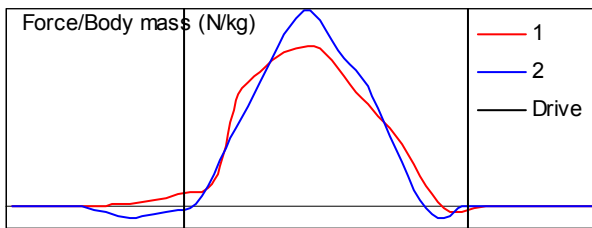


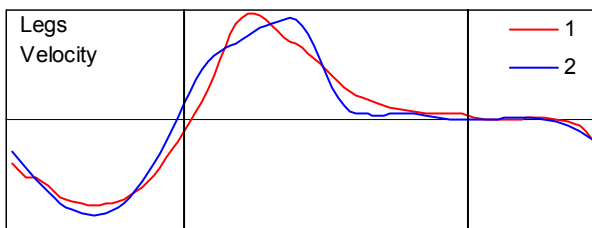
Facts. Did you know that...

✓ ... increasing the force faster at catch is very important for achieving efficient rowing technique? Below are force curves (as a ratio to body mass) of two crews, where the **crew 1** increases the force much quicker than the **crew 2**, but crew 1 has relatively lower maximal (7.27 and 8.84 N/kg, correspondingly) and average (3.84 and 4.09 N/kg) force application:

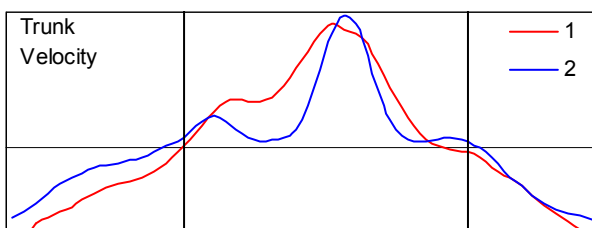


1

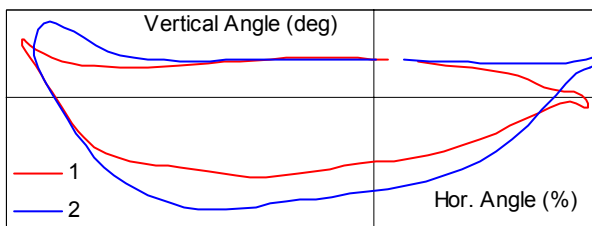
It is also important, that the first crew increases the force by means of faster leg drive, good connection with the trunk work and more horizontal and shallower blade path:



2

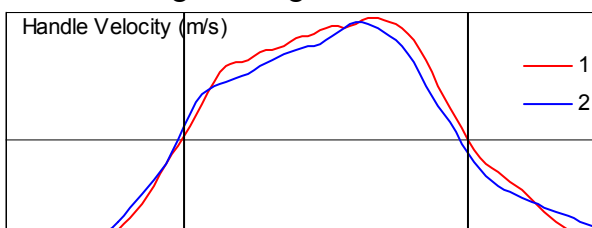


3



4

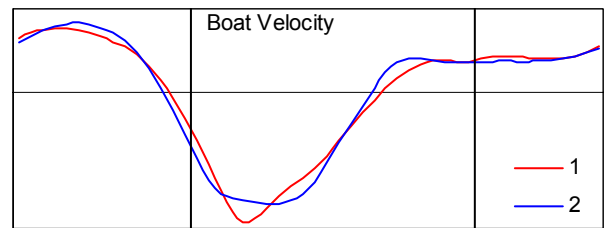
As the consequence, the handle velocity of the first crew increases at catch up to higher value and maintain it longer during the drive:



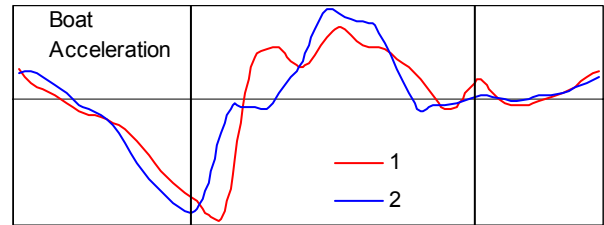
5

The boat speed and acceleration curves of the first crew have deeper negative peak at catch (7.6

and 7.1 m/s²), but much quicker increase afterwards.

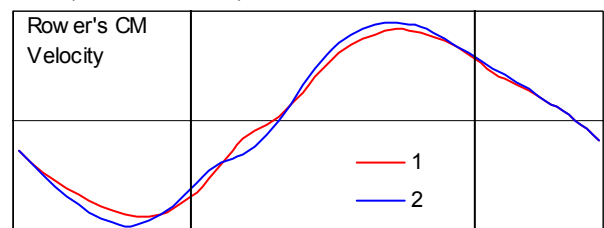


6

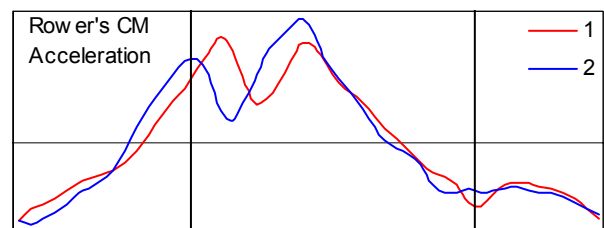


7

This creates faster moving support on the stretcher and helps to accelerate rower's centre of mass (RBN 1/2004):



8



9

We can figure out three main reasons of higher efficiency and better performance of the first crew:

- Higher power production due to higher handle speed and in spite of lower force application (4.06 and 3.83 W/kg, 5.6% difference equal to 6s gain over 2000m);
- Lower fluctuations of the boat speed (deviations were 0.70 and 0.72 m/s), which cause higher boat velocity efficiency (98.17% and 97.64%, 2s faster over 2000m);
- Lower inertial losses caused by lower fluctuations of the rower's CM speed (9.4% and 11.4%, 2s faster over 2000m).

Finally, the overall gain due to better technique of the first crew was approximately 10s over 2000, which was nearly equal to the margin between two crews in the race.

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