

Traditional Games in Physical Education: Motor Skills, Fitness, Social Learning, and Cultural Sustainability

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Abstract

Traditional games offer culturally meaningful movement experiences for physical education (PE), yet their use in school lessons remains inconsistent and their outcomes are assessed unevenly. This review synthesised recent evidence on traditional games in relation to fundamental movement skills, physical fitness, participation, social learning, and cultural sustainability. A structured narrative review examined 24 peer-reviewed journal articles published between 2020 and 2026 and one World Health Organization guideline. Searches conducted in October 2026 used English and Indonesian terms across journal publisher portals, DOI-linked records, PubMed, and scholarly web indexing. Evidence was organised thematically without calculating a pooled effect estimate. The reviewed studies generally associated traditional games with opportunities to practise hopping, running, balance, coordination, agility, and object control. Several school-based studies also reported increased participation, motivation, cooperation, and positive peer interaction. Games such as *engklek*, *gobak sodor*, *bentengan*, and *bakiak* connected movement practice with teamwork, decision-making, and local cultural knowledge. However, small samples, short intervention durations, single-group pretest–posttest designs, and inconsistent outcome measures limited conclusions about causal and long-term effects. The evidence supports the pedagogical potential of traditional games while indicating the need for more rigorous evaluation. Their integration into PE should involve purposeful learning tasks with explicit movement objectives, safe and inclusive rule modifications, observable assessment criteria, and reflection on cultural

meaning. Future research should employ controlled and longitudinal designs, consistent motor-skill measures, and broader regional representation to strengthen the evidence base.

Keywords: Traditional Games; Physical Education; Fundamental Movement Skills; Social Learning; Cultural Sustainability

INTRODUCTION

Traditional games are locally transmitted forms of play in which rules, movement patterns, objects, and social roles reflect the histories and everyday practices of communities. In Indonesian school contexts, games such as engklek, gobak sodor, bentengan, bakiak, bekel, and congklak can provide different combinations of hopping, running, stopping, turning, balancing, object manipulation, tactical decision-making, and cooperation. These movement experiences are relevant to physical education because children need repeated, varied opportunities to build movement competence and confidence. The World Health Organization (2020) recommends that children and adolescents accumulate an average of at least 60 minutes per day of moderate-to-vigorous physical activity across the week. Traditional games cannot automatically satisfy that recommendation, but they can be one practical component of active school experiences.

The issue is not simply whether traditional games are enjoyable. The central educational question is whether teachers can connect each game to explicit learning outcomes and assess those outcomes reliably. When games are treated only as a warm-up or a reward, teachers may miss opportunities to teach movement quality, spatial awareness, tactical choices, communication, and cultural understanding. Evidence also suggests that implementation depends on teacher knowledge. Adi et al. (2022) found that teachers' understanding of traditional-game-based motor learning was uneven, while Gunawan et al. (2026) reported that teachers valued games as warm-up activities but faced constraints involving lesson time, facilities, shared spaces, and students' declining familiarity with traditional play.

Research on traditional games in PE has expanded across motor development, motivation, fitness, character education, and local curriculum design. Ariyanto et al. (2020) examined traditional games as a means of improving fundamental movement skills among elementary school students. Aliriad et al. (2024) reported positive outcomes for motor skills

and motivation after an eight-session intervention, and Jannah et al. (2024) developed an engklek activity that integrated numeracy with locomotor movement. Review papers have also synthesized evidence on physical and pedagogical outcomes. Arfanda et al. (2024) discussed physical, moral, and social contributions, Wulansari et al. (2025) reviewed traditional games in PE, and Yulianto et al. (2025) identified evidence concerning gross and fine motor development in preschool children. Suryadi et al. (2025) similarly reviewed the role of traditional games in physical fitness.

Other studies have examined outcomes beyond motor performance. Hafina et al. (2022) developed and validated a character-education model that combined traditional games with the Socratic method, while Nevitaningrum et al. (2023) examined traditional-game-based PE in relation to cooperation, confidence, and discipline. Fauzi et al. (2024) reported a change in students' participation following a traditional-game intervention. More recent studies have explored reduced sedentary behavior (Nasir et al., 2026), peer interaction through bakiak (Wahyudi et al., 2026), and student perceptions of traditional sports at Universitas Negeri Makassar (Usman et al., 2025). These studies suggest that traditional games can support multiple learning domains, but the size and durability of these outcomes require careful interpretation.

