do the action. It is more of a mental focus (MF) than perhaps an obvious action in the smooth dynamics of the stroke.

Technical Change: Teaching technical change - "If the athlete is comfortable, s/he is not working the technical change"

Bottom hand: This is the "pulling" hand or hand of the blade in the water OR about to go in the water, including before the stroke.

Top hand: This is the hand in the air.

Note: Top hand and bottom hand remain the same throughout the stroke.

Start and Stop Point: There is a break between strokes, although it might be subtle at high rates, it is there. The paddling motion is a continuous smooth rhythmical powerful stroke, yet there is a slight break/pause at the end of the end of the set up.

Exit Phase: There is no reference to the exit phase or end of the stroke, as it is part of the "pull" phase. When the paddle leaves the water there is a continuous motion towards the set up – at this point there is a slight break or end. The break between strokes is part of the setup.

Mental Focus (MF): athlete is mentally focusing on a particular technical point versus having an actual bench mark...could be either an internal or external cue.

Movements and Energy: Always directed at moving the boat forward – always thinking of moving the boat forward

Eyes: Are focused ahead – at least six feet in front of the boat.

Rotation: Hip rotation occurs in the "cup" of the seat versus pushing back with the legs. The rotation is in the "hips" as opposed to one hip back while the other moves forward. Avoid climbing and rotating on the top of the back of the seat....although one hip is up and has less relative pressure / weight on it.

Part of the Boat: Full foot board and straps are part of the connection to the boat. The pressure is applied by the heel versus the toe of the foot....use a full foot board.

Individual Differences: There are no absolutes when it comes to hand / height positions, the coach has to allow the athlete's technique to allow individual body differences, yet the principles of biomechanics will still apply.

Set Up

The set up phase is the break/pause between strokes – the end of a stroke occurs when both hands are at the same level

The end of one stroke is the prep for the next – beginning of the next.

- ✓ Bottom hand position – eye level — site the horizon
- ✓ Top hand position – approximately eye level — individual differences.
- ✓ The top hand and top elbow form an angle that is 90 degrees or slightly less.
- ✓ Top arm from elbow to armpit is parallel to the water avoid a low elbow position.
- ✓ Athlete is relaxed as much as possible in shoulders and arms – relax / drop shoulders.
- ✓ Rotation from the end of the pull phase is to be maintained.
- ✓ Once the set up is in place, avoid over reaching with the bottom shoulder.
- ✓ Boat is level.

Drive

Both hands are directing / placing paddle into the water – **Key - involve the top hand.**

Athlete maintains all the rotations while driving/directing the paddle into the water close to the boat.

(MF) drop the bottom hand and arm towards the water with the top hand directing/driving the motion.

Catch

- ✓ Blade is in the water, before any rotation is initiated - **(MF)** – before rotation is to occur, blade must be completely buried in the water – top side covered as the rowers would say.
- ✓ If rotation occurs before placement of blade in the water, catch ends up being short
- ✓ There is a flow / smooth sequence of movements

“**Sequencing drill**” – 10 strokes – sink blade in the water with no other movements – “Just Dropping and directing” the athlete is sitting up and feels that the stroke is too short, yet coach says “that’s it, you’ve got it”

Pull

(MF) Once the blade is in the water, the distance between the bottom hand and hip is to stretch / increase, no movement backwards by hand.

Key – “Bungee Cord Concept” - bungee from hip to bottom hand – as rotation occurs on the seat with hips, bottom hand stays where it is, the bungee stretches – since a bungee can only be stretched, there can be no movement backwards with hand or pulling movement – as hips rotate, it stretches bungee and the distance between the hip and bottom hand decreases as the boat moves forward – move the boat past your catch – hip starts the rotation.

- ✓ HIP to HAND position stays the same initially, leave bottom hand out at the catch - as you rotate the hips in &/or on the seat, the connection from hip to the boat is through the leg to the foot board - **STRONG CONNECTION**
- ✓ Leg works with the hip – NOTE: the leg cannot be the sole driving force – the athlete is trying to **rotate with the hip and torso.**
- ✓ Torso rotation follows hip rotation – **sequence of rotation is brain, hip, torso, shoulders.**
- ✓ **Key – all movements must be a forward motion or neutral – (MF) “moving forward”**
- ✓ All movements must direct the boat forward
NOTE – for every unnecessary movement – forward boat movement is lost or affected.
- ✓ Pressure with the top hand throughout that phase – the whole time the paddle is in the water – press down through the shaft with continuous pressure with top hand – **NO FORWARD PUSH**

Note: allowance for top hand to drop lower towards the end of this phase – arm movements are to allow for hip to move efficiently – the path of movement of the top hand is straight versus for it to loop.
(MF) Hip movements are still the power for moving the boat.

HAND GRIPS – “*bottom hand*” fingers hooked – palm open – no pressure in area between knuckles of thumb and knuckle of index / first finger.

“*top hand*” fingers are relaxed – especially outside two & tip of thumb off the paddle.

“**Hand drill**” – easy to feel – open your hand

“**Elbow drill**” use in paddle pool or on board at dock – elbows at sides touching rib cage – glued in place — hands on paddle in comfortable position – only able to paddle by using rotation (MF) arms are tied to sides, cannot move arms to paddle, therefore only rotation is possible

- ✓ Allow elbow to bend/relax in latter part of this phase in order to:
 - To keep path of paddle along the side of the boat
 - Allows paddle to follow its natural path through the water
 - Bottom hand stays in same height relative to distance from water throughout the stroke from catch – same level
 - Allowing elbow to relax – lets arms and shoulder to stay relaxed during this phase.

NOTE: elbow is fairly tight to the body versus out – elbow follows line of the boat going forward – so is energy!

“**Bump drill**” – hit elbow to the body versus allowing it to drag past the hip or out to the side

“**Sit Row drill**” – mentally picture doing a “seated one arm row” with elbow tight to the body, arm relaxed, rotation only.

**NOTE: “the end of the pull phase is when the paddle clears the water”
The force is constant or accelerating at the end of the pull phase.**

- ✓ Important to “*finish it off*” – every stroke!
- ✓ Blade exits at the hip – **hand** never passes the hip – hand exits – natural / relaxed / flow
NOTE - just get blade out of the water
- further back the hip = further back the hand
- ✓ Avoid too much shoulder rotation – hip / torso rotation is what we are after versus shoulder rotation. NOTE – momentum may take the shoulders farther than the hips.
- ✓ Always have the paddle in front of the chest and always have the hands in front of the hips.
NOTE – once past the acceleration point / not moving boat forward.
- ✓ “top hand” stays where it is – continues to apply pressure once blade is in water and until paddle clears the water
AVOID – Forward punch

“**Top Hand drill**” – 1 stroke @ 100% power – begin in the water - press down very hard – maximum tension between two points of contact with paddle (top/bottom hand) is constant – lose either one and the result will be that the pressure on the paddle in the water is lost – the connection to the water is lost! Feel how much force the top hand exerts.

Acknowledgements

Scott Oldershaw is a National Team Coach for Canada and the personal coach of Adam van Koeverden, Gold Medalist K1 500m and Bronze Medalist 1000m K1 at the 2004 Olympic Games and World Champion K1 500m 2007.

These are Scott’s thoughts on the technical aspects of the kayak stroke.

Scott was the coach of Nathan Luce, Head Coach Sprint Canoe and Kayak for the USA when Nathan was a National Team member. These thoughts also reflect Nathan’s on the technical aspects of paddling a sprint kayak. It is used as a Technical Model in the USACK High Performance One program.

Mac Hickox — National Development Director / Coach for USA Canoe Kayak, April 2007 to present