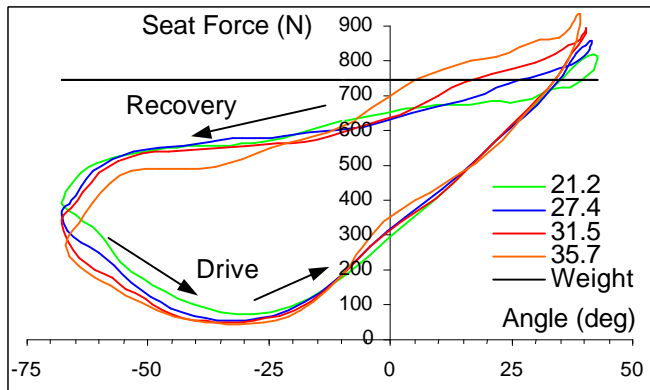


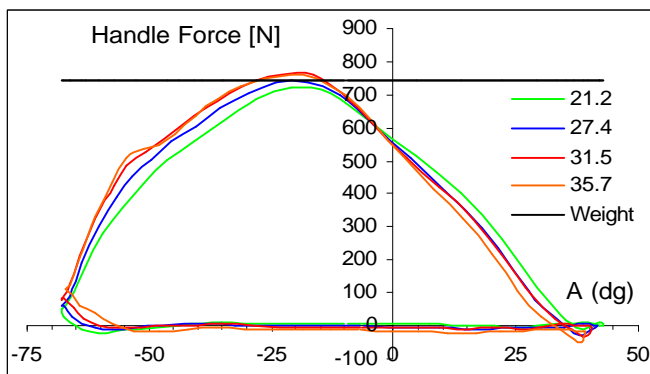


News

☺ In May we obtained reliable data about vertical seat force for the first time. We found that it can be as low as 50N at the first half of the drive and as much as 125% of the athlete body weight at the end of the drive. Here are graphs of the seat force relative to oar angle at the stroke rates 21 – 35.



At higher stroke rate the rower lifts his/her weight quicker at catch and heavier push the seat down at the end of the drive. The last can be explained by rotating action of abdominal muscles. Below are the force curves of the same rower.

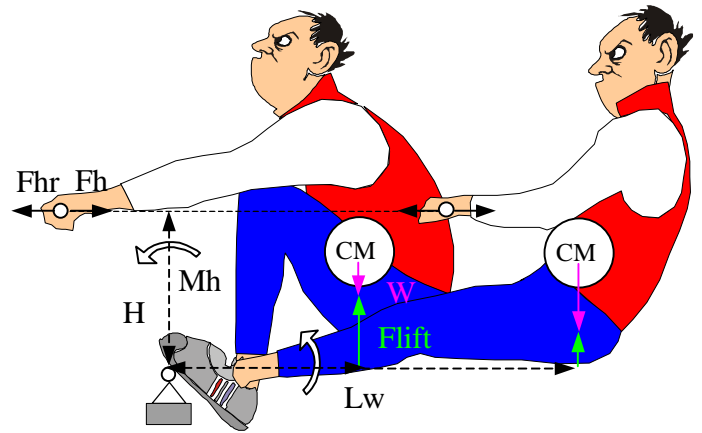


Lift of the athlete weight from the seat correlates very closely with the force application at the handle. Therefore, try to hang longer on the handle during the drive and sit down on the seat as late as possible.

Facts. Did You Know That...

? ...amount of force, which lifts the rower from the seat depends on the height of the handle relative to foot-stretcher? The following drawing illustrates this. When rower pulls the handle, reaction force F_{hr} creates rotating moment M_h . It is proportional to the force F_{hr} and a distance between line of the force and a point of rotation at the foot-stretcher H (height of the handle relative to foot-stretcher). This moment produce lift force applied to the rower's center of

mass, which inversely proportional to a distance L_w between foot-stretcher and the center of mass.



Lift force equal to: $F_{lift} = H / L_w * F_h$

From other side lift force cannot be higher than rower's weight. This follows to the formula for maximal handle force: $F_{h.max} = L_w / H * W$

Ideas. What if...

? ...take into account above considerations? The following recommendations can be done:

✓ Find an optimal height of the handle relative to foot-stretcher. Higher handle helps to increase stroke length by means of better compression at catch and longer arms travel. However, it limits amounts of force, which can be applied to the handle. This especially important if you want to increase force faster at catch;

✓ Try to decrease rotating moment and weight lift at the first half of the drive. To do this you should: Push the foot-stretcher with your toes in horizontal direction at catch. Any vertical force on the foot-stretcher increase your weight lift;

Pull the handle horizontally and do not insert the blade too deep at catch;

✓ Try to increase weight lift at the second half of the drive, because rotating moment already does not limit the handle force (distance L_w became much longer), but you can lift the boat and decrease drag resistance. To do this you should push the foot-stretcher with your heels and pull the handle higher.

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