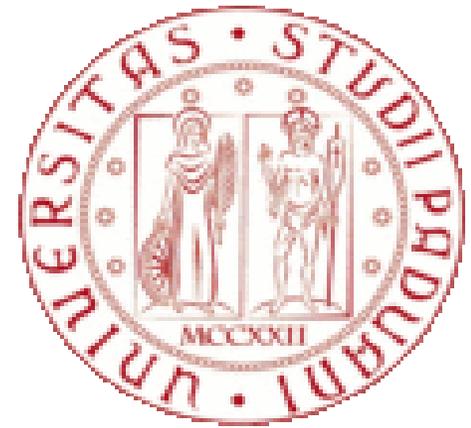


USO TERAPEUTICO DEL GIOCO ANCHE DIGITALE

Andrea Facoetti

Sabato 10 Giugno 2023



Un grazie speciale a
Sandro Franceschini
Sara Bertoni,
Giovanna Puccio &
Simone Gori

deconelab@gmail.com

RETE INFANZIA PADOVA
RETE DELLE SCUOLE DELL'INFANZIA STATALI
DI PADOVA E PROVINCIA

La Rete coinvolge le Scuole dell'Infanzia di 36 Istituti comprensivi di Padova e provincia. Si è costituita nel marzo 2022 con l'obiettivo di attuare iniziative comuni dedicate ai docenti delle scuole dell'Infanzia, a sostegno della professionalità docente e dell'innovazione didattica e volte a promuovere una cultura di rete in grado di soddisfare esigenze di organicità e razionale ed efficace impegno delle risorse.
Materiali consultabili sul sito dell'IC Montegrotto cliccando sul logo

EVENTO DI FORMAZIONE PER DOCENTI SCUOLA DELL'INFANZIA

10 GIUGNO 2023
V Istituto comprensivo scuola Donatello via Pierobon 19/b Padova
Iscrizioni al link

CRISTINA BROTTO
Logopedista
Gli antecedenti cognitivi della lettura e della scrittura

TERESA FARRONI
Psicologia dello sviluppo Università di Padova
Processi cognitivi della prima infanzia nell'era digitale

ANDREA FACOETTI
Psicologia generale Università di Padova
Uso terapeutico del gioco anche digitale

8.30 accoglienza
9.00 saluti istituzionali
9.30 Cristina Brotto
10.20 Teresa Farroni
11.10 pausa
11.30 Andrea Facoetti
12.20 Antonia Belluardo
Federica Garziera
Giovanna Rango
docenti referenti Rete

reteinfanziapadova@icmontegrotto.it





www.nature.com/scientificreports

Action Video Games Make Dyslexic Children Read Better



SCIENTIFIC REPORTS

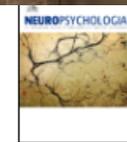
OPEN Action video games improve reading abilities and visual-to-auditory attentional shifting in English-speaking children with dyslexia



Contents lists available at ScienceDirect

Neuropsychologia

journal homepage: www.elsevier.com



Received: 25 January 2017
Accepted: 2 June 2017
Published online: 19 July 2017

Sandro Franceschini^{1,2}, Piernigorgio Trevisan³, Luca Ronconi^{1,2,4}, Sara Bertoni¹, Susan Colmar Kit Double⁵, Andrea Facoetti^{1,2} & Simone Gori^{2,4}



Improving action video games abilities increases the phonological decoding speed and phonological short-term memory in children with developmental dyslexia

Franceschini Sandro, Bertoni Sara

Developmental and Cognitive Neuroscience Lab, Department of General Psychology, University of Padua, Padova 35131, Italy



Article

Action Video Games Enhance Attentional Control and Phonological Decoding in Children with Developmental Dyslexia

Sara Bertoni ^{1,2,*}, Sandro Franceschini ², Giovanna Puccio ², Martina Mancarella ^{2,3}, Simone Gori ¹ and Andrea Facoetti ²

Games to do you good

Che cos'è?

Burghardt (2005; 2014) definisce il GIOCO se:

Chi gioca?

1. Il comportamento è incompleto, esagerato,
2. Il comportamento è ripetuto (ma non stereotipato)
3. Il comportamento non è pienamente funzionale e non è volto primariamente alla sopravvivenza dell'organismo
4. Il comportamento è spontaneo, piacevole e auto-rinforzante
5. Il comportamento appare in numerose situazioni, non caratterizzate da stress



A che gioco giochiamo?

- Gioco solitario, locomotorio/rotazionale
- Gioco con oggetti
- Gioco sociale (=play fighting)



Training per eventi non attesi

I mammiferi giocano per allenarsi ad affrontare eventi non attesi (vedi SORPRESA), sviluppando **risposte motorie e emozionali flessibili** in risposta ad eventi che prevedono stress e perdita di controllo.

Learn Behav (2017) 45:355–366

DOI 10.3758/s13420-017-0264-3

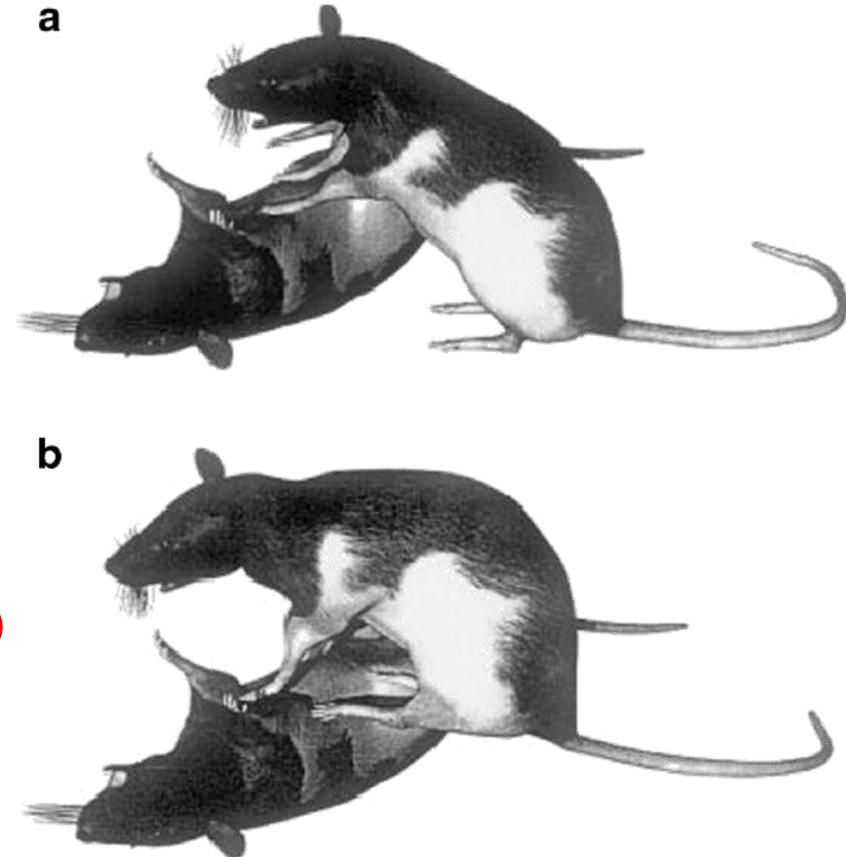
INVITED REVIEW

What is play fighting and what is it good for?

Sergio M. Pellis¹ • Vivien C. Pellis¹

Perché giochiamo?

Published online: 3 April 2017



a controllare l'imprevisto

Play in Predictive Minds: A Cognitive Theory of Play

Marc Malmdorf Andersen^{1, 2}, Julian Kiverstein³, Mark Miller^{4, 5}, and Andreas Roepstorff^{1, 2}

¹ Interacting Minds Centre, Aarhus University

² School of Culture and Society, Aarhus University

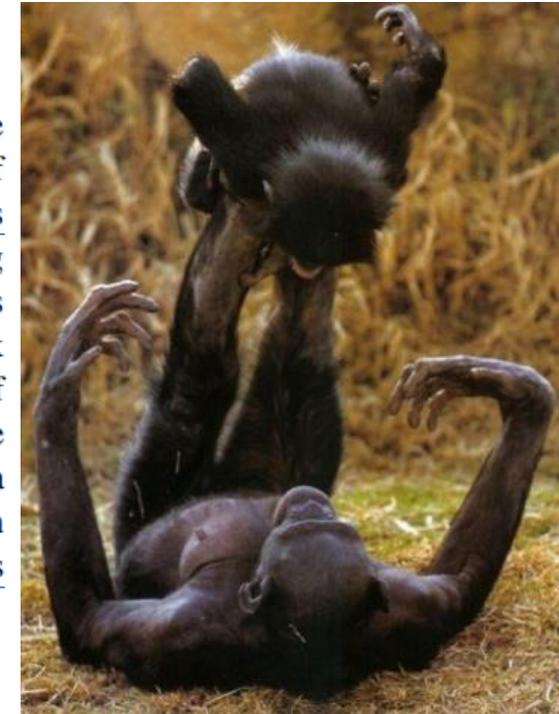
³ Department of Psychiatry, Amsterdam University Medical Centre

⁴ Center for Human Nature, Artificial Intelligence and Neuroscience, Hokkaido University

⁵ Centre for Consciousness and Contemplative Studies, Monash University

In this article, we argue that a predictive processing framework (PP) may provide elements for a proximate model of play in children and adults. We propose that play is a behavior in which the agent, in contexts of freedom from the demands of certain competing cognitive systems, deliberately seeks out or creates surprising situations that gravitate toward sweet-spots of relative complexity with the goal of resolving surprise. We further propose that play is experientially associated with a feel-good quality because the agent is reducing significant levels of prediction error (i.e., surprise) faster than expected. We argue that this framework can unify a range of well-established findings in play and developmental research that highlights the role of play in learning, and that casts children as Bayesian learners. The theory integrates the role of positive valence in play (i.e., explaining why play is fun); and what it is to be in a playful mood. Central to the account is the idea that playful agents may create and establish an environment tailored to the generation and further resolution of surprise and uncertainty. Play emerges here as a variety of niche construction where the organism modulates its physical and social environment in order to maximize the productive potential of surprise.

Keywords: play, learning, predictive processing, surprise, niche construction



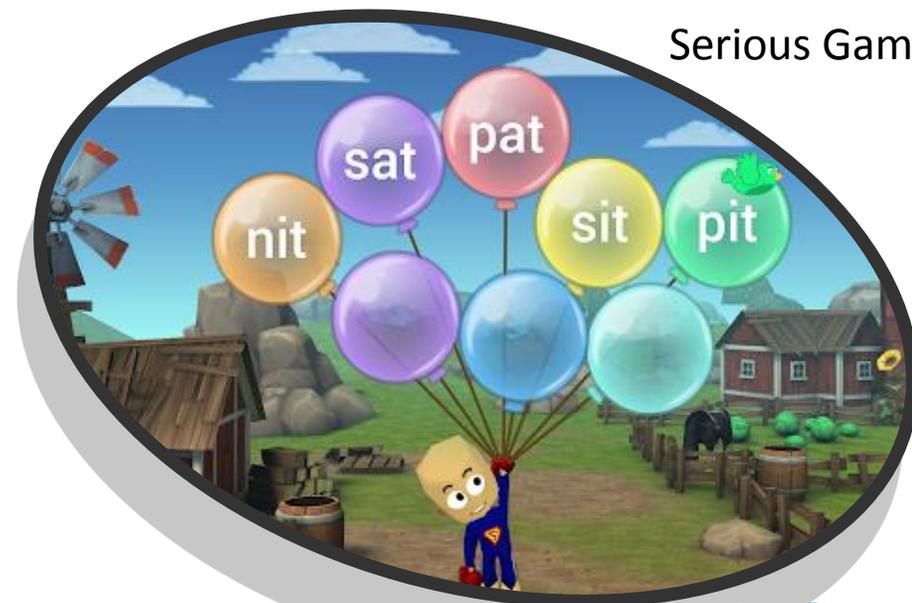
**Il GIOCO come
una costruzione
di una nicchia
dove l'organismo
modula il suo
ambiente fisico e
sociale in modo
da massimizzare
il potenziale
produttivo della
sorpresa**

Gamification

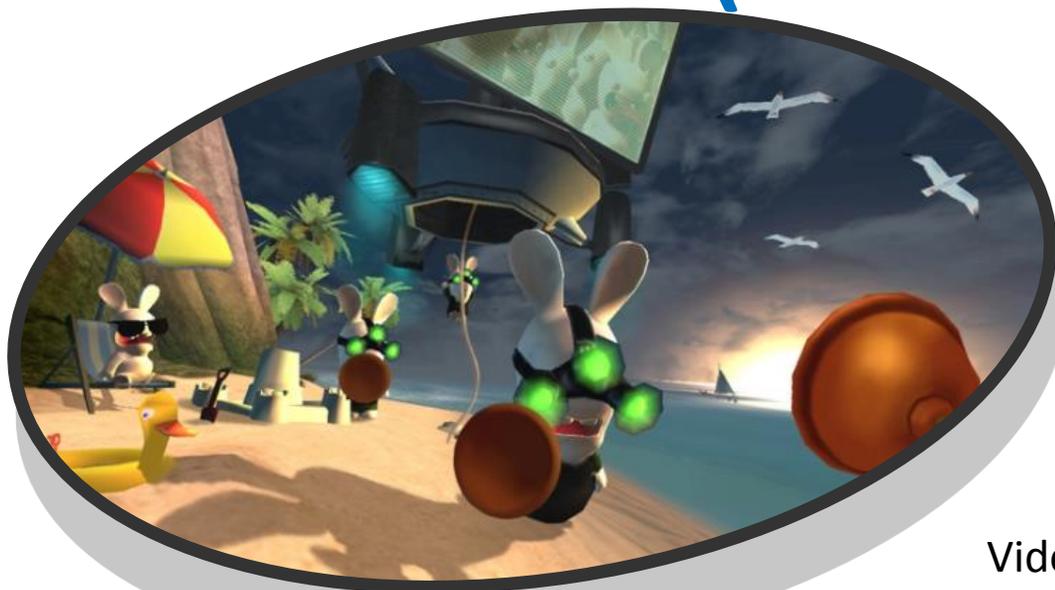


**Il GIOCO per
sviluppare le
funzioni di
controllo
(cognitivo ed
emozionale)**

Serious Game

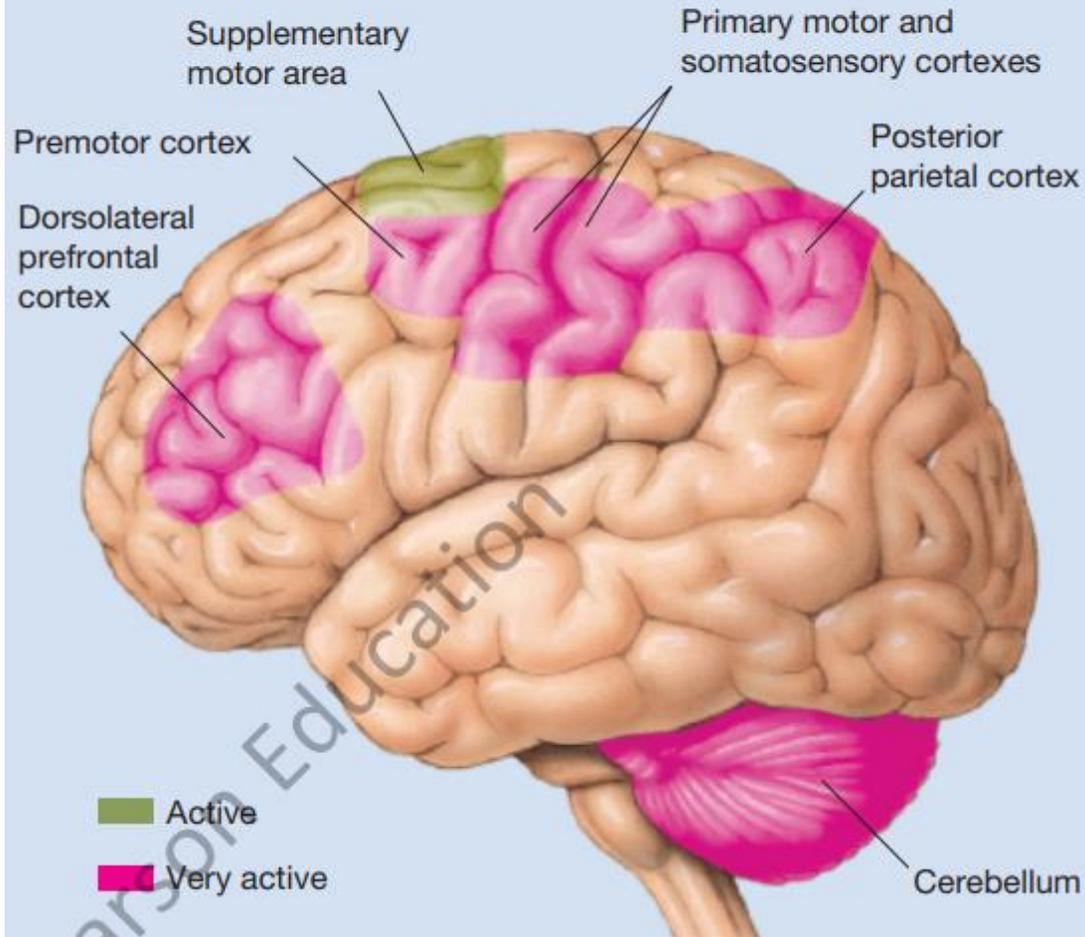


Apprendimento (neuroplasticità)

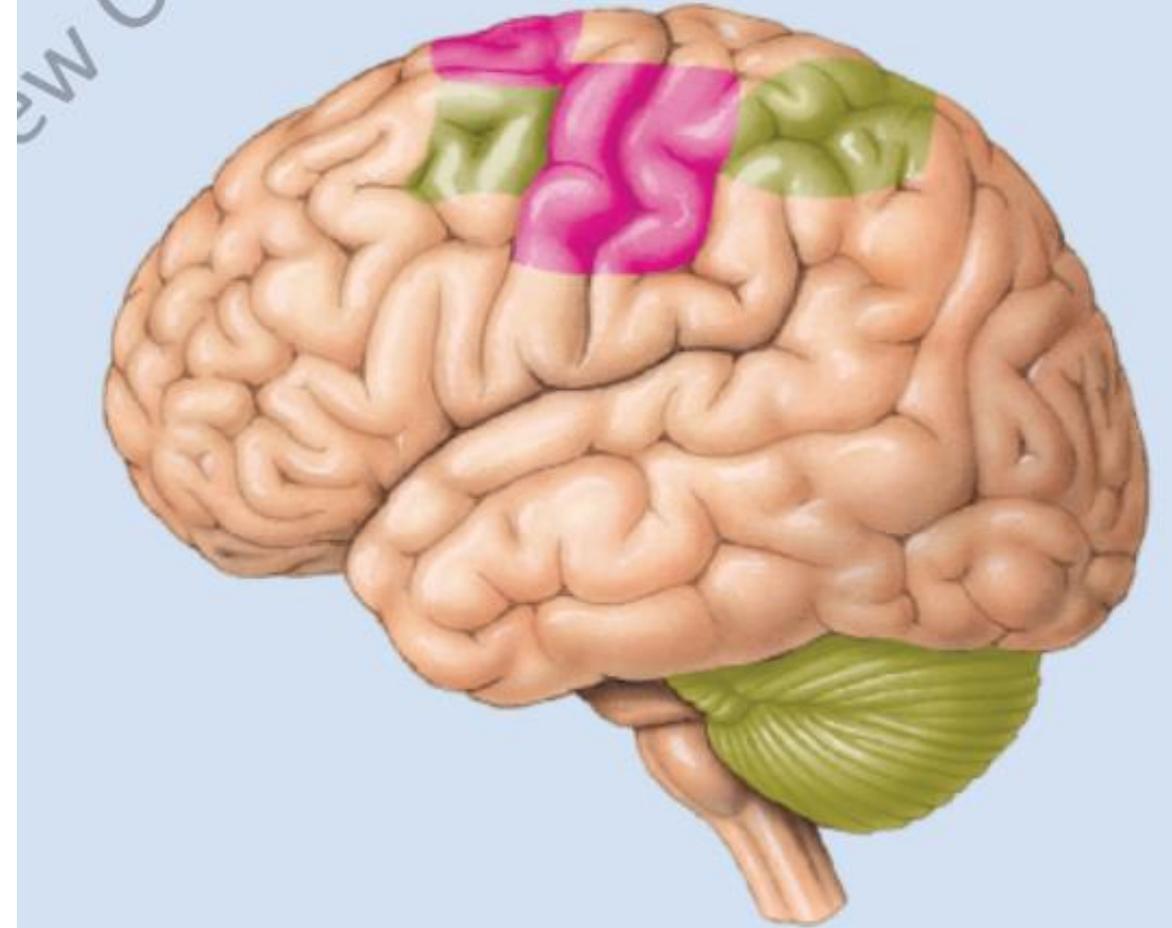


Video games

Sensorimotor areas activated by performing a newly learned sequence of finger movements



Sensorimotor areas activated by performing a well-practiced sequence of finger movements

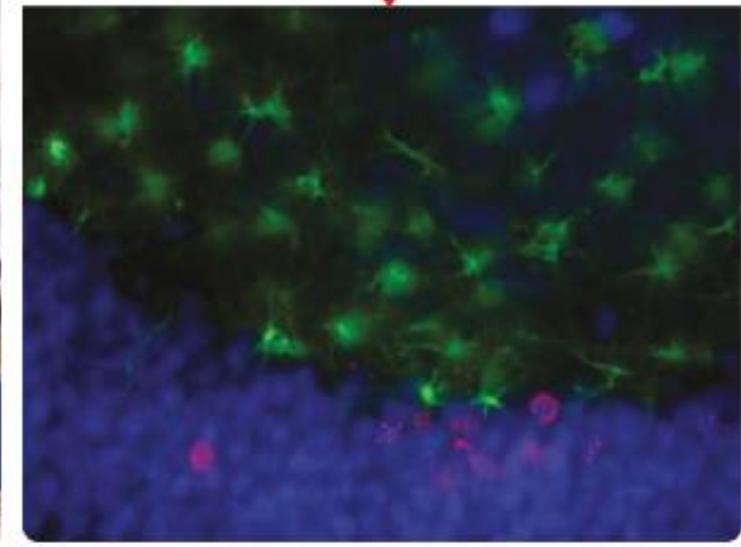
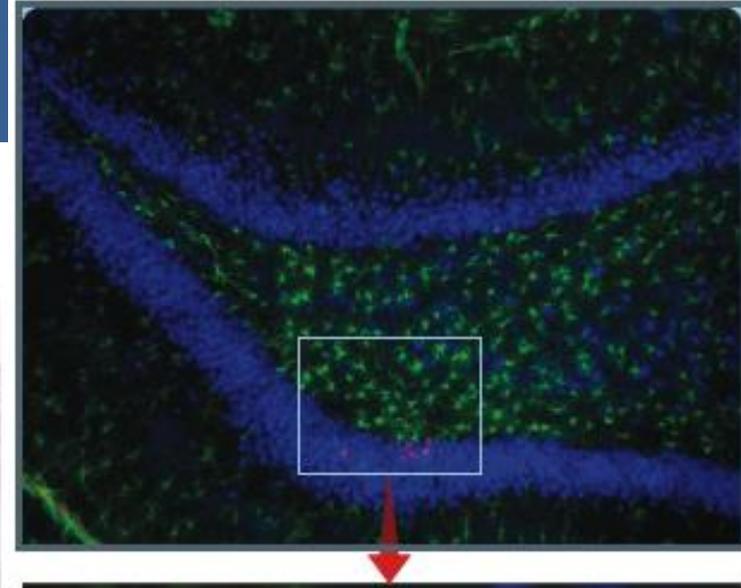


IL GIOCO come AMBIENTE ARRICCHITO AUTOGENERATO (modelli animali)

Figura 10.21 Un roditore inserito in un ambiente arricchito in laboratorio.



Figura 9.10 Neurogenesi nell'adulto. Il pannello superiore mostra le nuove cellule nel giro dentato dell'ippocampo - i corpi cellulari dei neuroni sono blu, le cellule gliali mature sono verdi e le nuove cellule sono rosse. Il pannello inferiore mostra le nuove cellule del pannello superiore, ma molto ingrandite, il che rende evidente come le nuove cellule siano diventate sia blu sia rosse e siano quindi i nuovi neuroni. (Da Carl Ernst e Brian Christie, Department of Psychology, University of British Columbia)

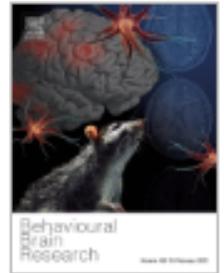


Alterazioni dell'esperienza di gioco impatta sullo sviluppo della corteccia prefrontale



Behavioural Brain Research

Volume 439, 15 February 2023, 114222



Atypical play experiences in the juvenile period has an impact on the development of the medial prefrontal cortex in both male and female rats

[R.A. Stark](#)  , [B. Brinkman](#), [R.L. Gibb](#), [A.N. Iwaniuk](#), [S.M. Pellis](#)

IL GIOCO come AMBIENTE ARRICCHITO (evidenze nell'uomo)

ORIGINAL ARTICLE

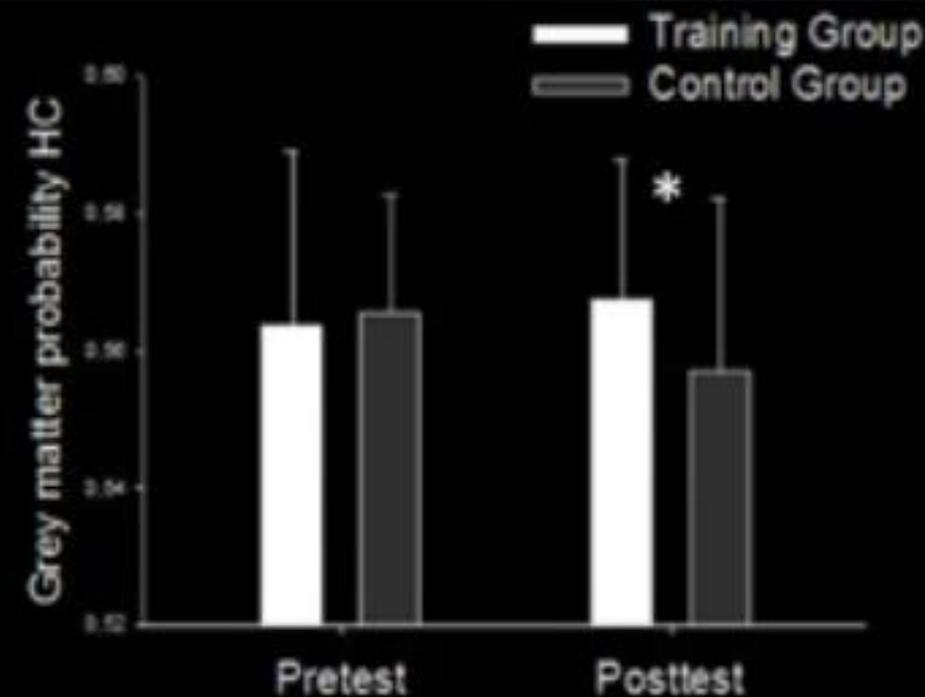
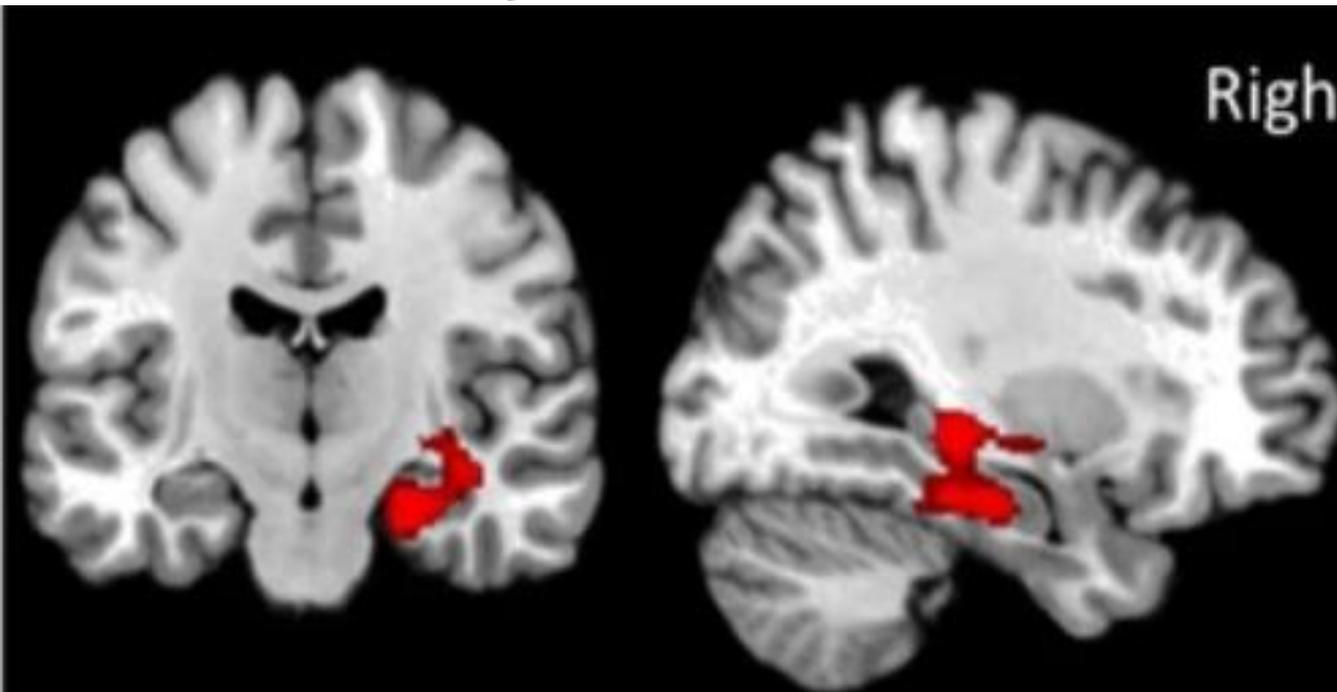
Playing Super Mario induces structural brain plasticity: gray matter changes resulting from training with a commercial video game

S Kühn¹, T Gleich², RC Lorenz^{2,3}, U Lindenberger¹ and J Gallinat²

Video gaming is a highly pervasive activity, providing a multitude of complex cognitive and motor demands. Gaming can be seen as an intense training of several skills. Associated cerebral structural plasticity induced has not been investigated so far. Comparing a control with a video gaming training group that was trained for 2 months for at least 30 min per day with a platformer game, we found significant gray matter (GM) increase in right hippocampal formation (HC), right dorsolateral prefrontal cortex (DLPFC) and bilateral cerebellum in the training group. The HC increase correlated with changes from egocentric to allocentric navigation



Figure 1. Screenshot from the platformer video game trained (Super Mario 64).



