NKR 1 ADHD PICO 4 PC træning versus Kontrol

Characteristics of studies

Characteristics of included studies

Azami 2016

Methods	**Study design:** Randomized controlled trial **Study grouping:** Parallel group
Participants	**Baseline Characteristics** Intervention ● *Age in years, mean (SD)*: not reported ● *Male gender (%)*: 100 ● *Proportion using ADHD medication (%)*: 100 Placebo ● *Age in years, mean (SD)*: not reported ● *Male gender (%)*: 100 ● *Proportion using ADHD medication (%)*: 100 Overall ● *Age in years, mean (SD)*: 7-12 ● *Male gender (%)*: 100 ● *Proportion using ADHD medication (%)*: 100 **Included criteria:** Inclusion criteria were:(1) confirmed ADHD diagnosis, (2) enrollment in grades 2 through 5, and (3) IQ ≥ 85. **Excluded criteria:** Exclusion criteria were: (1) severe comorbid disorder (ODD, ASD, or depression), (2) history ofseizures, (3) IQ ≤ 85, (4) disability that would affect ability to use a computer, (5) illnesses thatrequired immediate treatment.
Interventions	**Intervention Characteristics** Intervention ● *Description*: CACR subjects completed 20 ninety-minute sessions of computerized training of multipleexecutive functions in a 2-month period, administered individually by trained clinicians.Training sessions involved practicing tasks specially designed to train selective, sustained anddivided attention, interference inhibition (interference control), short-term memory, planning,and processing speed. The difficulty levels of tasks were automatically adjusted to matchchildren's progressive skills. In each session, CACR subjects completed almost 90 trials ofcognitive training tasks. ● *Length of intervention (weeks)*: 8 ● *No. of sessions per week*: 20 SESSIONS OF 90 MIN IN TOTAL Placebo ● *Description*: Similarly, PCACR subjects completed 20 ninety-minute sessions of computerizedtraining of multiple cognitive tasks over a 2-month period, individually administered by thetrained clinicians. The brain training software included: (1) the Persian software of workingmemory training (Khodadadi et al., 2009) and (2) a commercially available brain trainingsoftware called "The Amazing Brain Train". These programs allowed clinicians to actively fixthe difficulty levels of the tasks. ● *Length of intervention (weeks)*: 8 ● *No. of sessions per week*: 20 SESSIONS OF 90 MIN IN TOTAL
Outcomes	*ADHD kernesymptomer, forældrebedømt, mean SD, EoT* ● **Outcome type**: ContinuousOutcome ● **Reporting**: Fully reported ● **Scale:** SNAP-IV ● **Data value**: Endpoint
Identification	**Sponsorship source:** This work received no external funding **Country:** Iran **Authors name:** Morteza Nazifi **Institution:** Department of Psychology, University of Bojnord **Email:** Nazifi90@yahoo.com **Address:** Department of Psychology, University of Bojnord, Bojnord, 9453155111, Iran.
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Judgement Comments: In Appendix S1: Used online randomization software, to produce random sets of numbers in the four matched subgroups. The subgroups were formed before randomization.
Allocation concealment (selection bias)	Low risk	Judgement Comment: In Appendix S1: Used online randomization software, to produce random sets of numbers in the four matched subgroups. The subgroups were formed before randomization.

Blinding of participants and personnel (performance bias)	High risk	Judgement Comment: In Appendix S1: The study was not double-blinded, as clinicians were aware of group assignments. Participants, also, were aware that there were three types of treatments in the current study: two types of cognitive training, and stimulant medication intervention.
Blinding of outcome assessment (detection bias)	High risk	Judgement Comment: In Appendix S1: The study was not double-blinded, as clinicians were aware of group assignments.
Incomplete outcome data (attrition bias)	Low risk	Comments: No missing outcome data at EoT
Selective reporting (reporting bias)	Low risk	Quote: "registered in ClinicalTrials.gov (Identifier: NCT01675804;"
Other bias	Low risk	Quote: "This work received no external funding. All authors have sub- stantially contributed to this research. The authors have declared that they have no competing or potential conflicts of interest."

Bigorra 2016

Methods	**Study design:** Randomized controlled trial **Study grouping:** Parallel group
Participants	**Baseline Characteristics** Intervention ● *Age in years, mean (SD)*: 8.79 (1.75) ● *Male gender (%)*: 40 ● *Proportion using ADHD medication (%)*: 0 Placebo ● *Age in years, mean (SD)*: 9.04 (1.68) ● *Male gender (%)*: 50 ● *Proportion using ADHD medication (%)*: 0 Overall ● *Age in years, mean (SD)*: not reported ● *Male gender (%)*: 45 ● *Proportion using ADHD medication (%)*: 0 **Included criteria:** Patient recruitment was carried out from cases that con-sulted at the Child and Adolescent Psychiatric Unit from the University Hospital Mútua Terrassa from June 2010 to March 2012. A total of 66 outpatients participated in the study. All were diagnosed of combined-type ADHD accord-ing to the DSM-IV-TR criteria. Comorbidity with other disruptive behaviour disorders was accepted (i.e. opposi-tional defiant disorder or conduct disorder) according to the DSM-IV-TR criteria. All diagnoses were confirmed using the semi-structured Kiddie-Schedule for Affective Disorders and Schizophrenia, Present and Lifetime Ver-sion (K-SADS-PL) [37] interview that was administered to participants' parents. Other inclusion criteria included age between 7 and 12years; T scores on the Conners ADHD index for parents and teachers >70 at the time of diagnosis; no previous psychological or pharmacological treatment for ADHD; and access to a personal computer with Internet connection **Excluded criteria:** Exclusion criteria included IQ80; comor-bidity with autism spectrum disorder, psychosis, affective or anxiety disorder, consumption of toxic substances, or learning disorder; history of traumatic brain injury in the last 2years; and perceptual-motor alterations that would preclude the use of a computer. Participants whose educa-tional or socio-economic context would make it unlikely for families to comply with the study requirements and fol-low the treatment procedure (subjects whose families did not speak Spanish or were monitored by social services due to suspected abuse/neglect) were also excluded from the study. Furthermore, children who participated in fewer than 20 training sessions were excluded from the posterior data analysis, as were those who initiated other pharmacological or psychological treatments during study participation **Pretreatment:** None
Interventions	**Intervention Characteristics** Intervention ● *Description*: The experimental group underwent CWMT RoboMemo®(2005, Cogmed Cognitive Medical Systems AB, Stock-holm, Sweden), which consisted of visuospatial, auditory, and location memory and tracking of moving visual objects as WM tasks. Each training session included 90 trials and had a duration of 30–45min. Participants attended 5 ses-sions per week over a 5-week period for a total of 25 ses-sions. The level of difficulty was automatically adjusted to the performance of each participant, thus generating a pro-longed cognitive demand that exceeded existing capacity limits to keep the task challenging throughout the training phase and thereby maximize WM performance gains [38]. This is based on the fact that cognitive plasticity is driven by a prolonged mismatch between functional organismic supplies and environmental demands [39]. ● *Length of intervention (weeks)*: 5 ● *No. of sessions per week*: 5 Placebo ● *Description*: The control group (non-adaptive training) engaged in the MegaMemo (2005, Cogmed Cognitive Medical Sys-tems AB, Stockholm, Sweden), which consists of the same WM tasks as CWMT RoboMemo® but without the adjust-ment for difficulty, i.e. they performed simpler tasks. The remaining characteristics were the same for both groups, and both conditions were translated into Spanish. raining was conducted in the children's home, under the supervision of a family member. The response to each session, training time and number of sessions completed were recorded on an Internet database. A member of the research team (coach) who was the same for the two experimental conditions examined this information on a weekly basis and contacted each family via telephone to ensure adherence to the rules and resolve queries. Training included feedback on performance with respect to each task and a reinforcement game at the end of each session. Fami-lies were advised to add an additional reward at the end of each session. After randomization, children were given the corresponding training programme (CWMT RoboMemo®or non-adaptive training) on a CD, which contained no more than 25 training sessions.

