Online at: https://researchtrendsjournal.com
Indexed Journal

ISSN No: 2584-282X
Peer Reviewed Journal

INTERNATIONAL JOURNAL OF TRENDS IN EMERGING RESEARCH AND DEVELOPMENT

Volume 4; Issue 2; 2026; Page No. 124-129

Received: 10-01-2026
Accepted: 14-02-2026
Published: 09-03-2026

Talent Identification in Cricket: A Review of Physical, Physiological, and Psychological Determinants of Playing Ability in College-Level Male and Female Cricketers

[1]Harsh Singh and [2]Dr. Pradeep Kumar

[1]Research Scholar, Department of Physical Education, Monad University, Hapur, Uttar Pradesh, India
[2]Assistant Professor, Department of Physical Education, Monad University, Hapur, Uttar Pradesh, India

DOI: https://doi.org/10.5281/zenodo.21961692

Corresponding Author: Harsh Singh

Abstract

Cricket has seen a significant shift from being a game focused on technique and patience to one that thrives on high energy and power. This evolution has ramped up the physical, physiological, and psychological demands on players compared to earlier times. While cricket enjoys immense popularity, especially in India, it hasn't received as much scientific scrutiny as other major team sports. Most of the research that does exist tends to focus on male, international, or professional players, leaving college-level cricketers—particularly women—largely overlooked. This review brings together findings from a study that looked at 200 college cricketers (100 men and 100 women, aged 19–22) from an Intercollegiate Tournament at an Indian university. The study explored how fifteen different factors across physical, physiological, and psychological areas relate to Playing Ability, which was assessed using the Expert Rating Method. Through Pearson correlation and forward-selection multiple regression, the research revealed that for male cricketers, Explosive Power, Shoulder Strength, VO_2 Max, Achievement Motivation, State Anxiety, and Self-Concept were significant predictors of Playing Ability, explaining 44.1% of the variance. For female cricketers, the predictors included Self-Concept, Speed, State Anxiety, Explosive Power, Grip Strength, Aggression, Peak Flow Rate, and Flexibility, accounting for 53.0% of the variance. Notably, Explosive Power, Self-Concept, and State Anxiety were significant predictors for both genders. This review places these findings within the context of existing sports science literature, emphasizes the unique aspects of cricketing talent across genders, and suggests implications for identifying talent, designing training programs, and guiding future research.

Keywords: Cricket, talent identification, playing ability, physical fitness, psychological variables, college-level cricketers, gender differences, multiple regression

Introduction

Cricket, a bat-and-ball game played between two teams of eleven players, has its roots in sixteenth-century England. Over the years, it has blossomed into one of the most popular sports globally, with matches taking place in more than 105 countries. The game features various formats, from the traditional five-day Test matches to the fast-paced Twenty 20 contests. The advent of limited-overs cricket has significantly changed the game's physical demands, transforming it from a sport where fitness was somewhat secondary to one that now emphasizes explosive power, speed, and endurance-this transformation is often referred to as the rise of "power cricket."

In India, cricket holds a special place in the culture. It was introduced during the colonial era and later organized under the Board of Control for Cricket in India (BCCI). The sport has become a powerful social and economic force, bridging gaps across regional, linguistic, and religious divides. However, despite its immense popularity and the increasingly rigorous modern schedule-especially when compared to the mere thirty-five playing days a season that defined cricket as recently as 1970-the scientific exploration

of the physical and mental traits that contribute to success in the game has not kept pace with other major sports. Much of the existing research tends to focus on elite male players, leaving a significant void in our understanding at the college and developmental levels, and an even larger gap regarding female cricketers. Their participation has surged in recent decades, yet the scientific documentation of their experiences remains surprisingly limited.

This gap has some real-world implications. Talent identification - the art of spotting individuals who have the potential to shine in a sport based on measurable traits - has become a key element in today's athlete development systems. It plays a crucial role in selection, training design, and shaping long-term athlete pathways. However, without solid, context-specific data on the traits that genuinely predict playing ability in the groups coaches are working with, talent identification can end up leaning more on personal impressions than on hard evidence. This issue is especially pronounced in the Indian collegiate system, where structured, science-backed identification methods are still lagging behind those used in professional or international cricket.