Il GIOCO come AMBIENTE ARRICCHITO (evidenze nell'uomo)

ORIGINAL ARTICLE

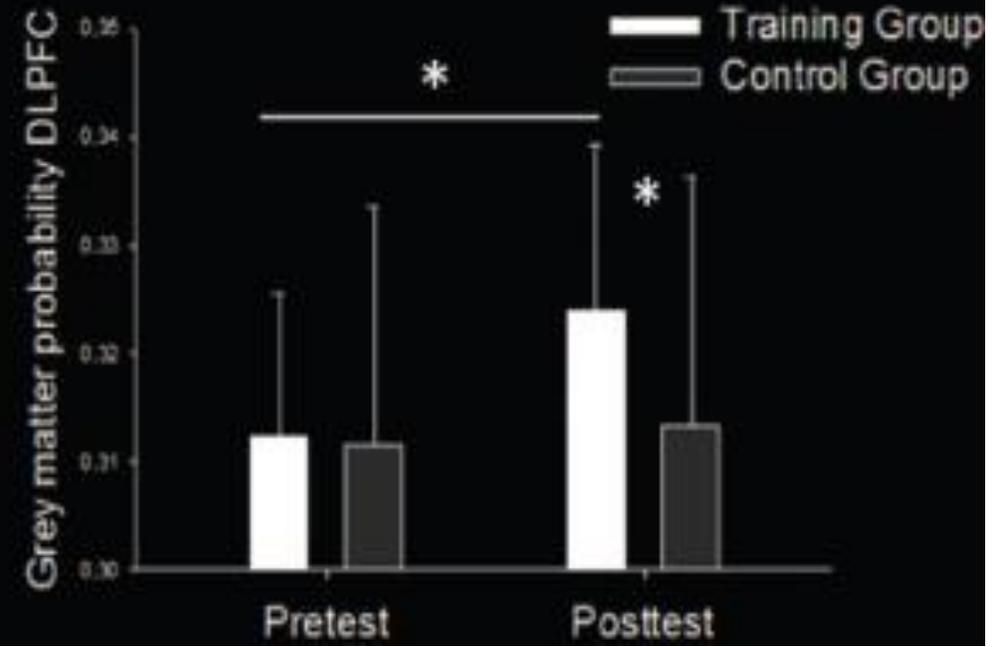
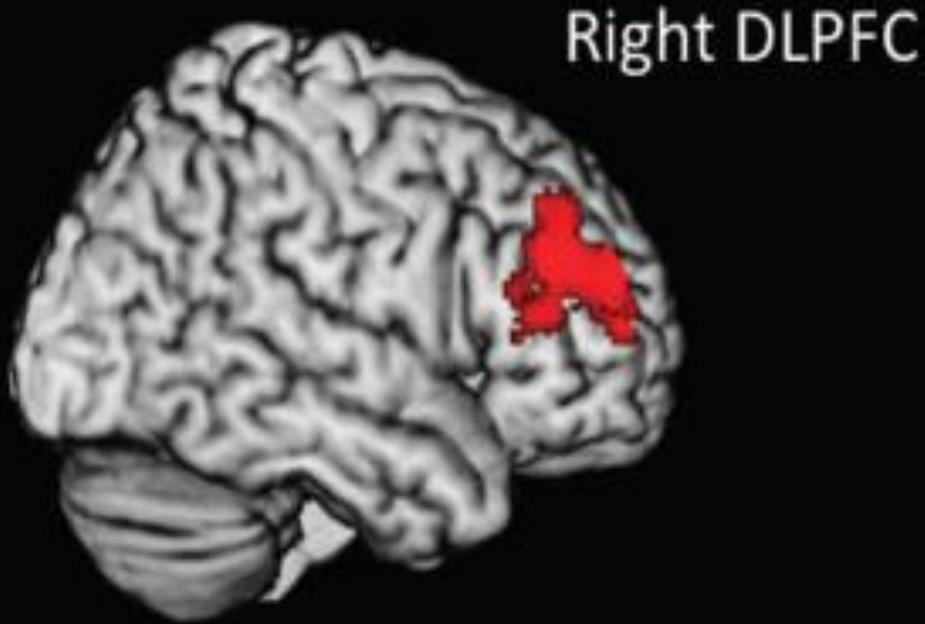
Playing Super Mario induces structural brain plasticity: gray matter changes resulting from training with a commercial video game

S Kühn¹, T Gleich², RC Lorenz^{2,3}, U Lindenberger¹ and J Gallinat²

Video gaming is a highly pervasive activity, providing a multitude of complex cognitive and motor demands. Gaming can be seen as an intense training of several skills. Associated cerebral structural plasticity induced has not been investigated so far. Comparing a control with a video gaming training group that was trained for 2 months for at least 30 min per day with a platformer game, we found significant gray matter (GM) increase in right hippocampal formation (HC), right dorsolateral prefrontal cortex (DLPFC) and bilateral cerebellum in the training group. The HC increase correlated with changes from egocentric to allocentric navigation



Figure 1. Screenshot from the platformer video game trained (Super Mario 64).

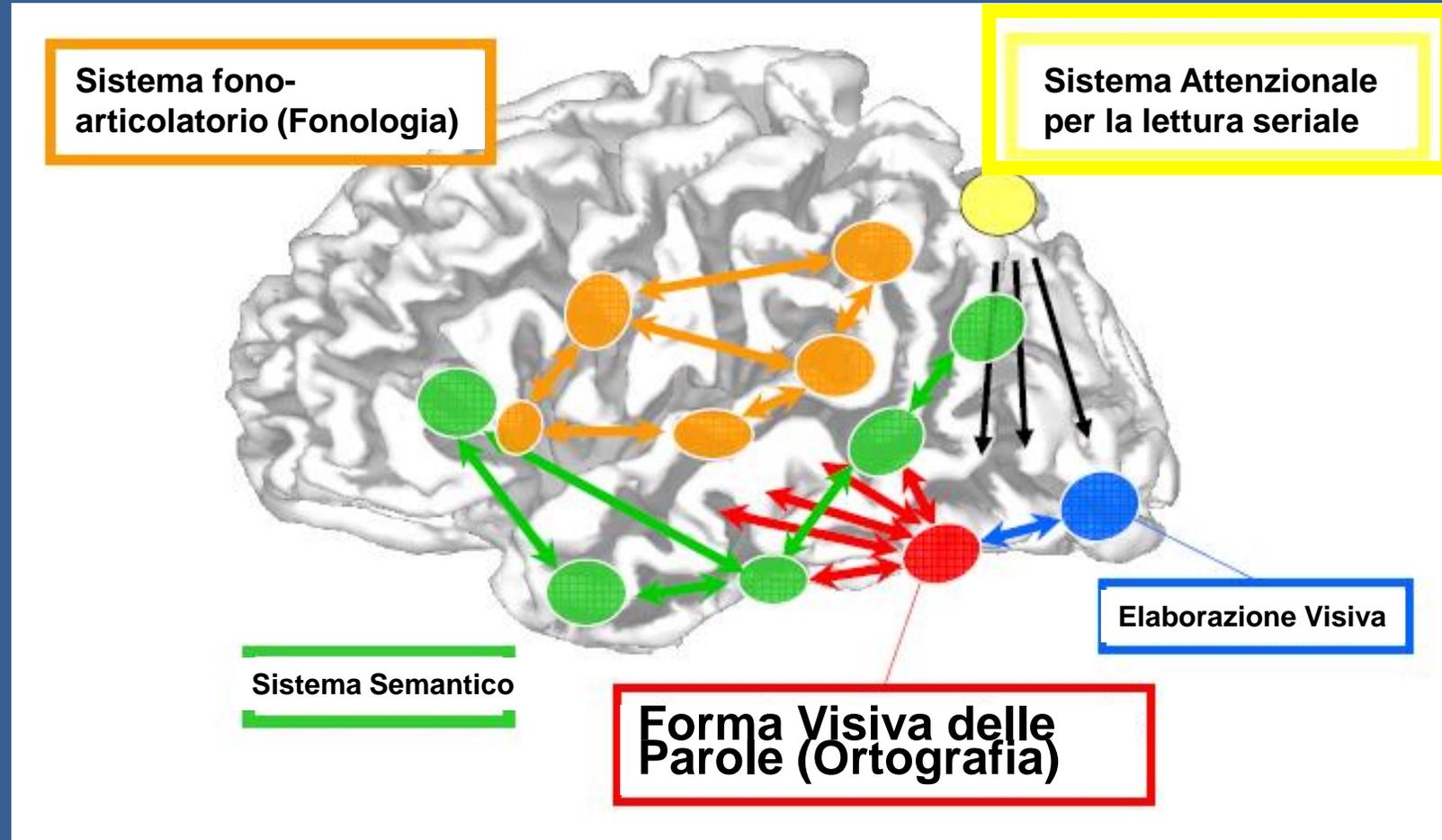


I 5 fatti alla base della GIOCO TERAPIA per i bambini con disturbi dell'apprendimento:

1. **Dislessia evolutiva (DE) = Disturbo specifico dell'apprendimento (DSA)**
2. **APPRENDIMENTO = Attenzione**
3. **DE = Deficit nell'attenzione visuo-spaziale focalizzata e distribuita**
4. **Video giochi d'azione (VGA) = la palestra ottimale per allenare l'Attenzione (focalizzata e distribuita)**
5. **VGA come terapia della DE**

La visione emergente

Il modello di Dehaene (2007 I neuroni della lettura)



The Normalization Model of Attention

John H. Reynolds^{1,*} and David J. Heeger²

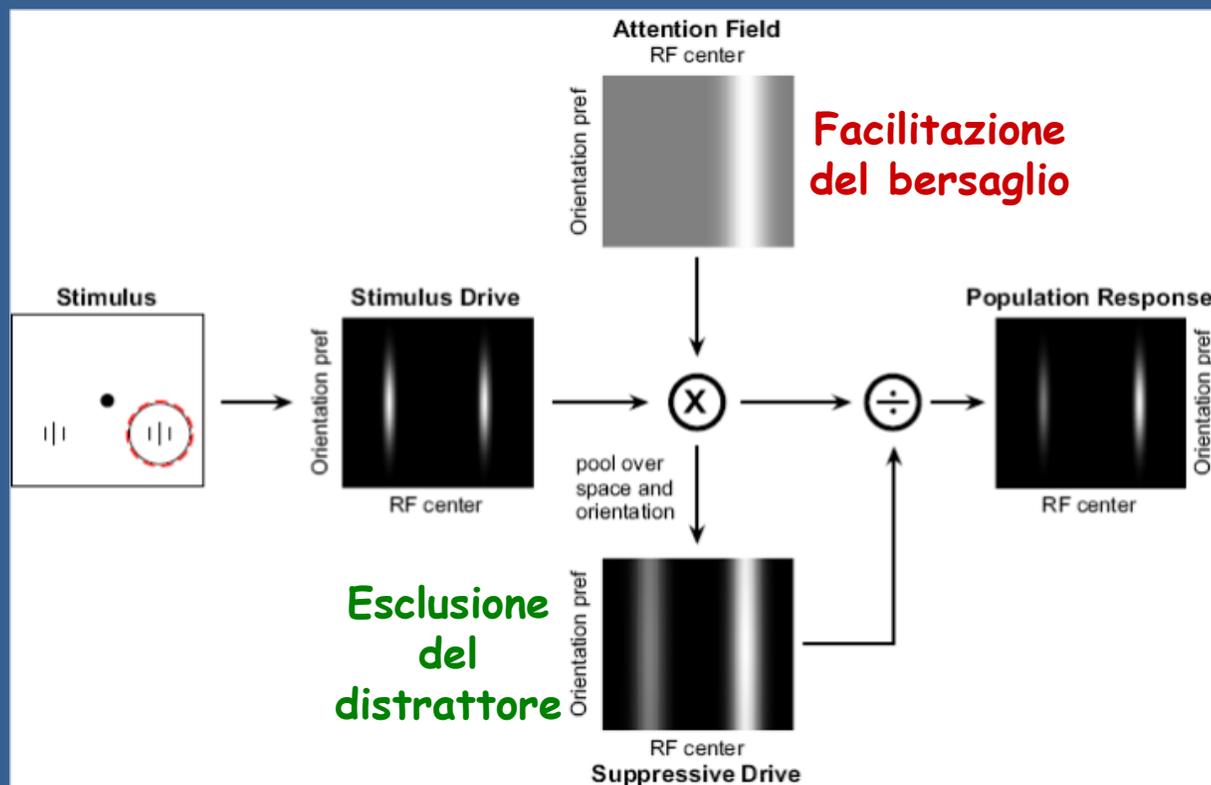
¹Salk Institute for Biological Studies, La Jolla, CA 92037-1099, USA

²Department of Psychology and Center for Neural Science, New York University, New York, NY 10003, USA

*Correspondence: reynolds@salk.edu

DOI 10.1016/j.neuron.2009.01.002

Che cos'è
l'attenzione
spaziale???



Precueing attention to the target location diminishes crowding and reduces the critical distance

Yaffa Yeshurun

Department of Psychology and Institute of Information Processing and Decision Making, University of Haifa, Haifa, Israel



Einat Rashal

Department of Psychology and Institute of Information Processing and Decision Making, University of Haifa, Haifa, Israel



C A I R U L E N I



Precueing attention to the target location diminishes crowding and reduces the critical distance

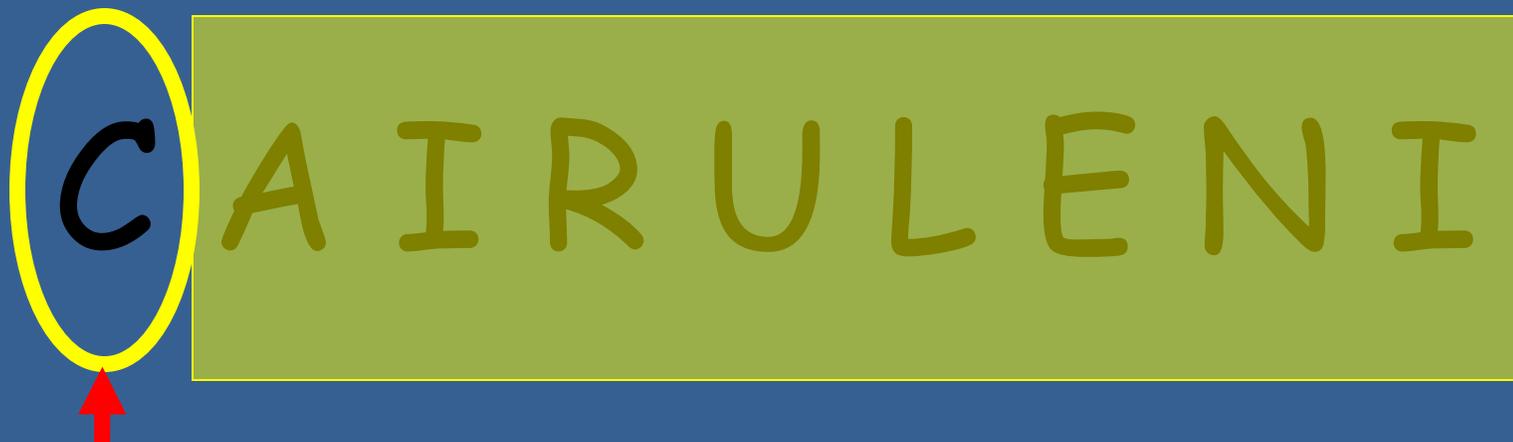
Yaffa Yeshurun

Department of Psychology and Institute of Information Processing and Decision Making, University of Haifa, Haifa, Israel



Einat Rashal

Department of Psychology and Institute of Information Processing and Decision Making, University of Haifa, Haifa, Israel



Precueing attention to the target location diminishes crowding and reduces the critical distance

Yaffa Yeshurun

Department of Psychology and Institute of Information Processing and Decision Making, University of Haifa, Haifa, Israel



Einat Rashal

Department of Psychology and Institute of Information Processing and Decision Making, University of Haifa, Haifa, Israel



Precueing attention to the target location diminishes crowding and reduces the critical distance

Yaffa Yeshurun

Department of Psychology and Institute of Information Processing and Decision Making, University of Haifa, Haifa, Israel



Einat Rashal

Department of Psychology and Institute of Information Processing and Decision Making, University of Haifa, Haifa, Israel



Precueing attention to the target location diminishes crowding and reduces the critical distance

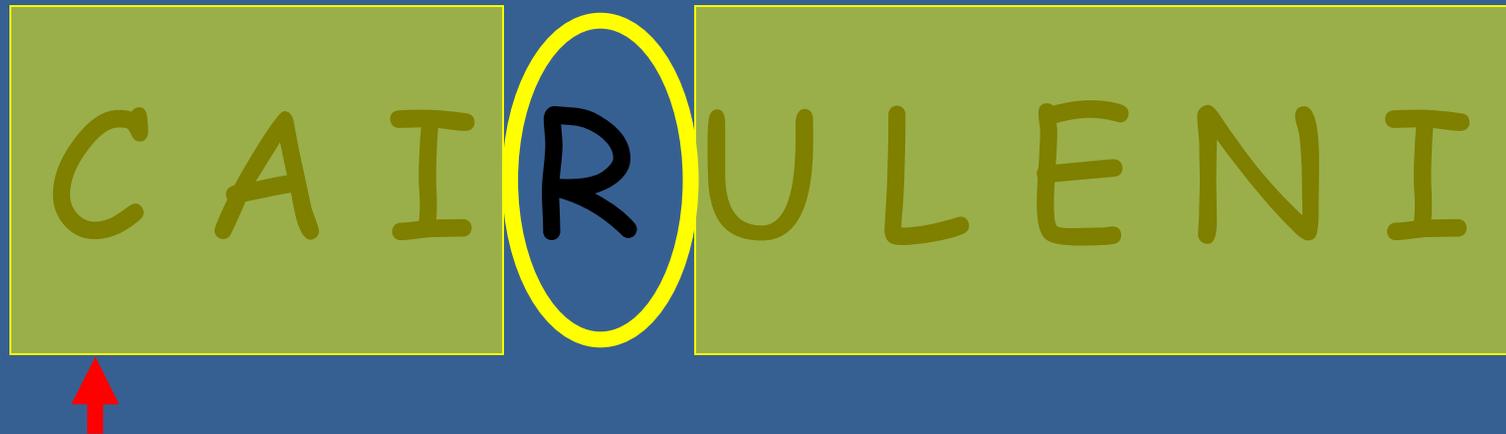
Yaffa Yeshurun

Department of Psychology and Institute of Information Processing and Decision Making, University of Haifa, Haifa, Israel



Einat Rashal

Department of Psychology and Institute of Information Processing and Decision Making, University of Haifa, Haifa, Israel



Precueing attention to the target location diminishes crowding and reduces the critical distance

Yaffa Yeshurun

Department of Psychology and Institute of Information Processing and Decision Making, University of Haifa, Haifa, Israel



Einat Rashal

Department of Psychology and Institute of Information Processing and Decision Making, University of Haifa, Haifa, Israel

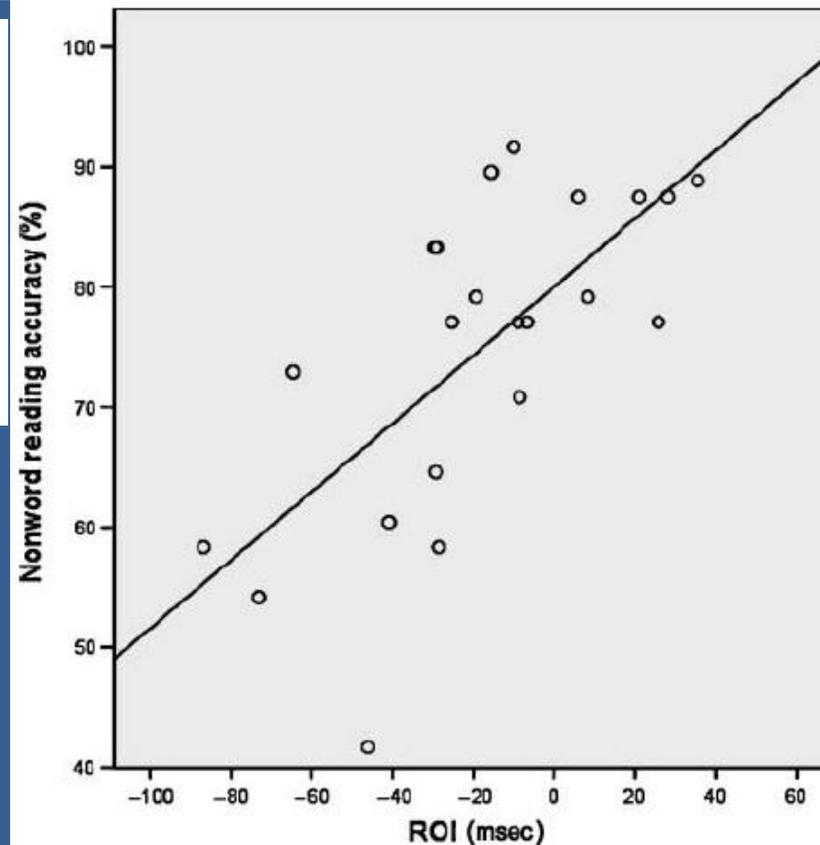
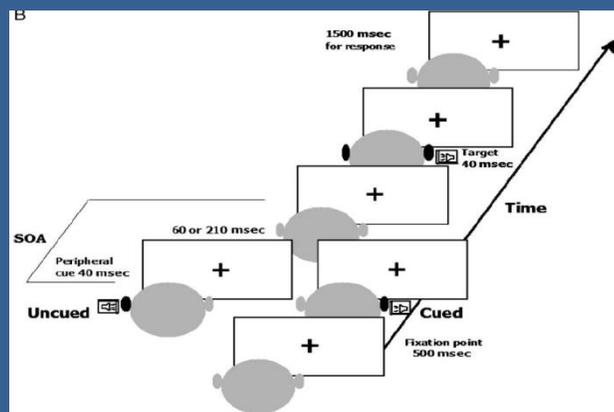
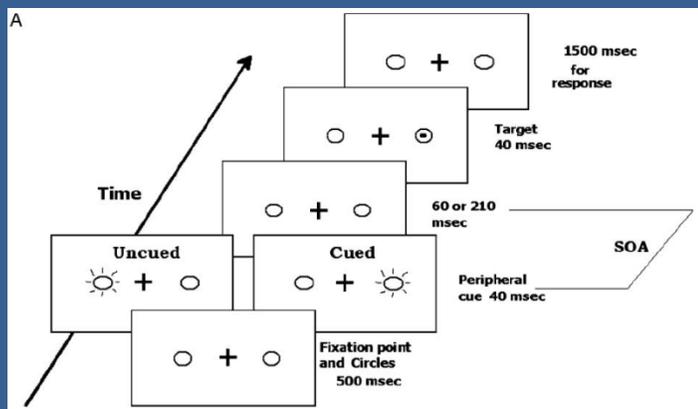


C A I B U L E N I



Multisensory Spatial Attention Deficits Are Predictive of Phonological Decoding Skills in Developmental Dyslexia

Andrea Facoetti^{1,2}, Anna Noemi Trussardi^{1,3}, Milena Ruffino^{1,2},
Maria Luisa Lorusso², Carmen Cattaneo², Raffaella Galli²,
Massimo Molteni², and Marco Zorzi¹

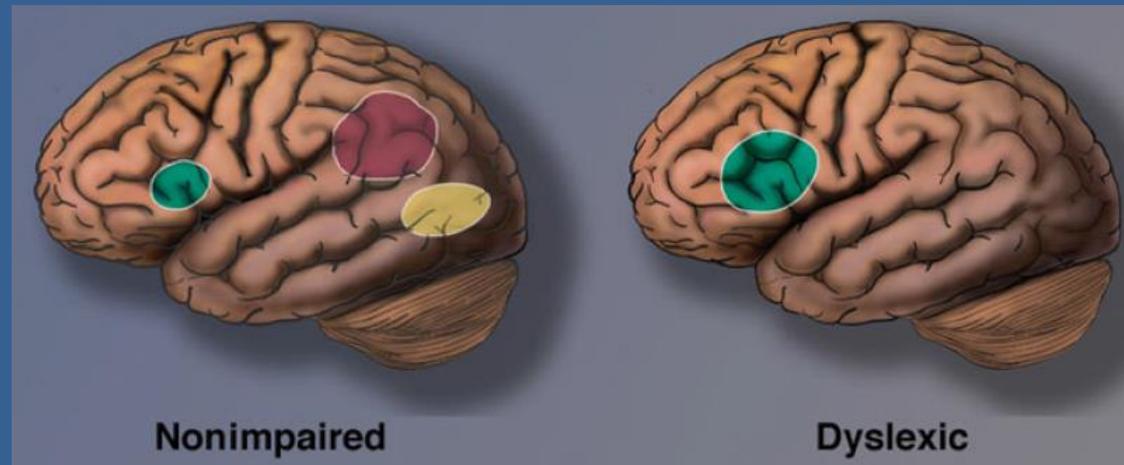


Anche i più accesi sostenitori dell'ipotesi fonologica suggeriscono che i meccanismi attenzionali siano importanti per imparare a leggere

Paying attention to reading: The neurobiology of reading and dyslexia

SALLY E. SHAYWITZ AND BENNETT A. SHAYWITZ
Yale University School of Medicine

on dyslexia. We suggest that to break through this “fluency” barrier, investigators will need to reexamine the more than 20-year-old central dogma in reading research: the generation of the phonological code from print is modular, that is, automatic and not attention demanding, and not requiring any other cognitive process. Recent findings now present a competing view: other cognitive processes are involved in reading, particularly attentional mechanisms, and that disruption of these attentional mechanisms play a causal role in reading difficulties. Recognition of the role of attentional mechanisms in reading now offer potentially new strategies for interventions in dyslexia. In particular, the use of



