

Inclusive Physical Education for Neurodivergent and Disabled Learners: A Systematic Review of Barriers, Practices, and Opportunities

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ABSTRACT:

Background. Inclusive PE is becoming increasingly important as schools cater for neurodivergent and disabled learners in mainstream settings. However, physical educators still face uncertainty about how to translate inclusion policies into effective everyday practice.

Objectives. This systematic review aimed to (1) identify and synthesize the key barriers that hinder the inclusion and meaningful participation of students with neurodiversity and disabilities in PE; (2) examine and synthesize evidence-based pedagogical, instructional, environmental, and collaborative practices that promote inclusive participation in PE; and (3) identify emerging opportunities, innovations, and research priorities for strengthening inclusive PE for these students.

Methods. The review was reported with reference to PRISMA 2020 guidelines. PubMed, Scopus, Web of Science and Google Scholar were searched for literature published in English between 2008 and 2026. Data base searches were conducted from 4 July 2026 to 15 July 2026. Eligible studies examined neurodivergent or disabled learners including autism spectrum disorder, developmental coordination disorder/dyspraxia, intellectual disability, or similar populations in school-based physical education and adapted/structured physical activity settings. Eligible were peer-reviewed articles, academic book chapters, and relevant master's and doctoral theses. Of 412 records identified, 34 studies met the eligibility criteria and were

included in the synthesis. No formal quality or risk of bias assessment was performed.

Results Key barriers included in adequate teacher training, attitudinal ambiguity, sensory and communicative mismatch between curriculum design and learner demands, and fragmented support structures. Frequently reported practices included Universal Design for Learning (UDL), peer-mediated instruction, visual aids, trauma-informed pedagogy, and technology-assisted and emerging AI-supported approaches for differentiation. whole-school and policy level commitment, enhanced pre-service and in-service teacher education and theoretically grounded frameworks can support proactive inclusion rather than reactive accommodation

Conclusion To achieve meaningful inclusion in PE we need coordinated effort across classroom practice, teacher education and institutional policy, not individual pedagogical modifications.

Keywords: inclusive physical education, neurodiversity, disability, Universal Design for Learning, adapted physical education, neurodivergent.

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1. Introduction

Physical Education has a unique contribution to make within the wider discussion about inclusive education, in facilitating participation, engagement, and a sense of belonging for all students. Unlike many academic disciplines PE is by its nature embodied, social and comparative, exposing neurodiverse and disabled students in scenarios that might make sensory, motor, communicative and social differences more apparent than a regular classroom environment (Haeghele & Hodge 2016). Despite the increasing pressure in the profession for physical education to be truly inclusive by design rather than retrofit (Petrie et al., 2024), this commitment has not been consistently translated into day-to-day PE practice.

The review examines the concept of inclusive physical education in regard to learners who may be impacted by neurodevelopmental, cognitive, motor, behavioural, social-emotional or disability-related impairments in their engagement. The review therefore includes evidence on neurodivergent learners, including those with autism, attention-deficit/hyperactivity disorder (ADHD) and developmental coordination disorder (DCD), as well as research

on students with intellectual and other disabilities, focusing on participation and inclusion in physical education (PE). These groupings are not considered to be clinically or educationally interchangeable. Instead, they are grouped because of the possibility of shared environmental and pedagogic challenges in PE, which might include sensory challenges, motor and coordination challenges, differences in communication, social expectations, inflexible teaching techniques, lack of teacher readiness and limited access to meaningful participation. Neurodiversity is employed here as a conceptual framework for understanding neurological variation and not as a diagnostic classification. Neurodivergent learners and disabled learners are used to refer to different populations within the literature evaluated.

This distinction is important because an inclusive PE approach should not assume that all learners' experience disability or neurodivergence in the same way. Instead, the review considers differences between and within these populations while examining the common environmental and instructional conditions that can facilitate or constrain participation. Such an approach is consistent with the social model of disability,

which shifts attention from perceived deficits within the learner towards barriers created by environments, systems, and practices (Haegele & Hodge, 2016). It also aligns with the broader neurodiversity perspective, which challenges deficit-oriented interpretations of neurological difference and emphasizes the importance of adapting environments to accommodate diverse ways of learning, communicating, moving, and participating (Dwyer, 2022).

