

FISA YOUTH COACHES CONFERENCE  
7<sup>th</sup> – 10<sup>th</sup> November 2019 - Hangzhou, China



Performance

Does 'Ergo-power'  
Always Equal  
a Faster Boat?

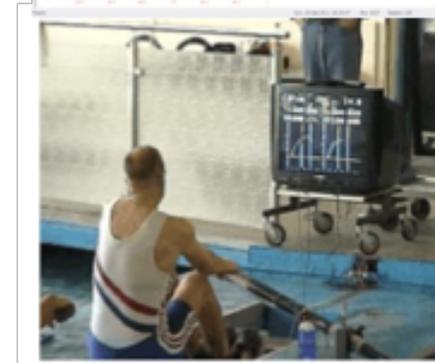
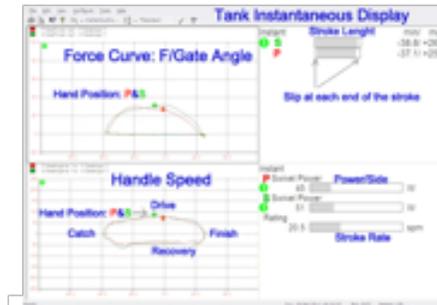
Ergo

On-water

Conny Draper, PhD

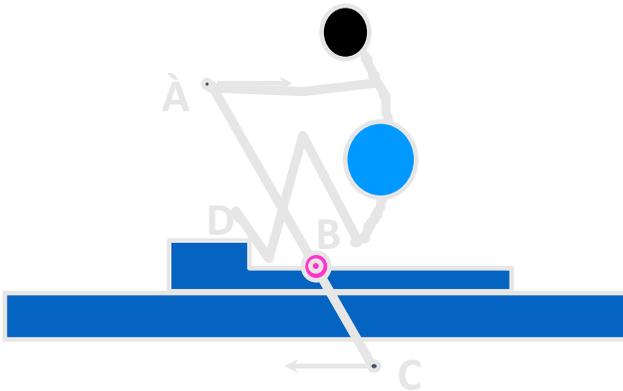
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# Coaching & objective Assessment during Training



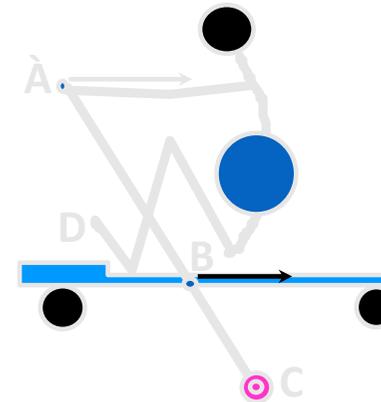
Ergometer	On-water	Rowing tank
Load regulation	Technique & performance assessment	Movement regulation
Conditioning training	On-water technique training	Additional technique training

## Biomechanical Difference Ergometer vs. On-Water Rowing (1)



### during **Ergometer** Rowing:

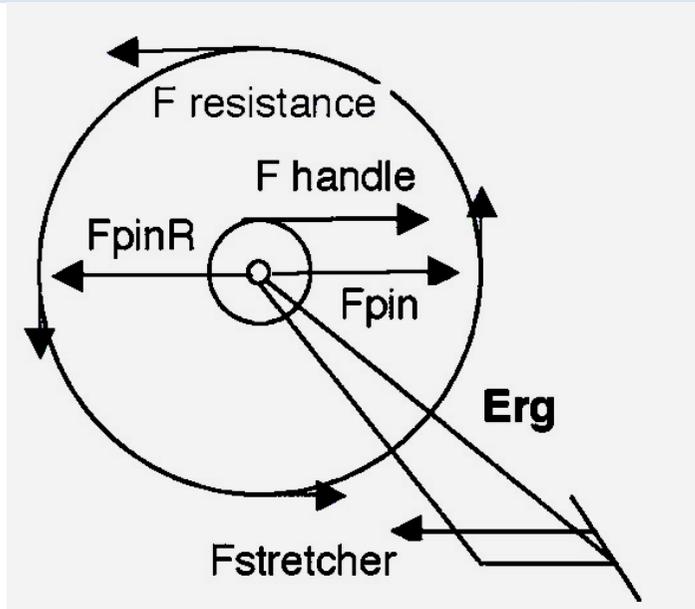
- Rower moves his body relative to the stable support
- “Oar” works as a I type level (pivot point is in the middle)



