

Performance analysis on differing forward paddling techniques

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Independent Study summited as part of Postgraduate Diploma, Performance Coaching, University of Stirling, 2015.

Abstract

Background and Purpose

Whether it is an Olympic paddler, adventure racer, paddler on an expedition, or a recreational paddler, the main propulsion system remains the same. This propulsion is from the kayaker and for the craft to move forward over a prolonged period of time an efficient method needs to be adopted. The purpose of this research is to explore and develop a greater understanding of the economy of moving forward paddling a sea kayak.

What was done?

Participants: Six paddlers (4 men, 2 women) between 23 and 50 years of age from a local canoe club based in the Southwest of England agreed to participate in the study.

Process: Each paddler participated in 5 separate timed trials with 2 day recovery period between each trial. Each trial involved paddling 1,000m at a cruising speed that they would be able to sustain over a day's period of sea kayak paddling. The five trials varied in *foot pressure* (Trial 1 & 2 – pressure on the same or opposite side as the active blade) and *catch phase* (Trials 3-6 – four different blade entry points). For the catch phase trials, the starting point was to mark the heel position of the performer within the boat and transfer this point to the external body of the craft, to enable a clear and defined marker for the performer to use. From this mark, other points were highlighted every fifty millimetres towards the seating position using highly visible red tape (See Figure 1). During the trials all other conditions were kept as similar as possible (e.g., preparation, equipment, clothing, kayak, paddle).



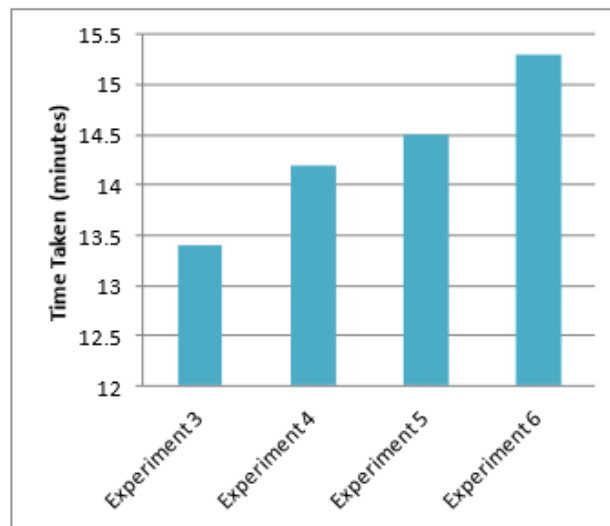
Key findings

Foot Pressure. From Trials 1 and 2, it was found that applying pressure with the foot on the same side as the active blade entering the water decreased the amount of time taken to paddle at a cruising speed over 1,000 metres by an average of 24 seconds.

Catch Position. From Trials 3-6 it was found that as the catch point was moved closer to the seat (i.e., stroke becomes shorter) performance decreased (see Figure 2).

Points of interest for coaches

The findings offer strong support for the general consensus that foot pressures and catch placement are fundamental concepts that enable for the performer to forward paddle efficiently. Over a day's paddling the seemingly small difference shown here could lead to significant differences in distance covered or time taken to cover a set distance.



Conclusion

The foot pressure and blade placement during the catch phase of forward paddling in sea kayaking does affect the time taken to paddle 1,000 metres. Therefore, paddlers and coaches should pay close attention to these features of forward paddling to ensure efficient paddling technique, particularly when considering paddling for long periods of time.

If you would like further information on the research or to receive a copy of the full project please contact Lee on lee.pooley@britishcanoeing.org.uk