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A Systematic Review of Anthropometric Characteristics and Physical Fitness Components Influencing Performance in High School Girls' Kabaddi Players: A Special Reference to Hassan District

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Abstract:

Kabaddi is a contact team sport that demands the performance of rapid acceleration, repeated short efforts, body control, defensive strength, tactical agility and recovery between raids. At the school level, more specifically in adolescent girls, assessing fitness level can help identify talent, ensure safe training and progressive development of their skills. The present study become a systematic review of literature on anthropometric characteristics and physical fitness components affecting the Kabaddi performance of high school girls of Hassan District. The evidence on height, body mass, arm length, leg length, speed, strength, endurance, agility and flexibility was reviewed. A narrative review using a structured search-based approach for identification of related scholarly study, official sources and field-testing references on Kabaddi, youth fitness, anthropometry and school physical education was adopted. The study's findings highlight the practical worth of physical fitness components are more than anthropometry in Kabaddi performance at school level. Speed aids in raiding and recovery; strength tackling, holding, pushing and resisting; endurance engaging in repeated raids and defenses; agility changing direction quickly; and flexibility assisting reach, body position and reduced risk of injury. Anthropometric dimensions provide effective screening information but not to be used as the only basis for selection. Testing of 50 Yard Dash, Squats or Push Ups, 12 Minute Run or Walk, 10 Meter Shuttle Run, Sit and Reach Test of girls of Kabaddi Teams of schools of Hassan District can generate usable performance profile. In conclusion, effective fitness screening, coach training at appropriate ages and a structured system can strengthen the participation and performance of girls in Kabaddi.

Keywords: *Kabaddi; anthropometry; physical fitness; high school girls; Hassan District; agility; sports performance.*

1. Introduction:

Kabaddi is an Indian-origin contact team sport that requires invasive tactics, wrestling-like

defence, breath control, quick decision making and sprinting. In Kabaddi, teams take turns to raid and defend. The raid takes place when a raider enters the opponent's half behind the centre-line, attempts to tap (tag) one or more defenders and return to the home half behind the centre-line within a short raid period. Meanwhile, the defenders attempt to 'stop' the raider (Pro Kabaddi, 2018). Kabaddi is different from many of the school games because the same player may have to accelerate, dodge, reach, resist body contact, and recover repeated within a match.

The sports science literature on kabaddi is much less than that on football, athletics or cricket, but does describe the sport as physiologically challenging nonetheless. The trained players differed from the control population on selected physical and physiological measures. The body size, pulmonary function, strength and aerobic capacity of kabaddi players were selected for study by De et al. (1982), Dey et al. (1993). The physiological research conducted during match play showed that Kabaddi performance has a considerable intermittent effort. Therefore, speed, anaerobic power, cardiorespiratory tolerance, and recovery capacity are the important elements of performance (Khanna et al. 1996).

For adolescent girls, local school-level Kabaddi contesting is a performance activity and an opportunity for health-promoting physical education. Physical fitness is often regarded as an important indicator of the present and future health of children and adolescents. Ortega et al. (2008) indicate that cardiorespiratory fitness, muscular fitness, and speed/agility are relevant to health, motor competence and school involvement. According to the World Health Organization (2020), children and adolescents should engage in regular physical activity while minimising time spent being sedentary. Kabaddi can lead to growth in playing ability (ability) and health development (development) if the training is age-appropriate, progressive, and inclusive.

The Hassan District of Karnataka has a vibrant educational and cultural context that can potentially facilitate low-cost physical education assessment through high schools. In this context, school-based Kabaddi can find useful application. (Hassan District Administration, n.d.) There is very limited research on high school girls' Kabaddi players at the district level. As such, the present paper reviews general Kabaddi, youth fitness, and anthropometric data and interprets it for practical application in high school girls of Hassan District.

2. The importance of the study investigation:

There are three connected reasons for the necessity of this review. The discussion on Kabaddi performance is usually limited to the dimensions of skills, guts, and experience while a systematic fitness profile is often underused as an essential tool in schools. Girls' school sport needs careful consideration of growth, maturation, confidence, safety, and social participation. Third, coaches and teachers of physical education require simple tests that can be administered in limited space with modest equipment.

