Supplementary Table ST3

Data extraction of sensory-based approaches' studies

Supplementary Table ST1

Key-words and operators used for the review of articles in the databases

Population	child OR children OR kid* OR teen* OR youth* OR pediatric* OR peadiatric* OR adolescent* OR "school child*" OR schoolchild* OR juvenile* OR minor* OR "school boy*" OR schoolboy* OR schoolgirl* OR "school girl*" OR "school-going boy*" OR "school-going girl*" OR "school-going child*" OR "schoolgoing child*"
AND	
Intervention	"sensory-based intervention*" OR "sensory integration therap*" OR "sensory integration intervention*" OR "sensory integration approach*" OR "sensory integration" OR "sensorimotor integration" OR "sensorimotor approach*" OR "contemporary approach*" OR "contemporary practice*" OR "self-regulatory strateg*" OR "single-sensory strateg*" OR "sensory motor integration" OR "task-specific training program*" OR "impairment-oriented approach*" OR "impairment-oriented intervention*" OR "performance-oriented approach*" OR "direct skills teaching" OR "cognitive-based approach*" OR "performance-based intervention*" OR "perceptual motor program*" OR "sensory integration-based activit*" OR "performance focused intervention*" OR "sensory stimulation" OR "sensorimotor-type intervention*" OR "sensory integration techniques" OR "sensory integration-like approch*" OR "sensory stimulation technique*" OR "sensory diet*"
AND	
Outcome	"school participation" OR education OR learning OR "school performance" OR "school progress*" OR "schooling'" OR "child education" OR "school activit*" OR "participation in class" OR "engagement in school" OR "engagement in school activit*"

Notes. P = Population; I = Intervention; O = *Outcome.*

Supplementary Table ST3

Data extraction of sensory-based approaches' studies

Supplementary Table ST2

Descriptors and operators used for the review of articles in databases

Base de données		Descripteurs
PubMed	**P**	("Students"[Mesh]) OR "Child"[Mesh] "Sensation Disorders"[Mesh] AND "Somatosensory Disorders"[Mesh]
	I	"Occupational Therapy"[Mesh] OR "Evidence-Based Practice"[Mesh]
	O	("Learning"[Mesh]) OR "Education"[Mesh]
CINHAL	**P**	(MH "Child") OR (MH "Adolescence") OR (MH "Minors (Legal)") OR (MH "Students, Middle School") OR (MH "Students, High School") OR (MH "Students, Elementary")
	I	(MH "Occupational Therapy Practice, Evidence-Based") OR (MH "Sensory Stimulation") OR (MH "Sensory Motor Integration") OR (MH "Acoustic Stimulation") OR (MH "Physical Stimulation") OR (MH "Rehabilitation") OR (MH "Rehabilitation, Pediatric") OR (MH "Professional Practice, Theory-Based")
	O	(MH "Learning") OR (MH "Education") OR (MH "Student Knowledge") OR (MH "Student Experiences") OR (MH "Student Attitudes") OR (MH "Behavioral Objectives") OR (MH "Student Performance Appraisal")
EMBASE	**P**	'child'/exp OR 'juvenile'/exp OR 'adolescent'/exp OR 'student'/exp OR 'middle school student'/exp OR 'high school student'/exp OR 'elementary student'/exp OR 'school child'/exp
	I	(major focus) : ('sensorimotor integration'/exp/mj OR 'sensory stimulation'/exp/mj
	O	'learning'/exp OR 'education'/exp OR 'academic achievement'/exp OR 'student attitude'/exp

Notes. P = Population; I = Intervention; O = Outcomes

Supplementary Table ST3
Data extraction of sensory-based approaches' studies

Study	Design	Objective	Sample	Intervention	Outcomes	Results	Quality
				Sensory-based approaches			
Lin, Lee, Chang & Hong (2009)	Quasi-experimental study Two-periods crossover design	Impact of weighted vests on attention, impulse control, and on-task behavior	N = 110 (93 males) **Age:** 8.6 +/- 1.7 yo **Diagnosis :** ADHD	**Weighted vest condition (WVC):** - 10% of the child's weight **Unweighted vest condition (UVC):** - Less than 1% of the child's weight	**Attention to task** CPT-2: Video camera for: - Automatic vocalization - On-seat behavior - Eyes oriented toward the computer's screen - Moves on the chair **Impulse control** Video camera	**Attention to task** WVC>UVC* for inattention; speed and most of the behaviors but not for vocalization. **Impulse control** No S.D.	**88% Letts** 5-13

