

LEVEL 3
COACHING ASSIGNMENT

SUBJECT:
IS THERE A BENEFIT TO USING STILLWATER COACHING
TECHNIQUES FOR SURFBOAT ROWING?

WHAT ARE THE DIFFERENCES MECHANICALLY AND
PHYSIOLOGICALLY?

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INTRODUCTION

There are differing opinions on whether Stillwater coaching can be useful for coaching Surfboat crews, and to what extent, if any.

The start, rowing through the break, the turn and negotiating the wave line home are skills conducive to surfboats only. However the principles of starting and moving a boat are the same.

The Straight line rowing utilizes the pure mechanics of moving a boat but Surfboat rowing involves different heights off the water, different boat weight and configuration. What changes are needed to be made to allow for these differences?

In the following paper we will compare these differences and also take into consideration the effect it has physiologically. We will also consider any adjustments that are needed to be made to the training methods to allow for these differences.

WEIGHT OF BOATS



COXED FOUR- 53 Kg



SURFBOAT – 209 kg

With the Surfboat weighing heavier than a Four making it sit deeper in the water it is going to take longer to pull the blade through the water. It is also going to affect the timing of the levers to come into play as the boat moves slower and is harder to accelerate, requiring more energy expenditure by rowers. There is going to be a need to hang off the handle longer as the legs (big levers) get the boat moving enough to bring in the arm draw (small levers). This will slow the rating and need more power to pull the blade through the water which will alter the energy systems required to row the boat. This will mean adjustments in the training program to cater for the extra power and slower rating to move the boat.

In the Four with a lighter weight craft the boat accelerates faster requiring a higher rating as the blade has less resistance and comes through the water faster. This will require faster hand speeds around the corner, but with the slide still a glide to keep the boat tapping along. The heavier Surfboat, plus the checking effect of surf, winds and chop also means rowing technique disruptions as the boat decelerates at each check. Training adaptability in rowers is a specific requirement not normally required in lighter Fours. The contribution of Stillwater rowing is muscle memory of good technique to reinforce adaptability through rapid recovery when checked.

HEIGHT OFF WATER

SURFBOAT- Approx 600 mm from Gunwale to water (South Coast Surfboat).
Seats vary in slope with each seat having a differing grade from 20mm to 50mm.



COXED FOUR- Approx 280mm from sill of gate to water. There is about a 15mm slope from front to back to help the athlete rock over and travel forward each stroke.



The heights off the water of a Surfboat are more pronounced than a Four which can slightly change the body angles, blade angles and hand heights. Where the gate on a Four is sitting close to the water and drawing through on a level plane, the Surfboat is elevated and constantly changing. This makes the rowers look or search or feel for the water to balance them off the foot stretcher. When this occurs the hands can be quite high at the catch and the arms, shoulders, chest and back/hip, do more work than the legs in balance and applying power. Because of the greater slope of the seats for the surf conditions, the height varies considerably from the catch and from seat to seat.

Looking for water needs to be done with the eyes but some rower's use their neck and shoulders excessively, (e.g. heavy surf), to look for the water which creates a mobile fulcrum in the spine and can lead to back problems, including bulging disc, muscular strains or both. Because of the tendency of many surf crews to use the upper body first when they reach for unstable water, there is perhaps less of a chance of lower back injuries. This is opposed to the Four where the water is more constant and there is less need to find water resulting in the rowers looking straight ahead. This results in a stronger lower spine and up and down abdominals but has led to rib injuries from the excessive repetitive movement and the stiffer carbon fibre oars- particularly with Lightweight rowers (Men 70k/ Women 57k) who have less lean muscle mass but still row long distances in training (Henry Wajswelner, Australian Journal of Physiotherapy 42).

This stable platform of the Stillwater four however and the greater flexibility in rigging ensures a more predictable and greater length of stroke cycle. This normally is moving through about 90 degrees compared to about 70 degrees with the surfboat stroke length. This longer arc is quite demanding on the lower back and lower back pain is quite common at some stage of their rowing career. Elite rowers normally row each day and in heavy training twice a day, normally completing about 20K or more in a session. The Stillwater boat is more leg drive oriented and this places added stress on the lower back.

A strength and rehabilitation component needs to be added to both types of rowers training programs to minimize back injury and rowers need to be

educated on looking for their placement rather than swiveling their neck and shoulders unnecessarily.

Blade angles Because the surf rowers are higher off the water and the oars are longer (15ft 2 in or 4630 mm), the angle of the oar at the start of the stroke varies. This also varies between the seats with the stern pair having a better platform because they are lower and their seats flatter. The bow pair however, has the more difficult task of reaching for their water and their angle of attack changes more regularly, particularly when racing out through the break. With the surf rower being higher off the water, the angle of attack to the water is steeper necessitating longer oars and blades. This can exaggerate even further when looking or feeling for the water when the boat is airborne as it rides over a wave.

This raises the hand heights significantly into an unnaturally high position at the catch. The distance then between the handle and the feet is therefore far greater than that of a Stillwater rower, who is in the ideal power position when they are closer. In the Gymnasium for example, when performing a clean, both back and legs are in a position to work efficiently and powerfully against each other and this is more regularly replicated in the Stillwater boat. Mechanically, there is a greater demand in the surf to adapt to the conditions resulting in the upper body taking and applying pressure in awkward positions. Physiologically this is quite demanding as rowers can launch themselves off the foot stretcher from the start and have the security of the larger boat to cushion their finish. Likewise, as they restart the heavier craft there is a higher anaerobic cost against the resistance of the incoming waves.

