

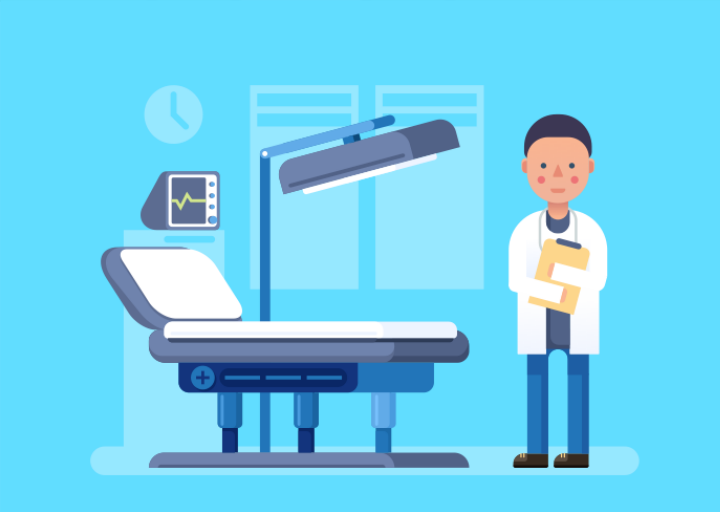
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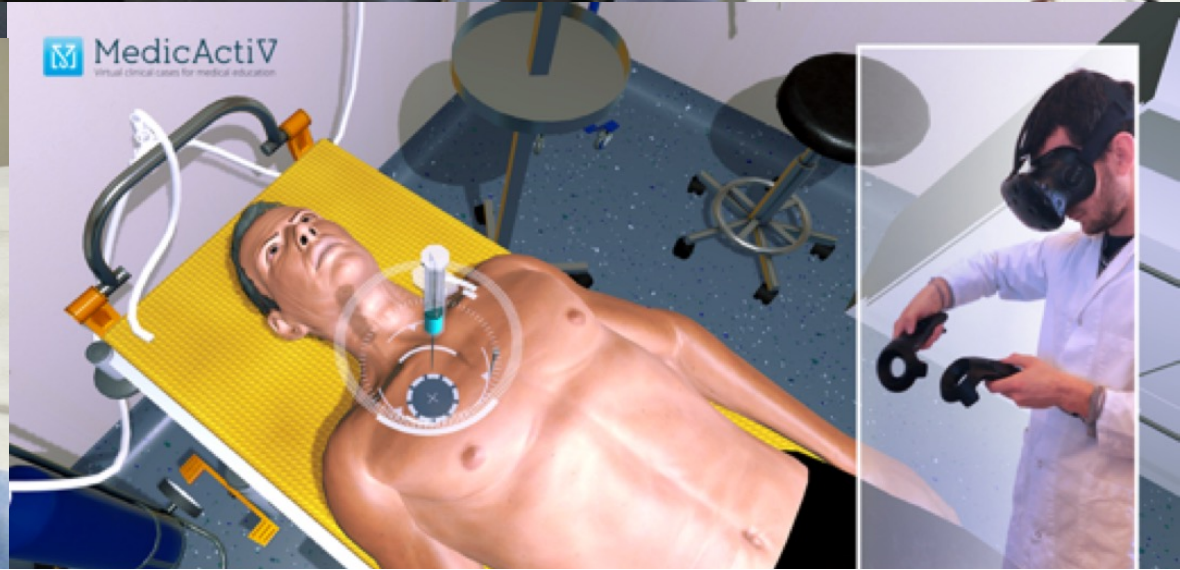
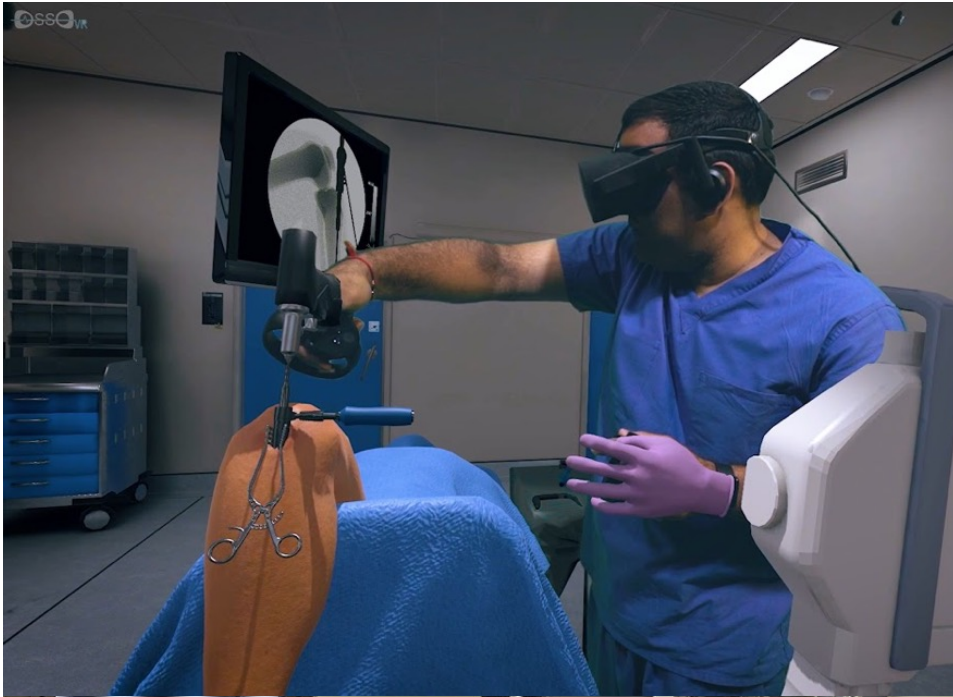
VIRTUELLE REALITÄT (VR) UND CHRONISCHER SCHMERZ. GRUNDLAGEN UND THERAPEUTISCHE OPTIONEN

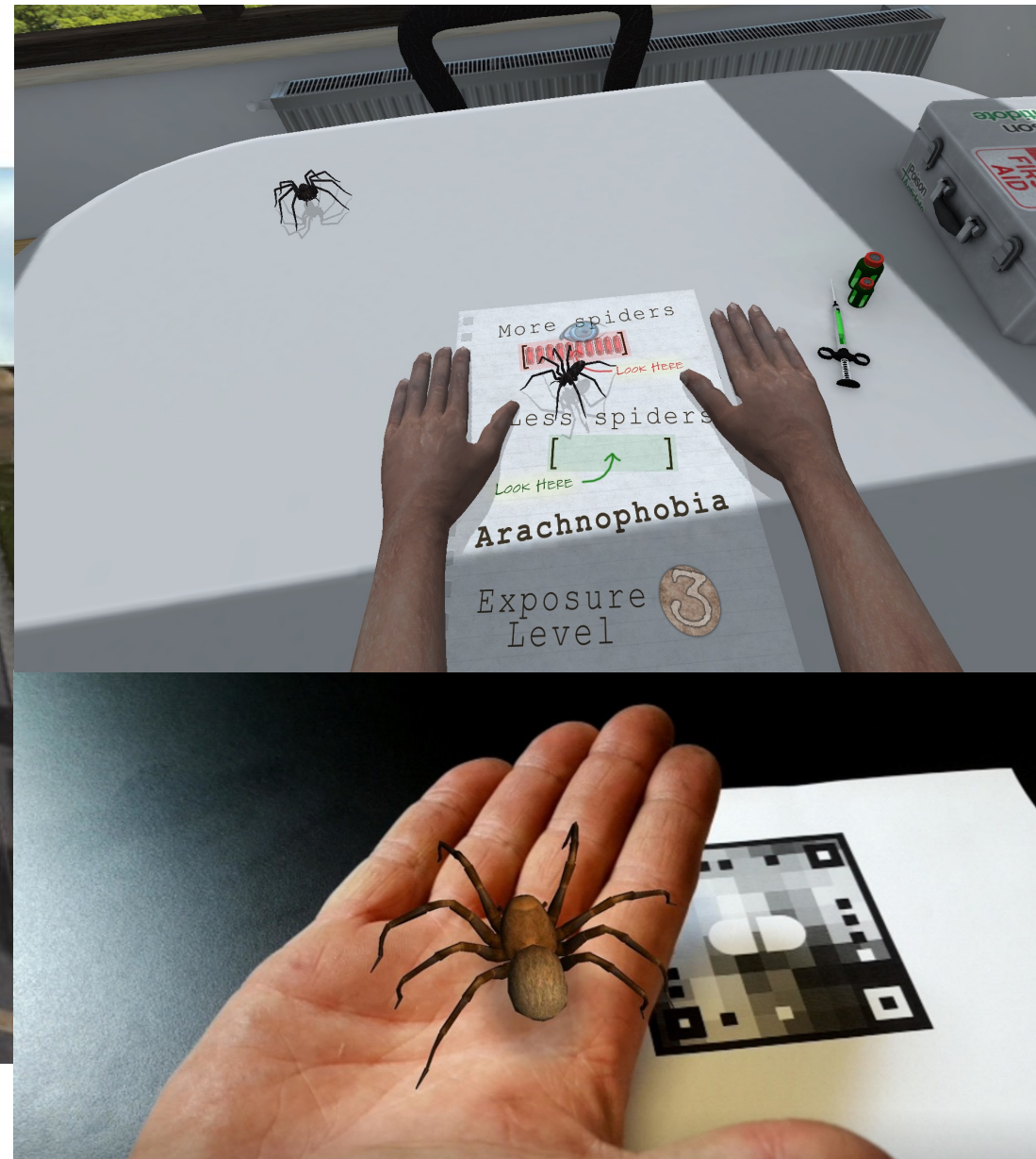


Jasmine Ho
18.11.2023

VR im Gesundheitswesen











Hitlab/HarborView SnowWorld (www.imprintit.com)



WAS MACHT VR SO WIRKUNGSVOLL?