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Supplementary Table ST3

Data extraction of sensory-based approaches' studies

Study	Design	Objective	Sample	Intervention	Outcomes	Results	Quality
Buckle, Franszen & Bester (2011)	Quasi-experimental Longitudinal quantitative design; cross-over of treatment	Impact of weighted vest on in seat behavior, task completion speed and attention-to-task.	**N** = 30 (21 males) **Age:** 6 to 9 yo **Diagnosis :** ADHD and sensory modulation disorder	**2 groups:** **A:** 1st WVC and 2nd control condition (CC) **B:** 1st CC and 2nd WVC **WVC:** - 10% of the child's weight - 45min./day Duration : 15 consecutive school days	Video camera: -In seat behavior Measured by the teacher: -Task completion speed Video camera: -Attention-to-task	**In seat behavior:** WVC>CC* (group B) **Task completion speed:** WVC<CC* (group A) **Attention-to-task:** WVC>CC* No long term effects.	**81% Letts** 5-9-13
Hodgetts, Magill-Evans & Misiaszek (2011a)	Quasi-experimental Single-case study A-B-A-C	Impact of weighted vest on in seat behaviors.	**N** = 10 (8 males) **Age** : 3 to 10 yo **Diagnosis** : ASD with stereotyped behaviors and sensory modulation disorder	**A: Baseline and withdrawal conditions** - 1 w. - No vest condition (NVC) **B: UVC** - 2 w. - 20 min./day at the same time. **C: WVC** - 2 w. - 20 min./day at the same time.	Video camera (*percentage of intervals (15s) during which the behaviors are observed*): -Attention-to-task -In seat behaviors	**In seat behavior:** WVC: No improvements **Attention-to-task:** WVC: Some children improved slightly, high rates of off-task behaviors. Efficacy observed for 1 child.	**80% Letts** 5-10-11

Supplementary Table ST3

Data extraction of sensory-based approaches' studies

Study	Design	Objective	Sample	Intervention	Outcomes	Results	Quality
VandenBerg (2001)	Quasi-experimental Single-case study A-B	Impact of weighted vest on on-task behavior of children with ADHD.	**N** = 4 (2 males) **Age** : 5 or 6 yo **Diagnosis**: ADHD and sensory disorders	- Fine motor task - Weighted vest (5% of the child's weight) - 15 min., 6 times for 15 days - Children could wear the weighted vest even if no data were collected.	Observation in class (time measured with a stopwatch) -On-task behaviors	WVC>baseline* for all children	**75% Letts** 4-5-7-10
Cox, Gast, Luscre & Ayres (2009)	Quasi-experimental Single-case study Alternating-treatments designs (A-B-C)	Impact of weighted vest on in-seat behaviors.	**N** = 3 (2 males) **Age:** 5 to 9 yo **Diagnosis:** ASD, sensory modulation disorders.	**A: Baseline** -NVC -Duration: 4 to 5 days **Random alternating treatments A, B and C (5 sessions/phase)** -A: NVC -B: UVC -C: WVC (5% of the child's body weight) -	Video camera (sections of 10s intervals coded (percentage of time)): -In-seat behavior	No difference for the 3 conditions.	**71% Letts** 5-10-11-13

Supplementary Table ST3

Data extraction of sensory-based approaches' studies

Study	Design	Objective	Sample	Intervention	Outcomes	Results	Quality
Hodgetts, Magill-Evans & Misiaszek (2011b)	Quasi-experimental Single case study A-B-C-A	Impact of weighted vest on stereotyped behaviors.	**N** = 6 (5 males) **Age**: 4 to 10 yo **Diagnostics** : ASD with stereotyped behaviors and sensory modulation disorder	**A: Baseline and withdrawal** - Duration: 1 w. - NVC **B: UVC** - Duration: 2 w. - 20 min./day, at the same moment. **C: WVC** - Duration: 2 w. - 20 min./day 5-10% of the child's weight	Video camera (*percentage of intervals (15s) during which the behaviors are observed*): -Stereotyped behaviors	**Stereotyped behaviors:** Motor: WVC: No reduction Verbal: WVC: Possible reduction for 1 child.	**71% Letts** 5-10-11-13
Collins & Dworkin (2011)	Quasi-experimental Single-case study A-B-A	Impact of weighted vest on attention-to-task.	**N** = 11 (8 males) **Age**: 7 years to 10 yo **Diagnosis:** Attention difficulties	**Experimental group** -3 to 6 w. -Phases A and B **A: UVC** - Same vest, but weights replaced by polystyrene foam - 3 w. before and after phase B. **B: WVC** - OT vest - Weight not mentioned - 3 sessions **Control group** -Children never wore a vest.	Video camera (sections of 15s intervals coded (percentage of time)): -Attention-to-task	No S.D. between the groups. WVC: Reduction of attention-to-task for some children (experimental group n=4 and control group n=2).	**69% Letts** 5-7-9-10-13

