

# Computer games to help cystic fibrosis kids

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Dr David Day with daughter Alicia, four, (front) and colleague Dr Andreas Oikonomou with the prototype device.

(Medical Xpress) -- Computer games which help young people with cystic fibrosis cope better with treatment, and improve monitoring of their condition, are being developed by the University of Derby.

Cystic fibrosis is a life-threatening, inherited disease which affects more than 9,000 people in the UK. [Internal organs](#), especially lungs and the [digestive system](#), clog with a thick mucus which makes it hard to breathe and digest food. Half of those with cystic fibrosis don't live past their late thirties.

University experts have developed four prototype computer games designed to help young people with cystic fibrosis cope better with the difficult daily exercises they do to expel mucus from their lungs. The

games will also aid in monitoring lung efficiency.

Dr. David Day, Senior Lecturer and Teaching Fellow in the School of Computing and Mathematics at the University of Derby, has a four-year-old daughter, Alicia, with [cystic fibrosis](#).

He said: "Children need regular physiotherapy so they can expel the mucus clogging their lungs, otherwise it becomes a [breeding ground](#) for bacteria which could make them sicker. Physiotherapy includes things like lightly pummelling the chest or back of the person.

"We also use a Positive Expiratory Pressure (PEP) mask, which fits over the face and makes it harder for them to breathe out, so they will push up the mucus from the bottom of their lungs and cough it out. Children find PEP treatment difficult, unpleasant and boring, and it can be hard to get them to do it."

The Derby researchers fitted the PEP mask with a device that converts the child's breaths into [electronic signals](#). By controlling their [breathing pattern](#), they can control characters onscreen in the computer games.

The technology is a development of the way paraplegics use breathing tubes to control powered wheelchairs and other electronic aids.

University Computer Games specialist, Dr. Andreas Oikonomou, added: "By keeping a record of how well the player does in the computer games, a medical consultant can chart the efficiency of their lungs. The games' flexibility means even pre-school children should be able to play at the easiest levels."

Nottingham University Hospitals Foundation Trust, has given advice on treatment to ensure that the games make the exercise as effective as possible.

The researchers will now apply for additional funding to provide test versions of the games to ten young people, aged from six to nine, to trial the games and device to get some feedback from users.

Provided by University of Derby

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