

# Clinical Trial Protocol

## Iranian Registry of Clinical Trials

21 Jul 2026

### The effect of eight weeks of aquatic exercise on body composition, blood lipids and thyroid hormone levels in pregnant women

#### Protocol summary

##### Study aim

The effect of aquatic exercise on body composition, blood lipids and thyroid hormone levels in pregnant women.

##### Design

The clinical trial with a randomized control group, on 30 patients, was used for randomization using the block of six method.

##### Settings and conduct

The samples were selected from health centers in Isfahan city. The intervention group starts training in water from 20 to 34 weeks of pregnancy. People in the intervention group during pregnancy perform water sports with moderate intensity 3 times a week for 40 minutes in the indoor pool of Isfahan University under the supervision of a trainer and a midwife. The control group will receive usual pregnancy care and no exercise intervention. A researcher-made questionnaire will be used to measure pregnancy outcomes.

##### Participants/Inclusion and exclusion criteria

Inclusion criteria at 20-34 weeks of pregnancy and consent to participate in the study. Exclusion criteria: diseases such as: blood pressure, heart problems, absence of more than 2 sessions in sports programs, lack of satisfaction with participating in the research.

##### Intervention groups

The intervention group starts exercise from 20-34 weeks of pregnancy and they do aquatic exercise in the indoor swimming pool of Isfahan University under the supervision of a trainer and midwife during pregnancy. The control group will receive routine care during pregnancy and will not have exercise intervention.

##### Main outcome variables

Body composition, blood lipids and thyroid hormone levels in pregnant women

#### General information

##### Reason for update

##### Acronym

##### IRCT registration information

IRCT registration number: **IRCT20230819059185N1**

Registration date: **2023-09-24, 1402/07/02**

Registration timing: **prospective**

Last update: **2023-09-24, 1402/07/02**

Update count: **0**

##### Registration date

2023-09-24, 1402/07/02

##### Registrant information

##### Name

Nastaran Motavali

##### Name of organization / entity

The university of Esfahan

##### Country

Iran (Islamic Republic of)

##### Phone

+98 31 4536 4231

##### Email address

motavalinb199@gmail.com

##### Recruitment status

**Recruitment complete**

##### Funding source

##### Expected recruitment start date

2023-10-30, 1402/08/08

##### Expected recruitment end date

2023-11-29, 1402/09/08

##### Actual recruitment start date

empty

##### Actual recruitment end date

empty

##### Trial completion date

empty

##### Scientific title

The effect of eight weeks of aquatic exercise on body composition, blood lipids and thyroid hormone levels in

pregnant women

**Public title**  
The effect of aquatic exercise in water on thyroid hormone

**Purpose**  
Prevention

**Inclusion/Exclusion criteria**  
**Inclusion criteria:**  
20-34 weeks of pregnancy Consent to participate in the study  
**Exclusion criteria:**  
Diseases such as: blood pressure, heart problems, absence of more than 2 sessions in exercise programs Dissatisfaction with participating in the research

**Age**  
From **25 years** old to **45 years** old

**Gender**  
Female

**Phase**  
N/A

**Groups that have been masked**  
*No information*

**Sample size**  
Target sample size: **30**  
More than 1 sample in each individual  
Number of samples in each individual: **15**  
Blood fat levels, body composition and thyroid hormone.

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

**Randomization description**  
The randomization will be in the form of six-block randomization. The current research will be conducted as a clinical trial. Pregnant women will be randomly assigned to the intervention and control groups using blocks of six. The research environment will be Isfahan University.

**Blinding (investigator's opinion)**  
Not blinded

**Blinding description**

**Placebo**  
Not used

**Assignment**  
Parallel

**Other design features**

## Secondary Ids

empty

## Ethics committees

### 1

**Ethics committee**  
**Name of ethics committee**  
Ethical Committee of Isfahan University  
**Street address**  
University of Isfahan, Azadi Square  
**City**  
Esfahan  
**Province**

Isfahan  
**Postal code**  
817467344  
**Approval date**  
2023-08-14, 1402/05/23  
**Ethics committee reference number**  
IR.UI.REC.1402.058

## Health conditions studied

### 1

**Description of health condition studied**  
Thyroid hormone, blood lipid levels, body composition  
**ICD-10 code**  
**ICD-10 code description**

## Primary outcomes

### 1

**Description**  
Body composition  
**Timepoint**  
Before the start of the intervention and 8 weeks after the intervention  
**Method of measurement**  
Body composition analysis device

### 2

**Description**  
Blood lipid levels  
**Timepoint**  
Before the start of the intervention and 8 weeks after the intervention  
**Method of measurement**  
Serum measurement

### 3

**Description**  
Thyroid hormone  
**Timepoint**  
Before the start of the intervention and 8 weeks after the intervention  
**Method of measurement**  
Serum measurement

## Secondary outcomes

empty

## Intervention groups

### 1

**Description**  
The number of people in the intervention group is 15 people. The intervention group starts training from 20 to 34 weeks of pregnancy. People in the intervention group during pregnancy perform water sports for 8 weeks, 3

sessions a week and each session is 40 minutes with moderate intensity in the indoor swimming pool of Isfahan University under the supervision of a trainer and a midwife. The time of each session includes: impact position, warm-up phase (5 minutes), aerobic phase (20 minutes), strength phase (10 minutes) and the last final phase of returning to the relaxation state (5 minutes) in which relaxation techniques and Muscles are stretched.

**Category**

Lifestyle

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

Deputy Health Center, Kamal St

**Full name of responsible person**

Mehdi Kargarfard

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Isfahan Azadi Square, University of Isfahan, Faculty of Sport Sciences

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

Faculty of Sports Sciences and Physical Education, University of Isfahan

**Full name of responsible person**

Isfahan University Research Assistant

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

Yes

**Title of funding source**

Faculty of Sports Sciences and Physical Education, University of Isfahan

**Proportion provided by this source**

100

**Public or private sector**

Public

**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**

The university of Isfahan

**Full name of responsible person**

Mehdi Kargarfard

**Position**

Faculty at University of Isfahan

**Latest degree**

Ph.D.

**Other areas of specialty/work**

Exercise Physiology

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

Esfahan University of Medical Sciences

**Full name of responsible person**

Mehdi Kargarfad

**Position**

Faculty at University

**Latest degree**

Ph.D.

**Other areas of specialty/work**

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**Person responsible for updating data**

**Contact**

**Name of organization / entity**

The university of Esfahan

**Full name of responsible person**

Nastaran Motavali

**Position**

Student

**Latest degree**

Bachelor

**Other areas of specialty/work**

Physiology

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**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**

Not applicable

**Analytic Code**

No - There is not a plan to make this available

**Data Dictionary**

No - There is not a plan to make this available