	● *Length of intervention (weeks)*: 5 ● *No. of sessions per week*: 5
Outcomes	*ADHD kernesymptomer, forældrebedømt, mean SD, EoT* ● **Outcome type**: ContinuousOutcome ● **Scale:** ADHD symptoms index *ADHD kernesymptomer, lærerbedømt, mean SD, EoT* ● **Outcome type**: ContinuousOutcome ● **Scale:** ADHD symptoms index *Adfærdsforstyrrelser, forældrebedømt, mean SD, EoT* ● **Outcome type**: ContinuousOutcome ● **Scale:** Behaviour symptom index *Adfærdsforstyrrrelser, lærerbedømt, mean SD, EoT* ● **Outcome type**: ContinuousOutcome ● **Scale:** Behaviour symptom index
Identification	**Sponsorship source:** This study has received financial support through the Award 22è PREMI FER-RAN SALSAS I ROIG—Salut Mental i Comunitat granted by the City Council of Rubi (Spain) in 2010. **Country:** Spain **Setting:** Home **Authors name:** Aitana Bigorra **Institution:** Programa de Doctorat de Psiquiatria, Universitat Autònoma de Barcelona, Barcelona, Spain **Email:** abigorra@mutuaterrassa.es **Address:**
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Quote: Participants were enrolled in the study and were randomly assigned to one of the intervention groups by a member of the research team, using a computer-generated sequence. The study group allocation was blinded to chil- dren, their family, their teachers and the professionals who performed the cognitive assessments. In addition, participants, families and teachers were unaware of the difference between the experimental and the control training (i.e. the automatic adjustment of difficulty). The double-blind condition was maintained in all evaluations conducted through- out the study.
Allocation concealment (selection bias)	Low risk	Quote: "Participants were enrolled in the study and were randomly assigned to one of the intervention groups by a member of the research team, using a computer-generated sequence."
Blinding of participants and personnel (performance bias)	Low risk	Quote: "The study group allocation was blinded to children, their family, their teachers and the professionals who performed the cognitive assessments. In addition, participants, families and teachers were unaware of the difference between the experimental and the control training (i.e. the automatic adjustment of difficulty). The double-blind con- dition was maintained in all evaluations conducted through- out the study."
Blinding of outcome assessment (detection bias)	Low risk	Quote: "The study group allocation was blinded to children, their family, their teachers and the professionals who performed the cognitive assessments. In addition, participants, families and teachers were unaware of the difference between the experimental and the control training (i.e. the automatic adjustment of difficulty). The double-blind condition was maintained in all evaluations conducted throughout the study."
Incomplete outcome data (attrition bias)	Low risk	Quote: No significant differences were found between the experimental and control groups with respect to the proportion of dropouts during any study period (Fisher's exact test: from T0 to T1: χ 2 = 3.65, df = 1, p = 0.08; from T1 to T2: χ 2 = 0.18, df = 1, p = 0.51; from T0 to T2: χ 2 = 2.41, df = 1, p = 0.12). The last participant excluded from the data analysis after participation in the study was excluded due to a diagnosis of pervasive developmental disorder not otherwise specified. Missing values refer to questionnaires that were not completed (T0: 1 WFIRS-P, 1 SDQ-teacher; T1: 1 BRIEF-teacher; T2: 1 BRIEF-parent, 1 SDQ-parent, 4 BRIEF-teacher, 2 Conners-teacher, 5 TRF).
Selective reporting (reporting bias)	Unclear risk	Quote: "This study is registered as ISRCTN00767728 (www.controlled-trials. com)." Judgement Comment: Retrospectively registered in clinical trials- selective outcome reporting unclear
Other bias	Low risk	Quote: "Acknowledgments Maribel Ahuir, Llanos Artigao, Clara Barba, Andrea Bracho, Bernat Carreras, Noemi Carrillo, Marta Doñate, Cristina Enero, Alejandra Escura, Adrian Gaitan, Javi Sanchez, Pablo Vidal-Ribas, Maria Teresa Ordeig, Sylva-Astrik Torossian. This study has received financial support through the Award 22è PREMI FER- RAN SALSAS I ROIG—Salut Mental i Comunitat granted by the City Council of Rubi (Spain) in 2010."

Bikic 2017

Methods	**Study design:** Randomized controlled trial **Study grouping:** Parallel group
Participants	**Baseline Characteristics** Overall ● *Age in years, mean (SD)*: 14-17 ● *Male gender (%)*: 76.5 ● *Proportion using ADHD medication (%)*: 83 **Included criteria:** Participants who fulfilled the fol-lowing criteria were included: (1) a clinical diagnosis ofhyperkinetic disorder (F90.0, corresponding to ADHD com-bined type) (47); (2) age between 14–17 years; and (3) IQ>80. **Excluded criteria:** The exclusion criteria were: (1) pharmacological treat-ment other than methylphenidate, dexamphetamine, and/oratomoxetine; (2) comorbid conduct disorder, autism spec-trum disorders, or major depression; (3) history of headtrauma or verified neurological disease; (4) motor or percep-tual disabilities which prevented the use of a computer; (5)medical illness that required treatment; and (6) no access toa computer and internet at home. **Pretreatment:** RVP probability of hit (attention)
Interventions	**Intervention Characteristics** Intervention ● *Description*: SBT exercisesThe intervention group used a selection of beta-exercisesfrom the Scientific Brain Training (SBT) program (55), whichis a commercially available program for adults. Out of nineexercises available at that time, we selected six: EntangledFigures, Shapes and Colours, Under Pressure, DisplacedCharacters, Heraldry, and Objects Where are You? Thegames had different difficulty levels, and adjusted automat-ically to the user's performance. Promotion to the next leveldepended on 90% accuracy three times in a row at onelevel. If the accuracy was under 60% twice in a row, theuser was automatically returned to the previous level.Participants played two games each week in a rotatingmanner, independently of participants'performance eachweek. ● *Length of intervention (weeks)*: 7 ● *No. of sessions per week*: 5 Placebo ● *Description*: Control intervention: The control group played a common version of the gameTetris. Tetriminos are game pieces composed of four-squareblocks. Tetriminos fall down randomly into the playing field,and the aim is to manipulate the function of the blocks bymoving each one sideways and rotating by 90-degree units.The aim is to create a horizontal line of 10 blocks withoutgaps. When such a line is created, it disappears, and anyblock above the deleted line falls down. At each subsequentlevel the Tetriminos fall faster, and the game ends when thestack of Tetriminos reaches the top of the playing field. The game was not adaptive in terms of the fact that participantshad to start on the lowest level each day. ● *Length of intervention (weeks)*: 7 ● *No. of sessions per week*: 5
Outcomes	*ADHD kernesymptomer, forældrebedømt, mean SD, EoT* ● **Outcome type**: ContinuousOutcome ● **Scale:** ADHD-RS total *ADHD kernesymptomer, lærerbedømt, mean SD, EoT* ● **Outcome type**: ContinuousOutcome ● **Scale:** ADHD-RS total
Identification	**Sponsorship source:** This trial has been supported by a grant from the Region of SouthernDenmark Psychiatry Research foundation (nr. 7/6/2010). **Country:** Denmark **Setting:** Psychiatry, University **Comments:** **Authors name:** Aida Bikic **Institution:** Department for Child and Adolescent Psychiatry **Email:** aida.bikic@rsyd.dk **Address:** Kresten Phillipsens Vej 15, 6200 Aabenraa, Denmark
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Quote: A clinician, unrelated to the trial and blinded to baseline data and participant ID, performed the randomization by selecting the numbers assigned to each participant from an envelope.
Allocation concealment (selection bias)	Low risk	Quote: "CANTAB. A clinician, unrelated to the trial and blinded to baseline data and participant ID, performed the randomization by selecting the numbers assigned to each participant from an envelope."
Blinding of participants and personnel (performance bias)	High risk	No comments
Blinding of outcome assessment (detection bias)	Low risk	Quote: "This was a randomized, double-blinded trial." Judgement Comment: Teachers will most likely not know if adolescents are in the active or sham group - may be unbiased

Incomplete outcome data (attrition bias)	Low risk	Quote: The participant who dropped out of the trial was excluded from the statistical analysis.
Selective reporting (reporting bias)	Unclear risk	Judgement Comment: No reference to study protocol.
Other bias	Low risk	Quote: "Disclosure statement Torben Østergaard Christensen holds the license for the Danish version of Scientific Brain Training (SBT), now referred to as Happy Neuron Pro. The other authors report no conflicts of interest. Funding This trial has been supported by a grant from the Region of Southern Denmark Psychiatry Research foundation (nr. 7/6/2010)."