The study we're looking at here was specifically designed to tackle this issue. It focused on 200 college-level cricketers (100 men and 100 women), aged 19 to 22, who participated in an Intercollegiate Tournament at an Indian university. The researchers selected fifteen independent variables across three categories - five physical (speed, explosive power, grip strength, shoulder strength, flexibility), five physiological (resting pulse rate, peak flow rate, breath-holding time, VO_2 max, respiratory rate), and five psychological (state anxiety, achievement motivation, aggression, self-concept, stress) - and explored how these factors related to Playing Ability, which was assessed using the Expert Rating Method. The analysis was conducted separately for men and women, employing Pearson correlation and forward-selection multiple regression techniques.

Review of Related Literature

Psychological Traits and Mental Toughness

A wealth of research has shown that mental toughness is a complex and behaviorally rooted concept that plays a crucial role in achieving success in cricket. Studies looking into how coaches view elite cricketers reveal that players who are less affected by rewards but highly sensitive to punishment are often seen as having the strongest mental toughness. This is likely because they can quickly pick up on threatening or high-pressure signals during a match and are better equipped to maintain their focus on goals even when under stress. This trend has been noted across various age groups and levels of competition, from local youth cricket all the way to international play, strongly supporting the idea that psychological factors-like anxiety, motivation, and self-perception-should be included in any thorough model of playing ability.

Coping, Anxiety, and Emotional Regulation

Research on coping strategies and anxiety management among cricketers highlights that the skill to handle performance-related stress sets top players apart. How players regulate their emotions-like their reactions to opponents' antics, such as sledging-plays a significant role in determining competitive results. This emphasizes the importance of these factors in any model aimed at predicting cricket performance.

Self-Efficacy, Social Support, and Developmental Environment

Research into self-efficacy has shown a solid link with informational social support - the guidance, feedback, and encouragement that young players get from their coaches, mentors, and teammates. This research shifts our understanding of psychological development in cricket from being just an individual trait to something influenced by the wider developmental environment. A well-known conceptual model of cricketing expertise, derived from interviews with expert batsmen, coaches, and administrators, suggests that a nurturing socio-developmental environment - marked by strong support systems, ongoing investment in creative and challenging play, and even a bit of sibling rivalry - helps cultivate qualities like mental toughness, self-belief, and resilience, all while technical skills and visual-perceptual abilities are also being developed. Additionally, intrinsic motivators such as enjoyment and a true passion for the game are highlighted as crucial factors for ongoing development, even as modern limitations on unstructured play pose a growing challenge to this developmental journey.

Role-Specific Psychological Profiles

Research into self-efficacy has revealed a strong connection with informational social support - the guidance, feedback, and encouragement that young players receive from their coaches, mentors, and teammates. This insight changes our perspective on psychological development in cricket, showing that it's not just an individual trait but something shaped by the broader developmental environment. A well-known model of cricketing expertise, based on interviews with expert batsmen, coaches, and administrators, indicates that a supportive socio-developmental environment - characterized by robust support systems, continuous investment in creative and challenging play, and even a touch of sibling rivalry - fosters qualities like mental toughness, self-belief, and resilience, all while honing technical skills and visual-perceptual abilities. Moreover, intrinsic motivators such as enjoyment and a genuine passion for the game are emphasized as vital for ongoing development, even as modern constraints on unstructured play present increasing challenges to this developmental path.

Cognitive Function and Fatigue

Another fascinating area of research delves into the relationship between cognitive performance and fatigue during batting. It examines how the continuous physical and mental challenges of an innings can influence decision-making and the execution of skills. This is especially important for understanding why indicators of physiological endurance might be key to assessing a player's performance on the field.