Field-based physical fitness testing, for example, is particularly suited to schools because it can be done with simple equipment, and can be repeated throughout the school year. The current article provides a review of the validity and reliability of existing youth fitness tests to be used in school settings to assess cardiorespiratory fitness and muscular fitness, motor fitness, and body composition when following standard procedures (Marques et al., 2021; Ruiz et al., 2011). For Kabaddi such testing can assist teachers in identifying the strengths and weaknesses relevant to raiding, defence and all round play.

This study is significant for adolescent girls as early adolescence is a critical time for developing movement confidence and a desire for participation in sport. Excluding a number of capable girls who may be dismissed for selection on size only. Uniting anthropometric measurements along with physical fitness components, the observation of skills in sport and training safely is a more balanced approach. This is very necessary for the Hassan district as a practical school-level framework will enable physical education teachers to create girls' Kabaddi teams without relying on costly laboratory tests.

3. Objectives of the Study:

1. To review anthropometric characteristics that may influence Kabaddi performance among school-level girls.
2. To examine physical fitness components associated with Kabaddi performance, with preference given to speed, strength, endurance, agility, and flexibility.
3. To identify simple and commonly used field tests that can be applied to high school girls' Kabaddi players.
4. To interpret available Kabaddi and adolescent fitness literature for the Hassan District school context.
5. To provide practical recommendations for physical education teachers, school coaches, and administrators promoting girls' Kabaddi.

4. Research Questions:

1. Which anthropometric characteristics are most relevant to Kabaddi performance at school level?
2. How do speed, strength, endurance, agility, and flexibility contribute to raiding and defensive performance in Kabaddi?
3. Which low-cost field tests are suitable for assessing high school girls' Kabaddi players?
4. How should physical education teachers in Hassan District interpret fitness test results without creating exclusionary selection practices?
5. What training and policy recommendations can strengthen girls' participation and performance in Kabaddi?

5. Methodology:

5.1 Research Design:

This paper uses a systematic narrative review design. The review was structured according to PRISMA 2020 reporting principles, particularly transparency in search strategy, eligibility criteria, screening logic, and synthesis method (Page et al., 2021). Because the available literature directly focused on Hassan District high school girls' Kabaddi players is limited, the synthesis includes three connected evidence streams: Kabaddi performance studies, adolescent physical fitness assessment literature, and anthropometric/somatotype research relevant to Kabaddi.

5.2 Search Strategy:

The search strategy used combinations of sport-specific and measurement-specific keywords. The review prioritized peer-reviewed journal articles, PubMed-indexed records, open-access full texts, official district or sport-related sources, and recognized physical fitness testing literature. Search terms included: Kabaddi performance, Kabaddi physical fitness, Kabaddi anthropometry, female Kabaddi players, adolescent physical fitness, field-based fitness tests, speed agility flexibility Kabaddi, Cooper 12-minute run, sit-and-reach test, ALPHA fitness test battery, school girls Kabaddi, and Hassan District school sports.

Search Element	Details Used in This Review
Core sport terms	Kabaddi, raiding, defense, match play, playing ability, school Kabaddi
Population terms	High school girls, adolescent girls, children and adolescents, school players
Measurement terms	Anthropometry, height, weight, arm length, leg length, speed, strength, endurance, agility, flexibility
Test terms	50-yard dash, squats, push-ups, 12-minute run or walk, 10 m shuttle run, sit-and-reach test
Context terms	Hassan District, Karnataka, school physical education, girls' sports participation

5.3 Databases and Sources:

The search considered Google Scholar, PubMed, Crossref-linked journal pages, open-access journal platforms, official Hassan District web information, and sport-science databases where records were publicly traceable. Scopus and Web of Science were included as intended indexing sources for formal database replication, but only accessible metadata and verifiable open records were used in this draft. ResearchGate and other academic sharing pages were used only as discovery aids and not as independent verification unless bibliographic details were traceable to a journal or DOI.

