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Assessing Physical Fitness of Incoming Sports Students to Set Minimum Thresholds for Universitas Negeri Makassar Admission

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ABSTRACT

Intorduction. Post-pandemic reinstatement of physical fitness tests in Indonesian sports faculties has highlighted the need for clear minimum standards. Many applicants remain unfamiliar with required benchmarks; thus, this study aimed to identify lower thresholds of muscular strength and lower-limb power among newly admitted students. **Methods.** A cross-sectional descriptive design was employed involving 86 first-semester Physical Education students selected through purposive sampling. Physical fitness variables included standing broad jump, push-ups, sit-ups, and back-ups. Descriptive statistics (min, max, mean, SD, percentiles) were used to classify participants into Low (<P25), Medium (P25–P75), and High (>P75) categories. **Results.** Male students demonstrated mean scores of 236.9 cm (broad jump), 28.9 push-ups, 32.0 sit-ups, and 65.3 back-ups; females recorded 184.9 cm, 26.8 push-ups, 22.9 sit-ups, and 61.5 back-ups. Most participants were categorized as Medium–High, particularly in push-ups and back-ups, indicating adequate baseline upper-body and core endurance. **Conclusion.** Minimum recommended standards include 30–40 push-ups (men) and 20–30 (women), 30–35 sit-ups (men) and 25–30 (women), ≥60–65 back-ups for both sexes, and standing broad jump targets of >230 cm (men) and 200 cm (women).

1. Introduction

Over the past few years following the COVID-19 pandemic, Indonesian universities have once again placed special emphasis on physical fitness testing as a requirement for admission into Sports Faculty study programs, similar to pre-pandemic practice. Physical fitness tests are administered to evaluate the physical capacity of prospective first-year students in sports faculties, particularly to ensure they can engage intensively in practical courses both on the field and in sports facilities. (Lobo, 2022; Pujianto dkk., 2024; Vaskov, 2022). Fundamental physical potential of new students can be readily observed and their development over time can be predicted throughout the course of their education

(Kopeikina dkk., 2024; Otero-Saborido dkk., 2021). To date, incoming applicants still lack a comprehensive understanding of the physical fitness standards required to pass independent (non-centralized) entrance tests that involve physical assessments.

To address this issue, there is a need to describe the lower limits of physical fitness among newly admitted sports-faculty students. This study focuses on identifying and analyzing the physical fitness status in order to determine the minimal threshold required to pass the test limited to the aspects of muscular strength and lower-limb power in order to maintain data openness from the university (Hadi dkk., 2022; Ihsan dkk., 2022; Zaman & Mondal, 2023). General reference for fitness testing using ACSM (American College of Sports Medicine) Because the protocols and standards are very strong and widely used internationally (Kathirgamam dkk., 2020). Strength and power were chosen because they represent primary biomotor components necessary for physical activity beyond endurance and speed (Bulgay dkk., 2023, 2023; Danardono dkk., 2023; Permana dkk., 2022; Yu dkk., 2021).

A clear standard of physical fitness is crucial for prospective students to pass the entrance test. The implementation of such a fitness test is expected to provide a new benchmark for improving the physical condition of applicants, thereby enhancing the overall quality of the sports study program (Garcia-Carrillo dkk., 2025). Physical fitness quality becomes one of the key criteria alongside academic achievement for competing with other sports faculties, allowing the university to maintain high competitiveness in academic, athletic, and industry domains (Kurniawan & Khoiriyah, 2021; Prabowo dkk., 2025).

Therefore, this research is expected to provide a significant contribution to the advancement of science in the field of sports science, especially in the context of finding the lower standards for physical fitness tests in college entrance selection at Makassar State University.

