

Influence of Agility and Core Strength Training on Ground Fielding Efficiency in Competitive Cricket Players

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Abstract: Ground fielding in cricket requires rapid movement, balance control, and trunk stability to perform efficient stops, pickups, and throws. The present study aimed to examine the influence of agility and core strength training on ground fielding efficiency in competitive cricket players. Thirty players aged 16–19 years were selected and divided into experimental and control groups. The experimental group underwent an 8-week agility and core conditioning program alongside regular cricket practice, while the control group followed routine training only. Ground fielding efficiency was assessed through a timed fielding performance test that included movement, pickup, and throw execution. Results showed significant improvement in the experimental group compared to the control group. The findings indicate that agility and core strength are key physical components contributing to effective ground fielding performance.

Keywords: Agility training, Core strength, Ground fielding, Cricket performance, Movement efficiency.

Introduction - Fielding is a dynamic component of cricket that requires quick directional changes, stable body control, and coordinated movement patterns. Among various fielding skills, ground fielding demands the ability to move explosively toward the ball, maintain balance while lowering the body, and execute an accurate throw within seconds. These actions rely heavily on agility and core strength.

Agility allows a player to change direction rapidly while maintaining speed and balance. Core strength provides stability to the trunk and pelvis, enabling efficient force transfer from the lower to the upper body during throwing actions. Weak core stability may result in slower movement, poor body control, and decreased throwing precision.

Modern training approaches emphasize physical conditioning as a foundation for technical skill execution. However, in many junior cricket programs, physical conditioning specific to fielding is limited. Most practice sessions focus on batting and bowling, with less structured attention to movement mechanics and trunk stability.

Scientific research suggests that agility and core training improve movement control, balance, and performance in sports involving rapid changes of direction. Despite this, limited studies have investigated their combined effect on cricket ground fielding efficiency.

Therefore, this study aims to examine how agility and core strength training influence ground fielding performance in competitive cricket players.

Review Of Literature

Physical conditioning plays a significant role in the

development of sport-specific skills. **Young and Farrow (2006)** emphasized that agility is not only a physical quality but also involves rapid decision-making and body control, both of which are essential in sports requiring sudden changes of direction. Their work highlighted that agility training improves movement efficiency and balance during dynamic actions.

Sheppard and Young (2006) explained that agility combines speed, coordination, and reactive strength. They noted that athletes who undergo structured agility training demonstrate improved movement transitions and reduced time in direction changes, which is beneficial in field sports. Core strength has also been recognized as a foundation for athletic performance. **Kibler et al. (2006)** stated that the core muscles stabilize the spine and pelvis, allowing efficient force transfer during movement and throwing actions. Insufficient core stability may reduce movement efficiency and increase the risk of technical errors.

According to **Hibbs et al. (2008)**, core training enhances trunk stability, balance, and control of body posture during athletic tasks. Their findings showed that improved core strength supports better coordination between upper and lower body segments.

In cricket-specific research, **Stretch (2003)** observed that fielding efficiency is influenced by movement speed, balance, and throwing ability. Players with better physical conditioning demonstrated superior fielding performance and reduced movement errors.

Bloomfield et al. (2007) reported that agility training

improves multidirectional speed and movement control, which are crucial for intercepting moving objects in field sports.

Sato and Mokha (2009) found that athletes with stronger core muscles exhibited better balance and postural control, enabling more efficient performance during dynamic movements.

Although previous studies have separately examined agility and core strength, limited research has explored their combined influence on cricket ground fielding performance. Therefore, studying these components together can provide better understanding of physical factors affecting fielding efficiency.

Objectives Of The Study:

1. To determine the effect of agility training on ground fielding efficiency in competitive cricket players.
2. To examine the influence of core strength training on ground fielding performance.
3. To compare pre-test and post-test ground fielding efficiency of experimental and control groups.
4. To evaluate the combined contribution of agility and core strength toward effective fielding performance.

Hypotheses Of The Study:

1. H1: There will be a significant improvement in ground fielding efficiency after agility and core strength training.
2. H2: The experimental group will perform significantly better than the control group in post-test fielding performance.
3. H3: Agility and core strength training will positively influence movement control and stability during fielding.

Significance Of The Study:

1. Highlights the role of physical conditioning in cricket fielding performance.
2. Provides scientific support for integrating agility and core training in cricket programs.
3. Helps coaches design structured fielding conditioning drills.
4. Contributes research data from cricket players in **Ganganagar, Hanumangarh, Churu, and Bikaner.**
5. Encourages a scientific approach to junior cricket development.

Methodology

Research Design: The study followed an **experimental pre-test–post-test control group design** to examine the influence of agility and core strength training on ground fielding efficiency.

Selection Of Subjects:

A total of **36 competitive cricket players** were selected from academies and school teams in **Ganganagar, Hanumangarh, Churu, and Bikaner.** Players were randomly assigned into two groups.

