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Research Article

PHYSICAL READINESS FOR GAME PERFORMANCE AMONG SCHOOL FUTSAL STUDENTS

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Abstract:

Background: Futsal rapidly growing sport that highly popular among junior high school students. The dynamic and fast-paced nature of futsal games, which last for 2x20 minutes, demands excellent physical conditioning from players to maintain focus and execute basic technical skills stably on the field. **Aims:** This study aimed to objectively and thoroughly assess the physical fitness and conditioning levels of students participating in the futsal extracurricular program at State Junior High School. **Methods:** The study employed a quantitative descriptive research design. The population consisted of all 47 students participating in the futsal extracurricular program, with sampling executed via total sampling. The data collection instruments comprised four dominant physical fitness test items for futsal: (1) 30-Meter Sprint Test for speed, (2) Shuttle Run Test for agility, (3) Multistage Fitness Test (MFT) / Bleep Test for cardiorespiratory endurance (VO2 Max), and (4) Standing Long Jump Test for leg muscle explosive power. Data analysis was conducted using descriptive statistics, including frequency distribution and percentages tailored to national standard sports assessment norms. **Result:** Based on the data analysis across all test components, the results indicated that the students' overall physical fitness level falls into the "Very Poor" category. Out of the 11 students tested, 7 students were in the "very poor" category (63.6%), 2 students were in the "poor" category (18.2%), and 2 students were in the "moderate" category (18.2%). No student achieved the "Good" or "Very Good" category. **Conclusion:** The physical condition of students in the futsal extracurricular program at SMP Negeri 34 Pekanbaru remains suboptimal and requires serious intervention. The low physical achievements are influenced by factors such as insufficient training intensity, lack of discipline during practice sessions, and the absence of a structured healthy lifestyle.

Keywords*:* Physical Readiness, Futsal, Extracurricular Among School

Introduction

Background of the study: Futsal is characterized as a high-intensity intermittent sport that requires players to perform explosive movements repeatedly, rapid changes of direction, accelerations, decelerations, and technical actions throughout the match (Armen et al, 2025; Atmaja, 2025; Raka Tri Putra et al., 2026). Consequently, optimal physical readiness becomes a fundamental prerequisite for sustaining technical execution and tactical effectiveness under competitive conditions (Gautam et al., 2026). Physical readiness encompasses a multidimensional integration of fitness components, including muscular strength, speed, agility, endurance, flexibility, coordination, and power, all of which collectively determine an athlete's capacity to cope with the physiological and biomechanical demands of the game (Pamungkas, 2025; Trabelsi et al., 2024). Rather than merely serving as indicators of general fitness, these physical components are essential determinants of match performance, injury prevention, and long-term athlete development (Elghoul et al., 2024; Guan et al., 2025). Therefore, systematic and evidence-based physical conditioning, integrated with technical and tactical training, is indispensable for preparing school futsal players to perform consistently and efficiently during competition.

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Futsal is recognized as one of the most demanding sports requiring players to repeatedly perform high-intensity actions such as sprinting, rapid acceleration and deceleration, multidirectional changes of direction, jumping, and explosive kicking throughout the match (Naunheim et al., 2023; Witvrouw et al., 2022). These activities impose substantial physiological stress on both the aerobic and anaerobic energy systems, making physical readiness a fundamental prerequisite for maintaining technical execution and tactical effectiveness under competitive conditions (Aditia Pria Mihardita & Dwi Tiga Putri, 2025; Barakou et al., 2025). Consequently, players with superior physical readiness are more capable of sustaining high-intensity performance, delaying the onset of fatigue, and preserving decision-making quality during critical phases of the game (Chaabene et al., 2019). This indicates that physical readiness is no longer viewed merely as a supporting component of athletic performance but rather as the physiological foundation that enables players to execute technical skills and tactical strategies consistently throughout the entire match (da Penha Freire Silva et al., 2025; Solstad et al., 2025).

