A method and associated apparatus for simulating neuromuscular stimulation in real time during simulated medical surgery using a manikin, such as an ural nerve stimulation to detect the degree of neuromuscular blockade and external stimulation of nerves to produce evoked potentials so as to monitor the integrity of nerves during surgery is provided. Such simulation allows for the active participation of trainees with the simulation apparatus to experience real world medical procedures in a setting that closely mimics the real world.