A person in a red jacket and dark pants stands on a rocky peak, looking out over a vast mountain range. The sky is filled with soft, white clouds, and the sun is low on the horizon, creating a hazy, golden light. The mountains in the distance are layered, with some peaks covered in snow. The overall scene is serene and majestic.

PRÄSENZ (PRESENCE)

ANWESENHEIT
[BEWUSST WAHRGENOMMENE] GEGENWÄRTIGKEIT

A person wearing a red jacket and a backpack stands on a rocky mountain peak, looking out over a vast valley filled with a sea of clouds. The sky is filled with soft, white clouds, and the overall scene is bathed in a warm, golden light, suggesting a sunrise or sunset. The person is positioned on the left side of the frame, looking towards the right.

VERKÖRPERUNG (EMBODIMENT)

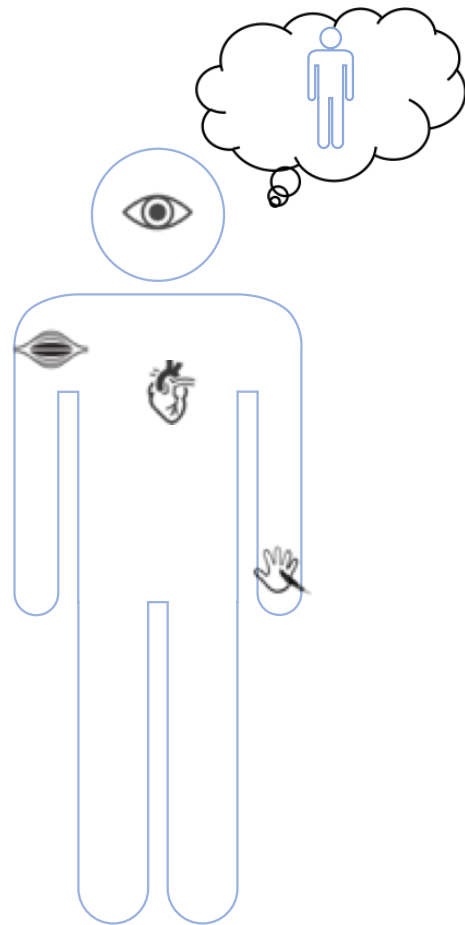
BODY OWNERSHIP
AGENCY

The Rubber Hand Illusion (Botvinick & Cohen, 1998)





Aktives, probabilistisches Körpererleben



Körperbild/Identität
(top down)



Körperliches Selbsterleben
(plastisch)



(bottom up)
Multisensorische Inputs

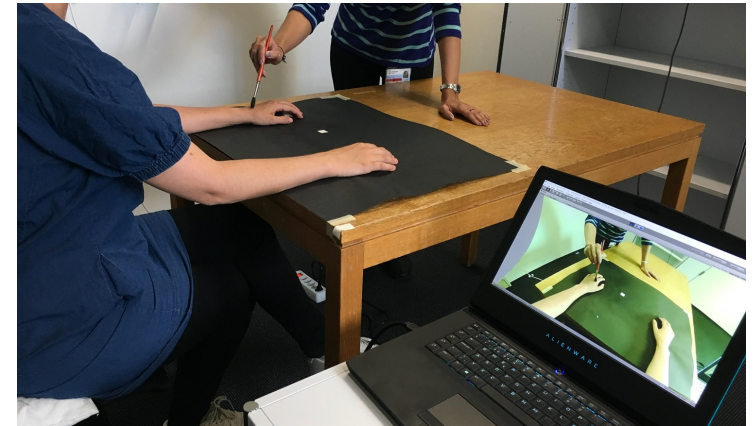
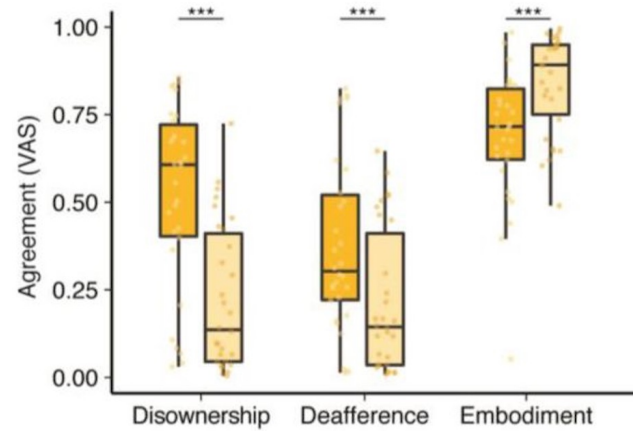
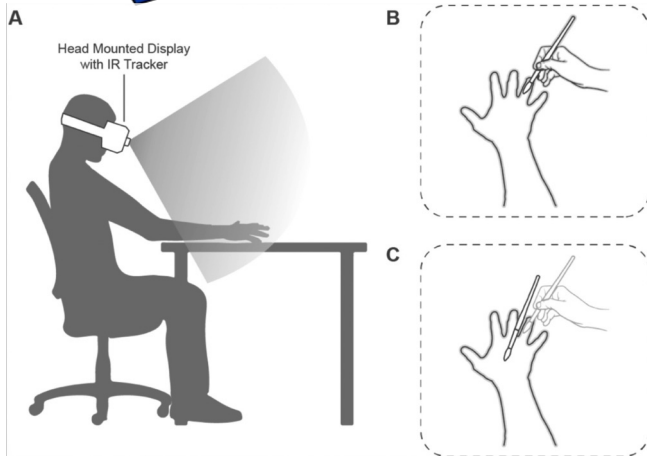