2. Methods

This study used a quantitative approach with a cross-sectional descriptive design. This design was chosen because the objective of the study was to describe the physical fitness status of students at a single point in time, without comparing fitness test results over time (Aragón-Martín et al., 2022). All data were analyzed using quantitative descriptive procedures, presented in tables, including minimum, maximum, mean, standard deviation (SD), and percentile values calculated for each physical fitness variable, consisting of power (standing broad jump) and muscular strength-endurance (push-ups, sit-ups, and back-ups). The test result categories were classified as low (<P25), medium (P25–P75), and high (>P75).

The instrument used was a general physical fitness test limited to measuring power and strength (standing broad jump, push-ups, sit-ups, and back-ups). The power test consisted of a single jump with three attempts. Participants were measured starting from the starting line behind the line and then measuring their landing point. The longest distance was recorded. The strength component was calculated by calculating one-minute movements, starting with the body positioned on or on the mat for the third item. The sample in this study was selected using purposive sampling, with the criterion that candidates must have passed an independent admissions process involving physical fitness and endurance tests. Thus, the sample consisted of students from two of five classes, totaling 86 first-semester freshmen enrolled in the Physical Education program.

3. Results

Descriptive statistics for the physical fitness tests for 66 new students in the Faculty of Sports are presented in Table 1. For the Standing Long Jump (Power), scores ranged from 144 to 290 cm, with a mean of 236.92 cm (SD = 34.56). Push-Up test scores ranged from 3 to 65 repetitions, with a mean of 28.86 repetitions (SD = 11.92). Sit-Up scores varied between 10 and 50 repetitions, with a mean of

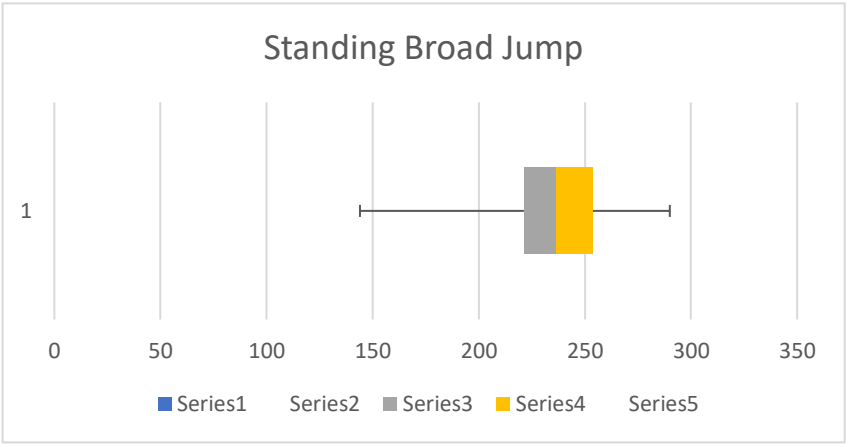
32.03 (SD = 9.45). Finally, Back-Up performance ranged from 35 to 100 repetitions, with a mean of 65.30 (SD = 15.01).

Based on the percentile limits (P25 and P75), students were classified into Low, Medium, and High categories for each test. For the Standing Long Jump, 16 students (24.2%) were classified as Low, 33 students (50.0%) as Medium, and 17 students (25.8%) as High. For the Push-Up, 17 students (25.8%) were classified as Low, 17 students (25.8%) as Medium, and 32 students (48.5%) as High. The Sit-Up scores showed 16 students (24.2%) as Low, 33 students (50.0%) as Medium, and 17 students (25.8%) as High. Finally, for the Back-Up, 14 students (21.2%) were classified as Low, 36 students (54.5%) as Medium, and 16 students (24.2%) as High.

These results indicate that most new students performed at the Moderate to High level, particularly on the Push-Up and Back-Up tests, indicating generally adequate baseline core and upper body endurance. The variability in Standing and Seated Long Jump scores suggests that some students may require additional training to reach minimum fitness thresholds, particularly in explosive lower body strength and abdominal endurance.

