Review Article

Effects of Gymnastics based interventions on Motor Fitness Competencies: A Meta-Analysis of Randomized Controlled Trials

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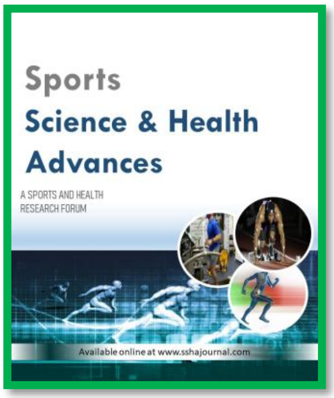

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Abstract

Purpose: The present meta-analysis aimed to evaluate the effects of gymnastics-based interventions on motor fitness competencies across different age groups, including children, adolescents, and young adults. **Methods:** A systematic search was conducted to identify randomized controlled trials examining the impact of gymnastics-based training modalities, including fundamental movement skills, coordination training, balance/proprioceptive training, and physical conditioning. A total of 38 studies were included in the analysis. Effect sizes were calculated using standardized mean differences (SMD) under a random-effects model. Heterogeneity was assessed using I^2 statistics, and subgroup analyses were performed based on motor fitness components, age groups, and intervention types. Publication bias was evaluated using funnel plot asymmetry tests, Egger's test, Trim and Fill method, and Fail-Safe N. **Results:** The overall pooled effect size indicated a moderate positive effect (SMD = 0.626; 95% CI: 0.086 to 1.165) with high heterogeneity (I^2 = 95.76%). Subgroup analysis revealed that balance (SMD = 1.534), coordination (SMD = 0.900), and flexibility (SMD = 0.818) showed relatively higher improvements, while muscular strength demonstrated a smaller but significant effect (SMD = 0.351). In contrast, agility (SMD = −1.124) and reaction time (SMD = −4.114) showed inconsistent or negative effects, likely due to differences in measurement direction. Among age groups, children showed the highest effect (SMD = 1.189), whereas young adults showed a more stable moderate effect (SMD = 0.513). Gymnastics-based training demonstrated consistent outcomes with low heterogeneity (I^2 = 11.34%). Publication bias assessment showed non-significant asymmetry in Egger's test (p = .657), while the Trim and Fill method adjusted the effect size to SMD = 0.084 (p = .734). The Fail-Safe N (2160) indicated high robustness of the findings. **Conclusions:** Gymnastics-based interventions are effective in improving motor fitness competencies, particularly flexibility, balance, and coordination. However, the presence of high heterogeneity, methodological variability, and potential publication bias suggests that the results should be interpreted with caution. Future research should focus on standardized measurement approaches and high-quality trials to strengthen the evidence base.

Keywords: Gymnastic Based Training, Fundamental Movement Skills, Motor Fitness, Physical Education

Introduction

Motor fitness refers to the capacity to perform physical tasks efficiently and effectively, encompassing key skill-related components such as coordination, balance, agility, speed, power, and strength (Saini P et al., 2023). In children, the development of motor fitness is fundamental for enhancing neuromuscular efficiency, which not only supports physical performance but also contributes to academic readiness and overall development (Samokysh, Shanditseva, Hurenko, et al., 2025). Motor fitness integrates both gross motor skills, involving large muscle groups for activities like running and jumping, and fine motor skills, which involve precise control of smaller muscles required for tasks such as writing and object manipulation (Shkola et al., 2025). Early acquisition and systematic development of motor fitness during childhood play a critical role in shaping lifelong motor competence, facilitating mastery of daily functional tasks, and promoting optimal physical growth (Zeynesh, 2025).

Gymnastics-based training encompasses a broad spectrum of structured physical activities designed to enhance overall motor fitness through the integrated development of strength, flexibility, balance, coordination, and body control (Gallotta et al., 2024). Rather than being limited to a single discipline, it includes multiple training approaches such as gymnastics-based skill training, fundamental movement skills (FMS) training, coordination training, balance and proprioceptive training, and physical conditioning programs (An & Lee, 2021). These approaches collectively target both basic and advanced motor abilities by incorporating activities like locomotor and non-locomotor movements, rhythmic and reaction-based drills, postural control exercises, and strength and flexibility routines. Such training emphasizes progressive skill development, neuromuscular coordination, and body awareness, making it particularly effective during childhood and adolescence when motor systems are highly adaptable (Brakke & Pacheco, 2019). By engaging multiple components of motor fitness simultaneously through varied and systematic exercises, gymnastics-based training provides a comprehensive framework for improving both gross and fine motor competencies, c

