

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

10 Jun 2026

### EFFECTS OF RESISTANCE EXERCISES WITH AND WITHOUT PLYOMETRIC TRAINING ON ARM AND LEG DYNAMIC STRENGTH OF AMATEUR BODYBUILDERS.

#### Protocol summary

##### Study aim

This study will be a Randomized Controlled Trial and will be conducted in Citi Fitness Center Gujranwala. Time Duration for completion of this study will be ten months after approval of the synopsis. Random Sampling technique will be used to collect the data. Sample size of 34 athletes will be taken and athletes will be randomly divided into two groups, Experimental Group and Control Group. Experimental group will perform Plyometric Training for upper and lower limb in addition to Resistance Exercises for upper and Lower limbs and Control group will perform only Resistance Exercise program for upper and lower limbs. Data Collection tools for upper limb will be Pull ups, 90 ° Push and Bench Press of 1 Repetition Maximum and for lower limbs will be Vertical Jump Test, Dead Squat of 1 Repetition Maximum and leg Press of 1 Repetition Maximum. Data will be analyzed on SPSS 25.

##### Design

Randomized Clinical Trial, parallel group, double blind.

##### Settings and conduct

Citi Fitness Center, Gujranwala Pakistan.

##### Participants/Inclusion and exclusion criteria

INCLUSION CRITERIA 1. Age 20-40 years Male. 2. Participants involved in Resistance Training Program for at least 6 months 3. Resistance training athletes volunteer to participate in the study. 4. No use of medication which would help improves the performance of the athlete. EXCLUSION CRITERIA 1. Any physical injury, pathology during last 6 months 2. Any surgical history during last 6 months 3. Involved in other sports activity that could affect the performance of the athlete.

##### Intervention groups

Group A: Experimental Group will receive Plyometric Training with Resistance Training. Group B: Control Group will receive only Resistance Training.

##### Main outcome variables

Dynamic Strength of Arms and Legs.

#### General information

##### Reason for update

##### Acronym

##### IRCT registration information

IRCT registration number: **IRCT20220216054033N1**

Registration date: **2022-02-18, 1400/11/29**

Registration timing: **prospective**

Last update: **2022-02-18, 1400/11/29**

Update count: **0**

##### Registration date

2022-02-18, 1400/11/29

##### Registrant information

##### Name

Sufian Ahmed

##### Name of organization / entity

Riphah International University Islamabad Pakistan

##### Country

Pakistan

##### Phone

+92 334 4272734

##### Email address

sufianahmedghuman@gmail.com

##### Recruitment status

**Recruitment complete**

##### Funding source

##### Expected recruitment start date

2022-03-15, 1400/12/24

##### Expected recruitment end date

2023-01-15, 1401/10/25

##### Actual recruitment start date

empty

##### Actual recruitment end date

empty  
**Trial completion date**  
empty  
**Scientific title**  
EFFECTS OF RESISTANCE EXERCISES WITH AND WITHOUT PLYOMETRIC TRAINING ON ARM AND LEG DYNAMIC STRENGTH OF AMATEUR BODYBUILDERS.

**Public title**  
EFFECTS OF RESISTANCE EXERCISES WITH AND WITHOUT PLYOMETRIC TRAINING ON ARM AND LEG DYNAMIC STRENGTH OF AMATEUR BODYBUILDERS.

**Purpose**  
Health service research  
**Inclusion/Exclusion criteria**

**Inclusion criteria:**  
Age 20-40 years Male. Participants involved in Resistance Training Program for at least 6 months. Resistance training athletes volunteer to participate in the study. No use of medication which would help improves the performance of the athlete.

**Exclusion criteria:**  
Any physical injury, pathology during last 6 months. Any surgical history during last 6 months. Involved in other sports activity that could affect the performance of the athlete.

**Age**  
From **20 years** old to **40 years** old

**Gender**  
Male

**Phase**  
N/A

**Groups that have been masked**

- Participant
- Data analyser

**Sample size**  
Target sample size: **34**

**Randomization (investigator's opinion)**  
Randomized

**Randomization description**  
After selecting the subjects using Purposive sampling the included cases will randomly allocated into two groups by simple random sampling using Gold Fish bowl method. Participants will be informed about their registration Number. The participants group will be masked as A & B by the Trainer/Assessor. Pre and post Data will be collected and analyzed by the data analyst. After analysis the Groups will be unmasked.

**Blinding (investigator's opinion)**  
Double blinded

**Blinding description**  
34 Participants will be involved in my study using Purposive Sampling Technique. 2 groups of 17 participants each will be made and will be randomized using systematic sampling. Participants will be blinded by not knowing the outcome of the exercises and about participants of control and experimental group. Care Giver Fitness coach will be blinded by the not knowing on the initial performance of participants and outcome of the exercises.