Manipulation von
multisensorischer Stimulationen



“Disownership” Entfremdungsillusionen

Die Hand fühlt sich taub und fremd an



Kannape et al. 2019, *Neuropsychologia*

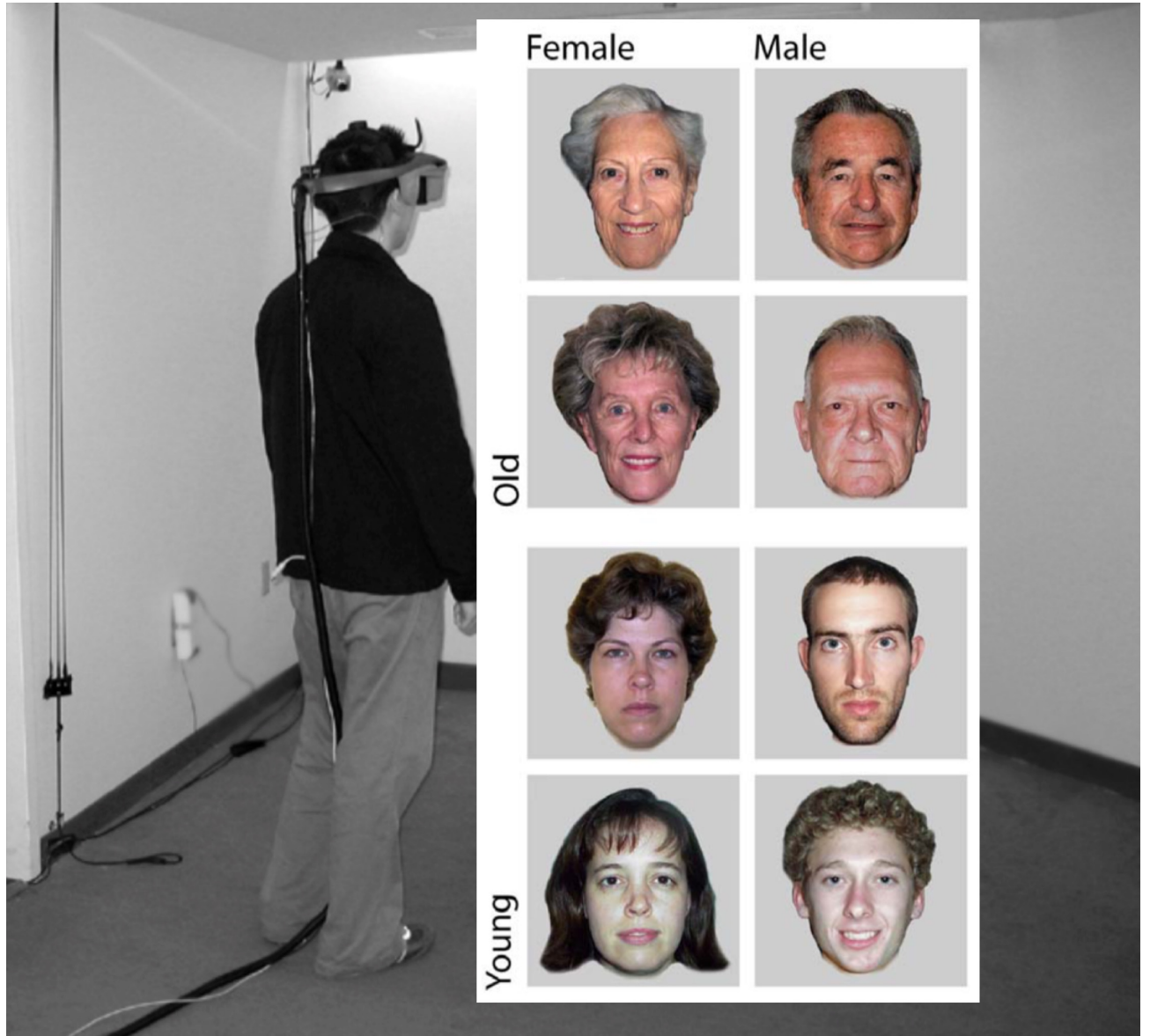
Roel et al., 2019, *BioRxiv*

Virtuelle Ganzkörperillusion



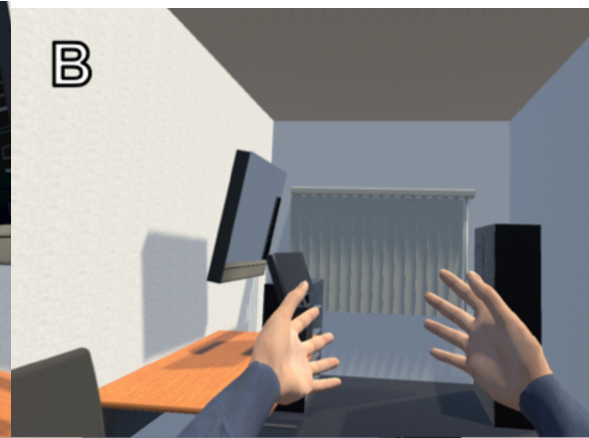


Peck, Seinfeld, Aglioti & Slater (2013) *Consciousness and Cognition*



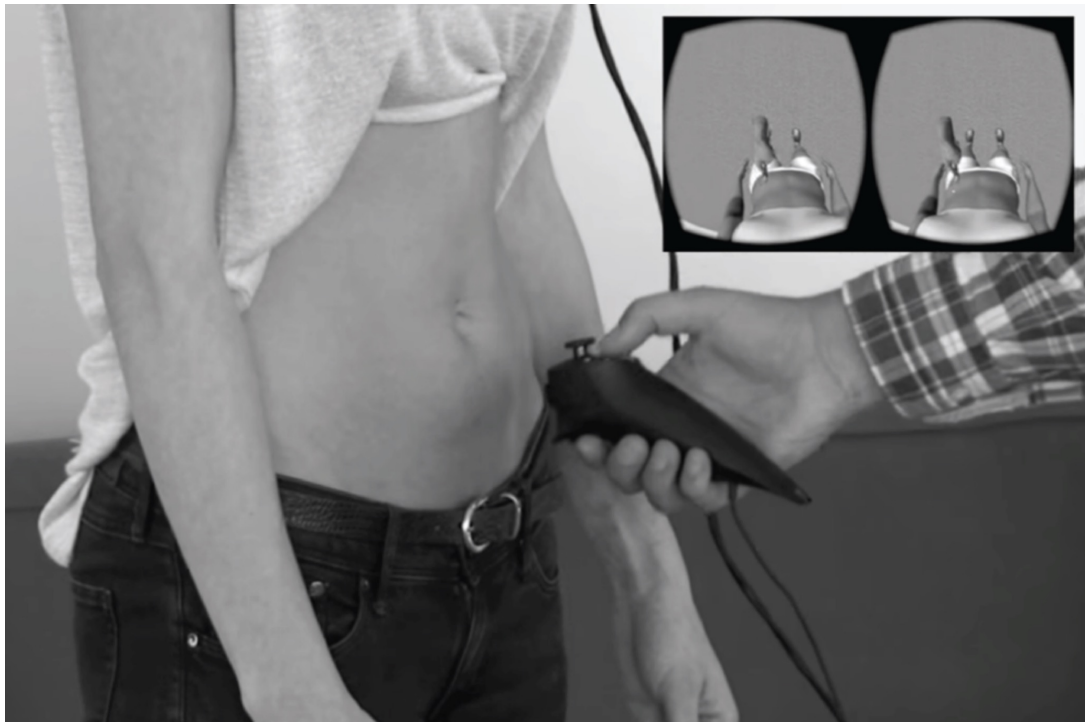
Yee & Bailenson (2006) *Proceedings of Presence*

Virtueller Geschlechtertausch

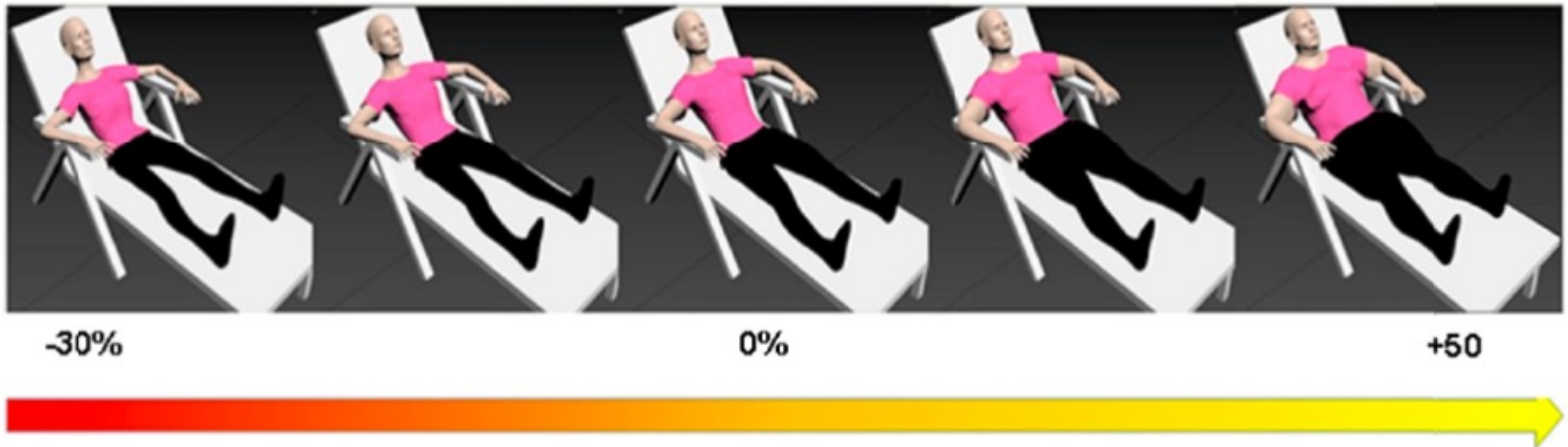


Bolt, Ho, Soutschek, Roel Lesur, Tobler & Lenggenhager, 2022 – *Scientific Reports*

