



Physical Fitness of Male Students at SMPIT Sahabat Al Qur'an

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Abstract

Objectives: To describe the physical fitness profile of male students at SMPIT Sahabat Al Qur'an Binjai using the Indonesian Student Fitness Test (TKSI) Phase D.

Materials and Methods: This descriptive cross-sectional survey included all 27 male students in the study population. Frequencies and percentages were reported for five recorded test components: sit-ups, standing broad jump, agility T-test, hand-eye coordination, and multistage shuttle run. Overall fitness categories were taken from the summary reported in the original study.

Results: Overall fitness was rated very good in 3 students (11.11%), good in 15 (55.56%), moderate in 7 (25.93%), and poor in 2 (7.41%). The modal category was good for sit-ups (17/27; 62.96%), standing broad jump (11/27; 40.74%), agility (15/27; 55.56%), and hand-eye coordination (15/27; 55.56%). For the shuttle run, the modal category was moderate (11/27; 40.74%).

Conclusions: Most students were classified in the good overall fitness category, while the endurance component showed room for improvement. These descriptive results can guide further assessment and school physical activity planning; they do not establish effects on learning or Qur'an memorization.

Keywords: adolescent fitness; physical education; TKSI Phase D; cardiorespiratory endurance; school health

Introduction

Physical fitness includes cardiorespiratory endurance, muscular fitness, and motor performance. These attributes are relevant to participation in physical education and everyday school activities. Field-based assessments are practical in schools, although the interpretation of each score depends on the test protocol, age-appropriate norms, and consistency of administration (Artero et al., 2011; Vanhelst et al., 2016; Ramírez-Vélez et al., 2015).

The standing broad jump provides a field measure of lower-limb power, whereas the multistage shuttle run describes aerobic running performance (Castro-Piñero et al., 2010; Tomkinson et al., 2019). Population norms and health associations for shuttle-run performance provide useful context, but performance in one small school group should not be equated directly with clinical aerobic capacity (Tomkinson et al., 2017; Lang et al., 2018).

SMPIT Sahabat Al Qur'an Binjai combines general instruction with Qur'an memorization. A school-specific fitness profile could help teachers identify strengths and components that may benefit from additional activity opportunities. Research has found associations between physical fitness and attention or school performance, but such relationships cannot be inferred for students without directly measuring those outcomes (Esteban-Cornejo et al., 2015; Donnelly et al., 2016; Reigal et al., 2020; Altermann & Gröpel, 2024). This study therefore describes the recorded fitness categories of 27 male students using TKSI Phase D component results.

Materials and Methods

Study Design

A descriptive, cross-sectional school survey was conducted. No intervention or follow-up assessment was reported in the source manuscript.



Study Participants

The source manuscript identifies 27 male students at SMPIT Sahabat Al Qur'an Binjai and reports total sampling of this group. Individual ages, grade levels, recruitment dates, consent procedures, and ethical approval details were not available in the supplied manuscript and should be added from study records before submission.

Study Organization

The source reports TKSI Phase D testing and component tables for sit-ups, standing broad jump, agility T-test, hand-eye coordination, and a multistage shuttle run (beep test). Height and weight were also recorded, but individual BMI classifications were omitted from this manuscript because the source did not state participants' ages or the adolescent reference standard used. The source methods mention a step-up test, whereas the results report sit-ups; the exact battery and TKSI scoring protocol require confirmation against field records.

Statistical Analysis

The supplied category frequencies were retained and percentages recalculated as $n/27 \times 100$, rounded to two decimal places. The overall distribution was available only as a summary in the original discussion and conclusion; individual composite scores and the calculation rule were unavailable. No inferential tests were performed. Category cutoffs in the source agility table have reversed inequality symbols and must be checked against the original scoring sheet before reuse.

Results

The reported overall classification places 18 of the 27 students (66.67%) in the good or very good categories. The composite-score worksheet was not provided, so this distribution cannot be independently recalculated from the five component tables.

