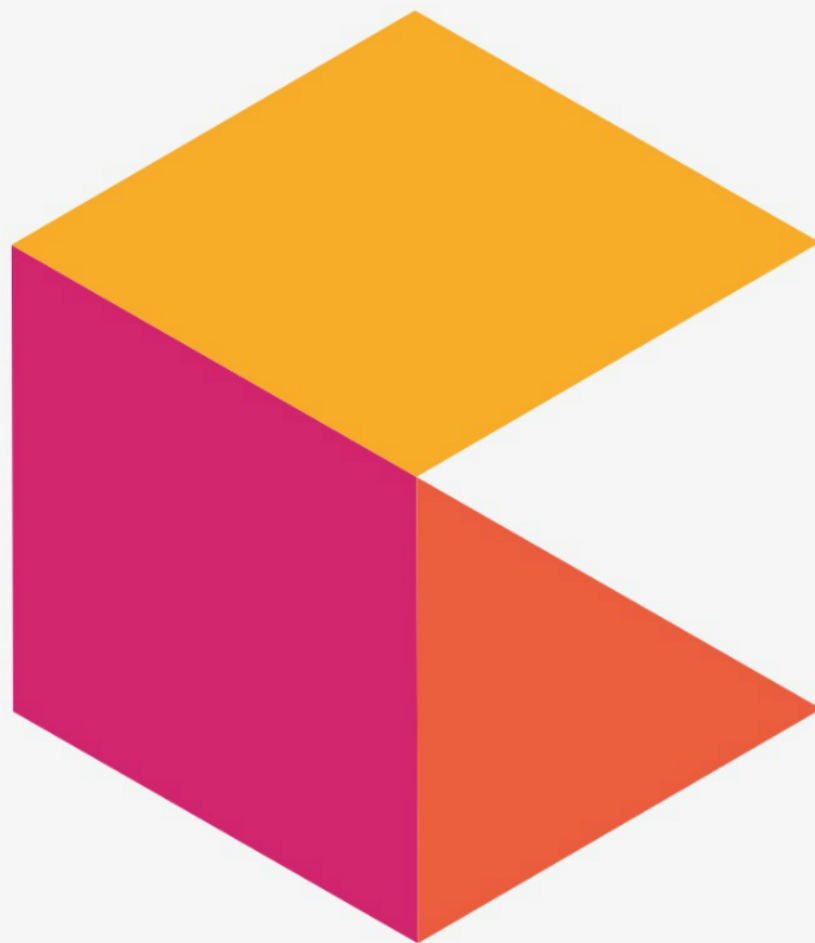




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Journal of Adolescent Health 41 (2007) 263–270

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Original article

# Improvement in Cancer-Related Knowledge Following Use of a Psychoeducational Video Game for Adolescents and Young Adults with Cancer

Ivan L. Beale, M.Sc., Ph.D.<sup>a,\*</sup>, Pamela M. Kato, Ed.M., Ph.D.<sup>b,c</sup>,  
Veronica M. Marin-Bowling<sup>b</sup>, Nicole Guthrie, M.S.<sup>b</sup>, and Steve W. Cole, Ph.D.<sup>d</sup>

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PMID: [18843712](https://pubmed.ncbi.nlm.nih.gov/18843712/)

## Adrenaline (epinephrine) for the treatment of anaphylaxis with and without shock

Monitoring Editor: [Aziz Sheikh](#), [Yasser A Shehata](#), [Simon GA Brown](#), [F Estelle R Simons](#), and Cochrane Emergency and Critical Care Group

The University of Edinburgh, Asthma UK Centre for Applied Research, Usher Institute of Population Health Sciences and Informatics, Teviot Place, EdinburghUK, EH8 9AG

The University of Edinburgh, Division of Community Health Sciences: GP section, 20 West Richmond Street, EdinburghUK, EH8 9DX

The University of Western Australia at Fremantle Hospital, Department of Emergency Medicine, Alma Street, FremantleWestern AustraliaAustralia, 6160

Faculty of Medicine, University of Manitoba, Department of Pediatrics & Child Health; Department of Immunology, WinnipegMBCanada

Aziz Sheikh, Email: , [Aziz.Sheikh@ed.ac.uk](mailto:Aziz.Sheikh@ed.ac.uk)Email: [asheikh2@partners.org](mailto:asheikh2@partners.org).

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## Background

Anaphylaxis is a serious hypersensitivity reaction that is rapid in onset and may cause death. Adrenaline is recommended as the initial treatment of choice for anaphylaxis.

## Objectives

To assess the benefits and harms of adrenaline (epinephrine) in the treatment of anaphylaxis.