Group	Number of Players	Training Condition
Experimental Group	18	Regular cricket practice + agility & core strength training
Control Group	18	Regular cricket practice only

Inclusion Criteria

1. Age between **16–19 years**
2. Minimum **3 years of cricket playing experience**
3. Participation in competitive matches
4. Medically fit

Exclusion Criteria

1. Any injury affecting movement
2. Participation in additional conditioning programs

Variables Of The Study:

Category	Variable
Independent Variable	Agility and core strength training programme
Dependent Variable	Ground fielding efficiency

Tools And Tests:

Variable	Test	Measurement
Agility (supporting)	Illinois Agility Test	Seconds
Core Strength (supporting)	Plank Hold Test	Time in seconds
Ground Fielding Efficiency	Timed Fielding Performance Test (movement+pickup + throw)	Completion time

Training Programme:The experimental group completed an **8-week conditioning program** in addition to routine practice, conducted **3 sessions per week.**

Agility Training Included:

1. Ladder drills
2. Cone change-of-direction drills
3. Shuttle runs

Core Strength Training Included:

1. Planks and side planks
2. Medicine ball rotations
3. Stability exercises

The control group continued routine technical practice only.

Testing Procedure: Pre-test and post-test measurements were taken under similar conditions. After a standardized warm-up, players performed the agility test, plank test, and ground fielding efficiency test. Performance times were recorded for analysis.

Statistical Analysis: The data collected from pre-test and post-test measurements were analyzed using both descriptive and inferential statistics. Mean and standard deviation were calculated to summarize performance in agility, core strength, and ground fielding efficiency. The Shapiro–Wilk test was applied to verify normal distribution of data before conducting parametric analysis. A paired sample *t*-test was used to assess within-group differences between pre-test and post-test scores for both experimental and control groups. An independent sample *t*-test was employed to compare post-test performance between groups. To determine the practical significance of training effects, Cohen’s *d* was calculated as a measure of effect size. Additionally, percentage improvement was computed to show the extent of performance enhancement after the training program. All statistical analyses were conducted

at a 0.05 level of significance.

Results

The study examined the influence of agility and core strength training on ground fielding efficiency in competitive cricket players. Data were analyzed using descriptive statistics and t-tests.

Ground Fielding Efficiency: The experimental group showed a significant improvement in fielding performance time from pre-test to post-test (14.62 ± 1.12 s to 12.88 ± 1.05 s; $t = 5.36, p < 0.05$), with a large effect size (Cohen’s $d = 1.02$). The control group showed only minor, non-significant change.

Agility Performance: Agility time decreased significantly in the experimental group (17.40 ± 0.98 s to 15.92 ± 0.94 s; $t = 4.89, p < 0.05$), indicating faster directional movement. No meaningful change was observed in the control group.

Core Strength: Core strength, measured through plank hold time, improved significantly in the experimental group (92.6 ± 10.4 s to 118.3 ± 12.1 s; $t = 6.02, p < 0.05$). The control group showed minimal improvement.

Summary: Agility and core strength training led to significant improvements in movement efficiency and fielding performance, while routine practice alone did not produce comparable gains.

Discussion: The findings of the study indicate that agility and core strength training significantly improved ground fielding efficiency in competitive cricket players. The reduction in fielding performance time suggests that players were able to move more quickly, maintain better balance, and execute pickups and throws with improved coordination. Agility training likely enhanced change-of-direction speed and movement control, which are essential for intercepting ground balls.

The improvement in core strength, reflected in increased plank hold time, indicates enhanced trunk stability. A stronger core supports better posture and balance during rapid movements and throwing actions, allowing more efficient force transfer from the lower body to the upper body. This stability may have contributed to smoother and faster fielding actions.

The control group’s minimal changes emphasize that routine cricket practice alone may not sufficiently develop physical qualities required for optimal fielding. These findings highlight the importance of structured physical conditioning programs in supporting technical performance in cricket fielding.

Conclusion:

1. Agility and core strength training significantly improved ground fielding efficiency in competitive cricket players.
2. Players in the experimental group demonstrated faster movement, better balance, and improved coordination

during fielding tasks.

3. Agility training enhanced directional speed and control, which are essential for quick interception of ground balls.
4. Core strength development contributed to improved trunk stability and efficient force transfer during throwing actions.
5. Routine cricket practice alone was not sufficient to produce similar improvements.
6. Structured physical conditioning plays a vital role in enhancing fielding performance in cricket.

Recommendations:

1. Cricket coaches should incorporate structured agility drills into regular fielding practice sessions.
2. Core strengthening exercises should be included to improve balance, stability, and throwing efficiency.
3. Training programs should simulate match-like movement patterns to enhance practical fielding performance.
4. Conditioning sessions should be conducted consistently throughout the season for sustained benefits.
5. Similar training models can be applied to other age groups and competitive levels.
6. Future research may include additional variables such as reaction time, anticipation skill, and injury prevention.

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