



cornerstone

## Global use of Virtual Reality

# Use of VR in training

The use of VR tech for training staff and skills has been rising exponentially in the last 5 years, and here we have gathered some real world examples.

- [The effectiveness of virtual patients for medical training compared with traditional education.](#)
- [VR training for surgeons proves more efficient than traditional methods.](#)
- [Hilton finds success using VR to train new hotel staff.](#)
- [KFC uses VR to make their training process faster and more enjoyable.](#)



# Use of VR in therapy/health

Here are some examples and data from early experimental use of VR for therapy, physical healthcare, pharmaceuticals and treatment of mental health.



- [A study to determine how Virtual Reality can be used to improve pain management.](#)
- [Using VR to treat phobia in children with autism.](#)
- [A 6-week VR smoking cessation study with a 22-year-old female who smoked 20 cigarettes per day.](#)
- [A 16-month study conducted at Cedars using technology from Samsung, Bayer and AppliedVR for pain management.](#)
- [Virtual Iraq/Afghanistan exposure therapy shows a meaningful reduction in PTSD symptoms at over 60 sites.](#)
- [Exploring the use of VR to combat obesity.](#)
- [Using Virtual Pets to Increase Fruit and Vegetable Consumption in Children.](#)
- [A VR experience helping parents prepare for birth by showing them exactly what to expect.](#)



# Use of VR in fundraising/charity

There are a few early examples of VR use in charity work below.



- [The United Nations, Unicef and Samsung partner to make a VR film about the Syrian refugee crisis.](#)
- [A VR experience that transports you to a refugee camp for a deep dive into the intricacies and difficulties of living as a refugee.](#)
- [A study on whether virtual reality makes people more empathetic to homeless people than other forms of media do.](#)
- [A VR 360 journey with President Clinton and the Clinton Global Initiative.](#)

# Use of VR & AR in marketing

VR and AR tech are being used in Marketing across many industries.



- [Volvo partners with Varjo to create VR test driving experience.](#)
- [IKEA uses Augmented Reality to virtually place furniture in your living room before purchase.](#)
- [McDonalds soft launches affordable, accessible VR initiative in Sweden in every Happy Meal.](#)
- [Sony Pictures has formed a dedicated VR studio to create interactive VR experiences to market upcoming films.](#)

# Journal of Medical Internet Research

Virtual Patient Simulations in Health Professions Education:  
Systematic Review and Meta-Analysis by the Digital Health Education Collaboration

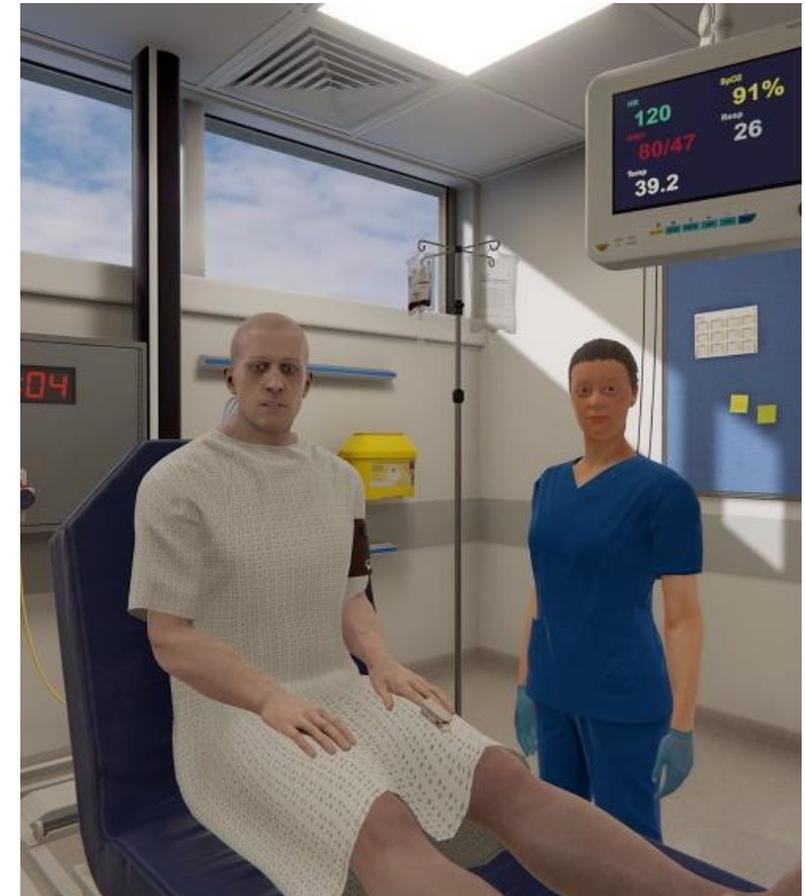


**51** trials involving **4696** participants evaluated the effectiveness of virtual patients compared with traditional education.

The pooled analysis of studies comparing the effect of virtual patients to traditional education showed similar results for 'Knowledge' and 'Skills', where **95%** favoured virtual patients.

Evidence suggests "... virtual patients can more effectively improve skills, and at least as effectively improve knowledge outcomes as traditional education."

"Education with virtual patients provides an active form of learning that is beneficial for clinical reasoning skills."



Source: <https://www.jmir.org/2019/7/e14676/pdf>

# UCLA David Geffen School of Medicine

## Virtual Patient Simulations in Health Professions Education: Systematic Review and Meta-Analysis by the Digital Health Education Collaboration