VR zur Bekämpfung von Anorexie



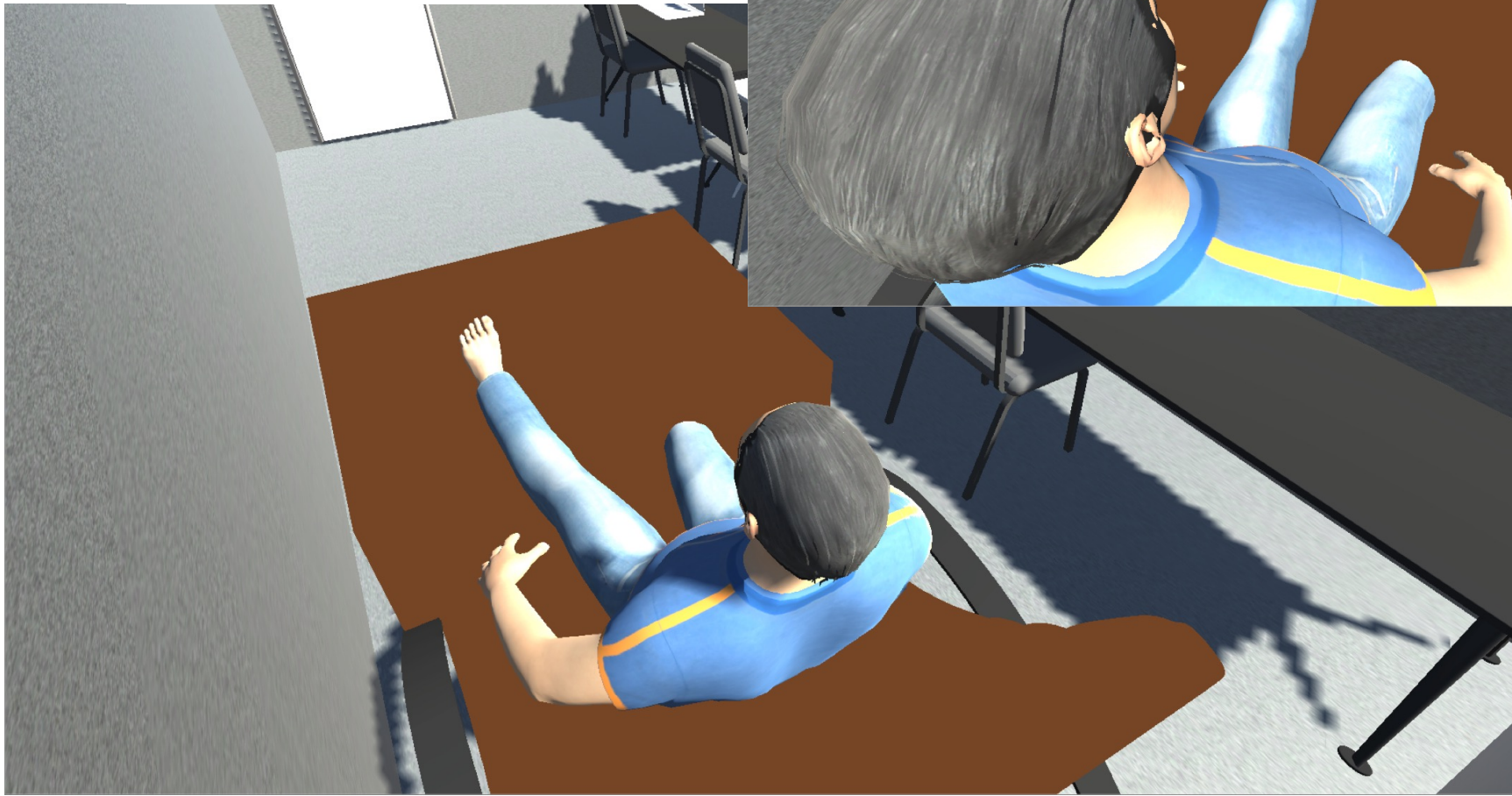
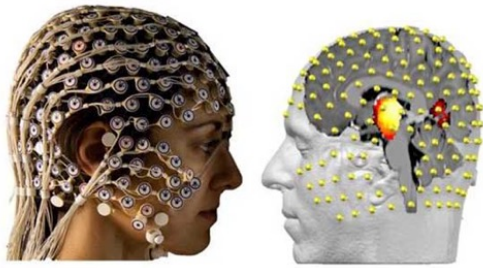
VR zur Bekämpfung von Anorexie



Provenzano et al. (2019), *Journal of Clinical Medicine*

Body integrity dysphoria







Available online at www.sciencedirect.com

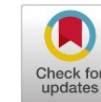
ScienceDirect

Journal homepage: www.elsevier.com/locate/cortex



Research report

Not my body, not my pain? Pain perception and placebo analgesia in individuals with body integrity dysphoria



Jasmine T. Ho ^{a,b,*}, Peter Kruppenacher ^{b,c} and Bigna Lenggenhager ^{a,d}

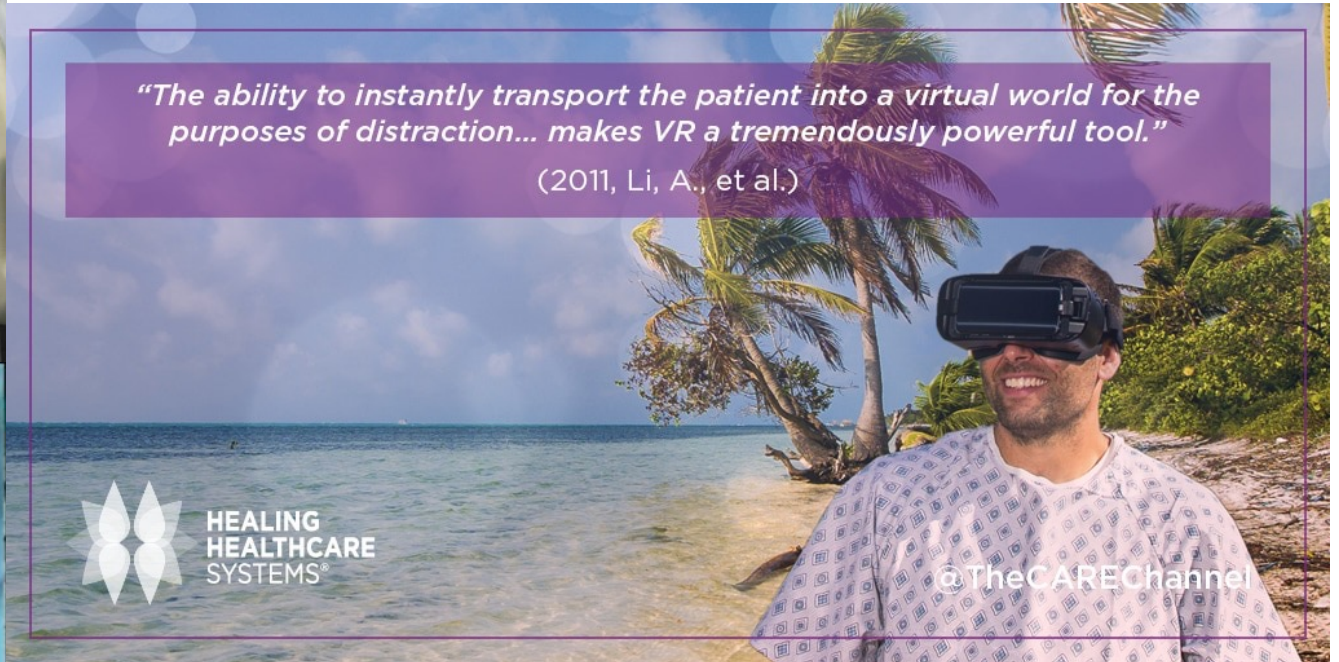
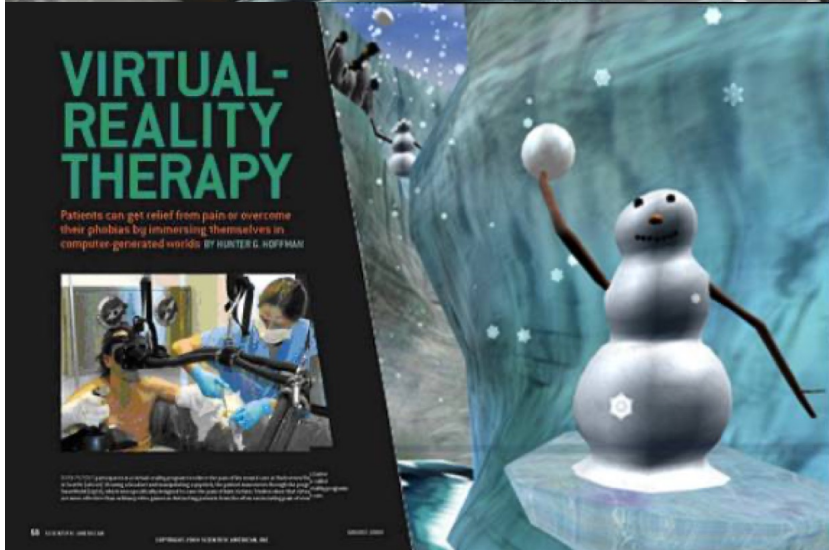
^a University of Zurich, Department of Psychology, Zurich, Switzerland

^b Brainability, LLC, Zurich, Switzerland

^c Experimental and Clinical Pharmacopsychology, Department of Psychiatry, Psychotherapy, Psychotherapy and Psychosomatics, Zurich, Switzerland

^d Department of Psychology, University of Konstanz, Konstanz, Germany

VR gegen Schmerzen



Schmerz und Placebos in Virtual Reality

Clinical Trial > [J Pain](#). 2022 Apr;23(4):625-640. doi: 10.1016/j.jpain.2021.10.009.

