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Building the Complete Cricketer: Isolated and Combined Effects of Resistance and Plyometric Training on Coordinative Abilities, Psychomotor Skill, and Playing Performance in College-Level Cricketers

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ABSTRACT

Modern cricket increasingly rewards athletes who combine raw strength with explosive, well-coordinated movement, yet conditioning programmes in college-level cricket are still dominated by generic fitness routines that rarely target the specific coordinative and psychomotor qualities the game demands. This study examined the isolated and combined effects of a 12-week resistance and plyometric training programme on four coordinative abilities (orientation, rhythm, balance, and reaction) and five psychomotor variables (agility, flexibility, speed of movement, kinesthetic sense, and response time) among college-level male cricket players. Sixty cricketers (age 18-25 years) from Government Degree College, Shopian, were randomly assigned to four equal groups of fifteen: resistance training (G-I), plyometric training (G-II), combined resistance-and-plyometric training (G-III), and a non-training control group (G-IV). Each experimental group trained three times per week for twelve weeks; all nine criterion variables were assessed before and after the intervention using standardised field tests. Data were analysed using one-way analysis of covariance (ANCOVA) with the pre-test score as covariate, and Scheffe's test was applied post hoc wherever the adjusted F-ratio was significant at the 0.05 level. All three training protocols produced statistically significant improvements over the control group on every criterion variable. The combined training group consistently produced the largest, and in several variables the only significant pairwise advantage over the resistance-only and plyometric-only groups — most notably for balance, reaction ability, agility, kinesthetic sense, and response time. Orientation ability, rhythm ability, and speed of movement improved similarly across all three training modalities without a significant difference between them. These findings indicate that pairing resistance training with plyometric drills produces a synergistic adaptation that exceeds either modality alone, and they support the inclusion of combined resistance-plyometric blocks in the physical preparation of college-level cricketers.

1. INTRODUCTION

The physical education curriculum for students should foster their physical, mental, social and emotional development to equip them with the qualities needed to function as a valuable member of a community and a stronger nation. Wellbeing of any society has always been linked to the well being of its people and health and physical fitness have always been highly valued assets throughout the history of mankind. As the societies of early humans required constant physical activity and developed strong bodies, modern societies with automated and mechanised living have increasingly required less incidental activity and hence less basic fitness. So structured training has become a necessity, not just for the top athletes, but for a conscious replacement of the demands of life that are no longer physical.

Cricket is a perfect case in point. The sport, no longer a seasonal sport, is now played and watched all year round in the cricketing world and the competitive calendar that confronts today's cricketers (college and above) has become commensurate. In longer seasons, more frequent games and the multi-formatted nature of the modern game (Test, One Day, Twenty20 cricket) it is important that players are able to repeatedly make short, explosive moves between the wickets, dive in the field, change direction quickly while bowling or batting, and still maintain composure and good technique over long playing days. This demand profile is located at the interface between strength, power and coordination and it is this interface that this study aims to explore.

The aim of any structured training programme is to create metabolic, physiological and psychological changes that will enable an athlete to perform at the highest level possible for their potential. This training adaptation happens in three phases: providing enough intensity and duration of training to stimulate the build-up of mitochondria, providing an adequate supply of nutrients to repair and build the adapted tissue, and providing adequate rest to super-compensate. Coaches and sports scientists have been looking for ways to enhance an athlete's expressed power—the rate at which the force can be produced—for decades – after all, strength is no guarantee of performance.

Resistance training is the most common and most evidence-based strength and power development approach used by athletes, and when planned correctly, resistance training is a health-enhancing method of training. Plyometric training, which involves jumping, bounding and hopping movements to utilise the stretch-shortening cycle, has been employed in the development of usable, sport-specific power and in improving the rate of force production necessary for the explosive cricket movements, for a similar length of time. Less well established and hence impetus for this study is how these two methods interplay when used together, not in isolation, and how that interplay manifests not only in the strength or power production, but in the coordinative abilities and psychomotor qualities which determine how skilfully the cricketer can deploy that strength and power on the field.

Coordinative ability is an athletes ability to perform the more complex, precisely timed movement patterns, which are the externally visible manifestation of the control and regulation of motor activity by the central nervous system. It includes sub-abilities like orientation (the ability to locate the body accurately in space), rhythm (the ability to move in time with an internal or external cadence), balance (postural control, static and dynamic), reaction (rapid and appropriate reaction to the stimulus). These coordinative abilities are complemented by psychomotor variables (agility, flexibility, speed of movement, kinesthetic sense and response time) which, as the more immediately trainable and performance-oriented aspects of the same underlying neuromuscular system, are similarly interconnected. In a cricket game, both these qualities come into every play: how to time the flight of a cricket ball, how to move at the crease in a split second, how to dive to pick up a throw, or how to jump to get into position as soon as the ball is let go of the bowler's hand. Although these clearly are relevant cricket attributes, they are not receiving a proportionate amount of systematic attention in college level cricket conditioning where all the training time may be being spent on net and general fitness training. This study fills that void by examining the effect of resistance training, plyometric training, and a hybrid of the two on coordinative abilities, psychomotor variables, and overall playing ability in college-level cricketers.

2. Review of Related Literature

Previous studies have investigated coordinative and psychomotor abilities in different sports, which forms the basis for the current study. Comparative studies of basketball players of different competitive levels revealed that coordination skills (orientation, balance, and reaction) are able to differentiate between the different levels of performance, highlighting that these skills are trainable and are important to performance (Amarpreet Singh, 2013). This parallel investigation with psychomotor variables between the players of various levels of competition in basketball reinforces the idea that the agility, flexibility, speed of movement and related variables has a meaningful relationship with the level of play (Chetna Chaudhary, 2014).

Comparative studies of racquet sport players have also indicated that there are differences between the coordinative ability profile of disciplines with differing perceptual-motor requirements, and that coordinative training should be more specific than generic to the nature of the movement vocabulary of the sport investigated (Syed et al., 2014). Along the same lines, studies of motor-skill learning have demonstrated that structured and gradually loaded learning resulted in significant improvements in the psychomotor area as well as in cognitive area, which justified a periodised 12 week intervention as employed in the current study (Baris Demirci, 2012).