Supplementary Table ST3

Data extraction of sensory-based approaches' studies

Study	Design	Objective	Sample	Intervention	Outcomes	Results	Quality
Reichow, Barton, Sewell, Good & Wolery (2010)	Quasi-experimental Single-case study Alternating-treatments design (A-B-C)	Impact of weighted vest on school engagement, stereotypes behaviors and behavioral problems.	N = 3 males **Age** : 4 and 5 yo **Diagnosis:** ASD, developmental delays, sensory modulation disorder.	**Random condition (Phase A, B or C)** **A: NVC** -2 sessions **B: WVC** -2 sessions -5% of the child's weight **C: UVC** - 2 sessions -	Video camera (percentage of intervals (15s) during which the behaviors are observed): -School engagement -Stereotyped behaviors -Behavioral problem	**School engagement:** WVC: No difference with the UVC and NVC for the 3 children **Stereotyped behaviors:** WVC: Reduction for 1 child **Behavioral problems:** WVC : Increase for one child	**67% Letts** 5-7-10-12-13
Deris, Hagelman, Schilling & DiCarlo (2014)	Quasi-experimental Single-case study Alternating-treatments design	Impact of a weighted vest on attention-to-task and stereotyped behaviors.	N = 1 male **Age:** 4 yo **Diagnosis :** ASD, strabismus	**Baseline** - Observations during the morning circle time - 10 min. intervals **Treatment Phase** -WVC: 10% of the child's weight -Deep pressure vest condition -30 minutes before the morning circle time **NVC**	Video camera (frequency of the behaviors) -Attention-to-task -Stereotyped behaviors (autostimulation)	**Attention to task:** WVC and deep pressure vest conditions: Small improvements compared to baseline. **Stereotyped behaviors**: No difference between the phases	**57% Letts** 4-5-8-10-11-13

Supplementary Table ST3

Data extraction of sensory-based approaches' studies

Study	Design	Objective	Sample	Intervention	Outcomes	Results	Quality
Myles & al. (2004)	Quasi-experimental Single-case study A-B-A-B	**Case 1:** Impact of a weighted vest on attention-to-task of a child with ASD. **Case 3:** Impact of a weighted vest on attention-to-task and autostimulation behaviors of a child with ASD.	**Case 1:** **N** = 1 female **Age:** 5 yo **Diagnosis:** ASD **Case 3:** **N** = 1 male **Age:** 4 yo **Diagnosis:** ASD Note: Exclusion of the 2nd child (not aged between 4 to 17 yo)	**Case 1:** **A: NVC (baseline and withdrawal)** **B: WVC** -10% of the child's weight. **A and B:** Support to stay in-seat, pictograms, chewing necklace. **Case 3:** **A: NVC** **B: WVC** -5% of the child's weight -30 minutes before the activities and withdrawn before they started.	Video camera: **Case 1:** Time of the behavior: -Attention-to-task **Case 3:** Time of the behavior: -Attention-to-task Frequency of the behavior: -Autostimulation (sensory seeking behavior: deep pressure)	**Case 1:** WVC: Reduction of the child's attention to task compared to NVC. **Case 3:** WVC: S.D. of autostimulation behavior compared to baseline.	**53% Letts** 4-5-7-8-10-12-13
Reichow, Barton, Good & Wolery (2009)	Quasi-experimental Single-case study A-B-A	Impact of a weighted vest on school engagement and behavioral problems.	**N** = 1 male **Age:** 4 yo **Diagnosis:** ASD and developmental delays	**Beginning of the study:** -Child was wearing a weighted vest since 2 years (without a specific protocol of use) **A: NVC (baseline and withdrawal)** **B: WVC** -Weight equally distributed over the body -10 to 15 min. during school table activities	Video Camera (percentage of intervals (10s) during which the behaviors are observed): -School engagement -Behavioral problems	**School engagement:** WVC: No systematic effect on engagement compared to NVC. **Behavioral problems:** WVC: Increase compared to baseline.	**50% Letts** **4-5-7-8-10-11-13**