However, despite this shift in thought, autistic and neurodivergent learners continue to report lower participation, weaker feelings of belonging, and more negative experiences in PE than their neurotypical classmates (Haegele & Maher, 2021; Jachyra et al., 2021; Waddington et al., 2025; Wong et al., 2026). Given the wealth of recent literature on inclusive PE, including pedagogical strategies, teacher preparation, technology-assisted instruction and policy analysis, a systematic synthesis is required to consolidate what is known about barriers to inclusion, the practices that facilitate it and opportunities for future development. This review addresses that requirement, guided by the question: What do recent research findings tell us about barriers, effective practices, and potential for expanding inclusive physical education for neurodiverse and disabled students?

Objectives

1: To identify and synthesize the key barriers that hinder the inclusion and meaningful participation

of students with neurodiversity and disabilities in PE.

2: To examine and synthesize evidence-based pedagogical, instructional, environmental, and collaborative practices that promote inclusive participation in PE.

3: To identify emerging opportunities, innovations, and research priorities for strengthening inclusive PE for students with neurodiversity and disabilities.

2. Methodology

The review employed a systematic approach to the identification, screening and synthesis of literature relevant to inclusive physical education for neurodiverse and disabled learners and was substantially aligned with PRISMA-2020 informed reporting guidelines for systematic reviews.

Eligibility criteria.

Studies were eligible if they (a) addressed physical education, adapted physical activity, or physical literacy in school-based or similar structured settings; (b) targeted neurodivergent learners (including autism spectrum disorder, developmental coordination disorder, intellectual disability, and related conditions) or inclusive education more broadly; and (c) were published in peer-reviewed journals, edited volumes, or reputable theses published in English between 2008 and 2026, with a focus on maximum literature published from 2020 onward to reflect current practice and policy developments

. Eligibility Criteria Table

Table 1

Criterion	Inclusion	Exclusion
Population	Neurodivergent or disabled learners (autism spectrum disorder, developmental coordination disorder/dyspraxia, intellectual disability, and related conditions); or studies addressing inclusive Physical education broadly with clear relevance to these populations.	Studies exclusively about typically developing populations with no inclusion/disability focus
Concept	Barriers to, practices supporting, or opportunities for advancing inclusive participation in PE	Studies not addressing any of the three organizing themes

Context/Setting	School-based physical education; adapted physical activity programs; physical literacy programs in structured/comparable settings.	Purely clinical/therapeutic settings with no educational PE component; unstructured recreational settings
Source type	Peer-reviewed journal articles; edited academic volumes/book chapters; reputable master's/doctoral theses.	non-peer-reviewed web content; opinion pieces without empirical or conceptual grounding.
Language	English-language publications	Pre-2008 publications (unless foundational theory texts, handled separately.
Publication window	1477-1489	Pre-2008 publications (unless foundational theory texts, handled separately.

Search and selection procedure

A complete and systematic literature search was undertaken using major electronic bibliographic databases and scholarly search platforms such as PubMed, Scopus, Web of Science, and Google Scholar. The search covered the years 2008 to 2026.

Note: *Foundational theoretical works, such as Bronfenbrenner (1979), were included for conceptual grounding despite falling outside the 2008–2026 search*

period. These sources were identified through citation tracking rather than the database search.

Search strategy.

A structured Boolean search strategy combining terms for (a) inclusion/inclusive education, (b) physical education/physical activity settings, and (c) neurodiversity/disability was applied, adapted to each database's syntax. Full, database-specific search strings are reported in table 2

Table 2

Database	Search String	Date Searched	Records Retrieved
PubMed	("inclusive education" OR inclusion) AND ("physical education" OR "adapted physical activity" OR "physical literacy") AND (neurodivergent OR autistic OR "developmental coordination disorder" OR dyspraxia OR "intellectual disability" OR disability); 2008 -2026	05.07.2026	151
Scopus	TITLE-ABS-KEY ("inclusive education" OR inclusion) AND TITLE-ABS-KEY ("physical education" OR "adapted physical activity" OR "physical literacy") AND TITLE-ABS-KEY (neurodivergent OR autistic OR "developmental coordination disorder" OR dyspraxia OR "intellectual disability" OR disability); 2008 -2026	15.07.2026	92

