

Original Research Article

Validation of the USFD 20-Meter Sprint Power Test

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Abstract: Addressing the lack of context-responsive and scalable tools for assessing sprint-specific muscular power in Philippine physical education and athletic settings, this study developed and validated the USFD 20-Meter Sprint Power Test (USFD-20MSPT). Designed as a field-based performance test, it measures average muscular power during sprinting while accounting for individual differences in body mass. It aims to provide a practical, scientifically grounded alternative to traditional vertical jump assessments, particularly where equipment or space limitations exist. The test protocol is based on Newtonian mechanics, estimating power output using sprint time and mass. A multi-phase validation process was implemented. Content validity was determined through expert ratings by ten physical educators, resulting in a high Content Validity Index (CVI = 0.90). Convergent validity was demonstrated by a strong correlation with the Vertical Jump Test ($r = 0.789$), affirming that both tools measure the same construct. Discriminant validity was supported by a weak, non-significant correlation with the Ruler Drop Test ($r = -0.243$), indicating that the USFD-20MSPT does not assess unrelated constructs, such as reaction time. Test-retest reliability using rank-transformed data showed excellent stability ($r = 0.980$), indicating consistency across sessions. The USFD-20MSPT stands as a reliable, accessible tool for PE instruction, fitness monitoring, and athlete development. It is recommended for integration into school-based fitness programs and further validation across broader contexts to establish nationwide normative values that support national adoption.

Keywords: Sprint power, psychomotor test validation, measurement and evaluation in physical education, psychometric research, skill test assessment

Introduction

Muscular power, the ability to exert force rapidly, is a critical element of athletic performance, particularly in movements such as sprinting, jumping, and throwing (Fraser *et al.*, 2021). It is calculated as the rate at which work is performed, or the product of force and velocity (Merrigan *et al.*, 2021). For example, a sprinter who accelerates quickly from the starting line demonstrates high muscular power by applying significant force over a short period. In physical education (PE) settings, power is frequently assessed through Vertical Jump Tests (VJT), which focus solely on jump height and omit the time component essential to accurate power measurement (Merrigan *et al.*, 2021). This limitation undermines the test's ability to fully represent muscular power output, as actual power requires kinematic data that includes time, for instance, the duration of ground contact or movement speed during an explosive task (Hetherington-Rauth *et al.*, 2021).

Training protocols and baseline fitness levels have a significant influence on muscular power. Isokinetic and resistance training enhance power among young men (Na'aim *et al.*, 2022), while strength gains are positively associated with performance in power-related tasks, such as the standing long jump (Chae & So, 2020). Longitudinal studies confirm a close relationship between muscular strength and power across the lifespan (Fraser *et al.*, 2021). However, traditional strength training may not be sufficient for adequately developing explosive power. Therefore, researchers recommend incorporating time-sensitive metrics, such as peak force and rate of force development, into training and assessment practices to address this gap (Bergwell *et al.*, 2022). For

instance, applying these metrics through high-speed resistance training or isokinetic testing in schools can more effectively target explosive strength. This is particularly relevant in functional contexts, such as elderly care, where muscular power predicts the ability to perform daily activities independently (Moura *et al.*, 2020). A more comprehensive evaluation of muscular power should thus include temporal measures to improve validity and broaden applicability (Hetherington-Rauth *et al.*, 2021; Moura *et al.*, 2020).

The popularity of VJT in PE highlights a significant limitation in evaluating athletic power among students. Relying solely on jump height accounts for less than half the variance in actual lower limb power output (AlTaweel *et al.*, 2022). Although convenient, vertical jumps fail to accurately reflect the complex muscular coordination and kinetic patterns required in explosive movements, such as sprinting (Donskov *et al.*, 2021). In contrast to these limitations, sprint assessments provide a more precise measure of anaerobic power, which is essential for sports involving rapid acceleration, as they enable direct measurement of key variables such as force, time, and displacement (Pandoyo *et al.*, 2020).

Moreover, diverse training methods, including plyometric exercises and Olympic lifts, improve multiple facets of power beyond what vertical jump performance reveals. These methods engage both neural and muscular systems in a way that mirrors the explosive demands of sprinting (Atalay *et al.*, 2023; Kim *et al.*, 2021; Permana *et al.*, 2022). While vertical jump results may correlate with factors such as bone strength, their dependence on muscle fiber composition and training history limits their generalizability (Alalyani *et al.*, 2020; Yingling *et al.*, 2021). Hence, integrating various power assessments in PE provides a more holistic view of athletic potential (Moura & Okazaki, 2022; Rakholiya & Gadesha, 2020).