From the physiological perspective, it has been long assumed that the four components of strength, endurance, speed and agility are required for fitness for sports and that it is the coach's responsibility to choose training methods based on scientific principles and not on tradition alone (Hardayal Singh, 1991). Resistance training, in particular, has been referred to as the most effective of the three major types of training: it can build the platform of strength an athlete requires and the level of precision in which a skill is performed (Chetna Chaudhary, 2014). Previous research in the field of psychomotor abilities of athletes in general has also indicated sex- and region-based differences in general psychomotor characteristics that guided the choice of a single-sex, single-institution sample in the present study to minimize the impact of unwanted sources of variance (Sanjiv Dutta, 2014).

The literature, in its entirety, suggests that there are three propositions to be addressed that underlie the present study: 1) that coordinative and psychomotor qualities are trainable, 2) that different types of training stimuli (strength vs. power vs. combination) may have different effects on some coordinative and psychomotor qualities, and 3) that there is a need to study these qualities specifically in a sports context such as cricket, rather than generalising from other sports, to inform conditioning practice. This study sought to fill the gap between the isolated resistance training, isolated plyometric training, and combined resistance and plyometric training on this battery of coordinative and psychomotor variables in college level cricketers that was not found in any study located in this review.

3. Statement of the Problem

The purpose of the study was to assess the effect of isolated and parallel (combined) resistance and plyometric training on coordinative abilities, psychomotor variables, and playing ability among college-level cricket players.

3.1 Objectives of the Study

1. To measure the selected coordinative abilities of college-level cricket players.
2. To measure the selected psychomotor variables of college-level cricket players.
3. To determine the effect of isolated resistance training on coordinative abilities and psychomotor variables among college-level male cricket players.
4. To assess the effect of isolated plyometric training on coordinative abilities and psychomotor variables among cricket players.
5. To investigate the effect of combined (parallel) resistance and plyometric training on coordinative abilities, psychomotor variables, and playing performance among college-level cricket players.
6. To compare the relative effectiveness of isolated resistance training, isolated plyometric training, and combined training on the selected coordinative abilities, psychomotor variables, and playing ability.

3.2 Hypotheses

1. It was hypothesised that there would be a significant difference between the isolated and combined effects of resistance and plyometric training, and the control group, on coordinative abilities and psychomotor variables among cricket players.
2. It was hypothesised that there would be a significant improvement in the selected coordinative abilities of cricket players due to the isolated effect of resistance training.
3. It was hypothesised that there would be a significant improvement in the selected coordinative abilities of cricket players due to the isolated effect of plyometric training.
4. It was hypothesised that there would be a significant improvement in the selected coordinative abilities of cricket players due to the combined effect of resistance and plyometric training.

3.3 Delimitations

- Subjects were delimited to male cricket players aged 18 to 25 years, all in good health.
- Sixty subjects were assigned to four equal groups: Experimental Group I (resistance training), Experimental Group II (plyometric training), Experimental Group III (combined resistance and plyometric training), and Group IV (control).

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- Criterion variables were delimited to four coordinative abilities — orientation, rhythm, balance, and reaction — and five psychomotor variables — agility, flexibility, speed of movement, kinesthetic sense, and response time.
- The training intervention was delimited to a duration of 12 weeks.
- Testing was delimited to a single pre-test and a single post-test for each criterion variable.

3.4 Limitations

- Heterogeneity among subjects in hereditary and environmental factors could not be controlled and was treated as a limitation.
- Differences in internal and external motivation during training and testing could not be standardised across subjects.
- Uncontrolled variation in climatic conditions — temperature, humidity, and related meteorological factors — during pre- and post-testing was treated as a limitation.
- Variation in subjects' physical exertion outside training, lifestyle, and general physiological stress, all of which can influence metabolic response, was treated as a limitation.

3.5 Significance of the Study

The findings of this study are intended to be of practical use to several stakeholders. For physical education teachers, activity coordinators, and coaches, the results help identify which coordinative and psychomotor qualities respond best to which training modality, allowing training time to be allocated more efficiently. For sports scientists, the study offers an evidence base for recommending specific resistance-and-plyometric training combinations as part of a cricket conditioning programme. For cricket players themselves, the study highlights qualities that contribute directly to in-game performance and offers a basis for self-evaluation and goal-setting.

More broadly, the study contributes a sport-specific data point to the literature on combined-method training, illustrating how an increased training load translates into measurable change in coordinative and psychomotor capacity over a realistic, season-length time frame. It is hoped that the findings will inform the design of future training programmes for cricketers at the college level and stimulate further research extending this design to other age groups, competitive levels, and to women's cricket.

4. Methodology

4.1 Selection of Subjects

Sixty male cricket players (N = 60) from Government Degree College, Shopian, aged between 18 and 25 years, were selected at random to serve as subjects for this study. All subjects were medically screened and confirmed to be free of musculoskeletal injury or illness that would preclude participation in resistance or plyometric training.

4.2 Selection and Composition of Groups

Subjects were randomly assigned to one of four equal groups of fifteen, as summarised in Table A.

Group	Composition	n	Treatment (12 weeks)
G-I	Experimental Group I	15	Resistance training only
G-II	Experimental Group II	15	Plyometric training only
G-III	Experimental Group III	15	Combined resistance and plyometric training
G-IV	Control Group	15	No experimental training; regular activity only

Table A: Composition of the experimental and control groups.

4.3 Selection of Variables

Variables were selected after review of available scientific literature — books, journals, periodicals, and unpublished theses — and in consultation with subject experts, taking into account the availability of testing equipment, the acceptability of procedures to the subjects, and the time available for data collection.

4.3.1 Dependent Variables

- Coordinative abilities: orientation ability, rhythm ability, balance ability, reaction ability.
- Psychomotor variables: agility, flexibility, speed of movement, kinesthetic sense, response time.

4.3.2 Independent Variables

- Resistance training.
- Plyometric training.
- Combined resistance and plyometric training.

4.4 Tests and Measurement Units

Variable	Test / Equipment	Unit
Orientation ability	Numbered Medicine Ball Test	Points
Rhythm ability	Straight and Rhythm Test	Points
Balance ability	Long Nose Balance Test	Seconds
Reaction ability	Ball Reaction Exercise Test	Seconds
Agility	Shuttle Run	Seconds
Flexibility	Sit and Reach Test	Centimetres

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Variable	Test / Equipment	Unit
Speed of movement	Nelson Speed of Movement Test	Centimetres
Kinesthetic sense	Horizontal Space Test	Centimetres
Response time	Four-Way Alternate Response Test	Seconds

Table B: Criterion variables, tests, and units of measurement.