Various studies evaluating the physical profiles of futsal players indicate that the majority of athletes particularly at the school and youth development levels do not yet possess the optimal level of physical readiness to meet the demands of the modern game. Previous research consistently reports deficiencies in several key components, such as aerobic endurance, repeated sprint ability, agility, and leg muscle explosive power. On the other hand, there is a marked difference in the physical condition profiles of Indonesian futsal players compared to those from countries with more established futsal development systems, such as Spain, Portugal, Brazil, and Iran. Research on international futsal players indicates that elite athletes generally possess higher aerobic capacity, superior repeated-sprint ability, greater efficiency in changing direction, and lower fatigue levels during matches. These advantages stem not only from individual characteristics but also from the implementation of evidence-based training programs, continuous performance monitoring systems, and processes for identifying and developing athletes from an early age. Conversely, most studies on Indonesian futsal players report that several physical condition components fall into the moderate-to-poor range, potentially limiting the effective execution of game techniques and strategies, particularly during high-intensity matches.

Consistent with these findings, preliminary observations of the futsal extracurricular team at State Junior High School 34 Pekanbaru revealed a similar pattern of physical performance limitations. During recent inter-school competitions, the team was consistently eliminated in the early stages of the tournament, with its best achievement reaching only the Round of 16. Match observations further indicated that many players experienced pronounced physical fatigue during the second half, accompanied by declines in movement intensity, defensive organization, passing accuracy, and decision-making quality. These findings suggest that inadequate physical readiness may represent one of the principal factors constraining competitive performance. Therefore, a comprehensive assessment of players' physical readiness is required to establish an evidence-based profile that can serve as a scientific foundation for designing more effective training programs and improving future competitive performance.

Literature review: During the match, players operate at an intensity of 85–90% of HRmax with oxygen consumption around 75–80% of VO_2max. Accumulated fatigue leads to a decline in neuromuscular performance characterized by reduced repeated-sprint ability (2–6%) and jump height (3–7%) in the second half thereby affecting the consistency of technical and tactical performance.

Research (Villanueva-Guerrero et al., 2024) indicates that physical condition plays a crucial role in futsal player performance. High-intensity interval training (HIIT) programs lasting 6–8

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weeks have been reported to increase VO_2max by 5–10%, while plyometric training improves jump height by 8–12% and sprint speed by 2–5%. Additionally, repeated sprint training enhances repeated sprint ability by 3–7%. However, most studies focus on the effectiveness of training programs, whereas this study emphasizes the analysis of players' physical condition profiles as a basis for designing training programs.

Most research (Spyrou et al., 2020) on the physical condition of futsal players has focused on elite athletes in Brazil, Spain, Portugal, and Iran. Findings indicate that elite players possess approximately 10–15% higher aerobic capacity, 5–10% better repeated-sprint ability, and 18–25% greater high-speed running intensity compared to sub-elite players. In contrast, research on school-aged futsal players in Indonesia remains dominated by descriptive studies that assess only one or two physical components without linking them to the physiological demands of the modern game; consequently, comprehensive profiles of the players' physical condition have rarely been reported.

Research (Asmara et al., 2023) Studies conducted in Indonesia indicate that the physical fitness profile of school-aged futsal players generally remains at a moderate level. Study A reported a mean VO_2max of 48.6 ± 3.9 $mL \cdot kg^{-1} \cdot min^{-1}$, with 68% of players classified in the moderate category and 22% in the poor category. Study B reported a 30-m sprint time of 4.52 ± 0.18 s and an Illinois Agility Test score of 16.84 ± 0.61 s, both of which were categorized as moderate. Meanwhile, Study C found an average vertical jump height of 46.2 ± 5.1 cm, with only 27% of players achieving a good classification. Although these studies provide valuable insights into the physical condition of futsal players, they primarily assess individual physical fitness components separately and have yet to establish a comprehensive physical readiness profile that reflects players' preparedness to meet the physiological and performance demands of modern futsal competition.

Gap analysis: Although previous studies have consistently demonstrated that physical fitness is a critical determinant of technical execution, tactical effectiveness, and overall match performance in futsal, several important research gaps remain unresolved. First, the majority of existing studies have primarily examined isolated components of physical fitness, such as aerobic endurance, agility, sprint speed, or muscular power, without providing an integrated assessment of physical readiness that reflects the multidimensional physiological demands of modern futsal. As a result, current evidence remains insufficient to comprehensively evaluate players' readiness for competitive match performance.

