Clinical Trial Protocol
Iranian Registry of Clinical Trials

28 Jul 2026

Effect of Resistance and Endurance Exercises on Serum Androgens, Cortisol and Lactate Levels in Middle Aged Men

Protocol summary

Summary

Objectives: This research will be accomplished with the aim of determining the effect of resistance and endurance exercises on acute response to androgens (testosterone and dehydroepiandrosterone sulfate), cortisol and effective metabolite in middle aged men. Design: Between middle aged men lived in mashhad, 10 men 50 to 60 years old coinciding with research conditions will be selected voluntarily via available selective method. Setting and conduct: After determining VO2peak and maximum muscular strength sessions, subjects will participate in resistance, endurance and control (resting) sessions in a cross-sectional design. Participants: Inclusion criteria are consisted of complete physical and mental health, the absence of symptoms of androgen deficiency and lack of regular exercise training in the last year. Intervention: All of subjects will accomplish a resistance exercise session, an endurance exercise session and a control (resting) session with an interval of 4 day. In the phases of pre, post and 15 minutes after each session, blood sampling will accomplish. Main outcome measures: Primary outcome variables include testosterone, dehydroepiandrosterone sulfate and cortisol and secondary outcome variable is lactate.Keywords: Androgens, Cortisol, Middle aged men, Resistance exercise, Endurance exercise.

General information

Acronym

IRCT registration information

IRCT registration number: **IRCT2015102424667N1**
Registration date: **2016-11-06, 1395/08/16**
Registration timing: **retrospective**

Last update:
Update count: **0**

Registration date

2016-11-06, 1395/08/16

Registrant information

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Amin Ahmadi
Name of organization / entity
Hakim Sabzevari University
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Recruitment status

Recruitment complete

Funding source

Ferdowsi University of Mashhad

Expected recruitment start date

2010-04-04, 1389/01/15

Expected recruitment end date

2010-06-22, 1389/04/01

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Effect of Resistance and Endurance Exercises on Serum Androgens, Cortisol and Lactate Levels in Middle Aged Men

Public title

Effect of exercise training on hormones

Purpose

Prevention

Inclusion/Exclusion criteria

Inclusion criteria: complete physical and mental health; the absence of symptoms of androgen deficiency; lack of

regular exercise training in the last year Exclusion criteria: not wanting to continue working; the disease; using subjects of steroid supplements; cigarette and drugs

Age
From **50 years** old to **60 years** old

Gender
Male

Phase
N/A

Groups that have been masked
No information

Sample size
Target sample size: **10**

Randomization (investigator's opinion)
N/A

Randomization description

Blinding (investigator's opinion)
Not blinded

Blinding description

Placebo
Not used

Assignment
Crossover

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee
Faculty of Physical Education of Ferdowsi University of Mashhad

Street address
Mashhad - Azadi square - Faculty of Physical Education of Ferdowsi University of Mashhad

City
Mashhad

Postal code

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

Ethics committee reference number
8713293020

Health conditions studied

1

Description of health condition studied
Testicular hypofunction

ICD-10 code
E29.1

ICD-10 code description
Testicular hypofunction

Primary outcomes

1

Description
testosterone

Timepoint
Pre , post & immediately after intervention

Method of measurement
Chemilumenecence method

2

Description
Dehydroepiandrosterone sulfate

Timepoint
Pre , post & immediately after intervention

Method of measurement
Chemilumenecence method

3

Description
Cortisol

Timepoint
Pre , post & immediately after intervention

Method of measurement
Chemilumenecence method

Secondary outcomes

1

Description
Lactate

Timepoint
Pre , post & immediately after intervention

Method of measurement
Enzymatic method

Intervention groups

1

Description
The executive stages of this study consisted 7 sessions that all sessions performed between 7 to 10 am with moral committee confirm of faculty of physical education Ferdowsi university of Mashhad. The resistance exercise protocol included 8 motion: chest press, pull down, leg press, elbow flexion, elbow extension, leg flexion and shoulder press. In this protocol, every motion performed as 3 sets of 10 repetitions with 80% of one repetition maximum and 1 minute rest between sets with isotonic contraction machines. The endurance training protocol was a training session by ergometer bicycle, which was carried out by 60 to 70 percent of peak oxygen uptake. In the rest session, subjects sat without exercise or stress. subjects`s Meals were equivalent to 5 kcal per kilogram of body weight containing 65 percent carbohydrates, 20 percent fat and 15 percent protein and the toast and cream cheese with the standard mark

were used. In the first session, the body mass index was measured and the health, the nutrition condition and the physical activity assessment questionnaires were completed. The second session, was included measuring body fat percentage and body composition by body composition analyzer (Inbody 720) made in South Korea, medical examinations, familiarity with how to research and completing the ethical consent form. In the third session, maximum oxygen consumption was determined with Astrand aerobic fitness test. The fourth session was dedicated to determine the maximum strength of the muscles involved in the selective movements using one repetition maximum method. In the fifth, sixth and seventh sessions, resistance exercise, endurance exercise and rest (control session) was administered with taking time about 45 minutes in each session after spending 2.5 hours of meals.

Category

Lifestyle

Recruitment centers

1

Recruitment center

Name of recruitment center

Jahad Daneshgahi Laboratory of Mashhad

Full name of responsible person

Dr Ali Akbar Shamsian

Street address

Jahad Daneshgahi Laboratory of Mashhad, Razi avenue, Mashhad

City

Mashhad

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Jahad Daneshgahi of Mashhad

Full name of responsible person

Dr Ali Akbar Shamsian

Street address

Jahad Daneshgahi of Mashhad, Campus of Ferdowsi University of Mashhad, Azadi Square, Mashhad

City

Mashhad

Grant name

Grant code / Reference number

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

Yes

Title of funding source

Jahad Daneshgahi of Mashhad

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

Hakim Sabzevari University

Full name of responsible person

Amin Ahmadi

Position

PhD student

Other areas of specialty/work

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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