5.4 Inclusion and Exclusion Criteria:

Criteria Type	Included	Excluded
Population	Kabaddi players, adolescent athletes, school-aged children, and female athlete studies relevant to Kabaddi interpretation.	Studies unrelated to sport performance, school physical education, or physical fitness.
Variables	Anthropometry, body composition, speed, strength, endurance, agility, flexibility, and field testing.	Purely psychological or tactical papers without physical-performance relevance.
Evidence type	Peer-reviewed papers, systematic reviews, official documents, and classic test-validation papers.	Unverifiable web content, unsourced claims, and non-traceable citations.
Language and access	English-language sources with bibliographic details and accessible metadata/full text.	Records without enough detail to verify author, title, year, source, or publication outlet.
Context	Studies applicable to school-level Kabaddi or youth physical fitness.	Elite-only findings used without caution for adolescent girls.

5.5 PRISMA 2020-Based Selection Process:

The review followed a PRISMA-style logic: identification of records through keyword searches, removal of duplicates or non-verifiable items, title and abstract screening, full-text or metadata checking, and thematic inclusion. Exact database-export counts were not fabricated because a formal review for journal submission should use auditable database records. Instead, this paper reports a transparent systematic narrative synthesis based on verifiable sources and explicitly recognizes limited direct literature on Hassan District high school girls' Kabaddi.

5.6 Data Extraction and Thematic Analysis:

Data were extracted under five headings: study/source type, population, physical or anthropometric variables, measurement tools, and relevance to high school girls' Kabaddi. The synthesis was thematic rather than statistical because studies differed substantially by sex, age group, competition level, country, testing protocol, and outcome definition. No meta-analysis was attempted. Thematic analysis focused on how each variable contributes to Kabaddi performance and how it can be measured safely in a school setting.

6. Variables and Measurement Tools:

The following variables are recommended for a basic high school girls' Kabaddi assessment battery. The table reflects the specific variables requested for this paper and aligns them with feasible field-testing instruments. Fitness-test scores should be interpreted developmentally, not as fixed labels of ability.

Category	Variable	Measurement Tool/Test
Anthropometric Measurement	Height	Stadiometer
Anthropometric Measurement	Weight	Weighing Machine
Anthropometric Measurement	Arm Length	Flexible Measuring Tape
Anthropometric Measurement	Leg Length	Flexible Measuring Tape
Physical Fitness Component	Speed	50-Yard Dash Run
Physical Fitness Component	Strength	Squats / Push-Ups
Physical Fitness Component	Endurance	12-Minute Run or Walk
Physical Fitness Component	Agility	10 m Shuttle Run
Physical Fitness Component	Flexibility	Sit and Reach Test

The 12-minute run has a long history as a field method for assessing aerobic fitness and has been associated with maximal oxygen uptake estimation (Cooper, 1968). The sit-and-reach test remains a widely used field test for back and hamstring flexibility, although contemporary evidence cautions that it is more valid for hamstring extensibility than for lumbar flexibility (Mayorga-Vega et al., 2014; Wells & Dillon, 1952). Shuttle-run protocols are also present in youth fitness batteries because they reflect speed, agility, and coordination under repeated-direction change conditions (Ruiz et al., 2011).

7. Review of Literature:

7.1 Anthropometric Characteristics and Sports Performance:

Anthropometry matters in sport as factors such as height, mass, limb length and body composition can influence leverage, reach, balance, stability and movement economy. In Kabaddi, however, anthropometry should be considered as one component of a greater performance profile. A player with ideal body size but poor agility, weak repeated-effort tolerance, or limited tactical awareness is unlikely to perform well. In contrast, a small player who possesses fantastic acceleration, timing and flexibility may be a very effective raider.

Research on elite Kabaddi players reveals that body composition and somatotype do matter at higher levels. The physical and physiological characteristics of Indian national Kabaddi players were reported by Dey et al. They also commented on the sport uplifting muscularity strength and aerobic-anaerobic capacity. According to a recent study, elite male and female Iranian Kabaddi players differed significantly in stature, body composition, and somatotype due to differences associated with sex (Bayati et al., 2025). The findings pertain to school sport, but should be interpreted carefully as adolescent girls are still growing, and should not be compared with elite athletes who are adults.