Second, most published studies have focused on elite athletes, professional players, university students, or senior high school athletes, whereas relatively little attention has been devoted to junior high school players who are undergoing rapid growth and maturation. This developmental stage is characterized by substantial changes in neuromuscular function, body composition, and physical capacity, making physical readiness assessment particularly important for guiding age-appropriate training and long-term athlete development. Consequently, evidence describing the physical readiness profile of junior high school futsal players remains limited.

Third, despite the rapid expansion of school-based futsal programs in Indonesia, there is still a lack of context-specific evidence describing the physical readiness of student-athletes within extracurricular settings. Most Indonesian studies have reported descriptive physical fitness profiles without relating them to the physiological demands of competitive futsal or providing evidence-based benchmarks that can support training evaluation and program development. This limitation restricts coaches' ability to identify priority areas for physical improvement and to design targeted conditioning programs.

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Material & Methods

Research Design: This study employed a quantitative descriptive approach aimed at describing, summarizing, and explaining empirical facts regarding the physical condition level variable objectively without giving special treatment to the sample. The type of research employed is quantitative descriptive research, which aims to explain and summarize various conditions or variables present in society (Frisby, 2024). Descriptive research is a method that seeks to objectively portray the object or subject under study, aiming to systematically describe facts as well as the characteristics and frequency of the subject being examined with precision (Mu, 2025).
Participant: The population in this study consisted of all active students registered in the futsal extracurricular activities at SMP Negeri 34 Pekanbaru, totaling 47 male students. Considering that the population size was relatively limited and manageable, the sample selection method used was total sampling, where all members of the population were used as research samples.
Instrument: The data collection technique was conducted through direct physical test methods in the field (field test) using national-validated standard instruments to measure four dominant physical condition components in futsal: Speed Test (30-Meter Sprint) Students performed a fast run on a straight and flat running track for 30 meters from a standing start position. The test was conducted for two opportunities with sufficient rest intervals, and the result taken was the fastest time record in seconds using a stopwatch. Agility Test (Shuttle Run 5 Meters x 5 Cycles) Students performed a shuttle run to change direction as quickly as possible between two parallel lines spaced 5 meters apart for 5 full cycles. Both feet had to cross the boundary line at each turn. The time was recorded using an accuracy level of 0.1 seconds and the best time from two trials was taken. Cardiorespiratory Endurance Test (Multistage Fitness Test / Bleep Test) Students performed a continuous shuttle run covering a distance of 20 meters following the rhythm of the audio signal sound (beep), which was set to gradually accelerate at each level. The test ended when the student failed to reach the boundary line twice consecutively. The final score was converted into an estimated VO2 Max value (ml/ kg/min). Leg Muscle Explosive Power Test (Standing Long Jump) Students stood behind the boundary line and then performed a forward jump as far as possible by pushing off using both feet simultaneously and landing with both feet balanced. The jumping distance was measured from the start line to the nearest landing point in centimeters.
Analysis plan: Data analysis used in this study was descriptive, it aims to determine the level of physical fitness of futsal extracurricular students in urban and rural areas. Then, to see the difference through the normality prerequisite test stage, the homogeneity test and the t-test. Data analysis was assisted by using the SPSS Version 26 application. The categorization in this study uses futsal player norms according to (Annasthasya et al., 2025).