A Causal Link between Visual Spatial Attention and Reading Acquisition

Sandro Franceschini,^{1,3} Simone Gori,^{1,2} Milena Ruffino,²
Katia Pedrolli,¹ and Andrea Facoetti^{1,2,3,*}

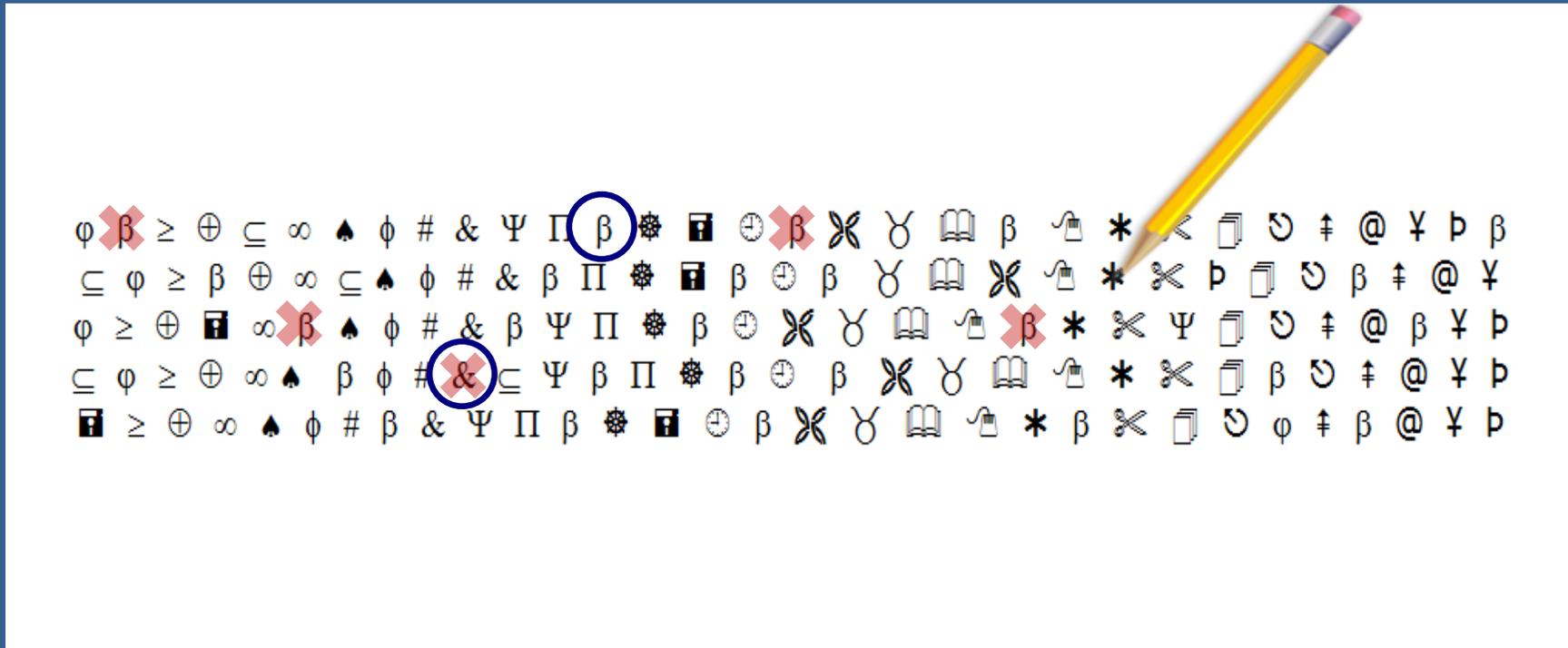
¹Developmental and Cognitive Neuroscience Lab,
Department of General Psychology, University of Padua,
Padova 35131, Italy

²Developmental Neuropsychology Unit,
Scientific Institute “E. Medea,” Bosisio Parini,
Lecco 23842, Italy

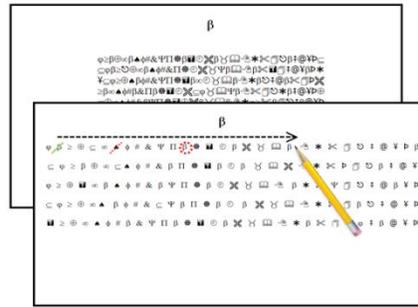
**L'efficienza dell'attenzione
visiva spaziale alla scuola
dell'infanzia predice le
future abilità di lettura in
II elementare**

Ricerca Visiva

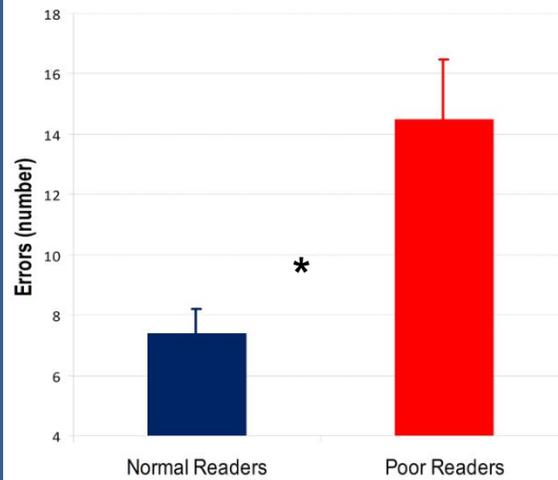
(componente visuo-attentiva di scansione e focalizzazione)



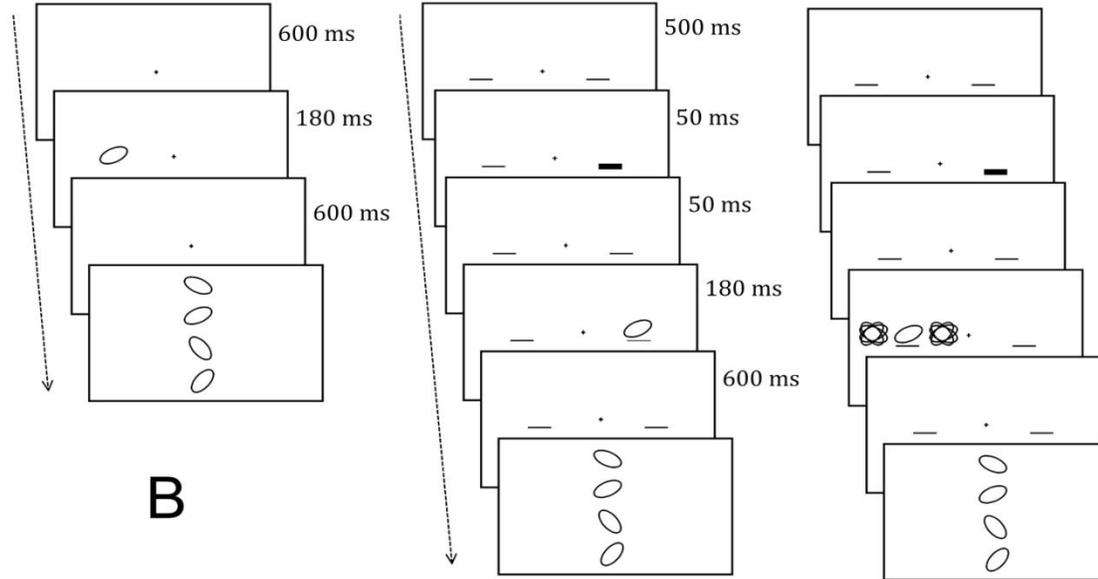
Serial Visual Search Task



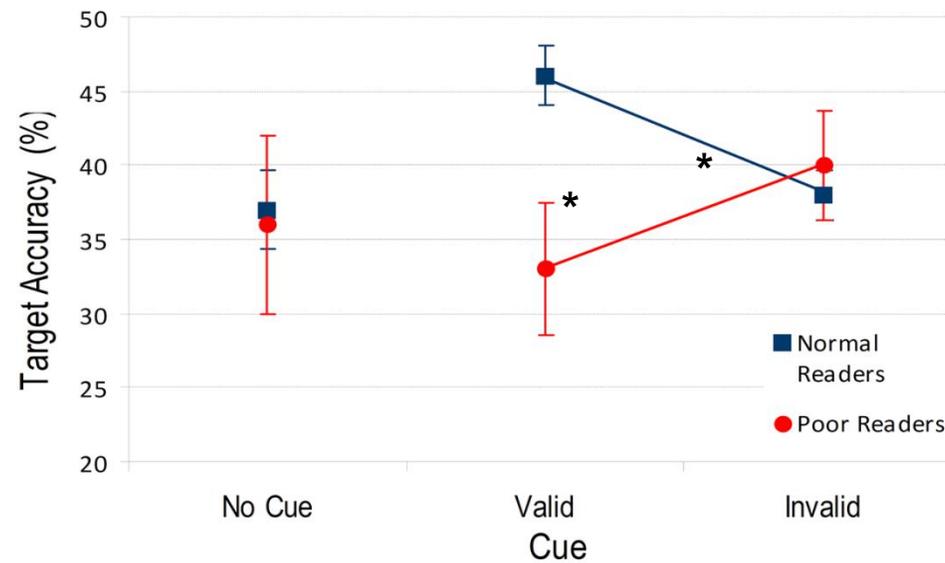
A



Spatial Cue Facilitation task



B





Contents lists available at ScienceDirect

Vision Research

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



Visual attention modulates reading acquisition

Sylviane Valdois^{a,*}, Jean-Luc Roulin^b, Marie Line Bosse^a

^a Univ. Grenoble Alpes, CNRS UMR5105, LPNC, 38000 Grenoble, France

^b Univ. Savoie Mont Blanc, CNRS, LPNC, 73000 Chambéry, France



ARTICLE INFO

Keywords:
 Reading acquisition
 Visual attention
 Longitudinal study
 Multi-element parallel processing
 Prereaders
 Models of reading

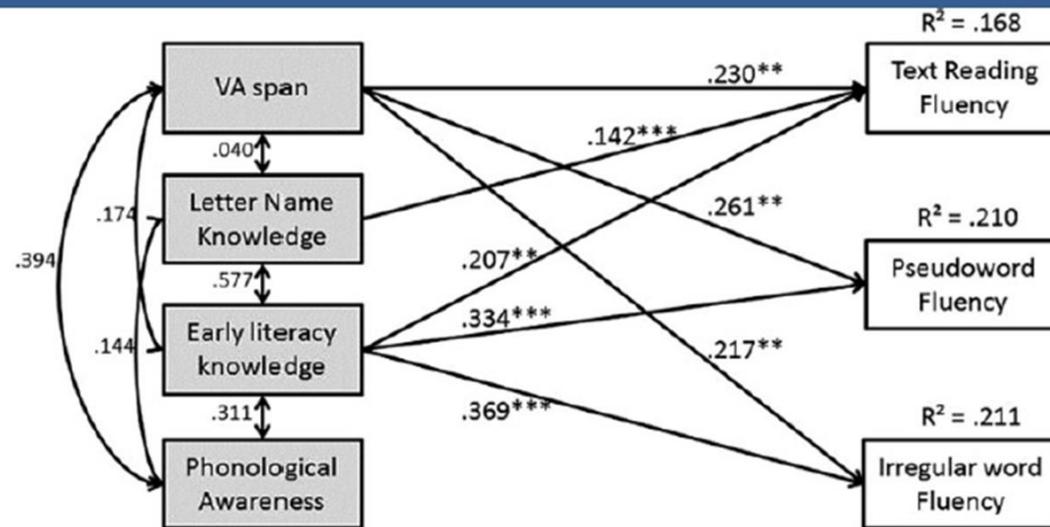


Fig. 1. Path diagram showing the longitudinal predictors of text reading, pseudo-word reading and irregular word reading fluency. Solid lines represent the statistically significant predictive relationships (standardized results). * $p < .05$; ** $p < .01$; *** $p < .001$.

3. DE = Deficit dell'attenzione spaziale (focalizzata e distribuita)

COGNITIVE NEUROPSYCHOLOGY
2021, VOL. 38, NO. 6, 387-407
<https://doi.org/10.1080/02643294.2022.2043839>



REVIEW

The role of visual-spatial attention in reading development: a meta-analysis

Lorana Gavril , Adrian Roşan and Ştefan Szamosközi

Babes-Bolyai University, Cluj-Napoca, Romania

Table 1. The results of the meta-analysis (based on 84 samples) examining the relationship between reading and visual spatial attention.

Moderator levels	K	N	Effect size		
			Hedge's g	95% CI	p
Overall effect	84	6777	-.98	[-1.08; -.88]	<.001
Moderator analysis					
<i>Type of effect size*</i>					
Group difference mean effect size	63	3914	-1.02	[-1.14; -.89]	<.001
Correlational mean effect size	21	2863	-.85	[-.95; -.75]	<.001
<i>Orthographic depth*</i>					
Opaque	47	4674	-1.03	[-1.14, -.92]	<.001
Transparent	37	2103	-.84	[-.98, -.69]	<.001
<i>Age group*</i>					
Pre-literacy	10	1400	-.66	[-.77, -.54]	<.001
Beginner	23	2279	-.88	[-1.03, -.74]	<.001
Advanced Readers	51	3098	-1.07	[-1.21, -.93]	<.001
<i>Experimental task</i>					
Visual-spatial att.	28	1598	-.81	[-.95; -.67]	<.001
VAS	38	3471	-1.06	[-1.17; -.94]	<.001

4. Alcuni tipi specifici di videogiochi (detti d'azione) migliorano l'attenzione visiva (e uditiva) in adulti a sviluppo tipico

letters to nature

Action video game modifies visual selective attention

C. Shawn Green & Daphne Bavelier

Department of Brain and Cognitive Sciences, Center for Visual Science, University of Rochester, Rochester, New York 14627, USA

nature
neuroscience

Enhancing the contrast sensitivity function through action video game training

Renjie Li¹, Uri Polat², Walter Makous¹ & Daphne Bavelier¹

BRIEF COMMUNICATIONS



ELSEVIER

Available online at www.sciencedirect.com

SCIENCE @ DIRECT®

Acta Psychologica 119 (2005) 217–230

acta
psychologica

www.elsevier.com/locate/actpsy

The effects of action video game experience on the time course of inhibition of return and the efficiency of visual search

Attention, Perception, & Psychophysics
2010, 72 (4), 1120–1129
doi:10.3758/APP.72.4.1120

Video game players show more precise multisensory temporal processing abilities

SARAH E. DONOHUE, MARTY G. WOLDORFF, AND STEPHEN R. MITROFF
Duke University, Durham, North Carolina

Experimental Psychology:
Application and Performance
2, No. 6, 1465–1478

Copyright 2006 by the American Psychological Association
0096-1523/06/\$12.00 DOI: 10.1037/0096-1523.32.6.1465

Effect of Action Video Games on the Spatial Distribution of Visuospatial Attention

C. Shawn Green and Daphne Bavelier
University of Rochester

Focus Article

Stretching the limits of visual attention: the case of action video games

CURRENT DIRECTIONS IN PSYCHOLOGICAL SCIENCE

Increasing Speed of Processing With Action Video Games

Matthew W.G. Dye, C. Shawn Green, and Daphne Bavelier

Department of Brain and Cognitive Sciences, University of Rochester

Acta Psychologica 129 (2008) 387–398

Contents lists available at ScienceDirect

Acta Psychologica

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



The effects of video game playing on attention, memory, and executive control

Walter R. Boot*, Arthur F. Kramer, Daniel J. Simons, Monica Fabiani, Gabriele Gratton

Current Biology 20, 1573–1579, September 14, 2010 ©2010 Elsevier Ltd All rights reserved DOI 10.1016/j.cub.2010.07.040

Improved Probabilistic Inference as a General Learning Mechanism with Action Video Games

Report

4. Video giochi d'azione (VGA) = la palestra ottimale per allenare l'attenzione

Neuron
Review

CellPress

Enhancing Attentional Control: Lessons from Action Video Games

Daphne Bavelier^{1,2,*} and C. Shawn Green³

¹FPSE, University of Geneva, Geneva, Switzerland

²Brain and Learning Lab, Campus Biotech, Geneva, Switzerland

³Department of Psychology, University of Wisconsin-Madison, Madison, WI, USA

*Correspondence: daphne.bavelier@unige.ch

<https://doi.org/10.1016/j.neuron.2019.09.031>

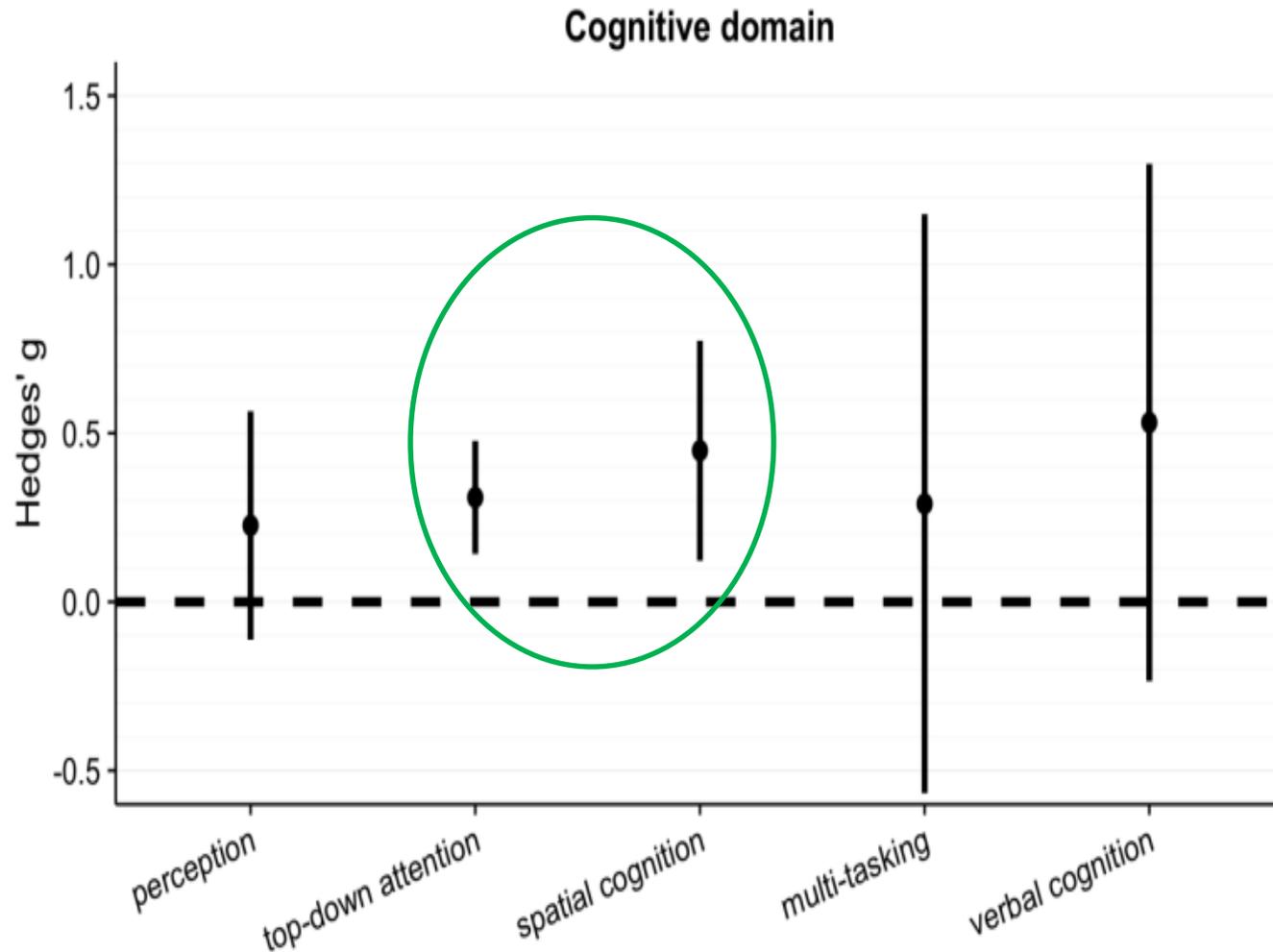
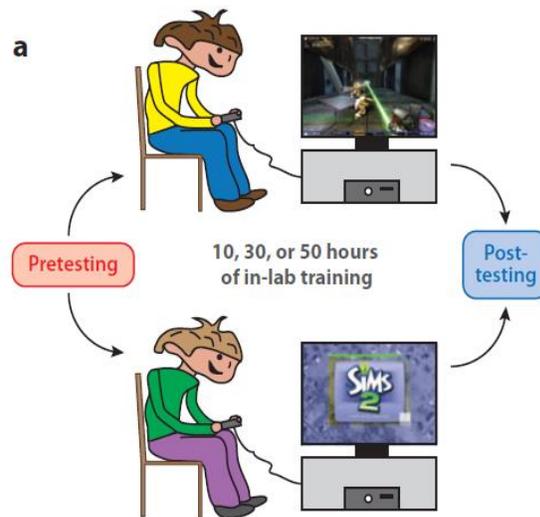


Psychological Bulletin

Manuscript version of

Meta-Analysis of Action Video Game Impact on Perceptual, Attentional, and Cognitive Skills

Benoit Bediou, Deanne M. Adams, Richard E. Mayer, Elizabeth Tipton, C. Shawn Green, Daphne Bavelier



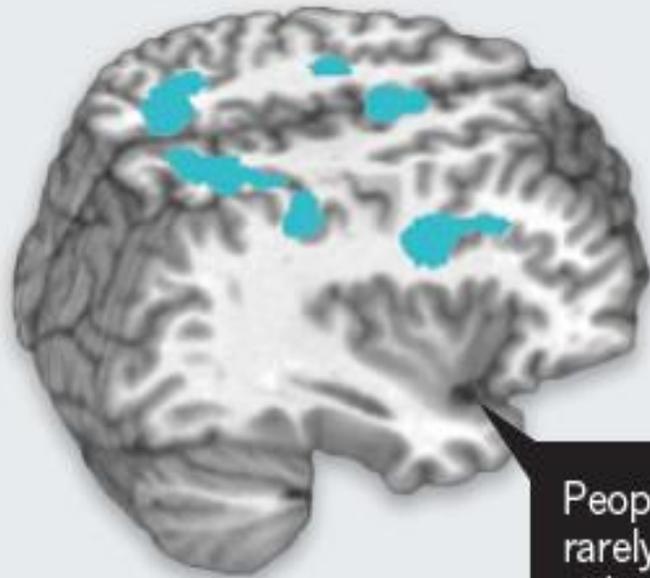
COMMENT

ADAPTED FROM D. BAVELIER ET AL.
VIS. RES. 61, 132-143 (2012)/ELSEVIER.

BRAIN GAME

When searching for a particular object in a sea of shapes, people who played video games regularly showed less activation of the brain regions linked to attention, a sign that their brains were performing the task more efficiently.

● Brain networks associated with attention



People who rarely played video games



People who played at least 5 hours of action video games per week

5. VGA come terapia per la DE

AVG

NAVG

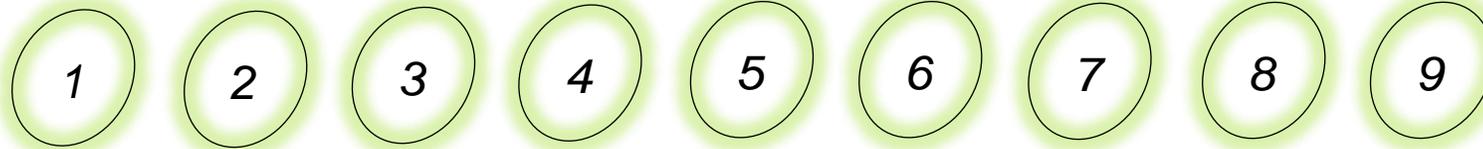
Valutazione pre-
trattamento
T1



0



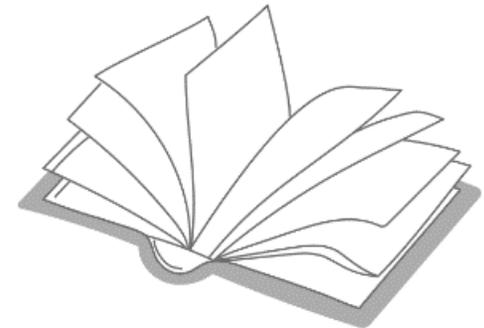
Valutazione
post-trattamento
T2



9 giorni – 40+40 minuti al giorno



5.1 Effetti sulla lettura

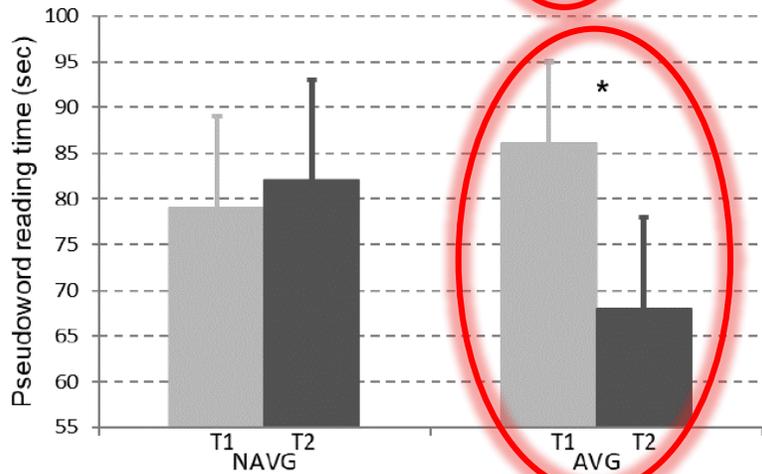
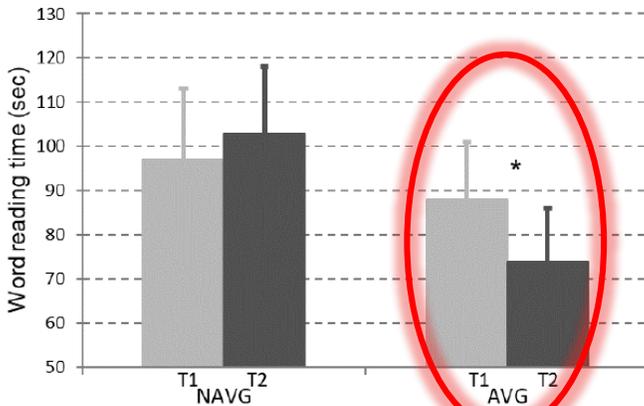


SCIENTIFIC REPORTS

OPEN Action video games improve reading abilities and visual-to-auditory attentional shifting in English-speaking children with dyslexia

125 January 2017
12 June 2017
19 July 2017

Sandro Franceschini^{1,2}, Piergiorgio Trevisan¹, Luca Ronconi^{1,2,3,4}, Sara Bertoni¹, Susan Colmar¹, Kit Double¹, Andrea Facoetti^{1,2} & Simone Gori^{1,2}

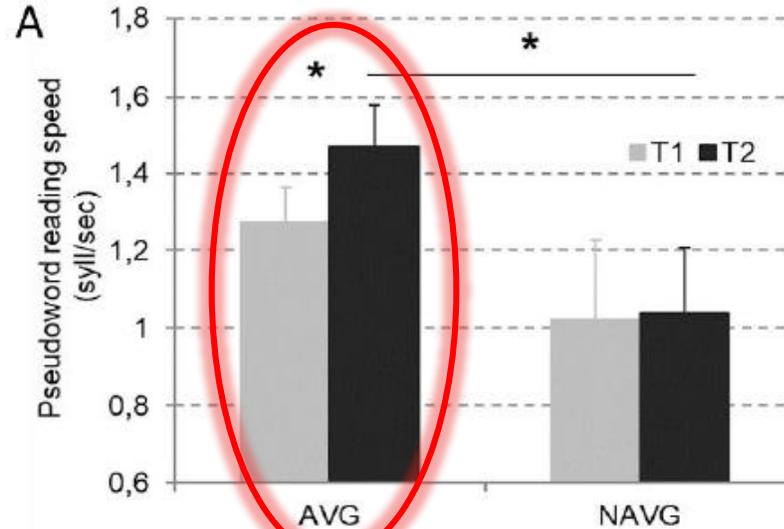


Neuropsychologia
Volume 130, July 2019, Pages 107-117



Is excessive visual crowding causally linked to developmental dyslexia?