Chacko 2014

Methods	**Study design:** Randomized controlled trial **Study grouping:** Parallel group
Participants	**Baseline Characteristics** Intervention ● *Age in years, mean (SD)*: 8.4 (1.4) ● *Male gender (%)*: 81 ● *Proportion using ADHD medication (%)*: 27 Placebo ● *Age in years, mean (SD)*: 8.4 (1.3) ● *Male gender (%)*: 73 ● *Proportion using ADHD medication (%)*: 32 Overall ● *Age in years, mean (SD)*: not reported ● *Male gender (%)*: 78 ● *Proportion using ADHD medication (%)*: 29 **Included criteria:** Inclusion criteriaincluded: 1) children between the ages of 7–11 years; 2) a diagnosis of ADHD throughconsensus diagnosis based on parent and teacher ratings on the Disruptive BehaviorDisorder Rating Scales (DBD; Pelham, Gnangy, Greenslade, Milich, 1992) andimpairment using the Impairment Rating Scale (Fabiano et al., 2006); and a semi-structuredinterview with the parent using the Kiddie-SADS (Kaufman et al., 1997); 3) fluency inEnglish (parent and child), and; 4) internet access at home. **Excluded criteria:** Children were excluded if 1) there was evidence of a pervasive developmental disorder based on previous diagnosis and/or elevated sores on the Child Autism Rating Scale (Schopler, Reichler, Renner, 1988) rated by the evaluator at intake, or psychosis; 2) the child or parent presented withemergency psychiatric needs that required immediate services (e.g., suicidal or homicidalintent), and; 3) if the child had an estimated Full Scale IQ below 80 based on two subtests ofthe Wechsler Abbreviated Scale of Intelligence (WASI; Wechsler et al. 1999).
Interventions	**Intervention Characteristics** Intervention ● *Description*: CWMT Active—CWMT Active is a computerized training program that targets both thestorage and storage plus processing/manipulation components of verbal and nonverbalworking memory through training which takes place in approximately 30–45 minuteincrements over five days per week (25 training-days total). CWMT Active trials are titratedto the capacity of the individual using an adaptive staircase design that adjusts the difficultyof the program on a trial-by-trial basis. Each individual's training is supervised by a trainingaide (typically a parent or guardian) and a certified CWMT coach, who is able to trackclosely (via online access) each individual's performance and provide support to the familythrough weekly coaching interactions (by phone). ● *Length of intervention (weeks)*: 5 ● *No. of sessions per week*: 5 Placebo ● *Description*: CWMT Placebo—The CWMT Placebo condition included a low-level (placebo) workingmemory training program that was identical to CWMT Active with respect to the types oftraining games utilized and the number of training trials per session (i.e., 90 trials). Unlike he active condition, difficulty level was not scaffolded according to each user'sperformance parameters in the placebo condition. As with CWMT Active, parents in theCWMT Placebo served as training aides, and each family was supported by a coach whoutilized comparable support procedures. ● *Length of intervention (weeks)*: 5 ● *No. of sessions per week*: 5
Outcomes	*ADHD kernesymptomer, forældrebedømt, mean SD, EoT* ● **Outcome type**: ContinuousOutcome ● **Scale:** Disruptive Behavior Disorders Rating Scale - inattention subscale *ADHD kernesymptomer, lærerbedømt, mean SD, EoT* ● **Outcome type**: ContinuousOutcome ● **Scale:** Disruptive Behavior Disorders Rating Scale - inattention subscale
Identification	**Sponsorship source:** Funding for this project was provided through Award Number R34MH088845 from the National Institute ofMental Health. **Country:** USA **Setting:** **Comments:** **Authors name:** Anil Chacko **Institution:** Queens College, City University of New York **Email:** chacko@qc.cuny.edu **Address:** 65-30 Kissena Blvd., Flushing NY 11367
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Quote: Participants were randomly assigned to treatment condition (CWMT Active= 44; CWMT Placebo= 41; see Figure 1 for CONSORT diagram) by a senior research staff (blind to participant profile) based on a random permutation calculator (http://www.webcalculator.co.uk/statistics/rpermute3.htm).
Allocation concealment (selection bias)	Low risk	Quote: "Participants were randomly assigned to treatment condition (CWMT Active= 44; CWMT Placebo= 41; see Figure 1 for CONSORT diagram) by a senior research staff (blind to participant profile) based on a random permutation calculator (http://www.webcalculator.co.uk/statistics/rpermute3.htm)."
Blinding of participants and personnel (performance bias)	Low risk	Quote: "subtests range from .74–.81. Procedure <b>At study intake, parents and children were informed of randomization to one of two computerized programs to target working memory. No information was provided to the parents, children, or teachers regarding the relative benefits of the two programs. As such, these individuals were blind to study group assignment."
Blinding of outcome assessment (detection bias)	Low risk	Quote: "All assessments were conducted by research staff who were blind to participant treatment randomization."
Incomplete outcome data (attrition bias)	Low risk	Quote: "An Intent-To-Treat (ITT) approach was used to compare treatment effects of the two treatment conditions. Mixed effects regression was used"
Selective reporting (reporting bias)	Low risk	Quote: "http://clinicaltrials.gov/ct2/show/NCT01137318)."
Other bias	Low risk	Quote: "Funding for this project was provided through Award Number R34MH088845 from the National Institute of Mental Health. The content is solely the responsibility of the authors and does not necessarily represent the official views of the National Institute of Mental Health or the National Institutes of Health."

Dovis 2015

Methods	**Study design:** Randomized controlled trial **Study grouping:** Parallel group
Participants	**Baseline Characteristics** Intervention ● *Age in years, mean (SD)*: 10.6 (1.4) ● *Male gender (%)*: 81 ● *Proportion using ADHD medication (%)*: 65 Placebo ● *Age in years, mean (SD)*: 10.5 (1.3) ● *Male gender (%)*: 80 ● *Proportion using ADHD medication (%)*: 73 Overall ● *Age in years, mean (SD)*: not reported ● *Male gender (%)*: 80 ● *Proportion using ADHD medication (%)*: 72 **Included criteria:** Eligibility criteria.Eligible participants were all children aged 8 to 12 years with (a) aprior DSM-IV-TR [52] diagnosis of ADHD combined-type and absence of any autism spectrum disorder according to a child psychologist or psychiatrist, (b) a score within the clinicalrange (95thto 100thpercentile) on the ADHD scales of both the parent and teacher version ofthe Disruptive Behavior Disorder Rating Scale (DBDRS [53]; Dutch translation: [54]), (c)meeting criteria for ADHD combined-type on the ADHD section of the Diagnostic InterviewSchedule for Children, parent version (PDISC-IV [55]). The PDISC-IV is a structured diagnos-tic interview based on the DSM-IV, with adequate psychometric properties, (d) absence of conduct disorder (CD) based on the CD sections of the PDISC-IV, (e) an IQ score80 establishedby the short version of the Dutch Wechsler Intelligence Scale for Children (WISC-III; [56]).Two subtests, Vocabulary and Block Design, were administered to estimate Full Scale IQ(FSIQ). This composite score has satisfactory reliability and correlates highly with FSIQ [57],(f) absence of any neurological disorder, sensory (color blindness, vision) or motor impairmentas stated by the parents, (g) not taking any medication other than Methylphenidate or Dextro-amphetamine. Participants discontinued their Methylphenidate at least 24 hours before eachtest-session, allowing a complete wash-out [58]. Participants taking Dextroamphetamine dis-continued medication 48 hours before each test-session [59], finally, (h) parents had to agreeto keep the dose of ADHD medication stable between the intake and the 3-months follow-upsession, and had to consent not to initiate or participate in other psychosocial treatments. **Excluded criteria:** not reported **Pretreatment:** None
Interventions	**Intervention Characteristics** Intervention ● *Description*: Full-active condition.In this condition WM, inhibition and cognitive-flexibility were allin training-mode. Training-mode entailed that, after each block of training tasks, the difficultylevel of the training task was automatically adjusted to the child's level of performance. Fur-thermore, in training-mode (a) the WM task [60] consisted of five training levels: the first leveltargeted visuospatial short-term memory (STM) only, whereas the other four levels targetedcombinations of visuospatial STM, updating and manipulation of information (i.e. these fourlevels targeted both STM and the central executive). Each level was trained for 5 of the 25 ses-sions. The difficulty level was increased by increasing the amount of information that had to beremembered, updated and manipulated, (b) the inhibition task [61] was designed to decrease he time needed to inhibit a prepotent response (comparable with the