Table 1. Reported overall fitness classification (n = 27)

Category	Students	Percentage
Very good	3	11.11%
Good	15	55.56%
Moderate	7	25.93%
Poor	2	7.41%
Very poor	0	0.00%

The component profiles varied. Good was the most frequent category in four tests, whereas moderate was the most frequent category for the shuttle run. Table 2 reproduces category counts from the original tables and recalculates percentages to ensure a common denominator.

Table 2. Fitness component category distributions (n = 27 for each component)

Component	Very good	Good	Moderate	Poor	Very poor
Sit-ups	2 (7.41%)	17 (62.96%)	5 (18.52%)	3 (11.11%)	0
Standing broad jump	0	11 (40.74%)	9 (33.33%)	5 (18.52%)	2 (7.41%)
Agility T-test	0	15 (55.56%)	10 (37.04%)	1 (3.70%)	1 (3.70%)
Hand-eye coordination	9 (33.33%)	15 (55.56%)	2 (7.41%)	1 (3.70%)	0
Multistage shuttle run	7 (25.93%)	8 (29.63%)	11 (40.74%)	1 (3.70%)	0

For muscular endurance, 17 students attained a good sit-up category. Eleven had good standing broad jump results, while seven were poor or very poor. Agility and hand-eye coordination were predominantly good. In the shuttle run, 11 were moderate, eight good, and seven very good. Since raw test values and a verified scoring guide were not supplied, these are descriptive category counts rather than independently validated norm classifications.

Discussion

Most of this group fell into the reported good overall fitness category, but component-level results show a less uniform profile. Standing broad jump had seven students in the two lowest categories, while the modal shuttle-run category was moderate. A single overall label may therefore conceal different physical education needs. Reliability reviews support the use of standardized field measures in youth, provided that administration and reference standards are consistent (Artero et al., 2011; España-Romero et al., 2010; Vanhelst et al., 2016; Ramírez-Vélez et al., 2015).



The jump results concern lower-limb explosive performance, which is distinct from trunk muscular endurance measured by sit-ups. Castro-Piñero et al. (2010) identified the standing long jump as a useful general indicator of muscular fitness in youth. The contrast between these two component distributions should therefore be interpreted as a profile of different capabilities, not as a contradiction. The source did not provide training histories or raw values that could explain individual differences.

Shuttle-run performance deserves attention because aerobic capacity is an important fitness dimension in young people. International reference work documents substantial variation by age and sex, and a systematic review links shuttle-run performance with several health indicators (Tomkinson et al., 2017; Lang et al., 2018). Tomkinson et al. (2019) also describe protocol and interpretation considerations. These publications support tracking endurance over time, but the present categorical results alone cannot establish that these students have a health deficit.

Research on school-based physical activity suggests opportunities for improvement. Minatto et al. (2016) found that structured school interventions can improve adolescent cardiorespiratory fitness, and the School in Motion trial evaluated different ways to add activity within secondary schools (Kvalø et al., 2020). A larger randomized trial also found gains in cardiorespiratory fitness with a scalable school intervention (Lonsdale et al., 2021). These intervention results are useful for planning, but this survey did not test any exercise program.

Some studies report associations between physical activity or fitness and cognition, academic outcomes, or concentration (Esteban-Cornejo et al., 2015; Donnelly et al., 2016; Reigal et al., 2020; Altermann & Gröpel, 2024). The present study did not measure concentration, grades, or memorization outcomes. It therefore cannot claim that better coordination reflects concentration or that fitness directly supports tahfiz achievement. Future work could pair repeated fitness assessments with recorded activity exposure and independently measured learning outcomes.

The small, single-school, male-only sample limits generalizability. The missing composite scores, uncertain component list, unverified category thresholds, and lack of participant ages further constrain interpretation. Before submission, the authors should compare the manuscript with original test forms and document the applicable TKSI Phase D version, testing dates, ethical safeguards, and calculation of the overall classification.

Conclusions

Among 27 male students, the original study reported 15 in the good overall category, 3 very good, 7 moderate, and 2 poor. Four measured components most often fell in the good category; the shuttle run most often fell in the moderate category. The findings offer a local baseline for physical education planning, subject to confirmation of the test protocol and overall scoring from the original records.

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Conflict of Interest

The authors declare no conflict of interest.

