NEWRO**SIM**™

Neurological Virtual Simulator

Powerful
The user is able to modify the value of the cardiovascular variables.

High Fidelity
The mathematical model accurately reproduces the hemodynamics of the intracranial cerebral vessels.

User Friendly Interface
User interaction with the mathematical model is simple, fast and effective.

NEWROSIM™ is a neurological model-driven computer-based simulator. It allows the dynamic visualization and interaction of blood-flow velocities in different cerebral districts in order to enable the evaluation of the cerebral perfusion level of the patient, as well as the development of several clinical scenarios in Neurology.

NEWROSIM™ allows the user to monitor the cerebrovascular variables, useful for the evaluation of the cerebral perfusion level in pathological conditions, but difficult to control in regular clinical practice. The user can modify the value of the cardiovascular variables as the arterial pressure, the heart rate and the arterial CO_2 partial pressure, or act on the cerebral circle condition adding stenosis or occlusions at the different levels of the brain.

Moreover, it's possible to simulate an impaired condition of the autoregulation as well as the CO_2 reactivity so to allow the simulation of many scenarios with different levels of the regulatory mechanisms.

The mathematical model driving **NEWROSIM™** permits to reproduce the hemodynamics of the intracranial cerebral vessels, taking into account the presence of any interhemispheric compensation concerning the morphology of the Circle of Willis (e.g. through the anterior and posteriors communicating arteries).
Thanks to the user-friendly interface, the user interaction with the mathematical model is simple, fast and effective.

Many are pathological scenarios:

- Stenosis/occlusion of the internal carotid arteries and of the basilar artery
- Stenosis/occlusion of the middle, posterior and anterior cerebral arteries
- Impairment or total absence of the cerebral regulatory mechanisms following ictus, head injury or other pathological cerebral situations
- Evaluation of the cerebral status after variation of the cardiovascular variables of the patient

All these features makes NEWROSIM™:

- A perfect support for teaching, hence the user can practice and self-evaluate on several clinical scenarios. NEWROSIM™ can be used both in plenary rooms by teachers/instructors and on personal computers by students/learners
- An impressive new complementary tool for the clinical simulation field, since it integrates and completes an area not covered by the patient simulators on the market today. Thanks to the possibility to interact with some of these simulators, **NEWROSIM™** allows the development of new clinical simulation scenarios in the neurological field as well as the introduction of the Transcranial Doppler in those sessions.
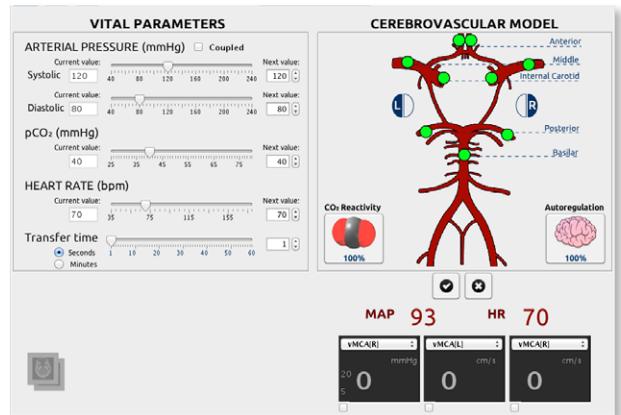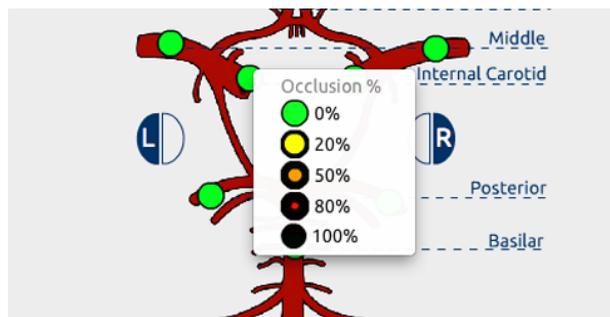
NEWROSIM™ can be used:

- As a stand-alone software, allowing the representation of pathological situations and the monitoring of the cerebral perfusion level in the different cerebral districts, according to the variation in the cardiovascular parameters, which are directly controlled by the user
- During clinical simulation scenarios, thanks to the possibility to display Transcranial Doppler images

System Requirements
Display: 15' - Display Resolution: 1440 x 900 - CPU: Intel Core i-5 - RAM: 8 GB - Operating system: Windows 10 Pro (64 bit) / Mac OSX 10.14 - Language: English - HD: 128 GB - Network connection between Instructor and Monitor PC

NEWROSIM™ is designed by Accurate, which works both on the development and the integration of this application with the existing full scale simulators through the creation of specific communication protocols.
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