## Search methods

In the previous version of our review, we searched the databases until March 2007. In this version we searched the Cochrane Central Register of Controlled Trials (CENTRAL) (*The Cochrane Library* 2010, Issue 11), MEDLINE (1966 to November 2010), EMBASE (1966 to November 2010), CINAHL (1982 to November 2010), BIOSIS (to November 2010), ISI Web of Knowledge (to November 2010 and LILACS (1982 to November 2010). We also searched websites listing ongoing trials and contacted pharmaceutical companies and international experts in anaphylaxis in an attempt to locate unpublished material.

## Selection criteria

We included randomized and quasi-randomized controlled trials comparing adrenaline with no intervention, placebo or other adrenergic agonists were eligible for inclusion.

## Data collection and analysis

Two authors independently assessed articles for inclusion.



## Main results

We found no studies that satisfied the inclusion criteria.

## Authors' conclusions

Based on this review, we are unable to make any new recommendations on the use of adrenaline for the treatment of anaphylaxis. Although there is a need for randomized, double-blind, placebo-controlled clinical trials of high methodological quality in order to define the true extent of benefits from the administration of adrenaline in anaphylaxis, such trials are unlikely to be performed in individuals with anaphylaxis. Indeed, they might be unethical because prompt treatment with adrenaline is deemed to be critically important for survival in anaphylaxis. Also, such studies would be difficult to conduct because anaphylactic episodes usually occur without warning, often in a non-medical setting, and differ in severity both among individuals and from one episode to another in the same individual. Consequently, obtaining baseline measurements and frequent timed measurements might be difficult, or impossible, to obtain. In the absence of appropriate trials, we recommend, albeit on the basis of less than optimal evidence, that adrenaline administration by intramuscular (i.m.) injection should still be regarded as first-line treatment for the management of anaphylaxis.









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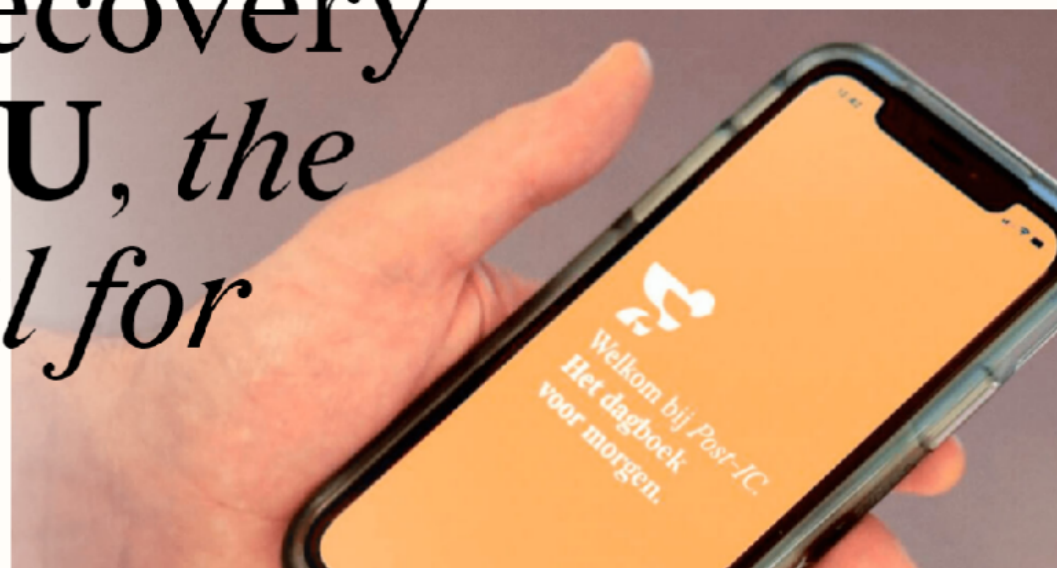
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## A Video Game Improves Behavioral Outcomes in Adolescents and Young Adults With Cancer: A Randomized Trial

Pamela M. Kato, Steve W. Cole, Andrew S. Bradlyn and Brad H. Pollock

*Pediatrics* 2008;122:e305-e317

DOI: 10.1542/peds.2007-3134

The online version of this article, along with updated information and services, is located on the World Wide Web at:

<http://www.pediatrics.org/cgi/content/full/122/2/e305>

### ARTICLE IN PRESS

JAMDA xxx (2014) e1–e6



JAMDA

journal homepage: [www.jamda.com](http://www.jamda.com)



### Original Study

## A Randomized Controlled Trial on Teaching Geriatric Medical Decision Making and Cost Consciousness With the Serious Game GeriatriX