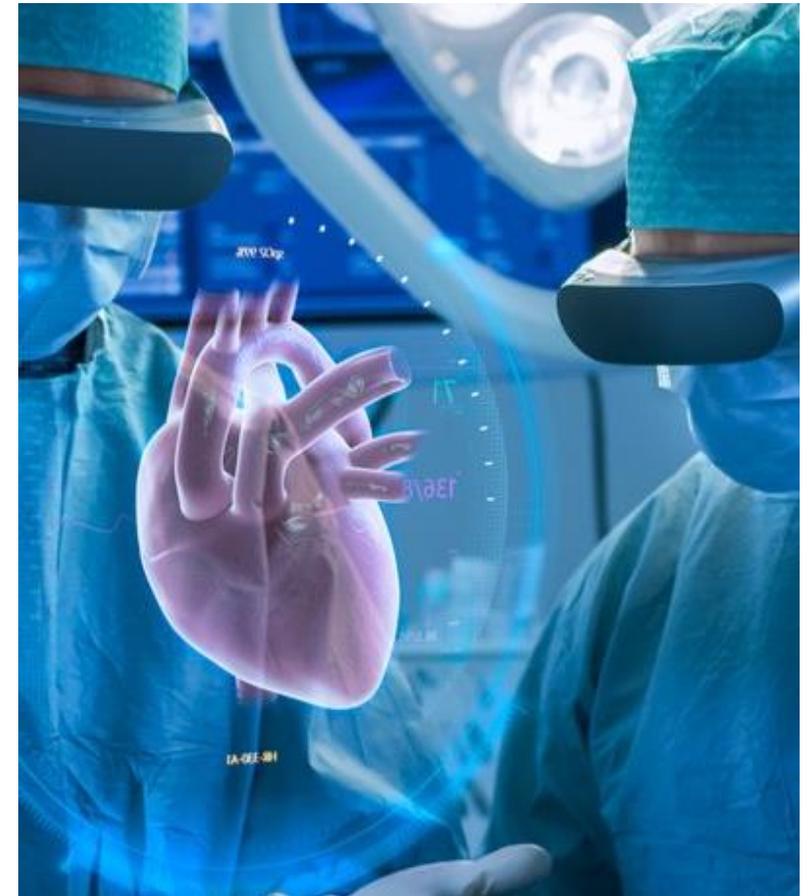


A recent University of Michigan study found that **30%** of surgeons couldn't operate independently after standard residency.

20 participants were randomized between a traditionally trained group and a group that underwent VR training on the Osso VR platform to a specified level of proficiency.

As measured by the Global Assessment Five-Point Rating Scale, participants in the VR group received significantly higher ratings in all categories compared to the traditionally-trained group, with an overall improvement of **230%** in the total score.

VR-trained participants completed the procedure an average of **20%** faster than the traditionally-trained group. They also completed **38%** more steps correctly in the procedure-specific checklist.



Source: <https://hbr.org/2019/10/research-how-virtual-reality-can-help-train-surgeons>

# Hilton

## A new perspective on hospitality: How Hilton uses VR to teach empathy

With VR training, team members can tour boiler rooms, visit kitchens, and — a fan favorite — ride the glass atrium elevator in the Hilton McLean Tysons Corner from their office or anywhere in the world with a VR headset and an internet connection. They can also practice three hands-on operational tasks: setting up room service trays, checking in guests, and cleaning hotel rooms.

“Hotel Immersion” has already begun to percolate throughout Hilton as it works to pilot further in its hotel operations. Hilton anticipates that the VR experience will shrink in-class training down from **4 hours** to **20 minutes**.

And though some people may have hesitated to wear the VR headset at first, **75%** walked away reporting that it improved their problem resolution and customer service skills, and **94%** said it bolstered team members’ sense of empathy during its trial launch.



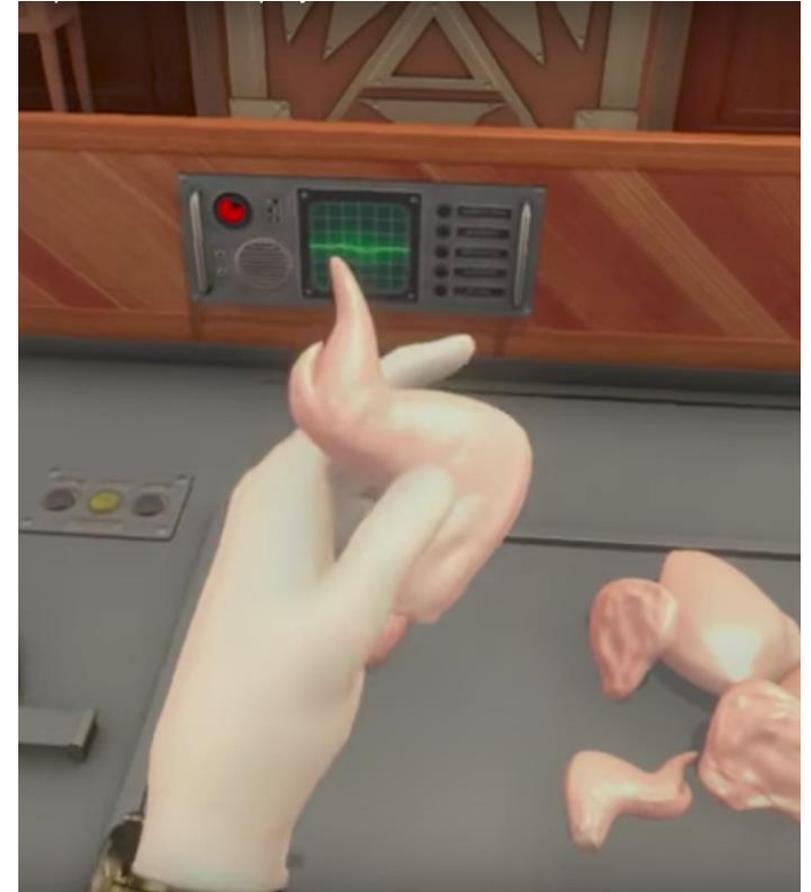
Source: <https://tech.fb.com/a-new-perspective-on-hospitality-how-hilton-uses-vr-to-teach-empathy/>

# KFC The Hard Way

KFC is using virtual reality to gamify the training process



- Per a press release, the chain is incorporating the VR environment — experienced via Oculus Rift headsets — into its employee training program to show trainees how to make its signature Original Recipe fried chicken. In order to get out of the virtual escape room, employees will have to play as a pair of disembodied hands to demonstrate (virtual) mastery of the five-step cooking process — inspecting, rinsing, breading, racking, and pressure-frying — all the while being cajoled by a cackling Colonel.
- The press release notes that this VR exercise takes workers through the chicken cooking process in just 10 minutes, as opposed to the 25 minutes the current training takes.
- According to a KFC spokesperson, though, the VR won't replace hands-on experience: "The game is intended to supplement the existing Chicken Mastery program, not replace it...This is intended to be a fun way to celebrate the work KFC's more than 19,000 cooks do every day in every restaurant across the U.S. in an engaging way."



Source: <https://www.eater.com/2017/8/23/16192508/kfc-virtual-reality-training-oculus-rift>



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# PLOS ONE

## Virtual reality for management of pain in hospitalized patients: A randomized comparative effectiveness trial

61 people were given a VR headset with access to 21 different immersive experiences, such as a simulated helicopter tour over rugged Iceland or a guided relaxation while looking at soothing ocean or mountain scenery.