Epub 2021 Nov 12.

Real Bodies Not Required? Placebo Analgesia and Pain Perception in Immersive Virtual and Augmented Reality

Jasmine Tian Ho ¹, Peter Krummenacher ², Marte Roel Lesur ³, Gianluca Saetta ³, Bigna Lenggenhager ³

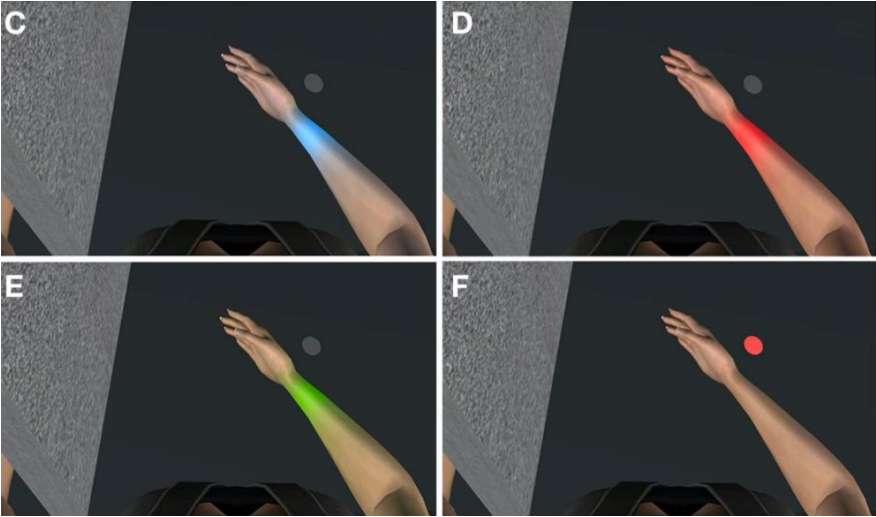
Affiliations + expand

PMID: 34780993 DOI: [10.1016/j.jpain.2021.10.009](#)

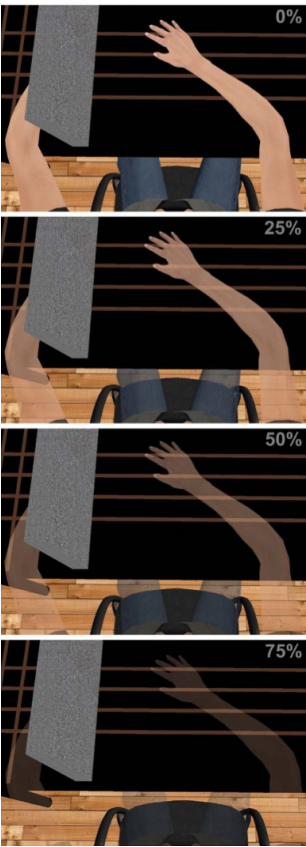


Ho, Krummenacher, Roel Lesur, Saetta & Lenggenhager (2022) - *The Journal of Pain*

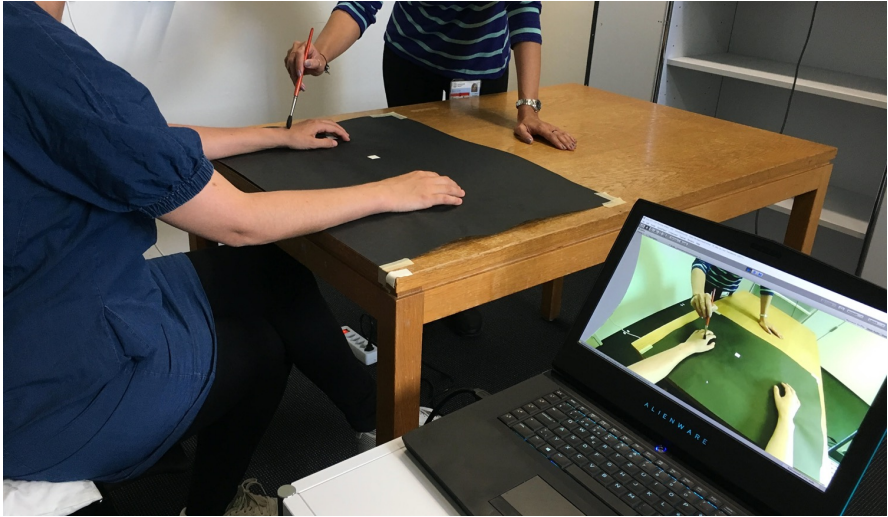
Körperillusionen – experimenteller Schmerz



Martini, Perez & Sanchez-Vives (2013), *Frontiers in Human Neuroscience*

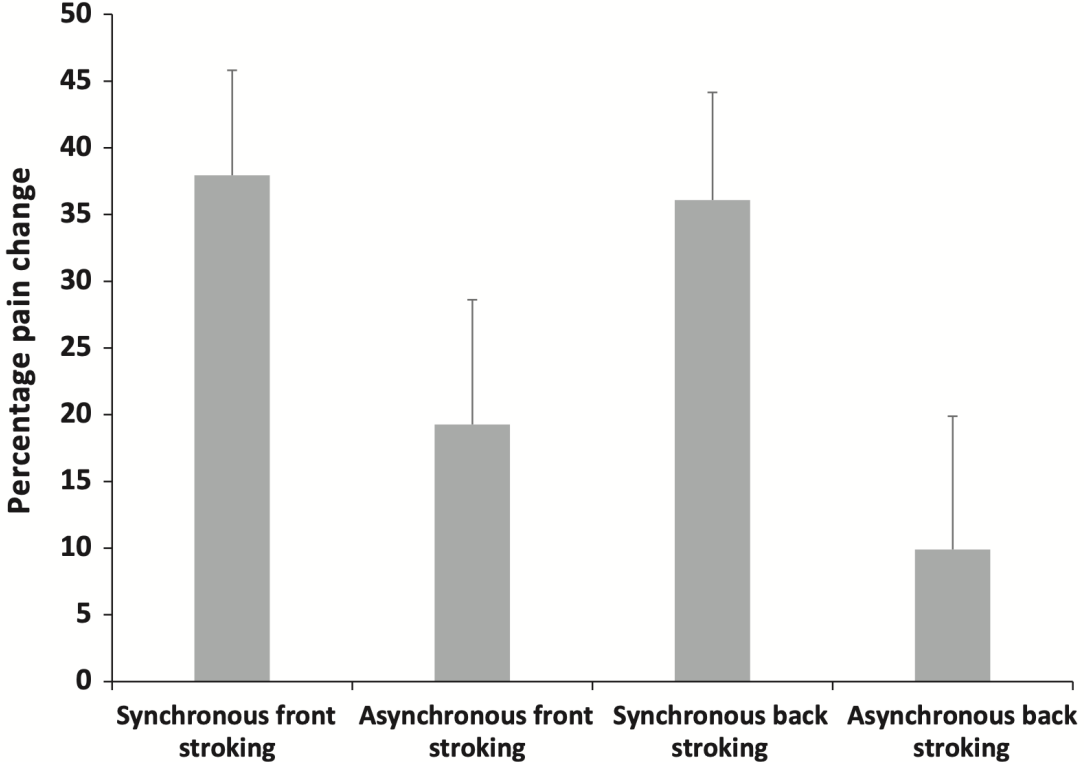
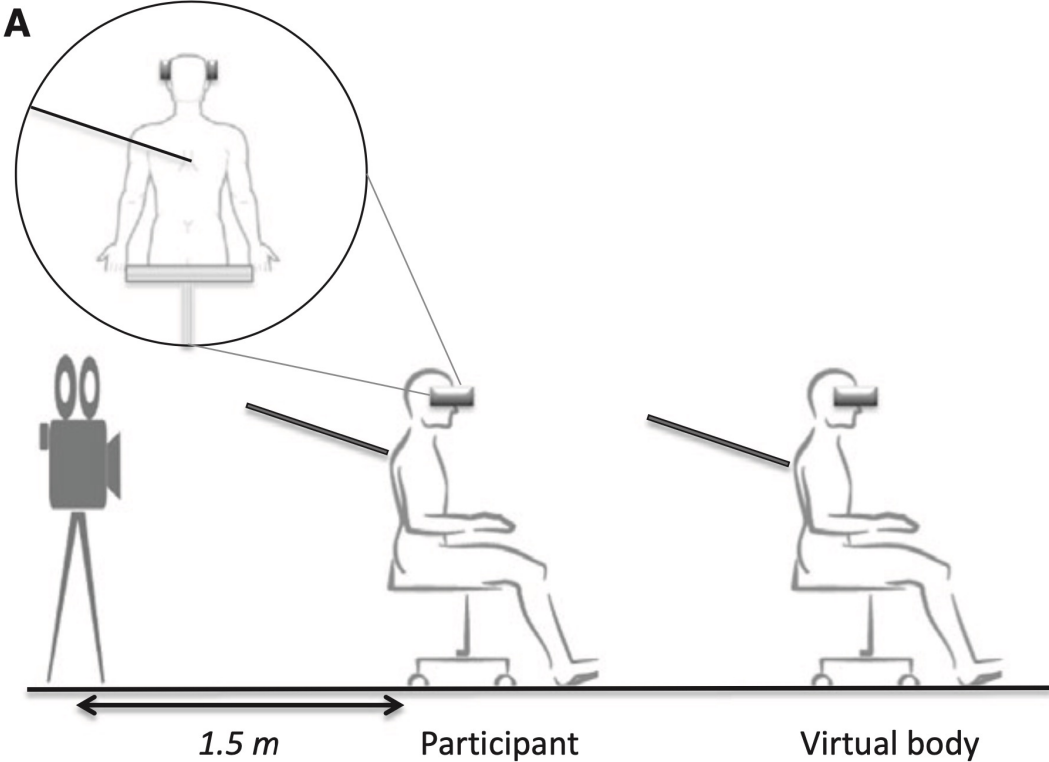