Table 1. Norm Instrument Age 13 – 17 Futsal Player

Score	Classification
22–25	Very Good
18–21	Good
14–17	Moderate
10–13	Poor
5–9	Very Poor

Results

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Results: Present the complete results of the physical readiness assessment. To provide a more concise presentation and facilitate comparisons across the four physical fitness components, all findings are summarized in a single integrated table. The data were collected from 47 students participating in the school futsal extracurricular program using four standardized field tests: the 30-Meter Sprint Test to assess speed, the 5 × 5 m Shuttle Run Test to assess agility, the Multistage Fitness Test (20-m Bleep Test) to evaluate cardiorespiratory endurance (estimated VO_2max), and the Standing Long Jump Test to measure lower-limb explosive power. The collected data were analyzed using descriptive statistical methods, including frequency and percentage distributions, to classify the players' physical readiness into five categories: Very Good, Good, Moderate, Poor, and Very Poor, based on the established normative criteria. The real measurement data were then grouped into frequency distributions based on the standard assessment norms of each sports variable as follows:

Table 2. Frequency Distribution of Instrumen Condition Futsal Player

Physical Readiness Classification	Speed	Agility	Cardiorespiratory Endurance	Explosive Power
Very Good	23 (48,93%)	0 (0,0%)	0 (0,0%)	4 (8,51%)
Good	9 (19,14%)	0 (0,0%)	7 (14,89%)	19 (40,42%)
Moderate	13 (27,65%)	7 (14,89%)	18 (38,29%)	8 (17,02%)
Poor	0 (0,0%)	0 (0,0%)	14 (29,78%)	12 (25,53%)
Very Poor	2 (4,25%)	40 (85,11%)	8 (17,02%)	4 (8,51%)
Total	47			

Table 2 presents the distribution of physical readiness across four physical fitness components among school futsal players (n = 47). The results indicate that speed was the strongest component, with nearly half of the participants (48.93%) classified as Very Good, followed by 19.14% in the Good category, while only 4.25% were categorized as Very Poor. In contrast, agility was the weakest component, as 85.11% of the players were classified as Very Poor, and only 14.89% reached the Moderate category. For cardiorespiratory endurance, most players were classified as Moderate (38.29%) and poor (29.78%), whereas 17.02% fell into the Very Poor category and only 14.89% achieved the good classification. Meanwhile, explosive power showed relatively better performance, with 40.42% of players categorized as Good and 17.02% as Moderate. Overall, the findings suggest that although speed and explosive power were relatively satisfactory, agility and cardiorespiratory endurance remain the primary physical limitations requiring targeted training interventions.

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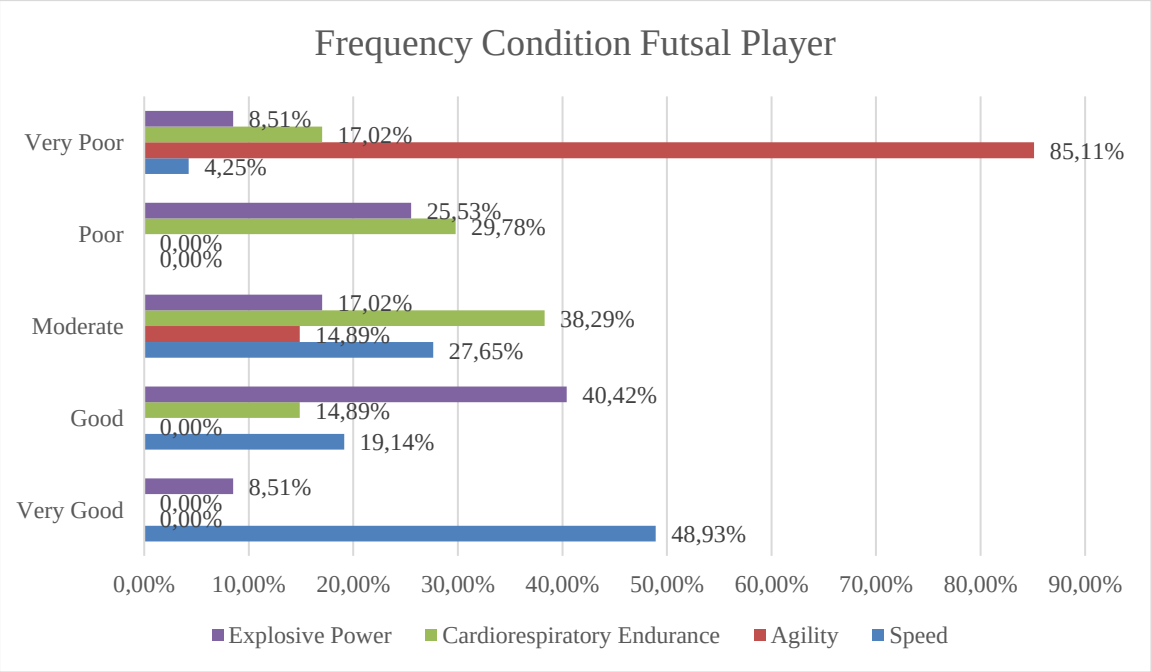

