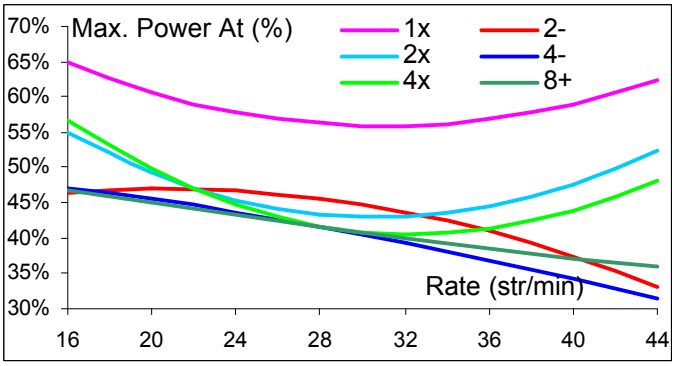
Volume 2 No.7 **Rowing Biomechanics Newsletter** July 2002

News

☺ Intensive testing of the AIS rowers and National Team members was undertaken in May-July. A total number of 42 athletes were tested in 12 boat types over 44 testing sessions.

Facts. Did You Know That…

? the peak of the power application depends on stroke rate? Power is a product of the force and velocity, so its trends are similar to peak force (RBN 6/2002), but correlation factors are lower (r = -0.26-0.35). The trends of peak power position are different for sweep and sculling boats. Notice:



✓ Trend lines of all sculling boats have a minimum at a stroke rate of around 32. This means that the rowers apply power later at very high rates;

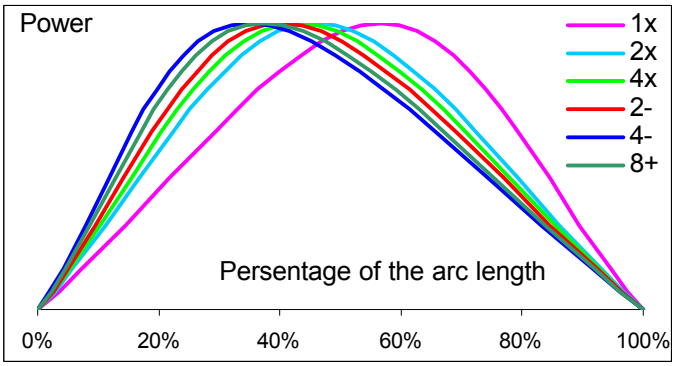
✓ The trend of 2- is opposite to that of the other boats with peak power occurring progressively earlier at stroke rates above 28;

✓ Singles have a significantly later position of peak power at any rate and fours have a much earlier power application at high rates.

Here are the average positions of peak power for the different boat types at their racing stroke rates:

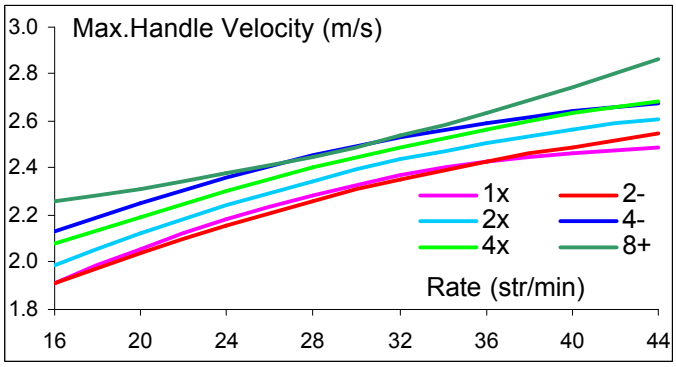
Boat Type	1x	2x	4x	2-	4-	8+
Prognostic Rate	36	38	39	37	39	40
Max. Power At (%)	56.8%	45.8%	43.0%	40.2%	34.9%	37.2%

Visual images of the average force curves with above positions of peak force are presented here:



? …the position of the peak force and power have a mild negative correlation with maximal legs speed (r=-0.28-0.42 in different boat types). This means that a faster leg drive helps to apply force and power quicker;

? … obviously, maximal handle velocity, correlates with stroke rate (r=0.52-0.69). Here are the trends in different boat types;



? … practically, peak handle velocity does not depend on stroke rate and boat size. On average, it happens at 64±4.8% of the total arc length in sweep boats and at 65±5.2% in sculling. This means that the oar handle moves with acceleration during the first two thirds of the drive length and with deceleration during the last third;

Ideas. What if…

? …we take into account the above facts for training in small boats and for selection of the rowers? The following can be recommended:

✓ Fours and eights have similar positions of the peak power (at 35-37%) and can be used for cross-training without limitations;

✓ 2-, 2x and 4x have very similar position of peak power at 40-45% of the arc length. Therefore, from this point of view, rowing in pairs is better preparation for a quad than rowing in singles;

✓ Singles have a very distinctive pattern of force and power application in the second half of the arc length. This may require a special selection of the rowers and training with emphasis on a powerful trunk and arm drive.

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