**Placebo**  
Not used  
**Assignment**  
Parallel  
**Other design features**

## Secondary Ids

empty

## Ethics committees

1  
**Ethics committee**  
**Name of ethics committee**  
Riphah International University  
**Street address**  
Quaid e Azam Industrial Estate Lahore.  
**City**  
Lahore  
**Postal code**  
40050  
**Approval date**  
2022-12-27, 1401/10/06  
**Ethics committee reference number**  
029270

## Health conditions studied

1  
**Description of health condition studied**  
Arm and Leg Dynamic Strength  
**ICD-10 code**  
**ICD-10 code description**

## Primary outcomes

1  
**Description**  
Dynamic Strength  
**Timepoint**  
Before Intervention And 6 weeks After Intervention  
**Method of measurement**  
Pull Ups, Push Ups, Vertical Jump Test, 1 RM Bench Press and Leg Press

## Secondary outcomes

empty

## Intervention groups

1  
**Description**  
Intervention group: Interventional Group will receive Plyometric Training along with Resistance training for upper and lower limbs. Plyometric training for Arms and Legs involve Bounds, Side to Side Ankle Hops, Lateral

Cone Hops, Medicine Ball Chest Pass, Push-ups with one Clap. The resistance training program included seven to 10 exercises that activated all of the main muscle groups. Every training session included two exercises for the leg extensors (leg press and knee extension), one exercise for knee flexors (leg curl) and one to two other exercises for the lower extremities (seated calf raise, hip abduction or adduction). For the upper body, each session included three to four exercises (bench press, biceps curl, triceps pushdown, lateral pull-down), and one to two exercises for the trunk (abdominal crunch, seated back extension). The overall intensity and amount of training increased progressively throughout the 6-week training period.

**Category**

Rehabilitation

**2****Description**

Control group: Control Group will only receive Resistance Training for upper and lower limbs. The resistance training program included seven to 10 exercises that activated all of the main muscle groups. Every training session included two exercises for the leg extensors (leg press and knee extension), one exercise for knee flexors (leg curl) and one to two other exercises for the lower extremities (seated calf raise, hip abduction or adduction). For the upper body, each session included three to four exercises (bench press, biceps curl, triceps pushdown, lateral pull-down), and one to two exercises for the trunk (abdominal crunch, seated back extension).

**Category**

Rehabilitation

**Recruitment centers****1****Recruitment center****Name of recruitment center**

Citi Fitness Center

**Full name of responsible person**

Hafiz Usman

**Street address**

Citi Housing Scheme

**City**

Gujranwala

**Postal code**

52250

**Phone**

+92 300 7491087

**Email**

chughtai.arslan@gmail.com

**Sponsors / Funding sources****1****Sponsor****Name of organization / entity**

Riphah International University

**Full name of responsible person**

Muhammad Hashim

**Street address**

Quaid e Azam Industrial Estate Lahore

**City**

Lahore

**Postal code**

40050

**Phone**

+92 323 4071564

**Email**

muhammad.hashim@riphah.edu.pk

**Grant name****Grant code / Reference number****Is the source of funding the same sponsor organization/entity?**

No

**Title of funding source**

Riphah International University

**Proportion provided by this source**

1

**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**

Shalamar Medical and Dental College

**Full name of responsible person**

Sufian Ahmed

**Position**

Senior Lecturer

**Latest degree**

Master

**Other areas of specialty/work**

Physiotherapy

**Street address**

Shalamar Medical and Dental college

**City**

Gujranwala

**Province**

Punjab

**Postal code**

52250

**Phone**

+92 321 8835085

**Email**

sufianahmedghuman@gmail.com

**Person responsible for scientific inquiries****Contact****Name of organization / entity**

Riphah International University  
**Full name of responsible person**  
Muhammad Hashim

**Position**  
Assistant Professor

**Latest degree**  
Master

**Other areas of specialty/work**  
Physiotherapy

**Street address**  
Quaid e azam industrial estate Lahore

**City**  
Lahore

**Province**  
Punjab

**Postal code**  
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muhammad.hashim@riphah.edu.pk

## Person responsible for updating data

### Contact

**Name of organization / entity**  
Riphah International University

**Full name of responsible person**  
Muhammad Hashim

**Position**  
Assistant Professor

**Latest degree**  
Master

### Other areas of specialty/work

Physiotherapy

### Street address

Quaid e azam industrial Estate Lahore

### City

Lahore

### Province

Punjab

### Postal code

40050

### Phone

+92 323 4071564

### Email

muhammad.hashim@riphah.edu.pk

## Sharing plan

### Deidentified Individual Participant Data Set (IPD)

No - There is not a plan to make this available

### Justification/reason for indecision/not sharing IPD

There is no further information

### Study Protocol

No - There is not a plan to make this available

### Statistical Analysis Plan

No - There is not a plan to make this available

### Informed Consent Form

No - There is not a plan to make this available

### Clinical Study Report

No - There is not 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