Q&A

? **Q:** We received quite positive feedback on the method and spreadsheets for the boat speed at different stroke rates (RBN 2005/10). However, some coaches found that the spreadsheet is too complicated to use. Also, it was based on the results of a step-test, which are not always available.

✓ **A:** We have developed a new spreadsheet, which is also based on the concept of constant effective work per stroke, but is much simpler and does not require any measured data. You only need to input the race distance (e.g. 2000m), your target result (6:40.0), racing rate (36 str/min) and training lap (500m). That's all! You can print out training speeds at different stroke rates, which will lead you to the required result.

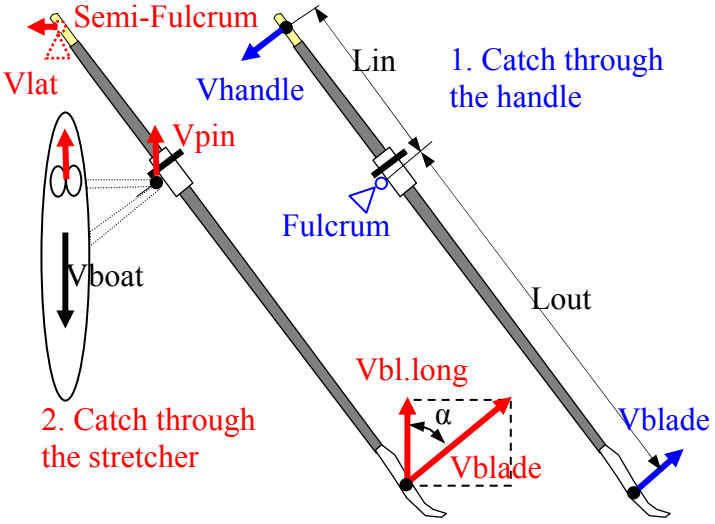
To get the most out of it correctly, we'll give you some recommendations and hints:

- First of all, **the calculated times are valid only in similar weather conditions and for the same boat type**.
- The sheet "Model 1" is the simplest. You only enter the data described above in grey-shaded cells and see results.
- "Model 2" adds the water temperature correction. The target speed is always at 25° C., but if you train at a lower water temperature (e.g. 10° C), then your speed will be slower (1.08%).
- "Model 3" adds correction for power training and for shorter pieces. If you want to apply higher Work per Stroke in a shorter piece, then you can enter a value in the "eWPS extra (%)" cell and watch the results.
- The sheet "Model 4" combines both water temperature and extra eWPS corrections.

Try it, use it and send us your feedback.

? **Q:** We receive a number of questions like this: "What should the rower concentrate on at catch? Why it is more efficient to push the stretcher at the catch than to pull the handle?"

✓ **A:** At the catch the blade must change its direction of movement and accelerate very quickly from negative velocity during recovery to positive velocity, which overcomes the boat speed. This can be done in two ways: 1) By means of pulling the handle and leaving the pin as a fulcrum; 2) By means on pushing the stretcher and holding the handle as a fulcrum. The power goes through the boat – rigger – pin - swivel, pushes the oar sleeve and accelerates the blade. Obviously, the handle doesn't work as a real stationary point, but it can be considered as a "semi-fulcrum", which is stationary in longitudinal direction and moves in lateral direction.



In the first case the blade velocity is equal to:
Vblade = Vhandle (Lout / Lin)
In the second case longitudinal speed is:
Vbl.long = Vpin ((Lout + Lin) / Lin)
and the normal blade velocity is:
Vblade = Vbl.long / cos α

Using these equations and common gearing (oar length 2.90m and inboard 0.88m) we can calculate that the first catch method would give us 2.19m/s blade velocity for 1m/s handle velocity. The second method would give us 3.19m/s longitudinal blade velocity ***Vbl.long*** for 1m/s pin velocity (46% higher ratio). The normal blade velocity ***Vblade*** at 60° catch angle is 6.38m/s (nearly 3 times higher ratio), but it must be complemented by 1.73m/s lateral handle velocity ***Vlat***.

Obviously, the difference in the ratio of handle and blade velocities is not the only advantage of the "Catch through the stretcher" technique. It also benefits by use of the most powerful muscles (ie the legs) (RBN 2006/5), the trampolining effect (RBN 2006/2) and effective acceleration of the rower's centre of mass (RBN 2004/1-2).

In conclusion: What a rower **shouldn't do** at the catch: 1) Pull the handle toward the bow of the boat; 2) Be scared to push the stretcher or "disturb the boat run".

What a rower **should** do at the catch: 1) Concentrate on a fast kick on the stretcher and create a sharp peak of negative boat acceleration; 2) Hold the handle in the longitudinal direction and allow its movement in the lateral direction.

Contact Us:

✉ ©2006 Dr. Valery Kleshnev, EIS, Bisham Abbey
www.biorow.com e-mail: kleval@btinternet.com