As you start the leg drive, hanging off the handle you will need to draw higher to keep the blade in the water. When you bring in the arm draw you will have to draw higher which will make you use your upper body to finish the stroke. Once again this will have to be looked at in your strength training component of the gym circuit to be able to move the boat at the end of the stroke. Exercises such as upright rowing, variations of dumbbell flies, seated and prone bench and dumbbell pulls, pulley work and boxing is all effective at developing this upper body area. Medicine Ball and Swiss Ball work, combined with selective back strength exercises, also help the body cope with the unstable nature of the surf boat.

As the oars need to be longer for the surf boat 15'2" as opposed to 12'2" in the Four and the boat weighs four times as much, gearing will be somewhat harder. This generally means lower stroke ratings but it is not uncommon to see crews racing beyond the break at 34 to 36 strokes per minute. Coxed Fours generally rate 2 points higher than this and coxless Fours between 36 and 39. Stroke rate will be affected by the weight of the boat, gearing ratios, and the skill, strength and experience of the rowers. This factor may also contribute to the Cleaver blade not being as effective in a Surfboat as the height off the water doesn't allow the rower to bring the blade close enough to the boat to get the straight send

which is the principle of the Cleaver blade design. To get it close enough the hand heights would be too high to get maximum send.

Hand heights as discussed above are different to a Four which has an affect on the length of motion of a stroke and the length of oar used. If the oar is too long with a big blade size it makes it harder to move the boat off the mark. This is a consideration when deciding on blade sizes and oar lengths for surf with the need to restart the boat when checked by waves.

WIDTH OF BOW



SURFBOAT- Minimum of 1620 mm across at widest amidships section



COXED FOUR- Approximately 530 mm width

The broader cross section of bow, depth of boat in water and the length ways camber of the boat makes the Surfboat push more water needing more power to pull on the blade. This also requires a different configuration where the rowers aren't in a line and different inboard, outboard power ratios which makes the Surfboat more stable. This allows the Surfboat rower to get away with slight variance in technique which is noticeable in a Four.

THE RECOVERY ACTION

The mechanics of the recovery action of both boats are quite similar technically, but also reflect the differing sizes of the two boats. With the 200+Kg surf boat the tendency has been for surf crews to lay back 10 or 20 degrees further than their Stillwater counterparts. This helps to finish the stroke off, lets the boat sit and run and also makes more effective use of the crews body weight and momentum out of the back which in turn assists boat run. In more recent years this has also become fashionable in Stillwater craft prompting a return to a style advocated in the 1930's in the UK called the Lady Margaret style from the British college of the same name. The other more obvious difference is between the seat mechanisms when rolling forward. The seats in the Stillwater are on bearing wheels for a controlled easy roll into the front, whilst the surfboat has a fixed bench seat only, requiring the rower to pull himself up the slide on a lubricant of water or in some cases soap and water. This requires the hip flexes and the hamstrings to draw you forward which over powers the lower abdominals which will result in the lower abdominals getting weaker. This can lead to lower back and disc problems if there isn't an allowance in the gym to strengthen and stretch the abdominals, lower back and hamstrings. It would also be advisable to incorporate in training programs preventative rehabilitation work for the back, concentrating on the network of small muscles that support the spine. The good practice of smooth and constant hand heights upon recovery in Stillwater rowers is an essential skill transferable to Surfboats, especially with the heavier weight in the hands of Surfboat oars.

SUMMARY

Mechanical Differences: Weight of craft/boat design/oar length/ blade shape/height off water/ angle of attack/ length of effective arc 90 degrees V's 70 degrees / technique variables/ biomechanics/ slide V's non sliding seats efficiency/ round V's square rowlocks/ greater grip, wrist and forearm strength/ hip angle/ changing speeds of surf boats when chasing waves and runs.

Physiological Demands: Surf work- resistance against the waves/ starts- power work and combination of getting in and away through the break/ repeated stopping and starting when going out- leg push and arm pull/ vertical work through break/ Upper body and trunk/ ability work.

CONCLUSION

Considering the above and allowing for the different skills required for Surfboat rowing with the start, turn, in and out of the wave line, the pure mechanics of starting and moving the boat is the same for both boats. The river boats being lighter and rigged lighter are more responsive when the pressure is applied to the water and gives the rower a better feel for the water and a better understanding of what moves the boat. This is advantageous to the surf rower as the surfboat being heavier is more forgiving which allows the rower to get away with variances

in technique. It would be advantageous for the rower to learn the mechanics of rowing from a Stillwater coach and to have on going stroke correction sessions at least on a weekly basis to prevent bad habits from creeping in and to get the feel of what moves the boat. After the rower attains a good base in the mechanics of rowing then the program should become more weighted to surf skills as most of the race is in and about the surf and around the turn. Because the Surfboat is heavier making the effort to row the boat through the water harder this should be addressed in the strength training programmer.

The sweep standing in the back is not in a good position to do stroke correction and the best position is a coach in a tinny side on to check on body angles, timing and rhythm out of the back and in to the front of the stroke. Video analysis can also be used and preferably on a monthly basis where the rower can have the vision of his rowing and a better understanding of the stroke correction required.

REFERENCES

Tim McLaren- 1978 Open Surfboat winner (Kingscliffe)
1984 Quad Scull Silver medalist (Los Angeles)
Current Coach Australian Eight
Head Coach Sydney UTS

Neville Austin- M App Sc (Phys), BPE Dip
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