

Virtual reality and pain management: current trends and future directions.

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Virtual reality (VR) has been used to manage pain and distress associated with a wide variety of known painful medical procedures. In clinical settings and experimental studies, participants immersed in VR experience reduced levels of pain, general distress/unpleasantness and report a desire to use VR again during painful medical procedures. Investigators hypothesize that VR acts as a nonpharmacologic form of analgesia by exerting an array of emotional affective, emotion-based cognitive and attentional processes on the body's intricate pain modulation system. While the exact neurobiological mechanisms behind VR's action remain unclear, investigations are currently underway to examine the complex interplay of cortical activity associated with immersive VR. Recently, new applications, including VR, have been developed to augment evidenced-based interventions, such as hypnosis and biofeedback, for the treatment of chronic pain. This article provides a comprehensive review of the literature, exploring clinical and experimental applications of VR for acute and chronic pain management, focusing specifically on current trends and recent developments. In addition, we propose mechanistic theories highlighting VR distraction and neurobiological explanations, and conclude with new directions in VR research, implications and clinical significance.

Pain Manag. 2011 Mar;1(2):147-157. Li A, Montañó Z, Chen VJ, Gold JI. Children's Hospital Los Angeles, Departments of Anesthesiology Critical Care Medicine & Radiology, 4650 West Sunset Boulevard, MS#12, Los Angeles, CA 90027, USA.



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