The other 59 people watched television featuring guided relaxation, like yoga and meditation, along with poetry readings.

On a scale of 1 to 10 the self-reported pain scores dropped by **0.46** points in the group that watched the television programming and **1.72** points in the patients who used the VR headsets.

Most notably, patients with the most severe pain reported the greatest benefits from the VR headsets, with their pain score dropping roughly **3** points.



Source: <https://www.healthline.com/health-news/vr-can-help-treat-severe-pain>

# Newcastle University

## Journal of Autism and Developmental Disorders: Using VR to treat phobia in children with autism

Immersive virtual reality has been shown to help children with autism with nearly **45%** remaining free from their fears and phobias six months after treatment.

"People with autism can find imagining a scene difficult which is why the Blue Room is so well-received. We are providing the feared situation in a controlled way through virtual reality and we are sitting alongside them to help them learn how to manage their fears," explains Dr Morag Maskey, researcher from the Institute of Neuroscience, Newcastle University.

Results showed that overall **40%** of children treated showed improvement at 2 weeks, and **45%** at 6 months.

The team intend to further examine why some don't respond.



Source: <https://www.sciencedaily.com/releases/2019/02/190214191939.htm>

# Mindcotine

## Virtual Reality for Smoking Cessation

MindCotine is a virtual reality & mindfulness program to help curb the desire to smoke.

This study presents a case report describing the use of Virtual Stop Smoking (VSS) program. The VSS includes a multicomponent behavioural approach and a Virtual Reality graded exposure technique.

The subject was a 22-year-old female who smoked 20 cigarettes per day. Six 90-minute sessions were conducted once a week over a 6-week period.

Measures of efficacy:

- Number of cigarettes smoked,
- Breath carbon monoxide levels
- Self-reported subjective craving.

The results obtained supported the efficacy of VSS for smoking cessation.



Source: <https://tech.fb.com/a-new-perspective-on-hospitality-how-hilton-uses-vr-to-teach-empathy/>



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# Cedars-Sinai, AppliedVR & Samsung

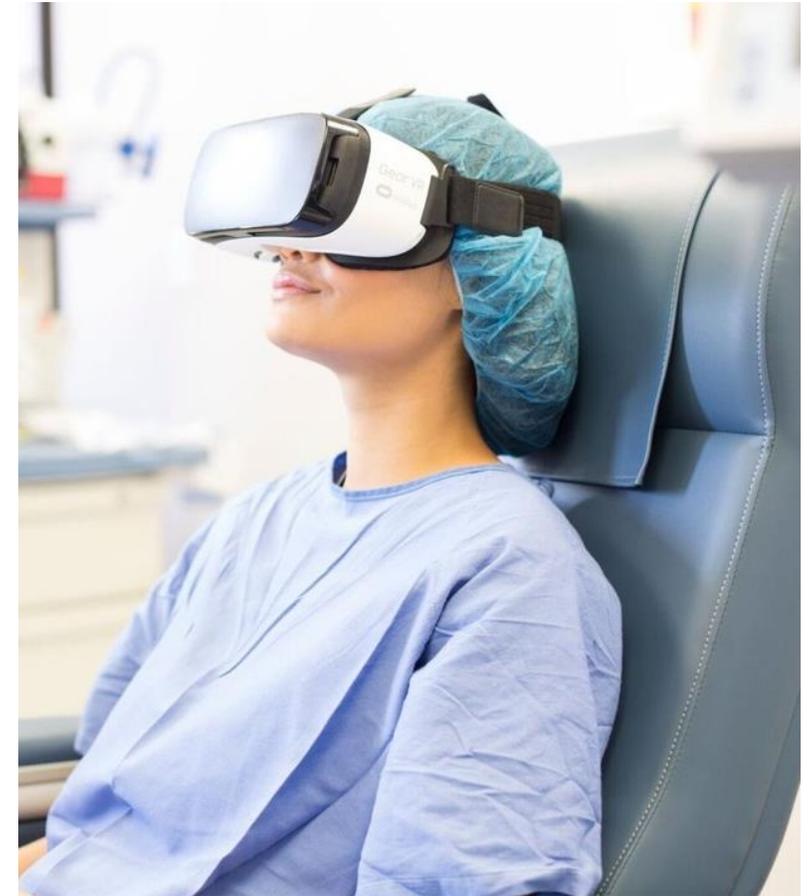
## VR for Pain Reduction and Therapeutic Purposes – Page 1



Samsung and Travelers will fund a 16-month study of between 90 and 140 patients, conducted at Cedars using technology from Samsung, Bayer and AppliedVR (EaseVR).

"We just completed a randomized control trial that shows you can decrease pain with VR by **52 percent**," Samsung Chief Medical Officer Dr. David Rhew told MobiHealthNews in an interview at HIMSS last week. "And we're now doing another study with Travelers to look specifically at how does that apply specifically in a worker's compensation environment? How does that impact cost or return to work?"

Patients in the trial will use therapeutic VR -- delivered via a Samsung Gear VR headset paired with a TENS nerve stimulation device from Bayer and a GearFit 2 tracker, also from Samsung. Participants will track day-to-day functional status, work productivity, and their use of pain medications.



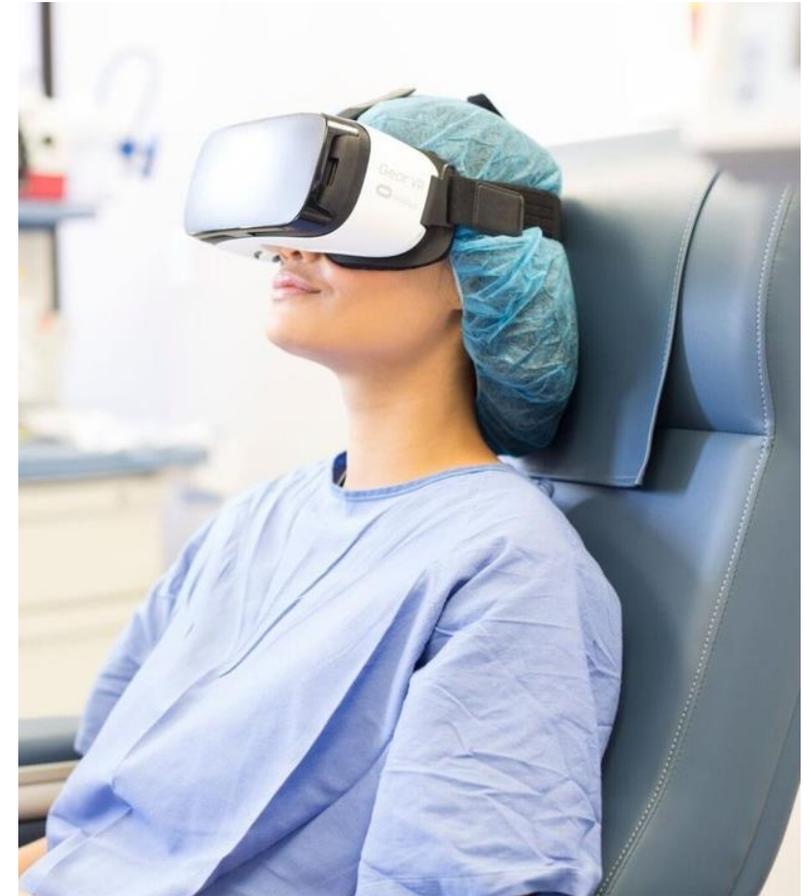
Source: <https://www.mobihealthnews.com/content/samsung-travelers-cedars-sinai-partner-vr-pain-management-study>