Martini, Kiltner, Maselli & Sanchez-Vives (2015), *Scientific Reports*

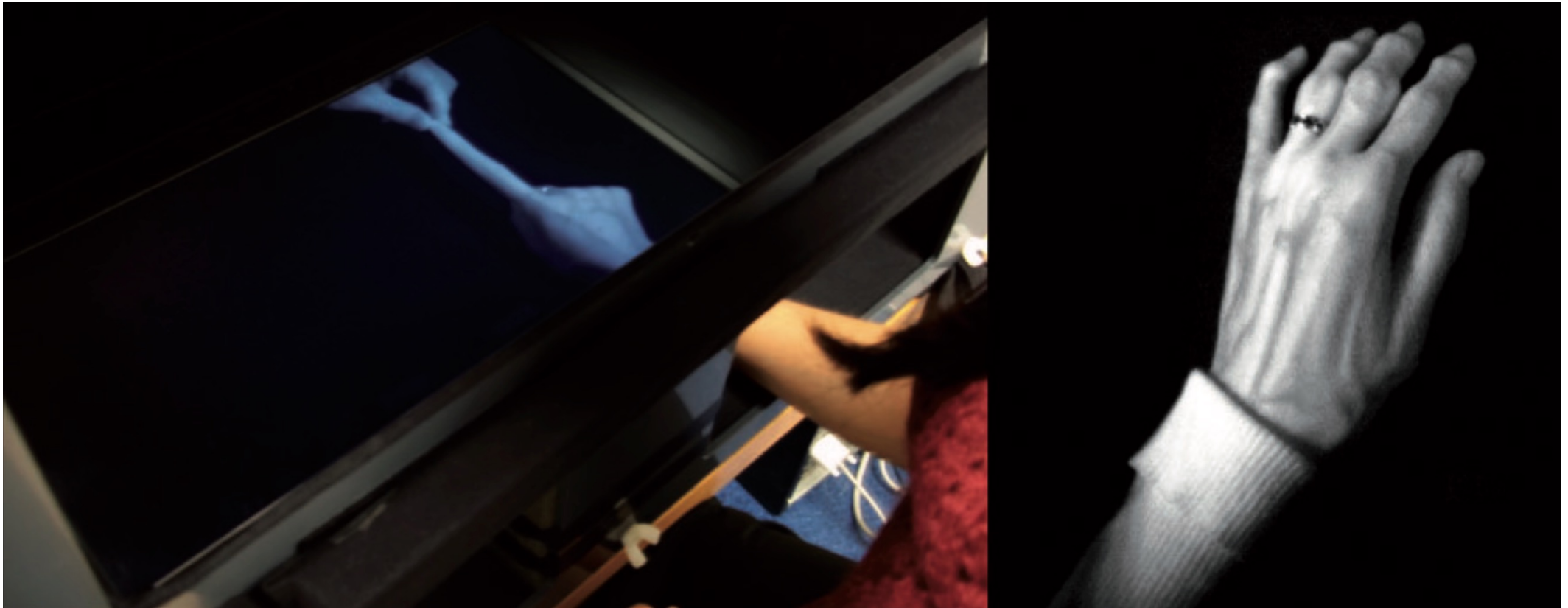


Ho, Lyn, Roel Lesur, Lenggenhager, *in prep*

Out-of-body Illusion – chronische Schmerzen

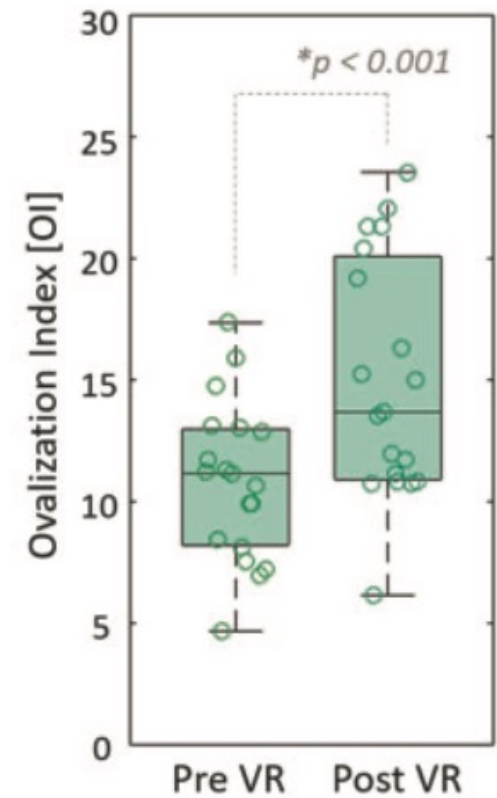
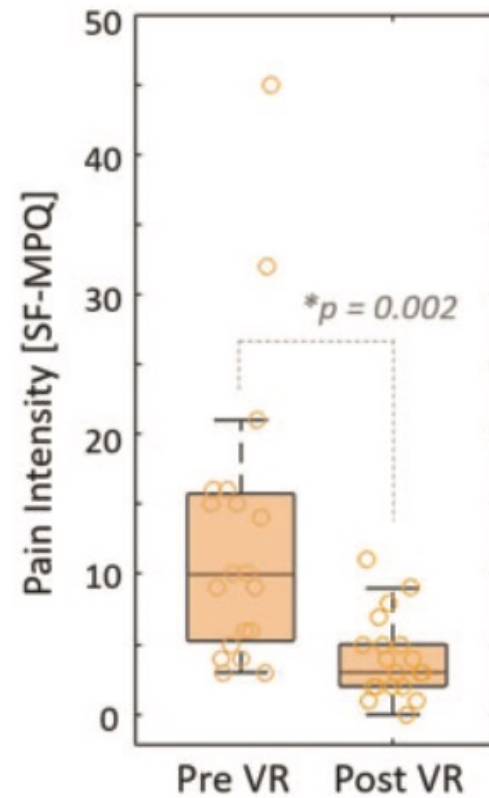
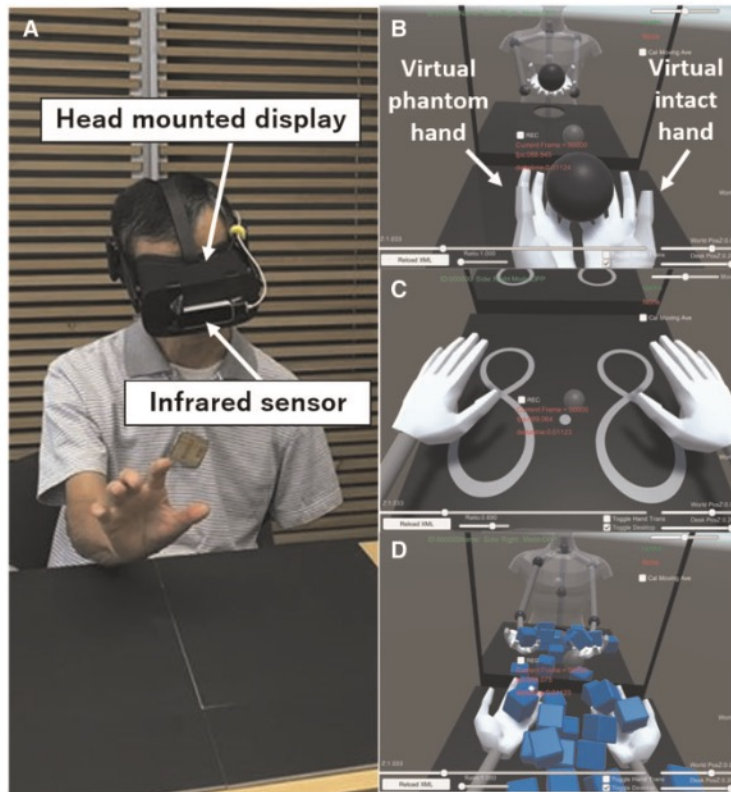