Supplementary Table ST3
Data extraction of sensory-based approaches' studies

Study	Design	Objective	Sample	Intervention	Outcomes	Results	Quality
Fedewa & Erwin (2011)	Quasi-experimental Single-case study A-B	Impact of therapy balls on in-seat and school engagement behaviors.	**N** = 8 (6 males) **Average age:** 9 yo **Diagnosis**: 5 children with ADHD and 3 without a formal diagnosis	**A: Baseline** - Duration: 2 w. **B: Therapy balls condition (TBC)** - Duration: 12 w. - 1 group - 2 days before data collection therapy balls were used to reduce the novelty effect.	Observation in class (weekly percentage of the time of the behavior): -In-seat behavior -On task behavior ADHDT: -Hyperactivity -Impulsivity -Inattention	**TBC:** -Increase of in-seat behavior: 45% (A) to 94% (B) -Increase of on-task behavior: 10% (A) to 80% (B) **ADHDT:** S.D*** between baseline and 2 w. post-intervention	**80% Letts** 5-9-10

Supplementary Table ST4

Data extraction of sensorimotor approaches' studies

Study	Design	Objective	Sample	Intervention	Outcomes	Results	Quality
Matin Sadr, Haghgoo, Samadi, Rassafiani, Bakhshi & Hassanabadi (2017)	Quasi-experimental Single-case study A-B-A-C	Comparison of the impact of standard chair, therapy balls and air cushions on school behaviors.	**N** = 15 (10 males) **Age**: 7 to 10 yo **Diagnosis**: ASD	**A: Standard chair condition (SCC)** 2 times 2 w. **B**: TBC or air cushion condition (ACC) -Duration: 2 w. -Air cushions (n=8) -Therapy balls (n=7) **C: TBC or ACC** -Duration: 2 w. -Air cushions (n=7) -Therapy balls (n=8)	Video camera: -In-seat behavior -On-task behavior	**In-seat behavior:** -ACC: Improvement for some children. -TBC: Improvement for more than 50% of children **On-task behavior:** -ACC: Improvement for 3 children and reduction for 8. -TBC: Improvement for 8 children (no S.D.)	**80% Letts** 5-10-13
Oriel, George, Peckus & Semon (2011)	Quasi-experimental Single-case study Crossover design	Impact of aerobic exercises before school activities on correct academic responses, stereotyped behaviors and task engagement.	**N** = 9 (7 males) **Age**: 3 to 6 yo **Diagnosis**: ASD, intellectual disability, developmental delay	**A: No intervention condition** -Duration: 3w. **B: Aerobic exercises condition (AEC)** -Duration: 3 w. -15 minutes of running before the school activity.	Observation in class (frequency of the behaviors): -Correct academic responses -Stereotyped behaviors -Task engagement	**Correct academic responses:** AEC>No intervention condition **Stereotyped behaviors:** No S.D. between the 2 conditions **Task engagement:** No S.D. between the 2 conditions	**75 % Letts** 5-7-10-14

