10 Common SEN (Mis)Interventions

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ACHIEVING MORE TOGETHER

Common SEN (Mis)Interventions—An Evidence Summary of Ten Popular Approaches in Mainstream Classrooms

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Abstract

Schools are facing growing pressure when it comes to Special Educational Needs (SEN), but many of the interventions we reach for help less than we think. This evidence summary outlines the research on ten commonly used SEN interventions in mainstream classrooms (mostly programmes or kit deployed to a student), before offering a more informed approach, along with high quality resources to use as a starting point.

#	Intervention	What the evidence shows	Evidence quality
1	Fidget spinners	Classroom studies find negative effects on attention and academic performance, regardless of ADHD traits.	Low–moderate, converging
2	Coloured overlays and tinted lenses	Systematic reviews find no reliable benefit on reading; apparent effects are largely placebo.	Moderate
3	Zones of Regulation	Most rigorous independent review found it does not meet evidence standards; two best RCTs found null effects.	Very thin
4	Universal mindfulness in schools	Largest UK trial found null effects on adolescent mental health, with possible harm for at-risk students.	Strong (against; possible harm)
5	Working-memory training	Improves trained tasks but does not transfer to academic outcomes or ADHD symptoms.	Strong (against transfer)
6	Weighted vests and weighted blankets	Not an evidence-based practice for autistic students.	Low–moderate (against)
7	Sensory diets and sensory circuits	Few positive effects in the small literature; too thin to support as routine provision.	Thin
8	Learning styles and VAK matching	No evidence that matching instruction to a preferred style improves outcomes.	Strong (against)
9	Brain Gym	Educational claims not supported; neuroscience framing is pseudoscientific.	Strong (against)
10	Ear defenders	A reasonable adjustment for a specific noise barrier, not an autism intervention.	Limited; framing matters

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Introduction

Schools are facing increasing pressure when it comes to SEN. Over a million children in England now receive SEN support, the share of students with EHCPs has almost doubled in the past decade, and most teachers don't feel confident supporting students across a vast range of additional needs (Mccrea, Barker & Goodrich, 2025). We're supporting more students, with more complexity, and more stretched resources.

We want to help our students, especially those who need it most. But despite caring deeply, we sometimes end up reaching for things that help less than we think. Why is this? Well, mostly because these things *feel* like they should work. They're visible, they're concrete, they're something we can actively do. Immediately. Students often like them, parents feel reassured, and the marketing tends to be confident.

Meanwhile, the evidence base for what actually supports effective inclusion is thinner than the marketing claims and harder than it should be to access. With too little to push back against our intuitions, we reach for what's in front of us.

And there's also a cost to all of this, even when these things *aren't* actively harmful. Every hour spent rolling out a fidget-toy intervention is an hour not invested in something with stronger evidence behind it. Visible action has a way of letting us tell ourselves the problem has been dealt with when it hasn't, which delays the work that would genuinely help.

This summary is an attempt to raise the visibility of this evidence, so we can provide more effective support for the students who need it most. For each intervention in the table above, we summarise what the research shows, name the key studies, flag where the evidence is thin, and then suggest a more informed approach.

Two final points: Firstly, the evidence here is about *average* effects in mainstream classrooms. There will always be individual students who respond differently to a given intervention, and the picture looks different again in specialist settings and for students with more profound or complex needs. This summary is by no means the last word for each student in front of you. But hopefully it's a useful start.

Secondly, some people reading this are going to feel a negative reaction. That's totally understandable. As a profession, lots of us have put effort and belief into these things, and many of us will have seen students who looked like they were getting something from it. However, learning is hugely complex, the companies pushing this stuff have sold us a confident story, and if we want to give our students the best possible deal, we need to temper our intuition with evidence. This paper aims to help with that endeavour.

Intervention 1: Fidget spinners

What is claimed: fidget spinners help students with attention difficulties concentrate by giving them a controlled outlet for restlessness.

