Clinical Trial Protocol
Iranian Registry of Clinical Trials

22 Nov 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
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+92 300 9425452
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drshahzaibsajjad@gmail.com

Sponsors / Funding sources

1

Sponsor
Name of organization / entity
Riphah International University, Lahore Pkaistan
Full name of responsible person
Dr Danish
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26-M Gulberg III, Lahore
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+92 312 4074063
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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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When the data will become available and for how long
September 2025
To whom data/document is available
Researchers Students Biomechanics experts Clinicians Performance Enhamcement 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