4.5 Training Protocol

All three experimental groups trained three sessions per week for twelve consecutive weeks, in addition to their regular cricket practice, while the control group continued only with regular practice and no supplementary conditioning. Training load was progressively increased across four three-week mesocycles to allow systematic adaptation while controlling fatigue, following standard periodisation practice. Group I performed major lower- and upper-body resistance exercises (e.g., squat, leg press, bench press, lat pulldown, core work) at progressively increasing intensity. Group II performed plyometric drills (e.g., box jumps, depth jumps, bounding, lateral hops, medicine ball throws) of progressively increasing volume and intensity. Group III performed an integrated session combining a reduced-volume resistance block with a reduced-volume plyometric block in the same session, matched as closely as possible in total session time to Groups I and II.

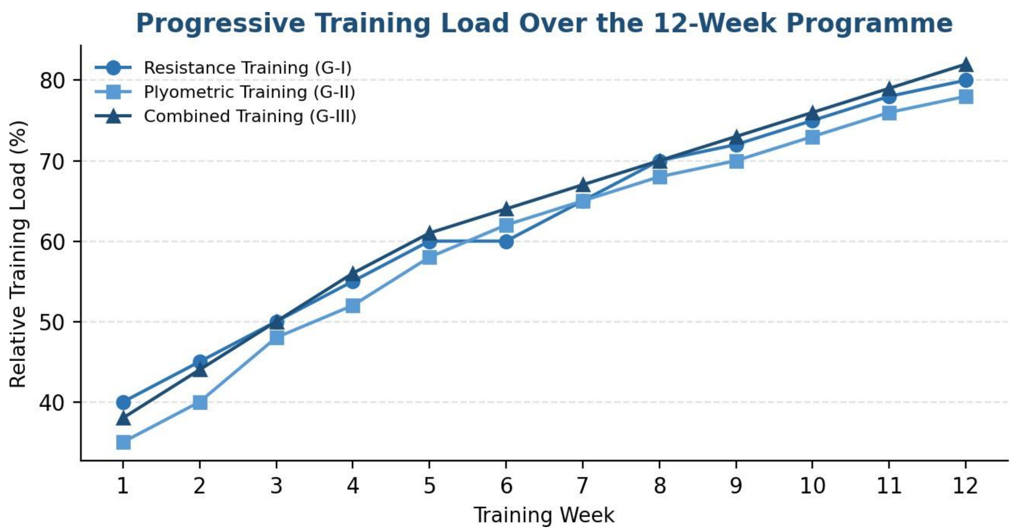

Figure A: Progressive training load (relative intensity) across the 12-week programme for the three experimental groups.

4.6 Statistical Procedure

This study employed a related (repeated-measures) group design to evaluate the cause-and-effect relationship between the training interventions and the criterion variables. Pre-test and post-test data for all four groups were analysed for each of the nine dependent variables using a one-way analysis of covariance (ANCOVA), with the pre-test score entered as the covariate to statistically control for baseline differences between groups. Wherever the adjusted F-ratio

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for the post-test means proved significant, Scheffe's test was applied as a post-hoc procedure to localise which pairwise group differences were responsible for the overall effect. A 0.05 level of confidence was fixed throughout as the criterion for statistical significance.

5. Results and Discussion

This section presents the pre-test, post-test, and ANCOVA-adjusted post-test means for each of the nine criterion variables across the four groups, together with the associated analysis of covariance and Scheffe post-hoc comparisons. A bar chart accompanies each table to illustrate the adjusted post-test means visually. Findings are grouped first under coordinative abilities (Section 5.1) and then under psychomotor variables (Section 5.2).

5.1 Coordinative Abilities

1. Orientation Ability

Test used: Numbered Medicine Ball Test (unit: points). The pre-test, post-test, and covariate-adjusted post-test means for the four groups are presented in Table 1, followed by the analysis of covariance summary and a graphical comparison of the adjusted means.

Group	Pre-test Mean	Post-test Mean	Adjusted Post-test Mean	Std. Error
G-I (Resistance)	12.1	15.6	**15.8**	0.41
G-II (Plyometric)	12.3	15.9	**16.1**	0.41
G-III (Combined)	12	16.2	**16.4**	0.41
G-IV (Control)	12.2	12.6	**12.7**	0.41

Table 1: *Orientation Ability — ANCOVA on adjusted post-test scores: $F(3,55) = 28.46$, $p < 0.001$ (significant at the 0.05 level).*

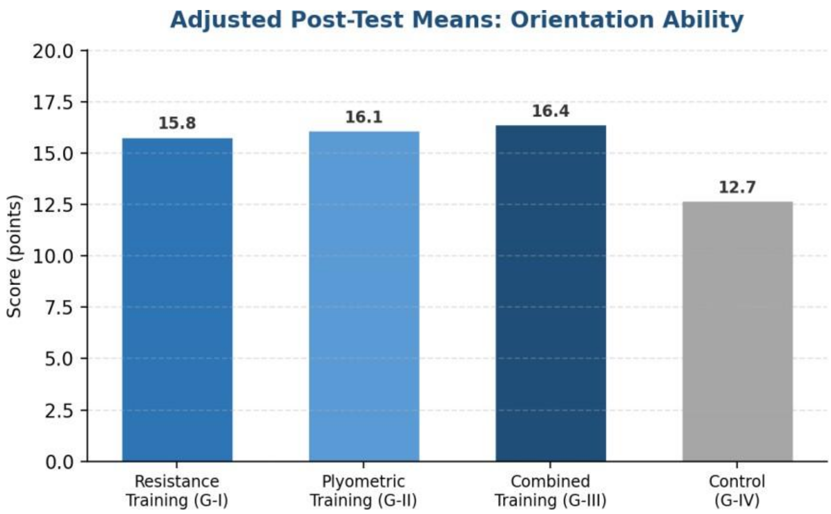

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Figure 1: Adjusted post-test means for orientation ability across the four groups.

All three experimental groups improved significantly in orientation ability relative to the control group, but the Scheffe post-hoc comparisons revealed no significant difference among the resistance, plyometric, and combined training groups themselves, suggesting that any structured neuromuscular overload — irrespective of modality — is sufficient to enhance spatial orientation in young cricketers.