Table 1. Result of men's data

Variable	N	Min	Max	Mean	Std. Dev	Low (n, %)	Medium (n, %)	High (n, %)
Standing Broad Jump (cm)	66	144	290	236.92	34.56	16 (24.2%)	33 (50.0%)	17 (25.8%)
Push-Up (reps)	66	3	65	28.86	11.92	17 (25.8%)	17 (25.8%)	32 (48.5%)
Sit-Up (reps)	66	10	50	32.03	9.45	16 (24.2%)	33 (50.0%)	17 (25.8%)
Back-Up (reps)	66	35	100	65.30	15.01	14 (21.2%)	36 (54.5%)	16 (24.2%)



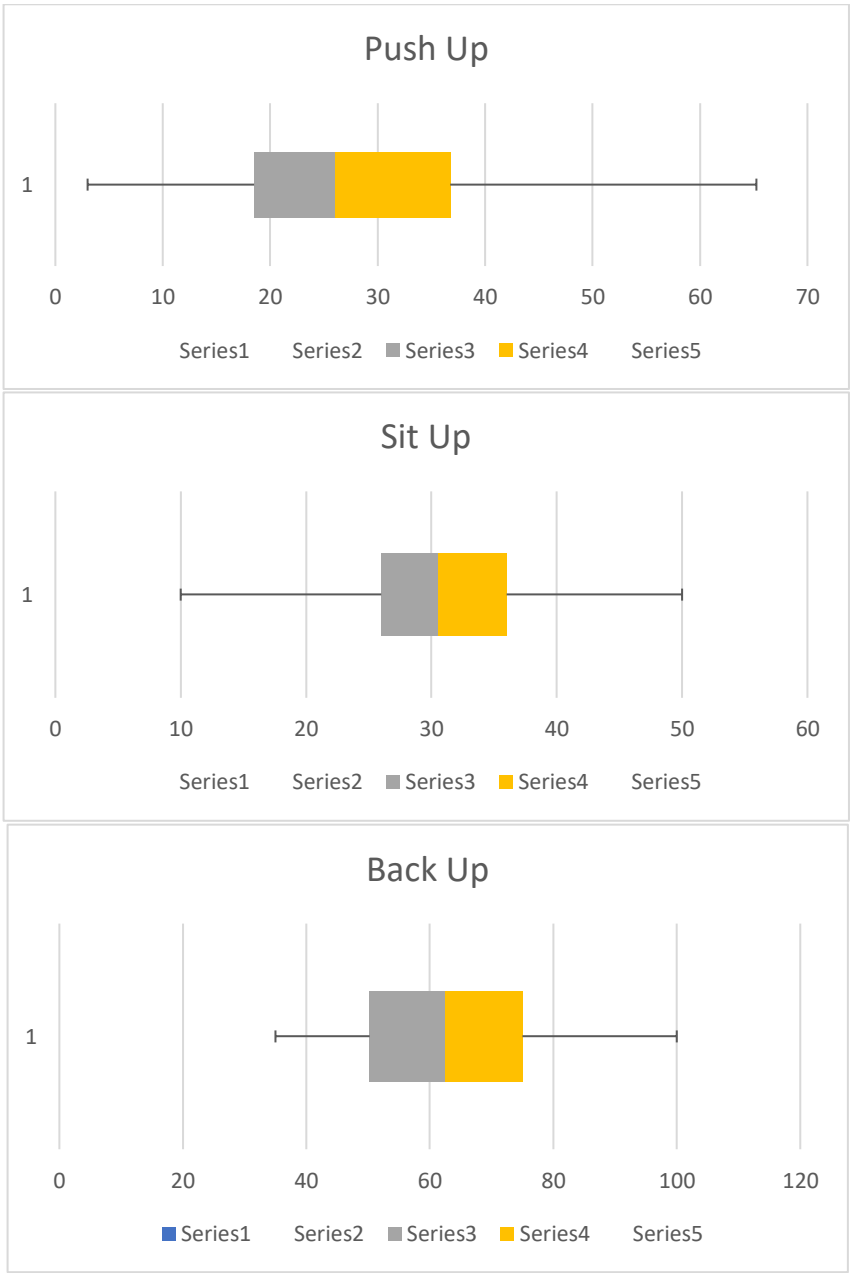


Figure 1. Boxplots of result of men's data

Descriptive statistics and classification of physical fitness test results for 15 new students in the Faculty of Sports are presented in Table 1. Standing Long Jump (Power) scores ranged from 129 to 234 cm, with a mean of 184.93 cm (SD = 24.83). Based on percentile thresholds (P25 = 171 cm, P75 = 197 cm), 4 students (26.7%) were classified as Low, 5 students (33.3%) as Medium, and 6 students (40.0%) as High.

For Push-Up performance, scores varied between 17 and 43 repetitions, with a mean of 26.8 (SD = 6.44). Based on percentile thresholds (P25 = 23 repetitions, P75 = 30 repetitions), 2 students (13.3%) were classified as Low, 3 students (20.0%) as Medium, and 10 students (66.7%) as High.

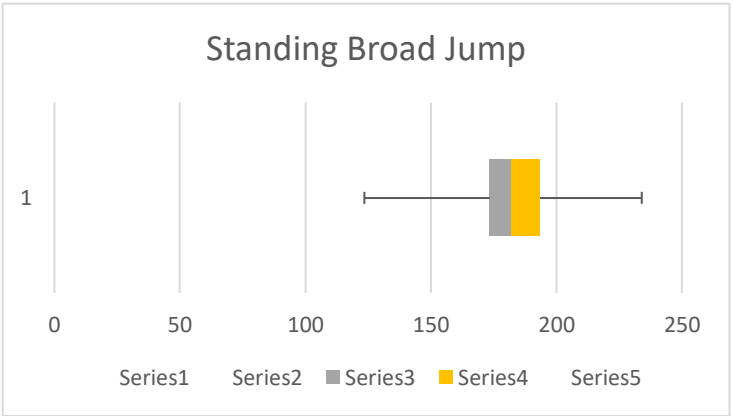
