

Clinical Trial Protocol

Iranian Registry of Clinical Trials

11 Sep 2026

COMPARATIVE EFFECTS OF BALLISTIC SIX PLYOMETRICS VERSUS SHOULDER OPEN KINETIC CHAIN EXERCISES ON UPPER LIMB STRENGTH, HYPERTROPHY AND BOWLING SPEED IN MEDIUM FAST BOWLERS

Protocol summary

Study aim

To compare effects of ballistic six plyometrics versus shoulder open kinetic chain exercises on upper limb strength, hypertrophy and bowling speed in medium fast bowlers

Design

An Interventional double blinded study, Randomized clinical trial

Settings and conduct

Study is being conducted in Pakistan sports Board, Lahore and Other local cricket clubs in Lahore. The evaluators who measure outcome variables are uninformed of which participant's intervention cluster groups. Participants are also blinded in a sense that they are not aware of other cluster group. This double-blinded strategy helps to avoid measurement bias.

Participants/Inclusion and exclusion criteria

Inclusion criteria: Male Young Adults (Age 18-25 years)
Medium fast bowlers having a minimum speed of 120-129 km/h Players actively playing cricket for the last 6 months No history of shoulder pain in the past 12 months
Exclusion Criteria: Any history of orthopedic surgical intervention Bowlers not injury-free in the past 6 months
Current lower back pain (for ≥ 3 months)
Discomfort in abdominal muscle contraction
Current upper limb musculoskeletal injury

Intervention groups

Group A: will be given ballistic six plyometric. This training protocol will include External rotation of shoulder with latex tubing, Latex tubing 90-90 external rotation of shoulder, Overhead soccer throws with a 6-lb medicine ball, 90-90 external rotation side throw by using a 2-lb medicine ball, Deceleration baseball throws by using a 2-lb medicine ball, Baseball throws by using a 2-lb medicine ball. Group B: will be incorporated in conventional shoulder open kinetic chain exercises. This training protocol will include, Sitting shoulder dumbbell

press, Standing front raises, Standing lateral raises, Reverse fly and shoulder shrugs.

Main outcome variables

upper limb strength, muscle bulk(hypertrophy) and bowling speed

General information

Reason for update

Acronym

OKC

IRCT registration information

IRCT registration number: **IRCT20250427065495N1**

Registration date: **2025-05-14, 1404/02/24**

Registration timing: **registered_while_recruiting**

Last update: **2025-05-14, 1404/02/24**

Update count: **0**

Registration date

2025-05-14, 1404/02/24

Registrant information

Name

Muhammad Usman Hammad

Name of organization / entity

Riphah International University, Lahore Pkaistan

Country

Pakistan

Phone

+92 302 4939413

Email address

usmanhammad507@gmail.com

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2024-10-12, 1403/07/21

Expected recruitment end date

2025-06-12, 1404/03/22

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

COMPARATIVE EFFECTS OF BALLISTIC SIX PLYOMETRICS VERSUS SHOULDER OPEN KINETIC CHAIN EXERCISES ON UPPER LIMB STRENGTH, HYPERTROPHY AND BOWLING SPEED IN MEDIUM FAST BOWLERS

Public title

Comparison of effects of Ballistic six plyometrics versus shoulder open kinetic chain exercises on upper limb strength, hypertrophy and bowling speed in medium fast bowlers

Purpose

Supportive

Inclusion/Exclusion criteria

Inclusion criteria:

Male Young Adults (Age 18–25 years), Medium fast bowlers having a minimum speed of 120–129 km/h Players actively playing cricket for the last 6 months No history of shoulder pain in the past 12 months

Exclusion criteria:

Any history of orthopedic surgical intervention Bowlers who were not injury-free in the past 6 months Current lower back pain (for ≥ 3 months) Discomfort in abdominal muscle contraction Current upper limb musculoskeletal injury

Age

From **18 years** old to **25 years** old

Gender

Male

Phase

N/A

Groups that have been masked

- Participant
- Outcome assessor

Sample size

Target sample size: **78**

Randomization (investigator's opinion)

Randomized

Randomization description

Simple random sampling Cluster sampling computer software

Blinding (investigator's opinion)

Double blinded

Blinding description

Blinding in this study involves making sure that the evaluators who measure outcome variables (upper limb strength, muscle bulk and bowling speed) are uninformed of which participants are in which intervention cluster groups. Participants will also be blinded in a sense that they will not be aware of other cluster group. This double-blinded strategy helps to avoid measurement bias.