Joep Lagro MD, PhD<sup>a,\*</sup>, Marjolein H.J. van de Pol MD<sup>b</sup>, Annalies Laan MD<sup>a</sup>, Fanny J. Huijbregts-Verheyden MSc<sup>c</sup>, Lia C.R. Fluit MD, PhD<sup>c</sup>, Marcel G.M. Olde Rikkert MD, PhD<sup>a</sup>

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<sup>b</sup>Department of Primary and Community Care, Radboud University Medical Center, Nijmegen, The Netherlands

<sup>c</sup>Institute for (bio) Medical Education, Radboud University Medical Center, Nijmegen, The Netherlands

### ABSTRACT

**Keywords:**  
Medical decision making  
serious games  
medical education  
geriatric medicine

**Objective:** Medical students often lack training in complex geriatric medical decision making. We therefore developed the serious game, GeriatriX, for training medical decision making with weighing patient preferences, and appropriateness and costs of medical care. We hypothesized that education with GeriatriX would improve the ability to deal with geriatric decision making and also increase cost consciousness.



Journal of Adolescent Health 41 (2007) 263–270

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### Original article

## Improvement in Cancer-Related Knowledge Following Use of a Psychoeducational Video Game for Adolescents and Young Adults with Cancer

Ivan L. Beale, M.Sc., Ph.D.<sup>a,\*</sup>, Pamela M. Kato, Ed.M., Ph.D.<sup>b,c</sup>,  
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<sup>a</sup>School of Psychology, University of New South Wales, New South Wales, Australia

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<sup>c</sup>Department of Pediatrics, Stanford University, Stanford, California

<sup>d</sup>University of California-Los Angeles School of Medicine, Los Angeles, California

Manuscript received September 12, 2006; manuscript accepted April 11, 2007

### Abstract

**Purpose:** Adolescents with chronic illnesses have been shown to have management and treatment issues resulting in poor outcomes. These issues may arise from non-interest in self care and illness knowledge. A video game, "Re-Mission," was developed to actively involve young people with cancer in their own treatment. Re-Mission provides opportunities to learn about cancer and its treatment.

JOURNAL OF MEDICAL INTERNET RESEARCH

Aalbers et al

### Original Paper

## Puzzling With Online Games (BAM-COG): Reliability, Validity, and Feasibility of an Online Self-Monitor for Cognitive Performance in Aging Adults

Teun Aalbers<sup>1,2</sup>, MSc; Maria A E Baars<sup>1,2</sup>, PhD; Marcel G M Olde Rikkert<sup>1,2</sup>, MD, PhD; Roy P C Kessels<sup>3,4</sup>, PhD

<sup>1</sup>Radboud University Medical Center, Department of Geriatric Medicine, Nijmegen, Netherlands

<sup>2</sup>Radboud University Medical Center, Radboud Alzheimer Center, Nijmegen, Netherlands

<sup>3</sup>Radboud University Nijmegen, Donders Institute for Brain, Cognition and Behaviour, Nijmegen, Netherlands

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### Abstract

**Background:** Online interventions are aiming increasingly at cognitive outcome measures but so far no easy and fast self-monitors

ORIGINAL ARTICLE

# Patient empowerment through provision of a mobile application for medication reconciliation: a proof of concept study

Annabel Werumeus Buning,<sup>1</sup> Joanna E Klopotoska,<sup>2</sup>  
Michiel Duyvendak,<sup>3</sup> Lucien JLP Engelen,<sup>4</sup> Joris Arts<sup>3,5</sup>

<sup>1</sup>Department of Clinical Pharmacy, Academic Medical Centre, Amsterdam, The Netherlands

<sup>2</sup>Department of Public & Occupational Health, EMGO Institute—VU University Medical Centre, Amsterdam, The Netherlands

<sup>3</sup>Department of Clinical Pharmacy, Antonius Hospital Sneek and Emmeloord, Sneek, The Netherlands

## ABSTRACT

**Background** The operationalisation of medication reconciliation in daily practice is challenging, due to among others, insufficient interoperability of computer systems and high implementation costs. Involving patients in the medication reconciliation process by using information technology could potentially overcome these difficulties and reduce preventable patient harm accordingly.

and some feel even more involved in their medication treatment. The use of MMA for medication reconciliation at care transition shows potential as tool to improve patient safety and to reduce healthcare costs.