Anthropometric Profile and Playing Ability

Research into body measurements, especially among cricket

players in South Asia, has revealed that body composition-particularly waist circumference-can have a detrimental effect on performance, no matter the overall body weight. This underscores the importance of focusing on body composition in fitness programs. Additionally, it provides a valuable regional perspective for our current study involving Indian college students, rather than solely relying on data from Western or Australian sources.

Bowling Mechanics, Throwing, and Speed/Agility

Studies on bowling mechanics, ball-release speed, throwing speed, and accuracy, along with general speed-and-agility testing, show that lower-body power, technical skills, and reactive agility are all important, measurable traits that can be trained and are closely tied to performance in cricket. These insights play a crucial role in determining which variables, like speed and explosive power, should be considered in talent-identification research

Power, Plyometrics, and Combined Training

Research into bowling mechanics, ball-release speed, throwing speed, and accuracy, as well as general speed-and-agility testing, highlights that lower-body power, technical skills, and reactive agility are key traits that can be developed and are closely linked to performance in cricket. These findings are essential for identifying which factors, such as speed and explosive power, should be prioritized in talent-identification studies.

Research on musculoskeletal health - including stabilization training and its effect on the multifidus muscle among young cricketers with low back pain - highlights that physical preparation in cricket must also account for injury risk, particularly given the repetitive, asymmetric loading patterns inherent in bowling and batting actions.

Batting Performance Measurement

At last, there's a deeper dive into how we actually measure batting performance. For instance, when we adjust strike rates to reflect the context of a match, it reminds us that cricket performance metrics aren't just cold, hard numbers devoid of context. This insight is crucial when we look at expert-rated Playing Ability scores, especially when considering the noticeable difference in average ratings between male and female players in this study.

Research Methodology

The study utilized a descriptive, correlational research design that involved 200 college cricketers-100 men and 100 women, all aged between 19 and 22. These participants were randomly selected from those competing in an Intercollegiate Tournament at an Indian university. To be included, participants had to be enrolled students actively playing intercollegiate cricket, free from any injuries or medical issues that could affect testing, and willing to give their informed consent.

Fifteen independent variables were measured using standardized tools: five physical variables (speed measured by a 40-meter sprint, explosive power assessed through a vertical jump, grip strength, shoulder strength, and flexibility evaluated via the sit-and-reach test), five physiological variables (resting pulse rate, peak flow rate, breath-holding time, VO_2 max, and respiratory rate), and five psychological variables measured through validated questionnaires (state anxiety, achievement motivation using the Sports Achievement Motivation Test, aggression, self-concept, and stress). The dependent variable, Playing Ability, was evaluated using the Expert Rating Method, where qualified coaches and selectors who were familiar with each participant's performance in the tournament provided standardized numerical ratings of their overall cricketing skills.

Before data collection, we ensured instrument reliability, tester competency, and test-retest reliability of scores were established. Additionally, the validity and internal-consistency reliability of the psychological instruments were confirmed against their original validation studies. Data analysis was conducted separately for male and female participants using Pearson product-moment correlation to explore the bivariate relationships between each independent variable and Playing Ability. This was followed by forward-selection multiple regression analysis to pinpoint the combination of variables that best predicted Playing Ability within each gender group, all at a significance level of 0.05.

Results

Table 1: Descriptive Statistics — Male Cricket Players (n = 100)

Domain	Variable	Mean	SD	Min	Max
Physical	Speed (sec)	5.56	0.32	4.68	6.25
Physical	Explosive Power (cm)	52.15	6.20	39.53	69.68
Physical	Grip Strength (kg)	42.37	6.14	28.00	58.00
Physical	Shoulder Strength (count)	14.48	3.98	4.44	23.85
Physical	Flexibility (cm)	27.69	5.85	15.34	44.93
Physiological	Resting Pulse Rate (bpm)	65.25	6.00	50.00	80.76
Physiological	Peak Flow Rate (L/min)	481.65	57.83	350.00	620.00
Physiological	Breath-Holding Time (sec)	54.93	11.70	30.02	86.59
Physiological	VO_2 Max (ml/kg/min)	47.37	5.62	36.91	61.16
Physiological	Respiratory Rate (breaths/min)	16.07	2.42	10.00	21.41
Psychological	State Anxiety	46.64	9.40	20.00	66.42
Psychological	Achievement Motivation	52.96	9.98	25.93	73.96
Psychological	Aggression	48.46	10.01	26.47	73.80
Psychological	Self-Concept	54.69	8.77	31.68	74.42
Psychological	Stress	49.64	10.04	27.34	73.02
Performance	Playing Ability	61.19	10.07	38.00	86.10