In response to the limitations associated with traditional jump-based power assessments, this study proposes sprinting as a theoretically grounded and empirically supported alternative to the VJT. Before introducing this method, it is helpful to understand that Newtonian mechanics provides a framework in which force, mass, and acceleration can be used to derive power, enabling a more profound insight into athletic explosiveness. Sprinting enables the accurate calculation of power using known values of time, distance, and body mass (Farr *et al.*, 2023; Nicholson *et al.*, 2021). Unlike jump tests, sprinting allows the direct application of kinematic equations, enhancing analytical precision (Nicholson *et al.*, 2020). Research supports sprint performance as an indicator of power, particularly when optimized through resisted sprinting and post-activation performance enhancement techniques (Godwin *et al.*, 2023; Rodríguez-Rosell *et al.*, 2020). This innovation is especially beneficial in schools by streamlining assessments, aligning with curricular goals, and increasing student engagement (Barney & Kahaialii, 2020).

Additionally, this approach addresses time constraints in PE classes by offering a single, efficient test that does not compromise validity (Stojanović *et al.*, 2023). Training based on sprint mechanics improves speed and enhances general fitness, reinforcing the method's relevance to PE fitness evaluation frameworks (Edwards *et al.*, 2022; Wang & Zhao, 2023). Consequently, sprint-based assessments contribute to accurate power measurement and promote student motivation, engagement, and the development of lifelong fitness habits (Barney & Kahaialii, 2020; Stojanović *et al.*, 2023).

To ensure the psychometric soundness of the USFD-20MSPT—essential for its use in educational and athletic settings—this study employed two critical forms in construct validity: convergent and discriminant validity. These concepts are crucial in educational test development to verify that the instrument effectively measures its intended construct while remaining distinct from unrelated ones. The study follows the unified framework of modern validity theory (AERA, APA, & NCME, 2014; Reeves & Marbach-Ad, 2016). Convergent validity determines whether two tools designed to measure the exact construct yield similar results. Here, the USFD-20MSPT was correlated with the widely used VJT, utilizing power estimation formulas that incorporate jump height, body mass, and height (Johnson & Bahamonde, 1996; Wood, 2008). A strong positive correlation (typically $r \geq 0.60$ or ≥ 0.70) was observed, affirming that both tests measure muscular power (Lee *et al.*, 2021; Thi *et al.*, 2024).

Discriminant validity, on the other hand, ensures a test does not inadvertently measure unrelated constructs. This was assessed by correlating the USFD-20MSPT with the Ruler Drop Test (RDT), a measure of reaction time. The expected low correlation ($r \leq 0.30$ or ≤ 0.40) confirmed that the USFD-20MSPT specifically measures muscular power, not cognitive response speed (Farrell, 2010; Susmarini *et al.*, 2023).

These validity types are foundational in psychometrics, establishing both internal coherence and conceptual distinction. When theoretically similar constructs show high correlations, convergent validity is demonstrated; when unrelated constructs show low correlations, discriminant validity is confirmed. Supporting evidence may include technical metrics like Average Variance Extracted (AVE)—a measure of the variance captured by a construct relative to error—and the Fornell-Larcker criterion, which confirms discriminant validity by comparing the square root of AVE to inter-construct correlations (Hançer & Tokgöz-Yılmaz, 2024; Lim, 2024). Collectively, these validity forms enhance the theoretical and practical credibility of measurement tools in PE, psychology, and health sciences (Rönkkö & Cho, 2020; Salahuddin *et al.*, 2023).

To evaluate the consistency of the USFD-20MSPT over time, reliability testing was conducted using the test-retest method. This widely accepted approach in psychomotor assessment confirms that a tool yields stable results when repeated under similar conditions (Abe & Olofin, 2024; Alvarez-López *et al.*, 2020). Participants repeated the test after a one-week interval to assess the stability of their scores. Establishing reliability is crucial, as fluctuations may reflect external factors rather than true changes in motor ability (Amorim *et al.*, 2022; Shankman *et al.*, 2020). Emphasizing standardized administration and consistent intervals aligns with best practices in psychomotor research, especially when tests involve both motor execution and cognitive processing (Horoszkiewicz & Horoszkiewicz, 2022; Paquet *et al.*, 2022). By confirming score reproducibility, this reliability analysis supports the USFD-20MSPT's measurement integrity and suitability for PE and skill development programs.