Although gymnastics-based training is widely acknowledged for its role in enhancing motor fitness, several gaps remain in the existing literature. Most studies have primarily focused on isolated components such as flexibility and balance, with comparatively limited attention given to other important motor fitness variables like agility, reaction time, and overall motor competence. Additionally, there is a lack of consistency in the assessment methods and outcome measures, particularly for time-based variables, which creates challenges in comparing and synthesizing findings across studies. The variability in intervention protocols, including differences in duration, intensity, and types of training (e.g., fundamental movement skills, coordination, or conditioning), further limits the generalizability of results. Moreover, evidence from well-designed randomized controlled trials remains relatively scarce, especially across different developmental stages such as early childhood and adolescence. There is also limited understanding of the comparative effectiveness of different types of gymnastics-based training approaches. Therefore, a comprehensive meta-analysis is needed to systematically evaluate and quantify the effects of gymnastics-based interventions on motor fitness competencies in school students while addressing these methodological inconsistencies (Dudley et al., 2013).

Methods and Procedure

The present study was conducted in accordance with the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) (Page et al., 2021) guidelines to ensure transparency, rigor, and standardization in the reporting process. PRISMA provides a structured framework for identifying, screening, selecting, and synthesizing relevant studies, thereby minimizing bias and enhancing the reliability of findings. In line with these guidelines, a systematic and comprehensive literature search was carried out across multiple electronic databases to identify randomized controlled trials examining the effects of gymnastics on motor fitness competencies in school students.

Search Strategy

A comprehensive and systematic literature search was conducted across multiple electronic databases, including Google Scholar, Scopus, and Web of Science, to identify relevant studies. The search strategy was developed using a combination of keywords and Boolean operators to ensure maximum retrieval of eligible studies. The keywords were grouped into key conceptual domains, including the intervention (gymnastics), outcomes (motor fitness components), and population (school students). The search string was structured as follows:

("gymnastics" OR "artistic gymnastics") AND ("motor fitness" OR "balance" OR "strength" OR "flexibility" OR "coordination" OR "agility" OR "reaction time" OR "fine motor skills") AND ("school students" OR "children" OR "school-aged children")

This structured approach ensured a comprehensive identification of studies examining the effects of gymnastics on various components of motor fitness among school-aged populations.

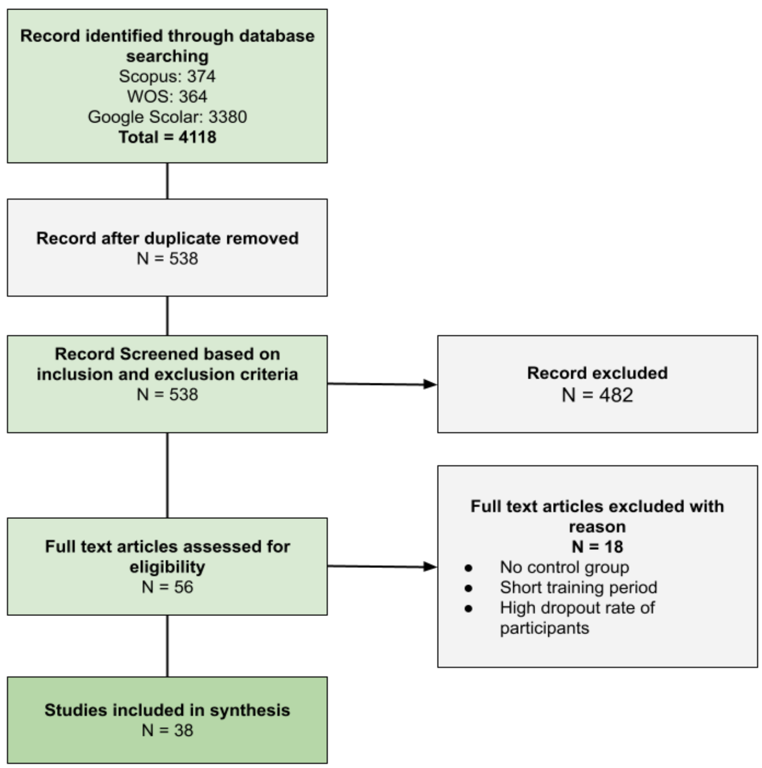

Figure 1 PRISMA flow diagram of study selection

Inclusion and Exclusion Criteria

The present meta-analysis applied predefined inclusion and exclusion criteria to ensure methodological rigor and relevance of selected studies.

Inclusion Criteria: Studies were included if they: (a) employed an experimental design with at least one control group; (b) assessed one or more components of motor fitness (e.g., balance, strength, coordination, agility, flexibility, or reaction time); (c) implemented any form of gymnastics-based intervention; (d) involved primarily children or adolescent participants, although no strict age limits were imposed; (e) included healthy participants; and (f) were published in the English language. ***Exclusion Criteria:*** Studies were excluded if they: (a) involved participants with physical deformities or clinical conditions; (b) reported incomplete data or had substantial participant dropout affecting study validity; and (c) did not examine gymnastics training as the independent variable and motor fitness components as the primary outcome measures.