What the evidence shows: classroom studies point the other way. A direct test with very young children with ADHD (age 5ish), set inside an intensive behavioural intervention, found that fidget spinners reduced attention to instruction across both the initial and final phase of the programme (Graziano, Garcia & Landis, 2020). The same study found that the spinners did not distract neighbouring children. The negative effect was on the user. A larger Belgian classroom study (N = 233) found that fidget spinners had negative effects on both math(s) and listening performance across all children, regardless of ADHD traits (Driesen et al., 2023). A 2023 review of the fidget toy literature concluded that there is not sufficient support for their general use in classrooms, with the negative effects on attention and learning outweighing any potential sensory benefits, though some students with ADHD may respond differently (Kriescher et al., 2023).

Evidence quality: low to moderate, but converging. The best classroom studies are negative for both attention and performance. One distinction worth holding on to: this is about handheld fidget spinners sold as concentration tools. Movement-friendly seating, wobble cushions and bouncy bands (aka 'flexible seating') sit in a separate pool of evidence, with more mixed findings. The same Belgian study found bouncy bands may help inattentive students with math(s), and a separate study of wiggle stools in 11–13 year olds found benefits for creativity without any harm to focused attention (Driesen et al., 2023; Oppezzo et al., 2025).

A better question to ask: what is the actual barrier here? Restlessness, seating, language load, anxiety, task mismatch? Then start by addressing that.

Intervention 2: Coloured overlays and tinted lenses

What is claimed: coloured overlays and tinted lenses help dyslexic readers read faster and more accurately by reducing "visual stress".

What the evidence shows: they don't, at least not reliably. An overview of systematic reviews concluded that there is no credible evidence base for recommending coloured overlays or lenses to help with reading difficulty (Suttle, Lawrenson & Conway, 2018). A UK Health Technology Assessment review found the evidence insufficient and concluded the intervention was "not proven and not supported" (Albon, Adi & Hyde, 2008). Galuschka et al.'s (2014) meta-analysis of randomised trials in dyslexia found

that coloured filters showed small effects against untreated controls but negligible effects against placebo controls. The apparent benefit was largely a placebo effect. Structured phonics teaching, by contrast, produced clear effects.

Evidence quality: moderate. The product-level claim has been examined repeatedly and the effect keeps disappearing under controlled conditions. A small subset of students may report less visual discomfort, but that is not the same as a real effect on reading.

A better question to ask: is the difficulty actually decoding? Then prioritise structured literacy. If a student reports unusual visual discomfort, rule out ordinary vision issues with an optometrist before reaching for overlays.

Intervention 3: Zones of Regulation

What is claimed: a colour-coded curriculum that teaches students to identify their emotional state and use strategies to regulate. Widely adopted in UK schools as a self-regulation intervention.

What the evidence shows: the most rigorous independent assessment, a 2024 peer-reviewed research review, concluded that the Zones of Regulation does not meet the standards for an evidence-based practice under major frameworks (Mason, Leaf & Gerhardt, 2024). The reviewers found only three studies meeting rigorous inclusion criteria out of 37 candidates. The two best independent comparative studies were both essentially null: Ochocki et al. (2020), a randomised trial with N = 63 primary-age students identified for disruptive behaviour, found no statistically significant effects on either disruptive behaviour (g = 0.04) or self-control (g = 0.26). Conklin and Jairam (2021), a controlled classwide study with N = 56, also found no significant difference on the main social-emotional outcome. Other recent studies (Öhlböck et al., 2024) measure teacher self-efficacy after training rather than student outcomes, and report high attrition.

Evidence quality: very thin for the branded programme. The underlying aim (teaching emotional awareness and regulation) is legitimate (Durlak et al., 2011), but the best independent trials of Zones specifically are null.

A better question to ask: if a student needs help recognising and managing emotions, what does the assessed barrier look like in this classroom? Strong school-wide behaviour systems and routines, coaching from a trusted adult, explicit teaching of emotion vocabulary within routine pastoral conversations, and consistent adult co-regulation all have a more secure basis than a branded commercial curriculum.

Intervention 4: Universal mindfulness in schools

What is claimed: whole-class mindfulness curricula (.b, Paws b, MindUP and similar) build attention, emotional regulation and wellbeing across the student population.