	stop signal reaction timemeasured by the STOP task [62]). On most trials the child had to respond to a go-stimulus bypressing left or right within a specific time-frame (a green colored response window between550−850 ms; seeFig 1). This created a prepotent response tendency. However, on 25% of thetrials, somewhere after the go-stimulus and before the middle of the response window, a stop-signal was presented (a tone and a visual cue) and the child had to inhibit the prepotent re-sponse (stop-trials). The difficulty level was increased by shortening the time allowed to inhibitthis response, (c) the cognitive-flexibility task [61] was designed to decrease the time a childneeds to adapt his/her behavior when task-rules change (i.e. switch cost). Specifically, the childhad to sort objects with different shapes and colors (e.g. blue or red colored plungers andwheels) to either the left or the right according to a rule. The rule was either to sort accordingto shape or to sort according to color. In 25% of the trials the rule switched (switch-trials). Thedifficulty level was increased by shortening the time allowed to switch between the two rules(for a more detailed description of the three training tasks see [31]). ● *Length of intervention (weeks)*: 5 ● *No. of sessions per week*: 5 Placebo ● *Description*: Placebo condition.In this condition WM, inhibition and cognitive-flexibility were all inplacebo-mode. In placebo-mode the inhibition task and the cognitive-flexibility task were presented the same way as in training-mode except that the stop-trials and switch-trials werereplaced by go-trials and non-switch trials (i.e., no stop-trials and switch-trials were presented)and the difficulty level was not adjusted ● *Length of intervention (weeks)*: 5 ● *No. of sessions per week*: 5
Outcomes	*ADHD kernesymptomer, forældrebedømt, mean SD, EoT* ● **Outcome type**: ContinuousOutcome ● **Scale:** Disruptive Behavior Disorders Rating Scale - inattention subscale *ADHD kernesymptomer, lærerbedømt, mean SD, EoT* ● **Outcome type**: ContinuousOutcome ● **Scale:** Disruptive Behavior Disorders Rating Scale - inattention subscale *Livskvalitet* ● **Outcome type**: ContinuousOutcome ● **Scale:** PEDSQoL total BARN *Adfærdsforstyrrelser, forældrebedømt, mean SD, EoT* ● **Outcome type**: ContinuousOutcome ● **Scale:** Disruptive Behavior Disorders Rating Scale - ODD subscale *Adfærdsforstyrrrelser, lærerbedømt, mean SD, EoT* ● **Outcome type**: ContinuousOutcome ● **Scale:** Disruptive Behavior Disorders Rating Scale - ODD subscale
Identification	**Sponsorship source:** Funding:The authors have no support or funding toreport. **Country:** Netherlands **Setting:** mental-healthcare centers/home-based **Comments:** **Authors name:** Sebastiaan Dovis **Institution:** 1Department of Developmental Psychology, University of Amsterdam, Amsterdam, The Netherlands,2Addiction, Development, and Psychopathology (Adapt) Lab, Department of Psychology, University ofAmsterdam, Amsterdam, The Netherlands,3Cognitive Science Center A **Email:** S.Dovis@uva.nl **Address:**
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Quote: "If inclusion criteria were met, parent and child were invited to the pre-test session and the startup session, and were independently allocated to one of the three treatment conditions using the process of randomization by minimization [82] on the basis of age, gender, IQ, medication-use (yes/no), and parent- and teacher-rated inattention and hyperactivity/impulsivity symptoms (using the 6-months DBDRS)."
Allocation concealment (selection bias)	Low risk	Quote: "Once a research assistant completed a startup session with a particular family, he/she could not test or have further contact with that family or the teacher (to preserve blinding). During the 5-week, home-based training, a coach (a research assistant blind to the treatment condition) made weekly calls (of about 15 minutes; using a standardized telephone protocol) to the participating families to monitor progress, motivation and compli- ance, and to solve technical and game-related problems. Parents and children were explicitly instructed not to discuss the content of the training tasks with the coach. If a coach did receive information revealing the treatment condition, he/she was replaced and could no longer have contact with the family or the teacher."
Blinding of participants and personnel (performance bias)	Low risk	Quote: "This was a multicenter (14 sites), double-blind, placebo-controlled, multi-arm parallel-group study conducted in the Netherlands" Judgement Comment: See prior comment - blinding was kept throughout, and it is plausible that parents and teachers would not know which group was active or placebo.

Blinding of outcome assessment (detection bias)	Low risk	Quote: "This was a multicenter (14 sites), double-blind, placebo-controlled, multi-arm parallel-group study conducted in the Netherlands"
Incomplete outcome data (attrition bias)	Low risk	Comment: Missing outcome data was balanced across intervention groups
Selective reporting (reporting bias)	Low risk	Quote: "This was a multicenter (14 sites), double-blind, placebo-controlled, multi-arm parallel-group study conducted in the Netherlands (trial register: http://www.trialregister.nl/trialreg/admin/ rctview.asp?TC=2728; registry name: improving executive functioning in children with ADHD: training executive functions within the context of a computer game; registry number: NTR2728). No important changes to methods were made after trial commencement (the trial started April 2011 and ended January 2013). The protocol for this trial and CONSORT check- list are available as S1 Protocol and S1 CONSORT Checklist.."
Other bias	Low risk	Quote: "Funding: The authors have no support or funding to report. Competing Interests: P.J.M.P. is member of Stichting Gaming & Training, a nonprofit organization that facilitates the development and implementation of ‘‘Braingame Brian.’’; S.v.d.O. has been a paid consultant for Janssen Pharmaceuticals with regard to ‘‘Healseeker,’’ a serious game for cognitive function"

Johnstone 2010

Methods	**Study design:** Randomized controlled trial **Study grouping:** Parallel group
Participants	**Baseline Characteristics** Intervention 1 ● *Age in years, mean (SD)*: 10.7 (1.5) ● *Male gender (%)*: 87 ● *Proportion using ADHD medication (%)*: 47 Control ● *Age in years, mean (SD)*: 10.7 (1.3) ● *Male gender (%)*: 86 ● *Proportion using ADHD medication (%)*: 79 Overall ● *Age in years, mean (SD)*: not reported ● *Male gender (%)*: not reported ● *Proportion using ADHD medication (%)*: not reported **Included criteria:** All participant were diagnosed with AD/HD of the combined type by a psychologist in accordance to DSM-IV **Excluded criteria:** Participants with clinical significant comorbid disorder were excluded. Participants were excluded if they were known to suffer from epileptic seizures, serious head-injuries, periods of unconciousness or co-morbid learning, behavioral and psychiatric disorders
Interventions	**Intervention Characteristics** Intervention 1 ● *Description*: High intensity of concurrent computer-based working memory and inhibition training ● *Length of intervention (weeks)*: 5 ● *No. of sessions per week*: 5 Control ● *Description*: Low intensity of concurrent computer-based working memory and inhibition training ● *Length of intervention (weeks)*: 5 ● *No. of sessions per week*: 5
Outcomes	*ADHD core symptom, parent rating SE* ● **Outcome type**: ContinuousOutcome ● **Reporting**: Partially reported ● **Scale**: Connors rating scale (total symptom score) ● **Unit of measure**: Frequency ● **Direction**: Lower is better ● **Data value**: Endpoint ● **Notes**: Data extracted from a graph.
Identification	**Sponsorship source:** The research was supported by a small internal grant from the university of Wollongong. **Country:** Australia **Setting:** **Comments:** **Authors name:** Stuart J. Johnstone **Institution:** Brain and behaviour Research Institute and School of Psychology **Email:** sjohnsto@uow.edu.au **Address:** Wollongong, NSW 2522, Australia
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Comment: Random allocation was handled by SR (Steven Roodenrys)
Allocation concealment (selection bias)	Unclear risk	Judgement Comment: Random allocation was handled by SR, with all the other researchers, the participants and their parents being blinded.Unclear how this is done unclear if SR could foresee allocation?
Blinding of participants and personnel (performance bias)	Low risk	Judgement Comment: Random allocation was handled by SR, with all the other researchers, the participants and their parents being blinded "... with all other researchers, the participants and their parents being blind to condition membership"
Blinding of outcome assessment (detection bias)	Low risk	Judgement Comment: Random allocation was handled by SR, with all the other researchers, the participants and their parents being blinded "... with all other researchers, the participants and their parents being blind to condition membership"
Incomplete outcome data (attrition bias)	High risk	Comment: 20 were randomly allocated - and 18 completed training" "4 removed from low intensity and three in high.. " - No itt. Unclear how many was withdrawn from the analysis
Selective reporting (reporting bias)	Low risk	Judgement Comment: The research protocol was approved by ethics committee.
Other bias	Low risk	No comments

Johnstone 2012

Methods	**Study design:** Randomized controlled trial **Study grouping:** Parallel group
Participants	**Baseline Characteristics** Intervention 1 ● *Age in years, mean (SD)*: 10.0 (2.1) ● *Male gender (%)*: 86 ● *Proportion using ADHD medication (%)*: not reported Intervention 2 ● *Age in years, mean (SD)*: 9.4 (2.2) ● *Male gender (%)*: 89 ● *Proportion using ADHD medication (%)*: not reported Control ● *Age in years, mean (SD)*: 9.9 (2.3) ● *Male gender (%)*: 95 ● *Proportion using ADHD medication (%)*: not reported Overall ● *Age in years, mean (SD)*: not reported ● *Male gender (%)*: 90 ● *Proportion using ADHD medication (%)*: 87 **Included criteria:** All participants were required to be free of hearing or vision problems, have not previously experienced epileptic seizures, serious head injuries or periods of unconsciousness and show a normal-range IQ and spelling ability. AD/HD participants required a professional diagnosis of AD/HD (any subtype) **Excluded criteria:** Participants were excluded if they previously have shown evidence of psychiatric, behavioural or learning problems, as reported by their parents. **Pretreatment:** Of the 60 children included, 8 were not on any medication, 26 were taking Concerta, 21 taking Ritalin, 3 taking dexamphetamine and 3 taking Strattera
Interventions	**Intervention Characteristics** Intervention 1 ● *Description*: Working memory and inhibitory control without attention monitoring ● *Length of intervention (weeks)*: 5 ● *No. of sessions per week*: Unclear Intervention 2 ● *Description*: Software (focusing on working memory and inhibitory control) with attention monitoring ● *Length of intervention (weeks)*: 5 ● *No. of sessions per week*: Unclear Control ● *Description*: waiting list ● *Length of intervention (weeks)*: 5 ● *No. of sessions per week*: None
Outcomes	*ADHD core symptoms, parent rating, SD* ● **Outcome type**: ContinuousOutcome ● **Reporting**: Partially reported ● **Scale**: Behavioral rating score (18-item) ● **Direction**: Lower is better ● **Data value**: Change from baseline ● **Notes**: Data extracted from a graph. Type of variance was not mentioned (we assumed it was SD).