Sara Bertoni^{1,2,3}, Sandro Franceschini^{1,2,3}, Luca Ronconi^{1,2,3}, Simone Gori^{1,2}, Andrea Facoetti^{1,2,3}



Current Biology

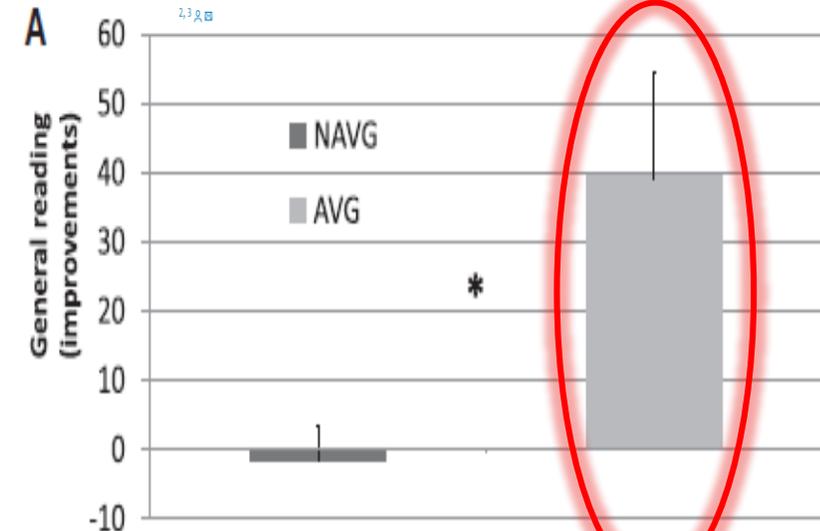


Volume 23, Issue 6, 18 March 2013, Pages 462-466

Report

Action Video Games Make Dyslexic Children Read Better

Sandro Franceschini^{1,2}, Simone Gori^{1,2,3}, Milena Ruffino², Simona Viola¹, Massimo Molteni², Andrea Facoetti^{1,2,3}



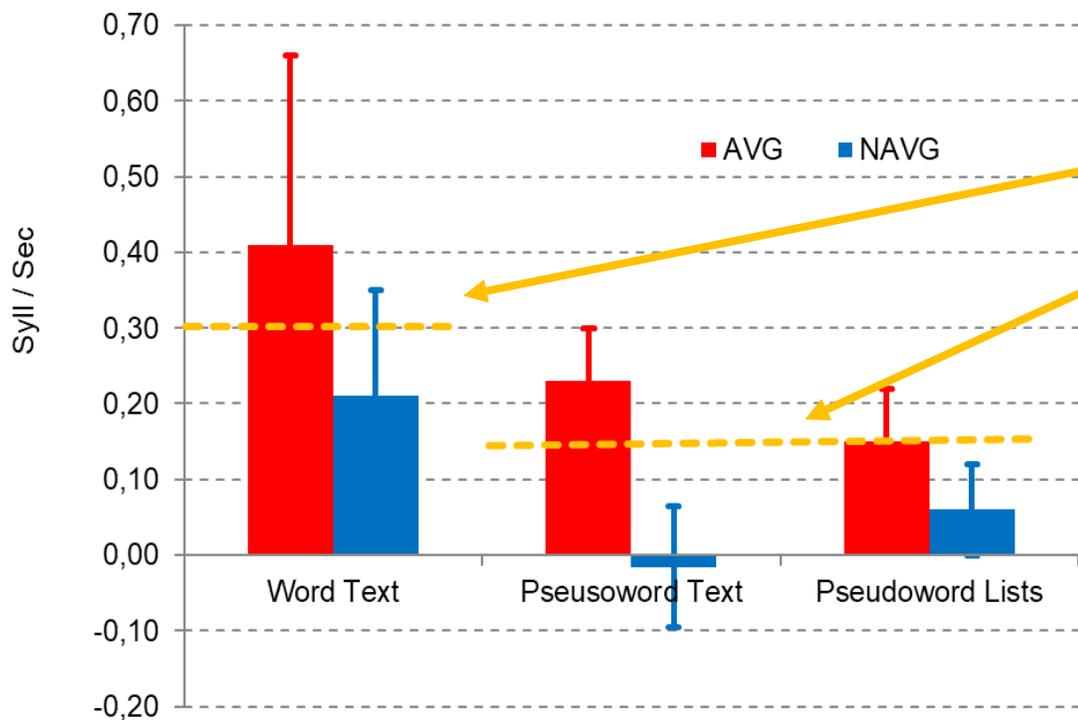
Effetti sulla velocità di lettura vs. sviluppo spontaneo

SCIENTIFIC REPORTS

OPEN A different vision of dyslexia: Local precedence on global perception

Sandro Franceschini^{1,2}, Sara Bertoni¹, Tiziana Giancesini³, Simone Gori^{2,4} & Andrea Facoetti^{1,2}

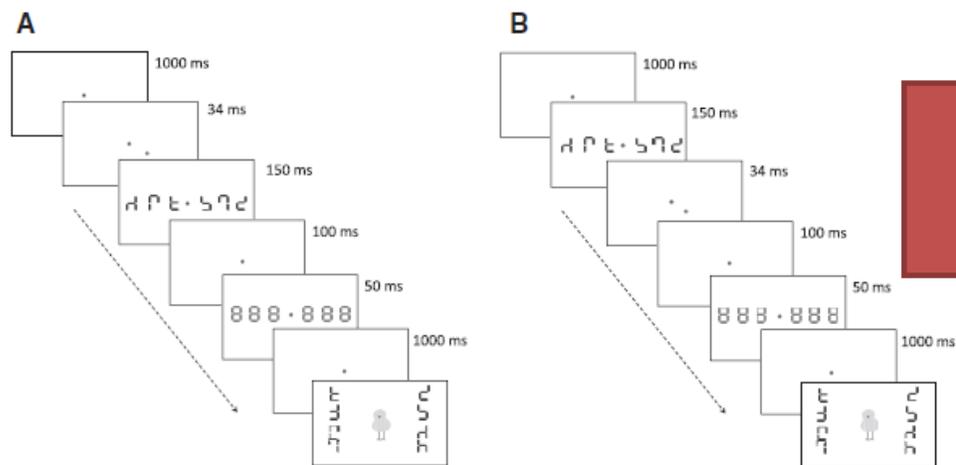
Reading Improvements



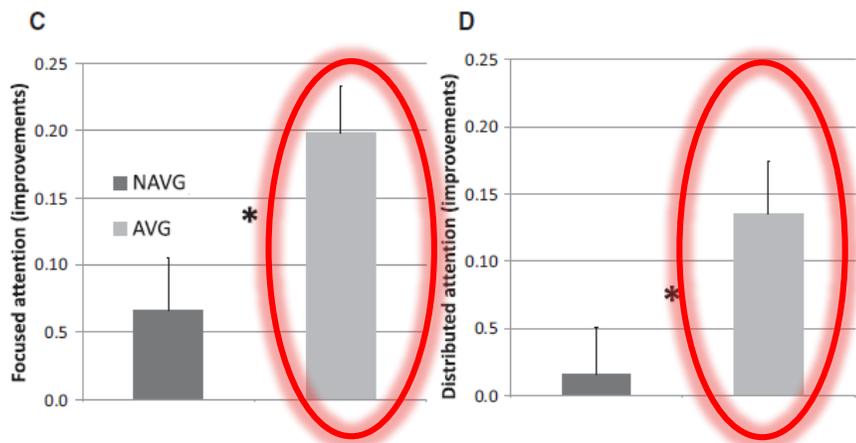
Sviluppo della velocità di lettura in un anno



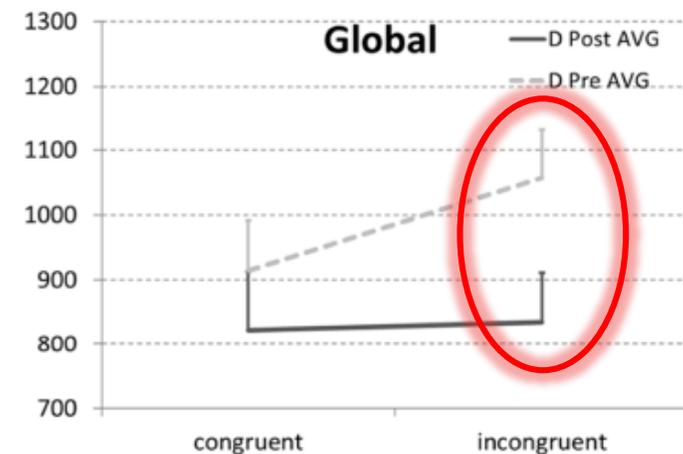
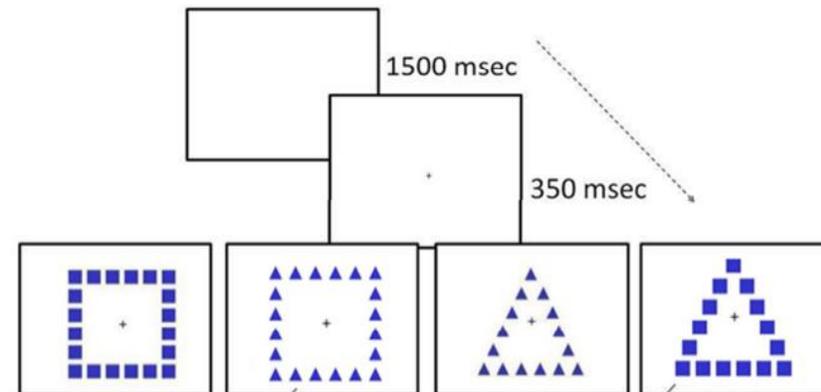
5.2.1 Effetti sull'attenzione



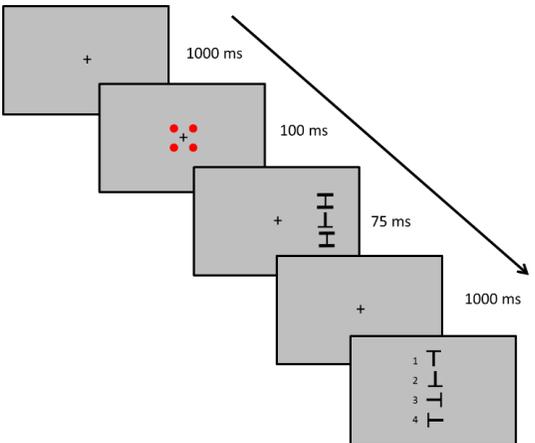
ATTENZIONE FOCALIZZATA E DISTRIBUITA



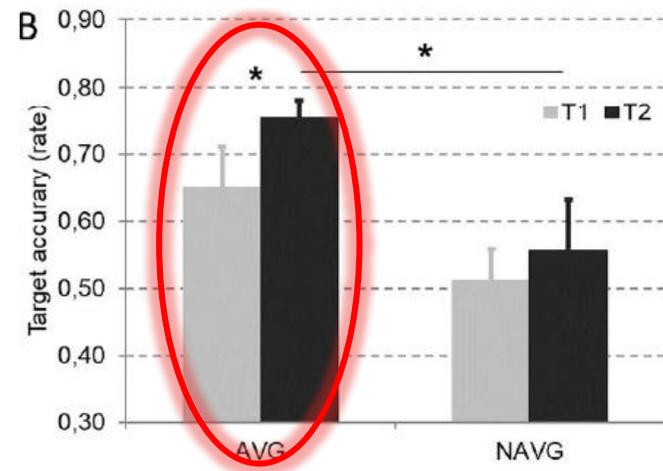
PERCEZIONE GLOBALE



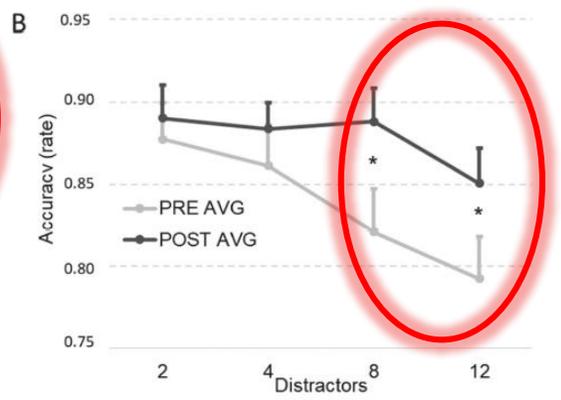
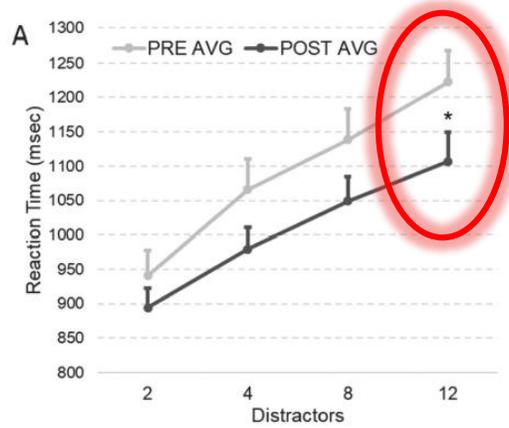
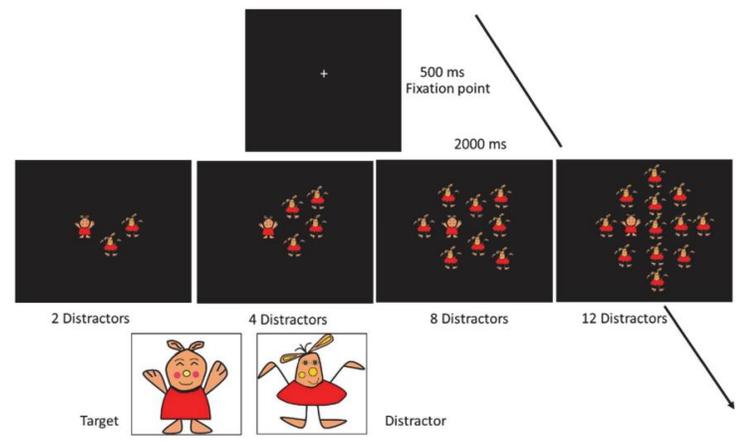
5.2.2 Effetti sull'attenzione



AFFOLLAMENTO VISIVO

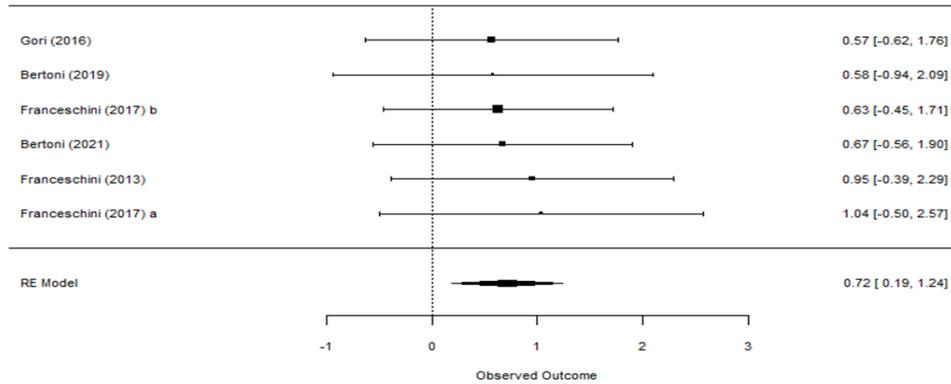


RICERCA VISIVA

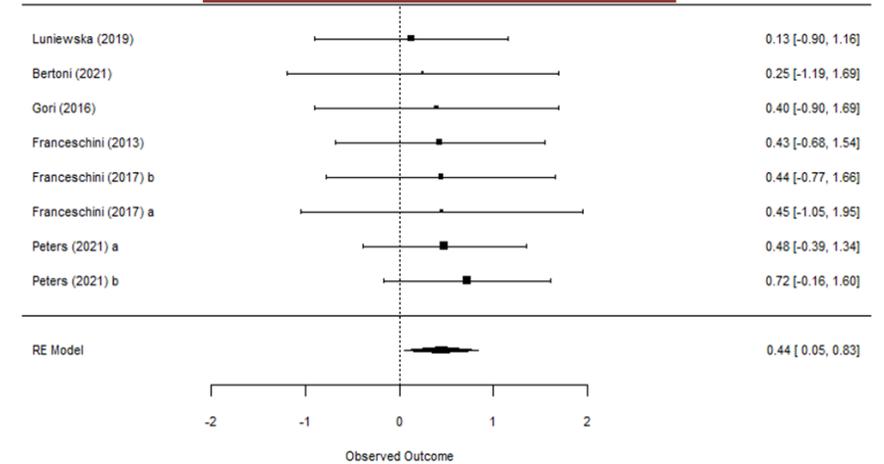


5.3 Meta-analisi n= 224

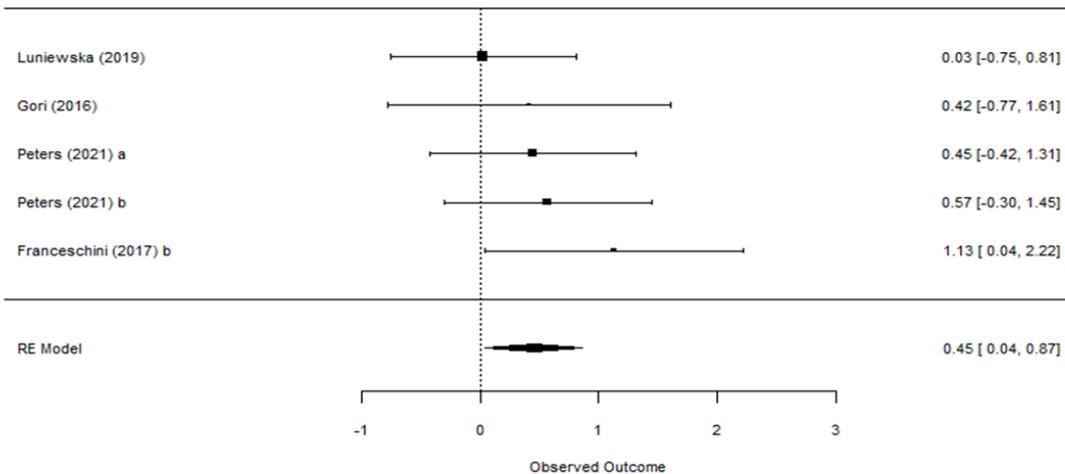
Attenzione visiva



Velocità di lettura



Abilità FONOLOGICHE



	Effect Size	Z	p-value
Visual Attention	0.72	2.67	0.008
Reading Speed	0.44	2.21	0.03
Phonological Skills	0.45	2.14	0.03
Cross-Modal Abilities	0.41	2.28	0.02

5.4 Effetti sulla FONOLOGIA

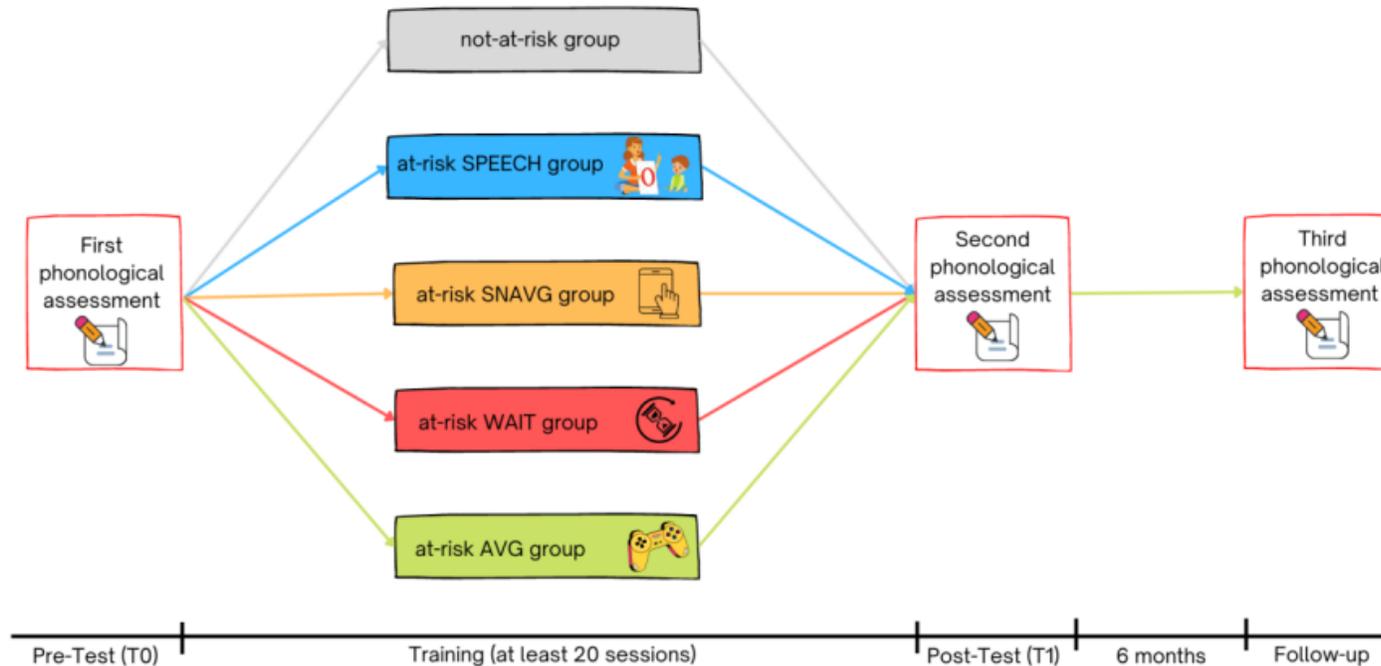
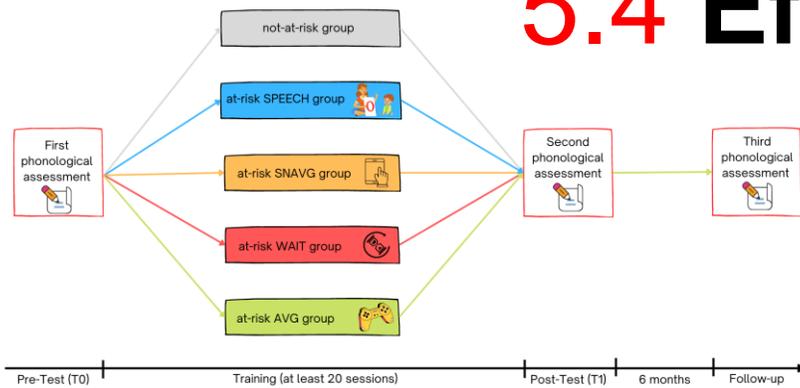


Figure 1: Representation of the timeline of the prevention study.

Not-at-risk group included pre-readers with average scores in all the phonological tasks (i.e., phonemic awareness, phonological working memory and access to phonological representations). At-risk groups included pre-readers who had at least -1.00 SD below the mean in at least one of the phonological tasks (i.e., phonemic awareness, phonological working memory, or access to phonological representations).

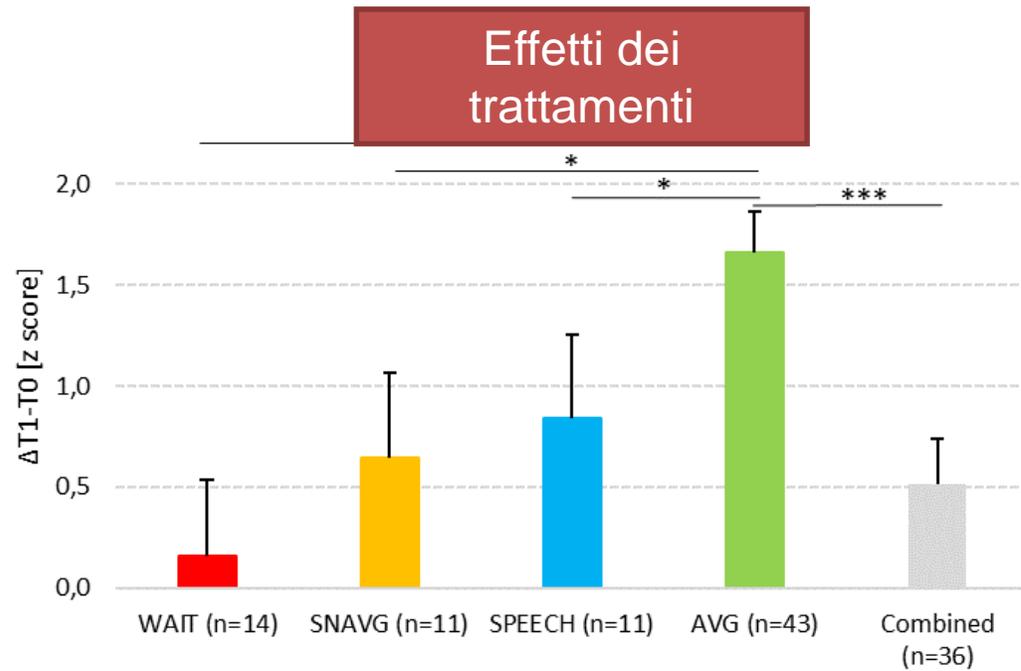
WAIT=waiting list; SNAVG=Serious Non-Action Video Game; SPEECH=speech therapy (treatment-as-usual); AVG=Action Video game.

5.4 Effetti sulla FONOLOGIA

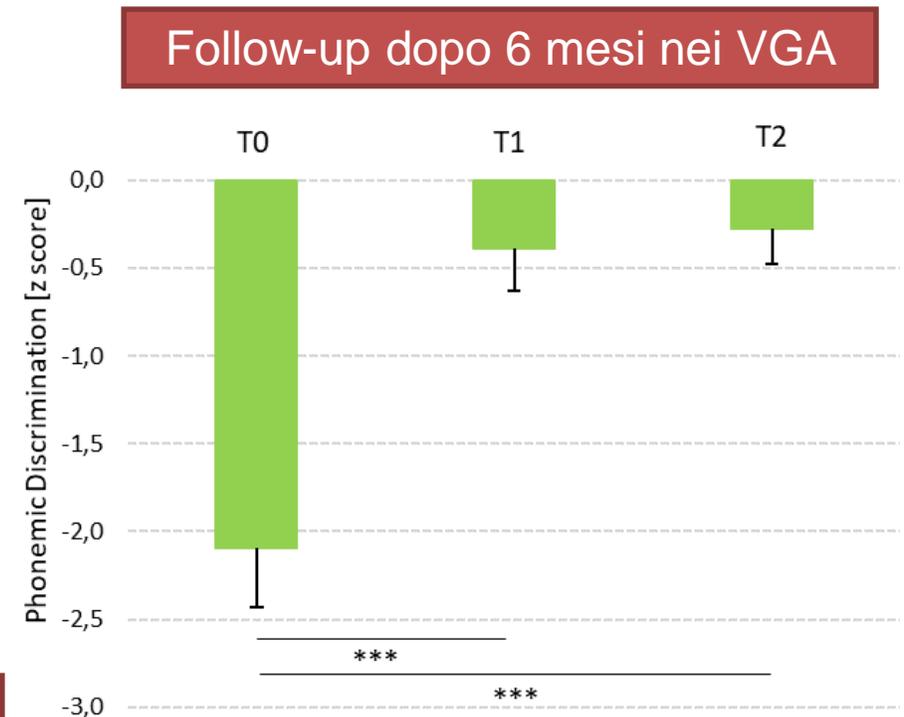


Action video games normalise the phonemic awareness in pre-readers at-risk for developmental dyslexia

Sara Bertoni^{1,2*}, Chiara Andreola^{3*}, Sara Mascheretti^{4*}, Sandro Franceschini², Milena Ruffino⁵, Vittoria Trezzi⁶, Massimo Molteni⁶, Maria Enrica Sali⁶, Antonio Salandi⁶, Ombretta Gaggi⁷, Claudio Palazzi⁷, Simone Gori¹, Andrea Facchetti²



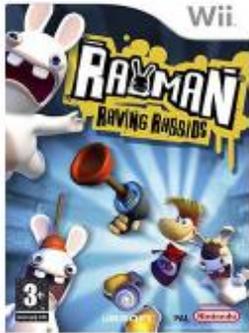
CONSAPEVOLEZZA FONEMICA



5.5 Effetti degli AVG in bambini con discalculia

Children with Dyscalculia = "Action" training (n=20).