Sit-Up scores ranged from 13 to 46 repetitions, with a mean of 22.87 (SD = 9.01). Based on percentiles (P25 = 15 repetitions, P75 = 29 repetitions), 4 students (26.7%) fell into the Low category, 6 students (40.0%) into the Medium category, and 5 students (33.3%) into the High category.

For the Back-Up test, scores ranged from 40 to 89 repetitions, with a mean of 61.53 (SD = 14.69). Using the cutoff values (P25 = 50 repetitions, P75 = 78 repetitions), 2 students (13.3%) fell into the Low category, 6 students (40.0%) into the Medium category, and 7 students (46.7%) into the High category.

This classification indicates that most new students fall into the Moderate–High category, particularly in the upper body muscular endurance tests (Push-Ups) and Back-Ups. However, there is significant variability, particularly in the Standing Long Jump and Sit-Ups, suggesting that some students may require targeted training to achieve the desired minimum fitness standard.

Table 2. Result of women's data

Variable	Min	Max	Mean	Std. Dev	Low (n, %)	Medium (n, %)	High (n, %)
Power (Standing Broad Jump, cm)	129	234	184.93	24.83	4 (26.7%)	5 (33.3%)	6 (40.0%)
Push-Up (reps)	17	43	26.80	6.44	2 (13.3%)	3 (20.0%)	10 (66.7%)
Sit-Up (reps)	13	46	22.87	9.01	4 (26.7%)	6 (40.0%)	5 (33.3%)
Back-Up (reps)	40	89	61.53	14.69	2 (13.3%)	6 (40.0%)	7 (46.7%)