Importantly, the study addresses a critical gap in the Philippine context. Despite the recognized importance of muscular power assessment, no locally validated sprint-based psychomotor test exists. Current practices rely heavily on vertical jumping, overlooking more dynamic alternatives. This study offers a practical, evidence-based, and culturally relevant fitness assessment tool for Philippine physical education programs. The findings have the potential to transform how power is measured in schools by offering a more accurate, engaging, and versatile assessment model that aligns with local educational needs, existing PE standards, national fitness protocols, and global best practices—and may serve as a model for future test development in other areas of fitness assessment.

Methods and Materials

This study employed a psychometric research design to evaluate and validate the USFD-20MSPT. Psychometric design plays a critical role in assessing and establishing the reliability and validity of test instruments, particularly those measuring psychomotor performance. This design supports the development and rigorous evaluation of measurement tools to ensure they yield accurate and meaningful results across varied contexts (Achal *et al.*, 2024; Ripping *et al.*, 2021).

The research process focused on psychometric properties, including content validity, construct validity (convergent and discriminant), and reliability (test-retest). Reliability was examined using repeated measures across time and different raters, while validity was assessed by comparing the new test with both related and unrelated constructs (Amorim *et al.*, 2022; Badenes-Ribera *et al.*, 2020).

The study involved field experts and student participants from a city in Bukidnon, Philippines. The field experts, comprising ten physical education instructors and one physics educator, reviewed and validated the developed test. Specifically, the experts consisted of three Junior High School (JHS) PE teachers, three Senior High School (SHS) PE teachers, and four college-level PE instructors. The inclusion criteria were based on teaching experience and educational attainment to ensure that the test components were appropriate for specific student age groups.

Student participants were selected through purposive sampling to ensure relevance to the study. The sample consisted of 30 students evenly distributed across gender and educational levels: ten JHS students (ages 14–16), ten SHS students (ages 17–18), and ten college students (ages 19–21). All participants were assessed as physically capable of performing sprint tasks. Only college students were considered part of the non-vulnerable group because of their legal age. However, the final group of participants, excluding the outlier from the college students, is 29.

Three instruments were employed to establish validity and reliability. Test 1 was the revised USFD-20MSPT, developed in response to feedback from physical educators. It measured sprint time, which was converted into a power score. Test 2 was the VJT, widely accepted as a measure of lower-body power. Participants used chalk to mark their highest vertical reach, and the best of two attempts was recorded. Test 3 was the RDT, which assessed reaction time. Participants attempted to catch a ruler dropped by an assistant, and the distance it fell before being caught was measured over two trials.

The USFD-20MSPT serves as a diagnostic tool to estimate average total body power during sprint performance. Designed to emphasize acceleration and lower-body power, this test accounts for individual body mass and evaluates the force generated in a short sprint burst. The protocol begins with a skill rehearsal phase in which the participant practices the sprint start: kneeling on one knee at the “ready” command, assuming the sprinting posture at “set,” and sprinting at full effort upon hearing “go.” The test is conducted on a level surface with a marked 20-meter lane, requiring a stopwatch, weighing scale, and a digital HTML calculator.

Before the test, participants' body weight is measured. Each participant performs two trials, with time recorded by two timekeepers at the finish line; the final time is the average of both readings. Performance indicators include rapid acceleration, upright posture, synchronized arm and leg movement, and ground force generation with minimal airborne time. Scoring

involves calculating the participant's velocity, acceleration, force, work, and average power using physics-based formulas. These steps enable a quantifiable estimation of sprint power based on motion mechanics and the effort exerted.

For the tests of convergence and discrimination, the VJT evaluated lower-body explosive power. Participants stood next to a wall, marked their standing reach with chalk, then jumped as high as possible and marked their highest reach. The difference between the standing and jumping reaches was recorded, with the best of two trials used for analysis. The VJT measured reaction time. An assistant held a ruler vertically between the participant's thumb and forefinger, with the participant prepared to catch it. Without warning, the ruler was released, and the participant tried to catch it as quickly as possible. The distance the ruler fell before being caught was recorded, and the average of two trials was used.