Identification	**Sponsorship source:** The research was supported in part by NeuroCog soluations Pty Ltd (Australia) **Country:** Australia **Setting:** not stated **Comments:** none **Authors name:** Stuart J. Johnstone **Institution:** School of Psychology, University of Wollongong **Email:** sjohnsto@uow.edu.au **Address:** Wollongog, NSW 2522, Australia
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Unclear risk	Participants were randomly assigned to one of the three conditions. It is unclear how this was done
Allocation concealment (selection bias)	Unclear risk	Judgement Comment: Nothing stated
Blinding of participants and personnel (performance bias)	High risk	Judgement Comment: Participants and their parents were given a full explanation of the procedure and understood that they may be allocated to a waitlist condition with an opportunity to participate in training after the waitlist period.Nothing was mentioned as to how blinding was obtained.
Blinding of outcome assessment (detection bias)	High risk	Judgement Comment: Participants and their parents were given a full explanation of the procedure and understood that they may be allocated to a waitlist condition with an opportunity to participate in training after the waitlist period. Nothing was mentioned as to how blinding was obtained.
Incomplete outcome data (attrition bias)	Low risk	Comment: Only data was obtained from the children completing the 25 sessions. 151 completed the initial training sessions with 23 participants not completing more than 15 of the requested 25 trials.
Selective reporting (reporting bias)	Low risk	No comments
Other bias	Low risk	No comments

Klingberg 2005

Methods	**Study design:** Randomized controlled trial **Study grouping:** Parallel group
Participants	**Baseline Characteristics** Intervention 1 ● *Age in years, mean (SD)*: 9.9 (1.3) ● *Male gender (%)*: 81.5 ● *Proportion using ADHD medication (%)*: 0 Control ● *Age in years, mean (SD)*: 9.8 (1.3) ● *Male gender (%)*: 84.6 ● *Proportion using ADHD medication (%)*: 0 Overall ● *Age in years, mean (SD)*: 9.8 (1.3) ● *Male gender (%)*: 83 ● *Proportion using ADHD medication (%)*: 0 **Included criteria:** 1) diagnosis of ADHD of either combined or predominantly inattentive subtype 2) age between 7 and 12 years 3) access to a personal computer with an internet connection at home or in school **Excluded criteria:** 1) being treated with stimulants, atomoxetine, neuroleptic or any other psychoactive drug 2) fulfilling criteria for diagnosis of clinical significant oppositional defiant disorder, autistic syndrome, Aspergers syndrome or depression 3) history of seizures during the past 2 years 4) IQ 80 5) motor or perceptial handikap that would prevent the usage of a computer program 6) educational level and socioeconomic situation that made it unlikely that the familiy would be able to follow the treatment procedure and study requirements 7) medial illness requiring immediate treatment **Pretreatment:** No differences
Interventions	**Intervention Characteristics** Intervention 1 ● *Description*: computer program for training WM (medium total training time: 40 min./session), with increasing difficulty level ● *Length of intervention (weeks)*: 5 ● *No. of sessions per week*: Not reported Control ● *Description*: computer program for training WM, remaining at low difficulty level. ● *Length of intervention (weeks)*: 5 ● *No. of sessions per week*: Not reported

Outcomes	*ADHD core symptom, parent rating, SD* ● **Outcome type**: ContinuousOutcome ● **Reporting**: Fully reported ● **Scale**: Conners scale (inattention) ● **Direction**: Lower is better ● **Data value**: Endpoint *ADHD core symptom, teacher rating, SD* ● **Outcome type**: ContinuousOutcome ● **Reporting**: Fully reported ● **Scale**: Conners scale (inattention) ● **Direction**: Lower is better ● **Data value**: Endpoint
Identification	**Sponsorship source:** Drs. Forssberg and Klingberg and Ms Westerberg own stock in Cogmed. Ms. Olesen had a consultancy agreement with Cogmed. **Country:** Sweden **Setting:** Personal computer in home or school **Comments:** **Authors name:** Torkel Klingberg **Institution:** Unit of Neuropediatrics, Department of Women and Children´s Health, Astrid Lindgren´s Children´s hospital **Email:** torkel.klingberg@kbh.ki.se **Address:** Unit of Neuropediatrics, Department of Women and Children's Health, Astrid Lindgren's Children's Hospital, Q2:07, Karolinska Institute, 171 76 Stockholm, Sweden
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Comment: A randomized blinded list of numbers associated with the CDs containing the treatment or comparison program was sent out to each clinical center. Randomization was done with blocks of four
Allocation concealment (selection bias)	Low risk	Judgement Comment: The CDs were distributed by the testing psychologists to the children in the order they entered the study at each site. Thus the physician, psychologist, parent and child were all blind to child status group until after the follow-up assessment.
Blinding of participants and personnel (performance bias)	Low risk	Judgement Comment: The CDs were distributed by the testing psychologists to the children in the order they entered the study at each site. Thus the physician, psychologist, parent and child were all blind to child status group until after the follow-up assessment
Blinding of outcome assessment (detection bias)	Low risk	Judgement Comment: The CDs were distributed by the testing psychologists to the children in the order they entered the study at each site. Thus the physician, psychologist, parent and child were all blind to child status group until after the follow-up assessment
Incomplete outcome data (attrition bias)	High risk	Comment: Only children from the intervention group withdrew: two because of computer problems and one because of social problems.
Selective reporting (reporting bias)	High risk	Judgement Comment: No reference to protocol. Do not refer to non-compliers analysis in statistical methods. Method description on collecting information on adverse events was not described.
Other bias	Low risk	Judgement Comment: Conflict of interest described.Funding source not described.

Rabiner 2010

Methods	**Study design:** Randomized controlled trial **Study grouping:** Parallel group
Participants	**Baseline Characteristics** Intervention 1 ● *Age in years, mean (SD)*: not reported ● *Male gender (%)*: not reported ● *Proportion using ADHD medication (%)*: not reported Intervention 2 ● *Age in years, mean (SD)*: not reported ● *Male gender (%)*: not reported ● *Proportion using ADHD medication (%)*: not reported Control ● *Age in years, mean (SD)*: not reported ● *Male gender (%)*: not reported ● *Proportion using ADHD medication (%)*: not reported Overall ● *Age in years, mean (SD)*: not reported ● *Male gender (%)*: not reported ● *Proportion using ADHD medication (%)*: 7% **Included criteria:** All whom had been identified by their teacher as having attention difficulties. Children scoring at least

	1.0 standard deviations above the sample mean (measured on the Inattentive Scale of the CTRS-R:L) were potentially eligable for the study. For students whom second language were english, wher included if their non-verbal IQ score exceeded 70. **Excluded criteria:** Students were excluded if their T-score on the Inattentive Scale was below 60. Student with full scale IQ scores below 70 were excldued due to the likelihood of them becoming frustrated by the training. **Pretreatment:** Nothing mentioned
Interventions	**Intervention Characteristics** Intervention 1 ● *Description*: Computerized Attention Training (CAT) -session lasted 75 min with 50-60 min on the computer. ● *Length of intervention (weeks)*: 14 ● *No. of sessions per week*: 2 Intervention 2 ● *Description*: Computer Assisted Instruction (CAI) -session lasted 75 min with 50-60 min on the computer. ● *Length of intervention (weeks)*: 14 ● *No. of sessions per week*: 2 Control ● *Description*: Waitlist ● *Length of intervention (weeks)*: none ● *No. of sessions per week*: none
Outcomes	*ADHD core symptom, teacher rating, OR* ● **Outcome type**: DichotomousOutcome ● **Reporting**: Fully reported ● **Scale**: Conners scale (inattention) ● **Data value**: Change from baseline ● **Notes**: Odds ratio were calculated for each significant efect to provide an estimate of magnitude of change.
Identification	**Sponsorship source:** This study was supported by Grant R305H050036 from the department of education **Country:** USA **Setting:** 5 public schools in the southeastern USA **Comments:** **Authors name:** David L. Rabiner **Institution:** Center for Child and Family Policy/Dept. of Psychology Neuroscience, Duke University, Durham, USA **Email:** drabiner@duke.edu **Address:** Duke university, Durham, NC 27708, USA
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	High risk	Randomization was done within school to ensure a balanced representation of students
Allocation concealment (selection bias)	High risk	Judgement Comment: Randomization was done within school to ensure a balanced representation of students
Blinding of participants and personnel (performance bias)	High risk	Judgement Comment: Teachers were initiallyblind to students´ condition, but some undoubtedly became aware of who received intervention.
Blinding of outcome assessment (detection bias)	High risk	Judgement Comment: Randomization was done within school to ensure a balanced representation of students. Parents of students randomized to the control condition were offered the opportunity to have their child receive the intervention of their choice the following year. Teachers were initially blind to students condition but some undoubtedly became aware of who received intervention.
Incomplete outcome data (attrition bias)	Low risk	Comment: Twenty students were excluded from further participation because their T-score on the DSM-IV inattentive scale was below 60. Analysis accounted for missing data (assuming missing at random)
Selective reporting (reporting bias)	High risk	Judgement Comment: No reference to protocol.cannot find the statistical method description (analysis of missing data described in result section).
Other bias	Low risk	Judgement Comment: The role of the funding source has not been stated.Potential conflict of interest has not been described.The study seems otherwise free of other sources of bias.