Supplementary Table ST4
Data extraction of sensorimotor approaches' studies

Study	Design	Objective	Sample	Intervention	Outcomes	Results	Quality
Murdock, Dantzler, Walker & Wood (2014)	Experimental Randomized clinical trial	Impact of a platform swing on on-task, in-seat and stereotyped behaviors.	**N** = 30 (26 males) **Age**: 2 to 6 yo **Diagnosis**: ASD n exp. group = 15 n ctrl. group = 15	**Experimental group:** -5 mins of school work, 5 mins of platform swing in a linear slow motion, 5 min. of school work **Control group:** - 5 min. of school work, 5 min. of television, 5 min. of school work	Video camera (partial interval time sampling): -On-task behavior -In-seat behavior -Stereotyped behaviors	**All dependent variables:** No S.D. between the 2 groups	**73% PEDro** 5-6-11
Matin Sadr, Haghgoo, Samadi, Rassafiani & Bakhshi (2015)	Quasi-experimental Single-case study A-B-A-C	Impact of therapy balls, air cushions and standard chairs on on-task and in-seat behaviors.	**N**= 4 (sex not specified) **Age**: 7 to 10 yo **Diagnosis**: ASD	Sitting devices implemented 2 days before baseline **A:** SCC **B:** TBC **C:** ACC Duration of each phases : 1 w.	Video camera (percentage of time of the behaviors): -On-task behavior -In-seat behavior	**For the 2 variables:** **TBC:** Variability of the results according to the child, but better than SCC. **ACC:** Improvement for all children.	**71% Letts** 5-10-11-13
Schilling, Washington, Billingsley & Deitz (2003)	Quasi-experimental Single-case study A-B-A-B	Impact of therapy balls on in-seat behavior and writing legibility.	**N** = 3 (2 males) **Age**: 9 yo **Diagnosis** : ADHD, behavioral problems (n=2)	**A: Baseline and withdrawal (SCC)** **B: TBC** **A and B:** -During a writing task -Observation for 40 mins.	Video Camera (*percentage of intervals (10s) during which the behaviors are observed*): -In-seat behavior Comparison to the class mean with a window card method: -Writing legibility	**2 variables:** TBC: Improvement for all children	**64% Letts** 5-7-10-11-13

Supplementary Table ST4

Data extraction of sensorimotor approaches' studies

Study	Design	Objective	Sample	Intervention	Outcomes	Results	Quality
Van Rie & Heflin (2009)	Quasi-experimental Single-case study Alternating treatment design	Impact of sensorial activities on production of correct academic responses.	**N** = 4 males **Age:** 6 to 7 yo **Diagnosis:** ASD	**Experimental intervention:** -Swinging in a slow linear motion or rapid bouncing on a therapy ball. -5 min. before academic instructions **Control intervention:** -Teacher read a story book chosen by the child -5 min. before academic instructions.	Number of correct responses / number of responses opportunities (%): -Correct responses to academic instruction	Variability of the results according to the child	**64% Letts** 5-7-10-11-13
Schilling & Schwartz (2004)	Quasi-experimental Single-case study A-B-A-B (for 3 children), B-A-B (for 1 child)	Impact of therapy balls on in-seat behavior and task engagement.	**N** =4 males **Age:** 3 to 4 yo **Diagnosis :** ASD	**A: baseline and withdrawal (standard seating device)** **B: TBC** -Minimum 2 school w. -At school: Activity and moment of use individualized for each child.	Video Camera (*percentage of intervals (10s) during which the behaviors are observed*): -In-seat behavior -Task engagement	**2 variables:** TBC: Improvement for all the children.	**64% Letts** 5-7-10-11-13

Supplementary Table ST4

Data extraction of sensorimotor approaches' studies

Study	Design	Objective	Sample	Intervention	Outcomes	Results	Quality
Neely, Rispoli, Gerow et Ninci (2015)	Quasi-experimental Single-case study Alternating treatment design	Impact of physical exercise before academic instruction on task engagement and stereotyped behaviors.	**N** = 2 (1 male) **Age**: 7 and 8 yo **Diagnosis**: ASD	1 time per day, 3 to 4 times per w. during 10 to 12 w. **A: No intervention condition** -No antecedent exercise **B: Brief duration of antecedent exercise** - 20% of the time to satiation - Jumping on a trampoline **C: Antecedent exercise until behavioral indication of satiation** -After 3 hypothesized behavioral indicator of satiation -Jumping on a trampoline	Video Camera (*percentage of intervals (10s) during which the behaviors are observed*): -Task engagements -Stereotyped behaviors	**Task engagement:** C>B>A **Stereotyped behaviors:** C<A	**64 % Letts** 5-7-10-11-13
Nicholson, Kehle, Bray & Van Heest (2011)	Quasi-experimental Single-case study Multiple baseline design	Impact of physical exercise on task engagement.	**N** = 4 males **Age**: 9 yo **Diagnosis** : ASD (higher cognitive functioning)	**Intervention:** - Jogging for 12 min., 5 min. of walking and stretching. - Support during jogging when needed.	Video camera (*percentage of total task engagement time*): Task engagement	Effect size demonstrated that physical exercise improved task engagement.	**57 % Letts** 4-5-7-10-11-13