Study Quality and Risk of Bias Assessment

The methodological quality of the included studies was evaluated using the Cochrane Risk of Bias Tool, which assesses seven key domains: random sequence generation, allocation concealment, blinding of participants and personnel, blinding of outcome assessment, incomplete outcome data, selective reporting, and other potential sources of bias. Each domain was rated as low risk, unclear risk, or high risk of bias. A study incorporated with four points of '*high risk*' may be excluded from the synthesis or need a valid justification to be included if necessary. Two independent reviewers were recruited to assess the study quality. If there was any disagreement between the two selected reviewers regarding the study inclusion or exclusion, a third reviewer was also recruited for the final decision of study selection.

Publication Bias

Publication bias was assessed using multiple complementary approaches to ensure a comprehensive evaluation. Visual inspection of funnel plot symmetry was performed to identify potential asymmetry in the distribution of effect sizes. In addition, Egger's weighted regression test and meta-regression test for funnel plot asymmetry were applied to statistically examine small-study effects. The Trim and Fill method was used to estimate the number of potentially missing studies and to provide an adjusted pooled effect size after accounting for asymmetry. Furthermore, the Fail-Safe N (Rosenthal) was calculated to determine the number of additional null-effect studies required to reduce the overall results to non-significance. A combination of these methods was employed, as reliance on a single test may be insufficient due to the influence of heterogeneity and methodological variability across studies.

Outcomes Variables

The present study examined motor fitness components, including flexibility, reaction time, coordination, muscular strength, balance, and agility, across the selected studies. A given motor fitness variable was often assessed using different measurement procedures; for instance, balance was evaluated using various tests such as the Flamingo Balance Test (Altinkök et al., 2016) and the Y-Balance Test (Genç & Kızar, 2020). Uniformity in measurement tools across studies was not considered mandatory, as the primary focus was on comparability of outcome constructs rather than identical assessment methods. The main criterion for inclusion was the study design in relation to the specified outcome variables. For quantitative synthesis, key statistical data including arithmetic mean, standard deviation, and sample size (N) for both experimental and control groups were extracted. Additionally, variables such as type of training intervention, participants' chronological age, measurement tools, and their respective units were recorded for further analysis.

Data Extraction

The data collection process involved the systematic extraction of participant characteristics and study-specific contextual variables. The extraction procedure was conducted in three phases. In the first phase, general study information including authorship, year of publication, participants' chronological age (further categorized into relevant age strata), and sex was recorded. The second phase focused on quantitative data, where post-test means, standard deviations (SD), and sample sizes for both experimental and control groups were extracted to compute standardized mean differences and overall pooled effect sizes. The third phase included detailed information on the type of intervention, training structure, motor fitness variables, corresponding measurement methods, and key findings of each study. Particular emphasis was placed on the nature and structure of the interventions, as gymnastics training encompasses diverse forms, making classification into limited categories complex.

Statistical Applications

The standardized mean difference (SMD) was used to estimate pooled effect sizes, allowing comparison across studies with different measurement scales. A random-effects model was applied to compute the summary effects, considering the expected variability in study populations, interventions, and outcome measures. The magnitude of effect sizes was interpreted as: small (0.20), moderate (0.50), and large (0.80) Statistical heterogeneity among studies was assessed using I-squared (I^2) statistics. Heterogeneity was interpreted using I^2 values as follows: low (25%), moderate (50%), and high (75%). Subgroup analyses were conducted based on motor fitness components, age groups of participants, and types of interventions to explore potential sources of heterogeneity. Publication bias was evaluated using funnel plot asymmetry, Egger's regression test, Trim and Fill method, and the Fail-safe N approach. All statistical analyses were performed using JASP, an open-source statistical software widely used for meta-analysis.

