

The wheelchair ergometer for adjustments in manual wheelchair use in action!

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Wheelchair ergometer

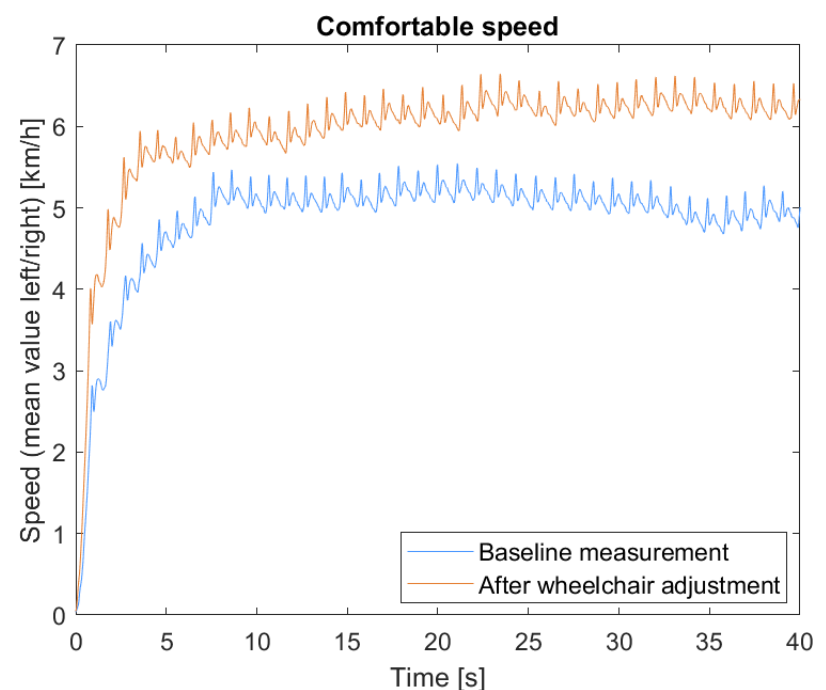
Obtaining objective propulsion data to analyze the interface of user and wheelchair in action to contribute to the advice for adjustments.

Active lifestyle

A well-adjusted wheelchair can contribute to an active lifestyle, maximal participation in society and avoiding overload.

Current status

Protocol consisted of 30s sprint, driving at comfortable speed and maintaining given constant speed.



Graph 1. Comfortable speed from start – 40s.

Blue: baseline position. Orange: current position, after adjustments

Example case

Comfortable speed was measured in standard wheelchair (blue) and repeated after adjustments (orange). Figure 2 shows the different positions and graph 1 the result: increased comfortable speed after adjustment. Subjective the user experienced driving after adjustment costs less energy.

Improving the protocol

To gain more knowledge about the individual mechanical efficiency of the wheelchair user we aim to add the cardiopulmonary exercise test. For the interface we plan to use the wheelchair ergometer for training.

Clinical message

Wheelchair ergometer is of most added value to referral questions related to efficiency in propulsion. For example:

- ✓ Can sprint capacity be improved?
- ✓ Pain in upper extremity: indications for overload?
- ✓ Asymmetry in propulsion?
- ✓ Adding electrical support?

Fig. 2 Person in manual wheelchair after adjustment, on wheelchair ergometer (Lode, Esseda).

Blue: baseline position.

Orange: current position after



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