A further issue concerns cultural relevance. Traditional games carry more than movement rules: they can transmit local vocabulary, community memory, values, and ways of cooperating. Anwar et al. (2024) discuss the integration of South Sulawesi local culture into PE, while Rusdi et al. (2026) examine the meanings of traditional games and intergenerational cultural transmission in South Sulawesi. Basal et al. (2026) propose a culturally responsive physical-literacy framework that links game content, teaching design, assessment, and learning outcomes. These contributions position traditional games as potential curricular resources rather than nostalgic activities, while also emphasizing the need to document local variants accurately and involve communities in interpreting their meanings.

Despite this growing literature, three gaps remain. First, studies use different games, intervention periods, and outcome measures, which limits direct comparison. Second, many studies rely on small samples or short pretest-posttest designs, so positive immediate changes should not be treated as proof of lasting effects. Third, the relationship between game mechanics, movement objectives, social learning, cultural content, and assessment is not

always made explicit. The present review addresses these gaps through a structured narrative synthesis of evidence published from 2020 to 2026. It aims to identify the main educational outcomes associated with traditional games, examine the strengths and limitations of the available evidence, and propose a practical design matrix for culturally responsive and inclusive PE.

METHODS

Review approach and search strategy

This article uses a structured narrative review. It is not a registered systematic review, and it does not claim to capture every relevant publication. Searches were conducted in October 2026 across journal publisher portals, DOI-linked records, PubMed for broader evidence on active play and movement skills, and scholarly web indexing. Search terms combined English and Indonesian expressions, including “traditional games,” “permainan tradisional,” “physical education,” “PJOK,” “fundamental movement skills,” “motor skills,” “physical fitness,” “physical literacy,” “social skills,” “cultural identity,” “active play,” and “sedentary behavior.”

Eligibility and selection

Eligible sources were peer-reviewed journal articles published between 2020 and October 2026 that addressed traditional or indigenous games in PE, school-age or early-childhood movement development, participation, physical fitness, social learning, or culturally responsive pedagogy. Empirical studies, literature reviews, and conceptual frameworks were retained when their focus informed at least one review theme and the bibliographic record could be checked through an official journal or DOI page. Studies focused on unrelated sport training, non-academic commentary, or publications before 2020 were excluded from the review corpus. The final synthesis included 24 journal articles and one WHO guideline used to contextualize physical-activity recommendations.

Data extraction and synthesis

For each article, the review recorded its publication year, context, research approach, game or pedagogical focus, reported outcomes, and limitations where these were stated in the available record. Evidence was grouped into four themes: (1) fundamental movement skills and physical fitness; (2) participation, motivation, and sedentary behavior; (3) social-

emotional learning and character; and (4) cultural relevance, curriculum design, and implementation. The synthesis emphasizes recurring patterns and differences rather than estimating a pooled effect. Quantitative values reported below are attributed to the original studies and are not new data collected by the author.

Scope and ethical considerations

The review used publicly available scholarly sources and did not recruit human participants or collect identifiable personal data. Therefore, no participant ethics approval was required for this review. The evidence base is limited by the accessibility of publications, differences in study quality, and the single-reviewer nature of the narrative synthesis. These constraints are considered when interpreting the findings.

RESULTS

Fundamental movement skills and physical fitness

The most consistent theme concerns the movement opportunities embedded in traditional games. Engklek requires hopping, single-leg balance, controlled landing, and spatial planning. Gobak sodor and bentengan combine acceleration, stopping, direction changes, evasion, and tactical anticipation. Bakiak requires synchronized stepping, balance, rhythm, and coordinated movement with peers. Bekel and congklak involve more precise hand movements and object manipulation, although their contribution to PE depends on how teachers connect them to movement, coordination, or learning objectives. Studies of traditional-game interventions report positive changes in fundamental movement skills, locomotor ability, coordination, agility, and selected fitness indicators (Ariyanto et al., 2020; Aliriad et al., 2024; Jannah et al., 2024; Bate et al., 2026; Tapo et al., 2026).