Field experts evaluated the USFD-20MSPT using a standardized rubric covering aspects such as equipment, setup, safety, scoring, and administration. Content validity was calculated using Lawshe's Content Validity Ratio (CVR) and the Content Validity Index (CVI).

Scoring and interpretation addressed five core areas: content validity, convergent validity, discriminant validity, inter-rater reliability, and test-retest reliability. Content validity was assessed using Lawshe's CVR, where a value of 0.800 or higher indicated acceptability, particularly for panels of 10 experts (Ayre & Scally, 2014; Yusoff, 2019; Fernández-Gómez *et al.*, 2020). Convergent validity was evaluated by correlating the USFD-20MSPT with the VJT. A correlation coefficient of 0.50 or above was considered acceptable (Abma *et al.*, 2016; Cheah *et al.*, 2018; Maciel & Vargas, 2020). Discriminant validity was determined through the correlation of the USFD-20MSPT with the VJT, where a coefficient of 0.50 or below confirmed validity (Nikolopoulou, 2022).

Reliability analysis included both inter-rater and test-retest methods. Inter-rater reliability measured the consistency of scores among different raters, while test-retest reliability examined the consistency of results from two testing sessions conducted one week apart. The Intraclass Correlation Coefficient (ICC) was used to interpret the results. ICC values of 0.90 and above indicated excellent reliability, 0.80–0.89 indicated good reliability, 0.70–0.79 indicated adequate reliability, and values below 0.70 were considered to have limited applicability (Price *et al.*, 2018; Saad *et al.*, 1999).

The researcher obtained ethical clearance from the institution's Research Ethics Committee and secured approvals from school administrators. Qualitative feedback from three PE teachers and one physics teacher guided initial revisions to the test. The updated version was sent to ten PE instructors for formal validation.

Formal requests, either printed or emailed, were issued to department heads and school leaders. Following approvals, limited face-to-face orientations were held to explain procedures and ensure transparency. Participants completed the Physical Activity Readiness Questionnaire (PARQ) and a health appraisal to confirm their fitness for participation.

Pilot testing was conducted in two rounds, separated by a one-week interval. PE major student assistants helped ensure accurate recording of scores. Assent and parental consent forms were collected from the student participants, while informed consent was obtained from the field experts. All participants were briefed about the study's purpose, procedures, and their rights.

Confidentiality was maintained in accordance with the Data Privacy Act of 2012. Participant identities were coded, and no identifying information was disclosed. Participation was entirely voluntary and free from coercion or incentives.

Descriptive statistics were used to summarize the data. Content validity was evaluated using CVR and CVI based on Lawshe's method. Convergent and discriminant validity were examined using correlation coefficients. The USFD-20MSPT was correlated with the VJT to assess convergent validity and with the RDT to assess discriminant validity. Reliability was assessed using ICC to evaluate consistency in test-retest scenarios. Results were interpreted based on ICC thresholds ranging from limited to excellent. These analyses provided robust evidence for the USFD-20MSPT's psychometric properties, confirming its validity and reliability across educational levels and settings.

Results

The results of this study are presented in the following order: content validity, convergent validity, discriminant validity, and stability reliability. Table 1 summarizes the ratings given by ten physical educators for various aspects of the USFD-20MSPT, including purpose, equipment, setup and dimensions, skill rehearsal, test administration, and scoring (*see p. 86*). The table shows whether each expert rated the aspect as 'essential' or not and provides information on the ratings' CVR and CVI. A brief explanation of CVR and CVI may help readers understand the numerical basis for item relevance.

Table 1 (Summary of the Physical Educators' Ratings on the USFD-20MSPT Aspects) indicates that physical educators found the items relevant. The CVI of the overall aspects of the USFD-20MSPT, as rated by physical educators, is 0.90, indicating that the test is a valid measure. This means that the elements of the test evaluated were relevant and appropriate for measuring the construct of sprint power. On the other hand, the CVR of all aspects of the test is above the recommended minimum value of 0.78, indicating that the expert ratings are valid.

