**Supplementary Figure S1: Flowchart of patient recruitment from the Adult ADHD Clinic (Copenhagen University Hospital, Glostrup).**

Attended appointment in ADHD clinic:

*N* = 237

Attended baseline testing: *N* = 44 *(21.0%)*

**ADHD diagnosis**

*N* = 209 *(100%)*

Not included in study

*N* = 165

Not recorded: *N* = 4

Not/unsure ADHD: *N* = 24

Total *N* = 28

Fulfilled exclusion criteria

*N* = 149 *(71.3%)*

*\*some patients fulfilled more than one exclusion criteria*

* Age > 45 years, *N* = 18
* Not fluent in Danish, *N* = 4
* Other primary psychiatric disorder: *N* = 74 (personality disorder, *N* = 12; severe depression, *N* = 7; autism spectrum disorder, *N* = 8; Tourette’s disorder, *N* = 1; substance abuse / dependence, *N* = 38; psychosis, *N*= 5; schizotypal disorder, *N* = 1; anorexia, *N* = 1; severe anxiety, *N* = 1)
* Previously documented dyslexia: *N* = 11
* Geography, *N* = 3
* Neurological disorder, *N* = 5
* Psychopharmacological treatment in last four weeks, *N* = 23
* Somatic illness, *N* = 6
* Complex clinical case, *N* = 20
* Pregnant, *N* = 2

*(Total N= 166.)*

Other reasons for non-inclusion

*N* =16 *(7.7 %)*

* Could not be contacted by clinic in 2-week timeframe, N = 5
* Did not wish to participate in project, N = 10
* Not recorded: N = 1

Excluded at baseline:

Possible other primary diagnosis, *N* = 2 *(0.9%)*

**Baseline data**

*N* = 42 *(20.0 %)*

Excluded after baseline

*N* = 5 *(2.4%)*

* Dropped out post-baseline, N = 1
* Incorrect TVA administered, N = 1
* Complex case requirements, N = 1
* Uncorrected hearing loss N, = 1
* Suspected allergic reaction to methylphenidate, N = 1

**Follow-up data**

*N* = 37 *(17.7 %)*

*Note*: “ADHD diagnosis” here refers here to diagnoses of Disturbance of activity and attention (F90.0) or Attention deficit disorder without hyperactivity (F98.8) according to ICD-10 criteria (World Health Organization, 1992). Geography refers to patients who because of geographical constraints (i.e., they lived a certain distance from the clinic) were, when scheduling at the clinic allowed, given an appointment for both diagnosis and possible commencement of medication on the same day, and thus could not be asked to participate in the project.

**Supplementary material 2: Description of TVA-testing and estimation of TVA**

**parameters**

*Description of TVA-testing.*

The TVA-based assessment was undertaken in a dimly lit room, and stimuli were presented on a 19-inch LED monitor (800×600 pixel resolution, 100-Hz refresh rate), using the E-prime 2 software. Viewing distance was approximately 55 cm. The participants were instructed to fixate on a central white cross presented for 1200 ms. Then, red and/or blue letters (3.3°-3.6° high, 2.4°-2.9° wide) were presented for one of six stimulus durations (10, 20, 50, 90, 150, or 200 ms) on a black background before being masked by 500-ms pattern masks. Partial report trials were always presented for 150 ms. The letters were randomly chosen from a prespecified stimulus set (ABDEFGHJKLMNOPRSTVXZ), with the same letter appearing only once in a given trial. Presentations were given in the same order to each participant. The participants were instructed to report the red target letters and ignore the blue letters. There was no speed demand in the report stage, and participants could either type their response on a keyboard or report their responses verbally to the test administrator, who typed in responses. The response format was the same for baseline and follow-up for any one individual. A total number of 243 trials separated into 9 blocks, with the possibility of breaks if required. Participants were informed of the accuracy of their reports after each block. They were encouraged to report as many red letters as possible, but to keep their reports within a specified accuracy range of 80 – 90% correct. Before the 243 test trials, participants undertook 18 practice trials.

*Estimation of TVA parameters.*

The model had 14 degrees of freedom (df): *K*, 5 dfs (the *K* value reported is the expected *K* given a particular distribution of the probability that on a given trial *K* = 1, 2, …, 6); *C*, 1 df; *t*0, 2 dfs (the perceptual threshold was assumed to be drawn trial by trial from a normal distribution with a given mean and standard deviation); *α*, 1 df; and *w*index, 5 dfs (one weight estimated for each of the six stimulus locations under the restriction that the relative weights sum to 1). The effects of the first three parameters can be visualised by plotting the mean number of letters correctly reported at each of the six different stimulus durations from the six-target whole report conditions. Figure S2 shows the observed performances of a representative control and patient and their predicted performances following curves based on the parameter estimates from the TVA-based fitting procedure. With ultra-short durations the participants report very few letters, but the number of correctly reported letters rises steeply for the longer durations, and then levels off at a maximum. The horizontal asymptote of the curves represents the maximum number of items that can be retained in VSTM: the *K* value. Trial-by-trial variation in *t*0 is small, and if this variation is neglected, the slope of the curves at *t*0 represents the *C* value: The steeper the slope, the more letters are processed per second. The efficiency of top–down selection (the *α* value) is estimated by comparing performance in partial report trials (target and distractor letters presented simultaneously) with performance in the whole report trials (only target letters presented). A participant with perfect selection should be unaffected by the presence of distractors and report the same number of targets regardless of the number of distractors; values close to 0 indicate efficient selection of targets, and values close to 1 indicate no prioritizing of targets compared to distractors. With regards to *w*index (the spatial distribution of attentional weighting), a value of 0.5 indicates unbiased spatial weighting of attention. Values closer to 0 reflect a right-sided bias of attentional resources, whereas values approaching 1 reflect a left-sided bias.

Supplementary Figure S2. Whole report performance of a representative patient and control at baseline.

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Insert supplementary figure 2 here

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*Note:* Parameter values for patient: *K* = 3.4; *C* = 42.7 letters/s; *t0* = 17.6 ms.Parameter values for control: *K* = 3.6; *C* =58.2 letters/s; *t0* = 7.9 ms.