

Immersion in virtual world alleviates pain from injury

March 2 2005

Virtual reality games can help alleviate pain in children being treated for severe injuries, according to research published today in the Open Access, peer reviewed journal BMC Pediatrics.

Immersion in a virtual world of monsters and aliens helps children feel less pain during the treatment of severe injuries such as burns, according to a preliminary study by Karen Grimmer and colleagues from the Women's and Children's Hospital in Adelaide, Australia.

A virtual reality game is a computer game especially designed to completely immerse the user in a simulated environment. Unlike other computer games, the game is played wearing a special headset with two small computer screens and a special sensor, which allows the player to interact with the game and feel a part of its almost dreamlike world. "Owing to its ability to allow the user to immerse and interact with the artificial environment that he/she can visualize, the game-playing experience is engrossing", explain the authors.

Children with severe burns suffer great pain and emotional trauma, especially during the cleaning and dressing of their wounds. They are usually given strong painkiller drugs, muscle relaxants or sedatives, but these are often not enough to completely alleviate pain and anxiety. These medications also have side effects such as drowsiness, nausea or lack of energy.

Grimmer and colleagues asked seven children, aged five to eighteen, to play a virtual reality game while their dressing was being changed. The

children were also given the usual amount of painkillers. The researchers assessed the pain the children felt when they were playing and then compared it to the amount of pain felt when painkillers were used alone.

To measure the intensity of the pain, the team used the Faces Scale, which attributes a score from 0 to 10, wherein 10 represents maximum pain, to a facial manifestation of pain. For younger children they used 5 different faces representing no pain to very bad pain. The researchers also interviewed the nurses and parents present during the dressing change.

The average pain score when the children received painkillers alone was 4.1/10. It decreased to 1.3/10 when the children had played a game and been given painkillers. Because the sample size was so small the researchers analysed their results per child, and they found that all but one child lost at least 2 points on the scale when they were playing the game. The parents and nurses confirmed these results and said that the children clearly showed less signs of pain when they played the game.

“We found that virtual reality coupled with analgesics was significantly more effective in reducing pain responses in children than analgesic only” conclude the authors.

This is only a preliminary study, but the researchers are hopeful. They propose to test virtual reality on more subjects, possibly with games appropriate to each age group, in the hope that it could one day greatly reduce, if not completely replace, the use of painkillers.

Source: BioMed Central Limited

April 2024 from <https://phys.org/news/2005-03-immersion-virtual-world-alleviates-pain.html>

This document is subject to copyright. Apart from any fair dealing for the purpose of private study or research, no part may be reproduced without the written permission. The content is provided for information purposes only.