

# To determine whether Ai-chi exercises (aquatic exercises) can improve balance, functional status and quality of life in patients with Parkinson's disease

<b>Submission date</b> 15/02/2016	<b>Recruitment status</b> No longer recruiting	<input type="checkbox"/> Prospectively registered
<b>Registration date</b> 19/02/2016	<b>Overall study status</b> Completed	<input type="checkbox"/> Protocol
<b>Last Edited</b> 24/01/2019	<b>Condition category</b> Nervous System Diseases	<input type="checkbox"/> Statistical analysis plan
		<input checked="" type="checkbox"/> Results
		<input type="checkbox"/> Individual participant data

## Plain English summary of protocol

### Background and study aims

Parkinson's disease (PD) is a long-term medical condition which is caused by the gradual loss of nerve cells (neurons) in a part of the brain called the substantia nigra. These neurons are normally responsible for producing dopamine, a chemical messenger (neurotransmitter) which carries signals around the brain that help to coordinate movement. In people suffering from PD, these neurons gradually die over time, causing the level of dopamine in the brain to gradually fall. As the levels of dopamine become lower, the brain is unable to coordinate movement as effectively, causing abnormal movements such as stiffness, tremor (uncontrollable shaking) and slowness of movement (bradykinesia). Ai Chi is an exercise program developed in Japan where a person completes low-impact exercises in warm, shallow water. The natural resistance provided by the water helps to strengthen muscles without putting pressure on the bones and joints, which is particularly beneficial for those suffering from problems with movement. The aim of this study is to investigate the effectiveness of Ai-Chi in helping to improve balance and movement in people with PD.

### Who can participate?

Adults with PD who have moderate to severe disability.

### What does the study involve?

Participants are randomly allocated to one of two groups. Participants in the first group complete 25 hour-long exercise sessions over five weeks, involving Ai-Chi exercises (deep breathing combined with broad arm, leg and body movements) in a swimming pool. Participants in the second group complete 25 hour-long exercise sessions over five weeks, involving conventional exercises (on land). For both groups, the sessions consist of a 15 minute warm up, a half hour exercise session (involving Ai-Chi or conventional land-based exercises) and a 15 minute cool down. At the start of the study and then again the day after the final exercise

session after five weeks, participants in both groups complete a number of questionnaires and physical tests in order to find out if there has been any improvement to their balance, mobility and quality of life.

What are the possible benefits and risks of participating?

Participants taking part in the Ai-Chi exercises may benefit from an improvement to their balance and mobility (walking ability) which could improve their overall quality of life. There is a risk of muscle pain after the exercise sessions, however this is only temporary. Those in the land-based exercise group also have a higher risk of injuring themselves during the sessions if they fall than the Ai-Chi group.

Where is the study run from?

Ahi Evran University Medical Faculty Educational and Research Hospital (Turkey)

When is the study starting and how long is it expected to run for?

February 2015 to January 2016

Who is funding the study?

Ahi Evran University Medical Faculty Educational and Research Hospital (Turkey)

Who is the main contact?

Dr Emine Eda Kurt

## Contact information

**Type(s)**

Scientific

**Contact name**

Dr Emine Eda Kurt

**ORCID ID**

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**Contact details**

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## Additional identifiers

**Protocol serial number**

process no: 999506699/13

## Study information

**Scientific Title**

Effects of Ai-Chi on balance and clinical manifestations in patients with Parkinson's disease: A randomised controlled trial

### **Study objectives**

The aim of this study is to investigate the effects of Ai-Chi on balance, functional mobility, motor impairment, and health-related quality of life in patients with Parkinson's disease.

### **Ethics approval required**

Old ethics approval format

### **Ethics approval(s)**

Turgut Özal University Medical Faculty Clinical Trial Ethic Committee, 09/01/2015, ref: 999506699/13

### **Study design**

Single-centre randomised open label controlled

### **Primary study design**

Interventional

### **Study type(s)**

Treatment

### **Health condition(s) or problem(s) studied**

Parkinson's disease

### **Interventions**

Participants are randomised to one of two groups.