Table 1 Study Characteristics

Study	Motor Fitness Variable	Age	Intervention Types	Measurement Test
Altinkok et al 2016	Flexibility	Early Childhood	Movement Education	Balance test (Flamingo), agility, coordination;
Ozer et al. 2019	Flexibility	Young Adults	Gymnastics-Based Training	Sit & reach, handgrip, Flamingo;
Saad Ahmed et al 2024	Flexibility	Children	Coordination & Neuromotor Training	Coordination drills, skill rating scale;
singh et al 2021	Flexibility	Adolescents	General Physical Fitness	Cooper test, sit-ups, push-ups;
Boraczyński et al 2013	Flexibility	Children	Gymnastics-Based Training	BMI, skinfold %, sit-ups, long jump;
Ozer et al 2024	Flexibility	Children	Gymnastics-Based Training	Sit and reach, long jump, handgrip;
Ozer et al 2019	Flexibility	Young Adults	Gymnastics-Based Training	Sit and reach, balance test;
Donmez et al 2020	Flexibility	Children	Gymnastics-Based Training	30m sprint, sit and reach, long jump;
Dallas et al. 2014	Flexibility	Children	General Physical Fitness	Sit and reach, vertical jump;
Trajkovic et al. 2014	Flexibility	Adolescents	Gymnastics-Based Training	Sit and reach, shuttle run, long jump;
Altinkok et al. 2016	Flexibility	Early Childhood	Movement Education	Balance test (Flamingo), agility;
Ozer et al 2019	Flexibility	Young Adults	Gymnastics-Based Training	Sit & reach, handgrip, Flamingo;
Saad Ahmed et al 2024	Flexibility	Children	Coordination & Neuromotor Training	Coordination drills, skill rating scale;
singh et al 2021	Flexibility	Adolescents	General Physical Fitness	Cooper test, sit-ups, push-ups;
Boraczynski et al 2013	Flexibility	Children	Gymnastics-Based Training	BMI, skinfold %, sit-ups, long jump;
Ozer et al 2024	Flexibility	Children	Gymnastics-Based Training	Sit and reach, long jump, handgrip;
Ozer et al 2019	Flexibility	Young Adults	Gymnastics-Based Training	Sit and reach, balance test;
Donmez et al 2020	Flexibility	Children	Gymnastics-Based Training	30m sprint, sit and reach;
Dobrijevic et al 2018	Flexibility	Adolescents	Balance & Proprioceptive Training	Vertical jump, T-test, battery;
Altinkok 2016	Flexibility	Early Childhood	Movement Education	Balance test (Flamingo), agility;
Ozer et al 2019	Muscular Strength	Young Adults	Gymnastics-Based Training	Sit and reach, handgrip, Flamingo;
Esteban et al 2021	Muscular Strength	Adolescents	General Physical Fitness	Plank test, trunk flexion/extension;
wang et al 2024	Muscular Strength	Young Adults	General Physical Fitness	Vertical jump, long jump;
Taufiqurrahman et al 2022	Muscular Strength	Young Adults	General Physical Fitness	Vertical jump (power test);
Dobrijevic et al 2018	Muscular Strength	Adolescents	Balance & Proprioceptive Training	Vertical jump, T-test agility;

Table 1 Continue…

Study	Motor Fitness Variable	Age	Intervention Types	Measurement Test
Altinkok et al 2016	Balance	Early Childhood	Balance & Proprioceptive Training	Balance test (Flamingo), agility;
Rebolledo et al. 2022	Balance	Adolescents	Balance & Proprioceptive Training	Static (force platform), dynamic;
Hafez et al 2016	Balance	Adolescents	Coordination & Neuromotor Training	Coordination battery, accuracy;
Genc et al 2020	Balance	Children	Gymnastics-Based Training	Flamingo, Y-balance test;
Kristofic et al 2017	Balance	Young Adults	Balance & Proprioceptive Training	Stabilometer, postural sway;
Ozer et al (2019)	Balance	Young Adults	Gymnastics-Based Training	Sit and reach, balance test;
Nabi et al 2016	Balance	Adolescents	Coordination & Neuromotor Training	Coordination/balance tests;
Donmez et al 2020	Balance	Children	Gymnastics-Based Training	30m sprint, sit and reach;
Saad Ahmed et al 2024	Balance	Children	Coordination & Neuromotor Training	Coordination drills, rating scale;
Dallas et al 2019	Agility	Adolescents	General Physical Fitness	20m sprint, Illinois agility;
Altinkok et al 2016	Agility	Early Childhood	Movement Education	Balance test (Flamingo), agility;
Saad Ahmed 2024	Reaction Time	Children	Coordination & Neuromotor Training	
Hafez 2016	Reaction Time	Adolescents	Coordination & Neuromotor Training	

Age Groups: Early Childhood: 2 to 6 Y; Children: 6 to 12 Y; Adolescents: 13 to 18 Y; Young Adults: 18 to 25 Y

Results

Studies Characteristics

Table 1 summarizes the characteristics of the included studies across publication years, motor fitness variables, age groups, intervention types, and measurement tools. The studies span a publication period from 2013 to 2024, indicating a relatively recent and evolving research focus on motor fitness interventions.

In terms of motor fitness variables, most studies assessed flexibility, followed by balance and muscular strength, with fewer studies examining agility and reaction time. This suggests that flexibility and balance are the most targeted outcomes in intervention-based research.

