

Virtual Reality Hypnosis: From fundamental study to clinical application

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Virtual Reality Hypnosis (VRH)

A hypnotic induction followed by a suggestion delivered by customized virtual reality hardware/software¹



Pain modulation in VRH⁴

N=18 healthy
Age: 27.22 (±4.03)
10 women; 8 men
Painful stimulation



Clinical application^{2,3}

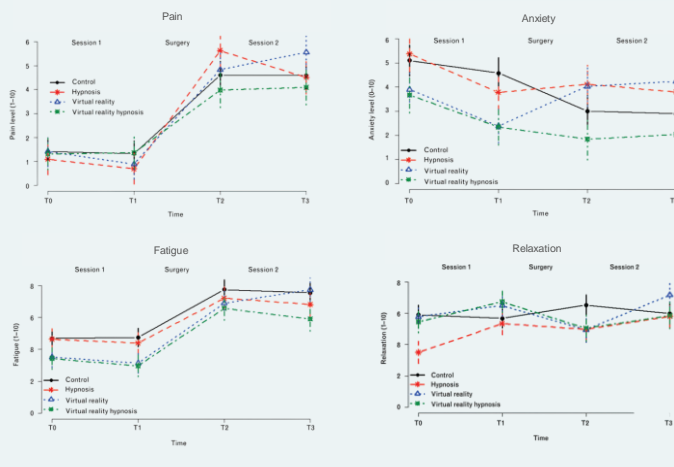
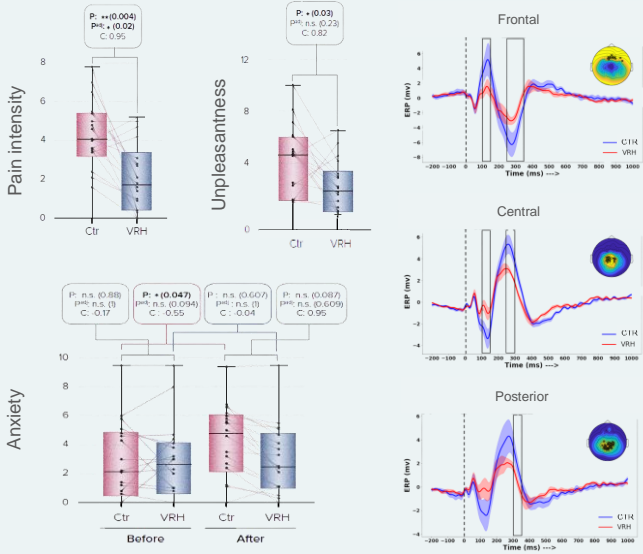
N=100 patients
Age: 66 (±11.5)
24 women; 76 men
Cardiovascular surgery



For all participants:

Calibration	Assessment	Virtual Reality Hypnosis (VRH)	Assessment	Assessment	Control (CTR)	Assessment
Staircase Painful stimulation 8/10	5 min EEG Eyes open Anxiety (0-10)	60 Painful stimulations EEG recording VRH underwater journey	Anxiety (0-10) Pain intensity (0-10) Pain unpleasantness (0-10)	5 min EEG Eyes open Anxiety (0-10)	60 Painful stimulations EEG recording CTR Cross fixation (eyes open)	Anxiety (0-10) Pain intensity (0-10) Pain unpleasantness (0-10)

Pre-operative day			Postoperative day		
Assessment	Session 1	Assessment	Assessment	Session 2	Assessment
Demographic Age Sex Surgery type Alcohol Tobacco Dissociation-trait	Control	Psychologic Anxiety Pain Fatigue Relaxation	SURGERY	Psychologic Anxiety Pain Fatigue Relaxation	Psychologic Anxiety Pain Fatigue Relaxation
Psychologic Anxiety Pain Fatigue Relaxation	Hypnosis	Psychologic Heart rate Arterial pressure Pupil size Oxygen saturation		Hypnosis	Psychologic Heart rate Arterial pressure Pupil size Oxygen saturation Respiratory rate
Physiologic Heart rate Arterial pressure Pupil size Oxygen saturation	Virtual Reality	Physiologic Heart rate Arterial pressure Pupil size Oxygen saturation		Virtual Reality	Physiologic Heart rate Arterial pressure Pupil size Oxygen saturation Respiratory rate
	Virtual Reality Hypnosis	Drugs Regimen of anaesthesia On-demand opioids		Virtual Reality Hypnosis	Drugs On-demand opioids



Conclusion

VRH is a promising tool for acute pain modulation. Clinically, we have demonstrated its feasibility in the ICU. Nevertheless, **clear guidelines** as for whom, when, and how are needed to provide efficient health care.

References: 1.Patterson, Jensen et al., 2010; 2.Rousseaux, Faymonville et al., 2020; 3.Rousseaux, Dardenne et al., 2022; 4.Rousseaux, Panda et al., in press