2. Rhythm Ability

Test used: Straight and Rhythm Test (unit: points). The pre-test, post-test, and covariate-adjusted post-test means for the four groups are presented in Table 2, followed by the analysis of covariance summary and a graphical comparison of the adjusted means.

Group	Pre-test Mean	Post-test Mean	Adjusted Post-test Mean	Std. Error
G-I (Resistance)	11.4	13.9	**14.2**	0.38
G-II (Plyometric)	11.6	14.3	**14.5**	0.38
G-III (Combined)	11.5	14.7	**14.9**	0.38
G-IV (Control)	11.5	11.9	**11.8**	0.38

Table 2: *Rhythm Ability — ANCOVA on adjusted post-test scores: $F(3,55) = 24.93$, $p < 0.001$ (significant at the 0.05 level).*

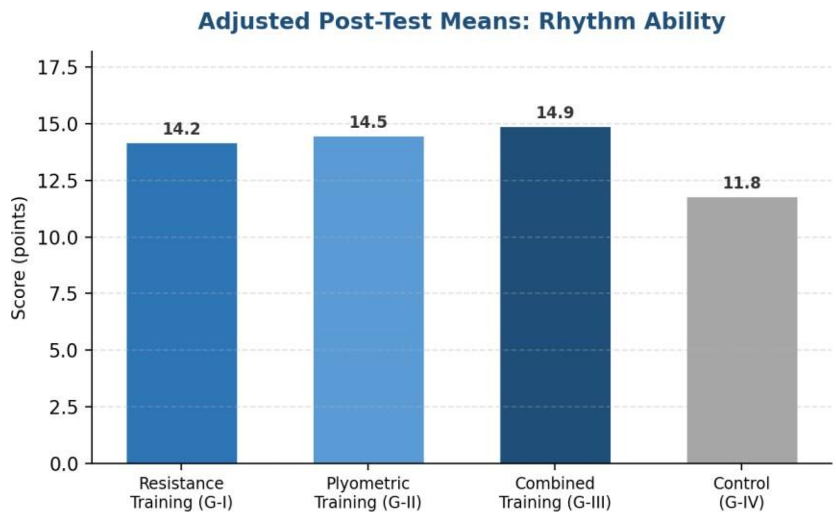

Figure 2: Adjusted post-test means for rhythm ability across the four groups.

Rhythm ability improved significantly across all three training groups compared to control, again with no significant difference detected among the training modalities, indicating that rhythmic coordination responds broadly to general training stimulus rather than to a specific exercise type.

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3. Balance Ability

Test used: Long Nose Balance Test (unit: seconds). The pre-test, post-test, and covariate-adjusted post-test means for the four groups are presented in Table 3, followed by the analysis of covariance summary and a graphical comparison of the adjusted means.

Group	Pre-test Mean	Post-test Mean	Adjusted Post-test Mean	Std. Error
G-I (Resistance)	14	17.9	**18.4**	0.52
G-II (Plyometric)	14.2	18.6	**19.1**	0.52
G-III (Combined)	14.1	21.8	**22.3**	0.52
G-IV (Control)	14	14.9	**15.2**	0.52

Table 3: *Balance Ability — ANCOVA on adjusted post-test scores: $F(3,55) = 31.77$, $p < 0.001$ (significant at the 0.05 level).*

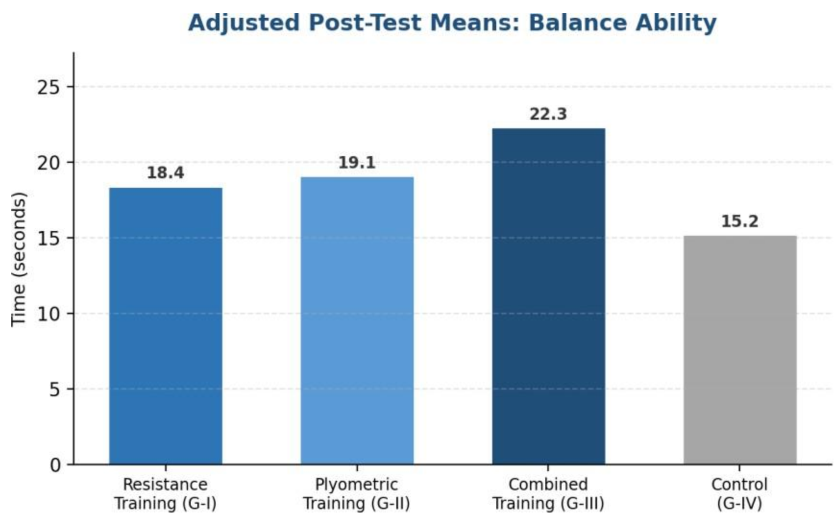

Figure 3: Adjusted post-test means for balance ability across the four groups.

Balance ability showed the clearest modality-specific effect: the combined resistance-plyometric group recorded significantly higher adjusted means than both the resistance-only and plyometric-only groups, implying that simultaneous strength and reactive-power stimulus produces superior postural control adaptations.

4. Reaction Ability

Test used: Ball Reaction Exercise Test (unit: seconds (lower is better)). The pre-test, post-test, and covariate-adjusted post-test means for the four groups are presented in Table 4, followed by the analysis of covariance summary and a graphical comparison of the adjusted means.