The reviews point in a similar direction but also identify limits. Yulianto et al. (2025) retained 10 studies from 1,222 records in a review of Indonesian traditional games and preschool motor skills; the included interventions commonly lasted four to eight weeks and were delivered two or three times per week. Suryadi et al. (2025) concluded that traditional games can support school fitness by increasing movement engagement, while Arfanda et al. (2024) mapped outcomes across gross and fine motor skills and several fitness components. These findings support the use of games as movement-rich learning tasks, but they do not establish that every traditional game improves every fitness component. The actual

movement demand depends on rules, playing area, duration, group size, and how much time students spend actively moving.

Evidence from wider school-based movement research strengthens the rationale for structured practice, but it should not be confused with direct evidence about traditional games alone. Yin et al. (2025) included 33 studies in a review of school-based interventions; their meta-analysis of nine interventions found a positive pooled effect on overall fundamental movement skills ($SMD = 0.69$, 95% CI [0.21, 1.16]), with substantial heterogeneity ($I^2 = 94\%$). Zhang et al. (2025) included nine active-play studies, seven of which reported significant effects and two of which did not. Together, these findings indicate that structured, repeated practice can help develop movement skills, while differences in intervention design and measurement limit universal conclusions.

Participation, motivation, and sedentary behavior

A second theme is engagement. Traditional games often give students immediate roles, visible goals, and frequent opportunities to make decisions. Fauzi et al. (2024) studied 43 fifth-grade students and reported a significant pretest-posttest difference in PE participation following a traditional-game intervention. Aliriad et al. (2024) also reported increased motivation after eight sessions over one month. Hafiyyan et al. (2026) argue that traditional games can contribute to physical literacy by connecting physical competence with confidence, motivation, and understanding, although this broad claim needs to be tested with consistent measures across settings.

Nasir et al. (2026) examined 77 students in grades IV to VI across an experimental and a comparison group. In the experimental group, reported sedentary behavior decreased from 4.32 to 3.06 hours per day after ten PE meetings using traditional games. This result is promising but should be read within the study's setting and measurement approach. It does not demonstrate that traditional games alone can meet daily activity recommendations or reduce sedentary time outside school. The practical implication is to use games to increase meaningful active time during lessons and to evaluate participation directly rather than assuming that students are active because they appear enthusiastic.

Social-emotional learning and character

Traditional games can require students to coordinate actions, negotiate roles, follow shared rules, respond to winning and losing, and manage disagreement. Hafina et al. (2022) developed and validated a character-education model that combined traditional games with

Socratic questioning. Nevitaningrum et al. (2023) examined cooperation, confidence, and discipline in traditional-game-based PE. In a more recent study, Wahyudi et al. (2026) evaluated the bakiak game with 37 fifth-grade students and reported that the mean peer-interaction score increased from 54.81 before the intervention to 90.59 after it; the reported mean N-Gain was 0.7886. The one-group pretest-posttest design limits causal inference, but the study identifies cooperation, communication, empathy, tolerance, and social support as relevant dimensions for assessment.

Social outcomes should not be assumed to emerge automatically from play. Teachers need to teach and observe the behaviors that the lesson intends to develop. For example, students can be asked to rotate leadership roles, explain a rule fairly, include a classmate who has fewer movement skills, and reflect on how their team solved a problem. Such routines connect participation to explicit learning and reduce the risk that faster or more confident students dominate the game.

Cultural relevance and curriculum design

The literature also presents traditional games as a way to connect movement learning with local knowledge. Anwar et al. (2024) discuss the integration of South Sulawesi culture into PE, and Rusdi et al. (2026) examine how games carry character-related meanings and support the transmission of intangible cultural heritage across communities in South Sulawesi. Usman et al. (2025), in a study involving 217 Universitas Negeri Makassar students, reported positive perceptions of traditional sports learning. Basal et al. (2026) provide a conceptual framework linking culturally meaningful game content with physical-literacy outcomes and assessment.

Cultural integration requires more than adding a local game name to a lesson plan. Teachers should identify the local name and variants, learn the rules from reliable community sources, explain the context in age-appropriate language, and distinguish documented cultural meanings from assumptions. Local elders, families, and cultural practitioners can help check accuracy. Teachers should also avoid presenting one version as the only authentic version when rules vary across communities. The educational goal is to respect local knowledge while making the learning task safe, inclusive, and aligned with the PE curriculum.