## INTRODUCTION

Preventing medication-related patient harm, also referred as adverse drug events (ADEs), remains a top patient





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2	Team Commonwealth	9168
3	Ukraine	9088
4	Team Canada	9085
5	Firebird BioChem	9073
6	SETI.Germany	9030
7	Bolnabe	9001


▼ Soloist Competition


#	Player Name	Current	Best
1	Mike Crunching for Physics	-	9242
2	weitzel	-	9235
3	ys719	-	9222
4	jmarkic	-	9211
5	kevin_karplus	-	9186
6	JINXter	-	9185
7	eb.eric	-	9183


▼ Cookbook


 Shake Sidechains


 Wiggle All


 Wiggle Backbone


 Wiggle Sidechains


 Freeze Protein


 Remove Bands


 Disable Bands

 Align Guide

 Reset Structures

 Reset Puzzle

 Help

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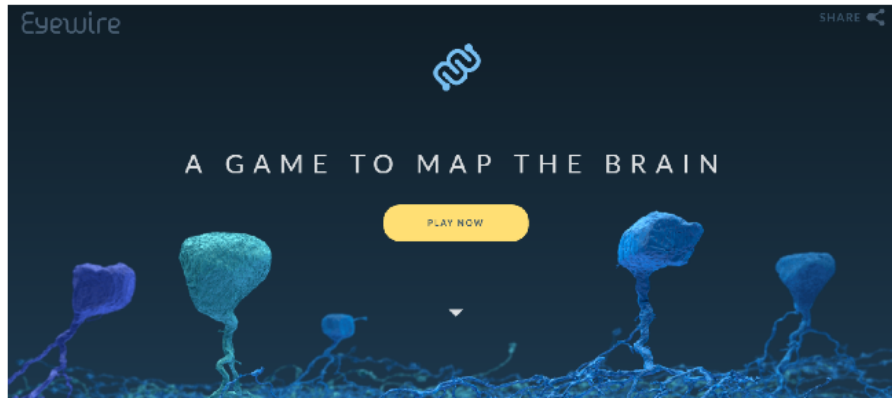
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# Predicting protein structures with a multiplayer online game

[Seth Cooper](#), [Firas Khatib](#), [Adrien Treuille](#), [Janos Barbero](#), [Jeehyung Lee](#), [Michael Beenen](#),  
[Andrew Leaver-Fay](#), [David Baker](#), [Zoran Popović](#) & [Foldit players](#)

[Affiliations](#) | [Contributions](#) | [Corresponding authors](#)

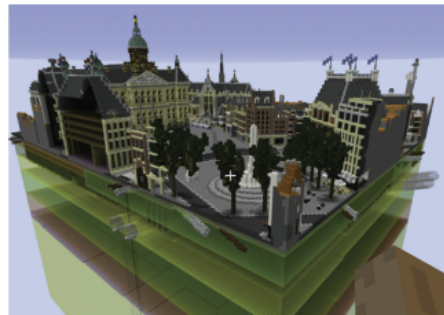
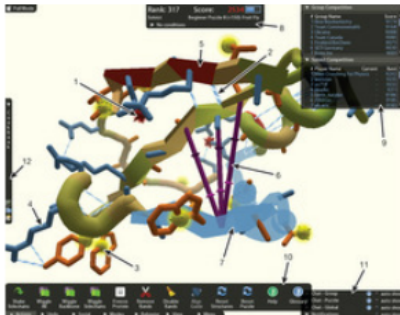
An EyesOnALZ game.