Supplementary Table ST4

Data extraction of sensorimotor approaches' studies

Study	Design	Objective	Sample	Intervention	Outcomes	Results	Quality
Bagatell, Mirigliani, Patterson, Reyes & Test (2010)	Quasi-experimental Single-case study A-B-C	Impact of therapy balls on in-seat behavior and task engagement.	N =6 males **Age:** kindergarten and 1st grade **Diagnosis:** ASD	**A: Baseline** -Duration: 5 days -During circle time -SCC **B: TBC** -Duration: 9 days -Teacher also sat on a therapy ball **C: Choice condition** -Duration: 5 days -Each child chose each day his sitting device (standard chair or therapy ball)	Video camera *(total number of seconds of the behavior)*: -In seat behavior -Task engagement	**2 variables:** -Variability of the results according to the child and its sensory characteristics. *Therapy balls may be effective for vestibular and proprioceptive sensory seeking children.	**57 % Letts** 4-5-7-10-11-13
Pfeiffer, Henry, Miller & Witherell (2008)	Experimental Randomized clinical trial	Impact of Disc'O' Sit cushion on attention to task.	N = 63 (sex not specified) **Age:** 7 to 9 yo **Diagnosis:** Attention difficulties (score at the BRIEF: higher than 15) without inner ear difficulties. n exp. group = 31 n ctrl. group = 32	**Experimental group:** -Duration: 2 w. - Disc'O' Sit cushion **Control group:** -Duration: 2 w. -Standard chair	BRIEF administered by the teacher or its assistant: **Attention to task:** -Self-control -Problem solving -Behavioral regulation -metacognition	**Attention to task:** Experimental group>control group	**55% PEDro** 3-5-6-7-9

Supplementary Table ST4

Data extraction of sensorimotor approaches' studies

Study	Design	Objective	Sample	Intervention	Outcomes	Results	Quality
Umeda & Deitz (2011)	Quasi-experimental Single-case study A-B-A-B-C	Impact of air cushion on in-seat and on-task behaviors.	**N** = 2 males **Age**: 5 and 6 yo **Diagnosis**: ASD, delays in cognitive and language development, disruptive self-stimulatory behaviors, low muscle tone.	**A: Baseline and withdrawal** -Duration: 2 to 3 w. -SCC during math classes **B: ACC** -Duration: 2 to 3 w. -During math classes **C: Choice condition** -1.5 w. -Each child chose each day his sitting device (standard chair or air cushion)	Video Camera (*percentage of intervals (10s) during which the behaviors are observed*): -In-seat behavior -On-task behavior	**2 variables:** No S.D. between the ACC and SCC (variability of the results during all the study)	**50 % Letts** 4-5-7-10-11-13-16

Supplementary Table ST4
Data extraction of sensorimotor approaches' studies

Design	Objective	Sample	Intervention	Outcomes	Results	Qu
Experimental Randomized clinical trial	Impact of sensory integration therapy on executive functions.	**N** = 20 males **Average age**: 8 yo **Diagnosis**: ADHD n $_{exp. group}$ = 10 n $_{ctrl. group}$ = 10	12 sessions (2 per w.) **Experimental group:** -Activities that promote balance, space awareness, motor planning and coordination, visual and auditory attention, auditory and visual memory, and eye-hand coordination. -Tactile activities **Control group:** - Not specified	Conner's Behavior Rating Scale Parents: -Executive functions	S.D.** between the experimental and control group (sensory integration therapy increased executive functions).	**64% P** 3-5-6-7
Experimental Randomized clinical trial	Impact of sensory integration therapy and perceptual-motor training on sensorimotor skills and language cognitive and academic performance.	**N** = 30 (21 males) **Age:** 6 to 8 yo **Diagnosis**: Learning disability, sensory disorders n $_{group 1}$ = 10 n $_{group 2}$ = 10 n $_{group 3}$ = 10	**Group 1:** -Sensory integration therapy -24 sessions of 1h. (1 per w.) **Group 2:** -Perceptual-motor training **Group 3:** -Control group: no treatment	BOT-2: -Fine and global motor skills (sensorimotor skills) VMI and SCSIT: -Perceptual-motor skills (sensorimotor skills) WRAT and WISC-R/ WPPSI: -Cognitive, academic and language performance TOLD: -Language performance Clinical observations: -Praxis -Vestibular functioning	**Global motor skills:** -BOT-2 Gross Motor measure: S.I. compared to group 3. S.I. of group 1 for the strength measure compared to groups 2 and 3. **Perceptual-motor skills:** -SCSIT (Motor Accuracy-Right measure): S.I. of group 1 compared to groups 2 and 3. **Other variables:** No significant differences	**64% P** 3-5-6-9