Web of Science	TS= ("inclusive education" OR inclusion) AND TS= ("physical education" OR "adapted physical activity" OR "physical literacy") AND TS= (neurodivergent OR autistic OR "developmental coordination disorder" OR dyspraxia OR "intellectual disability" OR disability); 2008 -2026	10.07.2026	28
Google Scholar	(inclusive OR inclusion) ("physical education" OR "adapted physical activity") (autism OR neurodivergent OR "developmental coordination disorder" OR dyspraxia OR "intellectual disability"); 2008 -2026	04.07.2026	141

Titles and abstracts were evaluated for their relevance to the three organizational themes of barriers, practices and opportunities in inclusive PE for a study of the full text of suitable sources. A total of 412 records were identified through database searching. After 96 duplicate records and 45 records disqualified for other reasons (e.g. non-peer-reviewed or unavailable sources) were removed, 271 records remained for title and abstract screening. Of these, 169 were removed as plainly not relevant to the purpose of the study, leaving 102 records requested for retrieval. A further 53 could not be obtained or were

excluded at this stage, leaving 49 full-text publications examined for eligibility. 15 papers were omitted after full-text review (e.g., inappropriate population, not physical-education-specific, or insufficiently relevant to the review's barriers/practices/opportunities framework), and 34 eligible sources were found in the review. 34 studies met the inclusion criteria and were included in the qualitative synthesis reported in the Results. No formal quality or risk of bias assessment was performed. The overall selection procedure is represented in Figure 1

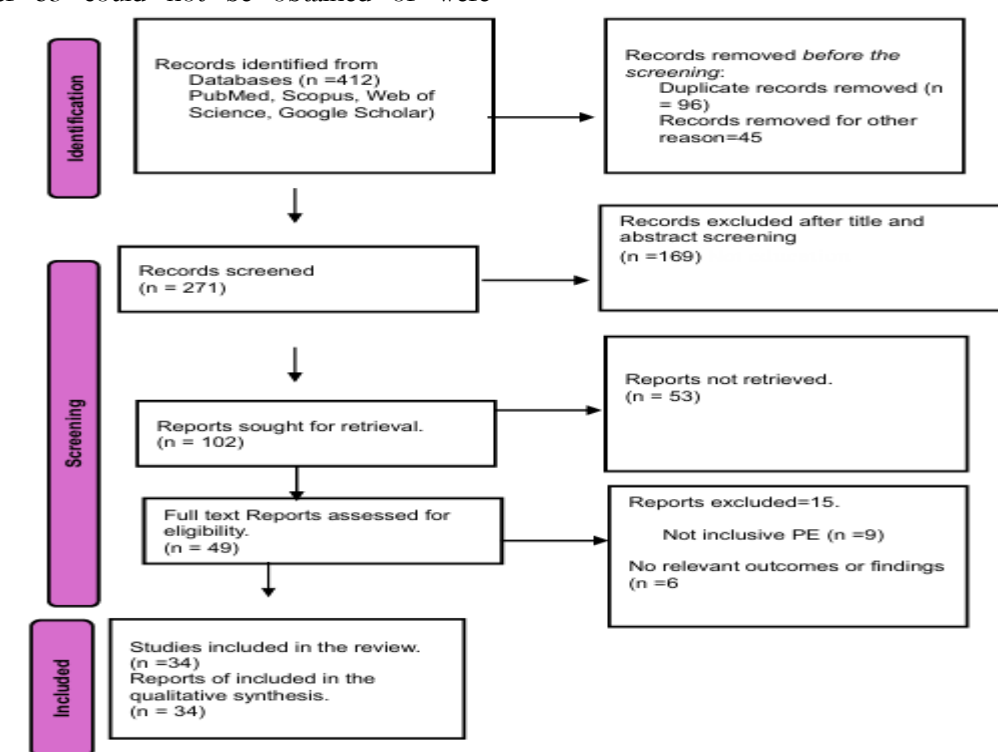


Figure 1: PRISMA 2020 flow diagram of study selection

Data extraction and synthesis.