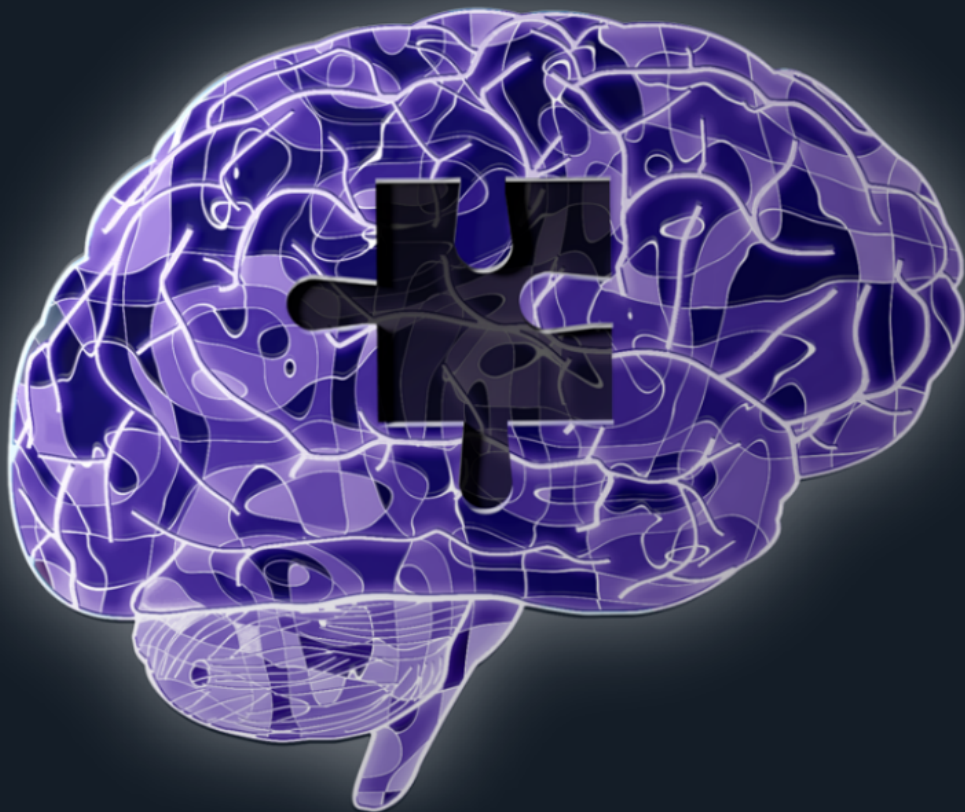


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by MÅR MÁSSON MAACK — 8 months ago in EUROPE





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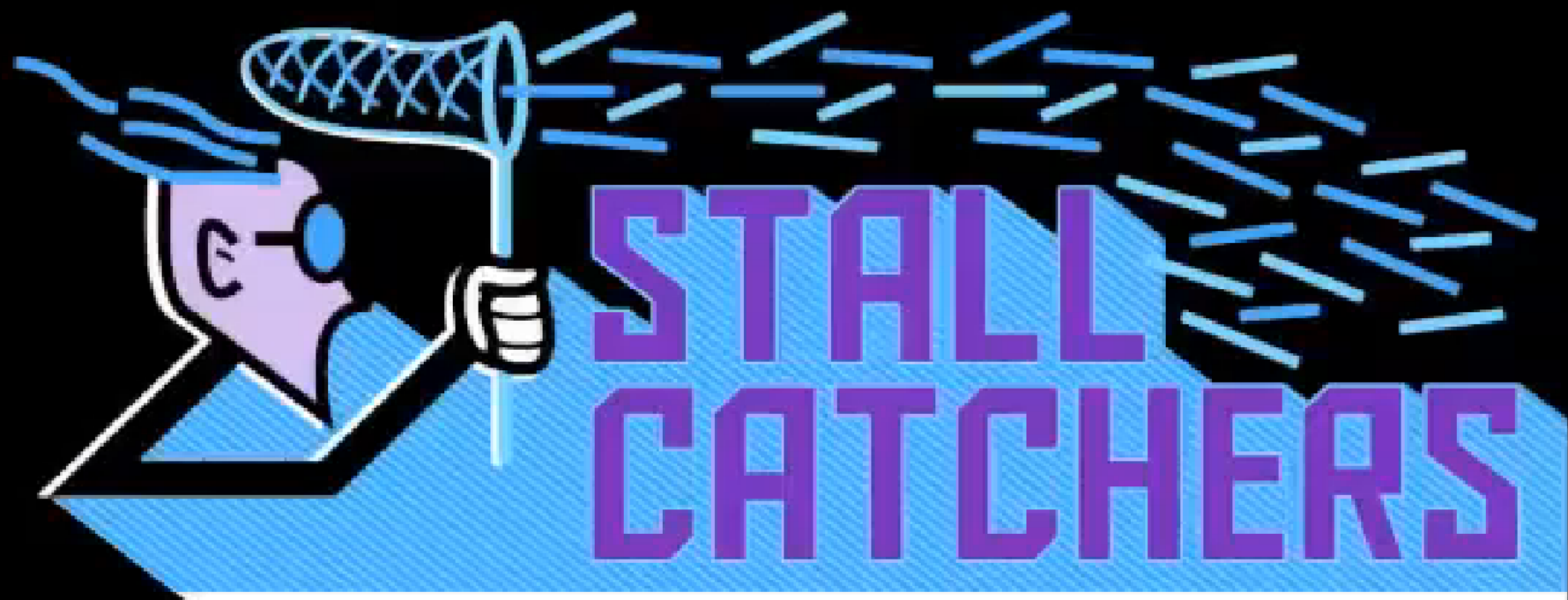
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An EyesOnALZ game.