7.2 Body Metrics And The Game Of Kabaddi:

Height and leg length are related to stride length, lunge distance, and balance when quickly entering and escaping. Arm length, then, may aid reach in hand touch, toe touch prep or defensive

holds. While Body mass adds to stability when performing the blocking or holding techniques, it also reduces one's acceleration unless one has a relative strength and agility. Consequently, measures of height, weight, arm length, and leg length are best used as descriptive screening measures rather than selection measures.

Indian male kabaddi players were sampled in the first study that covered size & physical-efficiency measures of inter-university competitors. The actual measurements of the competitors were found better than average populations which may be due to training and selection (De et al., 1982). Studies of recent elite Pok Kabaddi league players showcase that the anthropometric characteristics may differ with playing position. This is supportive of a role-specific interpretation of body shape rather than a single universal ideal body type (Shelke et al., 2024) The practical implication for school girls is that teachers must collect anthropometric data, however, teachers must ensure that players are not excluded solely for being short, light or at a different equipment stage.

7.3 Speed and raiding ability in kabaddi:

When raiding, the raider has a limited time before being held wherein he must enter the opponent's half, create a touch opportunity and return safely. Thus speed is vital in kabaddi. Being fast in a straight line helps in the entry and recovery of the technique while slow acceleration helps after a feint or touch when changing speed suddenly in another direction. A simple measure of sprint speed in the form of a 50-yard dash can easily be conducted in a school on marked ground with stopwatch.

Kabaddi specific evidence supports the relevance of speed to playing ability; however, much available research uses adult or college samples. According to Singh (2023), speed has significant association with Kabaddi playing ability of university level players but speed should be taken along with agility and flexibility. The speed – agility – quickness and circuit methods improve fitness variables in Kabaddi players as per the evidence from training-intervention (González-Devesa et al., 2026). A safe sprinting technique, adequate warm-up, and progression are essential speed training for school girls and not over maximal sprints.

7.4 Strength and Defensive Performance:

Power enables tackling, holding, chaining, pushing, resisting pulls, and maintaining body position. The results of the squat and push-up test in schools are used to assess lower-body and upper-body muscular endurance respectively. While they cannot substitute for dynamometry or laboratory strength testing, they can be done by a physical education teacher and can help in training progression.

Dey et al (1993) reported strength and physiological characteristics among elite Indian Kabaddi players citing muscular fitness as central to the game. De et al. (1982) also reported on grip strength and physical-efficiency measures of inter-university players. The strength development of high school girls is based on bodyweight activities, technical resistance training, supervised personal drills, and injury prevention exercises. It is essential to focus on functional control instead of maximum loading.

7.5 Performance of 7.5 Repeated Efforts and Endurance:

Kabaddi may not be an endurance sport, but repetitive raids and defensive efforts induce cumulative fatigue. Endurance helps recover between raids, for maintaining decision-making quality and sustained defence effort. The 12-minute run or 12-minute walk is advantageous for use in the school curriculum. This is because it can be administered to groups, and teachers can be given a general indication of aerobic capacity (Cooper, 1968).

According to a study conducted on national Kabaddi players (Khanna et al. 1996), both aerobic recovery and anaerobic burst are required during this sport in matches. This advocates the mixed training methods for school teams which can be interval running, relay activities, small-sided Kabaddi drills and active recovery. New girls to sport may start with walk-run progressions before going to continuous 12-minute testing at maximal effort.

7.6 Tactical Maneuvers for Offset Engagements:

Since the actions of both raiders and defenders are dependent on the unpredictable moves of each other, agility is perhaps the most game-specific components of physical fitness in Kabaddi. After a touch, Raiders should avoid opponents, turn back, retreat, and speed up. Defenders must keep track of the raider, shut down the raider's space, coordinate their chain movement and response, and not lose their balance. A 10 m shuttle run or a 4 x 10 m shuttle-run variant can indicate speed of movement, quick turning ability, coordination and braking ability.

Shuttle-run formats are included in the youth fitness testing literature to assess motor fitness, speed, agility and coordination (Ruiz et al., 2011). According to Singh (2023), agility in Kabaddi is repeatedly connected to playing ability and in-game situations where sudden direction change is involved. Agility training can take place in small spaces like schools in Hassan District, with the use of cones and chalk lines. The coach can blow a whistle to create the relevant stimulus. Coaches must analyze turning technique, knee positioning, and injury-preventing deceleration, not just completion time.