Figure 1. Distribution of Instrument Condition Futsal Player

Table 3 Results of Descriptive Analysis of Futsal Students' General Physical Condition

No	Values Total	Category	Frekuency	Perceentage
1	9.6-10	Very Good	0	0%
2	8.0-9.5	Good	0	0%
3	6.0-7.9	Moderate	2	18.2%
4	4.0-5.9	Poor	2	18.2%
5	2.0-3,9	Very Poor	7	63.6%

Based on Table 3, a main conclusion can be drawn that generally the physical condition level of students participating in the futsal extracurricular program at SMP Negeri 34 Pekanbaru is in the "Very Poor" category, with a dominant frequency of 7 students out of a total of 11 respondents (63.6%). The students who are in the poor category amount to 2 people (18.2%), and the moderate category consists of 2 people (18.2%). This real data reinforces the fact that not a single student (0%) has a physical condition categorized as good or very good.

Discussion: The present study demonstrated that the overall physical readiness of students participating in the futsal extracurricular program remains at a relatively low level. The predominance of players classified within the Very Poor category, particularly in agility and cardiorespiratory endurance, indicates that the participants have not yet developed the physiological capacities required to meet the demands of modern futsal. These findings suggest that physical readiness remains one of the primary limitations affecting match performance among school-level futsal players.

From a physiological perspective, modern futsal is characterized by repeated bouts of high-intensity intermittent activity involving sprinting, rapid acceleration and deceleration, multidirectional changes of direction, explosive jumping, and short recovery intervals. Such

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activities require well-developed aerobic and anaerobic energy systems, neuromuscular coordination, and lower-limb muscle power to sustain performance throughout the match. According to (Iranpour et al., 2025), physical conditioning forms the foundation upon which technical and tactical abilities can be executed effectively under competitive conditions. Therefore, inadequate physical readiness may substantially reduce players' ability to maintain movement intensity, technical accuracy, and tactical decision-making during prolonged competition.

The present findings are consistent with recent evidence reported by(Miralles-Iborra et al., 2026) , who demonstrated that agility, repeated sprint ability, and aerobic fitness are the principal determinants of competitive futsal performance. Similarly, (Chundi et al., 2026) found that insufficient cardiorespiratory endurance significantly reduces players' capacity to perform repeated high-intensity actions, resulting in earlier fatigue and decreased technical efficiency during matches. (Sembiring et al., 2025) reported that youth futsal players with higher levels of physical fitness exhibited superior movement efficiency and tactical effectiveness compared with players possessing lower physical capacities.

However, the current findings differ considerably from those reported by (Miller et al., 2025; Ricci et al., 2026), who observed that most elite and academy futsal players achieved moderate to high levels of physical fitness across multiple performance indicators. This discrepancy is likely explained by differences in participant characteristics, training experience, competitive level, and physical development. Unlike those investigations, which involved professional or academy athletes exposed to systematic conditioning programs, the present study examined junior high school students participating in extracurricular activities, where physical conditioning is generally limited in training frequency, exercise intensity, and long-term periodization. Consequently, the lower physical readiness observed in the present study reflects not only the developmental stage of adolescent athletes but also the absence of structured evidence-based conditioning programs within school futsal settings.