Table 1. Representative evidence and the scope of its contribution

Theme	Representative sources	Synthesis and caution
Movement competence	Ariyanto et al. (2020); Aliriad et al. (2024); Jannah et al. (2024); Bate et al. (2026); Tapo et al. (2026)	Studies report positive movement-skill outcomes. Game demands and assessment tools differ, so effects should not be treated as interchangeable.
Fitness and active time	Arfanda et al. (2024); Suryadi et al. (2025); Hilmi and Afifah (2026); Nasir et al. (2026)	Games can provide repeated movement and may improve selected fitness or sedentary-behavior indicators. Evidence is context-specific.
Participation and physical literacy	Fauzi et al. (2024); Usman et al. (2025); Hafiyyan et al. (2026)	Studies and reviews identify engagement, motivation, and positive perceptions. Measures and study designs vary.
Social learning and character	Hafina et al. (2022); Nevitaningrum et al. (2023); Wahyudi et al. (2026)	Cooperation, communication, responsibility, and peer interaction are plausible learning outcomes when teachers assess them explicitly.
Cultural and curricular relevance	Anwar et al. (2024); Basal et al. (2026); Rusdi et al. (2026)	Local knowledge can enrich curriculum design. Cultural descriptions should be checked with communities and not generalized across regions.
Teacher implementation	Adi et al. (2022); Gunawan et al. (2026)	Teacher knowledge, time, facilities, safety, and students' familiarity influence how games are implemented.
Broader review evidence	Wulansari et al. (2025); Yulianto et al. (2025); Yin et al. (2025); Zhang et al. (2025)	Reviews support the potential of play-based movement learning but also report heterogeneity and limits in study quality.

Table 2. A practical design matrix for traditional-game-based PE

Game or format	Primary movement demands	Learning outcomes to teach	Possible assessment
Engklek	Hopping, single-leg balance, landing control, spatial movement	Locomotor control, balance, sequencing, attention to rules	Movement checklist; balance and landing criteria; student explanation of strategy
Gobak sodor	Running, stopping, lateral movement, evasion, acceleration	Agility, tactical choice, cooperation, fair play	Observation of movement quality, active time, decisions, and rule compliance
Bentengan	Acceleration, direction changes, pursuit, defensive movement	Locomotor skills, teamwork, planning, responsibility	Predefined locomotor rubric; rotating roles; reflection on team decisions
Bakiak	Synchronized stepping, balance, rhythm, coordinated group movement	Communication, timing, mutual support, inclusion	Peer-interaction checklist; safe coordination; group reflection

Game or format	Primary movement demands	Learning outcomes to teach	Possible assessment
Bekel or congklak adaptations	Object manipulation, hand-eye coordination, fine motor control	Coordination, turn-taking, counting, strategic thinking	Task accuracy, rule explanation, equitable participation
Locally documented regional games	Movement demands depend on verified local rules	Cultural knowledge, movement competence, respect for community variants	Community-checked description, movement rubric, student reflection

Note. Table 2 is an instructional synthesis proposed by the author, not a report of a newly conducted intervention. Teachers should verify local game rules, adapt activities to students' abilities, and use school safety procedures.

DISCUSSION

Interpreting the evidence

The reviewed literature suggests that traditional games can be educationally valuable when their movement and social demands match clear learning objectives. Their potential comes from the structure of the activity: students repeat meaningful movements while responding to changing spatial, tactical, and social conditions. This differs from unstructured free play, but it also differs from isolated technical drills. A lesson can use the game as the central task, then adjust rules or constraints to increase practice of a targeted skill. For example, teachers can change the size of the engklek grid, shorten a playing zone, rotate defenders in gobak sodor, or ask bakiak teams to pause and agree on a shared rhythm.

The strongest interpretation is not that all traditional games produce the same benefits. Instead, each game provides a distinct set of affordances. Engklek is suitable for hopping, balance, and controlled landing; gobak sodor and bentengan create repeated opportunities for locomotor movement, anticipation, and direction change; bakiak makes coordination and communication visible; and games involving small objects can support precision and rule-based decision-making. These distinctions are consistent with intervention reports on locomotor skills, motivation, and fitness (Aliriad et al., 2024; Bate et al., 2026; Hilmi & Afifah, 2026; Jannah et al., 2024). A teacher should select a game because its demands fit the learning goal, not merely because it is culturally familiar.

