

Virtual experience gets the elderly to exercise

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Credit: Aalborg University

Virtual Reality can get the elderly in nursing homes to be happier about exercising. A new research project from Aalborg University shows that the technology motivates older people in nursing homes to get moving.

One of the major problems in [nursing homes](#) is that many [older people](#) do not move enough. Although nearly all nursing homes in Denmark offer access to fitness facilities and physical therapists, many of the residents rarely get their heart rate up. This needs to be addressed

because physical activity keeps the body – and the brain – in shape and makes the elderly more self-reliant. A new PhD project from Aalborg University now shows that new technology in the form of virtual reality may be just the thing to get seniors on exercise bikes.

Jon Ram Bruun-Pedersen of the Multisensory Experience Lab in the Department of Architecture, Design and Media Technology at Aalborg University Copenhagen attempted to turn exercise for the elderly from a chore into a digital experience.

"All too often the elderly end up sitting and looking at a wall or staring passively into a television. As a rule they're usually not particularly motivated to exercise, partly because getting moving again after a long period of inactivity can cause pain, and partly because it's not particularly interesting to sit and look at a wall while you bike," he said.

Long ride in front of a screen

In conjunction with physical therapists at the Copenhagen nursing home Akaciegården, Jon Ram Bruun-Pedersen conducted a study where large TV screens were set up in front of the exercise bikes in the activity room. While they biked, they rode through various virtual landscapes on the TV screen.

The 21 elderly residents who participated in the study could choose among things like riding on a park road between green lawns, lakes, flowers and butterflies; through a snowy pine forest; or on a mountain side. The bikes were linked with the screens so that the speed the subjects biked with reflected their speed through the landscape.

"The study showed that seniors were really happy with the experience," says Jon Ram Bruun-Pedersen. "They really lived it and felt as if they had to pedal extra hard to get up the hill on the screen—even though

they really didn't feel higher resistance on the bike."

On with the goggles

In the next part of the study, Jon Ram Bruun-Pedersen made the experience more intense. He equipped the elderly subjects with Virtual Reality goggles – a sort of diving mask with small screens in front of the eyes that makes you feel like you're being led into another world because you can look around the landscape. When you turn your head, it feels like you're looking around in reality – you can see out over the edge of the mountain, see the birds fly in the sky above and move freely around between buildings, plants and trees.

The illusion is very true to life, and the elderly subjects vividly experienced being out in the great outdoors—even though they were still on an exercise bike in the physical therapy room at the nursing home.

"We set the study up so the participants could ride in the same landscapes they knew from the screens. They took to the experience amazingly well. For many people stepping into a virtual world can be an overwhelming experience, but the [elderly subjects](#) had a surprisingly high tolerance threshold," explains Jon Ram Bruun-Pedersen.

New possibilities

From the interviews Jon Ram Bruun-Pedersen conducted with study participants you can see that the elderly's desire to use exercise bikes significantly increased.

"This is really positive," he says. "Partly because it is good for them physically to move more, but also because I wanted them to experience getting out of the nursing home and out in the world – even if it's a

virtual world."

The beneficial effects of using Virtual Reality with the elderly are not limited to getting them in better physical shape. Jon Ram Bruun-Pedersen mentions the increased quality of life by "getting out" and experiencing something.

"It may well be you can't get out of the nursing home and take a plane to Mallorca or a bus to the Harz mountains, but you can experience what it's like to go for a walk in the mountains or visit some of the world's great attractions. It could also be that you'd like to go for a walk in your childhood neighborhood or something else that has had great significance," he says. "The possibilities are there with Virtual Reality."

Great demand

The study at Akaciegården was completed earlier this year, but it's hardly the last time the elderly had VR goggles on. After the study ended, Jon Ram Bruun-Pedersen was contacted by the [physical therapists](#) he worked with who now want to use [virtual reality](#) in their training programs for the elderly in the future.

Both the residents at the nursing home and a number of their relatives have also requested that the technology become a fixture in the gym.

Provided by Aalborg University

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