# Cedars-Sinai, AppliedVR & Samsung

## VR for Pain Reduction and Therapeutic Purposes – Page 2



- Pilot study for patients in the home to use self guided.
- EaseVR is a new virtual reality experience that incorporates guided breathing exercises, mindfulness, coping skills training, and pain education in an immersive virtual environment.
- For 21 days, patients are asked to use an Oculus Go virtual reality headset to view 3D video and audio for 5-10 minutes at a time and to complete a series of surveys through email/web links.



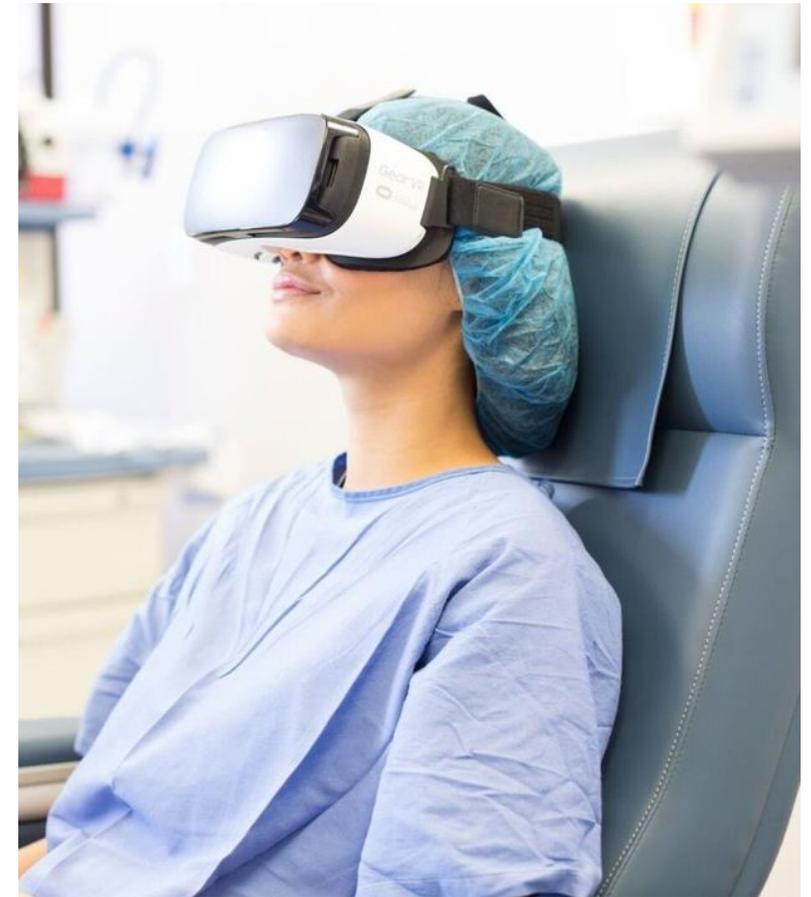
Source: <https://riverheadlocal.com/2017/10/04/accident-leaves-paralyzed-retired-teacher-bob-jester-battles-chronic-pain-virtual-reality/>

# Cedars-Sinai, AppliedVR & Samsung

## VR for Pain Reduction and Therapeutic Purposes – Page 3



- Patient fell from a ladder propped up against the side of a house in Southold and broke 19 bones.
- While in the hospital patient was given morphine and Oxycodone, an opioid medication, to manage the pain. Although the Oxycodone gave him relief and allowed him to sleep, patient was very concerned; he knew how easy it would be to become dependent on the medication.
- “I’ve seen how opioids have affected people that were innocently taking it for pain and become addicted. It’s hideous. I didn’t want to be one of those people.”
- He found that while using the VR, his pain was lessened and the effect lasted for several hours. He was able to recall the VR experience and in doing so, the pain was kept at bay.
- Gradually Jester was able to reduce his pain medication from 60 mg to zero.
- “Over the past five weeks I haven’t had one pill,” he says. “I don’t even keep them in the house anymore; I used up my last pill and won’t renew the prescription.”