Table 2: Descriptive Statistics - Female Cricket Players (n = 100)

Domain	Variable	Mean	SD	Min	Max
Physical	Speed (sec)	6.36	0.42	5.23	7.22
Physical	Explosive Power (cm)	38.90	5.22	26.33	55.00
Physical	Grip Strength (kg)	28.33	4.72	16.00	38.85
Physical	Shoulder Strength (count)	6.85	2.76	0.54	12.70
Physical	Flexibility (cm)	32.46	5.73	15.83	48.00
Physiological	Resting Pulse Rate (bpm)	71.26	6.66	55.00	91.32
Physiological	Peak Flow Rate (L/min)	359.25	43.86	260.00	468.57
Physiological	Breath-Holding Time (sec)	42.01	9.84	18.00	63.00
Physiological	VO_2 Max (ml/kg/min)	37.90	5.16	26.16	52.00
Physiological	Respiratory Rate (breaths/min)	17.22	2.27	12.20	22.91
Psychological	State Anxiety	45.44	10.88	20.00	74.85
Psychological	Achievement Motivation	52.21	8.10	32.15	68.28
Psychological	Aggression	48.55	9.33	22.70	68.12
Psychological	Self-Concept	54.48	9.91	30.27	80.00
Psychological	Stress	47.45	9.64	20.00	71.12
Performance	Playing Ability	38.81	9.90	11.00	63.30

Table 3: Physical Variables vs. Playing Ability

Physical Variable	Male r	Male Sig.	Female r	Female Sig.
Speed (sec)	−0.126 (p = 0.210)	Not Significant	−0.310 (p = 0.002)	Significant
Explosive Power (cm)	0.446 (p = 0.001)	Significant	0.258 (p = 0.009)	Significant
Grip Strength (kg)	0.081 (p = 0.421)	Not Significant	0.273 (p = 0.006)	Significant
Shoulder Strength (count)	0.244 (p = 0.014)	Significant	0.008 (p = 0.940)	Not Significant
Flexibility (cm)	0.146 (p = 0.148)	Not Significant	0.236 (p = 0.018)	Significant

Table 4: Physiological Variables vs. Playing Ability

Physiological Variable	Male r	Male Sig.	Female r	Female Sig.
Resting Pulse Rate (bpm)	−0.237 (p = 0.017)	Significant	0.018 (p = 0.860)	Not Significant
Peak Flow Rate (L/min)	−0.031 (p = 0.756)	Not Significant	0.149 (p = 0.139)	Not Significant
Breath-Holding Time (sec)	0.028 (p = 0.781)	Not Significant	0.110 (p = 0.278)	Not Significant
VO_2 Max (ml/kg/min)	0.223 (p = 0.026)	Significant	0.103 (p = 0.309)	Not Significant
Respiratory Rate (breaths/min)	−0.037 (p = 0.717)	Not Significant	−0.154 (p = 0.126)	Not Significant

Physical Variables

When it comes to male cricketers, there are some interesting findings regarding physical attributes. Explosive Power (r = 0.446, $p<0.001$) and Shoulder Strength (r = 0.244, p = 0.014) both showed a significant positive correlation with Playing Ability, while Speed, Grip Strength, and Flexibility didn't make the cut. On the female side, four out of five physical variables were noteworthy: Speed (r = −0.310, p = 0.002), Explosive Power (r = 0.258, p = 0.009), Grip Strength (r = 0.273, p = 0.006), and Flexibility (r = 0.236, p = 0.018) all had significant correlations, but Shoulder Strength didn't quite measure up (r = 0.008, p = 0.940). Notably, Explosive Power stood out as the only physical variable that significantly correlated with Playing Ability in both male and female cricketers.