For each study included, data were extracted using a standardized framework to capture author(s) and year, country or context, study design, sample characteristics (population, age range, and neurodivergence or disability type), the PE or physical activity setting, and the specific finding(s) relevant to the review's three organizing themes. Where a single study addressed more than one theme, findings were coded separately under each relevant theme. Meta-analytic synthesis was prevented by the diversity of study designs (qualitative interviews, scoping and systematic reviews, controlled intervention trials, conceptual or practice-oriented publications). Instead, a narrative thematic synthesis was used. To reduce selection bias and to ensure consistency in the selection of studies, the discovered records were separately evaluated by two independent reviewers against the stated eligibility criteria. The two reviewers individually extracted the data, and any differences were discussed and resolved by consensus or a third-party subject expert.

Data were extracted and organized in a descriptive manner within each theme and then iteratively compared across studies to identify converging findings, divergences and gaps in the evidence, which informed the subthemes of barrier, practice and opportunity reported in the Results.

3. Results

Inclusive Physical Education Barriers

Inadequate preparation of teachers emerged as a major barrier, limiting the effective implementation of inclusive Physical Education. One of the most detailed empirical accounts was provided by Obrusnikova and Dillon (2011) who surveyed 43 certified physical educators and elicited 225 specific teaching challenges related to instructing autistic students in general PE in cooperative (46%), competitive (31%) and individualistic (24%) learning situations. These challenges clustered into nine themes, including inattentive and hyperactive behaviours, social impairment, emotional regulation difficulties, and

rigid adherence to routine. In keeping with this, Block et al. (2016) found that physical education teachers frequently find themselves ill-prepared to deliver their lessons in an inclusive way due to restrictions in the curriculum. McNamara et al. (2023) further confirms this by revealing through the sequential explanatory mixed-methods approach, that training deficits still prevail, as physical educators continue to report feeling ill-prepared to deliver lessons to children with autism, first reported more than a decade ago.

A second cluster of barriers involves belonging and social isolation and is consistently identified throughout qualitative studies with autistic adolescents. According to Haegele and Maher (2021), who conducted a study on eight autistic male youth (aged 1477-1489) in integrated PE: bullying can lead to self-harm and self-isolation; locker room interactions are a particularly fraught social space; and meaningful peer relationships depend on shared interests and take a considerable amount of time to develop. In a related interview study of nine autistic teenagers, Lesslie and Blagrove (2024) identified interpersonal influences (teachers, family, peers) and environmental influences (physical and instructional factors) to shape PE experience. Waddington et al. (2025) found uncertainty around location, social grouping, activity type and uniform requirements to act as anxiety-inducing barriers, compounded by unpredictable noise and social pressure to perform in front of unfamiliar peers. Also, when employing digital storytelling with ten autistic adolescent boys, Jachyra et al. (2021) discovered that involvement was restricted by bullying, challenges in accessing community activities, and an institutional focus on therapeutic over enjoyable activity. Related work on developmental coordination deficit (dyspraxia) also identifies PE as a context where motor difficulties are made visible and can lead to social isolation (Zimmer et al., 2020).

The third barrier is related to motivation and psychological need support. A qualitative study of 26 Australian autistic youth, Wong et al. (2026)

conducted a Self-Determination Theory-informed content analysis and found that participants' experiences mapped most strongly onto relatedness needs, followed by competence and autonomy, indicating that PE attendance being compulsory does not mean genuine motivational engagement. Consistent with this, a mixed-methods study of 103 autistic adults and 169 parents of autistic children found that although most autistic children participated in organized physical activities, participation declined rapidly in adulthood, and barriers included intrapersonal factors (anxiety), interpersonal factors (social communication difficulties), and societal factors (lack of inclusive opportunities, lack of training for coaches) (Edwards et al., 2024).