### during **On-Water** Rowing

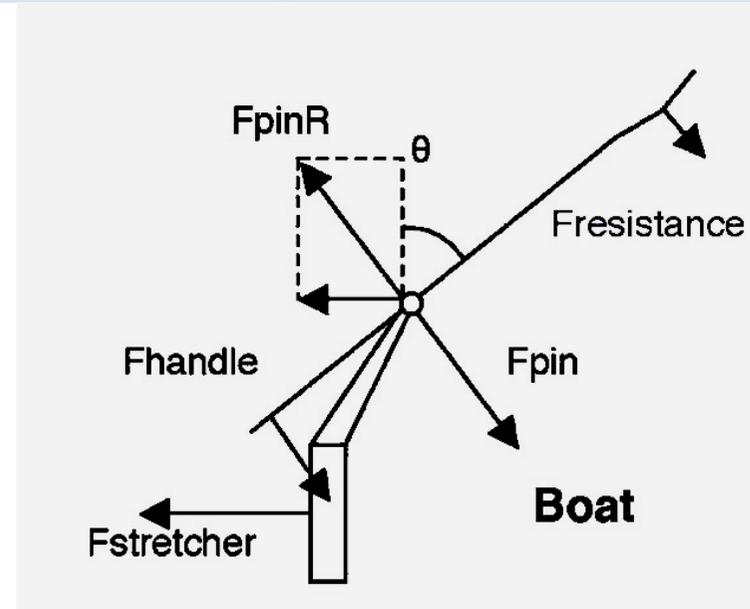
- Rower moves lighter boat relative to himself
- Oar works as a II type lever (pivot point is on the end)

## Biomechanical Difference Ergometer vs. On-Water Rowing (2)



during **Ergometer** Rowing:

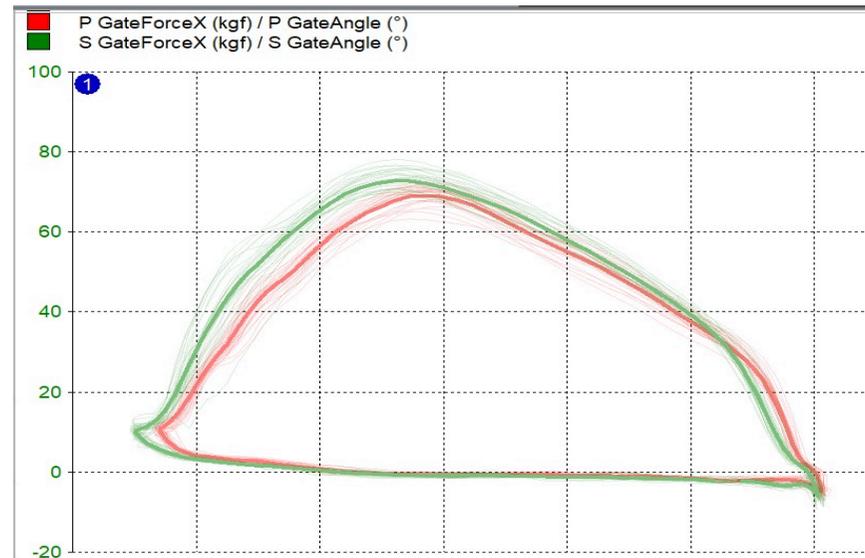
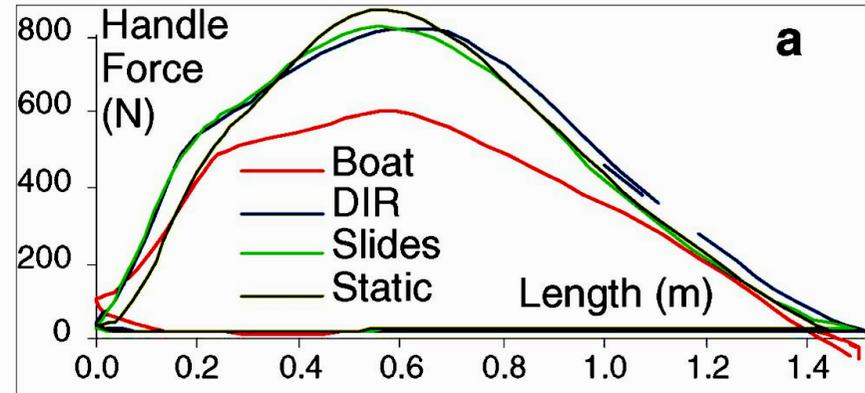
- Leg drive linear
- Handle pull/ Body swing translational