Supplementary Table ST4

Data extraction of sensorimotor approaches' studies

Design	Objective	Sample	Intervention	Outcomes	Results	Qu
Experimental Randomized clinical trial	Impact of sensory integration therapy and perceptual motor training on sensorimotor skills and academic performance.	**N** = 103 (sex not specified) **Age:** 4 to 9 yo **Diagnosis**: Learning disability and sensory disorders n $_{group\ 1}$ = 35 n $_{group\ 2}$ = 35 n $_{group\ 3}$ = 33	**Group 1:** -Perceptual-motor training -3h. per w. (total of 72 h.) **Group 2:** -Sensory integration therapy -3h. per w. (total of 72 h.) **Group 3**: -Control group: no treatment	BOT-2: -Global motor skills VMI and SCSIT: -Visual perception Clinical observations: -Motor planning -Vestibular functioning Zaner-Bloser Printing Evaluation Scale and Basic School Scale Inventory : -Handwriting readiness -Copying quality CPT: -Attentional skills WRAT: -Academic, language and cognitive skills. -…	**Global motor skills:** -S.I. of group 1 compared to group 2 and 3. • S.I. of group 1 compared to group 3 for the bilateral coordination component. • S.I. of group 1 compared to group 2 for the balance component. **Visual perception:** -S.I. of group 1 compared to group 2 for the SCSIT-design copying component. **Motor planning:** -S.I of group 2 compared to groups 1 and 3. **Other variables:** No S.D. between the 3 groups.	**64% P** 3-5-6-9

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Supplementary Table ST4
Data extraction of sensorimotor approaches' studies

Design	Objective	Sample	Intervention	Outcomes	Results	Qu
Experimental Randomized clinical trial	Impact of sensory integration therapy on academic skills, fine motor skills, global motor skills, self-esteem and behaviors.	N = 29 (sex not specified) **Age:** 5 to 9 yo **Diagnosis**: Sensory disorders and motor difficulties $n_{sensory\ integration\ therapy\ group}=14$ $n_{tutoring\ group}=15$	**Sensory integration group:** -Sensory integration therapy -Implemented by 2 occupational therapists -75 to 80 individual sessions -50 min., 2 times per w. **Tutoring group:** -In a calm classroom -Implemented by teachers -75 to 80 individual sessions -50 min., 2 times per w.	Woodcock-Johnson Psychoeducational Test Battery: -Academic skills VMI, SCSIT (Design Copying and Motor Accuracy Test-Revised) and Handwriting Scale : -Visual-motor skills BOT-2 and SCSIT (Motor Accuracy Test-Revised): -Fine motor skills BOT-2 and Clinical Observations of Motor and Postural Skills: -Global motor skills Test of ocular poursuit: -Ocular control	**All variables:** -6 months' posttest: No S.D. between groups, except for behaviors (Tutoring>sensory integration therapy*) -12 months' posttest: No S.D. between the groups. =============== outcomes cont'd =============== The Pictorial Scale of Perceived Competence and Social Acceptance for Young Children: -Self-esteem The Abbreviated Symptom Questionnaire : -Hyperactivity -Behaviors	**64% PI** 2-5-6-9 ====== outcom ====== Miller Assessi Prescho (Behavi Observa Forms)

Supplementary Table ST4

Data extraction of sensorimotor approaches' studies

Design	Objective	Sample	Intervention	Outcomes	Results	Qu
Experimental Randomized clinical trial	Impact of sensory integration therapy on perceptual processing dysfunction and academic performance	**N** = 87 (66 males) **Age**: 6 to 11 yo **Diagnosis:** Learning disability, sensory disorders n $_{exp.\ gorup}$ = 46 n $_{ctrl\ group}$ = 41	**Experimental group:** -Sensory integration therapy -Implemented by an occupational therapist -45 min., 2 or 3 times per w. -Duration: 9 months (66 sessions) **Control group**	**Perceptual processing dysfunction:** Target Test: -Visual tracking -Attention -Immediate memory Underlining Test: -Rapid visual perceptual analysis **Academic performance:** Gates-MacGinitie: -Reading comprehension WRAT: -Spelling -Reading-Decoding -Arithmetic	**All variables:** No S.D. between experimental and control group.	**54% P.** 1-3-5-6-