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References

- Altermann, W., & Gröpel, P. (2024). Physical fitness is related to concentration performance in adolescents. *Scientific Reports*, 14, 587. <https://doi.org/10.1038/s41598-023-50721-0>
- Artero, E. G., España-Romero, V., Castro-Piñero, J., Ortega, F. B., Suni, J., Castillo-Garzon, M. J., & Ruiz, J. R. (2011). Reliability of field-based fitness tests in youth. *International Journal of Sports Medicine*, 32(3), 159–169. <https://doi.org/10.1055/s-0030-1268488>
- Castro-Piñero, J., et al. (2010). Assessing muscular strength in youth: Usefulness of standing long jump as a general index of muscular fitness. *Journal of Strength and Conditioning Research*, 24(7), 1810–1817. <https://doi.org/10.1519/JSC.0b013e3181ddb03d>



- Donnelly, J. E., et al. (2016). Physical activity, fitness, cognitive function, and academic achievement in children: A systematic review. *Medicine & Science in Sports & Exercise*. <https://doi.org/10.1249/MSS.0000000000000901>
- España-Romero, V., et al. (2010). Assessing health-related fitness tests in the school setting: Reliability, feasibility and safety. *International Journal of Sports Medicine*. <https://doi.org/10.1055/s-0030-1251990>
- Esteban-Cornejo, I., et al. (2015). Physical activity and cognition in adolescents: A systematic review. *Journal of Science and Medicine in Sport*. <https://doi.org/10.1016/j.jsams.2014.07.007>
- Kvalø, S. E., et al. (2020). The effect of a school-based intervention on physical activity, cardiorespiratory fitness and muscle strength: The School in Motion cluster randomized trial. *International Journal of Behavioral Nutrition and Physical Activity*, 17, 154. <https://doi.org/10.1186/s12966-020-01060-0>
- Lang, J. J., Belanger, K., Poitras, V., Janssen, I., Tomkinson, G. R., & Tremblay, M. S. (2018). Systematic review of the relationship between 20m shuttle run performance and health indicators among children and youth. *Journal of Science and Medicine in Sport*, 21(4), 383–397. <https://doi.org/10.1016/j.jsams.2017.08.002>
- Lonsdale, C., et al. (2021). Effect of a scalable school-based intervention on cardiorespiratory fitness in children: A cluster randomized clinical trial. *JAMA Pediatrics*. <https://doi.org/10.1001/jamapediatrics.2021.0417>
- Minatto, G., Barbosa Filho, V. C., Berria, J., & Petroski, E. L. (2016). School-based interventions to improve cardiorespiratory fitness in adolescents: Systematic review with meta-analysis. *Sports Medicine*, 46, 1273–1292. <https://doi.org/10.1007/s40279-016-0480-6>
- Ramírez-Vélez, R., et al. (2015). Reliability of health-related physical fitness tests among Colombian children and adolescents: The FUPRECOL study. *PLOS ONE*, 10(10), e0140875. <https://doi.org/10.1371/journal.pone.0140875>
- Reigal, R. E., Moral-Campillo, L., Mier, R. J.-R., Morillo-Baro, J. P., Morales-Sánchez, V., Pastrana, J. L., & Hernández-Mendo, A. (2020). Physical fitness level is related to attention and concentration in adolescents. *Frontiers in Psychology*, 11, 110. <https://doi.org/10.3389/fpsyg.2020.00110>
- Tomkinson, G. R., et al. (2017). International normative 20 m shuttle run values from 1 142 026 children and youth representing 50 countries. *British Journal of Sports Medicine*, 51, 1545–1554. <https://doi.org/10.1136/bjsports-2016-095987>
- Tomkinson, G. R., Lang, J. J., et al. (2019). The 20-m shuttle run: Assessment and interpretation of data in relation to youth aerobic fitness and health. *Pediatric Exercise Science*, 31(2), 152–163. <https://doi.org/10.1123/pes.2018-0179>
- Vanhelst, J., Béghin, L., Fardy, P. S., Ulmer, Z., & Czaplicki, G. (2016). Reliability of health-related physical fitness tests in adolescents: The MOVE program. *Clinical Physiology and Functional Imaging*. <https://doi.org/10.1111/cpf.12202>