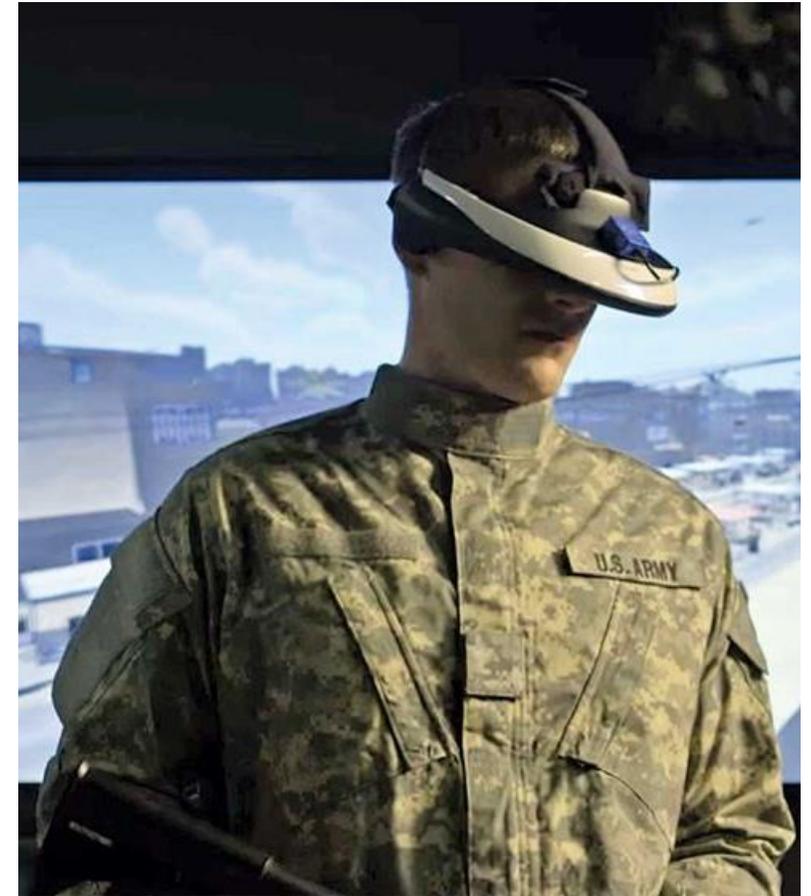
Source: <https://riverheadlocal.com/2017/10/04/accident-leaves-paralyzed-retired-teacher-bob-jester-battles-chronic-pain-virtual-reality/>

# USC Institute for Creative Technologies



## Bravemind: Virtual Reality Exposure Therapy

- Currently found at over 60 sites, including VA hospitals, military bases and university centres, ICT's Virtual Iraq/Afghanistan exposure therapy approach has been shown to produce a meaningful reduction in PTS symptoms. Additional randomized controlled studies are ongoing.
- Exposure therapy, in which a patient – guided by a trained therapist – confronts their trauma memories through a retelling of the experience, is now endorsed as an “evidence-based” treatment for PTS.
- The therapy requires well-trained clinical care providers that understand the unique challenges that they may face with service members and veterans suffering from the wounds of war.



Source: <https://ict.usc.edu/prototypes/pts/>

# Health.AM



## Can virtual reality help fight obesity?

- Virtual reality offers promising new approaches to assessing and treating people with weight-related disorders, and early applications are revealing valuable information about body image. The advantages of VR for evaluating body image disturbances and the potential to use VR to combat obesity are discussed in an article that is part of special issue on 'Virtual Reality and Obesity'.
- "Many chronic conditions are associated with a dysfunction of the stress system: obesity, metabolic syndrome, and type 2 diabetes; hypertension; anxiety, depression, and insomnia; and pain syndromes. I am appreciative to the researchers and clinicians worldwide who are exploring innovative ways to utilize technology to provide more effective assessment and treatment methods to a greater number of individuals"

- Dr. Wiederhold, PhD, MBA, BCB, BCN, Interactive Media Institute, San Diego, California and Virtual Reality Medical Institute, Brussels, Belgium.

- Through VR, people can also participate in simulated encounters that can help reveal food triggers for eating disorders. The authors wrote that VR provides a three-dimensional depiction of a patient's body, which can help the patient be aware of distortions in the body image that can lead to an opportunity to correct such biases. VR then helps provide a more realistic and achievable body image and lower the patient's dissatisfaction.



Sources: <http://www.health.am/ab/more/virtual-reality-help-fight-obesity/#ixzz5i3ennGez>  
<https://medicalxpress.com/news/2016-02-virtual-reality-obesity.html>



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# Using Virtual Pets to Increase Fruit and Vegetable Consumption in Children

## A Technology-Assisted Social Cognitive Theory Approach

- A virtual pet in the form of a mid-sized dog was developed based on the framework of social cognitive theory and tested as a vehicle for promoting fruit and vegetable (F&V) consumption in children.
- Three groups of children between the ages of 7 and 13 years were studied: baseline (no treatment), computer only, and virtual dog. Children in the virtual dog condition interacted with the virtual dog for 3 days, setting F&V consumption goals and receiving evaluation and reinforcement based on whether they met their self-set goals.
- Results indicated that children in the virtual dog condition chose to be served significantly more F&V than those in the computer only or baseline conditions did.



Source: <https://www.ncbi.nlm.nih.gov/pubmed/26468667>

# VR & birth preparation

## Insurance company commission

- A Nordic insurance firm have created "Birthual Reality" which is helping parents prepare for birth by showing them exactly what to expect -- in full 360-degree VR.
- Chief midwife at BB Stockholm hospital, Kristina Müller, believes this new virtual reality experience "has the power to make people really understand what actually happens when a child is born" and is hopeful Birthual Reality can ease some of the discomfort around preparing for childbirth, according to a press release.



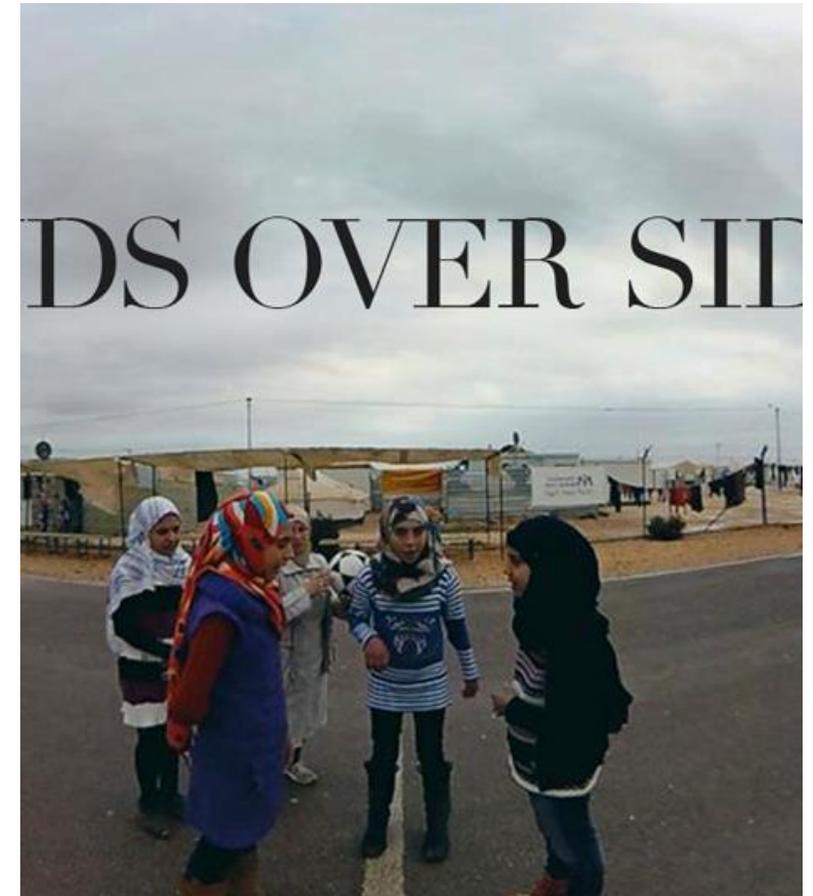
Source: <https://www.cnet.com/news/vr-childbirth-is-now-a-thing>

# Clouds Over Sidra

The United Nations, Unicef and Samsung partner to make a VR film about the Syrian refugee crisis.



