

Clinical Trial Protocol

Iranian Registry of Clinical Trials

02 Jul 2026

Effects of auditory binaural temporal resolution training on Franssen illusion and sound localization: interventional quasi experimental study

Protocol summary

Study aim

Effects of auditory binaural temporal resolution training on Franssen illusion and sound localization: interventional quasi experimental study

Design

Before and after Clinical trial, Elderly, 16 participants

Settings and conduct

Present study includes two sub-studies. first, binaural temporal resolution rehabilitation is performed and its effect on ability of binaural temporal resolution is analyzed statistically. second, effect of changes on Franssen illusion and sound localization is studied. The present study will be conducted in the audiology clinic of Iran's Faculty of Rehabilitation. rehabilitation sessions are held 2 times a week, 45minutes each time and for 10 to 12 sessions for each person. 1500 Hz tone burst with a duration of 250 milliseconds and a rise and fall time of 20 milliseconds will be used. Sounds with different ITD are presented through headphones and the person has to respond by indicating the place of perception of the sound source. Stimuli will be presented binaurally with a time difference of 700, 300, 100, 0, -100, -300 and -700 microseconds between the two ears at an intensity of 50 dB SL. Each ITD is practiced many times with the participants.

Participants/Inclusion and exclusion criteria

Age range of 60 to 75 years. Normal hearing thresholds (less than 20 dB HL) in 250 - 2000 Hz. No history of ear, balance, neurological diseases, head trauma, and psychotropic drugs and Alcohol consumption. Cognitive health (scoring between 21 to 30) based on MMSE questionnaire. Written and verbal consent to enter research. Temporal resolution threshold above 8 ms in gap in noise test.

Intervention groups

Binaural temporal resolution with ITDs 700, 300, 100, 0, -100, -300 and -700 microseconds, in elderly with normal hearing below 2kHz, are performed. Each ITD is practiced many times with participants

Main outcome variables

Binaural temporal resolution ability, Franssen illusion score

General information

Reason for update

Acronym

IRCT registration information

IRCT registration number: **IRCT20220717055483N1**

Registration date: **2022-10-08, 1401/07/16**

Registration timing: **registered_while_recruiting**

Last update: **2022-10-08, 1401/07/16**

Update count: **0**

Registration date

2022-10-08, 1401/07/16

Registrant information

Name

Mehri Maleki

Name of organization / entity

Country

Iran (Islamic Republic of)

Phone

+98 41 3740 1626

Email address

mehri.maleki.a@gmail.com

Recruitment status

Recruitment complete

Funding source

Expected recruitment start date

2022-08-05, 1401/05/14

Expected recruitment end date

2022-10-21, 1401/07/29

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date
empty

Scientific title
Effects of auditory binaural temporal resolution training on Franssen illusion and sound localization: interventional quasi experimental study

Public title
Effects of auditory binaural temporal resolution training on sound localization

Purpose
Basic science

Inclusion/Exclusion criteria
Inclusion criteria:
Age range: 60 to 75 years old No history of ear, balance, neurological diseases, , head trauma, psychotropic drugs and Alcohol consumption Having perfect cognitive health (score between 21 to 30) based on MMSE questionnaire
Written and verbal consent to enter research
Exclusion criteria:
Obtaining temporal resolution threshold below 8 ms in gap in noise test hearing thresholds more than 20 dB HL in 250 to 2000 Hz

Age
From **60 years** old to **75 years** old

Gender
Both

Phase
N/A

Groups that have been masked
No information

Sample size
Target sample size: **16**

Randomization (investigator's opinion)
N/A

Randomization description

Blinding (investigator's opinion)
Not blinded

Blinding description

Placebo
Not used

Assignment
Single

Other design features

Secondary Ids

empty

Ethics committees

1

Ethics committee

Name of ethics committee

Ethics committee of Iran University of Medical Sciences

Street address

Faculty of Rehabilitation Sciences, Madadkaran Alley, Shah Nazari St, Mader Square, Mirdamad

City

Tehran

Province

Tehran

Postal code

۱۳۴۸۷ ۱۵۴۵۹

Approval date

2022-02-20, 1400/12/01

Ethics committee reference number

IR.IUMS.REC.1400.1099

Health conditions studied

1

Description of health condition studied

Binaural temporal resolution, Auditory spatial illusions

ICD-10 code

ICD-10 code description

Primary outcomes

1

Description

Binaural temporal resolution

Timepoint

Before and after the end of the intervention

Method of measurement

Behavioral test to investigate Binaural temporal resolution

Secondary outcomes

1

Description

Franssen illusion score

Timepoint

Before and after the intervention

Method of measurement

Behavioral tests

Intervention groups

1

Description

Localization rehabilitation sessions are held 2 times a week, 45minutes each time and 10 to 12 sessions for each person.1500 Hz tone burst with a duration of 250 milliseconds and a rise and fall time of 20 milliseconds will be used. Sounds with different ITD are presented through headphones and the person has to respond by indicating the place of perception of the sound source. Stimuli will be presented binaurally with a time difference of 700, 300, 100, 0, -100, -300 and -700 microseconds between the two ears at an intensity of 50 dBSL. Each ITD is practiced many times with the participants so that it can be well identified and the participants has to indicate the location of the sound

source
Category
Rehabilitation

Recruitment centers

1

Recruitment center

Name of recruitment center

Students of the Rehabilitation Faculty, Care Center for the Elderly, Region 3, Tehran

Full name of responsible person

Mehri Maleki

Street address

Faculty of Rehabilitation Sciences, Shah Nazari Street, Madderan Street, Mader Square, Mirdamad, Tehran

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+98 21 2222 2059

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mehri.maleki.a@gmail.com

Sponsors / Funding sources

1

Sponsor

Name of organization / entity

Iran University of Medical Sciences

Full name of responsible person

Mohsen Ahadi

Street address

Faculty of Rehabilitation Sciences, Shah Nazari Street, Madderan Street, Mader Square, Mirdamad, Tehran

City

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Phone

+98 21 2222 7124

Email

mohsenahadi@gmail.com

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

Yes

Title of funding source

Iran University of Medical Sciences

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

Iran University of Medical Sciences

Full name of responsible person

Mohsen Ahadi

Position

Associate professor

Latest degree

Ph.D.

Other areas of specialty/work

Audiology

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Person responsible for scientific inquiries

Contact

Name of organization / entity

Iran University of Medical Sciences

Full name of responsible person

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Person responsible for updating data

Contact

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Phone

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Email

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Sharing plan

Deidentified Individual Participant Data Set (IPD)

Yes - There is a plan to make this available

Study Protocol

Undecided - It is not yet known if there will be a plan to make this available

Statistical Analysis Plan

Undecided - It is not yet known if there will be a plan to make this available

Informed Consent Form

Undecided - It is not yet known if there will be a plan to make this available

Clinical Study Report

Undecided - It is not yet known if there will be a plan to make this available

Analytic Code

Undecided - It is not yet known if there will be a plan to make this available

Data Dictionary

Undecided - It is not yet known if there will be a plan to make this available

Title and more details about the data/document

The data related to the behavioral evaluations of the participants before and after the intervention will be published

When the data will become available and for how long

Access starts from 1402

To whom data/document is available

Everyone can access the study data

Under which criteria data/document could be used

People should contact the responsible person's email to receive documents

From where data/document is obtainable

Faculty of Rehabilitation Sciences, Shah Nazari Street,
Madderan Street, Mader Square, Mirdamad, Tehran
mohsenahadi@gmail.com

What processes are involved for a request to access data/document

People should contact the responsible person's email to receive documents

Comments