Moreover, in preparing the data for statistical analysis, the researcher conducted a pairwise Shapiro-Wilk bivariate normality test to assess whether the data met the assumption of normal distribution required for correlation analysis. This test was applied to the paired variables to ensure that the relationships being analyzed reflected true linear associations rather than being skewed by non-normal data. Among the 30 original participants, one participant—identified as an outlier—was deliberately removed from the dataset. This participant, from the college-level group, exhibited time and power values that significantly deviated from the normal range, potentially distorting the validity of the correlation results. After this exclusion, the final sample size used for the validity testing consisted of 29 participants, thereby ensuring a more accurate and reliable analysis.

The results of the Pearson's correlation analysis in Table 2 (Pearson's Correlation Between Average Sprint Power and Vertical Jump Power) revealed a strong and statistically significant positive relationship between the USFD-20MSPT and the VJT using the Johnson & Bahamonde (1996) formula, $r(29) = 0.789$ (see p. 86). This indicates that participants who performed well in the USFD-20MSPT also tended to produce higher power estimates in the VJT. The strength of this correlation supports the convergent validity of the USFD-20MSPT, suggesting that it effectively measures the same construct—muscular power—as the established vertical jump method.

For the discriminant validity analysis, the correlation between the USFD-20MSPT and the VJT in Table 3 revealed a weak and statistically non-significant negative relationship, $r(29) = -0.243$ (see p. 86). This low correlation suggests that the two tests measure distinct constructs, with the VJT assessing reaction time and the USFD-20MSPT evaluating muscular power. The absence of a significant association supports the discriminant validity of the USFD-20MSPT, indicating that it does not overlap with unrelated abilities such as reaction speed. This distinction confirms that the USFD-20MSPT measures a distinct aspect of physical performance, thereby strengthening its psychometric soundness as a specialized tool for assessing sprint-specific power.

To further evaluate the test's consistency and address the violation of normality assumptions based on the Shapiro-Wilk test, the USFD-20MSPT data were transformed into ranks before conducting the test-retest reliability analysis. This rank-based transformation allowed for a more robust evaluation by minimizing the influence of outliers and skewed distributions, which are common in physical performance data. As a result, the analysis focused on the consistency of participant rankings across test sessions, ensuring a reliable assessment of stability over time.

The test-retest reliability analysis of the USFD-20MSPT using rank-transformed data in Table 4 revealed a very strong and statistically significant positive correlation between the test and retest scores, $r(29) = 0.980$ (see p. 86). This result indicates an exceptionally high level of consistency in participants' relative rankings across two testing occasions, demonstrating that the USFD-20MSPT yields stable and reliable outcomes over time when used in similar contexts.

Overall, the findings confirm that the USFD-20MSPT exhibits strong content, convergent, and discriminant validity, as well as excellent test-retest reliability. These results support the test's psychometric robustness and its suitability for assessing sprint-specific power in various physical performance contexts, including athletic training, educational assessments, and performance diagnostics.

Discussion

The USFD-20MSPT demonstrated strong content, convergent, and discriminant validity. It also exhibited high test-retest reliability, making it a robust tool for measuring sprint-specific power. The content validation yielded strong results, indicating that physical education experts found the test's components highly relevant, clear, and appropriate for measuring sprint power. The CVR values were generally above the recommended threshold of .78, supporting the test's overall validity. Most components exceeded this benchmark; however, the CVR for the setup and dimensions component was .60, suggesting that this aspect may require further refinement to enhance its content validity. This score raises concerns about the clarity or appropriateness of the test's physical setup, which may impact its effectiveness in accurately measuring the intended construct. As emphasized by Zamanzadeh *et al.* (2015), expert feedback and item impact scores are valuable in assessing face validity,

while Polit *et al.* (2007) note that expert panel input is essential in ensuring the representativeness and clarity of measurement instruments.

The USFD-20MSPT's convergent validity was supported by a strong and statistically significant correlation with the VJT, $r(29) = 0.789$. This indicates that both assessments effectively measure muscular power, affirming that the USFD-20MSPT captures the same physiological construct as the established VJT. According to Alalyani *et al.* (2020), Campbell *et al.* (2021), and Santos *et al.* (2022), vertical jumping and sprinting exhibit similar neuromuscular and biomechanical characteristics, including peak power output and muscle activation patterns.