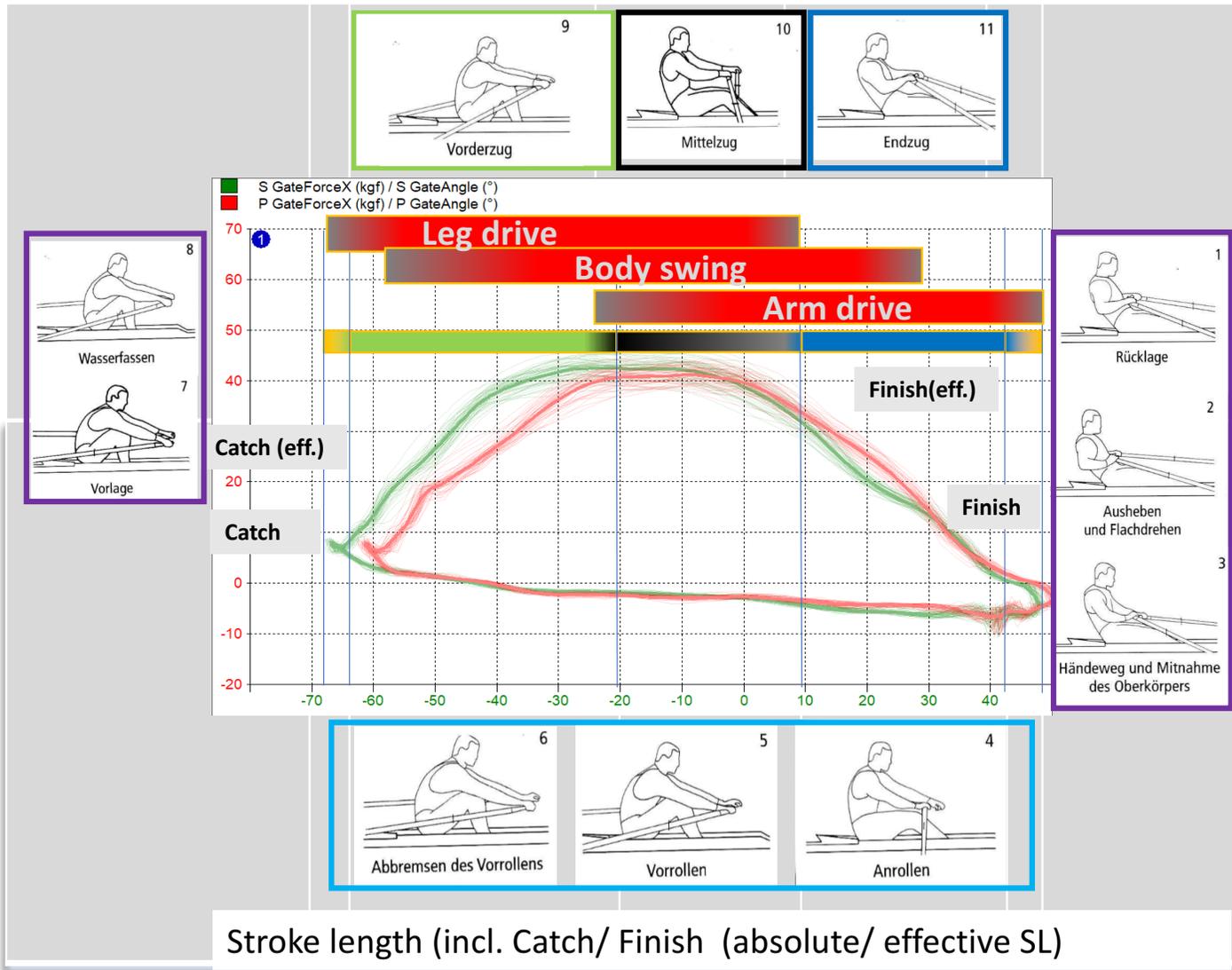


during **On-Water** Rowing

- Scull/Sweep: Leg drive linear
- Sculling: Body swing linear  
Handle pull rotational
- Sweep: Body swing rotational  
Handle pull rotational

