ISRCTN12917785 https://doi.org/10.1186/ISRCTN12917785

# What is the effect of listening to music on the maximum handgrip strength of older people?

**Submission date**
31/07/2018

**Recruitment status**
No longer recruiting

**Registration date**
03/08/2018

**Overall study status**
Completed

**Last Edited**
05/08/2021

**Condition category**
Musculoskeletal Diseases

[ ] Prospectively registered
[ ] Protocol
[ ] Statistical analysis plan
[X] Results
[ ] Individual participant data

## Plain English summary of protocol

Background and study aims
One in three older people living at home fall at least once a year. One of the causes of falls is peripheral muscle dysfunction (muscle weakness), which increases in prevalence by age. In geriatric practice, frailty and muscle power are often estimated by measuring handgrip strength, which gives a good estimation of peripheral muscle function. Improving muscle function and grip strength in older people is difficult, which means new therapeutic strategies need to be developed. Some studies have investigated the effect of music on different aspects of movement and cognition, with promising results. This led to the idea that music could possibly have a beneficial effect on movement and peripheral muscle strength in older people.
This study aims to look at whether different types of music can influence peripheral muscle strength in older people.

Who can participate?
Healthy people aged 65 and older

What does the study involve?
Participants will be asked to listen to different types of music (their favourite and least favourite types) and no music whilst testing their handgrip strength.

What are the possible benefits and risks of participating?
There are no known benefits or risks to participants taking part in this study.

Where is the study run from?
Radboud UMC Nijmegen (The Netherlands)

When is the study starting and how long is it expected to run for?
April 2018

Who is funding the study?
Radboud UMC Nijmegen (The Netherlands)

Who is the main contact?
Prof Dr MGM Olde Rikkert
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# Contact information

### Type(s)
Public

### Contact name
Prof Marcel Olde Rikkert

### Contact details
Geert Grooteplein Zuid 10
Nijmegen
Netherlands
6525 GA

# Additional identifiers

### Protocol serial number
2018-4134

# Study information

### Scientific Title
What is the effect of listening to different types of music on the maximum handgrip strength of older people?

### Study objectives
We expect that handgrip strength in older people will improve while listening to their favorite music compared to their least favorite music or no music at all.

### Ethics approval required
Old ethics approval format

### Ethics approval(s)
Committee on Research involving Human Subjects Region Arnhem-Nijmegen, 12/03/2018, 2018-4134

### Primary study design
Interventional

### Study design
Interventional single-center randomised crossover trial

### Study type(s)
Treatment

### Health condition(s) or problem(s) studied
Reduced peripheral muscle strength

### Interventions
Participants will be asked to choose their own music types and listen to the music using headphones, whilst testing their handgrip strength - their favourite music versus their least favourite music versus no music. Participants will be randomised evenly into 1 of the 6 different set ups of the study (the 6 possible orders of the music) and rotate through them as a counterbalance to prevent the effect of tiredness and the carryover effect of the different types of music:
1. No music, followed by favourite music, followed by least favourite music
2. No music, followed by least favourite music, followed by favourite music
3. Favourite music, followed by no music, followed by least favourite music
4. Favourite music, followed by least favourite music, followed by no music
5. Least favourite music, followed by no music, followed by favourite music
6. Least favourite music, followed by favourite music, followed by no music

For each different music category (favourite, least favourite, none), participants will perform the same handgrip strength test.
The study will last for a period of 1 month.

### Intervention Type
Behavioural

### Primary outcome(s)
Maximum handgrip strength, measured in the dominant hand while listening to the different types of music, using a handheld dynamometer. Maximum handgrip strength is measured 3 times for each type of music, at random timepoints in the song. Between each measurement the participant will have at least a 30 second resting period

### Key secondary outcome(s)
As a secondary outcome measure, the correlation of handgrip strength with different patient characteristics (i.e. age, gender, cognitive function disorders, functional problems of the dominant arm, etc) will be analyzed. Data on these patient characteristics come from a questionnaire based on the TOPICS-questionnaire, which participants fill in before the measurements start.

Correlation of handgrip strength with different patient characteristics (i.e. age, gender, cognitive function disorders, functional problems of the dominant arm), assessed using a questionnaire based on the TOPICS questionnaire at the baseline

### Completion date
30/07/2018

## Eligibility

### Key inclusion criteria
Aged 65 years or older

### Participant type(s)
Healthy volunteer

**Healthy volunteers allowed**
No

**Age group**
Senior

**Sex**
All

**Total final enrolment**
153

**Key exclusion criteria**
N/A

**Date of first enrolment**
06/04/2018

**Date of final enrolment**
30/04/2018

# Locations

**Countries of recruitment**
Netherlands

**Study participating centre**
**Radboud UMC Nijmegen**
Geert Grooteplein Zuid 10
Nijmegen
Netherlands
6525 GA

# Sponsor information

**Organisation**
Radboud UMC, department of geriatrics

**ROR**
https://ror.org/05wg1m734

# Funder(s)

### Funder type
Not defined

### Funder Name
Investigator initiated and funded

# Results and Publications

### Individual participant data (IPD) sharing plan
The datasets generated during and/or analysed during the current study are/will be available upon request from Prof. M. Olde Rikkert (marcel.olderikkert@radboudumc.nl). Data will be available for the purpose of screening for publication by involved reviewers. The data available will be patient characteristics and measurements of handgrip strength. Data are anonymised and consent from participants was obtained for confidentially sharing patient characteristics and study results anonymously with persons other than the research team.

### IPD sharing plan summary
Available on request

### Study outputs

| Output type | Details | Date created | Date added | Peer reviewed? | Patient-facing? |
|---|---|---|---|---|---|
| Results article | | 27/06/2019 | 05/08/2021 | Yes | No |