# Neutrophil adhesion in brain capillaries reduces cortical blood flow and impairs memory function in Alzheimer's disease mouse models

Jean C. Cruz Hernández<sup>1,7</sup>, Oliver Bracko<sup>1,7</sup>, Calvin J. Kersbergen<sup>1</sup>, Victorine Muse<sup>1</sup>, Mohammad Haft-Javaherian<sup>1</sup>, Maxime Berg<sup>2</sup>, Laibaik Park<sup>3</sup>, Lindsay K. Vinarcsik<sup>1</sup>, Iryna Ivasyk<sup>1</sup>, Daniel A. Rivera<sup>1</sup>, Yiming Kang<sup>1</sup>, Marta Cortes-Canteli<sup>4,5</sup>, Myriam Peyrounette<sup>2</sup>, Vincent Doyeux<sup>2</sup>, Amy Smith<sup>1</sup>, Joan Zhou<sup>1</sup>, Gabriel Otte<sup>1</sup>, Jeffrey D. Beverly<sup>1</sup>, Elizabeth Davenport<sup>1</sup>, Yohan Davit<sup>2</sup>, Charles P. Lin<sup>6</sup>, Sidney Strickland<sup>4</sup>, Costantino Iadecola<sup>3</sup>, Sylvie Lorthois<sup>1,2</sup>, Nozomi Nishimura<sup>1,8\*</sup> and Chris B. Schaffer<sup>1,8\*</sup>

Cerebral blood flow (CBF) reductions in Alzheimer's disease patients and related mouse models have been recognized for decades, but the underlying mechanisms and resulting consequences for Alzheimer's disease pathogenesis remain poorly understood. In APP/PS1 and 5xFAD mice we found that an increased number of cortical capillaries had stalled blood flow as compared to in wild-type animals, largely due to neutrophils that had adhered in capillary segments and blocked blood flow. Administration of antibodies against the neutrophil marker Ly6G reduced the number of stalled capillaries, leading to both an immediate increase in CBF and rapidly improved performance in spatial and working memory tasks. This study identified a previously uncharacterized cellular mechanism that explains the majority of the CBF reduction seen in two mouse models of Alzheimer's disease and demonstrated that improving CBF rapidly enhanced short-term memory function. Restoring cerebral perfusion by preventing neutrophil adhesion may provide a strategy for improving cognition in Alzheimer's disease patients.

Alzheimer's disease is the most common form of dementia in the elderly, worldwide. This disease is characterized by a rapid and progressive cognitive decline accompanied by several pathological features, such as the accumulation of amyloid-beta (A $\beta$ ) plaques in brain tissue and along blood vessels as cerebral amyloid angiopathy, the hyperphosphorylation of tau proteins and formation of neurofibrillary tangles in neurons, increased density and activation of inflammatory cells and, ultimately, the death of neurons and other brain cells<sup>1</sup>.

Vascular dysfunction is implicated in the pathogenesis of Alzheimer's disease. Many of the primary risk factors are associated with compromised vascular structure and function, such as obesity, diabetes, atherosclerosis and hypertension<sup>2</sup>. Brain blood flow is also severely compromised; cortical cerebral blood flow (cCBF) reductions of ~25% are evident early in disease development in both patients with Alzheimer's disease<sup>3–5</sup> and in mouse models<sup>6–8</sup>, which express mutated genes that encode for amyloid precursor protein (APP). Several mechanisms for this hypoperfusion have been proposed, including constriction of brain arterioles<sup>9</sup>, loss of vascular density<sup>10</sup> and changes in neural activity patterns and/or in neurovascular coupling<sup>11,12</sup>, but a full understanding of the underlying mechanisms for CBF reduction in Alzheimer's disease has not emerged.

These large decreases in blood flow may contribute to the cognitive symptoms of Alzheimer's disease and drive disease progression. Cognitive functions, such as attention, were immediately impaired by a reduction in CBF of ~20% in healthy humans<sup>13</sup>. When CBF was chronically reduced by ~35% in WT mice, spatial memory deficits were observed accompanied by pathological changes in the brain including increased inflammation<sup>14</sup>. In addition, impairing blood flow in Alzheimer's disease mouse models led to an increase in A $\beta$  deposition, suggesting that blood flow deficits can worsen A $\beta$  pathology<sup>14,15</sup>. These data suggest that decreased CBF in Alzheimer's disease probably contributes to both cognitive dysfunction and disease progression.

Because reductions in CBF are a recognized and important aspect of Alzheimer's disease, yet have not been well explained, we sought to uncover the cellular basis for this phenomenon in APP/PS1 and 5xFAD mouse models of APP overexpression.

