

# The Effects of VR-based Therapies on Pain and Joint Range of Motion in Burn Injuries

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## Introduction

Burns are lesions that develop in living tissues and mostly affect the skin, the biggest organ in the human body. They can have modest to severe lesions and are brought on by a variety of causes. This pathology is the third most common reason for accidental deaths globally. In major burn units of referral hospitals, about 1000 patients are admitted each year. Six to ten percent of visits to the emergency room are for burn injuries. Pulmonary failures, acute renal failure, infection of the afflicted areas, sepsis, or multiorgan failure are the most frequent consequences. If any of these consequences are not treated, they could all be fatal. Those who do survive frequently experience physical, functional, aesthetic, and psychological aftereffects that affect their daily lives. One of the most the most incapacitating aftereffects in these individuals, causing poor posture and a constrained range of joint motion. A number of intensive care-based preventive measures must be put in place to avert all of these consequences mobilization and postural control. The main objectives of medical care are typically to avoid retractions and sequelae, promote healing, and prevent infection. All medical interventions are successful in ensuring the patient's survival, but they do not lead to a complete and total recovery.

## Description

Burns are now a widespread issue that impacts a sizeable section of the global population, disturbing daily routines and producing a variety of physical and psychological effects [1-3] in people who experience them. Treatment from a single specialist will not be sufficient for these patients due to the complexity of their diseases. This multidisciplinary approach is crucial because the complicated care that burn victims need should strive for their best functional recovery, enabling them to contribute to society both physically and psychologically. The rehabilitation of burn victims has benefited from technological advancements, according to scientific evidence, which have decreased pain during mobilisation and increased motivation and engagement throughout the process. Virtual reality has therefore been suggested as a tool.

Virtual reality (VR) is a modern distractor technique that has gained popularity in clinical research investigations. It is based on the use of computers and other technology to reproduce real-world environments in a digitalized universe. In order to generate the illusion of reality that makes the user feel as though they are physically present in the new world, it

enables users to actively interact with it. This method has been employed to control pain and discomfort during a variety of gruelling medical operations. Additionally, the method seems to be helpful for children of all ages [4,5] and is particularly well-suited for paediatric medicine, a challenging patient population in clinical burn scenarios. Thus, virtual reality (VR) is a technology with a lot of interaction potential, especially in an immersive method connected to 3D visuals and audio enable the integration of additional human senses. Perceptual VR also has the option of being immersive or not.

## Conclusion

An immersive simulation technology called virtual reality enables users to interact with a three-dimensional (3D) computer-generated image. Helmets, gloves, or other tools that can record the rotation and position of various body parts are used to change the scenes, which are mostly visual. A tracking system that tracks the user's movements makes it feasible for virtual reality to be interactive. For sensory feedback, subject motivation, and motor learning repetition in virtual reality, three elements are required. Because plasticity depends on practice, learning new motor and functional skills is improved by repetition. The enormous and intensive sensory stimulation and feedback that virtual environments can offer is necessary to cause brain reorganization. By highlighting numerous activities that portray the subject's therapy in a fun and interesting way, patient motivation can be increased. Patients' motions and interaction with the virtual environment give the user the impression that they are actually there.

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