

OF PATIENTS WITH HEMIPARESIS

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INTRODUCTION:

The authors investigated by means of isometric measurements a group of spastic hemiparetic patients, with the aim of showing the recovery by functional markers of motor patterns. To respond to this challenge of isometric approach, an easy to use, 48 channel force-torque measuring instrument was developed in the scope of the Alladin-project.

MATERIALS AND METHODS:

Modern sensors on the Alladin instrument measure forces and torques exerted by the patient during six different activities of daily living (drinking, turning a key, lifting a bag, taking a spoon, reaching for a bottle, moving a bottle from one side to another). Measured data are also graphically represented.

RESULTS:

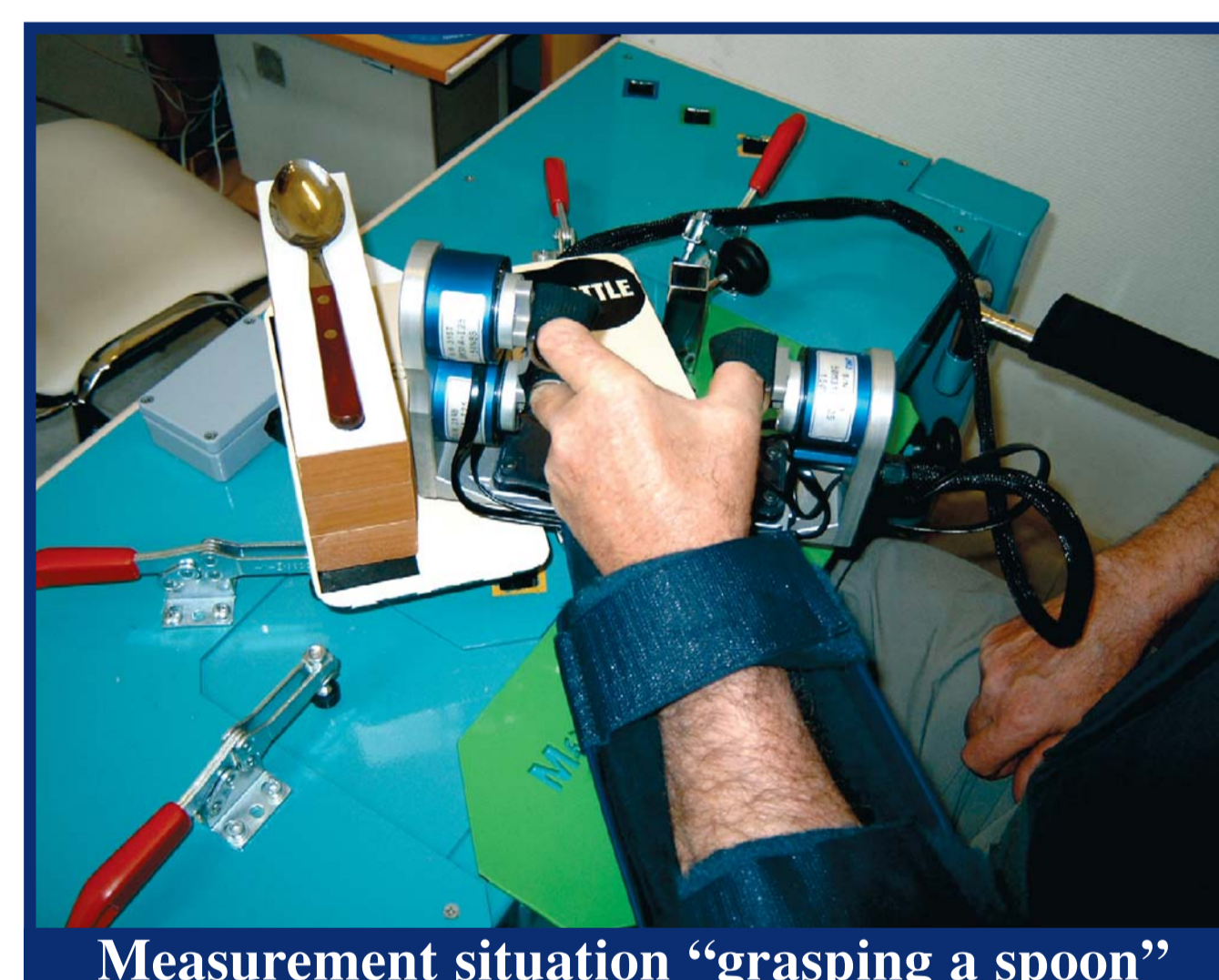
The measurements of two individual patients were sampled over a 25 week period. The patterns of the graphs give useful results for the comparison of functional recovery during the process of rehabilitation. The patients were also tested from clinical aspects using the Fugl-Meyer (modified by Lindmark) and the Motor-Assessment Scales. Authors represent a patient with outstanding recovery (Patient 1) and another patient with minor recovery (Patient 2).

