

# Virtual world to help relieve patients' pain

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(Medical Xpress)—Researchers in Birmingham are hoping to use the hi-tech world of virtual reality in a bid to relieve the pain of hospital patients.

Staff at Queen Elizabeth Hospital Birmingham (QEHB) and the University of Birmingham are working on using computer game technology to alleviate patients' [pain](#) and discomfort through distraction therapy.

Patients would be able to wander around a virtual world based on the natural delights of Devon, with simulated 'walks' along a coastal path or through woodland.

Critical Care Registrar Dr Charlotte Small, who is leading the clinical side of the project, said: "The work we are looking at is the use of [virtual reality](#) in a number of ways, initially around pain management.

"These mainly involve the changing of dressings of burns patients and complex trauma involving military patients, but we are also looking at the issue of [phantom limb pain](#).

"We are looking to design a purpose-built system so it can be used by patients with even severe injuries."

As part of the two-year project, a study was carried out over several weeks within the QEHB burns unit which looked at the effectiveness of pain relief treatment ranging from [paracetamol](#) to morphine.

It found that more than a third (37 per cent) of burns patients still experienced moderate or [severe pain](#) when their dressings were changed even when given morphine or other pain relief medication.

Added Dr Small: "We are looking at patient satisfaction and whether it helps patients by reducing pain."

The project, which focuses on 'virtual nature therapy', will involve two virtual worlds which have been developed at the University of Birmingham. They consist of Virtual Wembury and Virtual Burrator, both of which exist for real in Devon.

Virtual Wembury provides users with a mile-long coastal path, while Virtual Burrator is based around the actual reservoir in Dartmoor. The Virtual Wembury game also has a speedboat version which patients can control, while further work could involve patients sitting in a 'virtual pedalo' which they can power by moving their legs in bed.

"Research says viewing nature is relaxing and therapeutic," said Dr Small. "Using a screen, you can decide to walk up a hill, go over a bridge, or sit on the beach and watch a sunset or boats going by.

The virtual worlds were initially developed by postgraduate students at the university's Human Interface Technologies Team, led by Professor Bob Stone. The initial motivation for the virtual reality project came as a result of Ministry of Defence-funded research addressing the potential use of simulation technologies for future physical and psychological therapies.

Initially, patients will be provided with a simple "ring mouse", enabling them to jump between selected viewpoints, but still be free to look around at the changing scenery. As they get better they will be able to walk around their [virtual world](#) using a series of different controls and

with the benefit of natural sounds through headphones.

Prof Stone said a "highly unique and very rewarding" aspect of this research was addressing how to exploit virtual recreations of areas of natural beauty to help patients recover from traumatic incidents, including operations.

He added: "Previous research suggests that exposing individuals to natural environments, such as rural and coastal settings, can promote stress reduction and reduce post-operative recovery times and the need for pharmaceutical pain relief.

"In collaboration with the Royal Centre for Defence Medicine (RCDM) and QEHB, the project aims to exploit simulated restorative environments to deliver similar benefits to those individuals who are unable to access and experience real natural environments."

Prof Stone said studies were being carried out to evaluate individuals' responses to the simulated sights, sounds and even smells of those recreations.

Provided by University of Birmingham

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