Beyond statistical significance, this finding has significant implications for the practice of physical education and sports science. The USFD-20MSPT provides a viable and accessible alternative to jump-based assessments, particularly in environments where equipment or space for vertical jumps is limited (Chaabène *et al.*, 2021; García-Baños *et al.*, 2020; Zhao *et al.*, 2022). Its utility is heightened in school and field-based settings, making muscular power testing more inclusive. Furthermore, training approaches such as plyometrics have been shown to improve both sprint and jump performance, underscoring the physiological interconnectedness of these movements. The high correlation between USFD-20MSPT and VJT not only supports the validity of USFD-20MSPT but also highlights its practicality as both an evaluative and pedagogical tool in athletic and educational contexts.

The weak and statistically non-significant negative correlation between the USFD-20MSPT and the RDT ($r(29) = -0.243$) reinforces the discriminant validity of the USFD-20MSPT. This finding confirms that the USFD-20MSPT measures a construct different from that assessed by the RDT—specifically, muscular power rather than reaction time. In psychometric evaluation, discriminant validity ensures that an instrument does not inadvertently measure unrelated traits (Ceylan *et al.*, 2022; Cortina *et al.*, 2020; Lempke *et al.*, 2020). This result aligns with research showing little to no correlation between reaction time assessments and physical power outputs. The RDT targets cognitive processing speed, while the USFD-20MSPT involves neuromuscular strength and anaerobic capacity—distinct performance domains (Boutios *et al.*, 2021; Szabo *et al.*, 2021). The literature supports the specificity of the SPT, which does not depend on reflexes or sensory processing but focuses on explosive muscular output, making it especially suited for contexts prioritizing sprint performance (Haugen *et al.*, 2021; Luu *et al.*, 2021; Piredda *et al.*, 2021; Warneke *et al.*, 2025). The non-significant correlation further validates that the USFD-20MSPT is unaffected by cognitive factors, strengthening its psychometric soundness and practical relevance.

The USFD-20MSPT also demonstrated exceptionally high test-retest reliability using rank-transformed data, with a statistically significant correlation indicating outstanding temporal stability in participants' relative rankings across two testing sessions. This level of reliability confirms that the USFD-20MSPT consistently measures sprint-specific power over time and can be confidently used for longitudinal assessments in athletic and educational contexts. Such consistency is critical for coaches and practitioners who monitor performance changes and evaluate training interventions. Longitudinal reliability, particularly when using standardized protocols, enhances the credibility of physical performance assessments (Asimakidis *et al.*, 2024; Loturco *et al.*, 2022). The SPT's consistent rankings align with findings that power-based assessments, such as knee flexion or resisted sprints, predict performance outcomes (Nagahara & Murata, 2020; Thompson *et al.*, 2020). Moreover, the use of rank-based transformation due to non-normality in the dataset reinforced the psychometric rigor of the test. This method minimized the influence of outliers and skewed distributions, enhancing the interpretability of reliability estimates. Non-parametric methods, such as rank transformations, are effective in improving score stability and comparability across heterogeneous populations (Bulgarelli *et al.*, 2025; Chakrabarty, 2020; Grazziotin *et al.*, 2023). Ultimately, the stability of the USFD-20MSPT, supported by robust data handling, validates its use as a repeatable and meaningful tool for assessing muscular power output with broad implications for athlete development, educational assessment, and research.

Taken together, these findings underscore the educational and practical value of the USFD-20MSPT. For educators, the validated USFD-20MSPT offers a reliable and field-friendly tool for assessing muscular power among students, even in low-resource environments. Its proven content, convergent, and discriminant validity—as well as high test-retest reliability—suggest that physical education programs can adopt the USFD-20MSPT to objectively evaluate and monitor students' athletic development over time. This enables data-driven instruction, targeted skill development, and personalized training interventions. For practitioners and coaches, the USFD-20MSPT provides a practical alternative to laboratory-based or equipment-intensive tests, supporting effective athlete profiling, progress tracking, and evidence-based training adjustments. Its use in schools, training facilities, and research programs can foster a culture of performance monitoring, empowering learners and athletes through measurable, repeatable feedback.

Conclusion

The USFD-20MSPT offers a validated, reliable, and accessible tool for assessing sprint-specific muscular power in educational and athletic contexts. With strong psychometric properties—content, convergent, and discriminant validity, as well as excellent test-retest reliability—it stands as a viable alternative to traditional jump-based assessments. Unlike vertical jumps, the USFD-20MSPT captures horizontal power and accounts for body mass, enhancing fairness and precision. Its basis in Newtonian mechanics and minimal equipment needs make it ideal for schools and field settings, especially where resources are limited. The test fills a key gap in Philippine PE practices while contributing to global fitness evaluation research.