The participants were categorized into four age groups: early childhood (2-6 years), children (6-12 years), adolescents (13-18 years), and young adults (18-25 years). Most studies were conducted on children and adolescents, while relatively fewer studies focused on early childhood and young adult populations.

Regarding intervention types, gymnastics-based training was the most frequently used approach, followed by coordination and neuromotor training, general physical fitness programs, balance and proprioceptive training, and movement education. This reflects a strong emphasis on structured and skill-oriented training modalities, particularly gymnastics.

A wide variety of measurement tests were employed to assess motor fitness outcomes. Common tests included the sit-and-reach test for flexibility, Flamingo balance test and stabilometric measures for balance, vertical jump and handgrip strength tests for muscular strength, and sprint and agility tests such as the 20 m sprint and Illinois agility test. Some studies also used coordination batteries, skill rating scales, and reaction time assessments, highlighting methodological diversity across the included studies.

Publication Bias Summary

The risk of publication bias was assessed using multiple complementary methods. The meta-regression test for funnel plot asymmetry (Table S1) indicated a non-significant asymmetry ($z = 1.728$, $p = .084$), suggesting no strong evidence of publication bias.

Similarly, the Egger's weighted regression test (Table S2) also showed no significant asymmetry (t = −0.447, p = .657), further supporting the absence of statistically detectable bias. However, the Trim and Fill analysis (Table S3) identified 14 potentially missing studies, and the adjusted pooled effect size decreased to SMD = 0.084 (p = .734), indicating that the original effect may be overestimated due to missing studies. In contrast, the Fail-Safe N result (Table S4) demonstrated a high value (N = 2160), suggesting that a large number of null-effect studies would be required to nullify the findings, reflecting overall robustness.

Study Quality and Risk of Bias Summary

The methodological quality of the included studies, as assessed using the Cochrane Risk of Bias Tool, showed variable risk across different domains. Most studies demonstrated a low risk of bias in incomplete outcome data (attrition bias) and selective reporting, indicating that outcome reporting and data handling were generally reliable. Blinding of outcome assessment (detection bias) was also adequately addressed in a substantial proportion of studies, reflecting moderate methodological rigor in measurement procedures.

However, certain domains showed notable limitations. Blinding of participants and personnel (performance bias) exhibited a relatively higher proportion of high risk, which is common in exercise-based interventions where blinding is difficult to implement. Similarly, allocation concealment and random sequence generation (selection bias) showed some degree of unclear and high risk, suggesting potential issues in randomization procedures in several studies.

The "other bias" domain was largely rated as low risk, with only a few studies showing concerns. Overall, while many studies met acceptable quality standards, the presence of performance bias and selection bias in several trials indicates moderate methodological limitations, which should be considered when interpreting the pooled results.

Sub-Group Analysis

Table 2 Summary of Sub-group analysis and heterogeneity

Subgroups	Estimate	Standard Error	95% CI		I^2
			Lower	Upper	
Full dataset	**0.626**	0.266	0.086	1.165	95.76
Flexibility	0.818	0.179	0.438	1.197	74.97
Coordination	0.900	0.149	0.485	1.315	0.003
Muscular Strength	0.351	0.038	0.245	0.457	0.000
Balance	1.534	0.891	-0.645	3.713	96.75
Agility	-1.124	1.078	-14.82	12.58	96.53
Reaction Time	-4.114	0.315	-8.113	-0.115	0.000
Young Adults (18 to 25 Y)	0.513	0.090	0.305	0.721	1.13
Children (6 to 12 Y)	1.189	0.714	-0.367	2.745	97.77
Adolescents (13 to 18 Y)	0.480	0.486	-0.602	1.562	96.65
Early Childhood (2 to 6 Years)	0.031	0.741	-2.327	2.388	97.07
Movement Education	0.006	0.732	-2.325	2.336	96.98
Gymnastics-Based Training	0.624	0.064	0.486	0.762	11.34
Coordination & Neuromotor Training	1.242	1.681	-2.872	5.355	98.79
General Physical Fitness	0.640	0.269	-0.018	1.299	84.36
Balance & Proprioceptive Training	0.603	0.159	0.161	1.045	34.57

Table 2 presents the subgroup analysis and heterogeneity of the included studies. The overall pooled effect size for the full dataset was moderate (SMD = 0.626) with very high heterogeneity (I^2 = 95.76%), indicating substantial variability across studies. Among motor fitness variables, balance showed the highest effect (SMD = 1.534) but with very high heterogeneity, while flexibility (SMD = 0.818) and coordination (SMD = 0.900) demonstrated moderate to high effects with comparatively lower or negligible heterogeneity in coordination. Muscular strength showed a small but precise effect (SMD