Emerging and Evidence-Based Inclusive Practices

The most represented pedagogical framework for inclusive PE in the literature reviewed is the Universal Design for Learning (UDL) which calls for multiple means of engagement, representation and action/expression to be built into lesson design from the beginning. Gilbert (2019) translates this into real PE strategies, instructional supports, organized student choice, and multiple media for instruction. He argues these approaches enhance fitness and skill development for children with and without disabilities alike. Other sources apply UDL to PE more generally (Lieberman et al., 2020; Van Munster et al., 2019), although, keeping with the barriers above, teacher training and policy backing for its implementation in reality seem unequal.

Peer mediated instruction is strongly empirically supported. Klavina and Block (2008) conducted controlled research of elementary students with severe and numerous disabilities and their peers without disabilities. They found that systematic peer tutoring produced measurable increases in physical, instructional, and social interaction behaviours between the two groups. Complementing this is a practice-oriented synthesis of implementation guidelines for

general PE settings by Cervantes et al. (2013). More recently, Kristen et al. (2025) created and presented a "Guiding Peers" teaching model specifically tailored to enhance interest in PE for children with and without impairments. Peer-assisted learning in physical education significantly improves both motor skill learning and active participation in class for students with mild intellectual disabilities and also increases empathy and positive inclusive attitudes in their neurotypical peers (Sert Gürbüz & Top, 2026).

Adapted behavioural and instructional intervention strategies for autism are also promising. Grenier (2013) created a variety of behavioural and social learning tools and details proactive strategies for inclusion to enhance physical activity skills in children with autism spectrum disorder. Despite advancements in research, evidence-based procedures are still not widely used in practice.

Technology-assisted instruction shows promise; however, the evidence base remains early and largely exploratory. For example, Bittner et al. (2017) used a pilot study to compare a tablet application incorporating visual supports and video modelling ("Exercise Buddy") with traditional instruction for children with autism spectrum disorder. Outcomes indicated higher peak energy expenditure and peak heart rate during app-based sessions, suggesting that technology-assisted methods may be a useful supplementary approach. Related work on motion-sensing games and edutainment platforms for students with intellectual disabilities (e.g., Dandashi et al., 2015; Rakhmadi et al., 2025) further supports potential benefits, though study designs and effect sizes vary.

More recent works also investigate AI-supported differentiation, such as home-based physical activity programs with artificial intelligence and Universal Design for Learning (UDL) principles (Sapre et al., 2025). However, these AI-supported approaches should be described as emerging and indirect, particularly where the research focuses on home-based activity rather than school-based Physical Education. In most cases, the current

studies are exploratory or small-scale, and the extent to which they can be reliably translated into inclusive PE practices within typical classroom contexts remains unclear. Accordingly, any implications drawn from these studies for inclusive Physical Education should be interpreted cautiously, and the review should avoid overstating what is yet to be independently established.

A last practice area that is particularly relevant to autistic learners is the use of visual supports; however, the data is mixed rather than consistently good. Forbes and Yun (2023) conducted a systematic review of 27 studies and found inconsistent effectiveness across the literature with some studies showing clear benefit, others limited support but concluded that picture task cards, visual activity schedules and video prompting show the most consistent potential for teaching motor skills to autistic children. Closely related, trauma-informed approaches call for re-imagining instructional prompts and correction strategies that might otherwise mirror distressing dynamics for students with prior negative experiences in movement-based instruction; Eales and Goodwin (2022) argue that trauma in adaptive physical activity is about access and justice and propose trauma-informed practice as a framework for creating safer, more inclusive programs.

Finally, evidence from the controlled study indicates that organized comprehensive programming can produce measurable effect. A 12-week inclusive physical activity program increased motor and social skills among autistic participants, improved motor skills among typically developing participants, and positively shifted typically developing students' attitudes toward their autistic peers, found Sansi et al. (2021) in a randomized study of 45 children aged 1477-1489 (autistic and typically developing), evidence that well-designed inclusive PE can benefit the whole class, not only the students it is designed to accommodate.