Intervention group: Participants attend hour-long sessions, five times a week for five weeks, in which they complete Ai-Chi-exercises. The Ai-Chi exercises are directed by a physiotherapist experienced in neurologic rehabilitation and Ai-Chi, and take place in a swimming pool, in which the water was 1.20 meters deep and 32 C. Each session consists of a warm-up period, a period of Ai-Chi exercises and a cool-down period. 15 minutes of warm-up consists of free extremity movements or activities with different materials such as pool noodles and kickboards. The Ai-Chi program lasts 30 minutes and consists of 16 different movements. Ai-Chi exercises, all performed in shoulder-depth water with knees slightly flexed, use a combination of deep breathing and slow, broad movements of the arms, legs, and torso to work on balance, strength, relaxation, flexibility, and breathing. The 16 movements, or postures, follow the sequence of contemplation, floating, uplifting, folding, shooting, gathering, freeing, transferring, accepting, accepting with grace, rounding, flowing, relaxing, and sustaining. 15 minutes of a cool-down program in the water (free walking and stretching) is performed after the Ai-Chi program.

Control group: Participants attend 25 hour-long sessions, five times a week for five weeks, in which they complete control land-exercises. Each session comprises of warm-up activities, articular mobilization, stretching of the spine and limbs, static and dynamic balance training, gait exercises and a cool-down period.

Participants in both groups are followed up one day after the last (25th) exercise session at five weeks.

## **Intervention Type**

Other

## **Primary outcome(s)**

1. Balance is measured using Biodex-3,1 and Berg Balance Scores at baseline and 5 weeks
2. Mobility is assessed using the Time Up Go Test at baseline and 5 weeks
3. Motor ability and quality of life, assessed using Parkinson's disease Questionnaire-39 and the Unified Parkinson Disease Rating Scale-III (UPDS-III) at baseline and 5 weeks

## **Key secondary outcome(s)**

Not applicable

## **Completion date**

15/01/2016

## **Eligibility**

### **Key inclusion criteria**

1. Ability to follow a stable medication schedule
2. In Parkinson Disease stages 2 to 3 according to the Hoehn and Yahr Scale 1
3. Lack of dementia (Mini-Mental State Examination score  $\geq 24$ )
4. All patients' BMI were between 18 and 30

### **Participant type(s)**

Patient

### **Healthy volunteers allowed**

No

### **Age group**

Senior

### **Sex**

All

### **Key exclusion criteria**

1. Having participated in physical therapy in the previous six months
2. Fear of water
3. Allergy to chlorine
4. Inability to walk independently
5. Having undergone surgical treatment for Parkinson's Disease
6. History or evidence of neurological deficit other than Parkinson's Disease (stroke, neuromuskuler disease, etc.)
7. Uncontrolled hypertension
8. Diabetes
9. incontinence
10. Open wounds
11. Osteoarthritis
12. Osteoporosis at a level that impairs walking and balance

**Date of first enrolment**

15/02/2015

**Date of final enrolment**

15/01/2016

## Locations

**Countries of recruitment**

Türkiye

**Study participating centre**

**Ahi Evran University Medical Faculty Educational and Research Hospital**

Physical Therapy and Rehabilitation Clinic

Ankara

Türkiye

40200

## Sponsor information

**Organisation**

Ahi Evran University Medical Faculty Educational and Research Hospital

**ROR**

<https://ror.org/05rrfpt58>

## Funder(s)

**Funder type**

Hospital/treatment centre

**Funder Name**

Ahi Evran University Medical Faculty Educational and Research Hospital

## Results and Publications

**Individual participant data (IPD) sharing plan****IPD sharing plan summary**

Other

**Study outputs**

Output type	Details	Date created	Date added	Peer reviewed?	Patient-facing?
<a href="#">Results article</a>	results	01/04/2018	24/01/2019	Yes	No