What the evidence shows: the largest UK trial of universal school-based mindfulness, the MYRIAD cluster RCT, found no benefit and possible harm for vulnerable students. Kuyken et al. (2022) analysed 84 secondary schools (8,376 students) randomised to a 10-lesson mindfulness curriculum or teaching-as-usual. Effect sizes at one-year follow-up were essentially zero: depression risk SMD = 0.005, wellbeing 0.02. A moderator analysis (Montero-Marin et al., 2022) found students who started at higher risk of mental health problems showed worse depression and wellbeing scores after the intervention. The authors concluded the curriculum "may be contraindicated for students with existing or emerging mental health symptoms." In other words, it may make things worse for the very students we'd most want to help. A separate Belgian cluster RCT (Bogaert et al., 2023) and a meta-analysis (Fulambarkar et al., 2023) confirm null effects against active controls. The DfE-funded AWARE trial (Deighton et al., 2025) found a similar pattern of harm for another universal curriculum (YAM), with increased emotional difficulties 9–12 months after delivery. For younger children the picture is slightly different, but for secondary-age universal delivery the evidence is clear.

Evidence quality: strong evidence of null effect for universal delivery to adolescents, with possible harm to the very students a school might most want to help.

A better question to ask: what wellbeing barriers do specific students actually face? Sleep, exercise, peer relationships, sense of belonging, predictability and trusted adult contact have a stronger evidence base for adolescent wellbeing than universal whole-class mindfulness curricula. Targeted, clinically-delivered mindfulness for specific students with specific difficulties is a different intervention with a different evidence base.

Intervention 5: Working-memory training

What is claimed: computerised programs such as Cogmed train working memory and produce gains in attention and learning across the curriculum.

What the evidence shows: the training improves performance on the trained tasks. It does not transfer to anything that matters in the classroom. Melby-Lervåg, Redick & Hulme's (2016) meta-analysis of 87 publications found no convincing evidence of far transfer to nonverbal ability, verbal ability, word decoding, reading comprehension or arithmetic. Cortese et al.'s (2015) meta-analysis of randomised trials in ADHD found

that effects on academic performance were not statistically significant. A more recent meta-analysis restricted to trials with blinded raters and objective outcomes confirmed this pattern: computerised cognitive training improves working memory but not academic outcomes or core ADHD symptoms (Westwood et al., 2023).

Evidence quality: strong and stable across replications. One of the better-evidenced negatives we have.

A better question to ask: is the difficulty actually working-memory limited? If so, the classroom response is to reduce cognitive load, chunk and scaffold tasks, model thinking, and teach students strategies they can use. Not to run an external program in the hope it generalises.

Intervention 6: Weighted vests and weighted blankets

What is claimed: deep-pressure products calm students with autism or anxiety and help them regulate.

What the evidence shows: a systematic review judged against What Works Clearinghouse standards concluded that weighted vests are not an evidence-based practice for individuals with autism (Taylor et al., 2017). The broader sensory-processing literature reaches similar conclusions on weighted products (Case-Smith, Weaver & Fristad, 2015).

Evidence quality: low to moderate. The systematic review base is small but consistent in its conclusion on weighted vests and blankets specifically. Other deep-pressure approaches (clinically-delivered pressure therapy, compression clothing for specific assessed needs) sit on their own evidence base and shouldn't be lumped in.

A better question to ask: if a student reports comfort from a weighted item, treat it as a comfort preference and review carefully. Do not treat it as a learning intervention.

Intervention 7: Sensory diets and sensory circuits

What is claimed: scheduled sensory or movement routines regulate students, prime them to learn, and reduce dysregulation across the day.

What the evidence shows: not much. A systematic review of sensory-based interventions for autistic children found few positive effects across 14 studies, with weak methodology overall (Case-Smith, Weaver & Fristad, 2015). Proponents will

reasonably point out that many of those studies did not follow recommended protocols, which is a reasonable caveat. A 2024 scoping review of sensory adaptive environments for autistic children reached a similar conclusion: mixed evidence, wide variation in equipment and design, and a finding that most studies did not assess each child's sensory needs before deploying the environment (Williams et al., 2024). The picture is slightly stronger for clinic-based, manualised Ayres Sensory Integration therapy delivered by trained occupational therapists, with two small RCTs showing positive effects on individualised goals (Case-Smith et al., 2015). But that is not the same thing as a generic school sensory circuit.

