

**News**

☺ Biomechanical testing was conducted on Kenyan single-sculler Ibrahim Githaiga, who came to AIS as a part of Olympic Solidarity program supported by ASC, AIS, FISA and the AOC.



Kenyan coach Gitau Kariega and AIS rowing head coach Reinhold Batschi, who supervise the rower, were pleased to find some good aspects about Ibrahim's technique and also areas, where it can be improved.

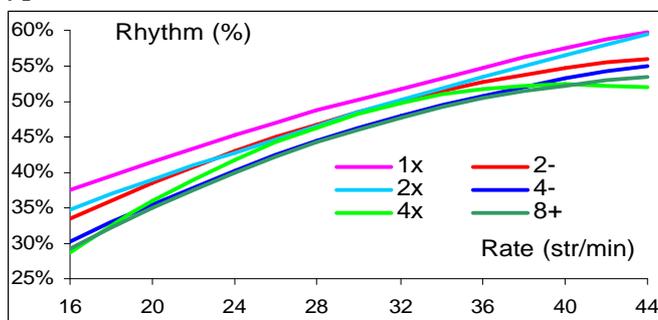
☺ In this Newsletter we begin a new section Q&A (questions and answers). Thanks to feedback from coaches we received some interesting questions. All questions and comments are published here with consent of the author.

**Q&A.**

Ian Taylor from Melbourne asked a series of good questions. This is one of them:

? Q: What sorts of ratios of blade water time to recovery time are achieved at higher rates? 2:1 (0.5s to 1s).

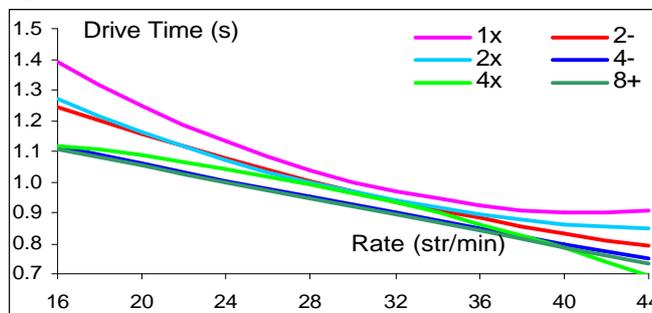
✓ A: The standard measure of the rhythm in all sports is the ratio of the drive time to the total cycle time. Below is a graph of the rhythm in different boat types at different stroke rates:



In rowing the rhythm varies from 30-40% at low rate up to 50-60% at the race rate. (from 0.5:1 to 1.4:1 in terms of drive-to-recovery ratio). Correlations

between the rhythm and the stroke rate are high (between  $r = 0.91$  in singles and  $r = 0.96$  in eight).

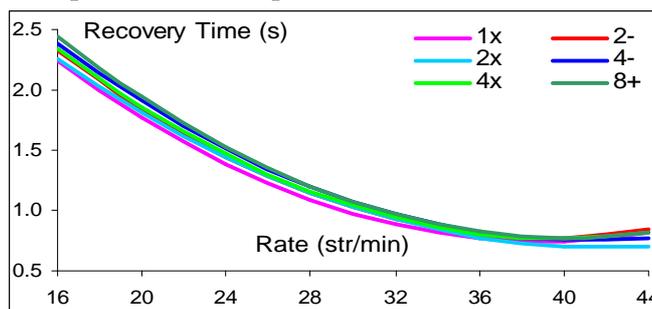
✓ Considering drive time (DT) at different stroke rates, significant differences between boat types can be observed:



DT varies from 1.4s at low rates down to 0.9s at high rates in singles and from 1.1s down to 0.75s in big boats. This can be explained by significant differences in boat speed that makes it easier to pull faster at higher boat speed. Correlation between DT and the stroke rate is negative and also quite significant (from  $r = -0.89$  in 4- to  $r = -0.95$  in 8+).

Please, remember that we define DT as an interval between moments of changing direction of the oar movements at the catch and release. Actual time of the blade in the water is about 10-15% shorter and depends on how we define it (blade touching water, or center of the blade is below the water level or blade is fully covered).

✓ On-contrary, the curves of the recovery time (RT) predictions are quite close in different boats:



The curves show that rowers increase the stroke rate mainly by means of shortening RT ( $r = -0.97$ ), but they limited to do it until stroke rate around 40, when RT became as short as 0.70-0.75s. If they want to increase the rate higher than they have to shorten DT.

**Contact Us:**

✉ ©2003 Dr. Valery Kleshnev, AIS/Biomechanics  
 POBox 176, Belconnen, ACT, 2616, Australia  
 tel. (+61 2) 6214 1659, (m) 0413 223 290, fax: 6214 1593  
 e-mail: [kleshnevv@ausport.gov.au](mailto:kleshnevv@ausport.gov.au)