CONCLUSION:

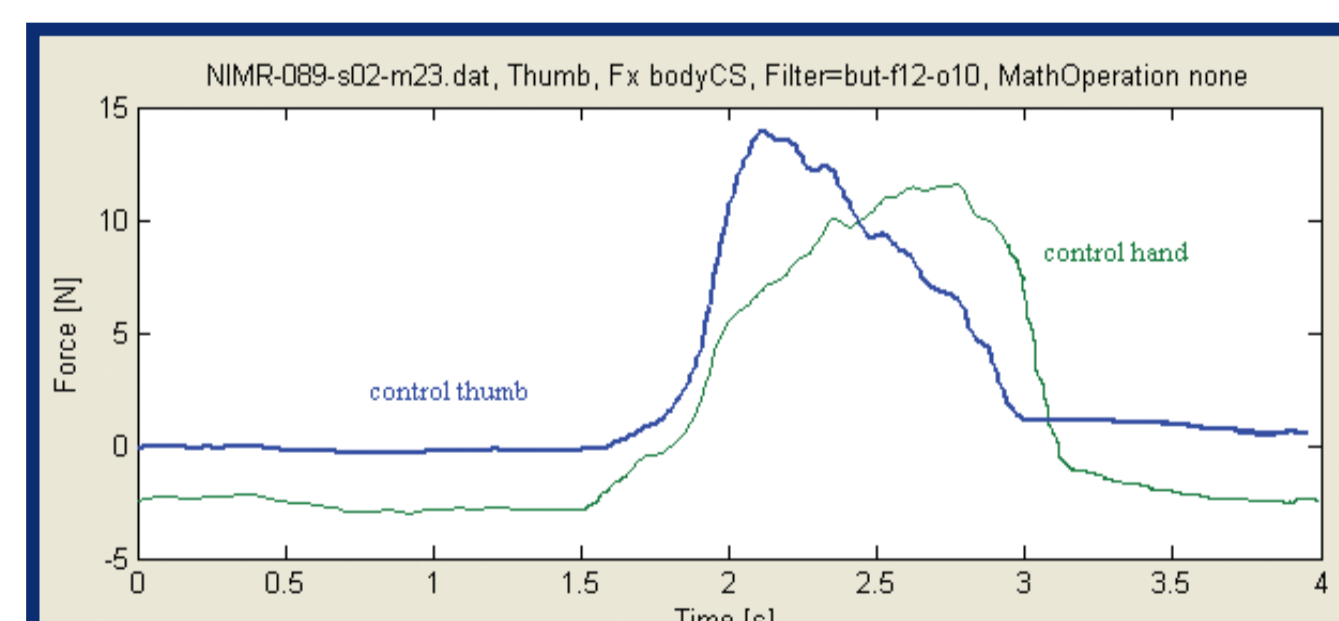
These graphs detected by the isometric measurements on one hand show the development of different levels of functional recovery, and on the other hand can help the physiotherapist make the correct choice of training techniques, selecting those best adapted to functional re-education.