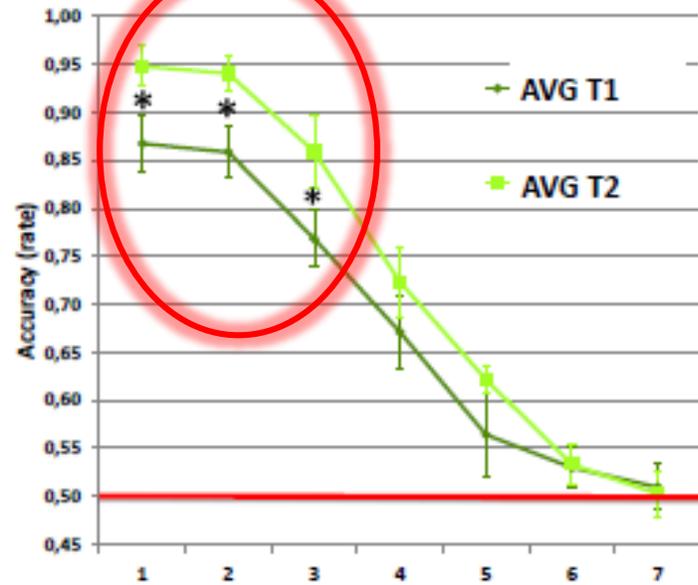
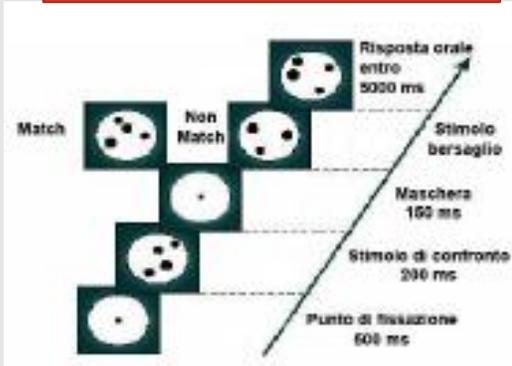
Children with Dyscalculia = "Non Action" training (n=13).



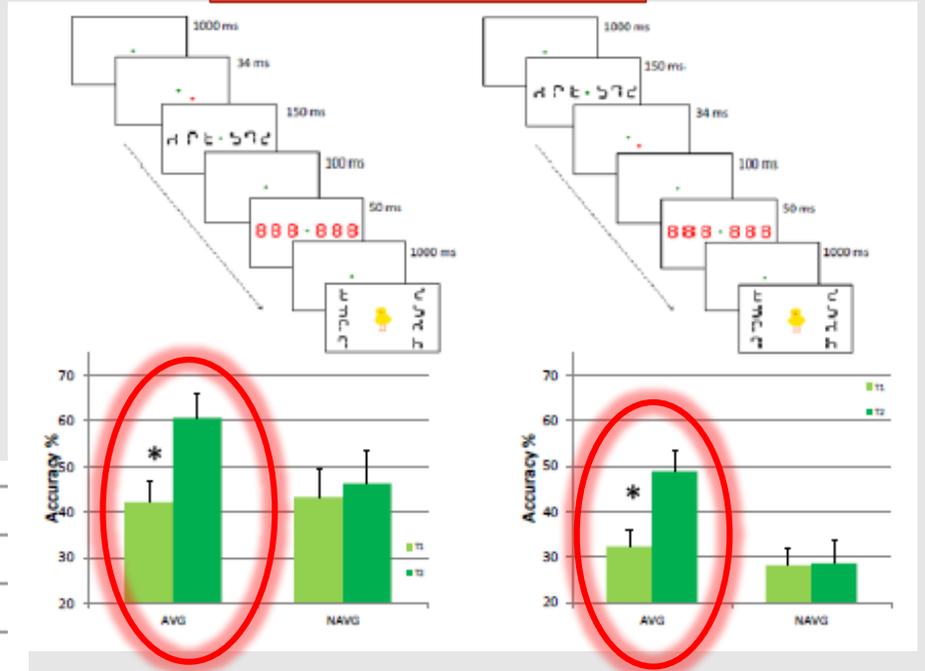
School grade	AVG= 4.55 (1.23) NAV/G= 4.23 (1.09)
Age (months)	AVG= 128.56 (19.85) NAV/G= 123.93 (11.83)



STIMA DI PICCOLE QUANTITÀ

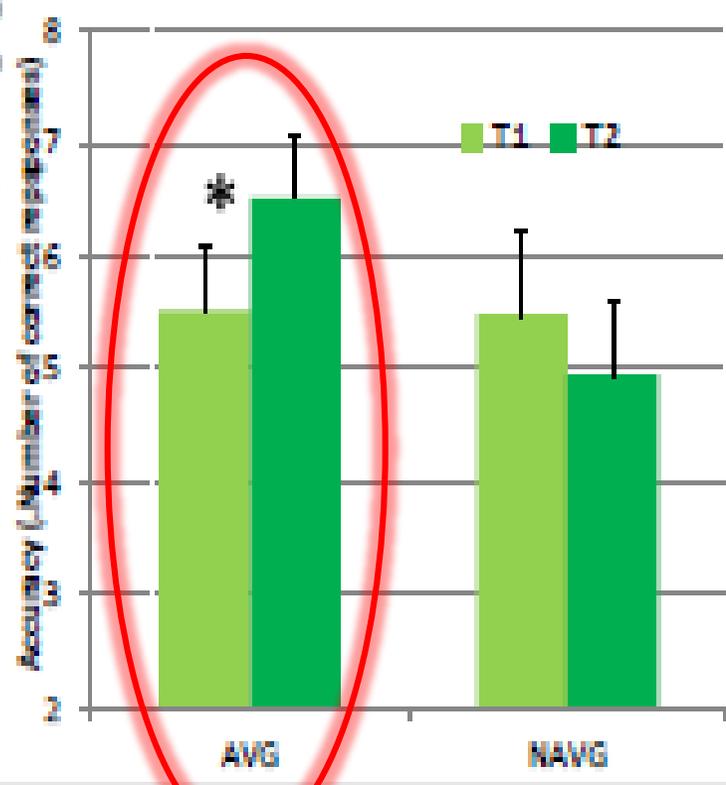


SPAN ATTENTIVO



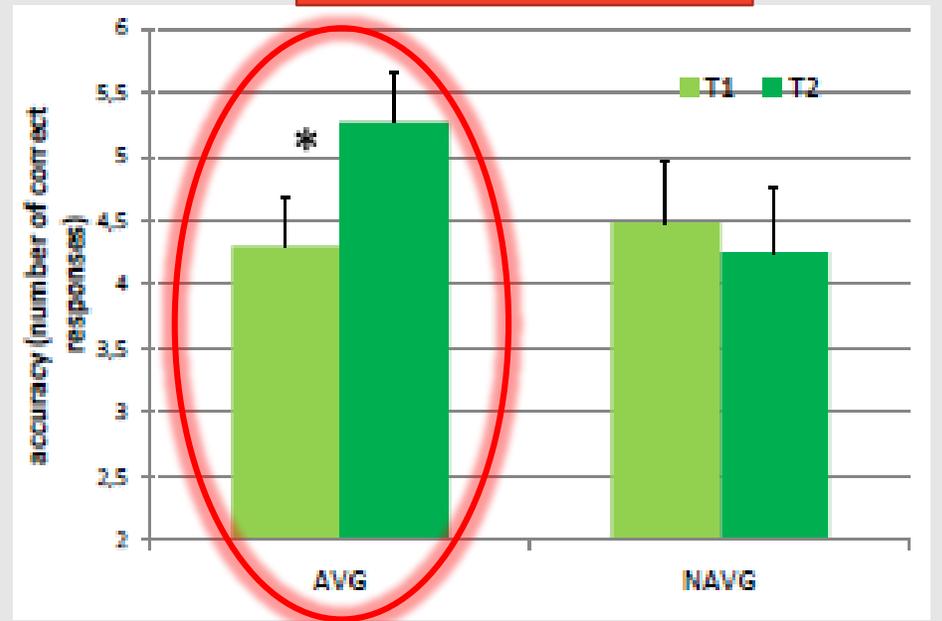
4+3 ____ (7) 9+4 ____ (13) 1+0 ____ (10)
 6+1 ____ (7) 1+0 ____ (1) 2+4 ____ (6)
 5+3 ____ (8) 7+2 ____ (9) 1+5 ____ (3)
 9+8 ____ (17) 6+3 ____ (9) 1+1 ____ (2)

ADDIZIONI E SOTTRAZIONI



23+4 ____ (27) 16+5 ____ (21) 37+0 ____ (37)
 26+14 ____ (40) 34+5 ____ (39) 32+6 ____ (38)
 41+7 ____ (48) 30+12 ____ (42) 44+7 ____ (51)
 70+10 ____ (80)

FATTI ARITMETICI





Enhancing reading skills through a video game mixing action mechanics and cognitive training

Angela Pasqualotto ^{1,2} , Irene Altarelli ³, Antonella De Angeli^{4,5}, Zeno Menestrina ⁴,
Daphne Bavelier ^{2,6}  and Paola Venuti ^{1,6}

scientific reports

5.5 Studi di replica

I nostri risultati sono stati replicati sia in bambini australiani con dislessia sia in bambini italiani con sviluppo tipico

OPEN

Action video game training improves text reading accuracy, rate and comprehension in children with dyslexia: a randomized controlled trial

Jessica L. Peters¹ , Sheila G. Crewther¹, Melanie J. Murphy¹ & Edith L. Bavin^{1,2}



5.6 AVG anche per curare l'ADHD

THE LANCET
Digital Health

ARTICLES | VOLUME 2, ISSUE 4, E168-E178, APRIL 01, 2020

A novel digital intervention for actively reducing severity of paediatric ADHD (STARS-ADHD): a randomised controlled trial

Prof Scott H Kollins, PhD   • Denton J DeLoss, PhD • Elena Cañadas, PhD • Jacqueline Lutz, PhD •

Prof Robert L Findling, MD • Prof Richard S E Keefe, PhD • et al. [Show all authors](#)

[Open Access](#) • Published: February 24, 2020 • DOI: [https://doi.org/10.1016/S2589-7500\(20\)30017-0](https://doi.org/10.1016/S2589-7500(20)30017-0)



The game-changing ADHD treatment

EndeavorRx is the first & only doctor-prescribed video game treatment for kids with ADHD.



Effetti a **breve termine** dei video giochi in bambini con sviluppo atipico (Dislessia + Disturbo della coordinazione)

Journal of Cognitive Enhancement

<https://doi.org/10.1007/s41465-021-00220-9>

ORIGINAL RESEARCH



Short-Term Effects of Video-Games on Cognitive Enhancement: the Role of Positive Emotions

Sandro Franceschini^{1,2}  · Sara Bertoni^{1,3} · Matteo Lulli⁴ · Telmo Pievani⁵ · Andrea Facoetti¹ 



Received: 27 January 2021 / Accepted: 7 June 2021

© The Author(s) 2021

7 giorni

7 giorni

T1
Prima
Valutazione



60 min
videogame

T2 Seconda
Valutazione



60 min
videogame

T3 Terza
Valutazione



Questionario a nove punti sulle emozioni vissute indotte dal gioco 1 e dal gioco 2.



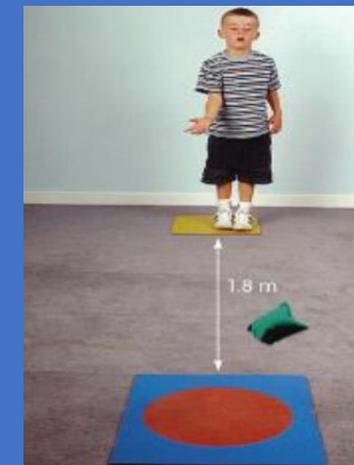
Infinare piolini



Prendere al volo la palla



Stare su una gamba



Fare canestro

Liste di
Parole

Liste di
parole
nuove

Testo di
parole nuove

7 giorni

7 giorni

T1
Prima
Valutazione

60 min
videogame

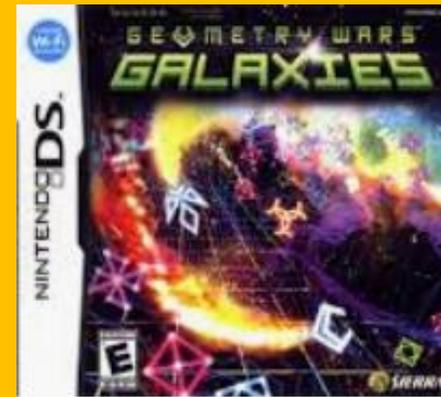
T2 Seconda
Valutazione

60 min
videogame

T3 Terza
Valutazione



Non Action
videogame
Bust A move



Action videogame
Geometry Wars:
Galaxies

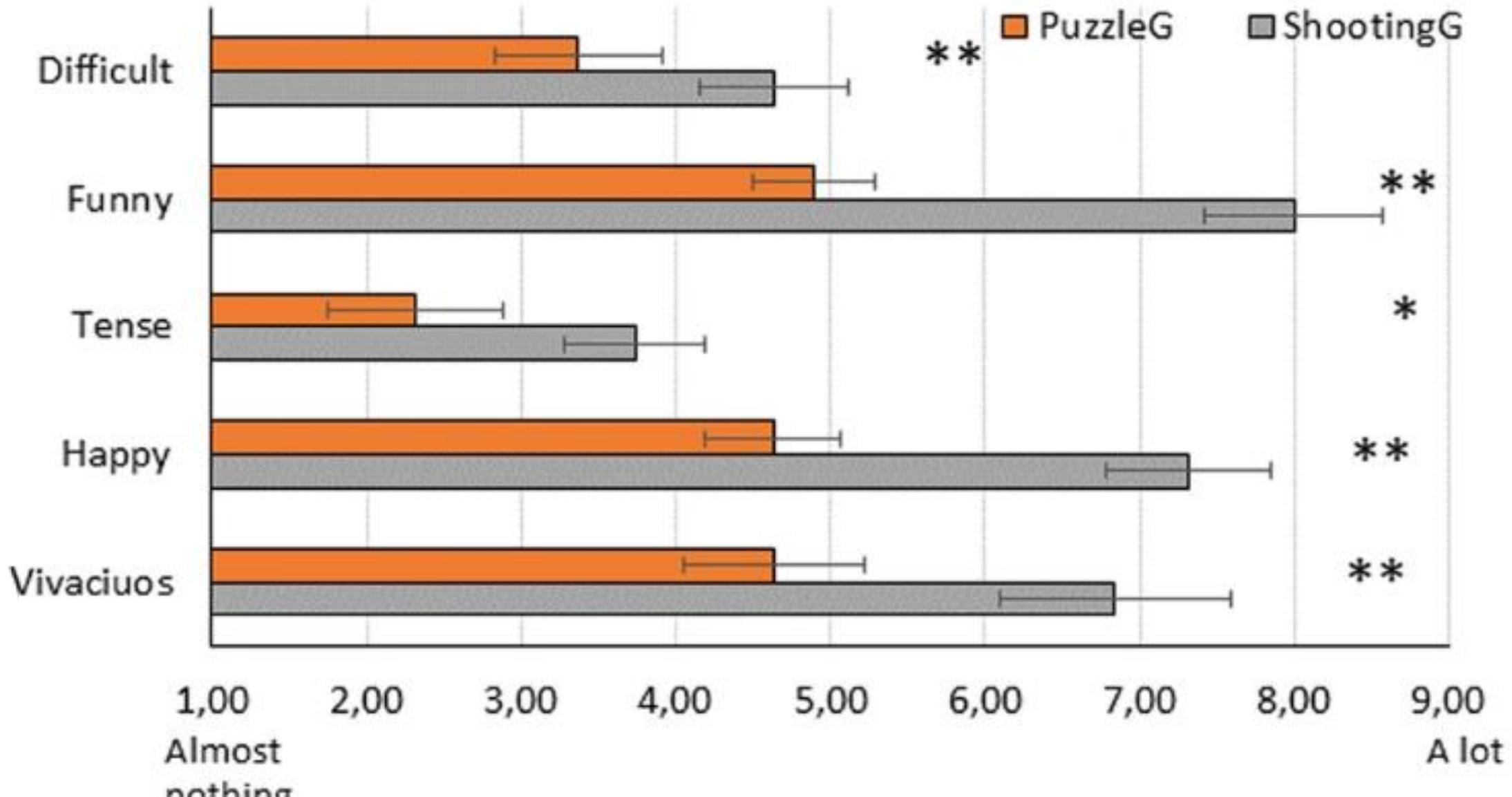


A Experiment 1: Children with DCD and DD

PuzzleG



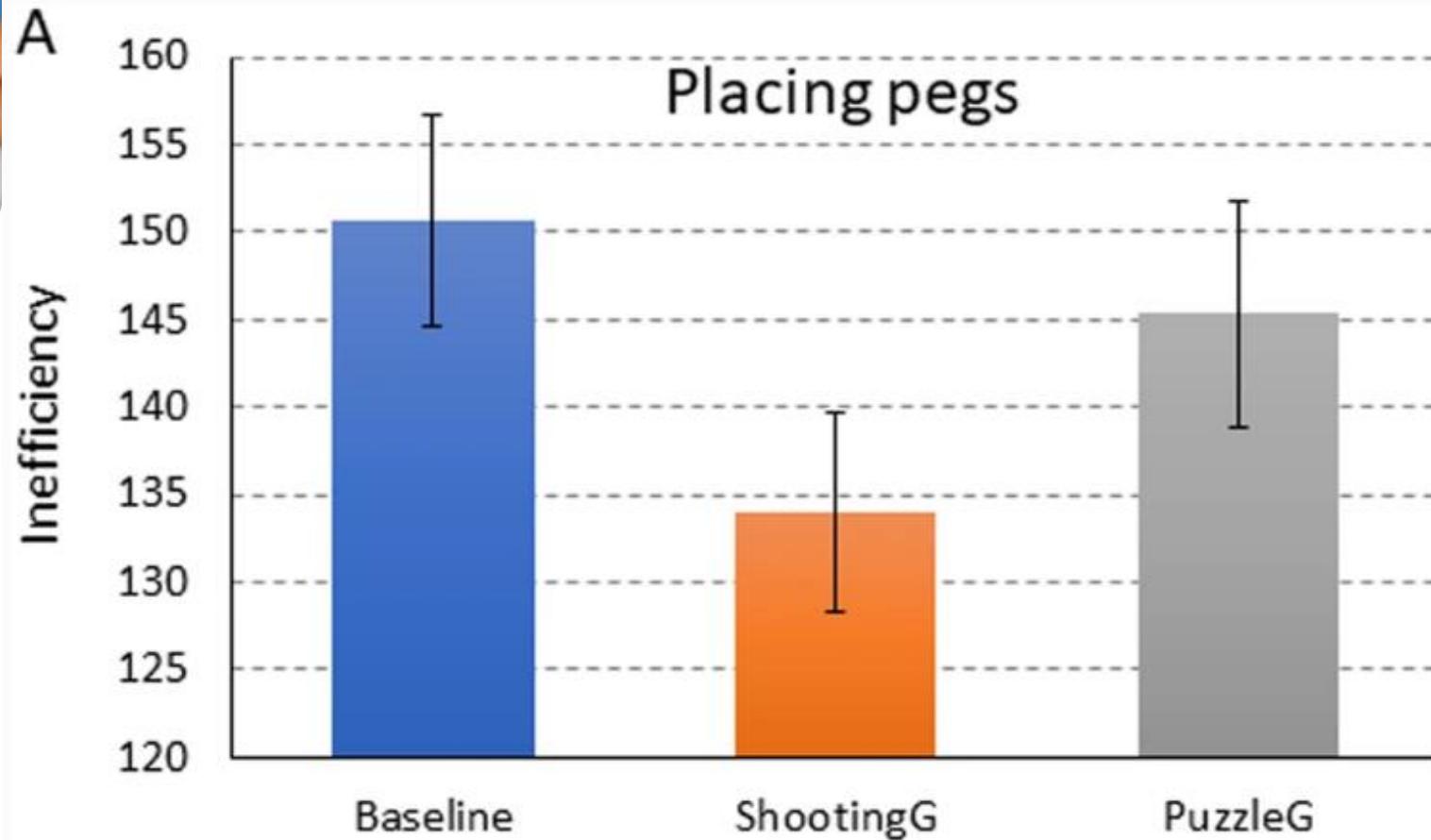
ShootingG





INFILARE PIOLINI NELLE FESSURE

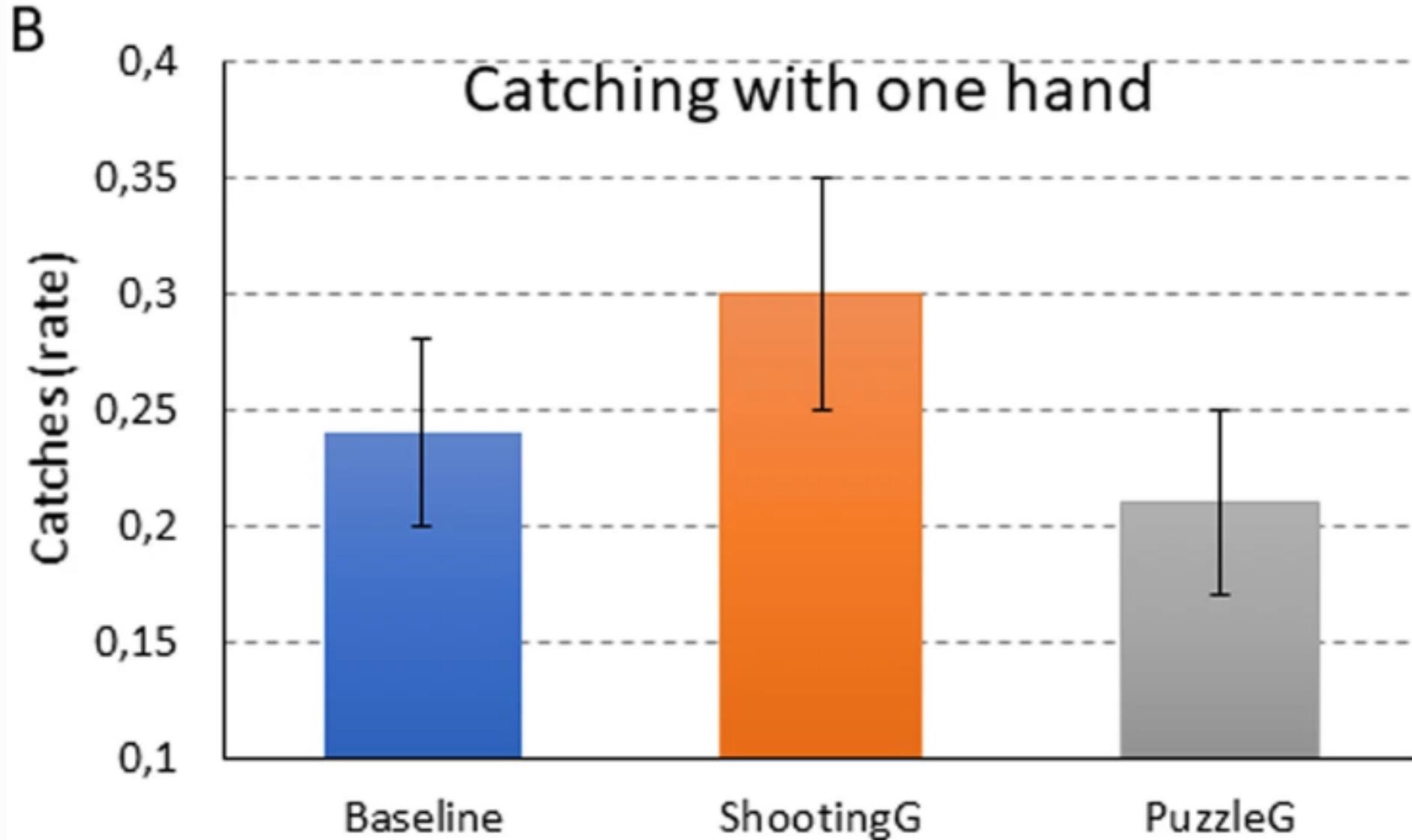
$d=.762$



15/19 dei bambini migliorano le performance

PRENDERE LA PALLA AL VOLO

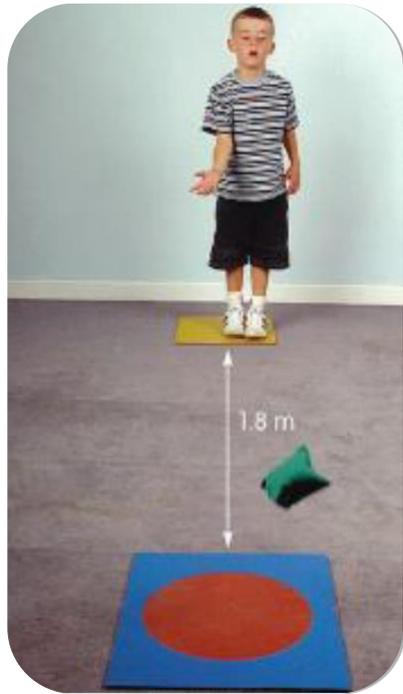
Cohen's $d=1.148$,



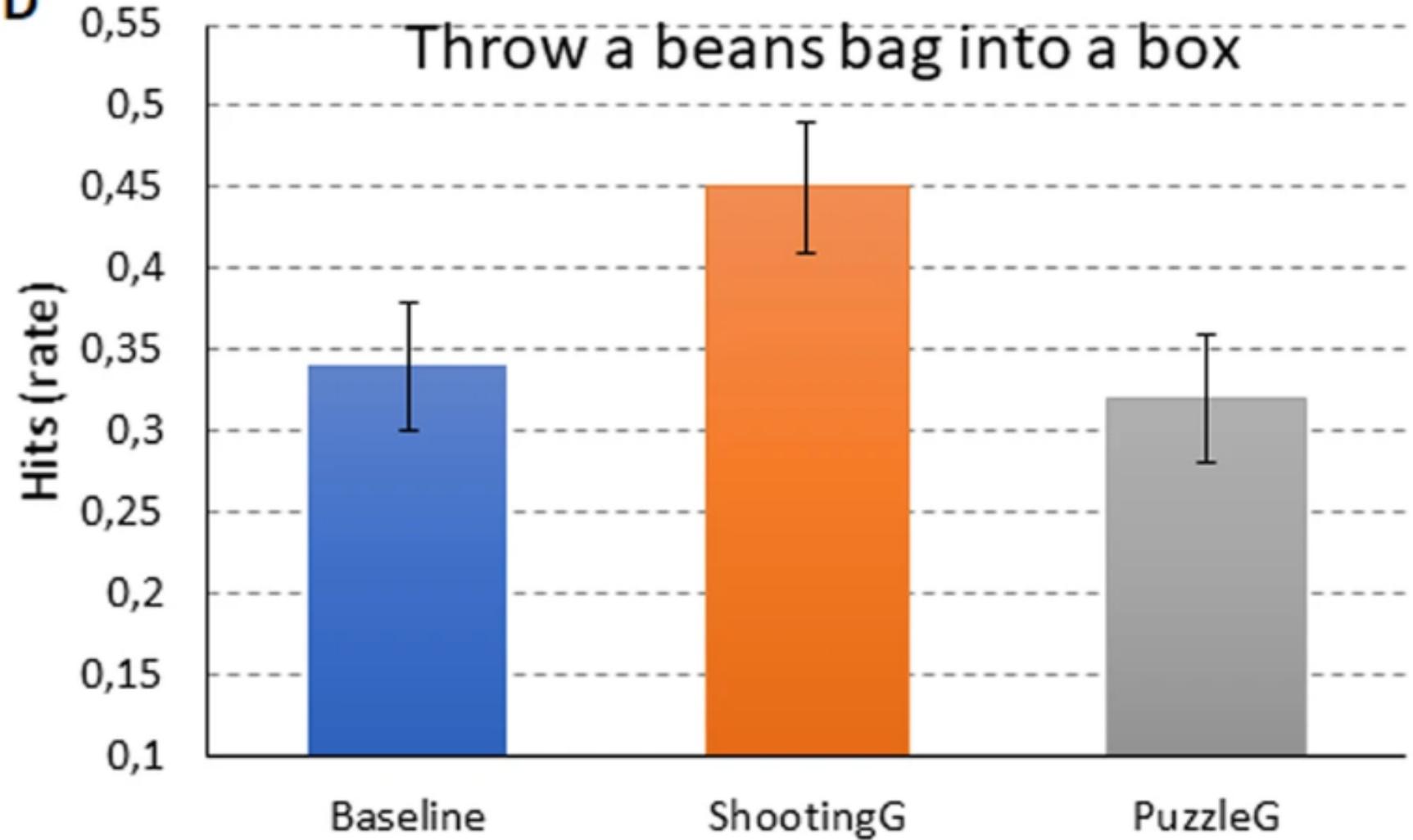
16/19 dei bambini migliorano le performance