Relationship with wider physical-education research

The broader active-play literature provides a useful comparison. Zhang et al. (2025) found generally positive but inconsistent outcomes across active-play interventions, while

Yin et al. (2025) reported a positive pooled effect for school-based movement-skill interventions alongside high heterogeneity. These reviews support the importance of structured opportunities for practice, but they do not isolate the unique effect of traditional games. Traditional games should therefore be evaluated with the same methodological care as other PE interventions, including clear intervention descriptions, valid assessments, comparison groups where feasible, and follow-up beyond the final lesson.

The findings also suggest that motor learning and cultural learning should be planned together but measured separately. A student may learn a local game's name and history without improving movement quality; another student may improve agility without understanding the cultural context. A comprehensive lesson plan can include physical outcomes, social outcomes, and cultural outcomes, but each needs an observable indicator. This approach aligns with the culturally responsive physical-literacy framework proposed by Basal et al. (2026) and with local-cultural integration discussed by Anwar et al. (2024) and Rusdi et al. (2026).

Practical implications for teachers and curriculum leaders

A practical implementation cycle has five steps. First, map games known in the school's community and verify their rules and meanings with knowledgeable local sources. Second, define one or two primary movement outcomes and one social or cultural outcome. Third, adapt space, equipment, rules, team size, and intensity to students' ages, abilities, and safety needs. Fourth, teach the game through a short explanation, demonstration, active practice, feedback, and a brief reflection. Fifth, assess movement quality and participation with a simple rubric, then adjust the next lesson according to observed needs. This cycle keeps traditional games aligned with the curriculum rather than treating them as an optional cultural event.

Inclusion and safety require explicit attention. Teachers should offer role rotation, different task levels, and alternative ways to participate for students with varied motor abilities. Playing areas need to be checked for surface hazards and sufficient space. Physical contact rules should be clear, and students should know how to stop the activity safely. When a game requires running or pursuit, teachers can modify boundaries and duration to reduce collision risk. Cultural inclusion also matters: teachers should avoid assigning games or roles according to gender stereotypes and should invite students to share family or community knowledge without making any student responsible for representing an entire culture.

For curriculum leaders, traditional games can support local-contextualized PE resources, teacher professional development, and school-community partnerships. Teacher training should cover movement analysis, lesson adaptation, cultural documentation, formative assessment, and inclusive teaching. A repository of games should record regional names, variants, equipment, safety notes, movement demands, and possible learning outcomes. Such a repository should be reviewed with local communities and revised as evidence develops. It should not freeze living practices into a single official version.

Limitations and future research

This review has several limitations. It uses a structured narrative approach rather than a registered systematic review, so the selection process may omit relevant studies. It does not include a formal risk-of-bias score or a meta-analysis. The source literature combines experimental, quasi-experimental, descriptive, qualitative, and review designs, and the outcomes range from locomotor tests to participation questionnaires and cultural interpretations. Many individual interventions involve small samples or short periods; single-group pretest-posttest designs are especially vulnerable to maturation, testing, and contextual effects. The available evidence also emphasizes Indonesian school settings, so transfer to other countries or cultural groups requires caution.

Future research should use controlled trials with transparent allocation procedures, adequate sample sizes, validated movement assessments, and follow-up measurements. Studies should report intervention dose, active time, teacher training, rule modifications, adherence, and adverse events. Researchers should compare different traditional games rather than treating them as one intervention category, and should investigate which movement demands predict particular outcomes. Qualitative work can document how children, teachers, families, and community practitioners interpret game rules and cultural meaning. Research in South Sulawesi and other underrepresented regions can test whether culturally responsive designs improve engagement without reducing the diversity of local traditions.

CONCLUSION

Traditional games have practical potential in physical education because they combine meaningful movement with tactical decision-making, cooperation, and local cultural knowledge. Recent studies report positive outcomes in fundamental movement skills, fitness

indicators, participation, motivation, peer interaction, and character-related learning. However, differences in study design, duration, samples, and assessment methods limit broad causal claims. Traditional games should therefore be integrated as purposeful learning tasks with explicit movement objectives, inclusive rule adaptations, safe implementation, and observable assessment. Their cultural content should be documented accurately with community input rather than reduced to decoration. Future studies should use stronger controlled and longitudinal designs, consistent outcome measures, and wider regional samples to determine which games work best for particular educational goals and for whom.