Physiological Variables

Moving on to the physiological side of things, male cricketers showed significant correlations with Resting Pulse Rate (r = −0.237, p = 0.017) and VO_2 Max (r = 0.223, p = 0.026) in relation to Playing Ability, while Peak Flow Rate, Breath-Holding Time, and Respiratory Rate didn't show any significant links. For female cricketers, none of the five physiological variables reached statistical significance at the bivariate level, although Peak Flow Rate did later prove to be a significant factor in the multivariate regression model.

Psychological Variables

In the study, two psychological factors showed a strong correlation with Playing Ability in male cricketers. Interestingly, among female cricketers, four out of the five psychological variables were significant, suggesting that these women had a more extensive psychological influence on their performance in this sample.

Combined Predictive Models

In a forward-selection multiple regression analysis, researchers pinpointed six key factors that significantly influence Playing Ability among male cricketers. These factors include Explosive Power, Shoulder Strength, VO_2 Max, Achievement Motivation, State Anxiety, and Self-Concept, which together account for 44.1% of the variance ($R = 0.664$, $R^2 = 0.441$, Adjusted $R^2 = 0.405$, $F = 12.235$, $p<0.001$; RMSE = 7.493, MAE = 6.254). Among these, Explosive Power (B = 0.662) and Shoulder Strength (B = 0.809) stood out as the strongest positive contributors, followed by VO_2 Max (B = 0.466), Achievement Motivation (B = 0.231), and Self-Concept (B = 0.209). On the flip side, State Anxiety had a notable negative impact (B = −0.208).

For female cricketers, the analysis revealed eight significant predictors: Self-Concept, Speed, State Anxiety, Explosive Power, Grip Strength, Aggression, Peak Flow Rate, and Flexibility. Together, these factors explained a robust 53.0% of the variance ($R = 0.728$, $R^2 = 0.530$, $F = 12.838$, $p<0.001$;

RMSE = 6.751, MAE = 5.399), showcasing a stronger and more balanced model compared to the male counterparts. Notably, Explosive Power, Self-Concept, and State Anxiety emerged as significant predictors in both models, highlighting their importance across genders in determining cricketing playing ability.

Discussion

The findings paint a clear picture of Playing Ability as a truly multifaceted concept, influenced by the interplay of physical skills, physiological conditioning, and mental readiness. However, the specific makeup of these factors varies significantly between male and female cricketers.

For male cricketers, the predictive model heavily emphasized physical and physiological traits like explosive power, shoulder strength, and aerobic capacity. This aligns with the "power cricket" framework found in the literature, where lower-body power and upper-body strength are crucial for explosive batting and fast bowling. It also supports existing sports science research that connects plyometric and strength training to better cricket-specific results, such as increased bowling speed and shot power.

In contrast, the landscape for female cricketers is much broader. A wider range of physical factors-like speed, explosive power, grip strength, and flexibility-combined with psychological elements (such as self-concept, state anxiety, and aggression) and physiological aspects (like peak flow rate) accounted for a significantly larger portion of variance compared to the male model. This indicates that female collegiate playing ability relies on a more comprehensive mix of attributes rather than just raw power. This is a crucial and previously unrecorded insight, especially considering how little existing research breaks down data by sex.

One of the standout findings of this study is the consistent role of Explosive Power, Self-Concept, and State Anxiety as key predictors for both men and women. This suggests that, regardless of gender, having strong lower-body power, a positive self-image, and the ability to handle competitive anxiety are crucial for success in cricket. This conclusion aligns perfectly with the developmental and mental toughness research discussed in Chapter 2, which also highlights confidence and anxiety management as essential, trainable skills for being ready to perform in cricket.

Interestingly, the lack of significant physiological links among female cricketers at the bivariate level marks a clear departure from the findings for males and from previous studies, which have often focused on men and found a strong connection between aerobic capacity, cardiovascular fitness, and performance. This doesn't mean that physical conditioning isn't important for women; rather, as the regression results indicate, factors like peak flow rate might influence performance when combined with other elements, rather than acting alone. This subtlety emphasizes the importance of using multivariate analysis instead of just bivariate approaches.