FARE CANESTRO

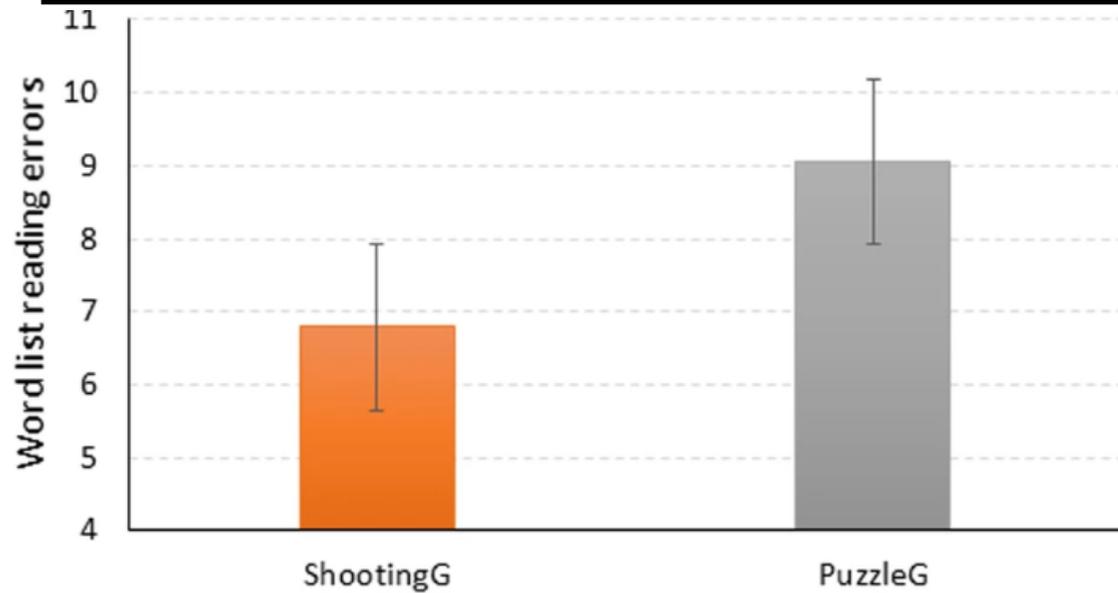
$d=.874$



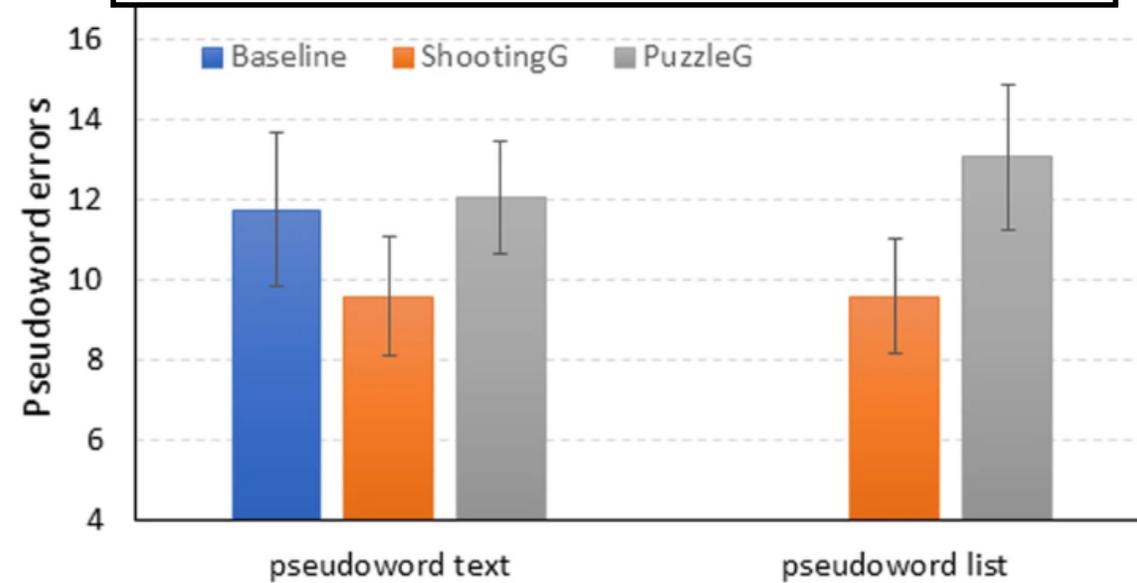
D



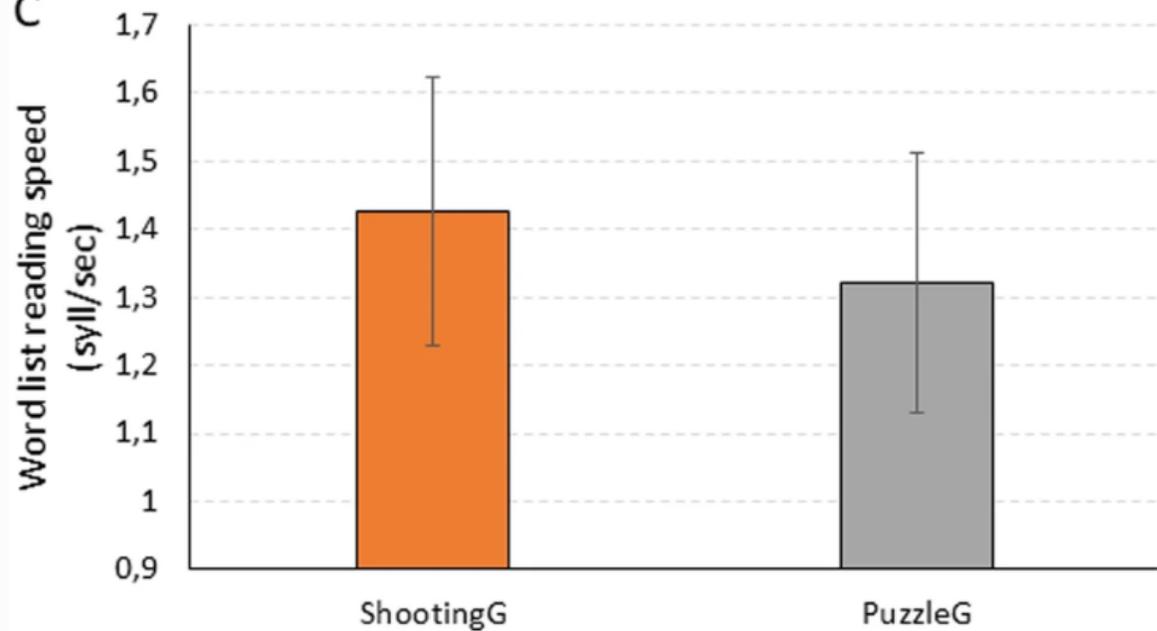
LEGGERE PAROLE



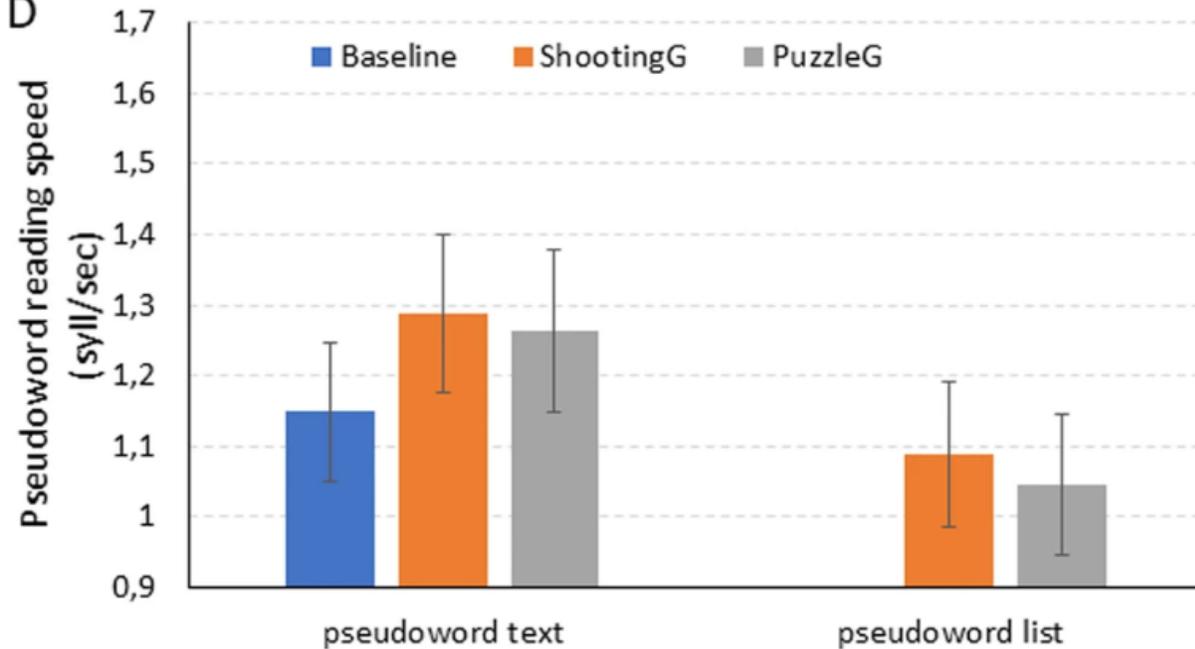
LEGGERE PAROLE NUOVE



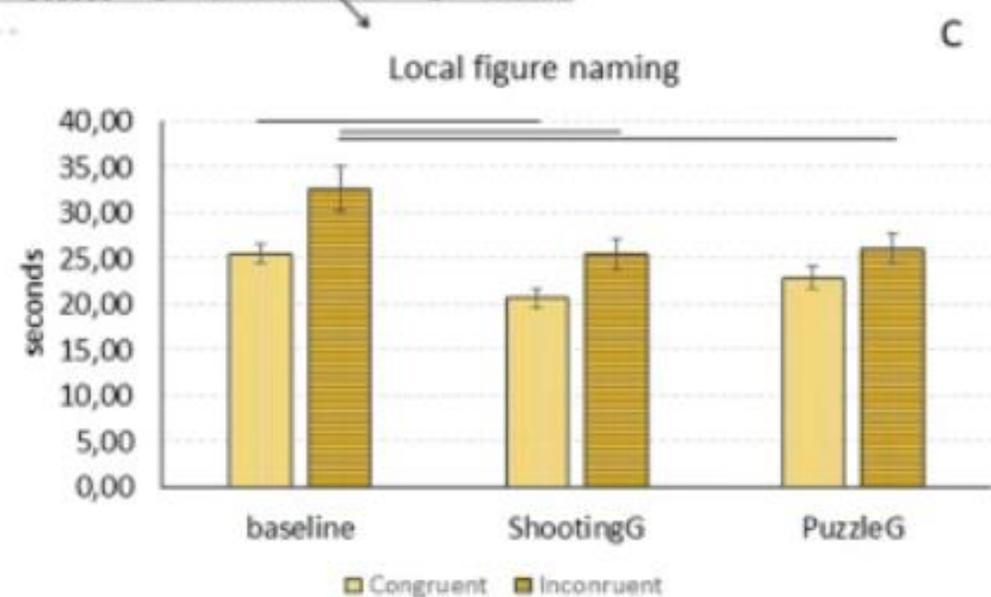
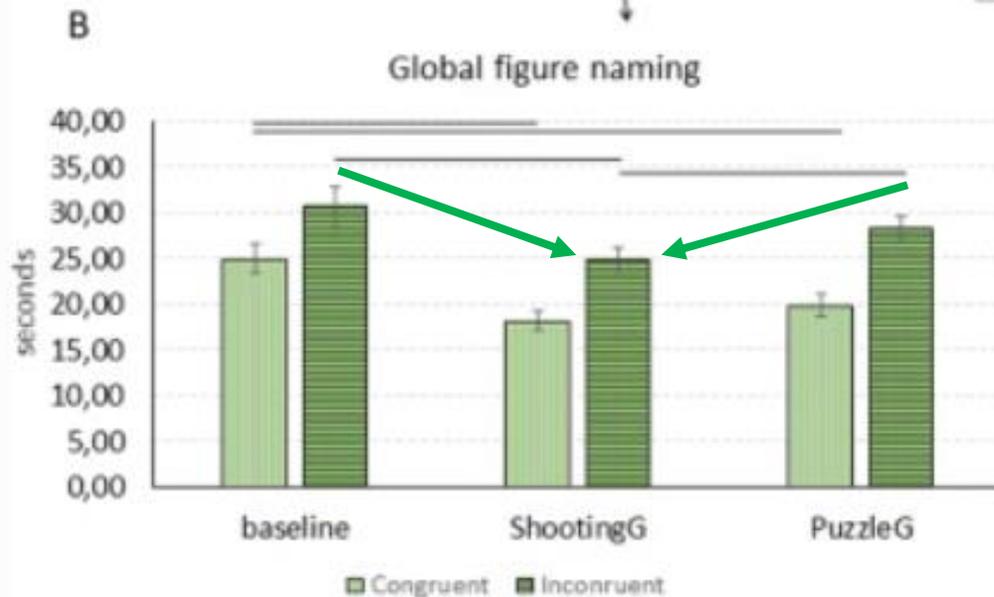
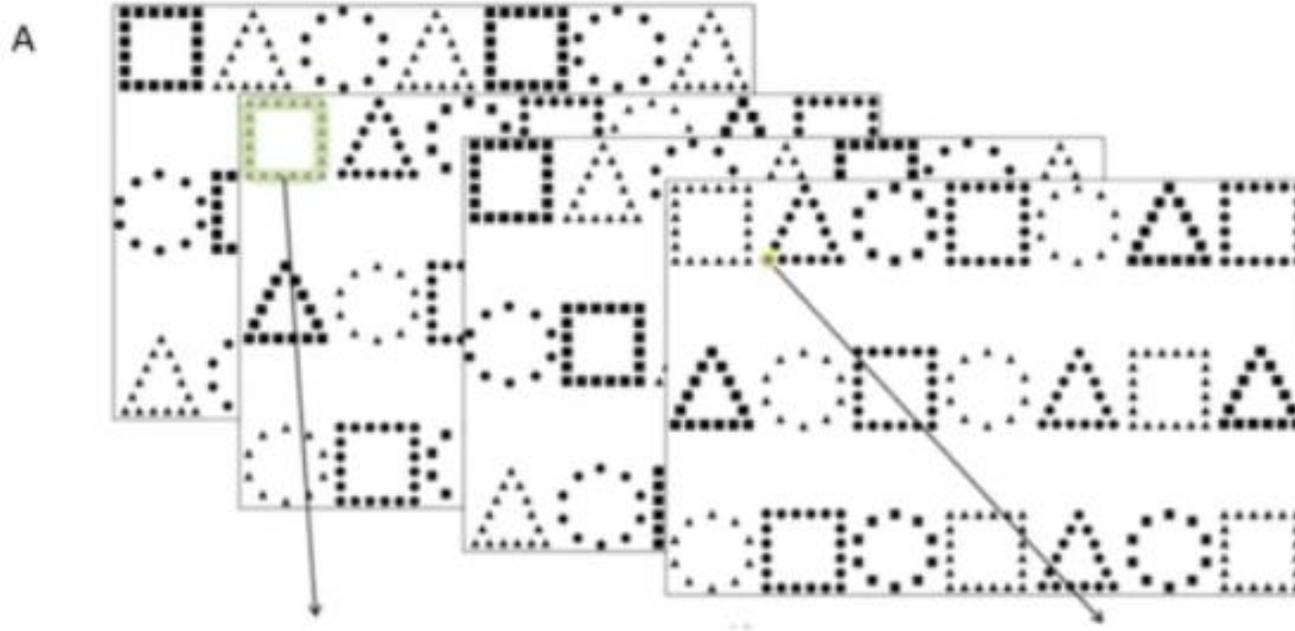
C



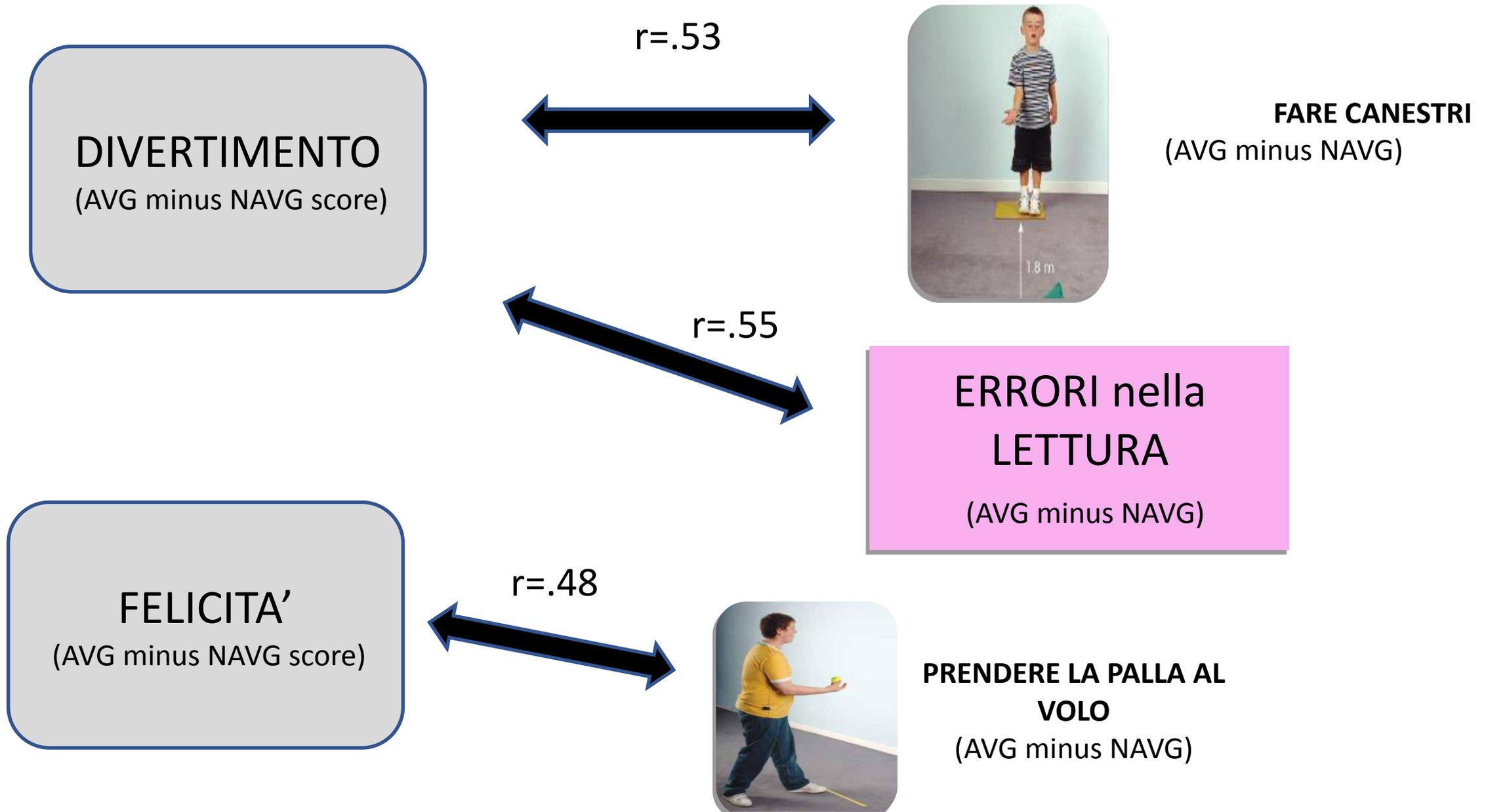
D



Percezione globale



Quanto mi sono DIVERTITO o sono FELICE predice i MIGLIORAMENTO COGNITIVO





andreafaceoetti@unipd.it

AP
RAS
SIO
NTI

IL GIOCO

come strumento preventivo
dei disturbi del neurosviluppo

*Effetti a breve termine
nei bambini prescolari*

Il Disegno Sperimentale

Partecipanti

47 bambini a sviluppo tipico
frequentanti l'ultimo anno della scuola dell'infanzia



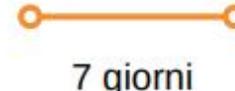
Metodo

Baseline



Abilità visuo-attentive
Abilità di memoria uditivo-fonologica
Abilità senso-motorie

Prima Sessione



30 minuti di gioco
+
valutazione baseline e
questionario sulle emozioni

Seconda Sessione

30 minuti di gioco
+
valutazione baseline e
questionario sulle emozioni

Le prove

Abilità di Memoria
Uditivo-Fonologica



...sono diverse...

PADE- FADE

SED GAM

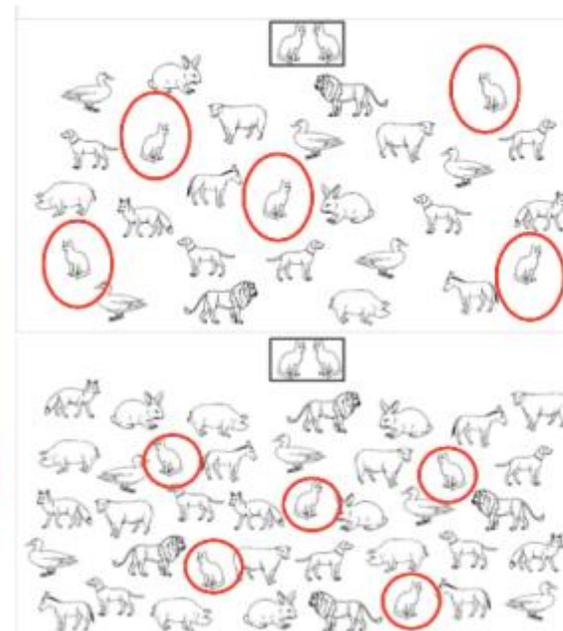
SEP GAM



Abilità
Senso-Motorie

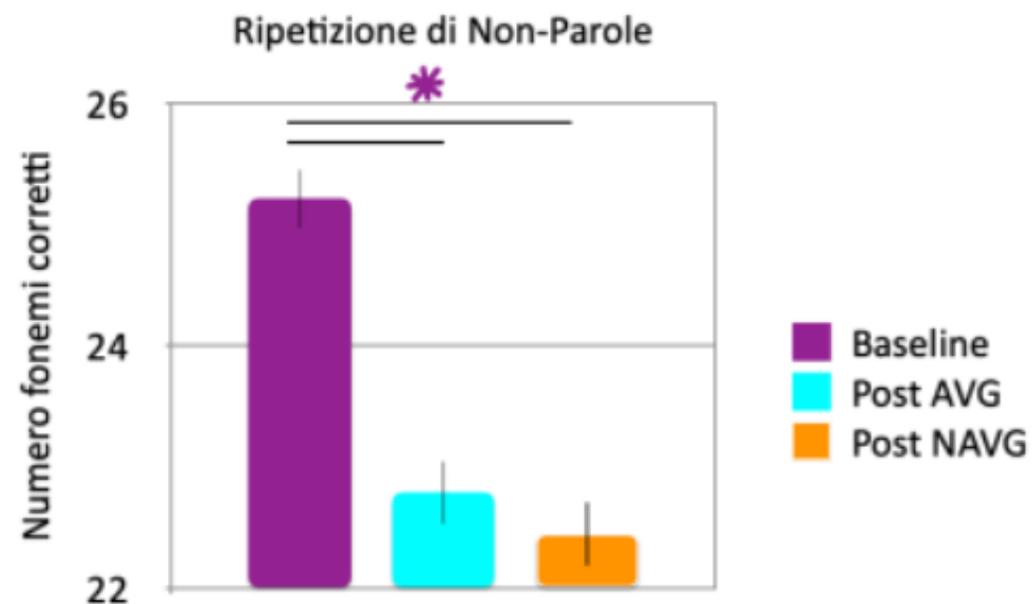
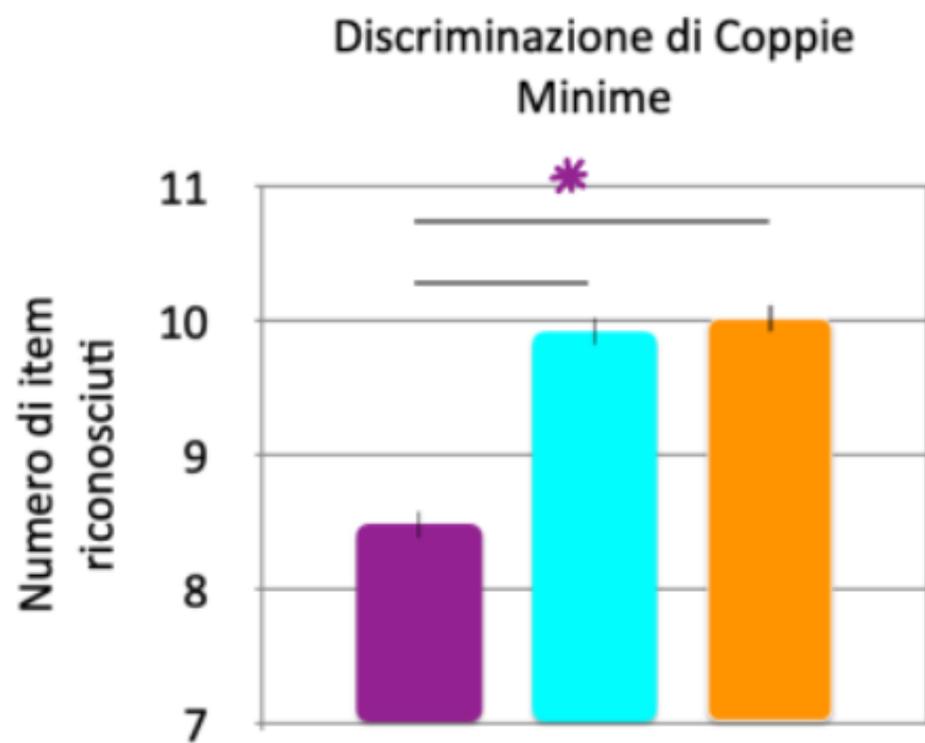