Körperillusionen – osteoarthritis

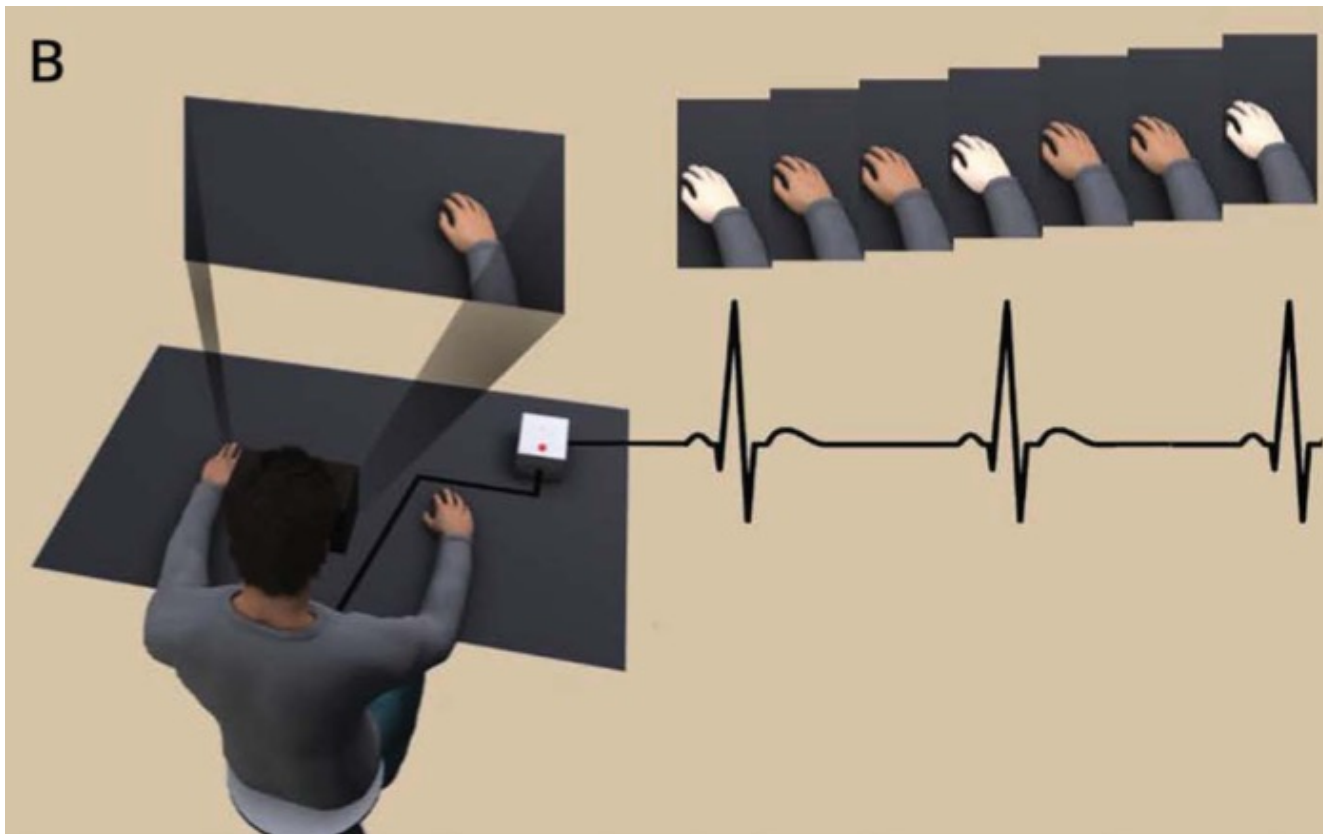


Preston & Newport (2011), *Rheumatology*

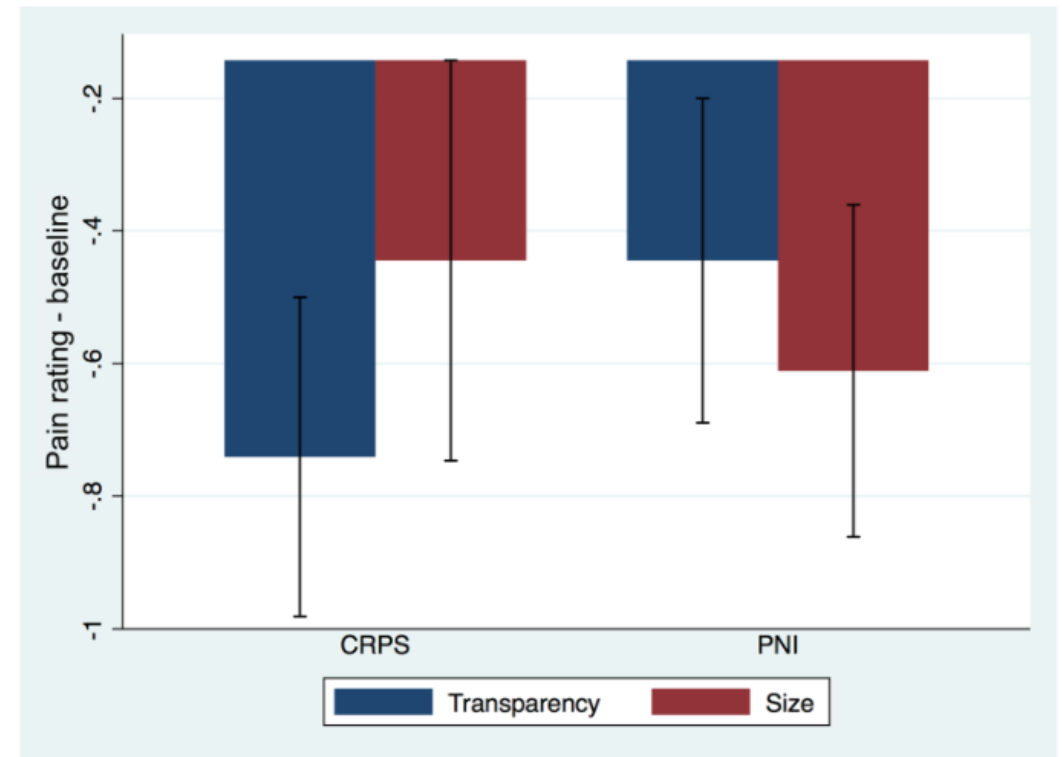
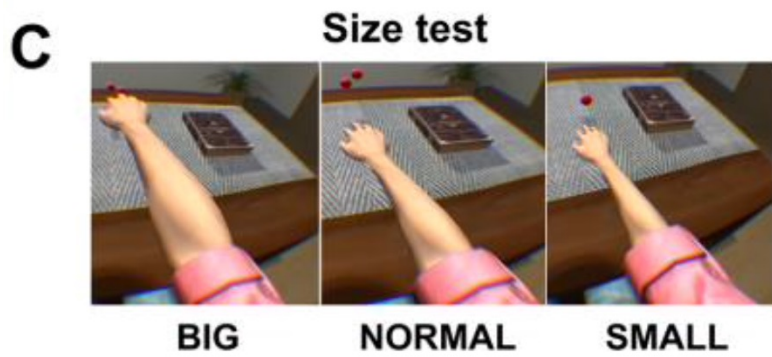
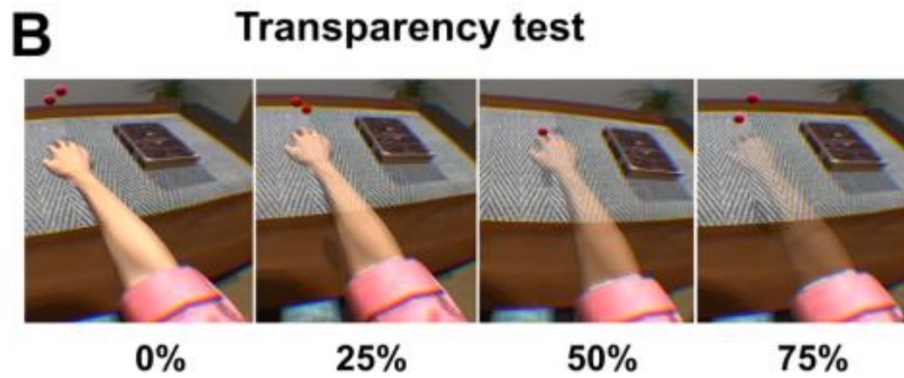
Körperillusionen – Phantomschmerzen