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Supplementary Table ST4

Data extraction of sensorimotor approaches' studies

Design	Objective	Sample	Intervention	Outcomes	Results	Qu
Experimental Randomized clinical trial	Impact of sensory integration therapy on vocabulary, reading, language, handwriting, motor skills, sensory integration and classroom behaviors.	**N** = 74 (sex not specified) **Age:** 5 first elementary schooly. (≈until 11 yo) **Diagnosis:** ADD, learning disability, sensory disorders $n_{exp.\ group} = 39$ $n_{ctrl.\ group} = 35$	**Experimental group:** -Ayres's sensory integration therapy (activities individualized for each child) -13 sessions -1h per w. **Control group:** -No intervention	Peabody Picture Vocabulary Test: -Vocabulary Burt Word Reading Test and Neale Analysis of Reading ability: -Reading Bankson Language Screening Test -Language Local test adapted by the author: -Writting BOT-2 (short form): -Motor skills SCSIT: -Sensory Integration Conner's Teacher Questionnaire: -Classroom behavior	**All variables:** No S.D. between the experimental and control groups, except for the Visual Matching, a subtest of the Bankson Language Screening Test (Exp.group > Ctrl.group)*	**45% P** 2-3-5-6-

Supplementary Table ST4

Data extraction of sensorimotor approaches' studies

Notes. S.D. = significant difference; S.I. = significant improvement; exp. = experimental; ctrl. = control; ASD = autism spectrum disorder; ADHD = attention deficit disorder with hyperactivity; ADD = attention deficit disorder; N = number of participants; WVC = weighted vest condition; UVC = unweighted vest condition; NVC = no vest condition; TBC = therapy ball condition; ACC = air cushion condition; SCC = standard chair condition; AEC = aerobic exercise condition; CPT-2 = Conners' Continuous Performance Test–II ; PDMS-2 = Peabody Developmental Motor Scales–Second Edition ; VMI = Developmental Test of Visual-Motor Integration ; PLS-3 = Preschool Language Scale-3 ; ETCH = Evaluation Tool of Children's Handwriting ; ADHDT = Attention-Deficit/Hyperactivity Disorder Test ; BRIEF = Behavior Rating Inventory of Executive Function ; BOT-2 = Bruininks-Oseretsky Test of Motor Proficiency, Second Edition ; SCSIT = Southern California Sensory Integration Tests WRAT = Wide Range Achievement Test ; WISC-R = Wechsler Intelligence Scale for Children ; TOLD = Test of Language Development – Primary ;

* =p<0,05 ; **=p<0,01 ; ***=p<0,01

* Criteria of the French version of the Letts and al. (2007) critical review form for quantitative studies Also, the French-Canadian version of the PEDro scale: 1. Clear study purpose; 2. Relevant background literature reviewed; 3. Study design; 4. Description of the sampling method; 5. Justification of the sample size; 6. Reliability of the outcome measures; 7. Validity of the outcomes measures; 8. Description of the intervention; 9. Contamination avoided; 10. Cointerventions avoided. 11. Results reported in term of statistical significance; 12. Appropriate statistical analysis methods; 13. Clinical importance reported; 14. Appropriate analysis methods of statistical importance; 14. Drop-outs reported; 15. Appropriate conclusions; 17. Implications for the practice mentioned.

*Criteria of the French-Canadian version of the PEDro scale (Brosseau and al., 2015): 1. Eligibility criteria specified; 2. Subjects randomly allocated to groups; 3. Allocation concealed; 4. Similar groups at baseline regarding the most important prognostic indicators; 5. Blinding of all subjects; 6. Blinding of all therapist who administered the therapy; 7. Blinding of all assessors who measured at least one outcome; 8. Measures of at least one key outcome obtained from more than 85% of the subjects initially allocated to groups ; 9. All subjects for whom outcome measures were available received the treatment or control condition as allocated or data for at least one key outcome was analysed by "intention to treat"; 10. Results of between-group statistical comparisons reported for at least one key outcome; 11. The study provides both point measures and measures of variability for at least one key outcome.

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