= 0.351) with no heterogeneity, whereas agility and reaction time showed inconsistent or negative effects, with agility having extremely wide confidence intervals and high heterogeneity, and reaction time showing a significant negative effect with no heterogeneity. In terms of age groups, children showed the highest effect (SMD = 1.189) but with very high heterogeneity, while young adults demonstrated a more stable moderate effect (SMD = 0.513) with minimal heterogeneity; adolescents and early childhood groups showed smaller and non-significant effects with high heterogeneity. Regarding intervention types, gymnastics-based training produced consistent moderate effects (SMD = 0.624) with low heterogeneity, whereas balance & proprioceptive training also showed moderate effects with acceptable heterogeneity. In contrast, coordination & neuromotor training and movement education exhibited high variability and non-significant pooled effects, indicating inconsistency across studies. Overall, the findings highlight that gymnastics-based and structured training interventions yield more stable and reliable outcomes compared to other approaches.

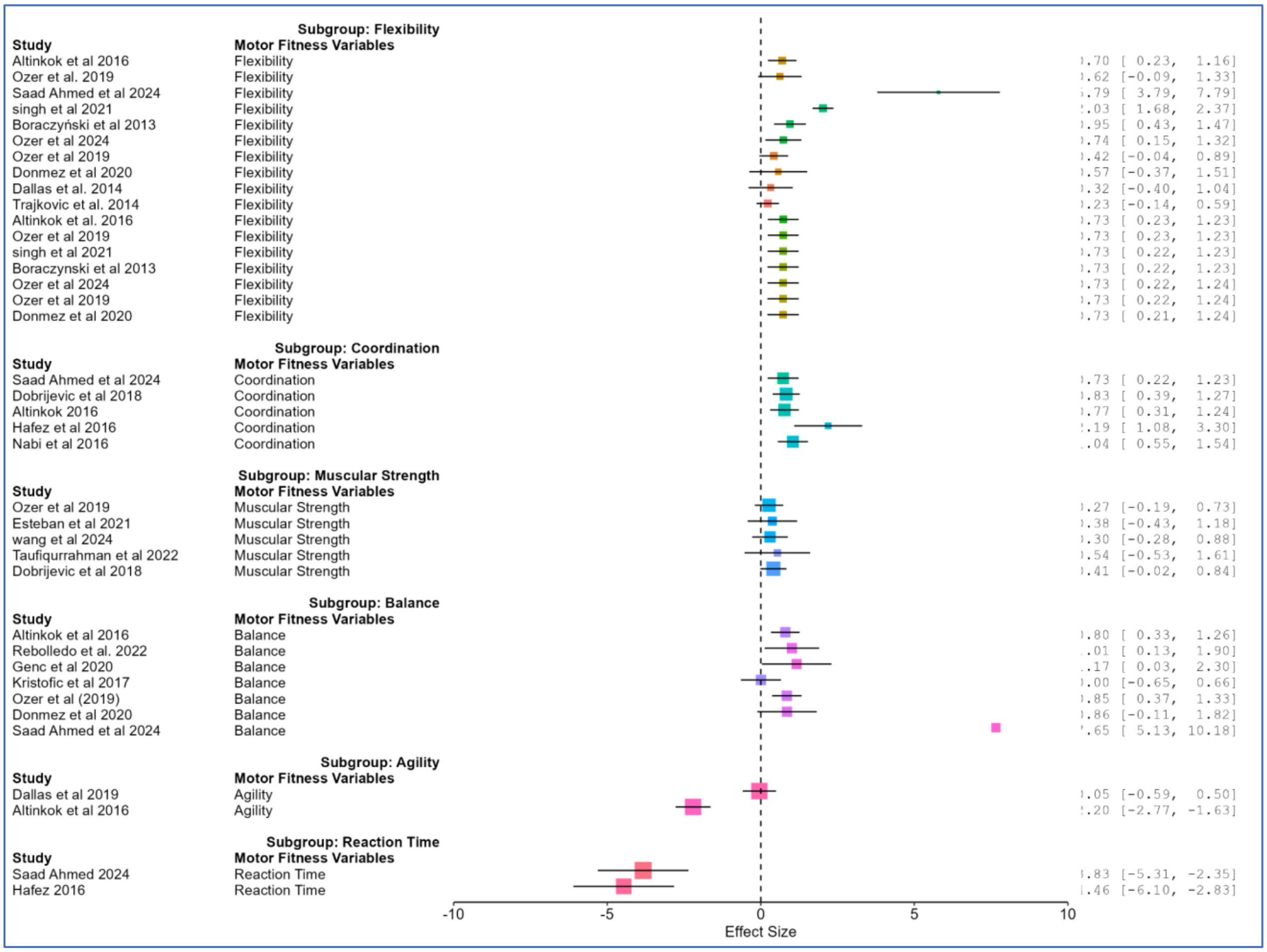

Figure 2 Forest plot incorporated motor fitness variables

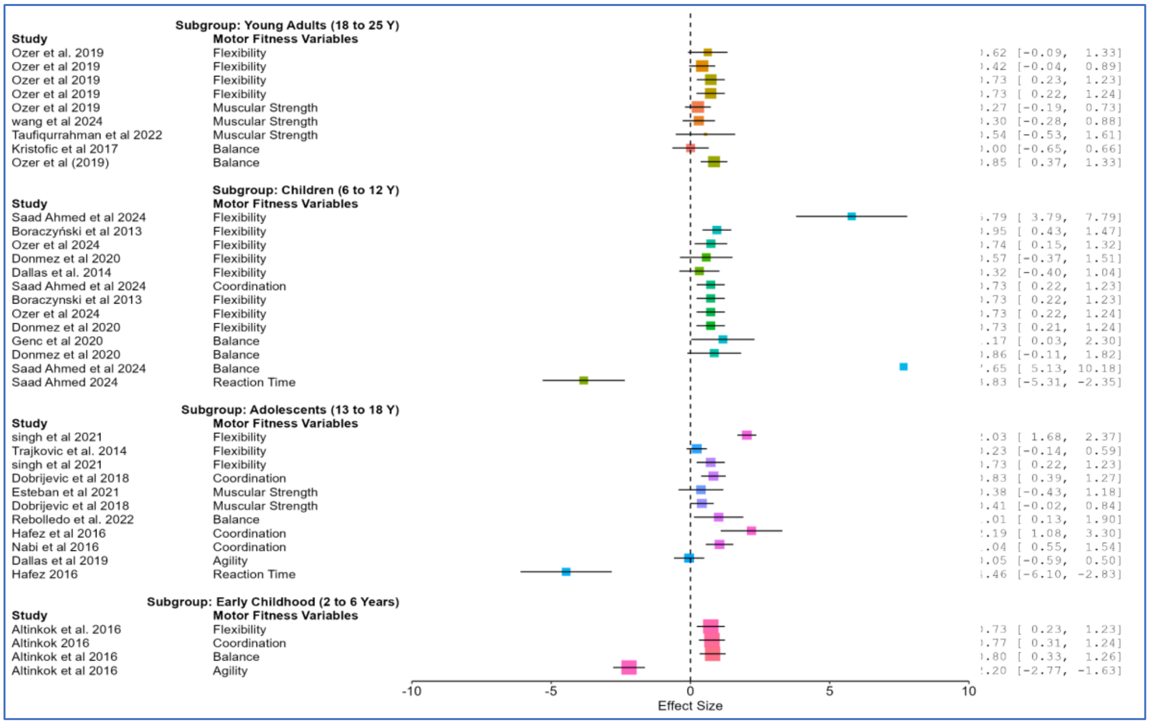

Figure 3 Forest plot incorporated age groups

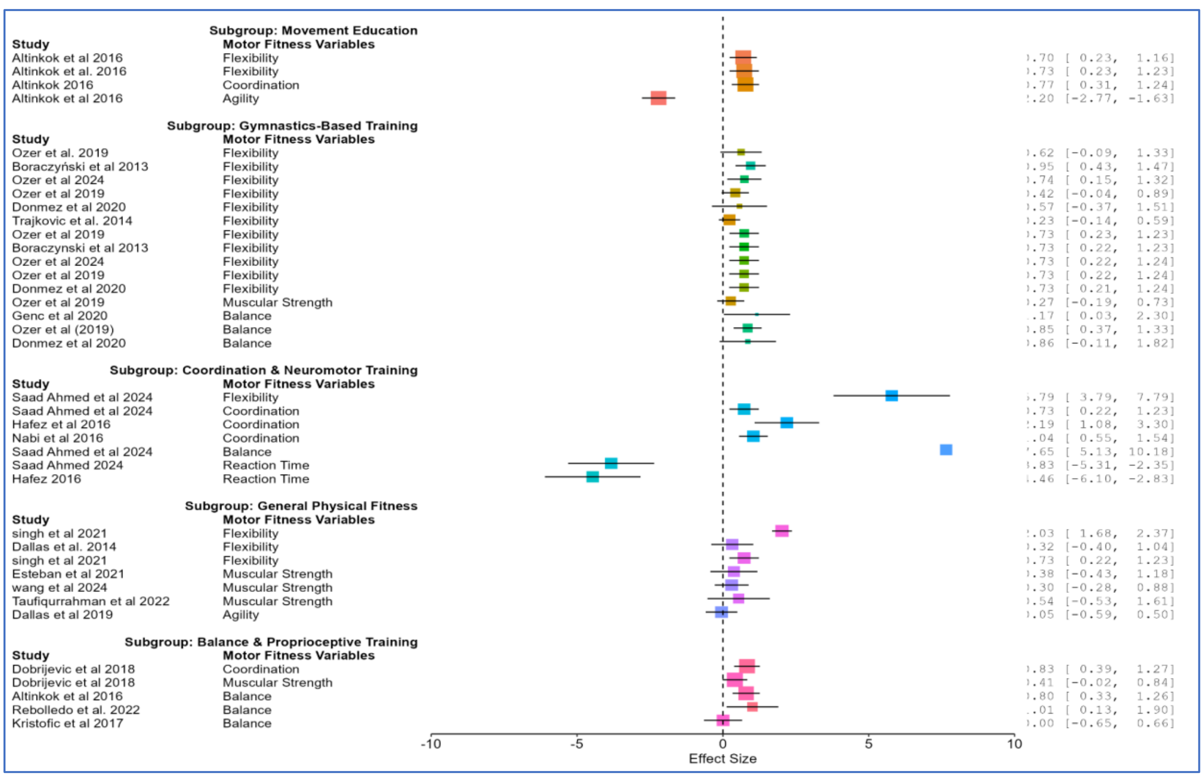

Figure 4 Forest plot incorporated various gymnastic interventions

Discussion

The present meta-analysis examined the effects of gymnastics-based interventions on motor fitness competencies among school-aged students and demonstrated an overall moderate positive effect, indicating that structured physical activity programs grounded in gymnastics can meaningfully enhance motor fitness outcomes (Kaioglou et al., 2025). However, the findings must be interpreted in light of the substantial heterogeneity observed across studies, reflecting variations in participant characteristics, intervention design, and outcome assessment (Mclaren et al., 2016). Among the