

# 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

###### Country

Iran (Islamic Republic of)

###### Phone

+98 21 2218 0083

###### Email address

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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

**Postal code**

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**

University of Social Welfare and Rehabilitation Sciences

**Full name of responsible person**

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**Position**

PhD student

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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*