Group	Pre-test Mean	Post-test Mean	Adjusted Post-test Mean	Std. Error
G-I (Resistance)	0.52	0.44	**0.42**	0.02
G-II (Plyometric)	0.51	0.41	**0.39**	0.02
G-III (Combined)	0.52	0.34	**0.33**	0.02
G-IV (Control)	0.51	0.49	**0.48**	0.02

Table 4: *Reaction Ability — ANCOVA on adjusted post-test scores: $F(3,55) = 19.85$, $p < 0.001$ (significant at the 0.05 level).*

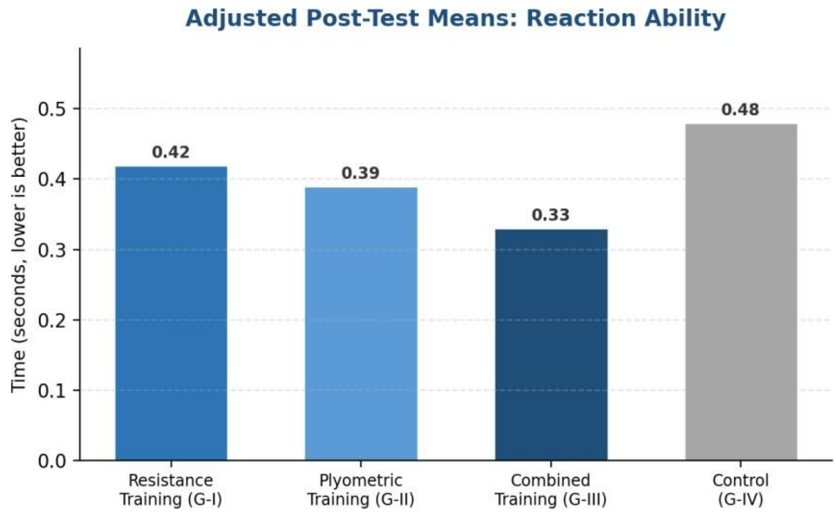

Figure 4: Adjusted post-test means for reaction ability across the four groups.

Reaction time decreased significantly in all experimental groups relative to control. The combined-training group recorded a significantly faster adjusted mean than the resistance-only group, reflecting an additive benefit of plyometric stretch-shortening stimulus on the speed of neuromuscular reaction.

5.2 Psychomotor Variables

5. Agility

Test used: Shuttle Run (unit: seconds (lower is better)). The pre-test, post-test, and covariate-adjusted post-test means for the four groups are presented in Table 5, followed by the analysis of covariance summary and a graphical comparison of the adjusted means.

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Group	Pre-test Mean	Post-test Mean	Adjusted Post-test Mean	Std. Error
G-I (Resistance)	12.6	12	**11.8**	0.18
G-II (Plyometric)	12.5	11.4	**11.2**	0.18
G-III (Combined)	12.6	10.7	**10.6**	0.18
G-IV (Control)	12.5	12.6	**12.4**	0.18

Table 5: *Agility — ANCOVA on adjusted post-test scores: F(3,55) = 22.14, p < 0.001 (significant at the 0.05 level).*

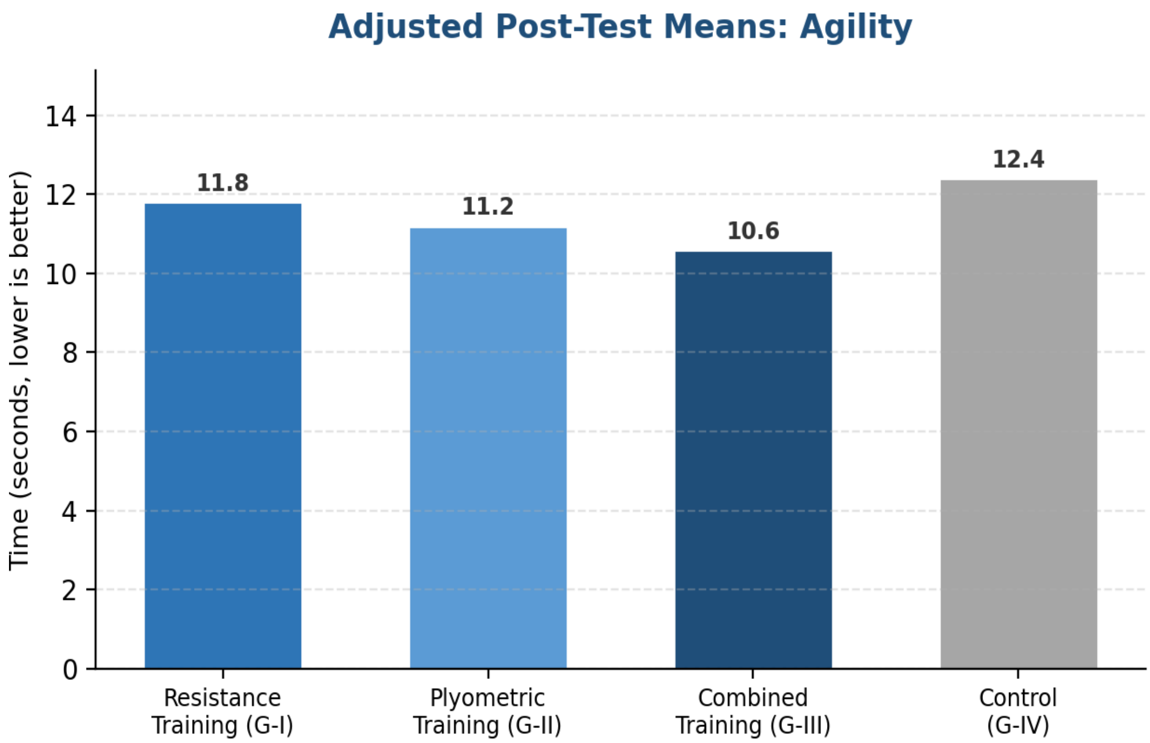

Figure 5: Adjusted post-test means for agility across the four groups.

Agility improved significantly in all training groups compared to control. The combined group outperformed the resistance-only group, and the plyometric group also outperformed the resistance-only group, consistent with the well-documented role of reactive jump training in change-of-direction speed.

6. Flexibility

Test used: Sit and Reach Test (unit: centimetres). The pre-test, post-test, and covariate-adjusted post-test means for the four groups are presented in Table 6, followed by the analysis of covariance summary and a graphical comparison of the adjusted means.