- The Za'atari Refugee Camp in Jordan is home to over 80,000 Syrians fleeing war and violence. Half of these are children. Clouds Over Sidra is the story of a 12 year old girl who has lived there since the summer of 2013. The film follows her to school, to her makeshift tent and even to the football pitch.
- The film was initially created to support the United Nations Secretary-General's MDG Advocacy Group's call for partnerships to build resilience in vulnerable communities.
- Clouds Over Sidra helped to raise **£3.05 billion** and has been used for direct fundraising in **30** countries. **1 in 6** people donated to Unicef New Zealand after watching the film – **twice** the normal rate secured on the street.



Sources: <http://unvr.sdgactioncampaign.org/cloudsoversidra/>

<https://www.thirdsector.co.uk/virtual-reality-fundraising-bringing-people-closer/communications/article/1423361>

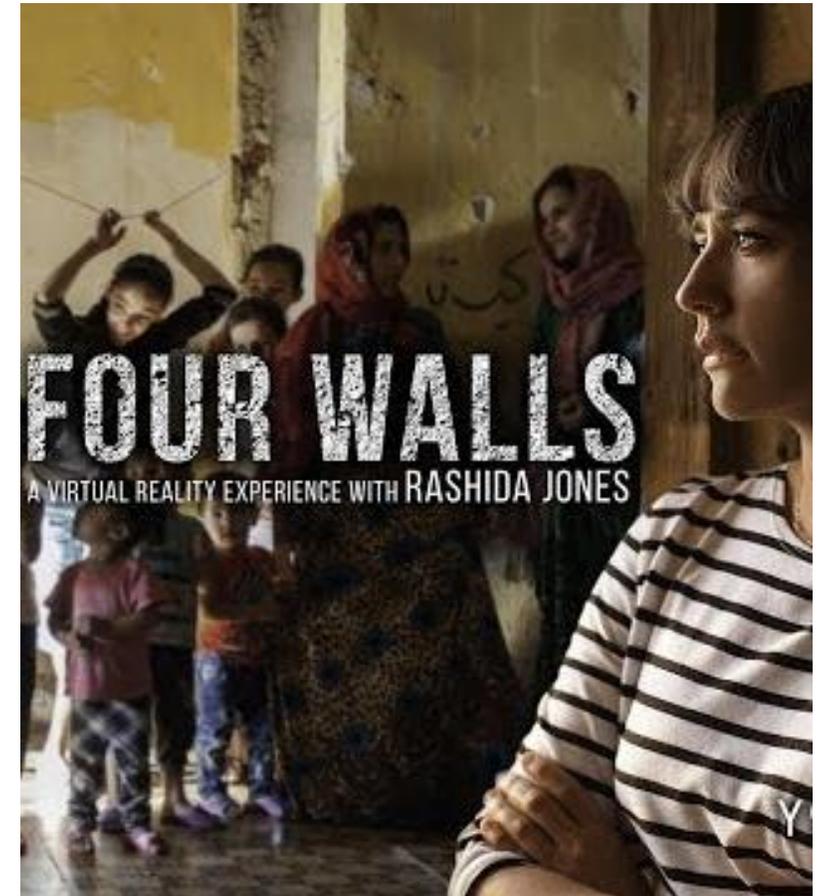
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# International Rescue Committee

“Four Walls” is a VR experience that transports you to a refugee camp.



- Media coverage of tragedy can be so overwhelming it's numbing. Charities say it can also make it harder to get support. Some are hoping VR will be more persuasive.
- At a recent New York City fundraiser for the International Rescue Committee, attendees could step away from the mingling and have a more direct connection to the people they were there to help. A few seats were set up where the guests could sit down and put on a VR headset.
- Once they've donned the headset the guest is immersed in the world of a refugee camp in Lebanon. Cheryl Henson, an IRC donor, says that via VR she was in a family's tent, watching children play. "It's a very effective way to feel like you're there in the room because you have a real sense of these are real people," she says. "There's the food, there's the clothes, there's the talk."
- Henson's reaction was fairly typical of others who have tried the Lebanon experience, says Cathe Neukum, executive producer for the IRC. "We can't bring donors or people to the field, but we bring the field to donors and our constituents and our supporters," she says. "That's what's so great about VR; that's what makes it, I think, such an important tool for charities."



Source: <https://www.npr.org/sections/alltechconsidered/2017/01/09/508617333/can-virtual-reality-make-you-more-empathetic>

# Virtual Human Interaction Lab

**Stanford University is studying whether virtual reality makes people more empathetic to homeless people than other forms of media do.**



- Jeremy Bailenson, the founding director of Stanford University's Virtual Human Interaction Lab, has been studying VR since its earliest days. He says there is increasing evidence that VR can be more effective than other media in evoking empathy. But it has to be done right.
- Right now his lab is studying whether VR makes people more empathetic to homeless people than other forms of media do. One group gets a video or some literature and the other group has the VR experience. The experience puts you in the shoes of someone who goes through a journey that ends in homelessness.
- Journalist Vignesh Ramachandran, who participated in the study, says he's read a lot about homelessness but something about the experience of protecting his stuff on the bus got to him.
- "I just remember thinking like, 'Oh my gosh' you just can't imagine having to constantly be looking out for your safety just when you're trying to get a good night's sleep," he says. "That part was like striking to me."



Source: <https://www.npr.org/sections/alltechconsidered/2017/01/09/508617333/can-virtual-reality-make-you-more-empathetic>

# Inside Impact: East Africa

A VR 360 journey with President Clinton and the Clinton Global Initiative



- "Inside Impact: East Africa" is an eight-minute virtual reality film that allows people around the world to join President Clinton and Chelsea Clinton on their trip to East Africa in spring 2015 - and see first-hand how Commitments to Action made by Clinton Global Initiative members are changing lives and empowering communities.
- Inside Impact: East Africa has received over **1.15 million** views and is one of the earliest examples of using VR to improve empathy for charity work.