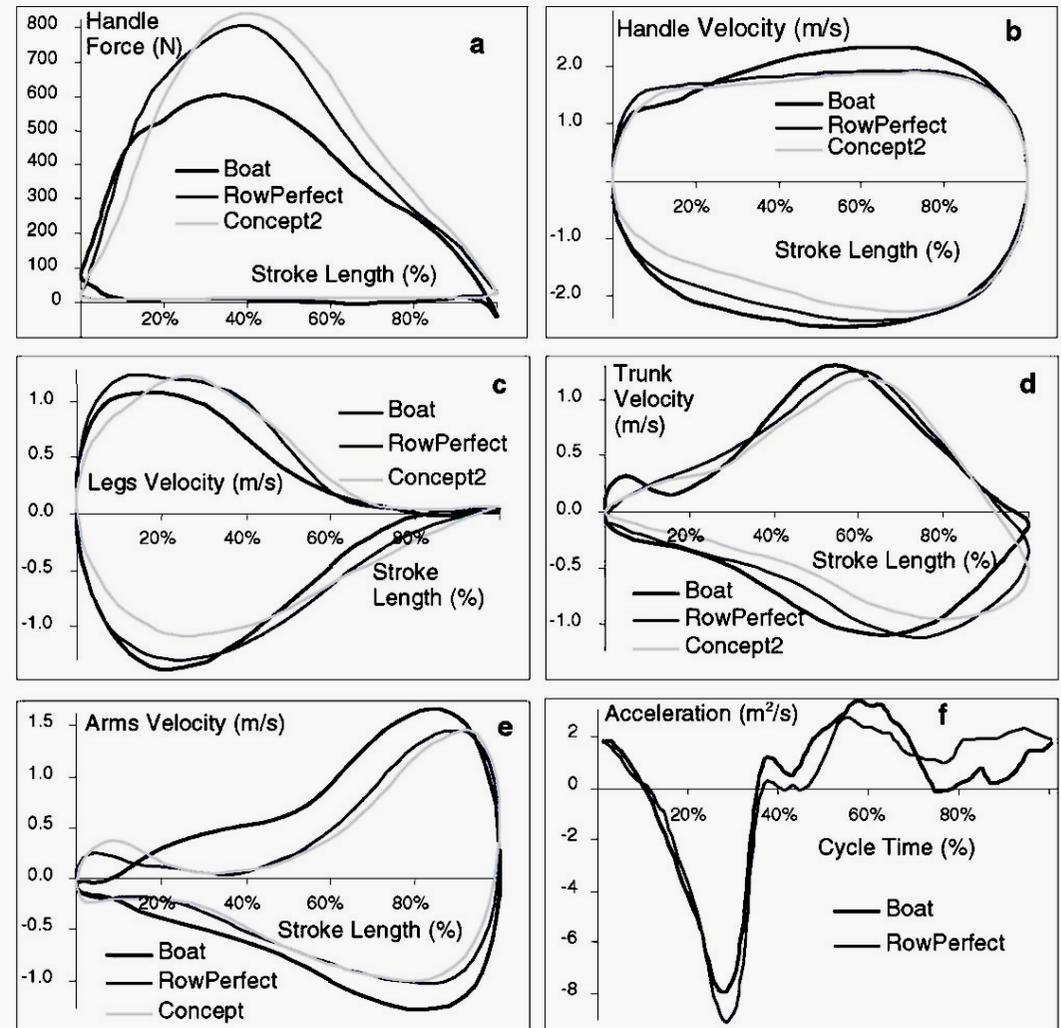
# Biomechanical Difference Ergometer vs. On-Water Rowing (3)





Stroke length (incl. Catch/ Finish (absolute/ effective SL))

# Biomechanical Difference Ergometer vs. On-Water Rowing (4)



**Fig. 5.1** Patterns of biomechanical variables in rowing in a boat and on ergs of two types.

(Kleshnev, 2015)

## Biomechanical Difference Ergometer vs. On-Water Rowing (3)

### Features of **Ergometer** Rowing:

- The footstretcher force curve moved considerably to the beginning of the stroke.
- The main work is executed by the legs.

### Features of **On-Water** Rowing:

- The handle and footstretcher force develop practically synchronously throughout the drive phase
- The main work is executed by the trunk.
- Longer stroke length on-water (curvilinear geometry of the arms' motions around the pin)

**Is **Ergometer** rowing controversial  
for the **on-water** rowing technique? ! ?**

## Biomechanical Difference Ergometer vs. On-Water Rowing (3)



Very accurate feedback on rowing intensity (precise physiology training)  
Winter training tool...

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**‘Does ‘Ergo-power’ Always Equal a Faster Boat‘**

**Thank you for your attention!**

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