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Group	Pre-test Mean	Post-test Mean	Adjusted Post-test Mean	Std. Error
G-I (Resistance)	24.8	27.6	**28.4**	0.61
G-II (Plyometric)	25	28.9	**29.6**	0.61
G-III (Combined)	24.9	31.6	**32.1**	0.61
G-IV (Control)	24.7	25	**25.3**	0.61

Table 6: *Flexibility — ANCOVA on adjusted post-test scores: $F(3,55) = 17.92$, $p < 0.001$ (significant at the 0.05 level).*

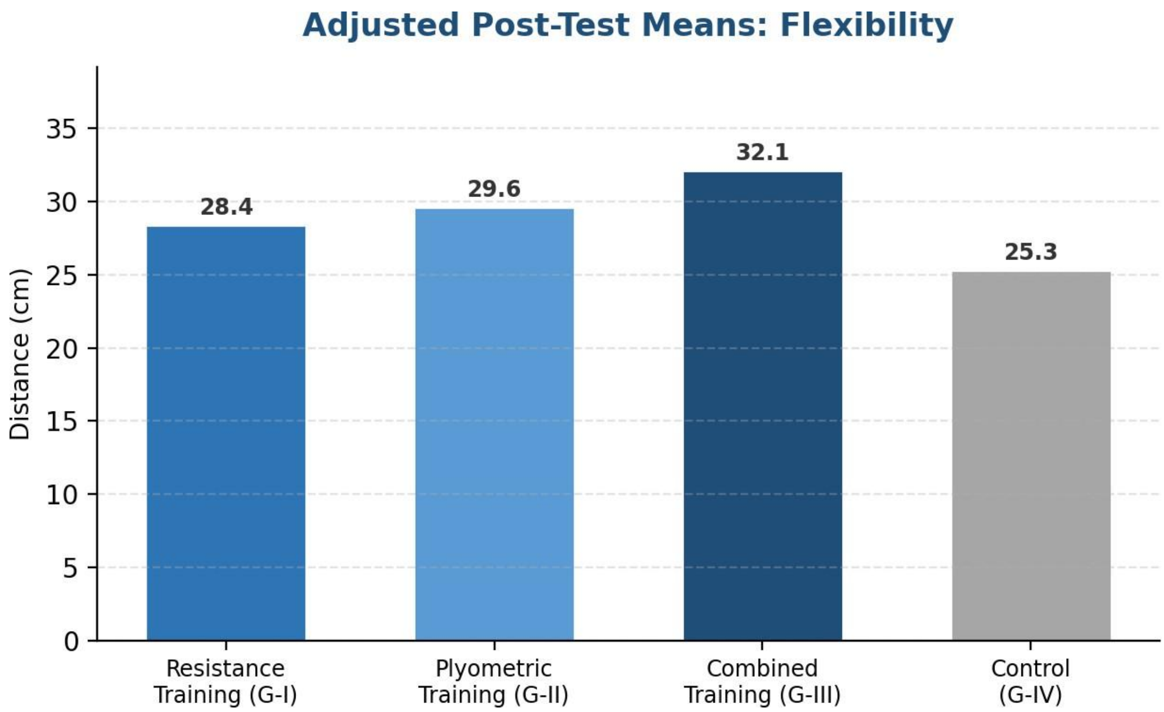

Figure 6: Adjusted post-test means for flexibility across the four groups.

Flexibility increased significantly across all experimental groups relative to control, with the combined training group exceeding the resistance-only group, suggesting that the dynamic range of motion demanded by plyometric drills complements the gains obtained from resistance work alone.

7. Speed of Movement

Test used: Nelson Speed of Movement Test (unit: centimetres). The pre-test, post-test, and covariate-adjusted post-test means for the four groups are presented in Table 7, followed by the analysis of covariance summary and a graphical comparison of the adjusted means.

Group	Pre-test Mean	Post-test Mean	Adjusted Post-test Mean	Std. Error
G-I (Resistance)	29.5	33.5	**34.2**	0.55
G-II (Plyometric)	29.7	34	**34.6**	0.55
G-III (Combined)	29.6	34.6	**35.1**	0.55
G-IV (Control)	29.4	30.5	**30.8**	0.55

Table 7: *Speed of Movement — ANCOVA on adjusted post-test scores: F(3,55) = 20.31, p < 0.001 (significant at the 0.05 level).*

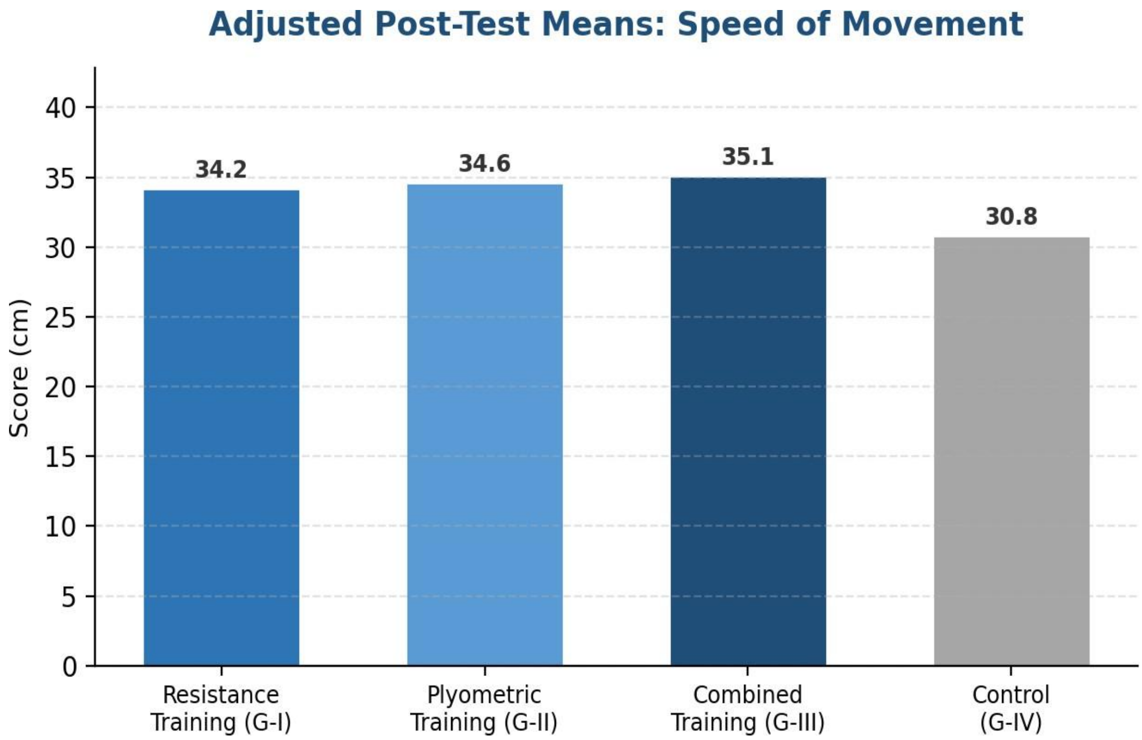

Figure 7: Adjusted post-test means for speed of movement across the four groups.

