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EFFICACY OF DISTRACTION BY MEANS OF VIRTUAL REALITY IN THE CONTROL AND REDUCTION OF PAIN USING THE COLD-PRESSOR TEST

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Introduction: Attention plays an important role in pain perception. Focusing attention in pain intensifies the painful experience whereas distraction may decrease its subjective sensation (Eccleston & Crombez, 1999). The purpose of the two studies is to establish the efficacy of distraction by means of VR in the control and reduction of pain using the cold-pressor test. In both studies threshold, tolerance, perceived pain intensity and time estimation were measured.

Study 1: 37 healthy participants were induced pain in two consecutive immersions using the cold-pressor test. The experiment was counterbalanced and all participants went through two experimental conditions: VR (stereoscopic screen) and black screen. A virtual environment "Surreal World" was designed based on distraction of attention techniques. Results showed that VR significantly increased threshold and tolerance, diminished pain intensity and perception of time.

Study 2: 35 healthy participants underwent two consecutive immersions using cold pressor: VR (using the updated version of Surreal World and 3D laptops) and black screen. VR significantly increased the threshold and tolerance, whereas variations in the estimation of time were barely significant.

Differences in the results of the two studies could be accounted for by the immersive effect of the stereoscopic screen. Findings are discussed in relation to previous studies on VR and pain. Results support VR as an adjunctive method in pain treatment and allow proving its efficacy in patients with chronic pain.