An important finding emerging from this study is that agility represented the weakest physical component, with more than four-fifths of participants classified as Very Poor. This result suggests that current training practices emphasize technical play while providing insufficient stimulus for developing multidirectional movement ability. Considering that changes of direction account for a substantial proportion of high-intensity actions during futsal matches, inadequate agility may impair defensive transitions, reduce pressing effectiveness, and increase susceptibility to one-on-one situations. Similarly, the relatively low cardiorespiratory endurance observed among participants indicates limited aerobic capacity to sustain repeated high-intensity efforts, potentially explaining the decline in performance commonly observed during the latter stages of competition.

Unlike most previous studies that evaluated individual physical fitness components separately, the present study provides a comprehensive physical readiness profile integrating speed, agility, cardiorespiratory endurance, and lower-limb explosive power within a single assessment framework. This integrated approach offers a more holistic understanding of players' readiness to meet the physiological demands of futsal competition and provides an evidence-based benchmark for evaluating school-based athlete development. Consequently, the findings contribute not only to the scientific literature on youth futsal but also to practical coaching by identifying priority physical components requiring immediate intervention.

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Conclusions

This study concludes that the overall physical readiness of students participating in the futsal extracurricular program remains below the level required to meet the physiological demands of modern futsal. The findings showed that speed was the strongest physical component, with 48.93% of the participants classified as Very Good and only 4.25% categorized as Very Poor. In contrast, agility was identified as the weakest component, with 85.11% of the players falling into the Very Poor category. For cardiorespiratory endurance, most participants were classified as Moderate (38.29%) and Poor (29.78%), indicating insufficient aerobic capacity to sustain repeated high-intensity activities during matches. Meanwhile, explosive power showed relatively better performance, with 40.42% of the players classified as Good. Overall, the general physical condition profile indicated that the majority of participants remained in the Very Poor category (63.6%), while 18.2% were classified as Poor and 18.2% as Moderate, with no participants achieving the Good or Very Good categories. These findings emphasize the need for structured and evidence-based conditioning programs focusing on agility, cardiorespiratory endurance, speed, and lower-limb explosive power to improve the physical readiness and competitive performance of school futsal players.

Author Contribution Statement

The author encountered various obstacles and challenges during the writing process, which were overcome through the guidance, moral, and spiritual support of many parties. Therefore, the author would like to extend sincere gratitude to MIR and YG for acted as Advisor respectively, providing critical supervision, guiding the methodological structure, directing the data analysis process, and reviewing and revising the manuscript drafts until its final completion

AI Disclosure Statement

The author used ChatGPT (OpenAI) during the preparation of this work for assistence improving the language, gramar, and structure. After using the tool/service, the author thoroughly reviewed and edited the content as needed and takes full responsibility for the content of the publication. The authors declare that this research was prepared, researched, written, and edited without the aid of artificial intelligence (AI) techniques.

Conflicts Of Interes

The authors confirm the presence or absence of any potential conflicts of interest financial, institutional, or personal that could influence the conduct of this study, the analysis of data, the preparation of the manuscript, or its publication.

References:

Aditia Pria Mihardita, & Dwi Tiga Putri. (2025). Profile of the Physical Condition of Football Extracurricular Participants at the Senior High School/Vocational High School Level in Doro District, Pekalongan Regency. *Indonesian Journal for Physical Education and Sport*, *6*(2), 44–55. https://doi.org/10.15294/inapes.v6i2.25854

Annasthasya, D., Alfindoria, I., Rahayu, S., & Khair, O. I. (2025). Metodologi Penelitian

https://journal.mutiarahatimoeslem.id/index.php/cores/index
P-ISSN: XXX-XXX E-ISSN: XXX-XXX (Vol. 2 No. 1)
DOI: 10.64131/cores.v1i1.121

Research Article

Kualitatif: Tinjauan Literatur Dalam Konteks Pendidikan. *Jurnal Ilmiah Multidisipin*, *3*(7), 423–429. https://doi.org/10.60126/jim.v3i7.1070

Armen Gemael, Q., & Novita Sari, Z. (2025). Exploring the interest of early teenagers in futsal extracurricular participation. *Jurnal Penelitian Pembelajaran*, *11*(1), 64–80. https://doi.org/10.29407/js_unpgri.v11i1.25108

