Clinical Trial Protocol
Iranian Registry of Clinical Trials

10 Jun 2026

The Effect of 6 Weeks Resistance Training and Combined Resistance Training with Pulsed Electromagnetic Stimulation on bone biomarkers and Balance in Severe Haemophilia A with Osteoporosis

Protocol summary

Summary

This study was aimed to investigate the effects of a short-term resistance training program and pulsed electromagnetic fields) PEMFs(on bone metabolism, balance, joint function, and quality of life in sever hemophilia A with osteoporosis. Forty-three severe haemophilia A with osteoporosis were randomly assigned to resistance training (RT), combined resistance training with PEMFs (RTPEMF), PEMFs, and control groups. The RT and RTPEMF groups performed progressive resistance exercises (50-60% 1RM); in RTPEMF, the lower repetition of exercises was compensated with 30-min exposure to PEMFs. The PEMF group was exposed to 60 min of PEMFs (30 Hz and 40 Gauss).The intervention was performed 3 days weekly for 6 weeks. Bone-specific alkaline phosphatase (BALP), N-terminal telopeptide of type 1 collagen (NTX), joint function, balance, and quality of life were assessed before and after the program. After 6 weeks, joint physical conditions, balance performance and quality of life showed significant improvement in RT and RTPEMF groups. BALP increased significantly in RT and RTPEMF groups. No groups showed significant changes in NTX. The best pain relief occurred in the knee joint of the RT group. Resistance training can increase bone metabolism and improve balance performance, joint physical condition muscle strength, and quality of life in severe haemophilia A with osteoporosis.

General information

Acronym

IRCT registration information

IRCT registration number: **IRCT201010174952N1**
Registration date: **2013-04-24, 1392/02/04**
Registration timing: **retrospective**

Last update:
Update count: **0**

Registration date

2013-04-24, 1392/02/04

Registrant information

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Name of organization / entity
Tarbiat Modares University
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Iran (Islamic Republic of)
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Recruitment status

Recruitment complete

Funding source

Tarbiat Modares university

Expected recruitment start date

2010-10-22, 1389/07/30

Expected recruitment end date

2011-11-21, 1390/08/30

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

The Effect of 6 Weeks Resistance Training and Combined Resistance Training with Pulsed Electromagnetic Stimulation on bone biomarkers and Balance in Severe Haemophilia A with Osteoporosis

Public title

resistance training and electromagnetic fields in

osteoporosis

Purpose
Treatment

Inclusion/Exclusion criteria
Include Criteria: sever hemophilia-A; T score less than 2.5. Exclude Criteria: no history of hepatitis B and C; no HRT in the last 6 months; no acute target joint, no history of inhibitors.

Age
From **18 years** old to **35 years** old

Gender
Male

Phase
N/A

Groups that have been masked
No information

Sample size
Target sample size: **43**

Randomization (investigator's opinion)
Randomized

Randomization description

Blinding (investigator's opinion)
Single blinded

Blinding description

Placebo
Not used

Assignment
Parallel

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee
Tarbiat modares university

Street address
ale-ahmad Ave.

City
tehran

Postal code
1411713116

Approval date
2010-10-08, 1389/07/16

Ethics committee reference number
52/99424

2

Ethics committee

Name of ethics committee
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Street address
ale-ahmad Ave.

City
tehran

Postal code
1411713116

Approval date
2010-08-20, 1389/05/29

Ethics committee reference number
52/99424

Health conditions studied

1

Description of health condition studied
hemophilia with osteoporosis

ICD-10 code
M82.8

ICD-10 code description
Osteoporosis in other diseases classified elsewhere

Primary outcomes

1

Description
NTX

Timepoint
Before and 6 weeks after intervention

Method of measurement
ELISA Kit

2

Description
CTX

Timepoint
Before and 6 weeks after intervention

Method of measurement
ELISA Kit

3

Description
Balance and Strength

Timepoint
Before and 6 weeks after intervention

Method of measurement
physical assesment and observation

4

Description
Quality of Life

Timepoint
Before and 6 weeks after intervention

Method of measurement
Quesstionaire

Secondary outcomes

1

Description
joint range of motion

Timepoint

Before and 6 weeks after intervention

Method of measurement

goniameter

2

Description

joint swelling

Timepoint

Before and 6 weeks after intervention

Method of measurement

physical assesment

Intervention groups

1

Description

6-week trunk, upper and lower limb progressive resistance training; 3 days in week; 50-60% 1repeated maximum; 2 sets of 10-15 repetition

Category

Rehabilitation

2

Description

6-week trunk, upper and lower limb progressive resistance training; 3 days in week; 50-60% 1repeated maximum; 2 sets of 5-10 repetition and 30 min electromagnetic fields with frequency of 30 Hz and intensity of 40 Gauss

Category

Rehabilitation

3

Description

Control

Category

N/A

Recruitment centers

1

Recruitment center

Name of recruitment center

seydalshohada hospital

Full name of responsible person

Street address

City

Esfehan

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

tarbiat modares university

Full name of responsible person

Dr Yaghoob Fathollahi

Street address

Vice-Chancellor for Reaserch Affairs,Tarbiat Modares University,Ale-Ahmad Ave.

City

Tehran

Grant name

Grant code / Reference number

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

Yes

Title of funding source

tarbiat modares university

Proportion provided by this source

100

Public or private sector

empty

Domestic or foreign origin

empty

Category of foreign source of funding

empty

Country of origin

Type of organization providing the funding

empty

Person responsible for general inquiries

Contact

Name of organization / entity

Tarbiat Modares University

Full name of responsible person

Giti Torkaman

Position

Professor(PhD)/ Supervisor

Other areas of specialty/work

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Email
Web page address

Sharing plan

Deidentified Individual Participant Data Set (IPD)
empty
Study Protocol
empty
Statistical Analysis Plan
empty
Informed Consent Form
empty
Clinical Study Report
empty
Analytic Code
empty
Data Dictionary
empty