Shalev 2007

Methods	**Study design:** Randomized controlled trial **Study grouping:** Parallel group
Participants	**Baseline Characteristics** Intervention 1 ● *Age in years, mean (SD)*: 9.1 (6-13) ● *Male gender (%)*: 85 ● *Proportion using ADHD medication (%)*: not reported Control ● *Age in years, mean (SD)*: 9.2 (6-13) ● *Male gender (%)*: 81

	● *Proportion using ADHD medication (%)*: not reported Overall ● *Age in years, mean (SD)*: not reported ● *Male gender (%)*: 83 ● *Proportion using ADHD medication (%)*: not reported **Included criteria:** Participants were diagnosed by a qualified psychiatrist, neurologist or psychologisk according to DSM-IV criteria. Written parental consent was a prerequisite for participation in the study. **Excluded criteria:** Not reported **Pretreatment:** There was no significant difference between ages and intellegence between the two groups
Interventions	**Intervention Characteristics** Intervention 1 ● *Description*: The computerized progressive attentional training(CPAT) program is composed of four sets of structured tasks that uniquely activatesustained attention, selective attention, orienting of attention, and executive attention.Performance was driven by tight schedules of feedback and participants automaticallyadvanced in ordered levels of difficulty contingent upon performance. ● *Length of intervention (weeks)*: 8 ● *No. of sessions per week*: 2 Control ● *Description*: The controlgroup consisted of children with ADHD who participated in sessions of the samefrequency, length, and format except that instead of performing the training tasks theyplayed various computer games and were involved in various paper and pencil activitiesduring the session. These computer games contained inherent scoring and feedback mechanisms.These games also included multiple levels of difficulty ● *Length of intervention (weeks)*: 8 ● *No. of sessions per week*: 2
Outcomes	*ADHD core symptom, parent rating SEM* ● **Outcome type**: ContinuousOutcome ● **Reporting**: Partially reported ● **Scale**: Conners scale (inattention) ● **Direction**: Lower is better ● **Data value**: Endpoint ● **Notes**: Data extracted from graph.
Identification	**Sponsorship source:** **Country:** UK **Setting:** **Comments:** **Authors name:** Lilach Shalev **Institution:** Behavioral brain sciences center, school of psychology **Email:** 1.shalev.1@bham.ac.uk **Address:** University of Birmingham, Edgbaston, B15 2TT, Birmingham, UK
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	High risk	Comment: The participants were randomly assigned to either the experimental group or the control group. Not clear how this is done.
Allocation concealment (selection bias)	High risk	Judgement Comment: Insufficient information on allocation concealment
Blinding of participants and personnel (performance bias)	Unclear risk	Judgement Comment: Participants were randomly assigned to either the experimental group or the control group, and the group identity was known neither to participants nor to their parents.Unclear if personnel was blinded.
Blinding of outcome assessment (detection bias)	Unclear risk	Judgement Comment: Insufficcient information of the blinding of outcome assessors
Incomplete outcome data (attrition bias)	Unclear risk	Comment: Insufficient information
Selective reporting (reporting bias)	High risk	Judgement Comment: No reference to study protocol.Statistical methods incoorporated in results section.
Other bias	Low risk	Judgement Comment: Appears to be free of other sources of bias.No reference to conflict of interest and funding source.

Steiner 2011

Methods	**Study design:** Randomized controlled trial **Study grouping:** Parallel group
Participants	**Baseline Characteristics** Intervention 1 ● *Age in years, mean (SD)*: not reported ● *Male gender (%)*: not reported ● *Proportion using ADHD medication (%)*: not reported Intervention 2

	● *Age in years, mean (SD)*: not reported ● *Male gender (%)*: not reported ● *Proportion using ADHD medication (%)*: not reported Control ● *Age in years, mean (SD)*: not reported ● *Male gender (%)*: not reported ● *Proportion using ADHD medication (%)*: not reported Overall ● *Age in years, mean (SD)*: 12.4 (0.9) ● *Male gender (%)*: 52.2 ● *Proportion using ADHD medication (%)*: 60 **Included criteria:** Children were eligible if they had a diagnosis of ADHD confirmed by their psychian and sufficient english ability to complete assessments and intervention protocols. Both boys and girls were eligible, regardless of their subtype of ADHD or medication use. **Excluded criteria:** Children were excluded if they had a coexsisting diagnosis of conduct disorder, pervasive developmental disorder or other serious mental illness (eg. psychosis) **Pretreatment:** There were no statistically significant preinterventions differences in demographic characteristics across the three groups.
Interventions	**Intervention Characteristics** Intervention 1 ● *Description*: attention training through neurofeedback (NF) -45 min sessions ● *Length of intervention (weeks)*: 16 ● *No. of sessions per week*: 2 Intervention 2 ● *Description*: attention training through a standard computer format (SCF) --45 min sessions ● *Length of intervention (weeks)*: 16 ● *No. of sessions per week*: 2 Control ● *Description*: Waitlist ● *Length of intervention (weeks)*: 16 ● *No. of sessions per week*: none
Outcomes	*ADHD core symptom, parent rating, SD* ● **Outcome type**: ContinuousOutcome ● **Reporting**: Fully reported ● **Scale**: Conners scale (inattention) ● **Direction**: Lower is better ● **Data value**: Endpoint *ADHD core symptom, teacher rating, SD* ● **Outcome type**: ContinuousOutcome ● **Reporting**: Fully reported ● **Scale**: Conners scale (inattention) ● **Direction**: Lower is better ● **Data value**: Endpoint
Identification	**Sponsorship source:** The study was supported by grants from the Deborah Munroe Noonan Memorial Research Fund and the Newton Schools Foundation **Country:** USA **Setting:** Hospital/Middle school **Comments:** **Authors name:** Naomi J. Steiner **Institution:** Floating Hospital for Children, Boston, MA, USA **Email:** nsteiner@tuftsmedicalcenter.org **Address:** Floating Hospital for Children 800, washington street #334, Boston MA 02111, USA
Notes	

Risk of bias table

Bias	Authors' judgement	Support for judgement
Random sequence generation (selection bias)	Low risk	Using a computer-generated random digit generator the remaining 41 participants were randomly assigned to one of the two interventions or the waiting list
Allocation concealment (selection bias)	High risk	Judgement Comment: Insufficient information on allocation concealment
Blinding of participants and personnel (performance bias)	High risk	Judgement Comment: Insufficient information on blinding
Blinding of outcome assessment (detection bias)	High risk	Judgement Comment: Insufficient information on blinding of outcome assessors.
Incomplete outcome data (attrition bias)	High risk	Comment: imbalance in numbers and reason for missing data across intervention groups (figure 1)

Selective reporting (reporting bias)	Unclear risk	Judgement Comment: There were 3 participants in the neurofeedback group and 2 in the SCF group who where excluded. Not explained why. No reference to study protocol, but include expected outcomes.
Other bias	Low risk	Judgement Comment: No reporting on conflict of interest or role of funding source, but appears free of other sources of bias.