Inclusive Physical Education -Opportunities

The research converges on numerous opportunities to enhance inclusive PE moving forward. First, looking forward to a more inclusive future, there is an urgent need to fortify PE-specific teacher preparation pipelines with more meaningful infusion of inclusive pedagogy and disability-specific training into pre-service education and ongoing professional development (Demchenko et al., 2021; Peromingan et al., 2025). This training gap is almost entirely based on inclusive techniques across disability types synthesized into comprehensive practitioner materials (Grenier, 2013; Lieberman et al., 2024).

Second, theoretical grounding may result in more coherent and less fragmented practice. Ecological Systems Theory (Bronfenbrenner, 1979) offers a framework for exploring the interface between classroom-level practice and family, institutional and policy-level systems, and Self-Determination Theory (Deci & Ryan, 2012) offers a motivational lens for designing PE environments that support autonomy, competence and relatedness rather than compliance alone. Neurodiversity-affirming models also conceptualize inclusion as a question of environmental design, rather than individual deficit (Dwyer, 2022; Haegele & Hodge, 2016).

Thirdly, there is a considerable potential in terms of policy and standards-level commitment to PE. Petrie et al. (2024) suggest that going "beyond adaptive practices" to physical education for all students from the start demands a curriculum-level commitment, not just classroom-level. This is further reinforced by calls for UDL implementation to be aligned with teacher training and institutional policy in PE in particular (Van Munster et al., 2019); and practical suggestions for helping students with disabilities to reach the same national standards and grade level outcomes as their peers, rather than parallel or lowered standards (Smail & MacDonald, 2015).

4. Discussion

The results of this systematic review highlight that the challenges of inclusive PE are not primarily related to the absence of potentially

effective practices but to persistent gaps in their implementation. The interrelated barriers to meaningful participation found in the reviewed literature were inadequate teacher preparation, limited confidence and knowledge, social isolation, anxiety, motivational barriers and insufficient institutional support. These results imply that inclusion cannot be addressed by simply placing neurodivergent or disabled students in mainstream P.E. classes. Instead, meaningful inclusion requires intentional attention to the design of instruction, social participation, psychological safety and the broader school environment. This interpretation is consistent with evidence that students can be physically present in PE with a low sense of belonging, autonomy, competence or meaningful engagement.

A significant finding of the review is the persistent gap between the availability and consistent use of inclusive pedagogical strategies. Universal Design for Learning (UDL), peer-mediated instruction, visual supports, trauma-informed approaches, and technology-assisted instruction are broadening the repertoire of strategies for facilitating participation and learning. However, evidence suggests that these approaches are often poorly implemented because of teachers' lack of adequate disability specific PE preparation, and lack of support from institutional and curriculum structures (Obrusnikova & Dillon, 2011). The challenge for inclusive PE is therefore becoming more about implementation rather than just access to interventions. This distinction is important because without improving teacher capacity and institutional support, the introduction of other techniques is unlikely to result in sustainable change.

The review also stresses the importance of differentiating structural inclusion from psychological and social inclusion. Participation in a mainstream PE lesson does not guarantee belonging, motivation and meaningful engagement (Haegele & Maher, 2021; Wong et al., 2026). Findings on bullying, social exclusion,

anxiety, peer relations and psychological needs reveal that the quality of the PE experience is reliant on interpersonal and emotional factors in addition to physical and instructional access. The limited scope of modifying activities is not enough for inclusive PE; the degree to which learning environments foster autonomy, competence, relatedness and psychological safety need to be considered as well. This moves from an idea of inclusion as access, to meaningful participation and belonging (Deci & Ryan, 2012; Eales & Goodwin, 2022).

The evidence for inclusive programming also suggests that well-designed interventions can improve the broader PE environment and not only the students for whom adaptations are introduced. Specifically, controlled evidence from a 12-week inclusive physical activity program showed improvements in motor and social skills in autistic participants and improvements in motor skills in typically developing participants, as well as improvements in attitudes toward autistic peers (Sansi et al. 2021). This finding supports the argument that inclusive PE should not be seen as a compensatory provision for individual students but as an approach that can improve learning, participation and social outcomes for the whole class.