7.7 Flexibility and Injury Prevention:

Flexibility aids players in achieving a low body position, performing toe touch reach, executing escape movements, and attaining safe range of motion during defensive contact. The sit-and-reach test (SRT) is a very simple way of measuring the flexibility of the posterior chain. Furthermore, it has been used for a long time in physical education testing (Wells & Dillon 1952). According to modern evidence of validity, it has been suggested that sit-and-reach scores should be interpreted primarily as a measure of hamstring extensibility rather than total-body flexibility. (Mayorga-Vega et al., 2014)

Adolescent girls, the flexibility training must be combined with mobility, balance, and strength. Over-stretching without strength may not help Kabaddi. To warm-up practically, the athlete must perform some dynamic mobility, movement preparation and gradually escalate their specific patterns

before commencing with their raids, tackles and shuttle. When flexibility assists in functionality and helps the player maintain control in prolonged positions.

7.8 Physical Fitness and Adolescent Girls:

Adolescent girls undergo physical, biological, and social changes, which can have an impact on sport participation. Hence, fitness assessment should be helpful and confidential. Schools serve as important environments for identification of low fitness and promotion of active behaviour in children. Youth fitness is associated with health outcomes (Ortega et al., 2008). Field-based reliabilities of test batteries can be used to monitor health-related physical fitness in children and adolescents when procedures are standardized and feasible for school conditions (Marques et al., 2021; Ruiz et al., 2011).

A girls' Kabaddi program should not just replicate the training patterns of adult or male. When training young athletes, recruiters and coaches need to be cognizant of their menstrual health, growth-related discomfort, self-confidence, appropriate footwear, safe playing surfaces, hydration, nutrition, recovery and social support. Fitness testing should always be framed as personal monitoring rather than public ranking. Adopting such approach may help in retaining girls in sport and alleviating anxiety over body size or performance.

7.9 School Level Kabaddi Performance:

Kabaddi at the school level differs from that at elite level because players can have varied level of experience, training age, maturity status, confidence and other things. At this level, performance should be interpreted in terms of physical fitness, fundamental movement skills, understanding of the game, how safely one plays, and team work. A school player with developing fitness can still positively contribute to a team through positioning, communication, and defending discipline.

The review evidence suggests that a practical school Kabaddi profile should include at least five fitness components: speed, strength, endurance, agility and flexibility. Anthropometric measurements can enhance understanding of specific roles but should not supersede trainable components and skills. For girls in high school of Hassan District, the most useful method is a simple baseline test followed by 8-12 weeks of progressive training and then a repeat test.

8. Evidence Summary:

Evidence Area	Key Sources	Main Interpretation for Girls' School Kabaddi
Kabaddi physiological demand	Dey et al. (1993); Khanna et al. (1996)	Kabaddi requires strength, aerobic-anaerobic tolerance, repeated effort, and recovery ability.
Anthropometry and somatotype	Bayati et al. (2025); Shelke et al. (2024)	Body profile may influence role suitability, but school selection should not depend on body size alone.

Evidence Area	Key Sources	Main Interpretation for Girls' School Kabaddi
Speed, agility, flexibility	Singh (2023); González-Devesa et al. (2026)	Trainable fitness components are closely connected to raids, dodging, defense, and overall playing ability.
Youth fitness testing	Marques et al. (2021); Ruiz et al. (2011)	Field tests can be feasible in schools if standardized and interpreted developmentally.
Endurance and aerobic assessment	Cooper (1968); Khanna et al. (1996)	General endurance supports repeated efforts and recovery between raids.
Flexibility testing	Wells and Dillon (1952); Mayorga-Vega et al. (2014)	Sit-and-reach is useful but should be interpreted as one flexibility indicator, not total flexibility.

9. Analysis and Discussion:

The findings of this study reveal that all physical fitness components are actionable than anthropometric components of high school girls' Kabaddi. It could be possible to monitor anthropometric data to describe growth and possible movement advantages. However, the speeds, strengths, endurance, agility, and flexibility are trainable. Moreover, strengthening and improving could also be monitored and made possible through school programs. This differentiation is crucial since school sport should choose possible player rather than already developed one.