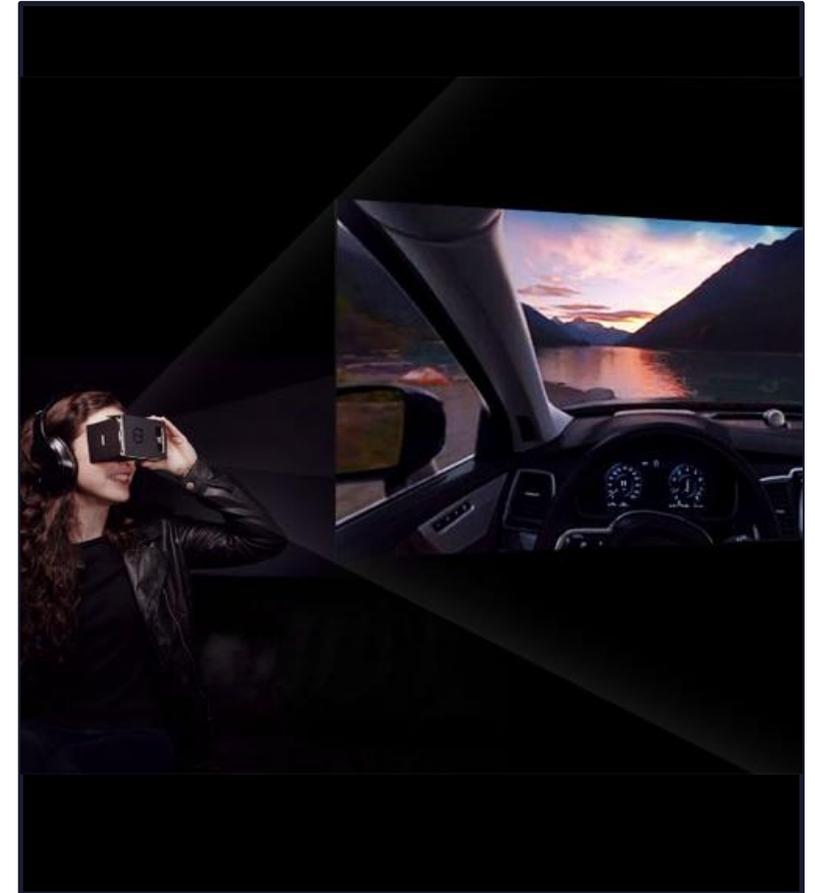
Source: <https://www.clintonfoundation.org/clinton-global-initiative/inside-impact-east-africa>

# Volvo

## Volvo partners with Varjo to create VR test driving experience following the success of their Google Cardboard VR test drive experience.



- In 2014, Volvo launched their 'Virtual Test Drive' application for Google Cardboard VR headsets that placed the user in the seat of a Volvo XC90 for a non-interactive test drive in VR.
- Volvo believe the move proved fruitful when the First Edition XC90 launched and sold out within 47 hours of orders opening.
- Now, Volvo has partnered with Varjo – makers of the “human-eye-resolution” VR headset – to create an photorealistic CGI interactive experience, allowing users to full explore the vehicle interior before a fully-interactive virtual test drive. The Varjo XR-1 headset also features AR capabilities to mix CGI elements with the real world.
- “Think of our safety experts for example, who can use the technology to develop and evaluate active safety features. They can drive a real car at our test track in Sweden while wearing the XR-1 headset and try out virtual active safety systems and scenarios that are imposed via augmented reality on the real-life environment.”



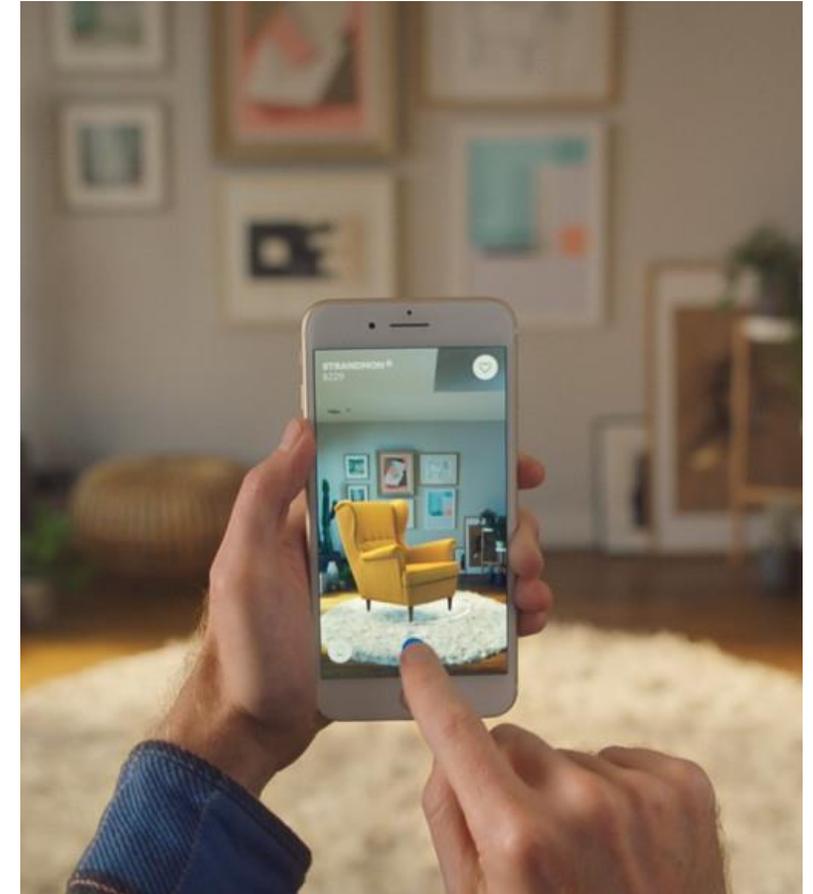
Source: <https://group.volvocars.com/news/future-mobility/2019/varjo-collaboration>

# IKEA Place

**IKEA brings furniture shopping to the future by using Augmented Reality to virtually place furniture in your living room before purchase.**