For recommendations, this study first encourages PE teachers to adopt the USFD-20MSPT as a simple, field-friendly measure of lower-body power. Its ease of use and strong validity make it an effective alternative when vertical jump tests are not feasible due to space or equipment limitations. Using sprint-based measures also provides biomechanical relevance to real-world movement demands. Second, schools and curriculum developers may consider incorporating the USFD-20MSPT into fitness testing standards. Its practicality and scientific soundness make it suitable for both classroom evaluations and athlete development. It can be used to track progress, guide instruction, and generate data for personalized training. Third, large-scale implementation of the USFD-20MSPT is recommended to confirm its applicability across different settings, including various age groups, regions, and performance levels. Establishing nationwide normative values will support its adoption as a standard fitness assessment tool and facilitate policy integration into national PE programs. Finally, researchers may replicate this study's validation process to develop other localized tools. The use of expert input, correlation analyses, and test-retest methods offers a model for psychomotor test validation. This approach encourages the development of evidence-based, inclusive assessment tools tailored to diverse environments.

Conflict of Interest: *The researcher and one of the editors of the USFD Journal are co-developers and co-owners of the USFD 20-Meter Sprint Power Test used in this study. This shared intellectual property is hereby disclosed as a potential conflict of interest. However, the acceptance and editorial decision regarding this article were made through a blind peer review process and handled by an editor who had no involvement in the development of the test or the research process. The editorial management was independent to ensure objectivity, integrity, and adherence to ethical publication standards.*

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Ethical Approval: *The study was reviewed and approved by the Research Ethics Committee of Lourdes College, Inc., in accordance with the ethical standards. Informed consent was obtained from student participants, ensuring full ethical compliance.*

AI Declaration: *This study utilized artificial intelligence tools to assist in preparing this article. Specifically, ChatGPT was used to convert the full thesis manuscript into a reduced journal article format with human supervision and editing, ensuring academic rigor and integrity. Additionally, Grammarly AI was used to enhance the language quality, clarity, and tone of the final manuscript. The author carefully reviewed and edited all outputs to maintain scholarly standards.*

Data Availability Statement: *The datasets generated and analyzed during the current study are available from the corresponding author upon reasonable request. Requests for access will be evaluated in accordance with ethical guidelines and data privacy policies.*

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Table 1*Summary of the Physical Educators' Ratings on the Sprint Power Test Aspects*

Physical educator	Aspects of the Sprint Power Test					
	Purpose	Equipment	Setup and Dimensions	Skill Rehearsal	Test Administration	Scoring
1	✓	✓	✓	✓	✓	✓
2	✓	✓	✓	✓	✓	✓
3	✓	✓	✓	✓	✓	✓
4	✓	✓	✓	✓	✓	✓
5	✓	✓	✓	✓	✓	✓
6	✓	✓	✓	✓	✓	✓
7	✓	✓	✓	✓	✓	✓
8	✓	✓	✓	✓	✓	✓
9	✓	✓	✓	✓	✓	✓
10	✓	✓	✓	✓	✓	✓
CVR	1.00	1.00	.60	.80	.80	1.00
CVI				.90		
Description				valid		

✓ – The Physical Educator rated the item relevant

For 10 validators, a minimum of .78 is considered valid (Yusoff, 2019).

Table 2*Pearson's Correlation Between Average Sprint Power and Vertical Jump Power*

Variable Pair	n	r	Description
Sprint Power Test × Vertical Jump Test	29	0.789	Acceptable Convergent Validity

*Note. Vertical Jump Power was calculated using the Johnson & Bahamonde (1996) formula.***Table 3***Pearson's Correlation Between Average Sprint Power and Vertical Jump Power*

Variable Pair	n	r	Description
Sprint Power Test × Ruler Drop Test	29	-0.204	Acceptable Discriminant Validity

Table 4*Pearson's Correlation Between the Test and Retest of the Average Sprint Power*

Variable Pair	n	r	Description
Sprint Power Test × Ruler Drop Test	29	0.98	Excellent Stability Reliability