

Clinical Trial Protocol

Iranian Registry of Clinical Trials

10 Jun 2026

Comparison between the effect of temporal resolution-based and spectral resolution-based auditory rehabilitation on speech perception performance in children with cochlear implant

Protocol summary

Summary

The aim of the present study is to determine the correlation between temporal resolution, spectral resolution and speech perception in children cochlear implant users and, also is to compare between the effect of temporal resolution-based and spectral resolution-based auditory rehabilitation on speech perception performance in children with cochlear implant. The inclusion criteria are 8-12 years old children with pre-lingual hearing loss and unilateral cochlear implant who completed traditional rehabilitation and obtained word recognition score less than 60 percent and they have no disabilities other than hearing loss. The exclusion criterion is Child's unwillingness to cooperation in each stage of the study. The studied population is 8-12 years old children who implanted in Shiraz Cochlear Implant Center. The sample size is 34 (17 children in each group) based on the previous studies and the formula. One group receives temporal resolution-based auditory rehabilitation and the other group receives spectral resolution-based auditory rehabilitation for 6 weeks, 3 days a week. The speech perception scores are compared between two groups at the end of 6 weeks. The evaluations are repeated one month after completion of rehabilitation for the investigation of the reliability of training results. The primary intervention outcome is speech perception (word recognition and sentence recognition) improvement in children.

General information

Acronym

IRCT registration information

IRCT registration number: **IRCT2017021932656N1**
Registration date: **2017-02-28, 1395/12/10**
Registration timing: **registered_while_recruiting**

Last update:

Update count: **0**

Registration date

2017-02-28, 1395/12/10

Registrant information

Name

Zahra Jeddi

Name of organization / entity

University of Social Welfare and Rehabilitation Sciences

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Recruitment status

Recruitment complete

Funding source

University of Social Welfare and Rehabilitation Sciences

Expected recruitment start date

2017-02-28, 1395/12/10

Expected recruitment end date

2017-11-21, 1396/08/30

Actual recruitment start date

empty

Actual recruitment end date

empty

Trial completion date

empty

Scientific title

Comparison between the effect of temporal resolution-based and spectral resolution-based auditory rehabilitation on speech perception performance in children with cochlear implant

Public title

The effect of temporal and spectral resolution rehabilitation on speech perception performance in children with cochlear implant

Purpose

Treatment

Inclusion/Exclusion criteria

Inclusion criteria: The age range of 8 to 12 years-old; Pre-lingual hearing loss; Normal IQ (85 and above) in corrected Persian version of Wechsler intelligence quotient test for children; Unilateral cochlear implantation; Completion of traditional rehabilitation; Phonetically balanced monosyllabic word recognition score in quiet less than 60 percent; No behavioral and developmental disorders background (based on psychologist's diagnosis); No auditory neuropathy (based on the classic signs of no ABR and the presence of OAE).
Exclusion criteria: Child's or parent's unwillingness to cooperation in each stage of the study; No full completion of traditional training sessions.

Age

From **8 years** old to **12 years** old

Gender

Both

Phase

N/A

Groups that have been masked

No information

Sample size

Target sample size: **34**

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**

University of Social Welfare and Rehabilitation Sciences

Street address

Kodakyar Ave., Daneshjo Blvd., Evin

City

Tehran

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1985713834

Approval date

2016-10-03, 1395/07/12

Ethics committee reference number

IR.USWR.REC.1395.191

Health conditions studied**1****Description of health condition studied**

bilateral sensorineural hearing loss

ICD-10 code

H90.3

ICD-10 code description

Sensorineural hearing loss, bilateral

Primary outcomes**1****Description**

word recognition score

Timepoint

pre-intervention, immediately post-intervention, one month after completion of intervention

Method of measurement

the percent of words correctly repeated by using Two lists of 35 phonetically balanced monosyllabic words

2**Description**

sentence recognition score

Timepoint

pre-intervention, immediately post-intervention, one month after completion of intervention

Method of measurement

the percent of key words correctly repeated by using 8 list pairs of 10 sentences

Secondary outcomes**1****Description**

frequency discrimination threshold

Timepoint

pre-intervention, immediately post-intervention, one month after completion of intervention

Method of measurement

Angle Sound software, Hertz

2**Description**

spectral ripple discrimination threshold

Timepoint

pre-intervention, immediately post-intervention, one month after completion of intervention

Method of measurement

SMRT software, ripple/octave

3

Description

amplitude modulation detection threshold

Timepoint

pre-intervention, immediately post-intervention, one month after completion of intervention

Method of measurement

Angle Sound software, dB

4

Description

gap detection threshold

Timepoint

pre-intervention, immediately post-intervention, one month after completion of intervention

Method of measurement

Angle Sound software, ms

Intervention groups

1

Description

experimental group 1: temporal resolution-based auditory rehabilitation by amplitude modulation detection tasks for 6 weeks, 3 days a week.

Category

Other

2

Description

experimental group 2: spectral resolution-based auditory rehabilitation by spectral ripple discrimination tasks for 6 weeks, 3 days a week.

Category

Other

Recruitment centers

1

Recruitment center**Name of recruitment center**

Shiraz Cochlear Implant Center

Full name of responsible person

Zahra Jeddi

Street address

Khalili Hospital, Khalil Ave., Shiraz

City

Shiraz

Sponsors / Funding sources

1

Sponsor**Name of organization / entity**

University of Social Welfare and Rehabilitation Sciences

Full name of responsible person

Dr. Hamid Reza Khankeh

Street address

Kodakyar Ave., Daneshjo Blvd., Evin

City

Tehran

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

Yes

Title of funding source

University of Social Welfare and Rehabilitation Sciences

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**

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Full name of responsible person

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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