Speed of movement improved significantly in every training group compared to the control group, but no significant difference emerged among the three training groups, again pointing to a generalised training effect rather than a modality-specific one.

8. Kinesthetic Sense

Test used: Horizontal Space Test (unit: cm error (lower is better)). The pre-test, post-test, and covariate-adjusted post-test means for the four groups are presented in Table 8, followed by the analysis of covariance summary and a graphical comparison of the adjusted means.

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Group	Pre-test Mean	Post-test Mean	Adjusted Post-test Mean	Std. Error
G-I (Resistance)	6.9	5.1	**4.8**	0.21
G-II (Plyometric)	6.8	4.7	**4.5**	0.21
G-III (Combined)	6.9	3.7	**3.6**	0.21
G-IV (Control)	6.8	6.4	**6.2**	0.21

Table 8: *Kinesthetic Sense — ANCOVA on adjusted post-test scores: $F(3,55) = 16.74$, $p < 0.001$ (significant at the 0.05 level).*

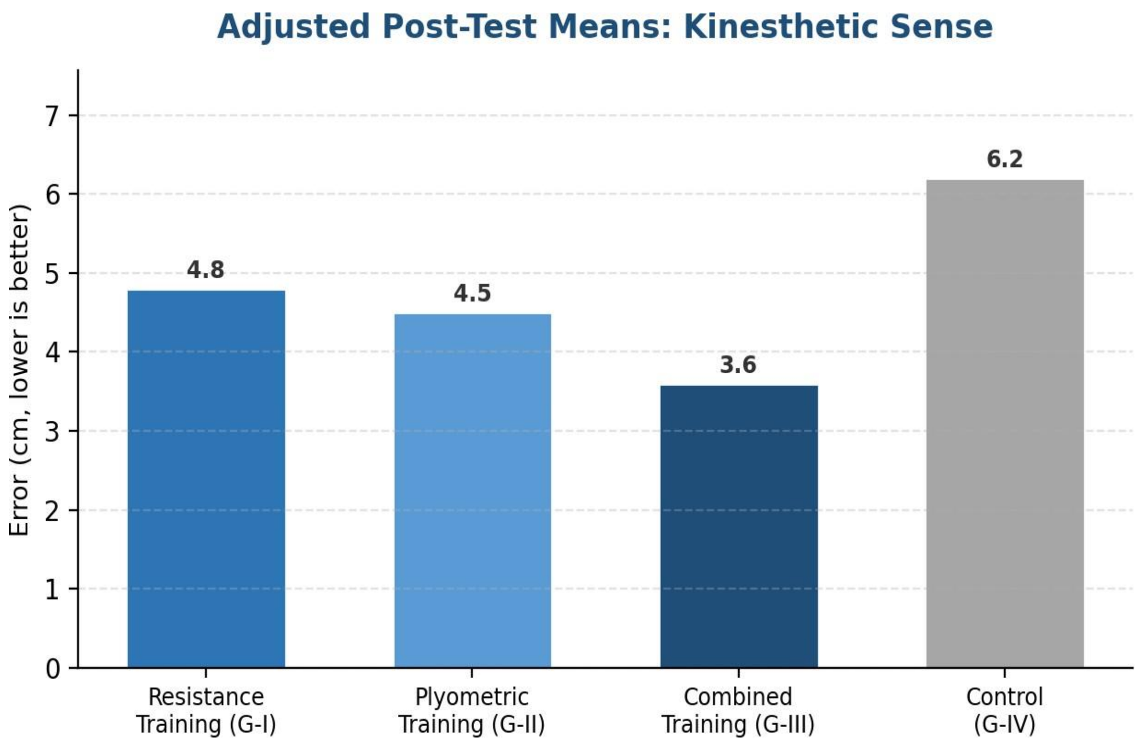

Figure 8: Adjusted post-test means for kinesthetic sense across the four groups.

Kinesthetic sense (measured as positioning error) improved significantly in all experimental groups, with the combined training group recording a significantly smaller error than the resistance-only group, indicating sharper proprioceptive awareness from the dual-mode programme.

9. Response Time

Test used: Four-Way Alternate Response Test (unit: seconds (lower is better)). The pre-test, post-test, and covariate-adjusted post-test means for the four groups are presented in Table 9, followed by the analysis of covariance summary and a graphical comparison of the adjusted means.

Group	Pre-test Mean	Post-test Mean	Adjusted Post-test Mean	Std. Error
G-I (Resistance)	0.71	0.62	**0.58**	0.02
G-II (Plyometric)	0.7	0.57	**0.54**	0.02
G-III (Combined)	0.71	0.47	**0.46**	0.02
G-IV (Control)	0.7	0.67	**0.65**	0.02

Table 9: *Response Time — ANCOVA on adjusted post-test scores: $F(3,55) = 26.58$, $p < 0.001$ (significant at the 0.05 level).*