We need to be careful when interpreting the significant difference in average expert-rated Playing Ability scores between male and female participants. This is because the expert ratings weren't applied in the same way for both genders, and we know from previous studies that cricket performance can vary greatly depending on the context. So, instead of seeing this gap as proof of a natural ability difference, it's more accurate to view it as a reflection of the unique circumstances surrounding the ratings. It may also highlight the structural differences in terms of exposure, coaching resources, and competitive opportunities that female collegiate cricketers in India face.

Conclusions and Practical Implications

This study offers one of the first evidence-based models for identifying talent in college-level cricketers in India, taking into account gender differences and filling a significant gap in a field that has largely focused on elite male players. Here are some practical takeaways:

For coaches and trainers: Male cricketers might see better results by continuing to focus on explosive power, shoulder strength, and aerobic conditioning. It's also important to weave in psychological skills training that hones in on motivation, self-concept, and managing anxiety. On the other hand, training for female cricketers should embrace a more comprehensive approach, targeting speed, power, grip strength, and flexibility, while also emphasizing psychological readiness and physiological conditioning, rather than zeroing in on just one aspect.

For talent identification and selection committees: It's crucial to include validated psychological assessments-especially those measuring self-concept and anxiety-alongside traditional physical tests, as these have shown to be valuable predictors for both genders. Additionally, explosive power tests, like standardized vertical jump protocols, stand out as an effective and cost-efficient screening method for both male and female athletes.

For cricket academies and sports science programs, the distinct gender-based patterns highlighted here suggest that we shouldn't apply the same male-focused talent-identification standards to female cricketers. Instead, academies ought to think about creating sex-specific normative data and predictive models, rather than assuming that the two genders are equivalent.

Of course, this study has its limitations. Its cross-sectional design means we can't draw causal conclusions, and the sample was taken from just one Indian university's intercollegiate tournament, which might not reflect other regions or levels of competition. Plus, the use of the Expert Rating Method for the dependent variable adds a layer of subjectivity, even if it's well standardized. Future research should aim for longitudinal studies that track how these predictors relate to actual career advancement, broaden the sample to include multiple universities and regions, and delve deeper into the physiological factors influencing female playing ability-an area that still lags behind the psychological and physical aspects.

Despite these limitations, the study offers valuable insights: it shows that Playing Ability in college-level cricket is best viewed as a blend of physical, physiological, and psychological elements, with this blend functioning differently for each gender. Notably, explosive power, self-concept, and anxiety management emerge as key indicators of cricketing talent that deserve more focus in training and talent-identification practices-especially for the often-overlooked group of women cricketers in India.

References

1. Abernethy B, Weissensteiner J, Farrow D. Towards a conceptual model of expertise in cricket batting. Journal of Sports Sciences. 2009.
2. Bartlett RM. The science and medicine of cricket: an overview and update. Journal of Sports Sciences. 2003;21(9):733-752.
3. Johnstone JA, Ford PA. Physiologic profile of professional cricketers. Journal of Strength and Conditioning Research. 2010;24(11):2900-2907.
4. Jooste J, Van Wyk JG, Steyn BJ. Mental skills differences among cricketers at three levels of participation. African Journal for Physical, Health Education, Recreation and Dance. 2013.
5. Lemmer HH. The single match approach to strike rate adjustments in batting performance measures in cricket. Journal of Sports Science and Medicine. 2011;10(4):630-634.
6. Noakes TD, Durandt JJ. Physiological requirements of cricket. Journal of Sports Sciences. 2000;18(12):919-929.
7. Van Wyk JG, Jooste J, Toriola AL, Steyn JB. Relationship between specialized playing roles and psychological skills of South African cricketers. South African Journal for Research in Sport, Physical Education and Recreation. 2014.
8. Woolmer B, Noakes T. Bob Woolmer's art and science of cricket. New Holland Publishers; c2008.