Footnotes

Summary of findings tables

Additional tables

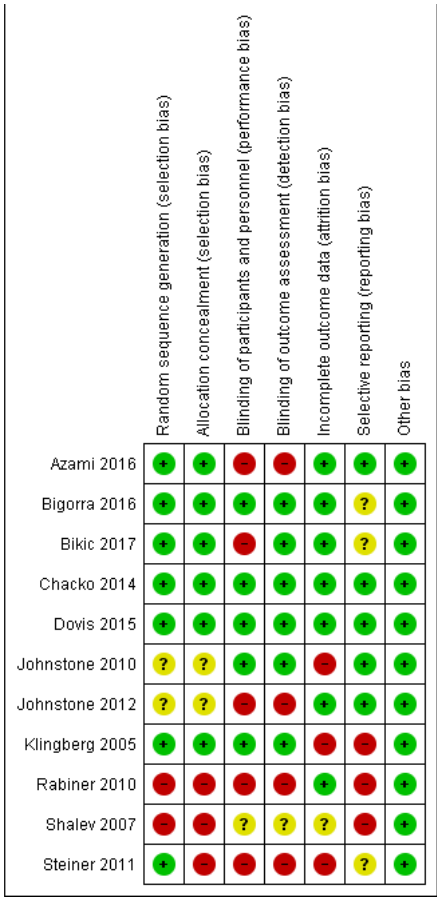
Data and analyses

1 PC training vs. Control

Outcome or Subgroup	Studies	Participants	Statistical Method	Effect Estimate
1.1 ADHD kernesymptomer, forældrebedømt, mean SD	10	439	Std. Mean Difference (IV, Random, 95% CI)	-0.49 [-1.04, 0.07]
1.1.1 EoT	10	439	Std. Mean Difference (IV, Random, 95% CI)	-0.49 [-1.04, 0.07]
1.2 ADHD kernesymptomer, lærerbedømt, mean SD	6	288	Std. Mean Difference (IV, Random, 95% CI)	0.04 [-0.19, 0.28]
1.2.1 EoT	6	288	Std. Mean Difference (IV, Random, 95% CI)	0.04 [-0.19, 0.28]
1.3 ADHD kernesymptomer, lærerbedømt, event	1	81	Risk Ratio (IV, Random, 95% CI)	2.90 [1.13, 7.44]
1.3.1 EoT	1	81	Risk Ratio (IV, Random, 95% CI)	2.90 [1.13, 7.44]
1.4 Livskvalitet (børnebedømt) 3 months FU	1	61	Mean Difference (IV, Fixed, 95% CI)	-0.60 [-8.26, 7.06]
1.4.1 3 months FU	1	61	Mean Difference (IV, Fixed, 95% CI)	-0.60 [-8.26, 7.06]
1.5 Livskvalitet (Forældre bedømt) 3 months FU	1	62	Mean Difference (IV, Fixed, 95% CI)	10.40 [4.04, 16.76]
1.6 Adfærdsforstyrrelser, forældrebedømt, mean SD	2	122	Std. Mean Difference (IV, Random, 95% CI)	-0.17 [-0.52, 0.19]
1.6.1 EoT	2	122	Std. Mean Difference (IV, Random, 95% CI)	-0.17 [-0.52, 0.19]
1.7 Adfærdsforstyrrrelser, lærerbedømt, mean SI	2	122	Std. Mean Difference (IV, Random, 95% CI)	-0.05 [-0.44, 0.35]
1.7.1 EoT	2	122	Std. Mean Difference (IV, Random, 95% CI)	-0.05 [-0.44, 0.35]

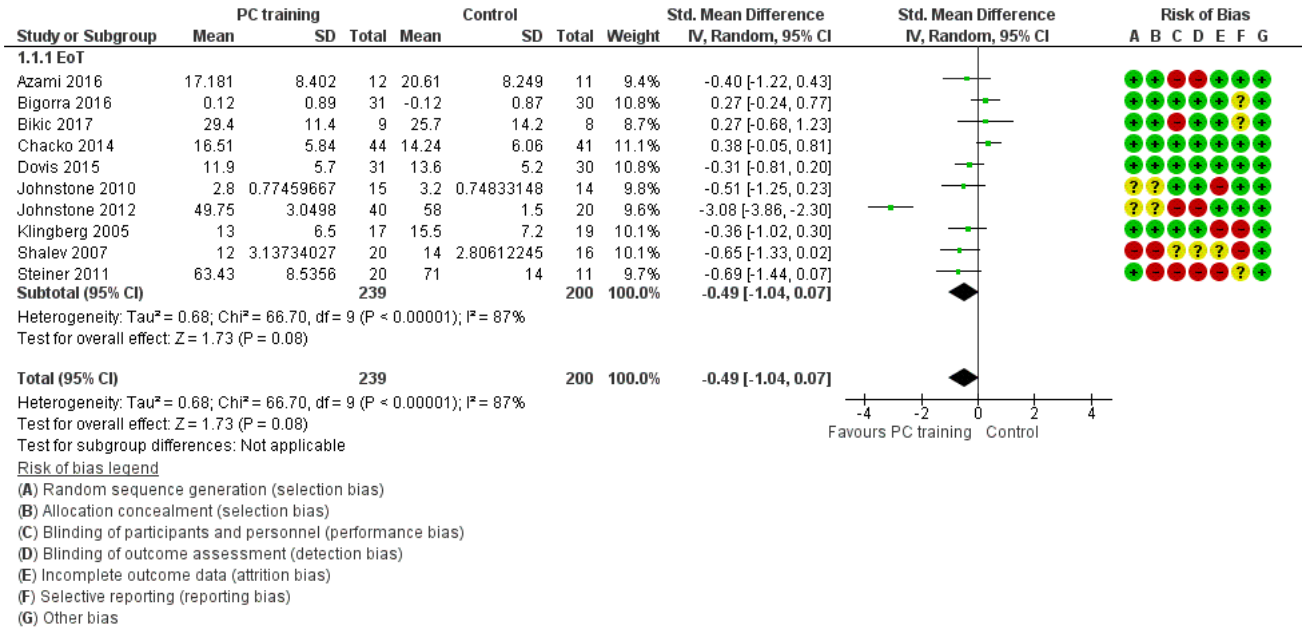
Figures

Figure 1



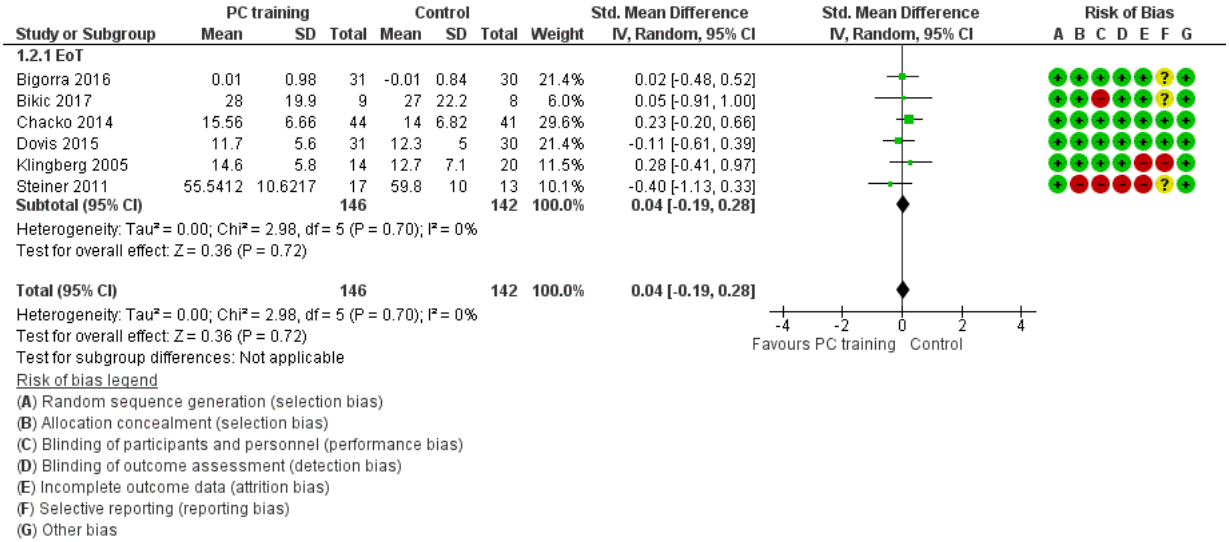
Risk of bias summary: review authors' judgements about each risk of bias item for each included study.