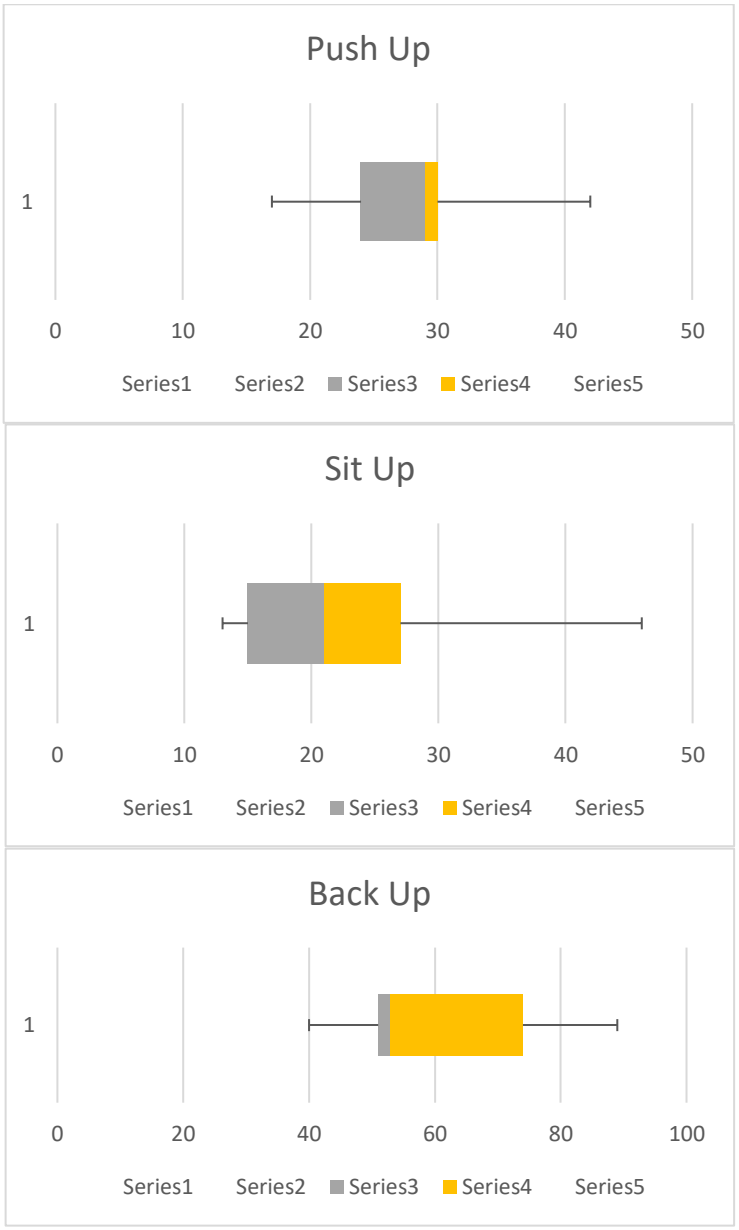


Figure 4. Boxplots of women's data

4. Discussion

Physical tests, particularly biomotor components, have become a parameter for assessing the physical condition of sports students, particularly strength and explosive power (Hasugian & Siregar, 2022). Strength tests, including push-ups, sit-ups, back-ups, and explosive power using the standing long jump, have international standards that have been tested for years(Petrigna dkk., 2020). This is consistent with previous studies that found that physical condition is highly correlated with practical lecture activities at sports

universities(Huang dkk., 2025). Previous research has found that students must be physically fit to participate in physical activities during practical classes, especially in demanding sports courses such as floor gymnastics, volleyball, and martial arts (Giolo-Melo & Pacheco, 2023). Extreme floor gymnastics movements require sufficient physical strength to support the body (Horvat dkk., 2025). Martial arts and basketball require good leg strength for kicking in martial arts and jumping to put the ball through the hoop in basketball (Popovych dkk., 2024). Therefore, biomotor components, especially power and strength, are essential in courses in gymnastics, basketball, and martial arts.