Abilità
Visuo-Attentive



Risultati

Abilità di Memoria Uditivo-Fonologica



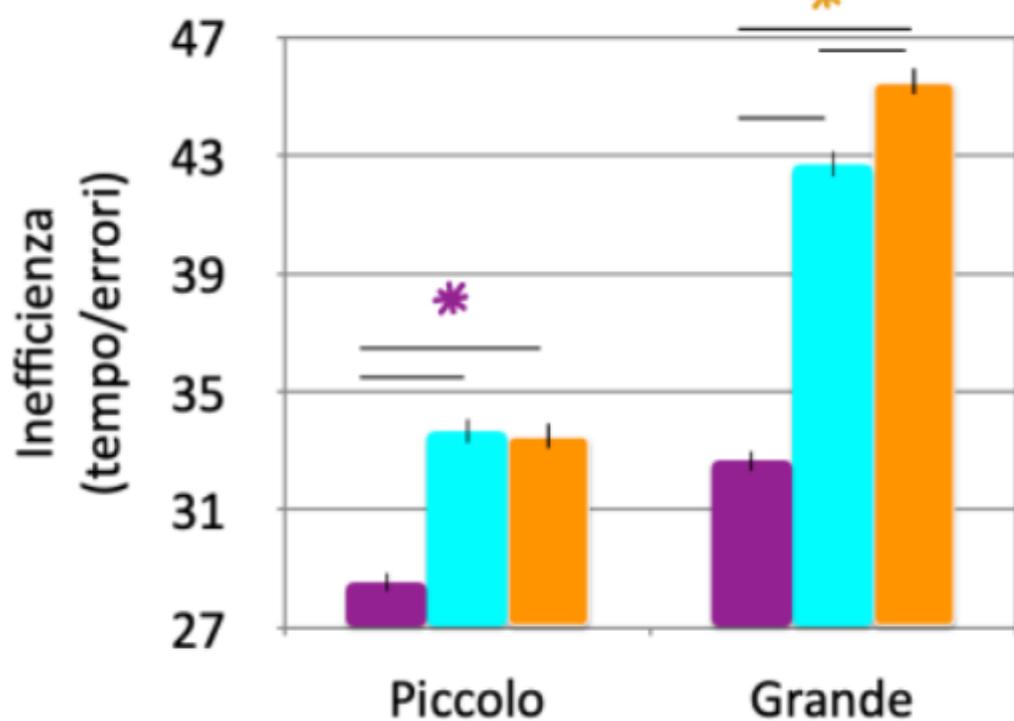
■ Baseline
■ Post AVG
■ Post NAVG



Risultati

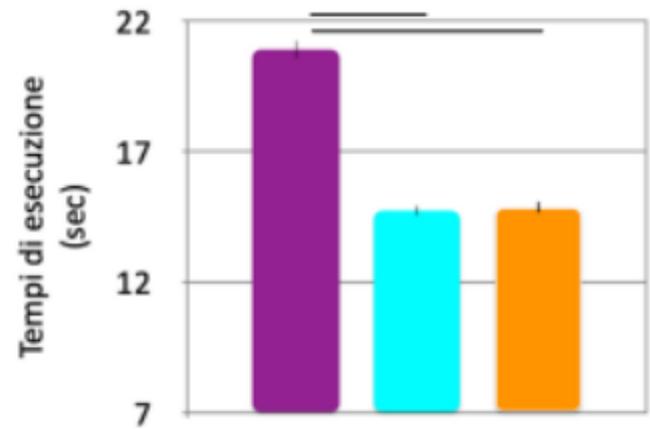
Abilità Visuo-Attentive

Ricerca Visiva

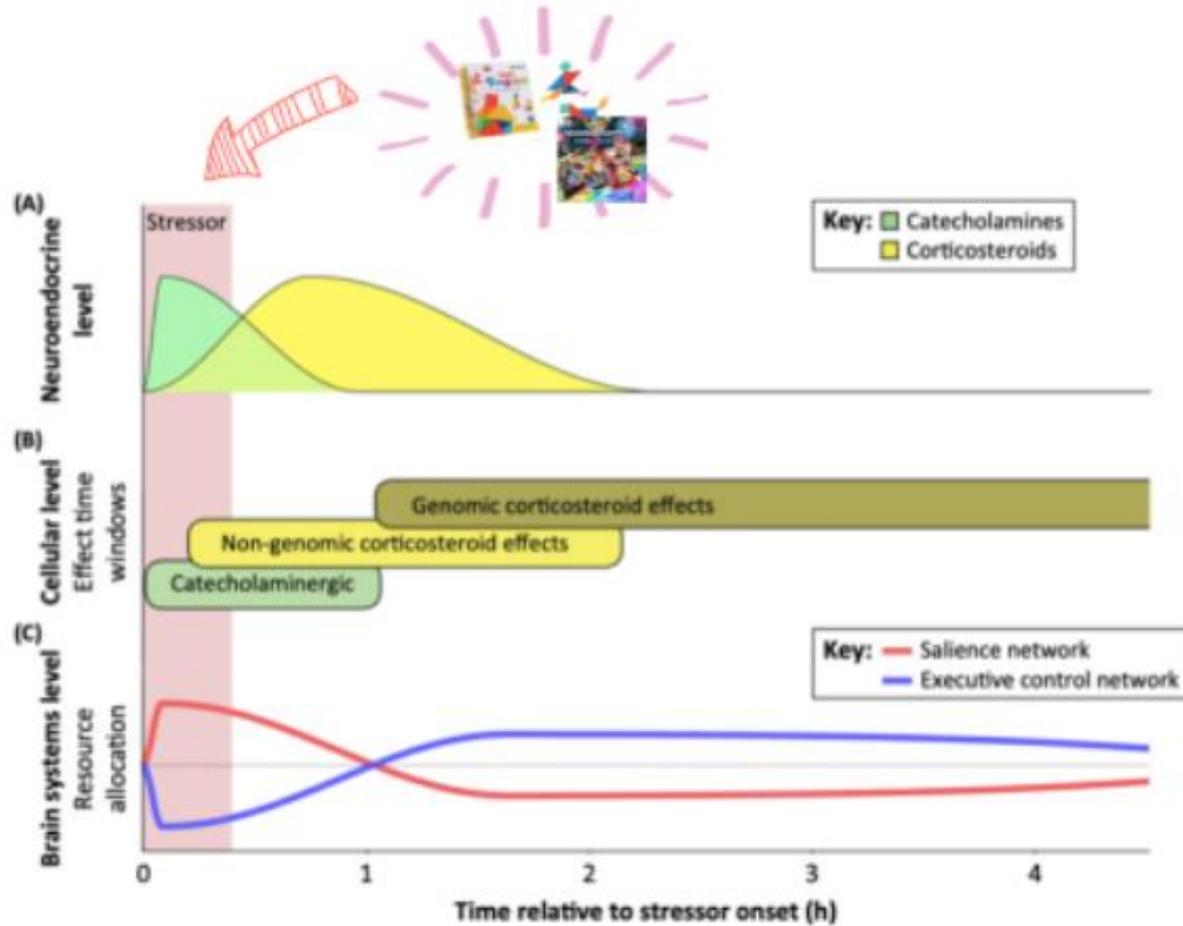


- Baseline
- Post AVG
- Post NAVG

Barrage



Cosa succede...?



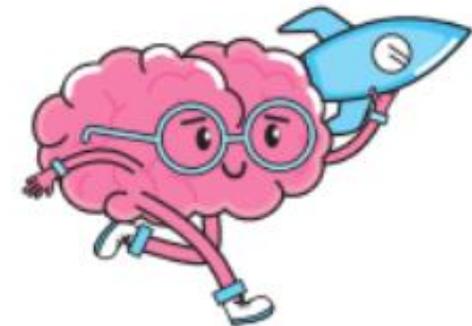
Hermas e colleghi (2014)



Sistema di Salienza
Perceptiva



Sistema di Controllo
Esecutivo

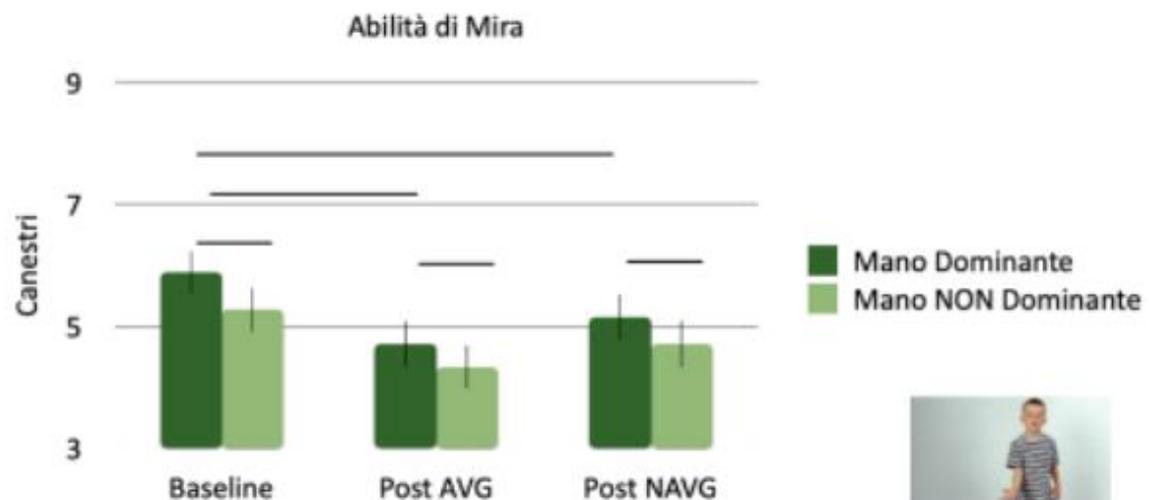
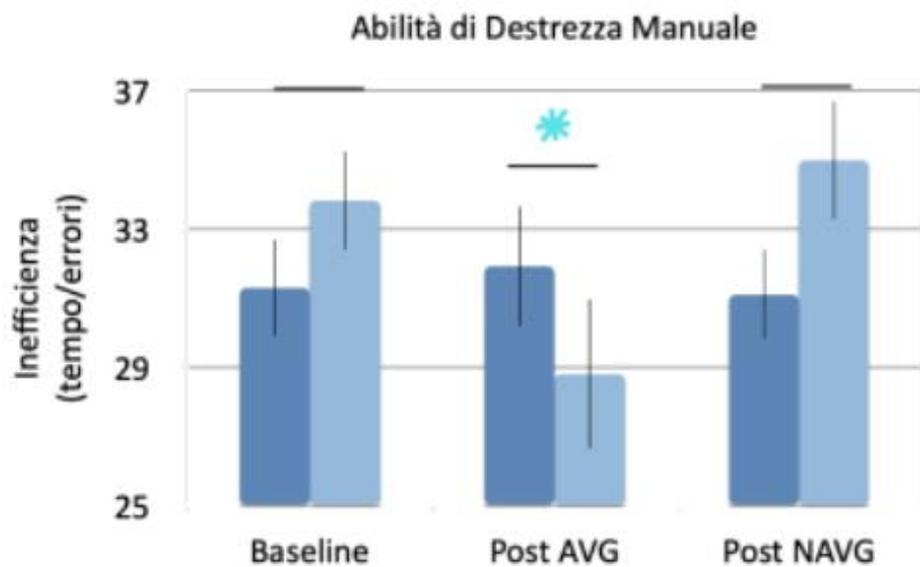




...Ma quindi i **videogiochi**
hanno gli stessi effetti dei **giochi tradizionali**?

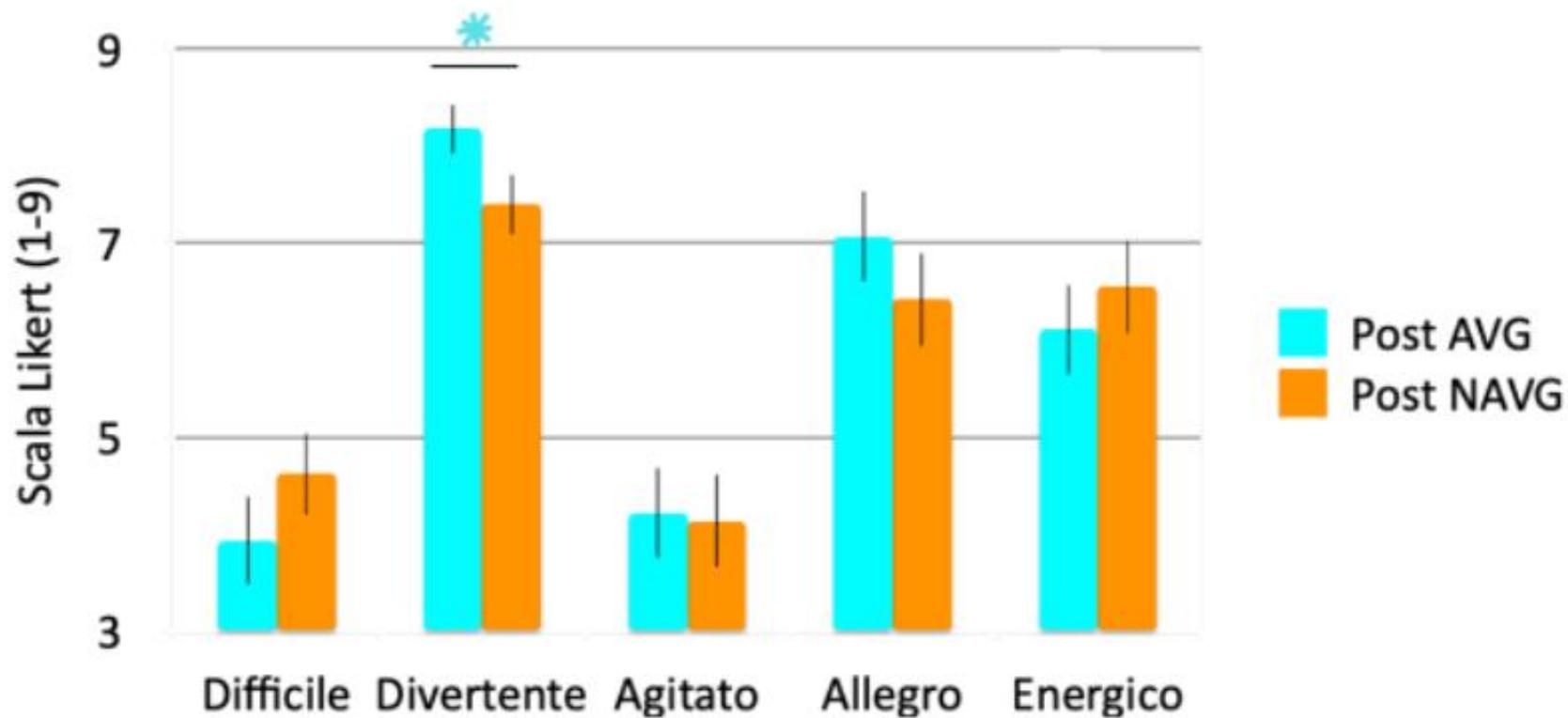
Risultati

Abilità Senso-Motorie



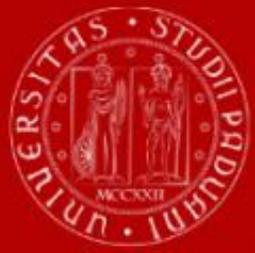
Risultati

Questionario sulle Emozioni

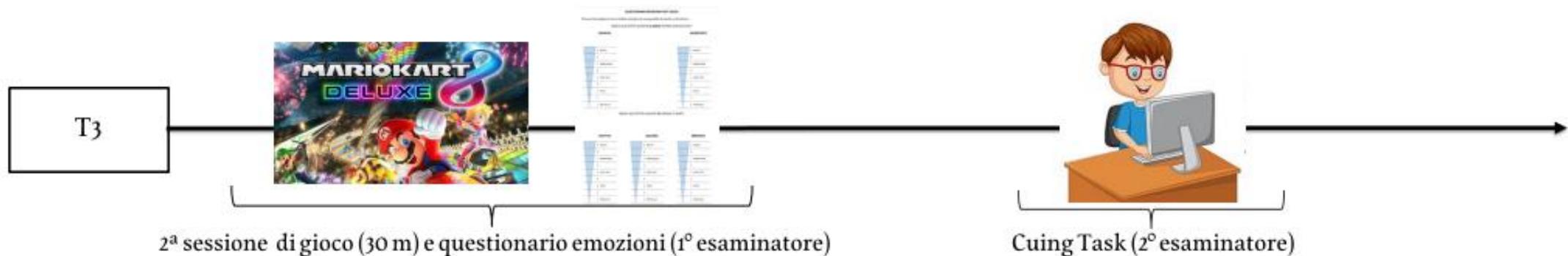
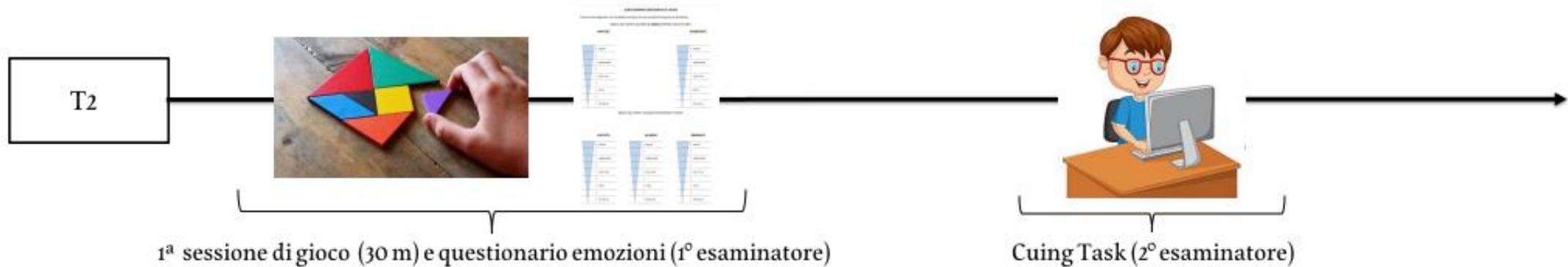
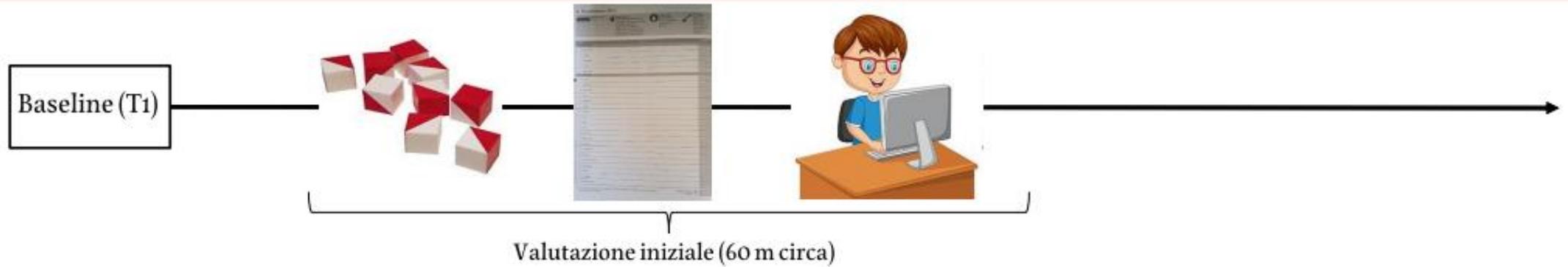


- 9 Molto
- 8
- 7
- 6
- 5 Così così
- 4
- 3
- 2
- 1 Per nulla



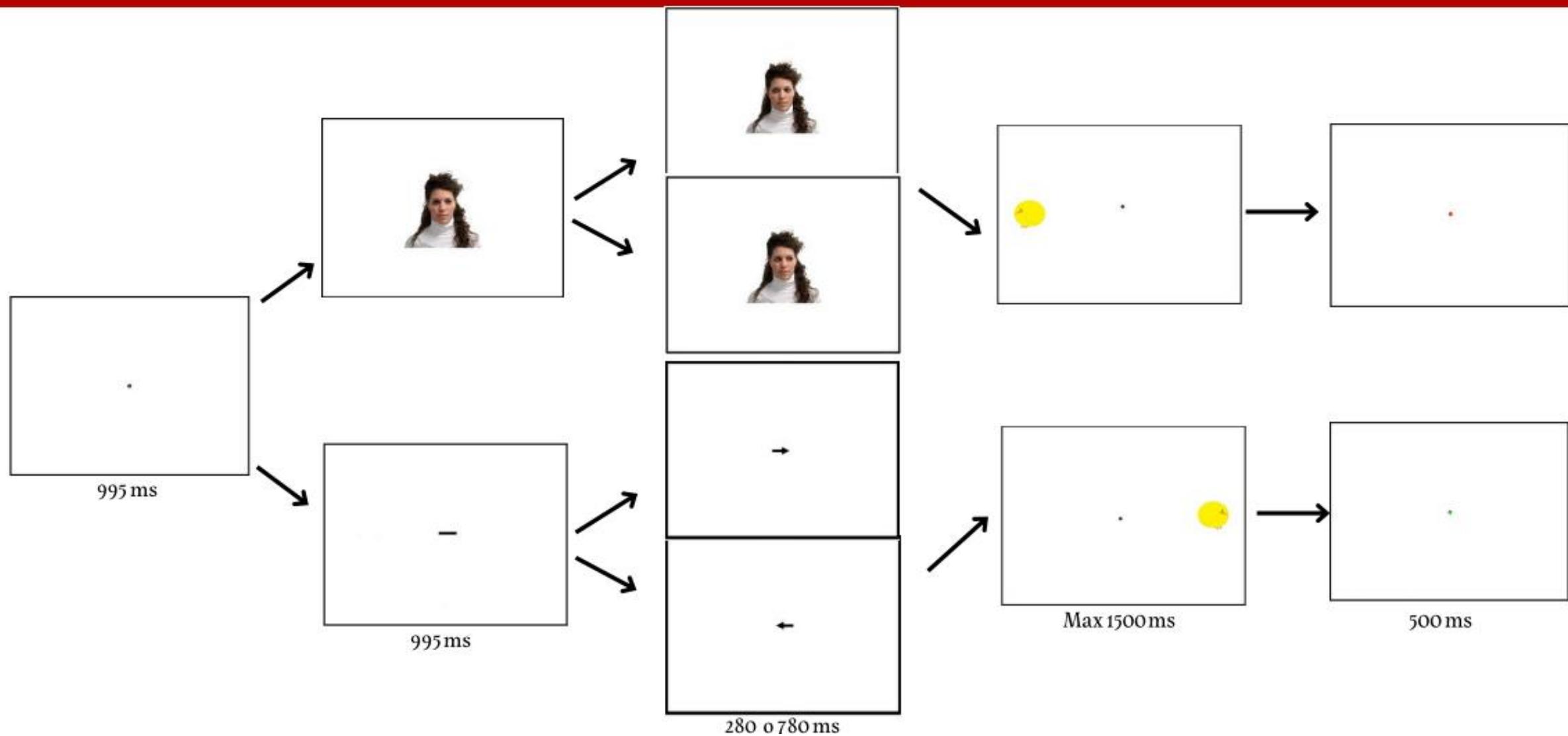


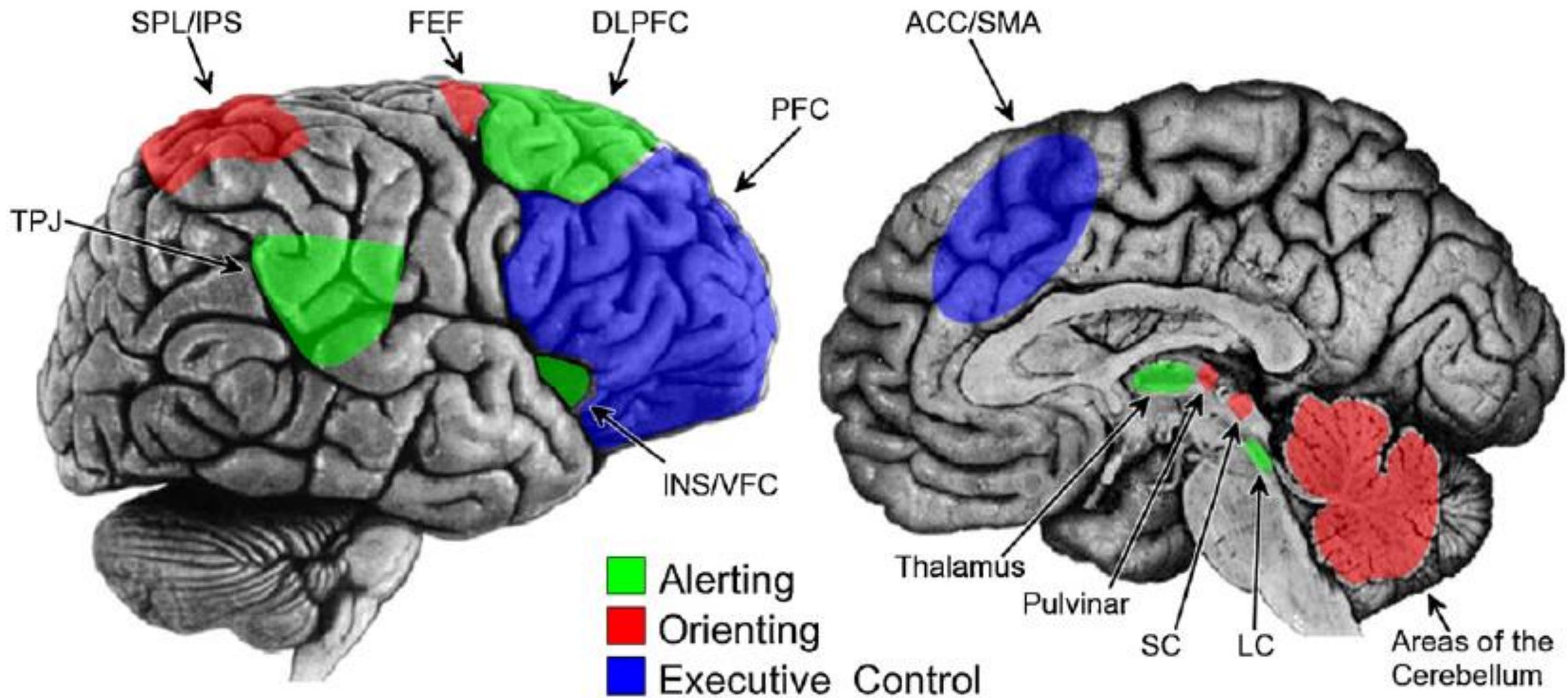
Materiali e Procedura

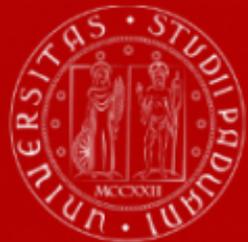




Cuing Task

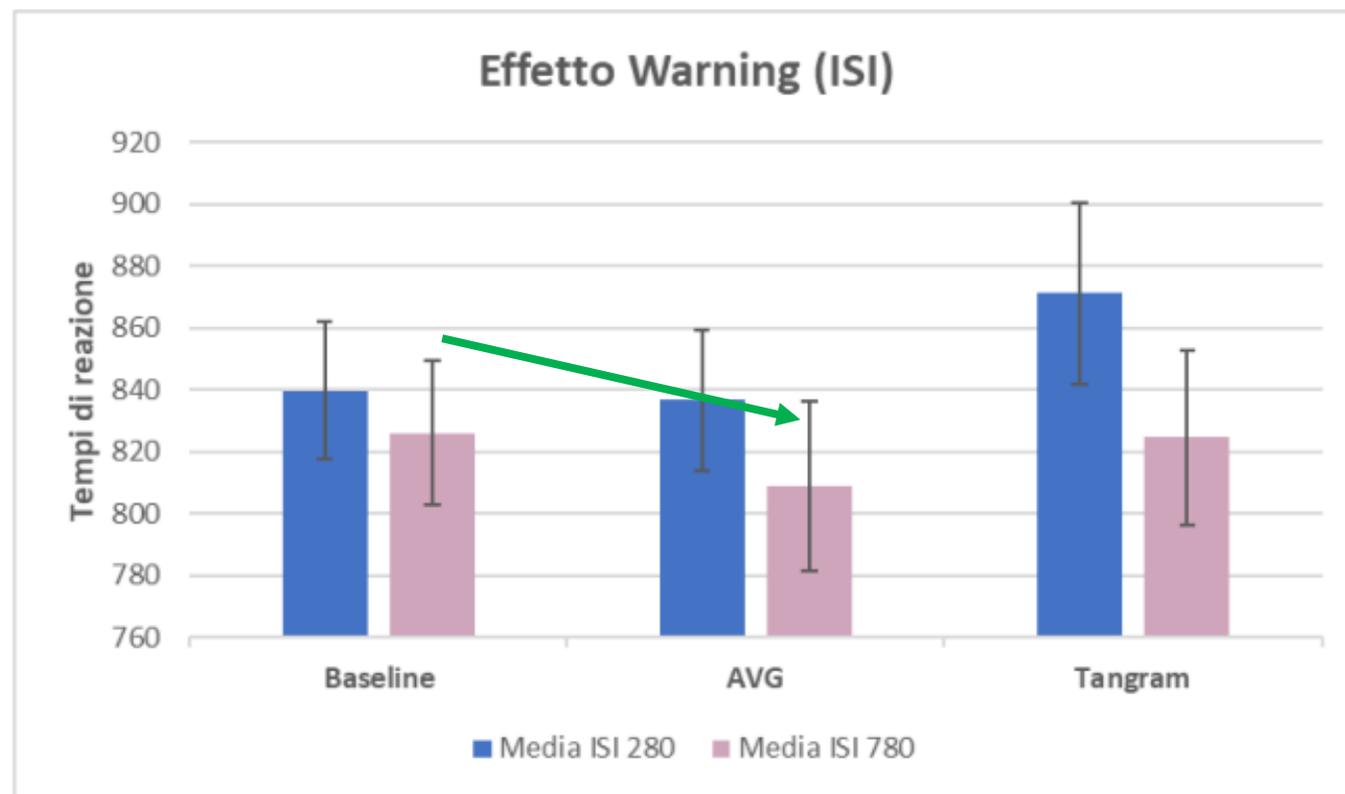
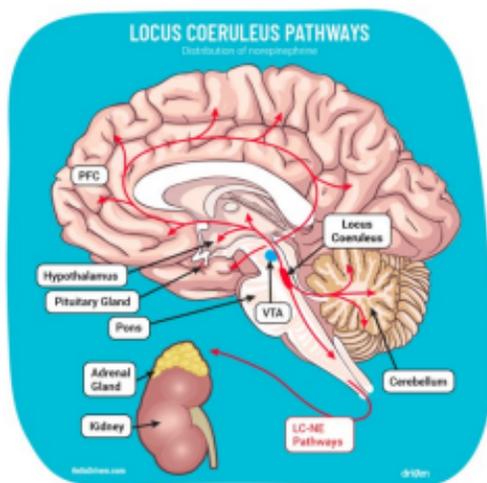
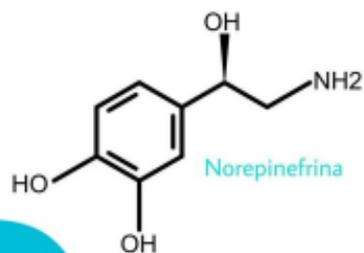






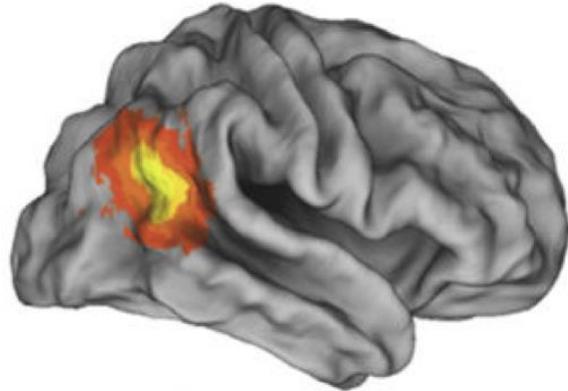
UNIVERSITÀ
DEGLI STUDI
DI PADOVA

Risultati

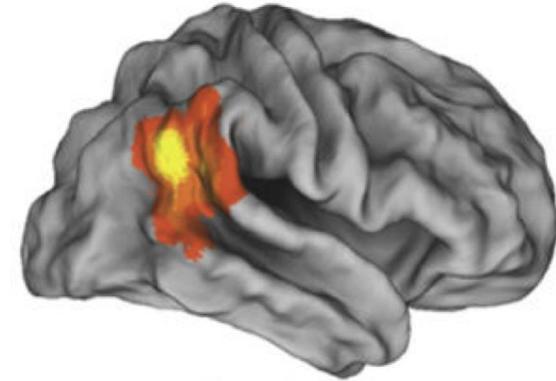
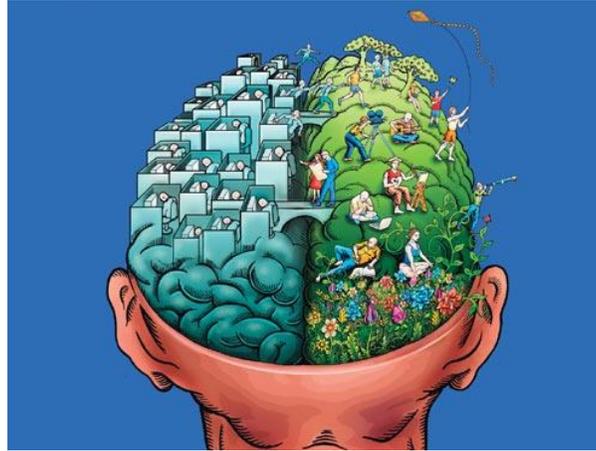


- Effetto principale dell'ISI. Differenza significativa tra i due ISI post-Tangram (ISI breve e TR lunghi)

Teoria della mente e Disancoraggio dell'attenzione visiva???