## Results

To investigate cortical hypoperfusion in Alzheimer's disease, we used in vivo two-photon excited fluorescence (2PEF) microscopy to image the cortical vasculature in APP/PS1 mice<sup>16</sup> (Fig. 1a), looking for occluded vessels (Fig. 1b). We observed no obstructions in arterioles or venules, but around 1.8% of capillaries in APP/PS1

<sup>1</sup>Nancy E. and Peter C. Meinig School of Biomedical Engineering, Cornell University, Ithaca, NY, USA. <sup>2</sup>Institut de Mécanique des Fluides de Toulouse, Université de Toulouse, CNRS, INPT, UPS, Toulouse, France. <sup>3</sup>Fell Family Brain and Mind Research Institute, Weill Cornell Medicine, New York, NY, USA. <sup>4</sup>Patricia and John Rosenwald Laboratory for Neurobiology and Genetics, The Rockefeller University, New York, NY, USA. <sup>5</sup>Centro Nacional de Investigaciones Cardiovasculares Carlos III, Madrid, Spain. <sup>6</sup>Wellman Center for Photomedicine and Center for Systems Biology, Massachusetts General Hospital, Harvard Medical School, Boston, MA, USA. <sup>7</sup>These authors contributed equally: Jean C. Cruz Hernández, Oliver Bracko. <sup>8</sup>These authors jointly supervised this work: Nozomi Nishimura, Chris B. Schaffer. \*e-mail: nn62@cornell.edu; cs385@cornell.edu

# Neutrophil adhesion in brain capillaries reduces cortical blood flow and impairs memory function in Alzheimer's disease mouse models

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**KEYNOTE**

# Doctors May Soon Prescribe Video Games — Seriously



Erik Brown in The Startup

Jan 7 · 10 min read ★



Photo by [Nikita Kachanovsky](#) on [Unsplash](#)



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## Clinical Trials And Possible FDA Approval

About a year ago Evo passed through Phase 3 Clinical Trials as a therapy for ADHD. During this test 348 children between the ages of 8 to 12 played Evo on tablets for 4 weeks. The kids played the game in sessions of 30 minutes for 5 days a week. Only 11 of the children reported ill effects from playing, mainly frustration and headaches. Side effects like these are mild compared to what can be experienced from traditional pharmaceuticals used on this condition.

The children who played Evo were shown to have significant improvement in inhibitory control and attention; the prime metrics of the study. These metrics were compared against children who were playing another game as a placebo and who didn't show similar gains. Despite the success in this cognitive area, parents and teachers reported similar levels of behavioral change between the children who played Evo and the placebo.

Akili plans to push forward to seek FDA approval in the near future. If approval is given, this would be the first digital therapeutic drug available on the market. However due to this new area of medicine, it's hard to tell how the medical community will receive it. Would doctors prescribe a video game, even if it is FDA approved? Furthermore, would insurance companies pay for this treatment?

# This video game can now be prescribed as medicine in the US

Apple a day.

**News** by Emma Kent, Reporter

Updated on 16 June 2020



When I was growing up, I was always told that video games were detrimental to your health: addictive, "bad for your eyes", and a general waste of time. While [some of those concerns may be true when taken to extremes](#), games are now also being recognised for their positive properties - and one game has been approved for prescription as a medicine in the US.

The Food and Drug Administration (FDA), which is responsible for approving medications in the US, has authorised doctors to prescribe a game called EndeavorRX to kids between eight and 12 with inattentive or combined-type ADHD (via [The Verge](#)). Made by Akili Interactive, [the company says](#) the mobile game had a noticeable effect on improving attention span, with one of the five studies finding a third of children "no longer had a measurable attention deficit on at least one measure of objective attention" after four weeks of treatment. About half of parents reported a "clinically meaningful change in their child's day-to-day impairments" after one month, a number that increased to 68 per cent after a second month of treatment.



## How Antibiotic Resistance Happens

**1.**

Lots of germs.  
A few are drug resistant.



**2.**

Antibiotics kill  
bacteria causing the illness,  
as well as good bacteria  
protecting the body from  
infection.



**3.**

The drug-resistant  
bacteria are now allowed to  
grow and take over.



**4.**

Some bacteria give  
their drug-resistance to  
other bacteria, causing  
more problems.