- IKEA Place features realistically-rendered, true-to-scale 3D products. "The app automatically scales products, based on room dimensions, with 98 percent accuracy."
- In order to visualize a product within a space, the application scans the expanse of a room through an iPhone or an iPad camera. Users can browse through over 2,000 IKEA products on an online database, to make their selections. Once chosen, users must point the device to the desired spot in a room, then drag and drop the selected product onto the space.
- "IKEA Place makes it easier to make buying decisions in your own place, to get inspired and try many different products, styles and colors in real-life settings with a swipe of your finger," said leader of digital transformation at Inter IKEA Systems Michael Valdsgaard in a press release.
- **"Augmented reality and virtual reality will be a total game changer for retail in the same way as the internet. Only this time, much faster."**



Source: [https://www.architectmagazine.com/technology/ikea-launches-augmented-reality-application\\_o](https://www.architectmagazine.com/technology/ikea-launches-augmented-reality-application_o)

# McDonalds Happy Goggles

**McDonalds soft launches affordable, accessible VR initiative in Sweden in every Happy Meal.**



- “McDonald's continually tests new ideas and, with Happy Goggles, Virtual Reality becomes available to everyone. Happy Goggles are a test designed to modernize the Happy Meal and provide a digital experience in addition to the physical toys usually found in the box.”
- Child psychologists Karl Eder and Fadi Lahdo, together with McDonald's Sweden, have evaluated Happy Goggles and also presented a recommendation on to how they should be used.
- “New generations are growing up in a in a world where smartphones and tablets are a part of our ordinary life. The VR goggles open the door to virtual worlds, which of course is very exciting. This step might come more natural for children than for adults. It creates an opportunity for adults to learn from the children's knowledge and experience. The gaming can also be a good, joint activity that makes it easier to hang out - on equal terms” – Karl Eder and Fadi Lahdo, licensed psychologists.



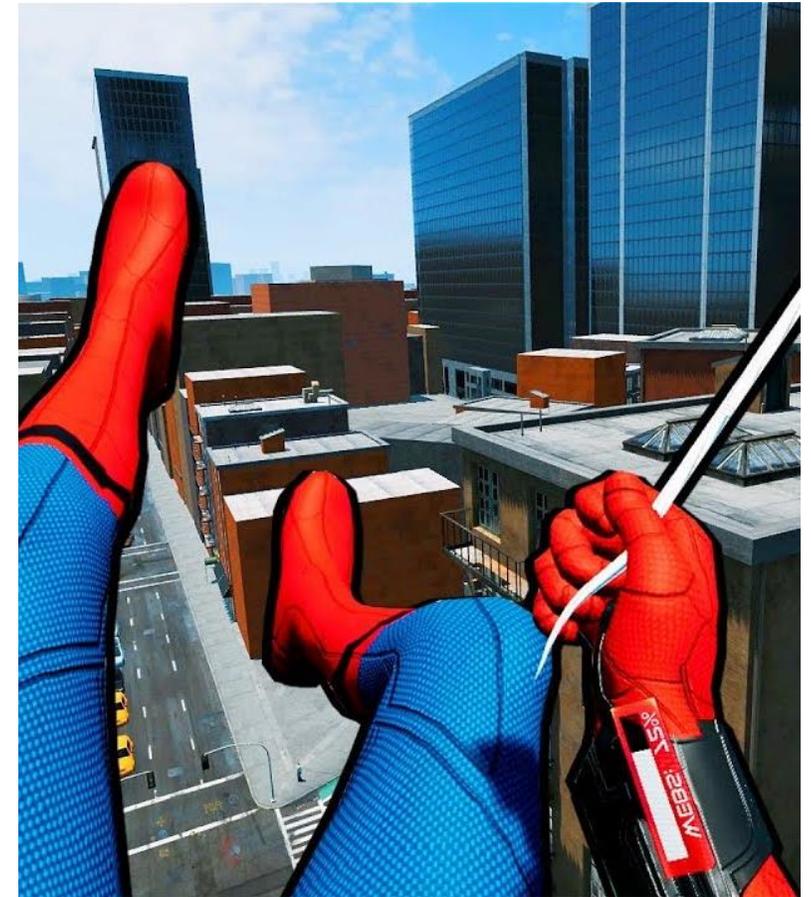
Source: [http://www.happygoggles.se/presskit/PRM\\_EN\\_Site.pdf](http://www.happygoggles.se/presskit/PRM_EN_Site.pdf)

# Sony Pictures Virtual Reality

**Sony Pictures has formed a dedicated virtual reality development studio to create interactive VR experiences to market upcoming films.**



- Sony Pictures Entertainment, the U.S. entertainment subsidiary of Sony Corporation, is doubling down on virtual reality initiatives by appointing an executive to a new role specifically tied to creating virtual reality content for the company's motion picture group.
- "What's more fun for moviegoers than to have the chance to live in VR as the characters they love?" said Jake Zim, SVP, virtual reality, Sony Pictures Entertainment.
- "Sony Pictures Virtual Reality has continued to believe in our unique ability to bring stories to life in a fully immersive, social and dynamic way".
- Sony Pictures believe that virtual reality experiences strengthen the connection between moviegoers and the films they see; encouraging further viewing and garnering excitement for sequels and repeat viewings.



Sources: [https://www.sonypictures.com/corp/press\\_releases/2016/09\\_16/092016\\_realityone.html](https://www.sonypictures.com/corp/press_releases/2016/09_16/092016_realityone.html)

[https://www.sonypictures.com/corp/press\\_releases/2019/1104/thevoidandsonypicturesvirtualrealityannouncejumanjireversethecurse](https://www.sonypictures.com/corp/press_releases/2019/1104/thevoidandsonypicturesvirtualrealityannouncejumanjireversethecurse)

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# Further Reading



- <http://www.vrpain.com/>
- <https://grandtheftvideo.com/2019/03/07/vr-could-help-cure-denmarks-teen-drinking-problem-hbo/>
- <https://www.pharmavoices.com/article/2016-11-virtual-reality/>
- <https://visualise.com/virtual-reality/virtual-reality-healthcare>
- <https://www.cnet.com/news/virtual-reality-at-hospitals-could-be-your-next-painkiller/>
- <https://www.telegraph.co.uk/technology/2020/03/10/nhs-deploy-virtual-reality-therapy-battle-against-mental-illness/>
- <https://tech.fb.com/a-new-perspective-on-hospitality-how-hilton-uses-vr-to-teach-empathy/>
- <https://www.mobihealthnews.com/news/europe/medical-training-company-fundamentalvr-expands-its-educational-platform-surgeons>