The principal contribution of this review is a practical link between game mechanics, PE learning outcomes, and culturally responsive teaching. This approach can help teachers use traditional games as structured curricular resources while preserving the local knowledge that gives each game meaning.

REFERENCES

- Adi, B. S., Irianto, D. P., & Sukarmin, Y. (2022). Teachers' perspectives on motor learning with traditional game approach among early children. *Jurnal Cakrawala Pendidikan*, 41(1), 1–11. <https://doi.org/10.21831/cp.v41i1.36843>
- Aliriad, H., Adi, S., Manullang, J. G., Endrawan, I. B., & Satria, M. H. (2024). Improvement of motor skills and motivation to learn physical education through the use of traditional games. *Physical Education Theory and Methodology*, 24(1), 32–40. <https://doi.org/10.17309/tmf.v.2024.1.04>
- Anwar, N. I. A., Hasyim, & Mappanyukki, A. A. (2024). Integrasi Pendidikan Jasmani, Olah Raga dan Kesehatan Berbasis Budaya Lokal Sulawesi Selatan. *Journal Physical Health Recreation (JPHR)*, 5(1), 58–63. <https://doi.org/10.55081/jphr.v5i1.3149>
- Arfanda, P. E., Aprilo, I., Mappaompo, M. A., Arimbi, & Muhammad, H. N. (2024). Why are traditional games good for the physical being? *ACTIVE: Journal of Physical Education, Sport, Health and Recreation*, 13(1), 147–154. <https://doi.org/10.15294/active.v13i1.78711>
- Ariyanto, A., Triansyah, A., & Gustian, U. (2020). Penggunaan Permainan Tradisional untuk Meningkatkan Keterampilan Gerak Fundamental Siswa Sekolah Dasar. *Jurnal Pendidikan Jasmani Indonesia*, 16(1), 78–91. <https://doi.org/10.21831/jpji.v16i1.30785>
- Basal, M. H., Hamidi, M. I., Gilang, M., & Maulana, D. (2026). Culturally responsive physical literacy in school physical education: A Malaysia–Indonesia conceptual framework using traditional games-based pedagogy. *JuKu: Jurnal Kurikulum & Pengajaran Asia Pasifik*, 14(2). <https://doi.org/10.22452/juku.vol14no2.2>
- Bate, Y. B., Natal, Y. R., Bate, N., & Bile, R. L. (2026). The influence of traditional games on locomotor skills in elementary school students. *COMPETITOR: Jurnal Pendidikan Kepelatihan Olahraga*, 18(1), 1407–1418. <https://doi.org/10.26858/cpjok.v18i1.636>

