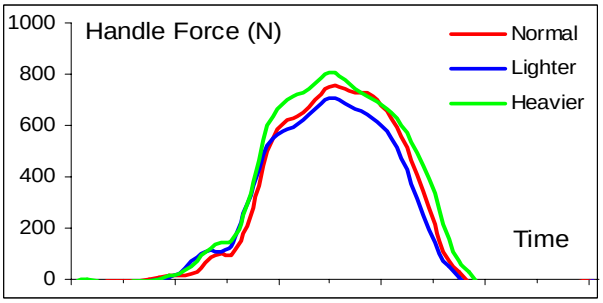
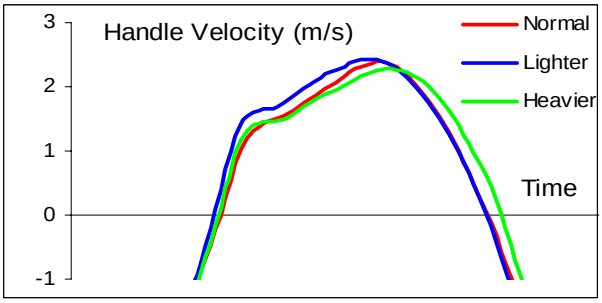
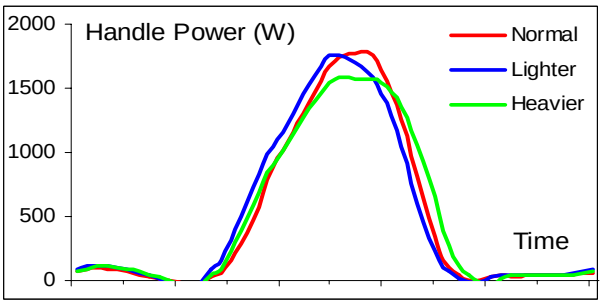
Facts. Did you know that...

✓ …changing the gearing ratio is the simplest method of speed and power drilling in rowing? The best way is to vary outboard oar length, because in this case you do not need to change geometry of the rower's movements. Rowing with shortened outboard will make the gearing ratio lighter and increase the speed of the drive, but decrease force application. On the contrary, increasing of the outboard will make the gearing heavier and change force/velocity ratio in other direction.

Below are graphs of the handle force, velocity and power during rowing (single scull) with normal gearing (88cm inboard, 290cm oar length), lighter (3cm shorter outboard) and heavier gearing (3cm longer outboard). Stroke rate was 32-33str/mim.







If we compare the normal and light gearing, then the main difference in the force curves is during the second half of the drive, where the force was about 40N less with lighter gearing. On the contrary, handle velocity was about 0.2m/s higher during the first half, although it was the same "after the pin". These changes were opposite during the heavier gearing. The rower apply about 40N higher force at the same speed "before pin", but then the handle speed was 0.1m/s slower and the force is similar to the normal gearing. The drive time appeared to be 0.06s longer with heavier gearing.

Peak power was similar during the normal and lighter gearing, although achieved earlier during the lighter gearing. Peak power was lower during the heavier gearing, but average rowing power was the highest (495W), because of longer drive time. It was lower during the lighter gearing (491W) and the lowest during the normal gearing (481W).

Ideas. What if...

✓ …: In RBN 4 and 5/2001 some examples of speed and force drills were described with regards to their biomechanical features. Here are some more examples of these sorts of drills.

Power drills:

You can increase load on desired body segment by means of applying extra mass to a specific part of the rower-boat-oars system:

✓ If you attach some extra weight onto the boat, you'll increase the load to the legs.

✓ To increase load on the trunk, you can use sand-bags attached to the rower's shoulders. Alternatively, you can make a jacket with pockets on the shoulders and fill them with sand. This drill is very useful for developing a good drive finish and body return.

✓ If you want to emphasise arms work and oar handling, you can attached extra mass to the oar. Put the extra mass on both inboard and outboard maintaining balance of the oar.

Preserving of the rowing kinematical structure is a general rule for these drills. Therefore, the added mass must not be higher than 4-5% of the body weight.

Speed drills.

Towing with speed boat has already been described (4/2001). This is alternative method:

✓ Rowing in faster boats (8+, 4x) is widely used as a very good speed drill for small boats (2-, 1x). However, some coaches used quite interesting modifications of this method. They put sculling riggers on the bow seats of the eight and make the sculler row at a very fast speed. Alternatively, two sweep seats can be set up on a bow of the quad. These combinations could be useful in small clubs, where there are not enough rowers or scullers to make big boats.

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