Computer-Based Cognitive Training for Executive Functions after Stroke

A Systematic Review

van de Ven, R.M.; Murre, J.M.J.; Veltman, D.J.; Schmand, B.A.

Published in:
Frontiers in Human Neuroscience

DOI:
10.3389/fnhum.2016.00150

Citation for published version (APA):
**Supplementary Material**

**Computer-Based Cognitive Training for Executive Functions after Stroke: A Systematic Review**

**Renate M. van de Ven**, Jaap M. J. Murre, Dick J. Veltman, Ben A. Schmand

*Correspondence: Corresponding Author: r.m.vandeven@uva.nl*

**Supplement 1 Search strategy**

The search strategy was created by Renate van de Ven, Janneke Staaks, and Ben Schmand.

**Search Question**

Cognitive training of executive functioning, attention, and working memory. Training aim needs to be restoration, thus not improvement of internal or external strategies (e.g., excluding PDA). Training needs to be done on a computer, but not virtual reality or simulations. Study aim should not merely be feasibility of a training but also includes outcome measures.

**Databases**

- PsycINFO: 320 results (May 12, 2015)
- Medline: 958 results (May 12, 2015)
- Web of Science: 546 results (May 12, 2015)
- Cochrane Library: 176 results (May 12, 2015)

**Total**: 2000

**Total, deduplicated**: 1469

---

**PsycINFO**

**Ovid**

**#1 stroke or acquired brain injury, adults**

cerebrovascular accidents/ OR traumatic brain injury/ OR (brain injur* OR brain damage* OR poststroke* OR stroke OR strokes).ti,ab,id.

**Results**: 53.108 (May 12, 2015)

**#2a computer training**

computer training/ OR brain game*.ti,ab,id. OR (((computer assisted instruction/ OR computer assisted therapy/ OR computer games/ OR computers/ OR computer software/ OR internet/ OR websites/ OR (computer* OR digital* OR electronic OR gaming OR internet* OR video game* OR online OR on-line OR website* OR web).ti,ab, id,) AND (memory training/ OR training/ OR (enhancement OR restor* OR restitut* OR retrain* OR training* OR treatment*).ti,ab,id.))))

**Results**: 28.877 (May 12, 2015)

**#3 executive functioning**

attention/ OR cognition/ OR cognitive ability/ OR cognitive control/ OR cognitive processing speed/ OR executive function/ OR set shifting/ OR short term memory/ OR task switching/ OR (attention* OR cognit* OR executive function* OR memory OR neuropsychological* OR processing speed* OR set shifting OR task switch* OR switchcost* OR switch cost*).ti,ab,id.tm.

**Results**: 648.305 (May 12, 2015)

**#4 Animals**

exp animals/
(1 AND 2a AND 3) NOT 4 297 results (May 12, 2015)
Addition head injur*: +23
PsycINFO reference set (8 van de 11)

Medline
Ovid MEDLINE In-Process & Other Non-Indexed Citations and Ovid MEDLINE

#1 stroke or acquired brain injury, adults
brain concussion/ OR brain hemorrhage, traumatic/ OR brain infarction/ OR brain injuries/ OR brain injury, chronic/ OR brain stem infarctions/ OR diffuse axonal injury/ OR infarction, anterior cerebral artery/ OR infarction, middle cerebral artery/ OR infarction, posterior cerebral artery/ OR stroke/ OR stroke, lacunar/ OR (brain injur* OR brain damage* OR poststroke* OR stroke OR strokes).ti,ab,kf.
Results: 254.260 (May 12, 2015)

#2 computer training
brain game*.ti,ab,kf. OR ((computer-assisted instruction/ OR internet/ OR software/ OR therapy, computer-assisted/ OR user-computer interface/ OR video games/ OR (computer* OR digital* OR electronic OR gaming OR internet* OR video game* OR online OR on-line OR website* OR web).ti,ab,kf.) AND (enhancement OR restor* OR restitut* OR retrain* OR training* OR treatment*).ti,ab,kf.)
Results: 112.480 (May 12, 2015)

#3 executive functioning
attention/ OR cognition/ OR cognition disorders/ OR executive function/ OR learning/ OR memory disorders/ OR memory, short term/ OR neuropsychological tests/ OR treatment outcome/ OR reaction time/ OR (attention* OR cognit* OR executive function* OR memory OR neuropsychological* OR processing speed* OR set shifting OR task switch* OR switchcost* OR switch cost*).ti,ab,kf.
Results: 1.411.054 (May 12, 2015)

#4 Animals
animals/

(1 AND 2a AND 3) NOT 4 933 results (May 12, 2015)
Addition head injur*: + 25
Medline reference set (10 van de 11)
(24087909 OR 24131298 OR 24947578 OR 23154316 OR 21843045 OR 20715888 OR 21780988 OR 23312291 OR 17364516 OR 23672446).ui.
#1 stroke or acquired brain injury, adults
TS=("brain injur*" OR "brain damage*" OR "poststroke*" OR "stroke" OR "strokes")
Results: 270.803 (May 12, 2015)

#2 computer training
TS=("brain game*" OR (("computer*" OR "digital*" OR "electronic" OR "gaming" OR "internet*" OR "video game*" OR "online" OR "on-line" OR "website*" OR "web") AND ("enhancement" OR "restor*" OR "restitut*" OR "retrain*" OR "training*" OR "treatment*")))
Results: 144.048 (May 12, 2015)

#3 executive functioning
TS=("attention*" OR "cognit*" OR "executive function*" OR "memory" OR "neuropsychological*" OR "processing speed" OR "set shifting" OR "task switch*" OR "switchcost*" OR "switch cost")
Results: 1.055.704 (May 12, 2015)

(1 AND 2 AND 3) 527 results (May 12, 2015)

Addition head injur*: +19

Cochrane Library
Wiley Online Library

#1 stroke or acquired brain injury, adults
"brain injur*":ti,ab,kw OR "brain damage*":ti,ab,kw OR "head injur*":ti,ab,kw OR "poststroke*":ti,ab,kw OR "stroke":ti,ab,kw OR "strokes":ti,ab,kw
Results: 28.941 (May 12, 2015)

#2 computer training
"brain game*:ti,ab,kw OR (("computer*":ti,ab,kw OR "digital*":ti,ab,kw OR "electronic":ti,ab,kw OR "gaming":ti,ab,kw OR "internet*":ti,ab,kw OR "video game*:ti,ab,kw OR "online":ti,ab,kw OR "on-line":ti,ab,kw OR "website*:ti,ab,kw OR "web":ti,ab,kw) AND ("enhancement":ti,ab,kw OR "restor*":ti,ab,kw OR "restitut*":ti,ab,kw OR "retrain*":ti,ab,kw OR "training*":ti,ab,kw OR "treatment*":ti,ab,kw))
Results: 17.115 (May 12, 2015)

#3 executive functioning
"attention*":ti,ab,kw OR "cognit*":ti,ab,kw OR "executive function*":ti,ab,kw OR "memory":ti,ab,kw OR "neuropsychological*":ti,ab,kw OR "processing speed":ti,ab,kw OR "set shifting":ti,ab,kw OR "task switch*":ti,ab,kw OR "switchcost*":ti,ab,kw OR "switch cost*":ti,ab,kw
Results: 46.767 (May 12, 2015)

1 AND 2 AND 3 170 results (May 12, 2015)

Addition head injur*: +6 results