Evidence quality: thin. Absence of good evidence is not evidence of harm, but it is not a basis for routine provision either. This is a place to be careful about overclaiming in either direction.

A better question to ask: what problem is the circuit solving? If the answer is "the student is not ready for lessons", that is a teaching, environment or regulation question, not a sensory one. Trial briefly, with data, and stop if it is not making a difference.

Intervention 8: Learning styles and VAK matching

What is claimed: students learn better when teaching is matched to a preferred sensory or cognitive style (visual, auditory, kinaesthetic).

What the evidence shows: of all the ideas here, this is the most thoroughly disproven. Pashler et al.'s (2008) influential review concluded there was no adequate evidence base for the central claim. Melzner & Kappes (2024) ran the same experimental test using real course material with prospective teachers (N = 222), and again found no advantage of matching presentation mode to learning style. Sun, Norton & Nancekivell (2023) ran three experiments and found something a bit different: parents, teachers and children all judged "visual learners" as more academically able than "hands-on" learners, and predicted they would do better at maths, language and social science (but worse at PE, music and art). The label itself shapes expectations.

Evidence quality: strong. The claim has been tested for decades and does not hold up. The EEF's own toolkit places learning styles among approaches with very limited evidence.

A better question to ask: students have preferences. That is not the same as effective instruction. Use multiple representations if the content benefits from it, not because of a label on the child.

Intervention 9: Brain Gym

What is claimed: specific movement sequences "integrate" the brain hemispheres and prime students for learning. To be fair, Brain Gym isn't actually very common these days.

What the evidence shows: the educational claims are not supported by credible research, and the neuroscience explanations are widely regarded as pseudoscientific (Spaulding, Mostert & Beam, 2010; Hyatt, 2007). The few studies that do exist are too flawed to show any effect. Ordinary physical activity has real value for alertness, wellbeing and concentration. Brain Gym wraps that around a theory the evidence doesn't support.

Evidence quality: the product-specific evidence is poor. The academic critique is well-established and longstanding.

A better question to ask: do students benefit from physical activity and movement? Broadly, yes. The evidence on physical activity, cognition and wellbeing is solid. Whether short in-lesson "brain breaks" specifically help is less clear. Either way, none of this depends on Brain Gym's neuroscience claims.

Intervention 10: Ear defenders (a slightly different case)

Ear defenders and quiet spaces are not in the same category as the nine items above. They are accommodations. They remove a barrier to participation rather than tackle an underlying difficulty, and they deserve a different kind of question.

What the evidence shows: the direct evidence base for ear defenders as a school intervention is thin to non-existent. Auditory over-responsivity is a marked feature of autism, with large effect sizes when autistic children are compared with typically developing peers (Case-Smith, Weaver & Fristad, 2015). That gives a clinical rationale for noise reduction as a reasonable adjustment in specific contexts. What we don't yet know is whether ear defenders improve learning more broadly, or whether, used badly, they reinforce avoidance and reduce a student's tolerance for manageable classroom noise.

Evidence quality: limited. Framing matters more than numbers here. The honest framing is "reasonable adjustment for a specific barrier", not "intervention for autism".

A better question to ask: what is the noise barrier, and when? Use defenders for that situation, build in re-entry plans, and review whether access to learning and peers is improving.

What to do next: Four steps to a more informed approach

The aim isn't to tear down your SEN provision overnight. It's to nudge our practice more towards what the evidence supports. Remember: even an intervention with no evidence of harm carries an opportunity cost. School time and budgets are finite, and an hour spent on an unproven programme is an hour not spent on something with better evidence behind it. This applies as much to interventions that haven't been studied as to those above.