The Alladin Diagnostic Device



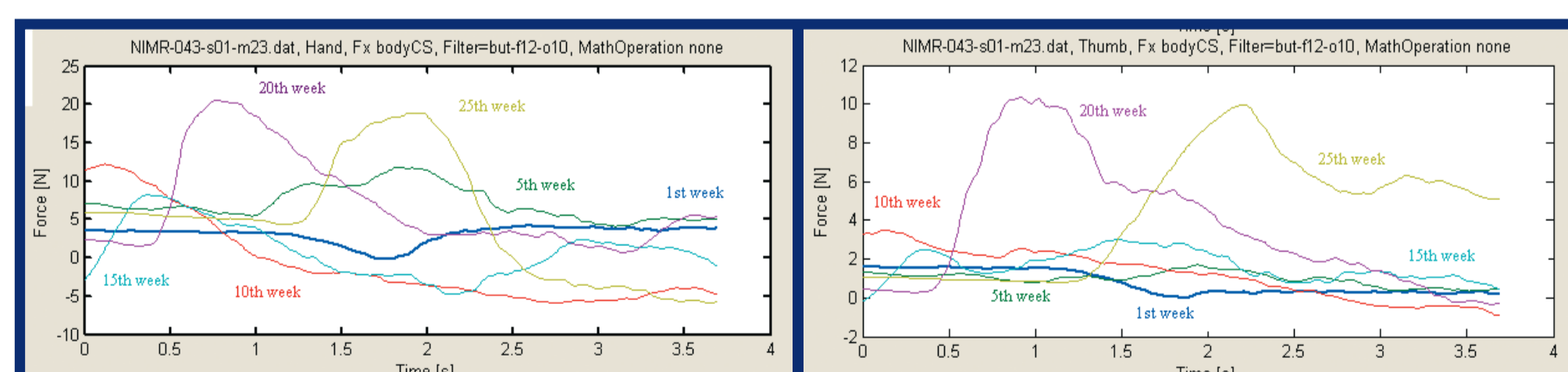
Measurement situation "grasping a spoon"



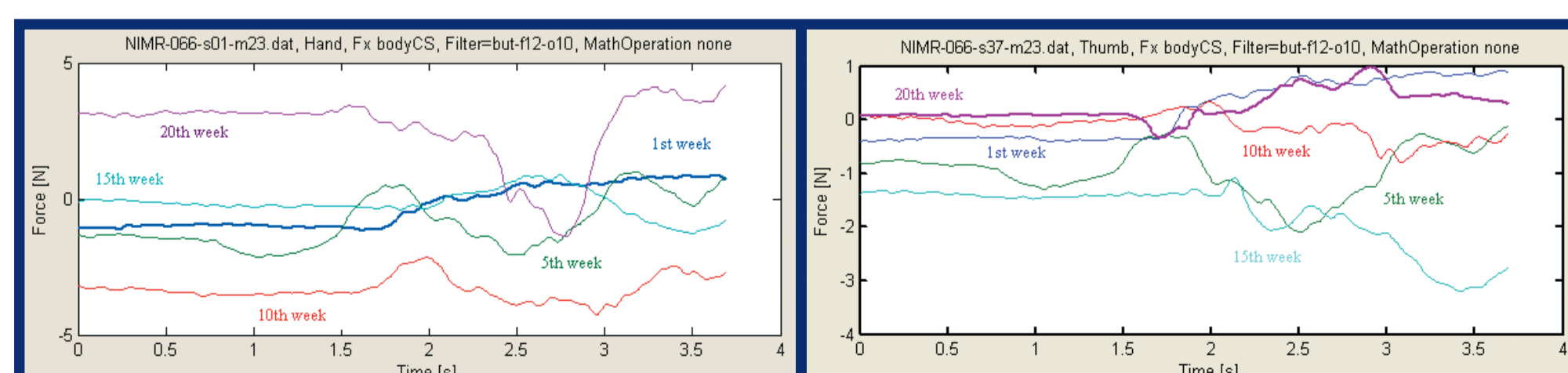
The graphs show the pattern of the force exerted by the hand and the thumb of a healthy person during the instruction "grasp the spoon, please".

Table 1: Fugl-Meyer scores

	Fugl-Meyer (Lindmark adaptation) scores			
	A (max: 54)	B (max: 6)	E (max: 14)	G (max: 30)
Patient 1	34-35	4-6	14-14	27-30
Patient 2	0-0	0-0	14-14	26-30



Patient 1: The graphs show the pattern of the force exertion of the hand and the thumb during the same task in case of a patient with outstanding recovery detected in every 5th week.



Patient 2: The graphs show the pattern of the force exertion of the hand and the thumb during the same task in case of a patient with minor recovery detected in every 5th week.

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Web:
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