Flashing - CRPS



CRPS und periphere Nervenverletzung



Virtual bodily illusions for chronic pain





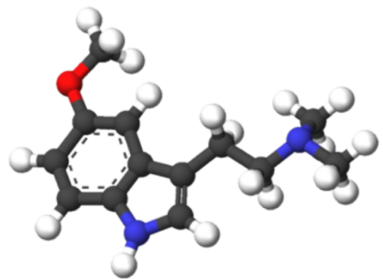
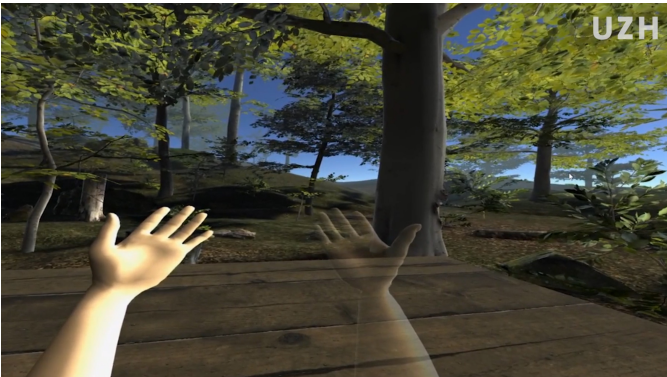
SOMA REM

www.soma-rem.com

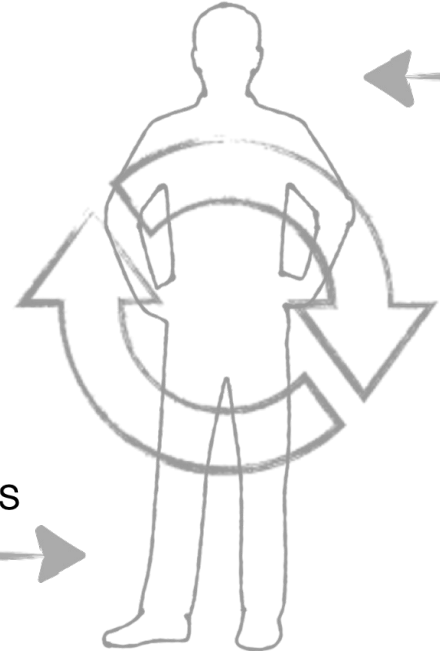
CHANGE THE REALITY OF CHRONIC PAIN



Pharmakologisch veränderte VR Erfahrungen



RE002



Pharmakologisch veränderte Wahrnehmung des Körpers

Neuroscience and Biobehavioral Reviews 108 (2020) 526–541



Contents lists available at [ScienceDirect](https://www.sciencedirect.com)

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journal homepage: www.elsevier.com/locate/neubiorev



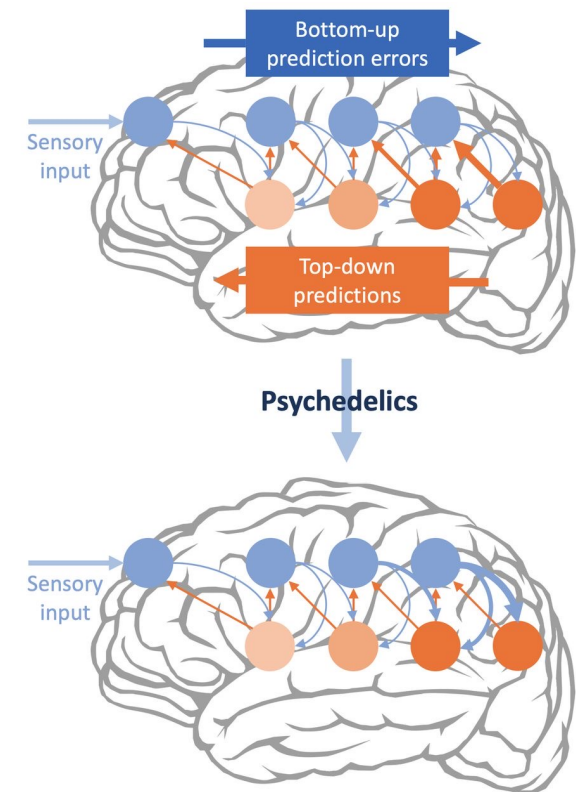
Review article

Neuropharmacological modulation of the aberrant bodily self through psychedelics

Jasmine T. Ho^{a,*}, Katrin H. Preller^b, Bigna Lenggenhager^a

^a University of Zurich, Department of Psychology, Binzmühlestrasse 14, Box 9, 8050, Zurich, Switzerland

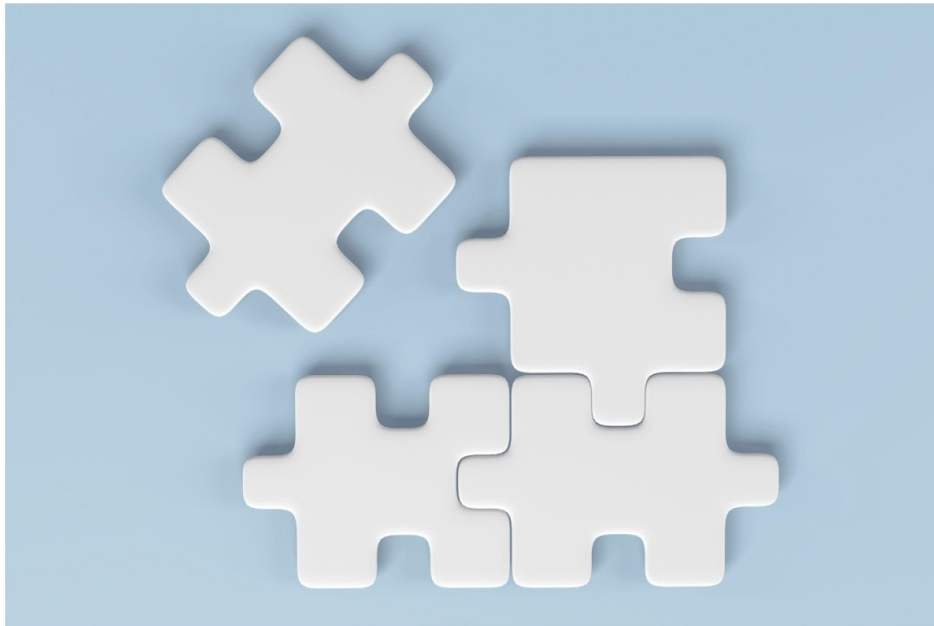
^b Department of Psychiatry, Psychotherapy and Psychosomatics, Pharmaco-Neuroimaging and Cognitive-Emotional Processing, Psychiatric Hospital, University of Zurich, Lenggstrasse 31, CH-8032, Zürich, Switzerland



Carhart-Harris & Friston, 2019, *Pharmacological Reviews*

SNF Sinergia – Team

**Sinergia – interdisciplinary,
collaborative and breakthrough**



Petra Schweinhardt, MD, PhD
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Psychiatric University Hospital Zurich



Felix Scholkmann, PhD
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27 MARCH 2019 ANALYSIS

Virtual pain relief: could VR start a rehab revolution?

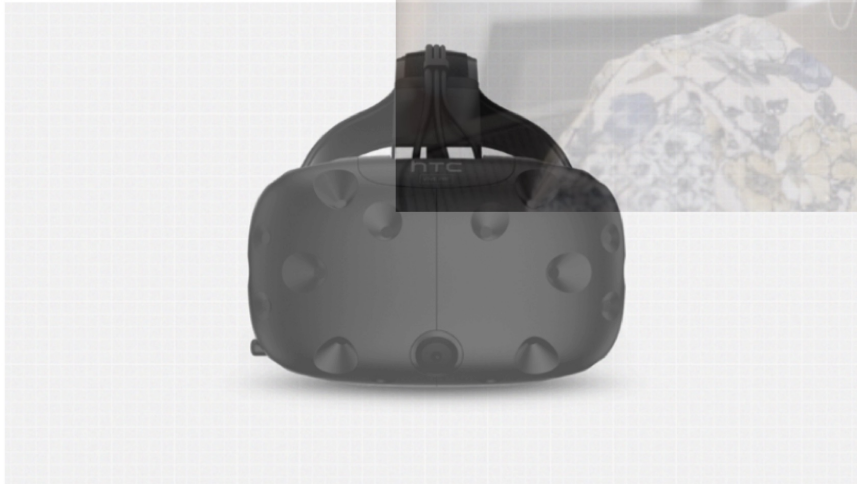
By **Chris Lo**

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MARCH 20, 2019 6:34AM PT

Doctors Look to Virtual Reality to Treat Chronic Pain

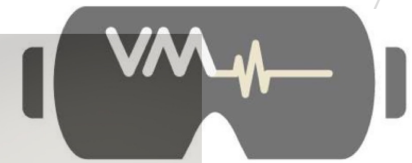
By **SAM DESATOFF**



AUGUST 14, 2019

Virtual reality experiences may help treat severe pain

by Public Library of Science



VIRTUAL
MEDICINE

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7