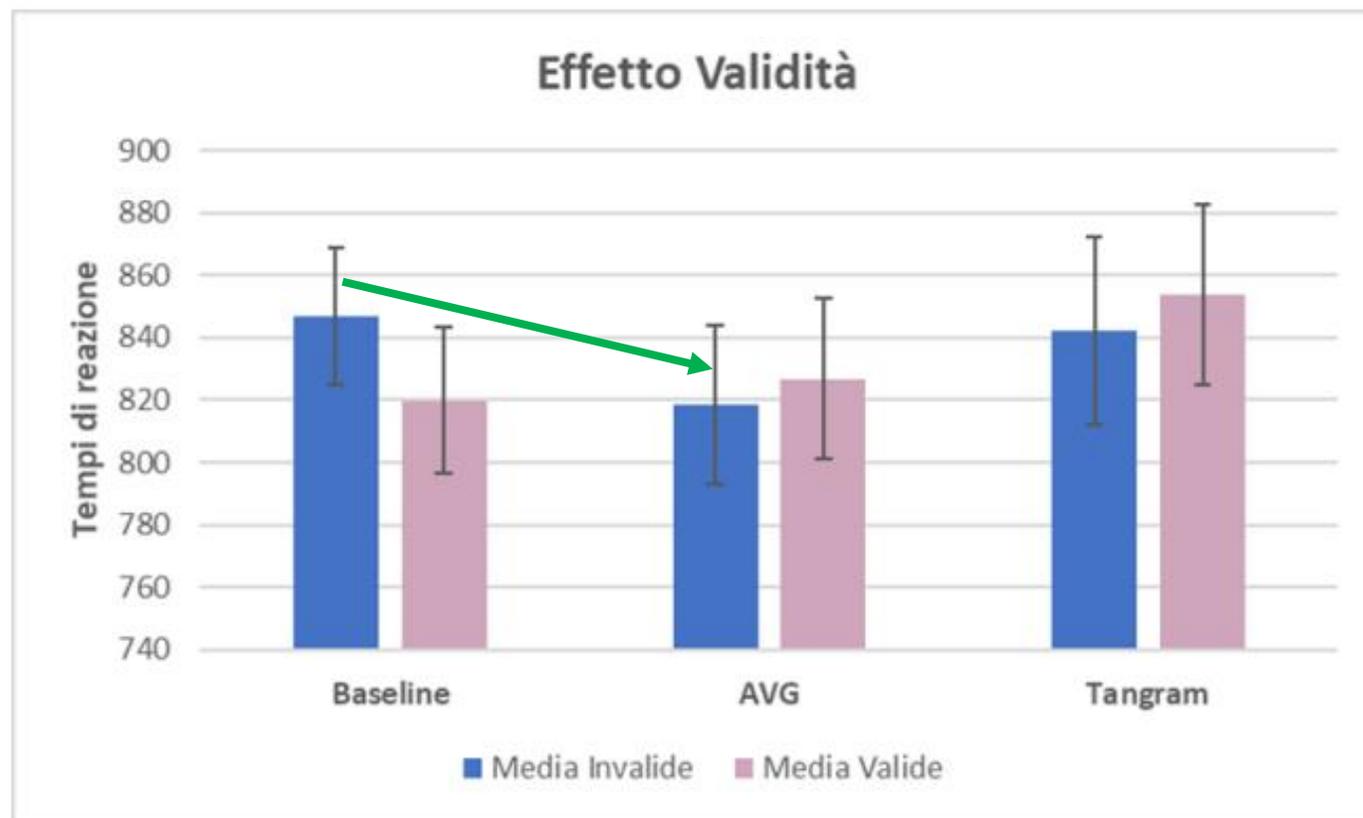
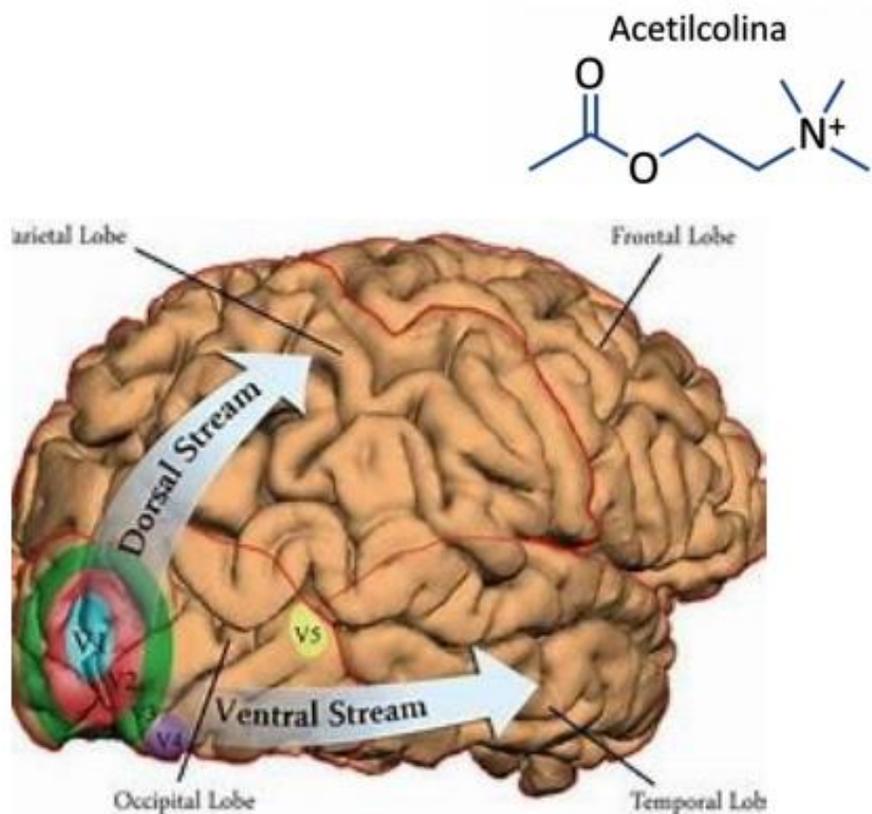


Theory of Mind



Reorienting





- Differenza significativa in T1 tra condizione valida e invalida, non più presente dopo AVG e Tangram

Partecipanti: 18 Bambini della scuola primaria classe prima a sviluppo tipico



Metodo

Baseline

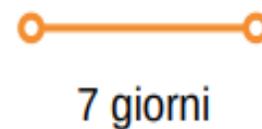


Abilità visuo-attentive

Abilità di memoria uditivo-fonologica

Abilità senso-motorie

Prima Sessione



30 minuti di gioco

+

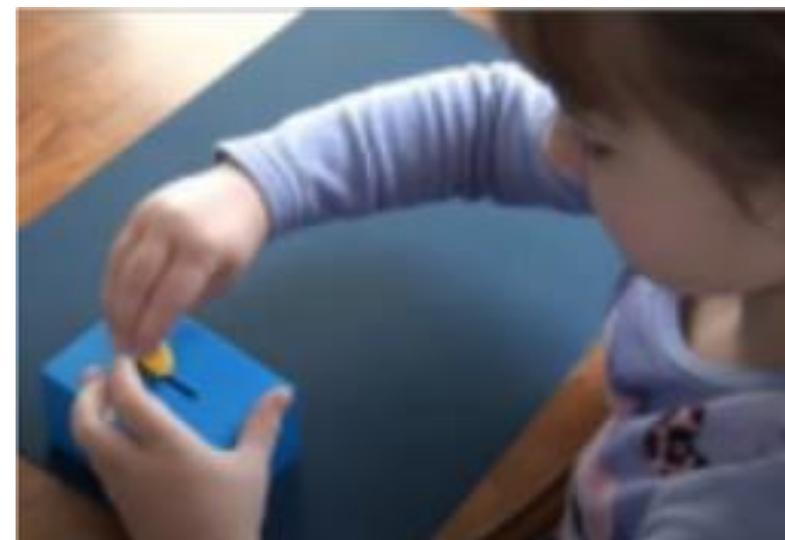
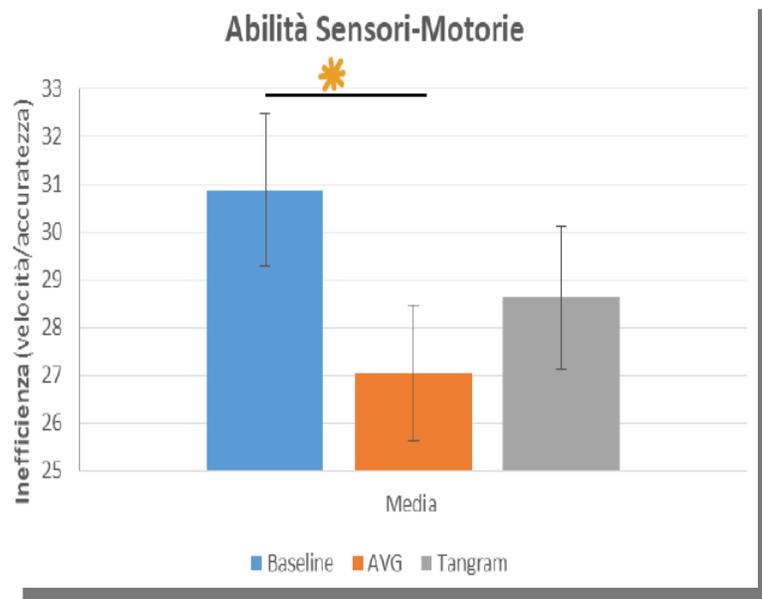
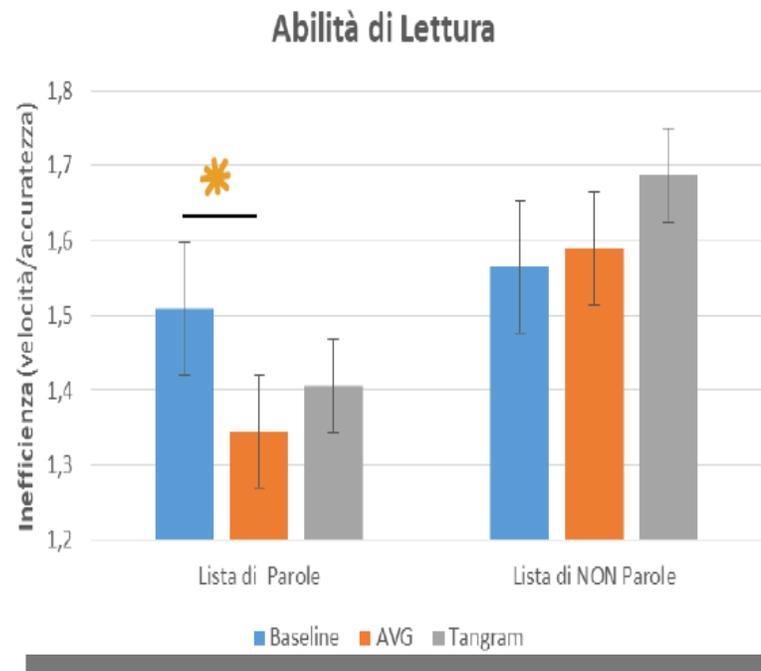
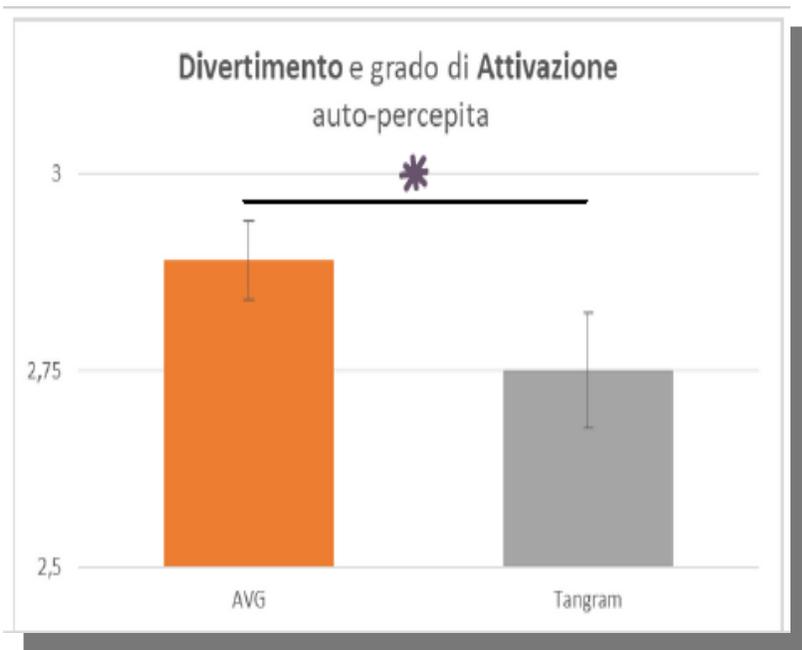
valutazione baseline e
questionario sulle emozioni

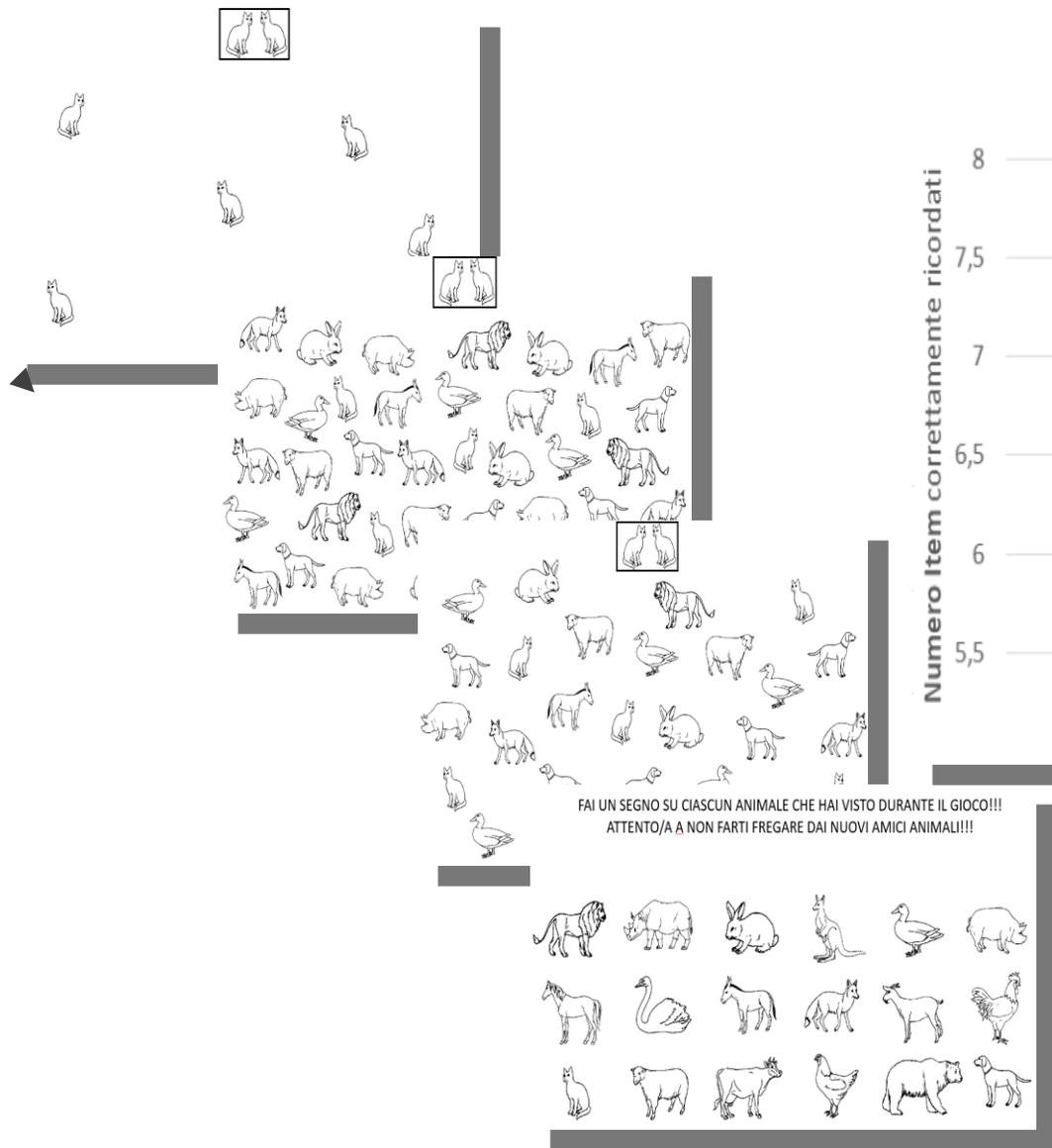
Seconda Sessione

30 minuti di gioco

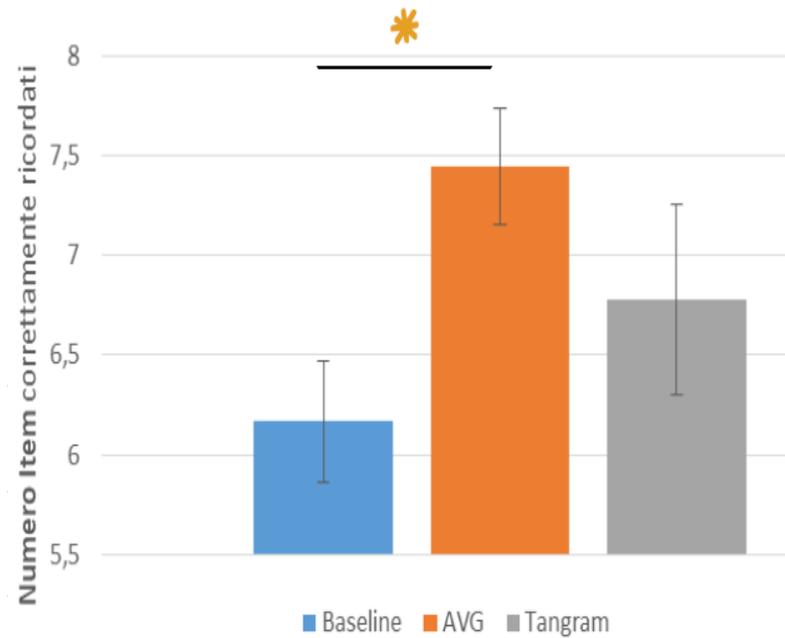
+

valutazione baseline e
questionario sulle emozioni

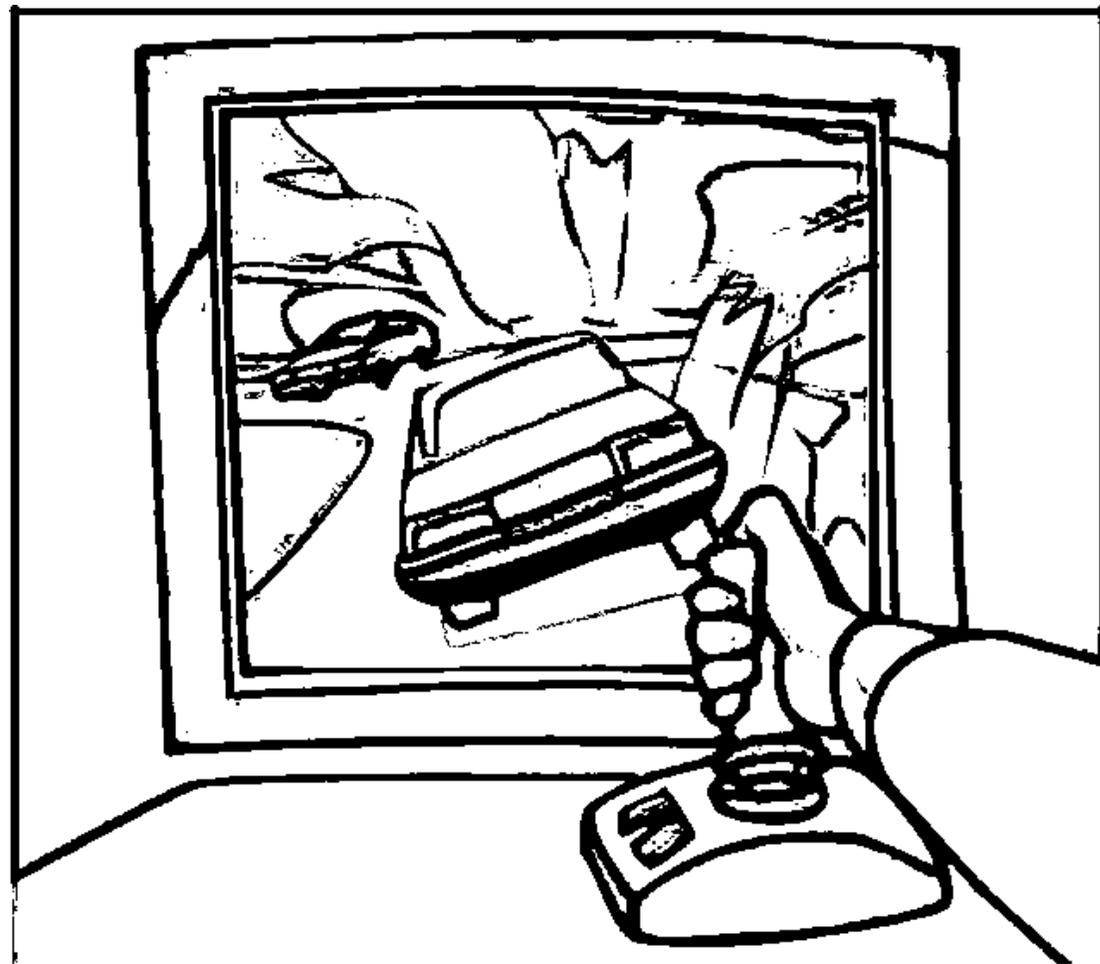




Memoria Implicita



GRAZIE PER LA VOSTRA
ATTENZIONE



andreafaceoetti@unipd.it

Uso terapeutico del gioco anche digitale

ANDREA FACOETTI Dipartimento di Psicologia Generale Università di Padova

Il gioco è una attività senso-motoria e cognitiva autogenerata in condizioni socio-ambientali non stressanti e caratterizzata da una affettività positiva. **CHE COS'E' IL GIOCO**

Considerando gli alti rischi e costi energetici connessi al gioco e nonostante l'assenza di un specifico ruolo per la sopravvivenza e per la conservazione della specie, **PERCHE' GIOCHIAMO?**

Le recenti ipotesi sul perché giochiamo suggeriscono che il gioco sia in grado di migliorare le capacità di affrontare l'imprevisto contribuendo a stimolare lo sviluppo affettivo, cognitivo e sociale di moltissimi animali, dai polpi ai sapiens: il gioco servirebbe quindi per sperimentare e quindi **prevedere i possibili eventi**.

Dopo una breve descrizione del "chi", del "quando", del "come" e del "perché" giochiamo, verranno mostrati i risultati di una **meta-analisi** di esperimenti in cui sono stati studiati gli effetti a lungo termine di un particolare tipo di **videogioco**, detto "**d'azione**". Questo tipo di videogioco si è dimostrato **migliorare le funzioni di controllo dell'attenzione**, dette anche **funzioni esecutive** che sono alla base, non solo della pianificazione cognitiva e dell'adattamento alle variazioni dell'ambiente, ma anche del controllo delle emozioni e dei complessi comportamenti sociali. Il **nostro laboratorio** ha applicato questa particolare stimolazione basata su un "**ambiente arricchito auto-manipolato**" per modificare la neuroplasticità e **compensare i disturbi dell'apprendimento** e dello sviluppo alla base delle capacità scolastiche, linguistiche, attentive, senso-motorie e sociali. Verranno quindi mostrate alcune **evidenze empiriche della loro efficacia**, non solo nella riabilitazione della **dislessia e della discalculia evolutiva**, dei **disturbi dell'attenzione con iperattività**, dei **disturbi della coordinazione motoria**, ma anche nella **PREVENZIONE dei disturbi specifici dell'apprendimento in bambini prescolari con disturbi del linguaggio**.

Infine, saranno descritte le **nostre recenti ricerche sugli effetti a breve termine indotti da 30-60min** di esperienza di gioco, per poter individuare gli specifici **circuiti neurali alla base degli effetti a lungo termine sulle funzioni esecutive** controllate dai circuiti neurali fronto-parietali.