Previous training guidelines for male athletes suggested performance categories for general fitness tests, such as push-up repetitions in one minute, sit-up repetitions in one minute, and standing long jump distance. For example, a push-up count below 35 repetitions was considered below threshold, 36–52 as adequate, 53–69 as good, and above 70 as excellent; similarly, for sit-ups, a count below 37 is considered inadequate to "very good" at above 70; for the standing long jump, a distance below 2.19 m is classified as inadequate, 2.20–2.53 m as acceptable/good, 2.54–2.79 m as good, and above 2.80 m as excellent (Ojeda dkk., 2020). While these benchmarks provide useful reference points, they are derived from sport-specific performance standards, not population-based normative data. Therefore, their direct application to the general student population requires careful interpretation and empirical validation.

It should be noted that this case study was aimed at sports students, so gender-based analysis is essential to identify the fact that physical test results may vary across items. Men tend to perform better on physical tests than women due to various factors such as differences in testosterone levels, body composition, muscle mass, and physical fitness (Toro-Román dkk., 2023). Furthermore, because this test involves various muscles, special preparation is required to achieve optimal results (Xiao dkk., 2021) The higher the score, the better the physical condition. This is directly proportional to the fact that the greater the difference between physical test results (more) and data findings, the greater the chance of acceptance into a sports college(Ali dkk., 2024; Patenteu dkk., 2023). Therefore, in-depth analysis using tests and measurements is essential, along with their evaluation.

Based on the results of comparative data analysis, the average value of push-ups in 1 minute ≥ 30–35 times (male) / ≥ 20–25 times (female) shows that the physical standards in some physical selection of "institutional affiliation/civil service/sports school" often require push-ups 30–40 times/minute for men and ~ 20–30 times/minute for women. Sit-ups in one minute ≥ 30–35 times (male) / ≥ 25–30 times (female), Referring to general fitness standards and as an indicator of abdominal/core muscle endurance; in accordance with the range of results both in the literature and to ensure candidates have adequate core muscle endurance. 1-minute reserve ≥ 60–65 (test units: repetitions / duration / reserve test score), Since the average data for men is 64 and for women is 62, a minimum target of 60–65 ensures that candidates are at least above the internal average, so they are physically strong enough to participate in sports practice activities and advanced training. Standing long jump ≥ 230 cm (men) / ≥ 200 cm (women), then based on the data for men the average is 238 cm, while for women the average is 184 cm — a target of 230 cm (men) ensures that candidates are above the internal average; a target of 200 cm (women) is relatively moderate and realistic so that the proportion of admission is not too small. Given that there are general standards regarding physical tests, it would be good for prospective new students to take the test and get a perfect score (Ojeda dkk., 2020).

This study has limitations, including the small number of 15 female students and the biomotor components tested were only power and strength. The number of female students is very small in sports departments because gender competition in college entrance exams is not considered (Abbas, 2024). While the components used were only power and strength, it would be better if future researchers examine other biomotor components such as endurance, speed, agility, and flexibility to complement this study. The existence of a lower limit studied can be a reference for prospective new students in physical preparation for college entrance exams.

5. Conclusion

From the description above, it can be concluded that, the standard limit of physical tests at Makassar State University on the independent pathway on the 1-minute Push-up item is 30–40 times/minute for men and 20–30 times/minute for women, 1-minute Sit-up in one minute ≥ 30–35 times for men and ≥ 25–30 times for women, 1-minute back-up ≥ 60–65 repetitions for men and women to ensure candidates are at least above the internal average. The standing long jump target is > 230 cm for men and the target is 200 cm for women. The more test results obtained from the existing data, the greater the potential for acceptance.

6. Author Contribution

A Conceptualization and research design: Muhammad Rizky Alfarizi (as the first writer). Methodology and protocol development: Dewangga Yudhistira (as the second writer). Data collection and curation: Andi Muh Rizky Al Mufarid (as the third writer). Formal analysis and statistical calculations: Wildayati (as the 4TH writer). Interpretation of data and results: Sitti Fatimah Azzahra (as the 5th writer)

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