- Fauzi, R. A., Suherman, A., Susilawati, D., Saptani, E., & Rahman, A. A. (2024). The effect of traditional games on participation of elementary school students in physical education. *ACTIVE: Journal of Physical Education, Sport, Health and Recreation*, 13(2), 295–300. <https://doi.org/10.15294/peshr.v13i2.4520>
- Gunawan, G., Hambali, S., Sobarna, A., & Shafie, M. S. (2026). Traditional games as warm-up activities in elementary physical education: A qualitative study of teachers' perspectives. *EduStream: Jurnal Pendidikan Dasar*, 10(1), 169–182. <https://doi.org/10.26740/eds.v10n1.p169-182>
- Hafina, A., Nur, L., & Malik, A. A. (2022). The development and validation of a character education model through traditional games based on the Socratic method in an elementary school. *Jurnal Cakrawala Pendidikan*, 41(2), 404–415. <https://doi.org/10.21831/cp.v41i2.46125>
- Hafiyyan, D. N., Nababan, S. L., Marbun, Y. H. D., Franaditya, D. N., & Ilsa, M. N. F. (2026). The role of traditional games in improving students' physical literacy in the modern era: A literature review. *ACTIVE: Journal of Physical Education, Sport, Health and Recreation*, 15(2), 1179–1189. <https://doi.org/10.15294/active.v15i2.49873>
- Hilmi, H. I., & Afifah, H. M. (2026). The effect of fort games on physical fitness. *ACTIVE: Journal of Physical Education, Sport, Health and Recreation*, 15(2), 816–823. <https://doi.org/10.15294/active.v15i2.48638>
- Jannah, S. R., Muharram, N. A., Herpandika, R. P., & Setiawan, I. (2024). Development of a traditional game “engklek” based on numeracy literacy to improve locomotor movements of elementary school students. *Indonesian Journal of Research in Physical Education, Sport, and Health*, 2(2), 49–57. <https://doi.org/10.17977/um086v2i22024p49-57>
- Nasir, I. M., Suherman, A., & Supriyadi, T. (2026). Implementation of traditional games to reduce sedentary behavior of elementary school students. *Journal of Physical Education Health and Sport*, 13(1), 281–287. <https://doi.org/10.15294/jpehs.v13i1.45746>
- Nevitaningrum, Mulyatno, C. B., & Nopembri, S. (2023). Implementasi Pembelajaran Pendidikan Jasmani Berbasis Permainan Tradisional dalam Membentuk Karakter Peserta Didik Sekolah Dasar. *Jurnal Pendidikan Jasmani Indonesia*, 19(1), 22–33. <https://doi.org/10.21831/jpji.v19i1.73492>
- Rusdi, M., Hamzah, A., & Agus, A. (2026). Traditional games, character-related meanings, and intangible cultural heritage: A qualitative multi-site study in South Sulawesi, Indonesia. *Journal of Economics, Entrepreneurship, Management Business and Accounting*, 4(5), 653–666. <https://doi.org/10.61255/jcemba.v4i5.1789>
- Suryadi, D., Ivanov, D., & Zulnadila, Z. (2025). Stimulation of physical fitness through traditional games in elementary school students: A systematic review in Indonesia. *Journal of Applied Movement and Sport Science*, 1(3), 12–19. <https://doi.org/10.65575/jamss.v1i3.92>
- Tapo, Y. B. O., Bile, R. L., Rewo, J. M., Renaldi, F., & Keytimu, A. N. (2026). Traditional games festival enhances fundamental movement skills in elementary school students. *Smart Society*, 6(3). <https://doi.org/10.58524/x6sart34>
- Usman, A., Arimbi, Wahid, W., & Zainuddin, S. (2025). Overview of student perceptions of traditional sports at Universitas Negeri Makassar. *ACTIVE: Journal of Physical*

- Education, Sport, Health and Recreation*, 14(3), 1135–1141.
<https://doi.org/10.15294/active.v14i3.36764>
- Wahyudi, S., Safari, I., & Fauzi, R. A. (2026). Effectiveness of the bakiak game in improving peer interaction among elementary school students. *ACTIVE: Journal of Physical Education, Sport, Health and Recreation*, 15(2), 1286–1292.
<https://doi.org/10.15294/active.v15i2.53422>
- World Health Organization. (2020). *WHO guidelines on physical activity and sedentary behaviour*.
<https://www.who.int/publications/i/item/9789240015128>
- Wulansari, D. A., Hermawan, H., Riyadi, M. B., Nazareta, P. I., & Rozi, F. (2025). Permainan Tradisional dalam Pendidikan Jasmani: A Systematic Literature Review. *Afeksi: Jurnal Penelitian dan Evaluasi Pendidikan*, 6(6), 1339–1357.
<https://doi.org/10.59698/afeksi.v6i6.622>
- Yin, X., Zhang, D., Shen, Y., Wang, Y., Wang, Z., & Liu, Y. (2025). Effectiveness of school-based interventions on fundamental movement skills in children: A systematic review and meta-analysis. *BMC Public Health*, 25, Article 1522.
<https://doi.org/10.1186/s12889-025-22696-2>
- Yulianto, A. G., Saputra, Y. M., Satria, T., & Risyanto, A. (2025). Traditional Indonesian games as a medium for enhancing gross and fine motor skills in preschool children: A systematic literature review. *Journal of Physical Education Health and Sport*, 12(2), 273–279. <https://doi.org/10.15294/jpehs.v12i2.36811>
- Zhang, X., Tang, C., Geng, M., Li, K., Liu, C., & Cai, Y. (2025). The effects of active play interventions on children's fundamental movement skills: A systematic review. *BMC Pediatrics*, 25, Article 40. <https://doi.org/10.1186/s12887-024-05385-8>