different motor fitness components, flexibility, coordination, and balance showed relatively stronger improvements, which is consistent with the multidimensional nature of gymnastics that integrates stretching, postural control, and complex movement patterns (Samokysh, Shanditseva, & Samokysh, 2025). In contrast, muscular strength showed smaller yet consistent gains, while outcomes related to agility and reaction time were inconsistent or negative, likely due to differences in measurement direction (time-based vs performance-based metrics) and lack of standardization across studies (Vlasic, 2023).

Subgroup analysis further revealed that gymnastics-based training produced more stable and consistent effects with lower heterogeneity compared to other intervention types such as movement education or general physical fitness programs (M. Li, 2024). This suggests that structured and skill-oriented training, as seen in gymnastics, may be more effective in improving motor fitness competencies than less specialized approaches. Age-wise, children and young adults appeared to benefit more, although high heterogeneity in younger age groups indicates variability in intervention delivery and developmental responsiveness (Chetcuti et al., 2025). The relatively stable effects observed in young adults may be attributed to better neuromuscular coordination and training adaptability.

Despite these positive findings, the presence of potential publication bias must be acknowledged. The Trim and Fill analysis substantially reduced the pooled effect size to a non-significant level, suggesting that the observed effects may be overestimated due to missing studies with smaller or null results. At the same time, the high Fail-safe N indicates a degree of robustness; however, it does not fully negate the impact of bias (Morewedge & Buechel, 2013). Additionally, methodological inconsistencies particularly related to outcome measurement direction in variables such as agility and reaction time may have further contributed to variability and biased estimates (Germic, 2025; Hassan et al., 2022).