Before we dive in, a few patterns to highlight. Firstly, the ten (mis)interventions span four broad types, each calling for a different response. Pseudoscience: drop. Kit & products: don't deploy as default; address the specific barrier instead, with data. Programmes & routines: re-examine, since better-evidenced alternatives usually exist for the same underlying aim. Accommodations: a different framing entirely. Reasonable adjustments for specific barriers, not treatments.

And secondly, there's also a deeper thread running through all ten. Support tends to be more effective when it follows from *specific, assessed learning needs* rather than from *diagnostic labels* (Dockrell et al., 2019; Van Herwegen et al., 2024). The same logic applies to the planning documents around these interventions (EHCPs, student passports, IEPs), where generic, diagnosis-led strategies fill the space that specific, assessed needs should.

With that said, here are four practical steps to delivering a more informed approach:

1. **Audit what we're already running.** List the SEN interventions and accommodations in current use across the school. For each one, ask three questions: What problem is it solving? What does the evidence say? Is it actually working for the students we're using it with? Stop the things that aren't doing useful work. Trial or modify the things that might be. Keep the things with evidence behind them.
2. **Strengthen universal provision**. Most SEN students gain the most from high-quality, well-structured, clearly-delivered core teaching. Explicit instruction, accessible lesson design, scaffolding, frequent checks for understanding, and consistent routines benefit everyone, and especially students who would otherwise be left behind. Strengthening universal provision often reduces the need for additional intervention.
3. **Match support to the assessed need, not the label.** When a student isn't accessing learning, the default question is often "what intervention goes with this label?". A more useful one: "what is the specific barrier here, and what does the evidence say about removing it?" A student with an autism label may struggle with noise, or complex instructions, or transitions, or working memory load. The label doesn't tell

us which. What helps is paying attention to what teachers and TAs actually see in the classroom, and building provision around that rather than around generic recommendations attached to a diagnostic category.

4. **Trial thin-evidence things carefully.** Some accommodations in this brief have limited evidence but may genuinely help individual students. Take ear defenders: a reasonable adjustment for a student with auditory over-responsivity in a noisy assembly. Less reasonable as a default kit for every student with an autism diagnosis. If you're going to use something with weak evidence, treat it as a time-limited trial: name the specific barrier, define what success looks like, collect simple data, and stop if it's not making a difference.

Rigorous resources to help you with all this

- ➔ **MetaSENse** (step 1): a practitioner-facing toolkit from the Nuffield Foundation summarising 400+ SEND intervention studies, with a searchable database co-designed with educational professionals.
- ➔ **EEF Promising Programmes** (step 1): a curated list of programmes that have shown promise under independent RCT evaluation. Useful for identifying alternatives to the things flagged in this brief.
- ➔ **EEF Teaching and Learning Toolkit** (step 2): the EEF's general overview of evidence-informed practice, organised by approach and accessible to a busy classroom audience.
- ➔ **Steplab Inclusive Teaching Steps** (step 2): a library precise action steps and accompanying video clips of effective practice [coming September 2026].
- ➔ **EEF SEN in Mainstream Schools Guidance** (steps 2-3): classroom-focused recommendations from the Education Endowment Foundation, drawing on their underlying evidence review.
- ➔ **Inclusive Teaching Discussion Paper** (steps 2-3): a research-informed practitioner guide to inclusive teaching across mainstream classrooms.
- ➔ **EdInstruments** (step 4): a curated library of validated educational measurement tools from the Annenberg Institute, Brown University, useful when you want to evaluate something rigorously in your own setting.
- ➔ **Evidence Snacks:** keep up with the latest research around effective teaching.

A note about EHCPs

When it comes to interventions set out in EHCPs, schools have a legal duty to deliver what's specified, and we're not suggesting anyone unilaterally drops what's in place. Instead, use this evidence to inform the next EHCP draft or annual review, and to look honestly at whether what's currently in place is actually helping the specific student. When reviewing Section F, for each line of provision ask: what is the specific assessed barrier this is addressing, and what's the measure of success? Many provisions are written as activities to deliver rather than outcomes to achieve, which makes it nearly impossible to ever conclude that an intervention isn't working.

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