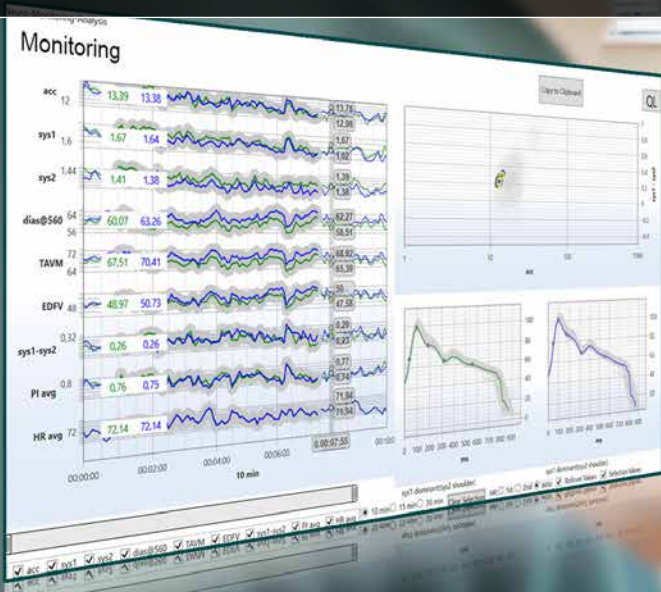# Neuromonitoring Analysis (NMA®)
Faster reliable diagnosis.

- Innovative TCD analysis

- Screening tool for cardiovascular physiology

- Especially for the use in ICU and OR

- Advanced TCD parameter

- Faster reliable interpretation of the TCD signal

- Easy differentiation of findings

- Only available for DWL® systems

# DWL Neuromonitoring Analysis (NMA®)

The new TCD analysis software for cardiovascular physiology enables the differentiation of pathological and non-pathological findings with the aid of the Neuromon B.V. Doppler parameters and can be used, among other things, in surgery, anaesthesia and intensive care.

The use of this innovative screening software allows physicians and healthcare professionals to quickly and reliably interpret the TCD signal in complex clinical situations, providing valuable information for further disease assessment and therapy control.
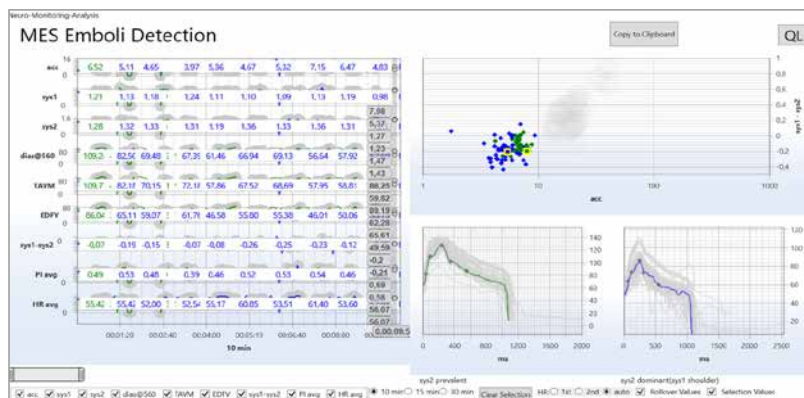
Common Indices

sys

dias
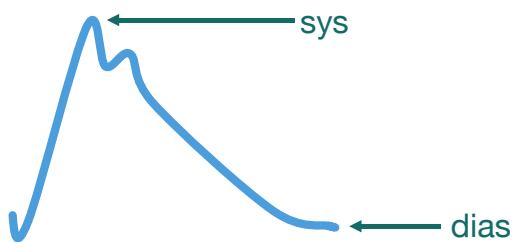
New Parameters (Indices)
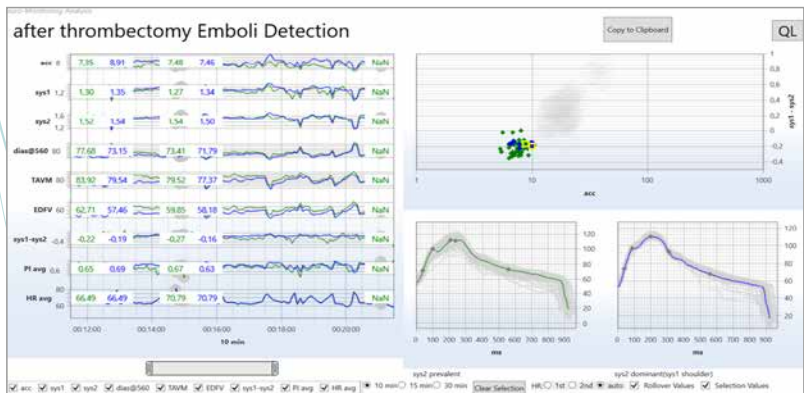
sys 1