Technology-enabled and AI-driven approaches are an emerging opportunity space. Preliminary evidence suggests that visual technologies, video modelling, motion-based games and AI-supported differentiation could enhance engagement, instruction and skill practice. But the evidence to date is still small scale and exploratory (Bittner et al., 2017; Rakhmadi et al., 2025; Sapre et al., 2025). Thus, technology should be seen as a supportive component of inclusive pedagogy instead of a substitute for teacher expertise, peer interaction or socially embedded PE experiences. Further research should explore the applicability and sustainability of technology-assisted approaches in regular school PE settings.

One important implication from the synthesis is

that opportunities to advance inclusive PE are closely aligned with the barriers identified in the literature. The ongoing preparation gap signals the need for more robust PE-specific teacher education and continuing professional development (Demchenko et al., 2021; Peromingan et al., 2025). The fragmentation of practice demonstrates the utility of theoretical frameworks such as Self-Determination Theory, Ecological Systems Theory, UDL, and neurodiversity-affirming perspectives. At the policy level, inclusive PE is not a matter of individual teachers making isolated adaptations but an institutional and curriculum level commitment. In this sense, future development must be understood as a systems level process of alignment between teacher preparation, pedagogy, school culture and policy.

Collectively, the findings add to the existing literature by integrating barriers, inclusive practices and future opportunities within the specific context of Physical Education rather than discuss them as separate domains. To conclude, the synthesis implies that the primary challenge is not to find out what inclusive strategies are available, but rather how these strategies can be consistent, meaningful and sustainable in everyday PE. In this regard, the review argues for a shift from conceptualizing inclusion as an individual adaptation process to conceptualizing it as a multidimensional, proactive and system-level process that requires alignment between pedagogy, teacher preparation, psychological and social support and institutional policy. This integrated interpretation provides a basis for further intervention research and the development of PE-specific approaches to inclusive practice.

Limitations of the review

Quality appraisal: Formal methodological quality and risk-of-bias evaluation was not completed and consequently differences in the rigor of research could not be systematically examined.

Publication and reporting bias: We did not search extensively for gray literature, unpublished research or negative or null findings, which may bias the evidence base toward published positive

findings.

Limitations of language and databases: We may have eliminated research conducted in languages other than those selected and not indexed in the databases searched. This may have restricted the comprehensiveness of the review.

Heterogeneity of evidence: Differences in study design, populations, intervention, source type, and outcome measure limited the ability to directly compare studies.

Narrative synthesis: As this review employed narrative synthesis and not meta-analysis it was not possible to combine effect sizes or quantitatively assess the magnitude of intervention effects.

Protocol registration: No pre-registration of protocol was done which could limit transparency of the methodological decisions taken before the review.

Future research would benefit from more rigorously controlled intervention studies, more representation of diverse neurodivergent populations beyond autism specifically, and longitudinal research tracking whether early inclusive PE experiences translate into sustained physical activity participation into adulthood.

5. Conclusion

The findings of this systematic review show that inclusive Physical Education is shaped by an interrelated set of pedagogical, social, psychological and systemic factors. UDL, peer-mediated instruction, visual supports, trauma-informed practice, and technology-assisted differentiation have been identified as promising approaches. But their effectiveness and sustainability are highly contingent upon teacher preparation, supportive learning environments and institutional commitment. The evidence also shows that meaningful inclusion is not only about physical access, but also about participation, belonging, autonomy, competence and social engagement. Overall, the review adds to the field by providing a unique synthesis of the evidence on barriers, evidence-based practices, and future opportunities specific to PE. The main argument is that the future of inclusive PE is not about

developing isolated adaptations but rather about aligning teacher education, inclusive pedagogy, psychological and social support and school level policy. Future research should therefore strive for rigorous intervention designs, broader inclusion

of neurodivergent populations beyond autism, and longitudinal investigation of whether inclusive PE experiences translate into sustained participation and well-being over time.

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7. Author Declaration

The manuscript is an original work and has not been previously published or submitted to any other journal for publication. All authors have critically reviewed and approved the final version of the manuscript and agree to be accountable for all aspects of the work.

There is no conflict of interest related to this research.