Placebo

Not used

Assignment

Other

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Research and Ethics Committee, Riphah College of Rehabilitation and Allied Health Sciences, Riphah I

Street address

26-M Gulberg III, Lahore

City

Lahore

Postal code

54000

Approval date

2024-07-30, 1403/05/09

Ethics committee reference number

REC/RCR & AHS/24/0442

Health conditions studied

1

Description of health condition studied

Fast Bowlers Upper Limb Strength and power

ICD-10 code

ICD-10 code description

Primary outcomes

1

Description

Bowling speed

Timepoint

Baseline, 4-weeks post intervention, 8-weeks post intervention

Method of measurement

Bowling Speed is being measured by using Radar Gun

Secondary outcomes

1

Description

Upper Limb Strength

Timepoint

Baseline, 4-weeks post intervention, 8-weeks post intervention

Method of measurement

1-Rep maximum and Medicine Ball throw test

2

Description

Hypertrophy

Timepoint

Baseline, 4-weeks post intervention, 8-weeks post intervention

Method of measurement

Tape Measure

Intervention groups

1

Description

Intervention group: 1 (Ballistic Six Plyometrics)

Category

Other

2

Description

Intervention group: 2 (Shoulder Open Kinetic Chain Exercises)

Category

Other

Recruitment centers

1

Recruitment center

Name of recruitment center

Pakistan Sports Board, Lahore

Full name of responsible person

Muhammad Farhan

Street address

Pakistan Sports Board, Lahore-kasur road, Block E2
Gulberg III Lahore.

City

Lahore

Postal code

54000

Phone

+92 309 6670876

Email

farhangujjar607@gmail.com

2

Recruitment center

Name of recruitment center

New ittefaq Cricket Club, Lahore

Full name of responsible person

Shahzaib Sajjad

Street address

New Ittefaq Cricket Club, Abul Hassan Isfahani Road,
Model town Extension Block N, GOR 4 Model town,
Lahore

City

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Postal code

54000

Phone

+92 300 9425452

Email

drshahzaibsajjad@gmail.com

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Riphah International University, Lahore Pkaistan

Full name of responsible person

Dr Danish

Street address

26-M Gulberg III, Lahore

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Phone

+92 312 4074063

Email

drshahzaibsajjad@gmail.com

Grant name

Grant code / Reference number

Is the source of funding the same sponsor organization/entity?

Yes

Title of funding source

Riphah International University, Lahore Pkaistan

Proportion provided by this source

40

Public or private sector

Private

Domestic or foreign origin

Domestic

Category of foreign source of funding

empty

Country of origin

Type of organization providing the funding

Academic

Person responsible for general inquiries

Contact

Name of organization / entity

Riphah International University, Lahore Pkaistan

Full name of responsible person

Muhammad Usman Hammad

Position

MS-SPT Student

Latest degree

Bachelor

Other areas of specialty/work

Physiotherapy

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Person responsible for updating data

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Sharing plan

Deidentified Individual Participant Data Set (IPD)

Yes - There is a plan to make this available

Study Protocol

Yes - There is a plan to make this available

Statistical Analysis Plan

No - There is not a plan to make this available

Informed Consent Form

Yes - There is a plan to make this available

Clinical Study Report

Yes - There is a plan to make this available

Analytic Code

No - There is not a plan to make this available

Data Dictionary

No - There is not a plan to make this available

Title and more details about the data/document

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SPEED IN MEDIUM FAST BOWLERS IPD Study Protocol
Informed consent Clinical Study report

When the data will become available and for how long

September 2025

To whom data/document is available

Researchers Students Biomechanics experts Clinicians
Performance Enhancement Coaches

Under which criteria data/document could be used

For Performance Enhancement of fast Bowlers

From where data/document is obtainable

Google Scholar Semantic Scholar PubMed SportsDiscus

What processes are involved for a request to access data/document

Composing an Email to Author Provide a brief intro of
why the article is required. Purpose of Access to article
Future goals after getting access to article

Comments