A raider should be quick to enter and return. In practice, a quicker player may take advantage of small defensive gaps, perform hand touches with less risk, and get back to the midline after a fake. When speed isn't controlled it can cause overstepping, poor balance, and unnecessary injury. As such, the sprint mechanics, stopping technique, and game-specific acceleration need to be trained concurrently.

Strength enables tackling, holding down, pushing and resisting your opponent. Strength of the defender matters when doing Ankle holds, Thigh holds, Blocks chain defense. For raiders, strength helps maintains equilibrium during contact and assist attempts of escape. Strength training for high school girls should first begin with the control of their own body weight with squats, lunges, planks, push-ups, resisted partner movement, and safe landing rather than adding heavy external load.

Endurance assists in benefiting from repeated raids and attacks. One good raid may not be sufficient for a player since fatigue can reduce reaction time and technical discipline. The ability of aerobic fitness to assist in recovery between efforts and repeated sprint training and small-sided games can improve tolerance to high-intensity intermittent play. Although the 12-minute run/walk is a good general field measure, teachers should also look at fatigue behaviour during Kabaddi drills.

Agility enables the ability to dodge quickly, turn suddenly, and escape. Due to the importance of Kabaddi that it is an open-skill sport in which movement decision depends on opponent. shuttle-run time provides useful information but should not be the only assessment of agility Instructors are encouraged to notice if the player keeps their center of mass low, if they have a safe turn, if they are keeping their eyes up and if they are able to change direction without crossing their feet and/or collapsing their knees.

When combined with strength, flexibility aids body control and lowers the risk of injuries. Movements like toe-touch raids, low postures during defense, and escape movements require mobility of the hips, hamstrings, groin, and trunk. Flexibility alone, however, does not ensure performance. A flexible player must stabilize the joints while pressure. For that reason, stretching should be combined with dynamic warm-up, strengthening, balance, and sport-specific skill set.

The reach, balance, body mass, and movement efficiency of an athlete can be influenced by height weight, arm length, leg length, etc. An elongated player possessing lengthy limbs might obtain a reaching advantage during touch and lock; a petite player might possess a lower centre of gravity and a changing-of-direction advantage. A heavier player may have defensive stability but might need extra speed and endurance training. Consequently, anthropometry ought to be evaluated concerning playing role, maturity status, and fitness profile.

Component	Kabaddi Function	School-Level Training Focus
Speed	Fast entry, touch, and return to midline	Short sprints, reaction starts, technique-focused acceleration
Strength	Tackling, holding, resisting, balance in contact	Squats, push-ups, planks, partner resistance, safe landing
Endurance	Repeated raids, defensive recovery, sustained concentration	12-minute run/walk, intervals, relay games, active recovery
Agility	Dodging, turning, quick defensive adjustment	10 m shuttle run, cone drills, deceleration technique, visual cues
Flexibility	Toe touch, low stance, reach, movement range	Dynamic mobility, sit-and-reach monitoring, hip and hamstring routines
Anthropometry	Reach, leverage, body mass, role suitability	Height/weight/limb measurements used only with fitness and skill observations

10. Implications for Hassan District High School Girls:

The review recommends an inexpensive and multidimensional fitness profiling protocol for Hassan District. Schools can assess high school girls using basic equipment. A stadiometer or wall scale can be used for assessing height. Weighing machine can be used for assessing body mass. A flexible tape can be used to measure limb length. Stopwatch can be used to measure speed and agility.

Cones or chalk markings can be used for assessing shuttle runs. Track or measured field can be used for assessing endurance. Sit-and-reach box or marked bench can be used for assessing flexibility. Even if schools have no advanced sports laboratories, these tests can be made.

Physical education teachers should provide tests at the start of the season and again after a block of planned training. The results should be kept confidential and utilized to design both collective and individual strategies. For instance, players with limited sprint speed may be assigned short acceleration drills. In contrast, players with poor muscular endurance may perform progressive squats and push-ups. Other examples include deceleration and turn drills for low agility players and mobility work for low flexibility players. This builds a pathway for development rather than one for rejection.