Asmara, M., Prasetyo, Y., & Rismayanthi Cerika. (2023). Analysis Of The Components Of Physical Condition Towards The Improvement Of Futsal Player Performance. *MEDIKORA*, *22*(1), 54–61. https://doi.org/https://orcid.org/0000-0003-4713-2329

Atmaja, R. J. (2025). Injury patterns and risk factors in high school futsal: An observational study. *Sport, Exercise, and Injury*, *1*(1), 1–14. https://doi.org/10.56003/sei.v1i1.513

Barakou, I., Seves, B. L., Abonie, U. S., Finch, T., Hackett, K. L., & Hettinga, F. J. (2025). Health-related quality of life associated with fatigue, physical activity and activity pacing in adults with chronic conditions. *BMC Sports Science, Medicine and Rehabilitation*, *17*(1), 13. https://doi.org/10.1186/s13102-025-01057-x

Chaabene, H., Negra, Y., Capranica, L., Prieske, O., & Granacher, U. (2019). A Needs Analysis of Karate Kumite With Recommendations for Performance Testing and Training. *Strength & Conditioning Journal*, *41*(3), 35–46. https://doi.org/10.1519/SSC.0000000000000445

Chundi, G., Dawar, A., Fuller, Z., Jones, T., Lingam, S., & Galdi, B. (2026). The Association Between Early Sport Specialization and Injury and Career Outcomes Among National Football League Athletes. *European Journal of Sport Science*, *26*(2), e70120. https://doi.org/10.1002/ejsc.70120

da Penha Freire Silva, J. M., da Costa Silva, E. C., Mendonça, G., Mota, J., Hallal, P. C., & Cazuza de Farias Júnior, J. (2025). Physical activity patterns in adolescents: A longitudinal study. *European Journal of Sport Science*, *25*(1). https://doi.org/10.1002/ejsc.12239

Elghoul, Y., Ben Kahla, A., Bahri, F., Trabelsi, K., Chtourou, H., Frikha, M., & Aziz, A. R. (2024). Effects of fasting during Ramadan month on soccer-specific technical performance, cognitive function, and perceptions in soccer players. *Journal of Sports Sciences*, *42*(7), 646–654. https://doi.org/10.1080/02640414.2024.2357467

Frisby, M. B. (2024). Critical Quantitative Literacy: An Educational Foundation for Critical Quantitative Research. *AERA Open*, *10*. https://doi.org/10.1177/23328584241228223

Gautam, H., Das, J., & Jakhar, R. (2026). Analysis of Physical, Psychological, Physiological and Performance parameters of Professional athletes of six different combat sports: A Narrative Review. *International Journal of Physiology, Sports and Physical Education*, *8*(3), 20–37. https://doi.org/10.33545/26647710.2026.v8.i3a.222

Guan, H., Zhang, X., Dong, J., Shu, R., Hu, S., & Tong, Z. (2025). Biophilic environment with auditory-olfactory stimuli contributes to psychophysiological restoration from stress. *Building and Environment*, *275*, 112830. https://doi.org/10.1016/j.buildenv.2025.112830

Iranpour, A. R., Hemmatinafar, M., Nemati, J., Salesi, M., Esmaeili, H., & Imanian, B. (2025). The effects of plyometric training with speed and weight overloads on volleyball players' strength, power, and jumping performance. *PLOS ONE*, *20*(2), e0316477. https://doi.org/10.1371/journal.pone.0316477

Miller, L. C., Soland, J., Lipscomb, D. W., Player, D. W., & White, R. S. (2025). Latent School-Level Classes of Teacher Working Conditions in Virginia: Description, Teacher Preferences, and Contextual Factors. *AERA Open*, *11*. https://doi.org/10.1177/23328584251321454

Miralles-Iborra, A., Dos'Santos, T., Elvira, J. L. L., Esteban-López, M., Del Coso, J., & Moreno-Pérez, V. (2026). Influence of Anticipation on Neuromuscular Control During a Single-Leg

https://journal.mutiarahatimoeslem.id/index.php/cores/index
P-ISSN: XXX-XXX E-ISSN: XXX-XXX (Vol. 2 No. 1)
DOI: 10.64131/cores.v1i1.121

