The Rowing Stroke Arc

We are often asked questions relating to the rowing stroke arc and methods coaches use to position their athletes in the boat to achieve an efficient arc or length of stroke.

One point that is often raised is a measurement used to set a ‘back choc’ setting for the crew to adjust to. As most equipment manufacturers refer measurements for rigging to ‘the centre of the pin’ as a datum line, it’s wise to always work to the pin as a reference when keeping records or setting measurements in the boat. Some coaches use the face of the oarlock as a reference so you need to be clear what measurements you are using if you want to be precise or need to take this difference into account if using other coach’s methods.

Using the ‘back choc’ method, a mark is set a distance behind the centre line of the pin in which the rower can reference when setting the foot stretcher position and its normal to use the centre of the rear wheel of the seat as the point to align to. Many coaches use a measurement between 62cm and 66cm depending on the size of the athletes. Basically this is a ‘rule of thumb’ measurement that in most cases positions the athletes so that a finish angle of between 30-34 degrees is achieved. This saves time in actually setting, marking and working to a set angle at the finish. Coaches who have gone to the trouble of setting out a boat so they know what finish and catch angles are achieved with certain rigs and crew size, have normally noted a corresponding distance that the athlete sits behind the pin and is confident of using the ‘back chock’ method.

Marking and setting the crew to an angle marked on the boat in each seat will give the coach the experience of how the build of the athlete will alter the measurement recorded for the ‘back choc’ method where the trunk/stomach determines this setting and not leg length. As Span and inboard relationship also effect the positioning of the athlete, these measurements must also be taken into account when using the ‘back choc’ method.

An ideal rowing arc is considered to be approx 90 degrees, made up of a finish angle of approx 33 degrees and a catch angle of approx 57 degrees. This assumes a well proportioned and flexible athlete using a suitable choice of rig with high technical ability to achieve this ideal arc. Many coaches of course do not have all these ideals and so would be faced with a smaller arc and have to make a choice of where to position the athletes within this arc range to get the most affective stroke for the crew.

Some coaches like to see a long catch angle and others feel a particular finish angle is more important and an inexperienced coach of course may not really consider either method when setting a crew in the boat. It’s difficult to build a clear picture of how you wish your crews to row from crew to crew and year to year if you do not have a standard to work to so it’s wise for an inexperienced coach to become familiar with what these measurements really mean and how they impact on a crews technique.

We see ‘back choc’ measurements on boats ranging from 52 to 66cm which cover schoolgirls up to National men’s crews which would suggest a very varied finish angle to the stroke is being rowed by some crews. It’s most likely an emphasis on catch angle is being followed, in line with present day thinking, by the crews who cannot achieve the desired 90 degree arc length for them to be working to a 52cm ‘back choc’ setting. The coach may have determined this works well from experience but it does have implications on technique and oar handling in certain conditions.

Attached is an information sheet that describes a method of setting optimum angles for catch and finish on your boats which will enable the coach to observe and assess a crew and determine what works best for them.

Points to be considered when assessing your crew are:-
- The Span/Inboard relationship
- The effective stroke length that is being rowed compared to recorded stroke length measured which takes into account excessive over reaching or layback rather than drive in the water.
- As with all rigging issues, trial or test pieces should be rowed to determine what works best for your crew and rating should be taken into consideration in the final outcome if only short test pieces are conducted.Sculling Arc Angles Reference Sheet (.pdf)Rowing Arc Angles Reference Sheet (.pdf)