Overall, the findings support the role of gymnastics as an effective intervention for improving key components of motor fitness in school students, particularly flexibility, balance, and coordination (Ma et al., 2024). However, the high heterogeneity, potential publication bias, and methodological inconsistencies highlight the need for more rigorously designed randomized controlled trials with standardized outcome measures. Future research should focus on uniform reporting standards, proper handling of inverse scoring variables, and long-term intervention effects to strengthen the evidence base and provide clearer practical implications for physical education programs (W. Li & Rukavina, 2012).

Conclusion

Gymnastics-based interventions demonstrate a significant and practical benefit in improving motor fitness competencies, particularly in flexibility, balance, and coordination, across different age groups. These findings highlight the value of incorporating structured gymnastics and related training modalities into physical education and youth development programs. However, the presence of high heterogeneity, variations in intervention protocols, and inconsistencies in outcome measurement especially for inverse variables such as agility and reaction time limits the precision of the pooled estimates. Additionally, evidence of potential publication bias suggests that the overall effect size may be somewhat overestimated.

Therefore, while the results support the effectiveness of gymnastics-based training, they should be interpreted with caution. Future studies should emphasize methodological rigor, standardized assessment tools, proper handling of outcome direction, and long-term follow-up designs to provide more robust and generalizable evidence.

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Conflict of Interest

The authors declare that there is no conflict of interest regarding the publication of this paper.

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