Research Article

Diagonal Drop Jump Landing Task In Female Football Players. A Cross-Sectional Study. *European Journal of Sport Science*, *26*(1). https://doi.org/10.1002/ejsc.70097

Mu, G. M. (2025). Quantifying Bourdieu in Educational Research. In *Springer Briefs in Education: Part F291*. Springer Nature Singapore. https://doi.org/10.1007/978-981-96-2132-3

Naunheim, R. S., Ryden, A., Standeven, J., Genin, G., Lewis, L., Thompson, P., & Bayly, P. (2023). Does Soccer Headgear Attenuate the Impact When Heading a Soccer Ball? *Academic Emergency Medicine*, *10*(1), 85–90. https://doi.org/10.1197/aemj.10.1.85

Pamungkas, G. R. (2025). Physical condition levels of futsal extracurricular students at YLPI Perhentian Marpoyan Junior High School. *Journal of Applied Movement and Sport Science*, *1*(3), 1–11. https://doi.org/10.65575/jamss.v1i3.91

Raka Tri Putra, H., Yulisatria, G., & Suhariyanti, M. (2026). Analysis of physical fitness and basic technical skills of extracurricular futsal players. *CITIUS: Jurnal Pendidikan Jasmani Olahraga, Dan Kesehatan Indonesian Journal of Physical Education, Sports and Health*, *6*(1), 138–145. https://doi.org/https://doi.org/10.32665/citius.v6i1.6086

Ricci, J. M., Kern, B. D., Killian, C. M., Trinh, A., Wilson, W. J., & van der Mars, H. (2026). Impact of State-Level Physical Education Policies on (PE) Access in the United States: A Comparative Analysis of Policy Implementation and Weekly (PE) Minutes. *Journal of School Health*, *96*(1), e70079. https://doi.org/10.1111/josh.70079

Sembiring, A. J., Maya, H., & Sembiring, S. B. (2025). The Influence Of Sports Extracurricular Activities On Students' Social Skills. *Universitas Katolik Santo Thomas Medan Jl. Setia Budi*, *6*(2), 8–15. https://doi.org/https://doi.org/10.55081/jphr.v6i1.4488

Solstad, B. E., Sersland, A., Torstveit, M. K., Knight, C., Ivarsson, A., Kjær, I. H., & Johansen, B. T. (2025). The Association Between Psychosocial Factors and Reported Injuries Among Youth Grassroot Soccer Players. *European Journal of Sport Science*, *25*(6). https://doi.org/10.1002/ejsc.12314

Spyrou, K., Freitas, T. T., Marín-Cascales, E., & Alcaraz, P. E. (2020). Physical and Physiological Match-Play Demands and Player Characteristics in Futsal: A Systematic Review. *Frontiers in Psychology*, *11*. https://doi.org/10.3389/fpsyg.2020.569897

Trabelsi, K., Ammar, A., Boukhris, O., Boujelbane, M. A., Clark, C., Romdhani, M., Washif, J. A., Aziz, A. R., Bragazzi, N. L., Glenn, J. M., Chamari, K., Chtourou, H., & Jahrami, H. (2024). Ramadan intermittent fasting and its association with health-related indices and exercise test performance in athletes and physically active individuals: an overview of systematic reviews. *British Journal of Sports Medicine*, *58*(3), 136–143. https://doi.org/10.1136/bjsports-2023-106826

Villanueva-Guerrero, O., Lozano, D., Roso-Moliner, A., Nobari, H., Lago-Fuentes, C., & Mainer-Pardos, E. (2024). Effects of different strength and velocity training programs on physical performance in youth futsal players. *Heliyon*, *10*(10), e30747. https://doi.org/10.1016/j.heliyon.2024.e30747

Witvrouw, E., Danneels, L., Thijs, Y., Cambier, D., & Bellemans, J. (2022). Does soccer participation lead to genu varum? *Knee Surgery, Sports Traumatology, Arthroscopy*, *17*(4), 422–427. https://doi.org/10.1007/s00167-008-0710-z