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## Original Study

# A Randomized Controlled Trial on Teaching Geriatric Medical Decision Making and Cost Consciousness With the Serious Game GeriatriX

Joep Lagro MD, PhD<sup>a,\*</sup>, Marjolein H.J. van de Pol MD<sup>b</sup>, Annalies Laan MD<sup>a</sup>,  
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Marcel G.M. Olde Rikkert MD, PhD<sup>a</sup>

<sup>a</sup>Department of Geriatric Medicine, Radboud University Medical Center, Nijmegen, The Netherlands

<sup>b</sup>Department of Primary and Community Care, Radboud University Medical Center, Nijmegen, The Netherlands

<sup>c</sup>Institute for (bio) Medical Education, Radboud University Medical Center, Nijmegen, The Netherlands

## ABSTRACT

**Keywords:**  
Medical decision making  
serious games  
medical education  
geriatric medicine

**Objective:** Medical students often lack training in complex geriatric medical decision making. We therefore developed the serious game, GeriatriX, for training medical decision making with weighing patient preferences, and appropriateness and costs of medical care. We hypothesized that education with GeriatriX would improve the ability to deal with geriatric decision making and also increase cost consciousness.









# EntertainR



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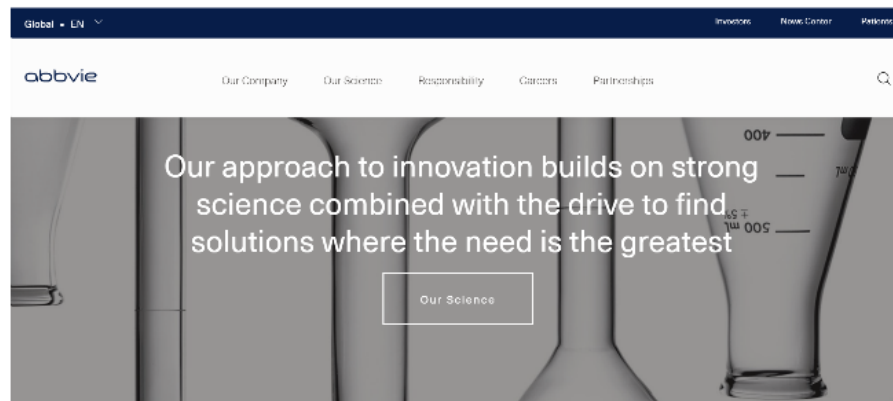


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Trial NL7217 (NTR7416)	
Title	Testing a serious puzzle game for medication adherence in Rheumatoid Arthritis patients
Scientific title	Gaming for Adherence to Medication using E-health in RA-patients (GAMER) study: a multi-centre randomised clinical trial investigating a serious game
Summary	<div>Country of recruitment: The Netherlands</div> <div>SUMMARY</div> <div>Rationale: Effectiveness of pharmacological therapy in inflammatory rheumatic diseases may be limited by inadequate patient adherence to medication. Interventions to improve adherence of DMARDs are therefore necessary to reduce undesirable effects of non-adherence on disease activity, joint damage and overall healthcare costs. Games are increasingly used to address behavioural and psychological factors associated with adherence to medical treatment regimens. Nevertheless, no serious game, where the main goal is providing entertainment, has ever been deployed to subtly and positively influence medication adherence behaviour.</div> <div>Objective: This study aims to examine the effectiveness of serious game “Medi en Seintje” to improve medication adherence and clinical outcomes in patients with rheumatoid arthritis treated with Disease Modifying Anti-Rheumatic Drugs (DMARDs).</div>

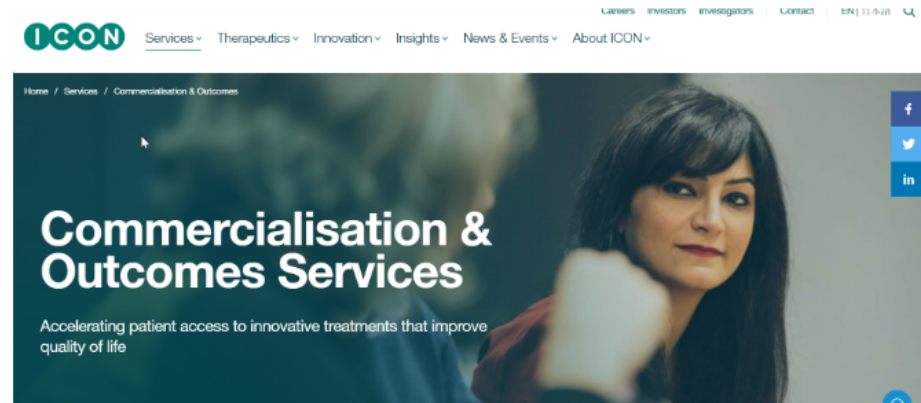


Insurer & adherence



Pharma & medication compliance

Research and outcome measures



Screening patients at risk & cost reduction



**We don't stop playing because  
we grow old; we grow old  
because we stop playing.**

George Bernard Shaw





GAMES FOR HEALTH

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