sys 2
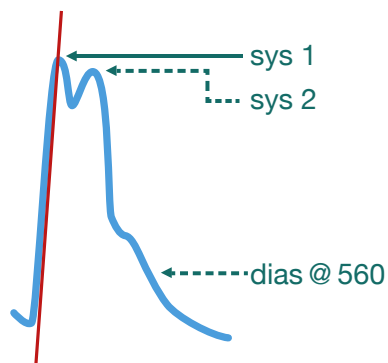
Acceleration
(maximal rate of change)
in FV per sec

dias @ 560

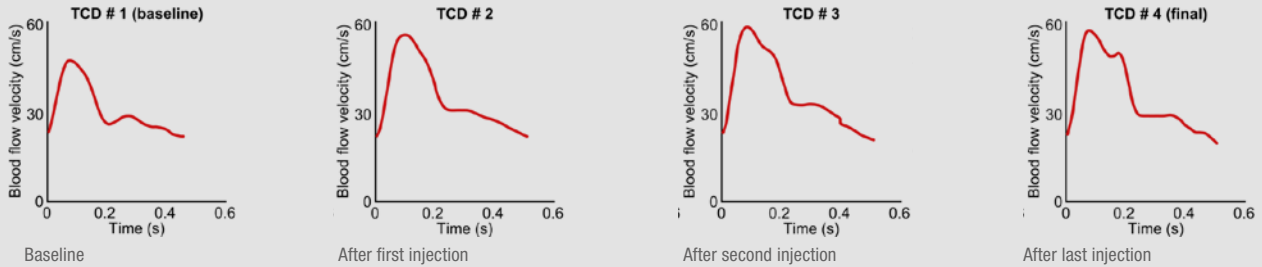**Example case: pre- and postoperative examination – patient 57 years with 70% ICA stenosis**

Before surgery

After surgery

The company Neuromon B.V. has further developed the existing TCD indices for advanced TCD parameterization, whereupon appropriate software for the NMA® module has been specially designed for DWL® devices.

These "new parameters" are based on the theory of arterial acceleration, which states that the arterial vasculature is not just a passive conduit, but brings the energy into the pressure wave of the heart. This pressure wave is expanded within the smooth muscle cells of the arterial walls and spreads as a peristaltic wave along the branches of the Arterial Tree.

The available heart beats are combined in 10s intervals and the following parameters are determined:

acc   acceleration, the maximal change in flow velocity at stroke onset.

sys1   the maximal flow velocity reached during early systole (first systolic peak)

sys2   the maximal flow velocity reached during late systole (second systolic peak)

dias@560   the diastolic flow velocity at fixed time after stroke onset (560 ms)

HR   mean heart rate over the 10s interval

Parameter	Origin	1st order dependence	2nd order dependence	3rd order dependence
acc (sys1)	phasic myogenic response	smooth muscle contractility		
		aorta pressure		
sys2	ventricular ejection	stroke volume	diastolic filling time	heart rate
			ventricular ejection fraction	heart contractility
		blood distribution	cerebro-vascular resistance	metabolic activity
			peripheral vascular resistance	sympathetic vasomotor tone
				metabolic activity
dias@560	aorta pressure	cardiac output	preload to the heart	venous capacity
				total blood volume
		aorta stiffness		
		total vascular resistance		
HR	cardiac innervation	aorta and carotid baro-receptors	dynamic aorta pressure	heart contractility
				aorta pressure
		atrial baro-receptors	venous pressure	total vascular resistance
				venous capacity
				total blood volume
				cardiac output

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Neuro-Monitoring-Analysis (NMA®)

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In collaboration with:

Neuromon bv

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