District school Kabaddi programme of Hassan must be safe and inclusive. Before they get to contact play, new girls should learn falling and rolling, safe holding, awareness of boundaries and warm-ups. In the classroom, teachers should help the students and make them aware of their parent’s notes. Besides, they should give the students enough breaks to hydrate and avoid body-shaming. Talent identification should include fitness scores combined with effort and attendance, skills learning and teamwork, and tactical awareness.

Implementation Step	Action for Schools	Expected Benefit
Baseline screening	Measure anthropometry and five fitness components at season start.	Identifies training needs without depending on guesswork.
Skill-linked training	Connect speed, agility, strength, endurance, and flexibility drills to Kabaddi situations.	Improves transfer from fitness testing to game performance.
Progress monitoring	Repeat the same tests after 8-12 weeks using the same procedures.	Shows development and motivates students through visible progress.
Inclusive selection	Use fitness, skill, attendance, effort, and teamwork together.	Reduces exclusion based only on body size or early maturity.
Safety education	Teach warm-up, cool-down, safe contact, hydration, and recovery.	Supports injury-risk reduction and long-term participation.

11. Recommendations:

1. High schools in Hassan District should adopt a Simple Kabaddi Fitness Battery. The field tests and laboratory tests are vertical jump knee length height weight waist circumference sitting height leg length and arm length 50-yard dash squats or push-ups 12-minute run or walk 10 m shuttle run

and a sit-and-reach test.

2. Results of physical fitness should depend on the age, training experience, and maturity stage of the individuals and not on a single standard.
3. Coaches should teach physical components which can be trained -speed, strength, endurance, agility and flexibility rather than selection based body size.
4. Training methods for girls should include structured warm-up, sprint drills, agility drills, bodyweight strength, mobility training and education on recovery.
5. The sport of Kabaddi demands frequent changes in direction. Moreover, there is physical contact involved. Thus, it is essential to give special attention to agility and strength.
6. The endurance training can be intermittent and applicable to game-based tasks which should combine shuttle activities, small-sided activities and progressive running or walking.
7. After training, dynamic mobility and stretching should be useful for developing flexibility while sit-and-reach scores should be used as one of the flexibility indicators only.
8. Schools should not publicly rank their pupils using fitness data but must keep them confidential and track their progress.
9. Every physical education session must educate students about nutrition and recovery to help them understand the importance of hydration, balanced meals, sleep and more.
10. Future empirical investigations should gather primary data from school girls in the Hassan District and study the relationship between the chosen fitness components and the observed performance in Kabaddi.

12. Boundaries of the Study Limitations:

- The most crucial limitation is the unavailability of published district-specific evidence on high school girls' Kabaddi players in Hassan District.
- Kabaddi studies available in the literature either focus on male adult university national elite players therefore their conclusion should be interpreted with caution for adolescent girls.
- The outcomes of speed, agility, strength, endurance and flexibility cannot be compared directly due to differences in the protocols adopted during studies.
- The present review was thematic and narrative. No meta-analysis was conducted as outcomes, samples, and measurement protocols were heterogeneous.
- Anthropometric variables are affected by growth and maturation that a single measurement may not be a true reflection ever.
- The paper does not present any primary data, field observations or performance scores of schools from the Hassan District.

13. To Sum Up:

This systematic review narrative reveals the performance of high school's girls' Kabaddi is

significantly influenced by anthropometric characteristics and physical fitness components, but the most practical value should lie in trainable physical components. A person's physical attributes such as height, weight, arm length and leg length may influence their reach, leverage, stability, and movement pattern, but they are not fixed indicators of talent. The aforementioned elements of speed, strength, endurance, agility and flexibility support raiding, defence, repeated efforts, body control and participation safely. A low-cost test battery employing stadiometer, weighing machine, measuring tape, sprint test, squats or push-up, 12-minute run or walk, 10 m shuttle run, and sit-and-reach test will yield useful information for training and team development of Hassan District high schools. According to the review, physical education teachers should utilize these tests to promote inclusive, progressive, and safe training for girls. Future studies must shift away from general review evidence and, instead, investigate school-based physical fitness component using primary school level evidence in Hassan District. In order to predict Kabaddi performance through measured physical fitness component in high school girls.

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