Figure 2 (Analysis 1.1)



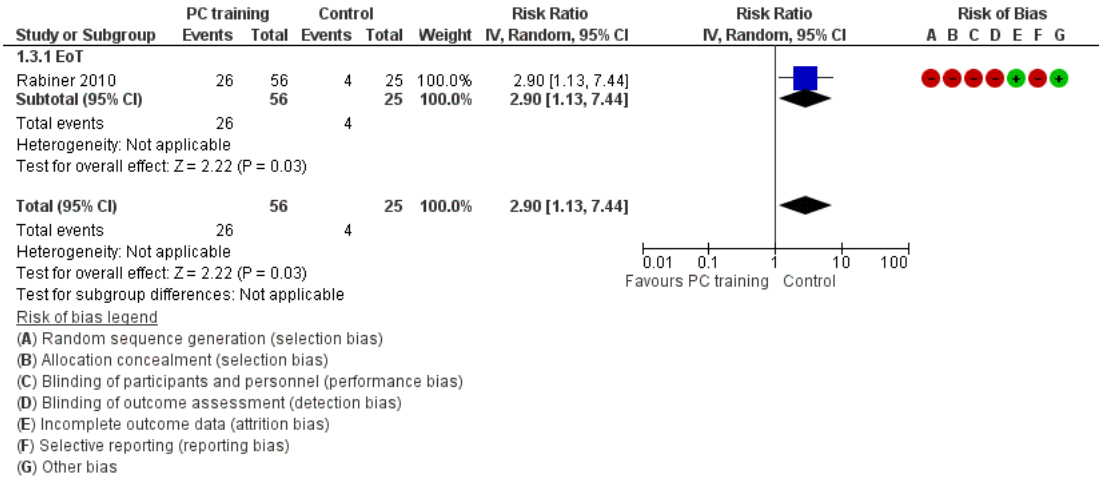
Forest plot of comparison: 1 PC training vs. Control, outcome: 1.1 ADHD kernesymptomer, forældrebedømt, mean SD.

Figure 3 (Analysis 1.2)



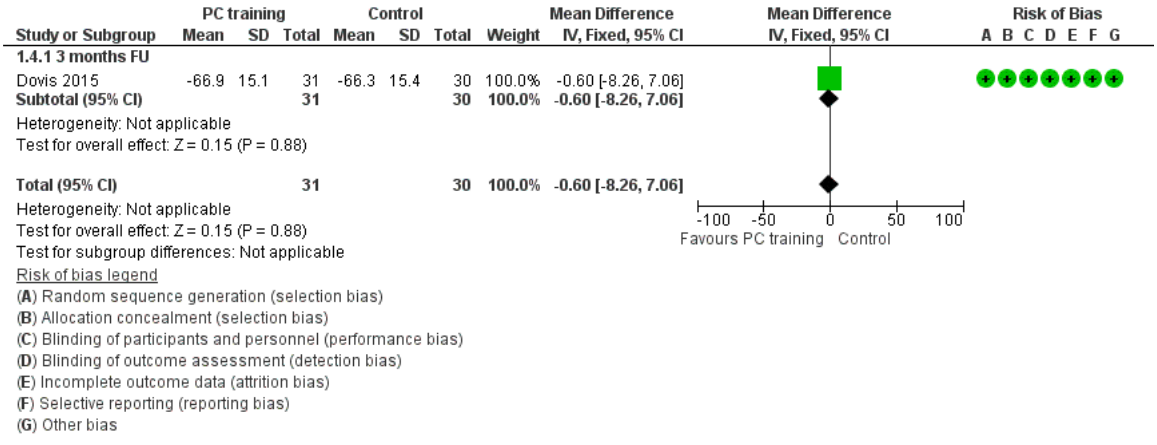
Forest plot of comparison: 1 PC training vs. Control, outcome: 1.2 ADHD kernesymptomer, lærerbedømt, mean SD.

Figure 4 (Analysis 1.3)



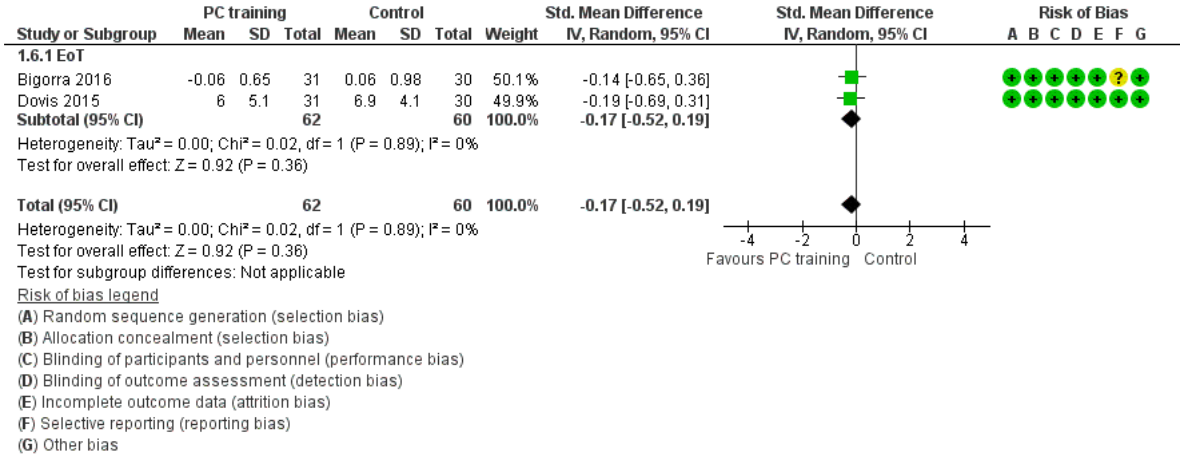
Forest plot of comparison: 1 PC training vs. Control, outcome: 1.3 ADHD kernesymptomer, lærerbedømt, event.

Figure 5 (Analysis 1.4)



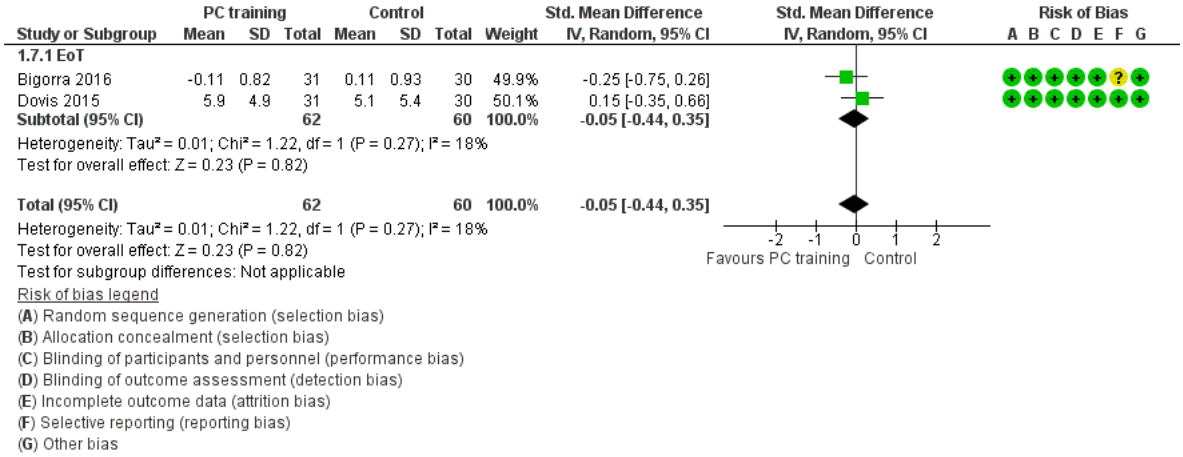
Forest plot of comparison: 1 PC training vs. Control, outcome: 1.4 Livskvalitet (børnebedømt) 3 months FU.

Figure 6 (Analysis 1.6)



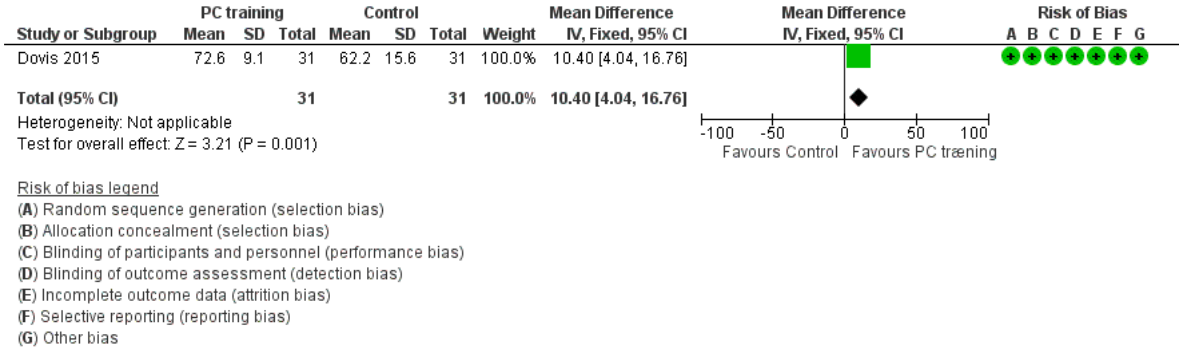
Forest plot of comparison: 1 PC training vs. Control, outcome: 1.6 Adfærdsforstyrrelser, forældrebedømt, mean SD.

Figure 7 (Analysis 1.7)



Forest plot of comparison: 1 PC training vs. Control, outcome: 1.7 Adfærdsforstyrrelser, lærerbedømt, mean SD.

Figure 8 (Analysis 1.5)



Forest plot of comparison: 1 PC training vs. Control, outcome: 1.5 Livskvalitet (Forældre bedømt) 3 months FU.