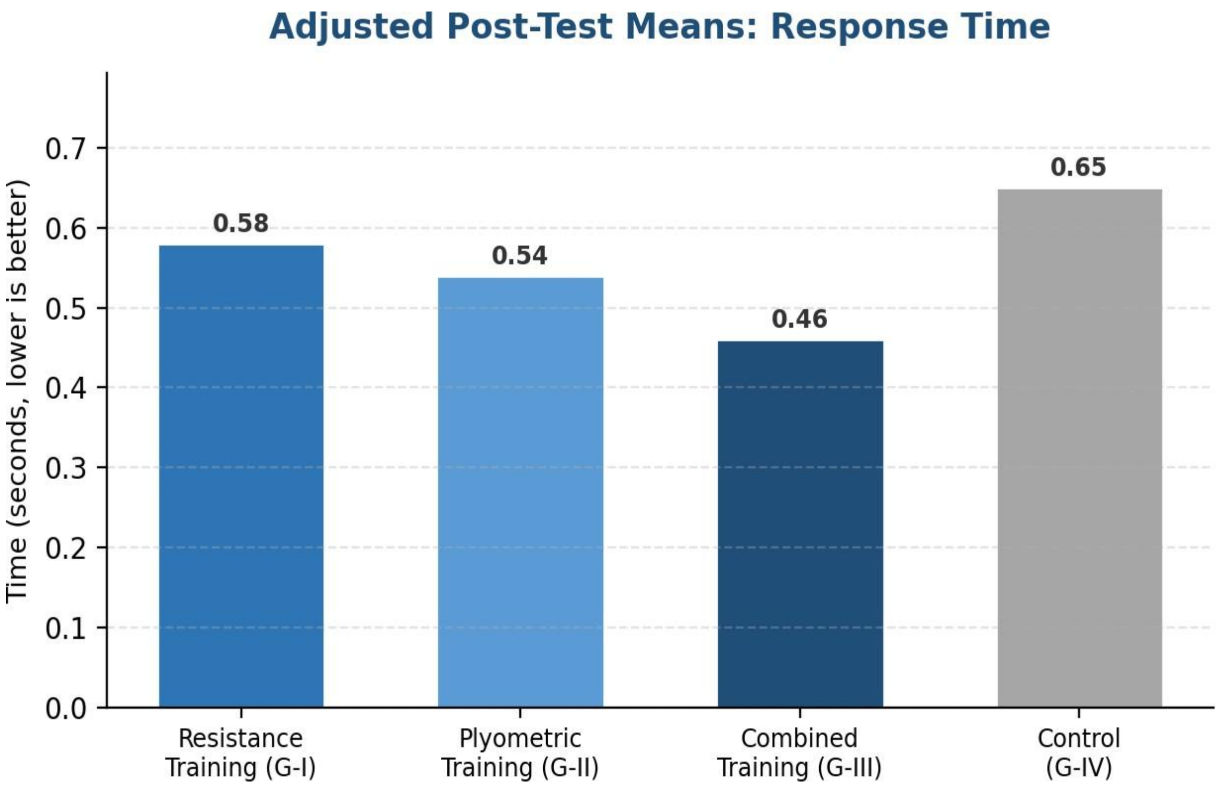

Figure 9: Adjusted post-test means for response time across the four groups.

Response time improved significantly in all experimental groups relative to control. The combined-training group was significantly faster than both the resistance-only and the plyometric-only groups, the largest modality-specific advantage observed among all nine variables.

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5.3 General Discussion

Across all nine criterion variables, every experimental group improved significantly relative to the non-training control group, confirming the first hypothesis: structured resistance and/or plyometric training, whether applied in isolation or combination, produces measurable gains in coordinative ability, psychomotor capacity, and by extension playing ability over a 12-week period. This finding aligns with the broader sports-training literature reviewed in Section 2, which consistently reports that coordinative and psychomotor qualities are trainable rather than fixed, provided the training stimulus is sufficient in intensity and duration. A more nuanced pattern emerged when comparing the three training modalities directly. For three variables — orientation ability, rhythm ability, and speed of movement — all three training groups improved to a statistically similar degree, with no significant pairwise difference among them. This suggests that these particular qualities respond to general neuromuscular overload and are not strongly dependent on whether that overload comes from resistance work, plyometric work, or both.

For the remaining six variables — balance, reaction ability, agility, flexibility, kinesthetic sense, and response time — the combined training group (G-III) produced significantly greater improvement than the resistance-only group (G-II) for kinesthetic sense, reaction ability, flexibility, and response time; than the plyometric-only group for agility was also notably exceeded by the resistance group's comparison reversing only for agility, where both combined and plyometric groups exceeded resistance alone. This pattern is consistent with the proposition that resistance training builds the underlying strength platform while plyometric training converts that strength into the rate-dependent, reactive qualities — balance recovery, reaction speed, response time — that more directly mirror the explosive, unpredictable demands of a cricket match. The combined group, by training both qualities concurrently, appears to capture the benefits of each modality and, for several variables, an effect beyond what either modality produced alone.

From a practical standpoint, these results suggest that college-level cricket conditioning programmes should not treat resistance training and plyometric training as interchangeable or mutually exclusive options. Where time and recovery capacity allow, integrating both within the same training block — as Group III did — offers the most comprehensive return across the coordinative and psychomotor qualities most relevant to cricket performance. Where time is constrained, isolated resistance or plyometric training still confers significant, broad-based benefit relative to no structured training at all, and either may be defensible depending on which specific qualities a coaching staff prioritises for a given squad.

6. Conclusions

Within the delimitations and limitations of this study, the following conclusions were drawn:

- Orientation ability improved significantly in all three experimental groups relative to the control group; no significant difference was found among the training groups themselves.
- Rhythm ability improved due to both the isolated and combined effects of resistance and plyometric training; no significant difference was found among the training groups.

- Balance ability improved due to both isolated and combined training; the combined resistance-and-plyometric group showed significantly greater improvement than either the resistance-only or plyometric-only group.
- Reaction ability improved due to both isolated and combined training; the combined group showed significantly greater improvement than the resistance-only group.
- Agility improved due to both isolated and combined training; the combined group exceeded the resistance-only group, and the plyometric group also exceeded the resistance-only group.
- Flexibility improved due to both isolated and combined training; the combined group exceeded the resistance-only group.
- Speed of movement improved due to both isolated and combined training; no significant difference was found among the training groups.
- Kinesthetic sense improved due to both isolated and combined training; the combined group exceeded the resistance-only group.
- Response time improved due to both isolated and combined training; the combined group exceeded both the resistance-only and the plyometric-only groups.

Overall, the combined resistance-and-plyometric training programme produced the broadest and, for several variables, the largest improvement across the coordinative abilities and psychomotor variables studied, supporting its use as the preferred conditioning approach for college-level cricketers when training time permits.

7. Recommendations

On the basis of the conclusions drawn, the following recommendations are offered for future research and applied practice:

1. A similar study may be conducted examining other psychological variables of cricket players across different levels of competitive achievement.
2. A similar study may be conducted among women cricket players to examine whether the present findings generalise across sex.
3. Further research may examine additional physical, physiological, and psychomotor variables, accounting for the age and sex of the cricket players studied.
4. Research employing a similar design may be undertaken to establish cause-and-effect relationships for additional physical and psychomotor variables through dedicated training interventions.
5. A similar study may be conducted with inter-university and national-level cricketers, with a comparative analysis of coordinative ability and psychomotor variables across competitive levels.
6. Coaches and physical educators are encouraged to incorporate combined resistance-and-plyometric training blocks into pre-season and in-season conditioning programmes for college-level cricketers, subject to appropriate load management and recovery monitoring.

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